### International Statistical Classification of Diseases and Related Health Problems

<table>
<thead>
<tr>
<th>ICD-10</th>
<th>ICD-10 Description</th>
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<tbody>
<tr>
<td>M12.9</td>
<td>Arthropathy, unspecified</td>
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<tr>
<td>M24.819</td>
<td>Other specific joint derangements of unspecified shoulder, not elsewhere classified</td>
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<tr>
<td>M25.519</td>
<td>Pain in unspecified shoulder</td>
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<tr>
<td>M75.10</td>
<td>Rotator cuff syndrome, unspecified shoulder</td>
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<tr>
<td>M75.30</td>
<td>Calcific tendinitis of unspecified shoulder</td>
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<td>M75.40</td>
<td>Impingement syndrome of unspecified shoulder</td>
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<td>M75.50</td>
<td>Bursitis of unspecified shoulder</td>
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<td>M75.80</td>
<td>Other shoulder lesions, unspecified shoulder</td>
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<tr>
<td>S43.50</td>
<td>Sprain of unspecified acromioclavicular joint</td>
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<td>S49.80</td>
<td>Sprain of other specified parts of unspecified shoulder girdle</td>
</tr>
<tr>
<td>S49.90</td>
<td>Sprain of unspecified parts of unspecified shoulder girdle</td>
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</table>

### International Classification of Functioning, Disability, and Health

#### Primary ICF Codes

<table>
<thead>
<tr>
<th>Body Functions</th>
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<tbody>
<tr>
<td>b28016</td>
<td>Pain in joints</td>
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<tr>
<td>b7100</td>
<td>Mobility of a single joint</td>
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<table>
<thead>
<tr>
<th>Body Structure</th>
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<tbody>
<tr>
<td>s7201</td>
<td>Joints of shoulder region</td>
</tr>
<tr>
<td>s7202</td>
<td>Muscles of shoulder</td>
</tr>
<tr>
<td>s7208</td>
<td>Structure of shoulder region, specified as tendon</td>
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<table>
<thead>
<tr>
<th>Activities &amp; Participation</th>
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<tbody>
<tr>
<td>d4452</td>
<td>Reaching</td>
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<tr>
<td>d5400</td>
<td>Putting on clothes</td>
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### APTA Preferred Practice Pattern

4B, 4D, 4E, 4F, 4G, 4H, 4J, 7A
EXAMINATION

- History and Systems Review
- Tests and Measures
  Systems review per APTA’s Guide to Physical Therapist Practice
  - Muscle performance
  - Pain
  - Posture
  - ROM
  - Special tests
  - Neurologic Screening
- Establish Plan of Care

GOALS/OUTCOMES

- ROM
- Pain: 2/10 following activity, 0/10 at rest
- Strength: Equal to uninvolved side or 4+/5 on manual muscle test for shoulder girdle musculature
- Functional activities
- Return to functional status and activity level (current/prior) for ADLs and vocational, recreational, and sports activities as identified by patient
- Independence in a progressive home exercise program emphasizing function

INTERVENTION

Number of Visits: 6–12

- Patient Instruction
  - Basic Anatomy and Biomechanics
  - Handouts
  - Functional Considerations
- Direct Interventions
  - Acute Phase: 3-6 Visits
  - Subacute Phase: 3-6 Visits
- Functional Carryover
DISCHARGE PLANNING AND PATIENT RESPONSIBILITY

- **Criteria for Discharge**
  - All rehabilitation goals/outcomes achieved with possible exception of return to pain-free function for vocational or sports activities
  - The therapist determines that further progression and attainment of all rehabilitation goals/outcomes will be achieved with patient’s continued efforts/compliance with home program outside the clinical environment
  - If continuing pain and instability prevents patient progression, consider orthopedic consultation

- **Circumstances Requiring Additional Visits**
  - Cervical pathology or radiating signs/symptoms
  - Inability to progress because current vocational demands are exacerbating symptoms
  - Special occupational needs that require extensive strengthening
  - Multiple injury sites
  - Presence of ligamentous laxity

- **Home Program**
  - Motor performance
  - Flexibility
  - Advanced functional diagonals with stretching/shortening, strengthening, or speed training exercise program related to functional needs
  - Cardiovascular conditioning

- **Monitoring**
EXAMINATION

History and Systems Review
- History of current condition
  - Location, nature, and behavior of symptoms
    - Aggravating/relieving factors
- Past history of current condition
  - Cervical/thoracic spine or upper extremity injury
  - Surgery
  - Direct intervention
- Other tests and measures
- Functional status and activity level (current/prior)
- Patient’s functional goals/outcomes
- Red Flag questions (i.e. pain at night, fever, chest/arm pain with exertion)
- Imaging studies

Procedure Codes (CPT): 95831, 95851, 97001, 97002, 97003, 97004, 97750

Tests and Measures
Systems review per APTA’s Guide to Physical Therapist Practice
- Muscle performance
  - Antalgic movement pattern with dressing activities
  - Functional use of upper extremity during gait
  - Scapulohumeral rhythm
    - Quality/quantity of upward rotation and posterior tipping
    - Smooth eccentric control upon return to start
  - Resisted
    - Glenohumeral
    - Scapular
    - Supraspinatus Isolation (“empty can” position)
      a. Shoulder is internally rotated, thumb pointed to floor
      b. Abduct the arm to 90°, maintaining a position 30° anterior to the mid-frontal plane
    - Supraspinatus Isolation (alternative)
      a. Elbow bent to 90°, arm abducted 90°, slight horizontal adduction, and slight external rotation; downward pressure by examiner
- Pain
  - Measured on visual analog scale
- Posture
  - Forward head
  - Rounded shoulders
  - Flattening of the thoracic spine
  - Shoulder girdle asymmetry
    - Clavicular position
Shoulder Sprain/Strain
Clinical Practice Guideline

- Humeral head position
- Muscular development/atrophy
  - Ability to actively achieve a more balanced postural position

- ROM
  - AROM
    - Flexion/elevation: Observe for inability to maintain depressed humeral head
    - Abduