National Imaging Associates, Inc.*	
Clinical guidelines: **SHOULDER ARTHROSCOPY**	**Original Date: August 2016**
CPT Codes:** - **Shoulder Rotator Cuff Repair: 23410, 23412, 23420, 29827** - **Shoulder Labral Repair: 23450, 23455, 23460, 23462, 23465, 23466, 29806, 29807** - **Frozen Shoulder Repair/Adhesive Capsulitis: 29825, 23700** - **Shoulder Surgery Other: 23120, 23125, 23130, 23405, 23415, 23430, 23700, 29805, 29819, 29820, 29821, 29822, 29823, 29824, 29825, +29826, 29828** ***See UM Matrix for allowable billed groupings and additional covered codes*	**Last Revised Date: ~~November 2020~~May 2022**
Guideline Number: NIA_CG_318	**Implementation Date: January 2023~~2~~**

General Requirements for Elective Surgery of the Shoulder

Elective surgery of the shoulder may be considered if the following general criteria are met:

- There is clinical correlation of individual~~patient~~'s subjective complaints with objective exam findings and/or imaging (when applicable)
- Individual~~Patient~~ has limited function (age-appropriate activities of daily living (ADLs), occupational, athletic)
- Individual~~Patient~~ is medically stable and optimized for surgery with no uncontrolled comorbidities (such as diabetes)
- Individual~~Patient~~ does not have an active local or systemic infection
- Individual~~Patient~~ does not have active, untreated drug dependency (including but not limited to narcotics, opioids, muscle relaxants) unless engaged in a treatment program
- A smoking cessation program is highly recommended and should be instituted pre-operatively for all actively smoking patients[1,2] ~~(Bishop, 2015; Santiago-Torres, 2015)~~

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Clinical notes should address:

- Symptom onset, duration, and severity
- Loss of function and/or limitations
- Type and duration of non-operative management modalities (where applicable)

Non-operative management, when required, will be specified within the clinical indications below and may include one or more of the following:

- Physical therapy or properly instructed home exercise program
- Rest or activity modification
- Application of heat or ice
- Minimum of 4 weeks of oral NSAIDs (if not medically contraindicated)
- Single injection of corticosteroid and local anesthetic into subacromial or intra-articular space, or bicipital groove

INDICATIONS

DIAGNOSTIC SHOULDER ARTHROSCOPY

Diagnostic arthroscopy is considered medically necessary:

For the evaluation of ~~a~~ pain~~ful~~~~shoulder~~ prior to total shoulder arthroplasty[3-6]

OR

W~~w~~hen **All** of the following criteria have been met:

- Severe, disabling pain and/or a documented loss of shoulder function which interferes with the ability to carry out age-appropriate activities of daily living and/or demands of employment
- Individual demonstrates **any** of the following abnormal, shoulder physical examination findings, as compared to the non-involved side:
  - Functionally limited range of motion (active or passive)
  - Measurable loss in strength
  - Positive impingement signs
- Failure of non-surgical management for at least ~~three~~ 12 weeks~~(3) months~~ duration to include **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Use of a sling/immobilizer/brace

- Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
- Physical therapy modalities
- Supervised home exercise
- ~~Corticosteroid injection~~

- Individual has undergone an appropriate radiographic work-up that includes routine xX-rays and an MRI evaluation which are determined to be inconclusive for internal derangement/pathology
- Other potential diagnostic conditions have been excluded, including, but not limited to, fracture, tThoracic oOutlet sSyndrome, bBrachial pPlexus disorders, referred neck pain and arthritis

NOTE: The following is not managed by Magellan:

- In-office diagnostic arthroscopy (e.g., Mi-Eye, VisionScope)[7] ~~(Zhang 2019)~~

ROTATOR CUFF REPAIR (RCR)

Surgical treatment of a rotator cuff tear (RCT) should only be performed when there is a clinical correlation of ~~patient~~ symptoms, clinical exam findings, imaging, and failed non-operative management (where required).[8-10] ~~(Harris, 2012; Okoroha, 2017).~~

NOTE: ~~ote –~~ S~~s~~ee section on subscapularis tears

Partial-Thickness Rotator Cuff Tear or Calcific Tendinitis*

Surgical repair of **a pP~~P~~artially tT~~T~~orn rR~~R~~otator cC~~C~~uff** may be necessary when **ALL** of the following criteria are met:

- Reproducible rotator cuff pain patterns (lateral arm, deltoid pain rarely radiating past the elbow, night pain, or pain with overhead motions)
- Positive impingement signs and/or tests on exam (Hawkins, Neer, Jobe test or reproducible pain when arm is positioned overhead (above plane of shoulder) with relief of pain when arm is repositioned below the plane of the shoulder)[11] ~~(Hedegus, 2012)~~
- Functional loss (age-appropriate activities of daily living (ADL~~s~~), occupational, athletic)
- MRI or uU~~u~~ltrasound[12,13] ~~(Apostolopoulos, 2019; Kruse 2019)~~ that demonstrates a partial thickness tear (articular-sided, concealed, or bursal-sided) or evidence of calcific tendinitis**
- Failure of at least 12 weeks of non-operative treatment, including **at least two ~~three~~** of the following criteria[14-17] ~~(Pedowitz, 2011)~~:

- Physical therapy or properly instructed home exercise program
- Rest or activity modification
- Minimum of 4 weeks of oral NSAIDs (if not medically contraindicated)

- No cortisone injection within 12 weeks prior to surgery.[18-26]
  -
  - ~~Single injection of corticosteroid and local anesthetic into subacromial or intra-articular space~~

~~*For surgical excision of calcific tendinopathy, at least one prior cortisone injection is required~~

- ~~No cortisone injection within 12 weeks prior to surgery[18-26].~~

NOTE: The following is not managed by Magellan:

- US-guided percutaneous debridement or tenotomy (e.g., Tenex, TenJet)

Small (< 1 cm), Full-Thickness Rotator Cuff Tear

Surgical repair of a **small full-thickness rotator cuff tear** may be necessary when **ALL** of the following criteria are met:

- Reproducible rotator cuff pain patterns (lateral arm, deltoid pain not radiating past the elbow, night pain, or pain with overhead motions)
- Positive impingement signs and/or tests on exam (Hawkins, Neer, Jobe test or reproducible pain when arm is positioned overhead (above plane of shoulder) with relief of pain when arm is repositioned below the plane of the shoulder)
- Functional loss (age-appropriate activities of daily living (ADLs), occupational, athletic)
- Rotator cuff weakness or severe pain with rotator cuff testing on physical exam
- MRI or Ultrasound[12,13] ~~(Apostolopoulos, 2019; Kruse, 2019)~~ that demonstrates a small, full thickness tear (< 1 cm)
- Failure of at least 6 weeks of non-operative treatment*, including physical therapy or a properly instructed home exercise program (that includes exercises for scapular dyskinesis when present) **AND** ~~at least **ONE**~~one of the following:
  - Rest or activity modification
  - Minimum of 4 weeks of oral NSAIDs (if not medically contraindicated)
- No cortisone injection within 12 weeks prior to surgery.[18-26]

  ~~Single injection of corticosteroid and local anesthetic into subacromial or intra-articular space~~

~~No cortisone injection within 12 weeks prior to surgery.~~

*__NOTE__: The requirement for conservative, non-operative treatment is waived in individuals~~a patient~~ less than age 55 with an acute traumatic tear (onset of shoulder pain attributed to a specific traumatic event with no prior history of significant shoulder pain). For ages > 55, non-operative treatment may be waived on a case-by-case basis.

~~Surgical Management Moderate evidence supports that healed rotator cuff repairs show improved patient-reported and functional outcomes compared with physical therapy and unhealed rotator cuff repairs[27] (Weber, 2019)~~

Medium (1-3 cm) or Large (3-5 cm), Full-Thickness Rotator Cuff Tear

Surgical repair of a **medium or large full-thickness rotator cuff tear** may be necessary when the following criteria are met:

- Significant progression of a full-thickness tear on serial imaging performed at least 12 weeks~~3 months~~ apart (at least 50% increase in tear size)

  OR

- When **ALL** of the following criteria are met:
  - Reproducible rotator cuff pain patterns (lateral arm, deltoid pain rarely not radiating past the elbow, night pain, or pain with overhead motions)
  - Positive impingement signs and/or tests on exam (Hawkins, Neer, Jobe, empty can or drop-arm test or reproducible pain when arm is positioned overhead (above plane of shoulder) with relief of pain when arm is repositioned below the plane of the shoulder
  - Rotator cuff weakness or severe pain with rotator cuff testing on physical exam
  - Functional loss (age-appropriate activities of daily living (ADLs), occupational or athletic)
  - MRI or u~~U~~ltrasound[12,13] ~~(Apostolopoulos, 2019; Kruse, 2019)~~ results support a medium (1-3 cm) or large (3-5 cm), full-thickness tear (tear must be a complete single tendon or greater)
  - No cortisone injection within 12 weeks prior to surgery.[18-26]
  -

Massive (> 5 cm and ≥ 2 tendons involved), Full-Thickness Rotator Cuff Tear

Surgical repair of **a massive torn rotator cuff *WITH OR WITHOUT*** a s~~S~~uperior c~~C~~apsular r~~R~~econstruction may be necessary when **ALL** of the following criteria are met[27-30] ~~(Denard, 2018; Henry, 2015; Shon, 2015; Weber, 2019)~~:

- MRI or u~~U~~ltrasound[12,13] ~~(Apostolopoulos, 2019; Kruse, 2019)~~ demonstrates massive (> 5 cm), full-thickness tears (with intact or reparable subscapularis tendon for superior capsular reconstruction)
- MRI demonstrates no advanced fatty changes (Goutallier stage 0 (normal muscle), 1 (some fatty streaks), or 2 (less than 50% fatty degeneration or infiltration)[31-33] ~~(Chung, 2013; Khair, 2016; Somerson, 2016)~~
- Warner classification of atrophy "none" or "mild"[34,35] ~~(Naimark, 2019; Warner, 2001)~~
- No x-ray evidence of chronic subacromial articulation of the humeral head, defined as an acromiohumeral space less than 5 mm (Hamada grade 2)[29,36,37] ~~(Brolin, 2017; Denard, 2018; Hamada, 2011).~~
- No advanced or severe arthritis (severe narrowing of glenohumeral space or bone-on-bone articulation, large osteophytes, subchondral sclerosis, or cysts, etc.)

- No cortisone injection within 12 weeks prior to surgery.[18-26]

NOTE: AAOS consensus guidelines state that partial repair and superior capsular reconstruction, can improve patient reported outcomes.[27]

Subscapularis Tears

Surgical repair of a subscapularis rotator cuff tear may be necessary when the following criteria are met:[38-45]

- History of an acute injury or chronic complaints of anterior shoulder pain, weakness, or functional impairment
- Positive physical examination findings of subscapularis deficiency – lift-off, bear-hug, belly press test, etc.
- MRI demonstrates a significant partial thickness tear (at least 50% of tendon), full-thickness tear, or any tear associated with subluxation of the biceps tendon.
- No cortisone injection within 12 weeks prior to surgery.[18-26]

~~**NOTE**: AAOS consensus guidelines state that partial repair and superior capsular reconstruction, can improve patient reported outcomes (Weber, 2019).[27]~~

AN ISOLATED SUPERIOR CAPSULAR RECONSTRUCTION MAY BE NECESSARY WHEN ALL OF THE FOLLOWING CRITERIA ARE MET[46-53]:
~~(Burkart, 2020; Frank, 2018; Galvin, 2019; Hartzler, 2016; Mihata, 2019; Ohta, 2020; Smith, 2021; Tokish, 2020)~~

- MRI or uUltrasound[12,13] ~~(Apostolopoulos, 2019; Kruse, 2019)~~ demonstrates massive (> 5 cm), full-thickness tears with an intact or reparable subscapularis tendon.
- No x-ray evidence of chronic subacromial articulation of the humeral head, defined as an acromiohumeral space less than 5 mm (Hamada grade 2)[29,36,37] ~~(Brolin, 2017; Denard, 2018; Hamada, 2011)~~
- No advanced or severe arthritis (severe narrowing of glenohumeral space or bone-on-bone articulation, large osteophytes, subchondral sclerosis, or cysts, etc.)

NOTE: A CONCOMITANT ROTATOR CUFF REPAIR IS NOT ALLOWABLE WITH ADVANCED GOUTALLIER OR WARNER MUSCLE ATROPHY CHANGES AS NOTED IN THE PREVIOUS SECTION.

Rotator Cuff Repair (RCR) Revision

Surgical revision within 1 year of a previously repaired small, medium, large or massive torn rotator cuff will be reviewed on a case-by-case basis and must include an MRI (with or without arthrogram) or CT arthrogram that demonstrate failure of healing (Sugaya type 4-5, see background section) or recurrent tear > 12 weeks~~3 months~~ after index surgery ~~(Strauss, 2012)~~.[54]

All RCR revision cases greater than 1 year following an initial repair must again meet indications as specified by tear size listed in Background section.

Contraindications (applies to all r~~R~~otator c~~C~~uff r~~R~~epair):

- Active infection (local or remote)
- Treatment of asymptomatic, full thickness rotator cuff tear
- Active systemic bacteremia
- Deltoid or rotator cuff paralysis
- Advanced or severe arthritis (severe narrowing of glenohumeral space or bone-on-bone articulation, large osteophytes, subchondral sclerosis, or cysts, etc.)
- No cortisone injection within 12 weeks prior to surgery.[18-26]

LABRAL REPAIRS

Repair of Superior Labral Anterior-Posterior (SLAP) Tear

Surgical indications should be focused on clinical symptoms and failure to respond to non-operative treatments, rather than imaging (due to a higher percentage of tears being missed on images AND significant over-diagnosing of tears based on imaging-alone).

Repair *(not debridement of a SLAP lesion)* may be necessary when **ALL** of the following criteria are met:

- History compatible with tear (acute onset in thrower or overhead athlete, fall, traction injury, shear injury (MVA), lifting injury
- Pain localized to the glenohumeral joint (often only associated with certain reaching or lifting activities and at night) or painful catching/popping/locking sensations
- Inability to perform desired tasks without pain (age-appropriate ADLs, sports, occupation)
- Physical examination demonstrates findings of a SLAP tear (active compression test (O'Brien test), compression rotation test, clunk or crank test, etc.)

- Age < 40; requests for SLAP repair in an individual~~patient~~ age > 40 will be reviewed on a case-by-case basis[55] ~~(Erickson, 2015)~~
- MRI demonstrating superior labral tear
- Type 2 or 4 SLAP tear (not type 1 or 3)
  - I - Labral and biceps fraying, anchor intact
  - II - Labral fraying with detached biceps tendon anchor
  - III - Bucket handle tear, intact biceps tendon anchor (biceps separates from bucket handle tear)
  - IV - Bucket handle tear with detached biceps tendon anchor (remains attached to bucket handle tear)
- Failure of at least 12 weeks of non-operative treatment, including activity modification/avoidance of painful activities **AND** at least **ONE** of the following:
  - Minimum of 4 weeks of oral NSAIDs (if not medically contraindicated)
  - ~~o~~ Physical therapy or a properly instructed home exercise program
  - ~~o Intra-articular injection~~
  - ○

Contraindications:

- ANY evidence of degenerative disease upon imaging
- Smoker and age > 40
- Diabetics with poor control HgBA1c > 7
- MRI findings not attributable to normal common variants (for example, labral overhang)

~~*~~**NOTE**: In cases where a true SLAP tear exists, but the individual~~patient~~ has one or more contraindications or findings at the time of surgery that ~~,~~ indicates ~~that~~ a repair is not feasible, a SLAP debridement (limited, extensive debridement), biceps tenotomy or tenodesis may be an alternative ~~(Erickson, 2015; McCormick, 2014)~~.[55-57] Even with repairable type II SLAP tears, biceps tenodesis is a viable alternative to repair.[58-60] See Tenotomy and Tenodesis Indications.

Anterior-Inferior Labral Tear (Bankart lesion)[61] ~~(Harris, 2013c)~~

Bankart repair of **an acute labral tear** may be necessary when **ALL** of the following criteria are met:

- History of an acute event of instability (subluxation or dislocation) or acute onset of pain following activity
- Acute labral tear on MRI or CT imaging
- Age < 30
- Range of motion is not limited by stiffness upon physical exam~~.~~ (not required if there has been a recent episode of instability)
- Clinical exam findings demonstrate positive apprehension test, positive relocation test, positive labral grind test, or objective laxity with pain.

Bankart repair for **recurrent (two or more episodes of subluxation or dislocation) associated with a labral tear** may be necessary when **ALL** of the following criteria are met[62] ~~(Harris, 2013)~~:

- Recurrent instability (subluxation or dislocation)
- Evidence of a labral tear with or without bony Bankart fracture of the glenoid upon imaging
- Range of motion is not limited by stiffness upon physical exam - (not required if there has been a recent episode of instability)
- Clinical exam findings demonstrate positive apprehension test, positive relocation test, positive labral grind test, or objective laxity with pain.

Contraindications:

- Pain only (no documented recurrent instability events) in individual~~patient~~s over 40
- X-ray, MRI, or CT documentation of significant degenerative arthritis of the glenohumeral joint
- Radiographic findings of a Hill Sachs humeral head defect (if surgery only includes Bankart repair); (see below indications for Latarjet and/or remplissage procedure)

Latarjet or Remplissage procedures for **recurrent (two or more ~~episodes of subluxation or~~ dislocations)** may be necessary when ALL of the following criteria are met[63-75] ~~(Alkaduhimi, 2019; Bhatia, 2014; Bishop, 2019; DiGiacomo, 2014; Dyrna, 2020; Hurley, 2019; Maio, 2019; Milano, 2011; Moroder, 2019; Rashid, 2016, 2018; Werthel, 2020; Yang, 2016)~~:

- Recurrent anterior dislocations ~~instability (subluxation or dislocation)~~
- Evidence of an ~~a large,~~ engaging ("off-track")* Hill-Sachs lesion of the humerus~~,~~ ~~or~~or greater than 20% glenoid bone loss by x~~X~~-ray, CT, or MRI~~.~~
- Range of motion is not limited by stiffness upon physical exam - (not required if there has been a recent episode of instability)
- ~~Clinical exam findings demonstrate positive apprehension test, positive relocation test, positive labral tests grind test, or objective laxity with pain.~~

*
The glenoid track, a zone of dynamic contact during arm elevation, is a unique biomechanical model that uses both glenoid and humeral head bone loss to predict subsequent risk of humeral head engagement and possible dislocation. An *engaging* Hill-Sachs bony defect, or "off-track" lesion, is one in which the width of the bony defect is greater than the width of the glenoid track. Off-track engagement occurs when the medial margin of the Hill-Sachs defect engages the glenoid track. If there is bony loss of the glenoid as well, the glenoid track will proportionately be less, causing greater risk of engagement. A *nonengaging*, or "on-track" Hill-

Sachs lesion is one in which the width of the bony defect is less than the width of the glenoid track. Using preoperative CT or MR imaging, the glenoid track can identify individual~~patient~~s who are more likely to fail only a primary capsuloligamentous Bankart repair. Glenoid track evaluation shows that restoring the track (glenoid) to its normal width should be the first priority in restoring shoulder stability.[76-83]

Posterior Labral Tear

Surgical repair of a posterior labral tear may be necessary when **ALL** of the following criteria are met:

- Symptoms of pain OR painful catching/popping OR instability
- MRI findings of posterior labral tear
- Exam findings demonstrate positive load-shift test, jerk test, glenohumeral grind test, or objective laxity with pain or profound weakness[84] ~~(Kibler, 2015)~~
- Failure of at least 12 weeks of non-operative treatment (unless presenting as a traumatic tear in a competitive athlete at any level) that includes any **two** of the following**:**
  - Physical therapy or a properly instructed home exercise program
  - Rest or activity modification
  - Minimum of 4 weeks of oral NSAIDs (if not medically contraindicated)
- Age < 40
- No radiographic evidence of degenerative disease (e.g., posterior glenoid cartilage loss, subchondral glenoid cysts, mucoid degeneration of labrum, narrowing of joint space with posterior humeral head subluxation on axillary x-ray or axial MRI images)

Combined Labral Tears (e.g., Anterior / Posterior, SLAP / Anterior, SLAP / Posterior, SLAP / Ant. / Post.)[85] ~~(Forsythe, 2015)~~

Surgical repair of an **acute combination tear** may be necessary when **ALL** of the following criteria are met:

- History of an acute event of instability (subluxation or dislocation)
- Acute labral tear on MRI/CT imaging with/without bony Bankart fracture not > 25% of glenoid width upon imaging
- Age < 30
- Range of motion not limited by stiffness upon physical exam
- Clinical exam findings demonstrate positive apprehension test and positive relocation test, **OR** positive labral grind test OR objective laxity with pain

- Minimal to no evidence of degenerative changes on imaging

Surgical repair of **recurrent combination tear** may be necessary when **ALL** of the following criteria are met:

- Recurrent instability (subluxation or dislocation) with at least 2 instability events
- Labral tear on MRI or CT, with/without bony Bankart fracture not > 25% of glenoid width upon imaging
- Range of motion not limited by stiffness upon physical exam
- Clinical exam findings demonstrate positive apprehension test and positive relocation test, or positive labral grind test, or objective laxity with pain
- Minimal to no evidence of degenerative changes on imaging

Open or Arthroscopic Capsulorrhaphy for Multidirectional Instability of the Shoulder (MDI)

Surgical repair for MDI may be necessary when **ALL** of the following criteria are met:

- Individual~~Patient~~ has pain and limited function (age-appropriate ADLs, occupation, or sports)
- Individual ~~Patient~~ has recurrent instability due to hyperlaxity or mobility and no traumatic dislocation
- Physical exam supports repeatable increased glenohumeral joint translation (greater than 1 cm of movement during the sulcus test)~~;~~
- Imaging (x-ray and MRI) rules out fracture and/or other soft-tissue injury
- Failure of at least 6 months of formal physical therapy and activity modification

Adhesive Capsulitis (Lysis of Adhesions, Capsulotomy/Capsular Release or Manipulation under Anesthesia)

Surgery for adhesive capsulitis may be necessary when **ALL** of the following criteria are met:

- Individual~~Patient~~ has pain, loss of motion, and limited function (age-appropriate ADLs, occupation, or sports)
- Physical exam demonstrates loss of motion (use contralateral shoulder for comparison)
- Co-morbidities (such as diabetes, lung disease), and other causes of loss of shoulder motion have been ruled out~~.~~
- Failure of at least 12 weeks of non-operative treatment that includes physical therapy or a properly instructed home exercise program and documentation of **any one** of the following:

- Minimum of 4 weeks of oral or topical NSAIDs (if not medically contraindicated)
- Rest or activity modification
- Heat/Ice
- Corticosteroid injection

Distal Clavicle Excision (DCE)

Distal Clavicle Excision may be necessary when **ALL** of the following criteria are met[86] ~~(Pensak, 2010)~~:

- Positive clinical exam findings as evidenced by pain upon palpation over AC joint and/or pain with cross-body adduction test
- Positive findings on x~~X~~-Ray **or** MRI[87] ~~(Singh, 2018)~~:
  - Radiographic (x-ray) demonstrates narrowed joint space, distal clavicle or medial acromial sclerosis, and/or osteophytes or cystic degeneration of distal clavicle or medial acromion correlating with the clinical findings, patient symptoms and diagnosis; **OR** MRI findings with edema in the distal clavicle and/or inflammatory change within the joint space correlating with the clinical findings, patient symptoms and diagnosis
- Failure of at least 12 weeks of non-operative treatment that includes **at least two** of the following:
  - Minimum of 4 weeks of oral or topical NSAIDs (if not medically contraindicated)
  - Rest or activity modification
  - AC joint corticosteroid injection (if DCE is to be performed as a standalone procedure, AC injection must be performed*)
  - Physical therapy or a properly instructed home exercise program

NOTE:** If DCE is to be performed ***in isolation **of other shoulder procedures**, an AC joint injection is required for diagnostic purposes and documentation should support pain relief from injection. If no response to injection, this is a strong negative predictor to surgical outcome for isolated DCE.

Long Head Biceps (LHB) Tenotomy/Tenodesis

The indications and outcomes for tenodesis and tenotomy are the same[38,88,89] with the exception that tenodesis is typically better for more active, muscular individuals that are performing higher-demand activities for work or sport. Tenotomy is often preferred in individual~~patient~~s that smoke (this is a relative indication of tenotomy over tenodesis) due to healing problems in tenodesis.

Tenotomy or tenodesis may be necessary when the following criteria are met[38,55,90,91] ~~(Chalmers 2016; Creech, 2016; Erickson, 2015)~~:

- **Any of the following:**
  - When performed in conjunction with a total shoulder arthroplasty
  - When performed in conjunction with a subscapularis tendon repair
  - Age > 50 with SLAP tear
  - Smoker with SLAP labral tear (regardless of age, more significant with increasing age)
  - Failed SLAP repair
  - SLAP tear in diabetic or individual~~patient~~ with loss of motion or predisposition to stiff shoulder
  - LHB hypertrophy/tearing/subluxation in association with RCR

    OR

  - Diagnosis of chronic LHB groove pain from tenosynovitis*

  - **AND**
    - Failure of at least 12 weeks of non-operative treatment to include **TWO** of the following:
      - Minimum of 4 weeks of oral or topical NSAIDs (if not medically contraindicated)
      - Rest or activity modification
      - Bicipital groove ~~or IA joint~~ corticosteroid injection
      - Physical therapy or a properly instructed home exercise program

NOTE: The following is not managed by Magellan:

- US-guided percutaneous debridement or tenotomy (e.g., Tenex, TenJet)

Loose Body Removal

Loose body removal may be medically necessary when the following criteria are met:

- Documentation of pain, mechanical symptoms (catching or locking), stiffness, loss of motion, feelings of instability or loss of function
- X-ray, CT, or MRI documentation of a loose body

Synovectomy

Synovectomy as an isolated procedure is usually reserved for primary synovial disease or in cases where secondary hypertrophic synovitis is documented during arthroscopy (these include adhesive capsulitis, osteoarthritis, chronic rotator cuff tear). These should be evident on

arthroscopic photographs taken at surgery but may be missed on preoperative images ~~(Kanbe, 2015)~~.[92]

Subacromial Decompression (SAD)

Subacromial decompression may be necessary **in conjunction with** other shoulder procedures (listed below) if there is radiographic (x-ray) evidence of mechanical outlet impingement as evidenced by a Bigliani type 3 morphology. Subacromial decompression should not be performed in isolation ~~(Familiari, 2015; Frank, 2014)~~.[93,94]

- Rotator cuff repair
- Labral repair
- Capsulorrhaphy
- Loose body removal
- Synovectomy
- Debridement
- Distal clavicle excision
- Lysis of adhesions
- Biceps tenodesis/tenotomy

Contraindications:

- Type 1 or Type 2 or a thinned acromion. Subacromial bursectomy may be a reasonable option.
- If individual~~patient~~ has received an injection in the subacromial space and there is failure to adequately respond—significant relief (> 50%) for minimum of 1 week—to injection in the subacromial space (pain should respond temporarily if impingement)
- Prior subacromial decompression with either a Type 1 or a thinned acromion or no evidence of overhang on x-ray (unnecessary revision can thin the acromion and lead to deltoid avulsion and/or acromial fracture)
- Open SAD procedures should rarely be performed given the increased morbidity due to deltoid disruption.

BACKGROUND:
This guideline addresses the following elective, non-emergent, arthroscopic shoulder repair procedures:

- Rotator Cuff Repair
- Labral Repairs
- Lysis of Adhesions (Capsulotomy)
- Distal Clavicle Excision (DCE)
- Long Head Biceps (LHB) Tenotomy or Tenodesis
- Loose body removal

- Synovectomy
- Subacromial Decompression (SAD)

Arthroscopy introduces a fiber-optic camera into the shoulder joint through a small incision for diagnostic visualization purposes. Other instruments may then be introduced to remove, repair, or reconstruct joint pathology.

Surgical indications are based on relevant subjective clinical symptoms, objective physical exam & radiologic findings, and response to previous non-operative treatments when medically appropriate.

Open, non-arthroplasty shoulder repair surgeries are performed as dictated by the type and severity of injury and/or disease.

Rotator Cuff Repair (RCR)

Traditional open rotator cuff repair (RCR) with deltoid take-down should be rare given increased morbidity when compared to arthroscopic or mini-open surgery.

Goutallier Classification of Fatty Infiltration of Rotator Cuff Musculature[33,95-98]

~~(Goutallier, 1994, 2003; Lippe, 2012; Schiefer, 2015; Somerson, 2016)~~

Grade 0 – Normal

Grade 1 – Mild - muscle contains some fatty streaks

Grade 2 – Moderate – more muscle than fat

Grade 3 – Severe – equal amounts of fat and muscle

Grade 4 – More fat than muscle

Hamada Classification of Rotator Cuff Arthropathy[36,37,99]

~~(Brolin, 2017; Hamada, 1990, 2011)~~

Acromiohumeral Interval (AHI)

Grade 1 – AHI over 6 mm

Grade 2 – AHI < 5mm

Grade 3 – Acetabulization

Grade 4 – Acetabulization and narrowed GH joint

Grade 5 - Acetabulization with humeral head collapse

Revision Rotator Cuff Repair

The Sugaya classification for evaluation in revision rotator cuff repair is as follows:

Sugaya Classification

Type I - Sufficient thickness, homogeneous tendon (low signal on T2 images)
Type II - Sufficient thickness, partial high-intensity from within the tendon
Type III - Insufficient thickness without discontinuity
Type IV - Minor discontinuity on more than one slice, suggesting a small tear
Type V - Major discontinuity suggesting a moderate or large tear

Labral Repairs

There is a tendency to misinterpret normal degenerative labral changes and variations as "tears" which may lead to over-utilization of surgery if decisions are made upon imaging reports alone. In addition, the anterior-superior labrum (from 12 to 3 o'clock for a right shoulder) has many normal variations that can be misinterpreted as a tear, including sublabral hole/foramen, Buford complex, and a labral overhang with an intact biceps anchor. In general, true labral tears lead to pain, catching, popping, functional limitations (including age-appropriate activities of daily living (ADLs), occupational and athletic), micro-instability, and gross instability. Labral repairs are most-frequently associated with a specific traumatic event.

Anterior-Inferior Labral-Tear (Bankart lesion)

A Bankart tear of the glenoid labrum is located at the 3-6 o'clock position of a right shoulder. It is typically caused by a traumatic instability event (dislocation or subluxation). It can involve the labrum, the capsular ligaments (IGHL [inferior glenohumeral ligamentous complex]) and/or the bone (bony Bankart fracture). If symptomatic, Bbankart lesions ~~tears~~ typically require surgical repair as individual~~patient~~s less than 30 have a high recurrence rate of instability. If there has been significant bone loss of the anterior glenoid, further stabilization might be required by transferring the coracoid process and attached conjoined tendon (Latarjet Procedure) or using a bone graft to the anterior glenoid. Engaging or "off-track" defects of the humeral head (Hill-Sachs lesion) may require the use of portions of the rotator cuff (Remplissage Procedure) to fill the bony defect, in order to further stabilize the shoulder.

Posterior Labral Tear

Similar to Bankart tears, posterior labral tears are often associated with a paralabral cyst that grows large enough to compress the suprascapular nerve (isolated to infraspinatus). Posterior

labral tears are frequently associated with contact sports or a ~~patient~~ history of a traumatic fall/posterior loading of the joint. They are often observed in athletes performing repetitive posterior loading of the joint (offensive linemen in football, ~~weight-lifting~~weightlifting, ~~push-ups~~push-ups, and bench press). These tears are more likely to result in pain and weakness rather than recurrent dislocations/instability. Posterior labral changes are often misinterpreted on MRI as a "tear" in age > 40 years old, when changes due to early glenohumeral degeneration begin to appear.

Combined Labral Tears (e.g., Anterior / Posterior, SLAP / Anterior, SLAP / Posterior, SLAP / Ant. / Post.)

Combined tears that require repair are almost always associated with significant recurrent instability. Often tears begin within one area and overtime the failure to repair the original injury causes the tear to extend.

Adhesive Capsulitis (Lysis of Adhesions; Capsulotomy-/-Capsular Release)

Adhesive capsulitis is a thickening and tightening of the soft tissue capsule that surrounds the glenohumeral joint. Adhesive capsulitis usually begins with the gradual onset of pain and limitation of shoulder motion, with a progression to interference of activities of daily living. Primary adhesive capsulitis is the subject of much debate as the specific causes of this condition are not fully understood. Individual~~Patient~~s with uncontrolled diabetes have a significantly higher risk of developing adhesive capsulitis than the general population. Secondary (acquired) adhesive capsulitis develops from a known cause, such as stiffness following a shoulder injury, surgery, or a prolonged period of immobilization. Adhesive capsulitis may last from one to three years, despite active treatment, and is more common in women.

Distal Clavicle Excision (DCE)

The AC joint (acromioclavicular joint) can develop degenerative disease in those over 30 years of age, those with a history of a prior grade I or II AC sprain/separation, those with a history of heavy lifting (labor occupation or strength training), or those with evidence of remote trauma. It can occur in isolated form in younger individual~~patient~~s (distal clavicle osteolysis) but is more commonly observed concomitantly with rotator cuff disease in those over age 40 years of age.

Long Head Biceps (LHB) Tenotomy-/-Tenodesis

Pain in the area of the long head of the bicep tendon is common, especially in overhead sports and in the presence of rotator cuff tears (especially subscapularis). It can be an isolated source of pain in chronic tenosynovitis, SLAP tears, or small tears of the biceps sling, resulting in dynamic or static subluxation or dislocation of the tendon. LHB problems are frequently missed on MRI (especially using contrast which can mask the pathology). The choice of tenodesis versus tenotomy is controversial. Typically, tenodesis is better for more active, muscular individuals performing higher demand activity (labor, sports). Tenotomy is generally a better option for older, less active individual~~patient~~s with poor muscle definition, as it generally leaves the individual~~patient~~ with a "popeye" deformity and the possibility of biceps cramping or anterior shoulder pain with activity. The choice of tenotomy vs. tenodesis is generally left up to the surgeon/patient.

Loose Body Removal

Although not as common as in the knee, a loose body in the shoulder may require arthroscopic removal if symptoms such as pain, catching or locking are present. Because of the non-weightbearing status of the shoulder and the axillary fold where a loose body might be positioned, not every loose body diagnosed by imaging requires removal.

Synovectomy

Synovitis is common in many shoulder conditions and typically resolves when the primary pathology is treated. Most commonly, this includes loose bodies, inflammatory arthritis or degenerative arthritis, labral tears, and adhesive capsulitis. Primary synovial diseases include pigmented villonodular synovitis, synovial chondromatosis, rheumatoid arthritis, other inflammatory arthritides, traumatic synovial hypertrophy or metaplasia.

Subacromial Decompression (SAD)

There are 3 types of acromion anatomy according to Bigliani classification: type 1, flat (20%), type 2, curved (40%) and type 3, hooked, (40%). Acromioplasty involves removing bone from the undersurface of the acromion to change a type 3 (hooked) acromion to a type 1 (flat) acromion. Although debated for decades, current evidence concludes that there is no role for isolated acromioplasty (subacromial decompression), which prompted conversion of CPT code 29826 (acromioplasty, subacromial decompression) from an index, primary, "stand-alone" code to an "add-on" code only ~~(Chahal, 2012)~~.[100]

POLICY HISTORY SUMMARIES

Date	Summary
May 2022	• Updated background and references • Further defined the glenoid track verbiage for "off-track" and "on-track" Hill-Sachs lesions (bony defects of the humeral head) • Clarified individual is medically stable and *optimized for surgery* • Revised Partial-Thickness Rotator Cuff Tear or Calcific Tendinitis to "include *two* of the following criteria" • Revised criteria for Latarjet or Remplissage to "Recurrent *anterior dislocations*" • Non-operative treatment for small RCT revised to *ONE* of the following (previously "at least one") • Revised 3 months to 12 weeks throughout • Replace "patient" with "individual" where appropriate **Added:** • Eevaluation of pain~~f~~ prior total shoulder arthroplasty as indication for a diagnostic arthroscopy • Ccortisone injection within 12 weeks of a rotator cuff repair or revision as a contraindication • Added more specific indications for repair of a subscapularis rotator cuff tear • Physical examination findings requirement for SLAP tears • Criteria for loose body removal • "performed in conjunction with a subscapularis tendon repair" to criteria for Long Head Biceps Tenotomy/Tenodesis **Deleted:** • ~~Deleted the~~ R~~r~~equirement for a cortisone injection for calcific tendinopathy ~~Added more specific indications for repair of a subscapularis rotator cuff tear~~ • ~~Deleted~~ cortisone injections from lists of treatment modalities • • IA joint corticosteroid injection from non-operative treatments for LHB Tenotomy/Tenodesis • ~~Deleted~~ Rotator cuff repair surgical management statement ~~Added physical examination findings requirement for SLAP tears~~ • ~~Further defined the glenoid track verbiage for "off-track" and "on-track" Hill-Sachs lesions (bony defects of the humeral head)~~ ~~Added criteria for loose body removal~~
June 2021	• Added heat and ice as acceptable non-operative treatment modalities • Added "subluxation" to instability language for Bankart and

	remplissage and Latarjet surgery • Deleted X-ray/MRI language as procedures to r/o co-morbidities for frozen shoulder surgery • Deleted the requirement for ROM testing for stiffness if there has been a recent episode of instability
January 2021	• Revised section for massive rotator cuff tears • Added section for Superior Capsular Reconstruction, including references • Added classification tables for Goutallier and Hamada grading
November 2020	• Added CPT code 29825 to Shoulder Surgery Other
October 2020	• Added statement pertaining to in-office arthroscopy: these procedures are considered investigational and are not managed by Magellan. • Added statement pertaining to US-guided percutaneous tenotomy/debridement: these procedures are considered to be investigational and are not managed by Magellan. • Deleted requirement for non-operative treatment for massive rotator cuff tears • Added indications for Latarjet and Remplissage procedures for shoulder instability. • Added indication for biceps tenotomy/tenodesis when performed in conjunction with a TSA. • Updated references
July 2020	• Removed CPT code S2300
October 2019	• Updated references • Added US (ultrasound) as acceptable diagnostic test for rotator cuff tears • Addition Superior Capsular Reconstruction to rotator cuff repair section • Added manipulation under anesthesia (MUA) to adhesive capsulitis section
November 2018	• Added new section: '*Diagnostic Shoulder Arthroscopy'* • Added and update references

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Reviewed / Approved by NIA Clinical Guideline Committee

~~**GENERAL INFORMATION**~~

~~It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.~~

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ADDITIONAL RESOURCES

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Reviewed / Approved by NIA Clinical Guideline Committee

GENERAL INFORMATION

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.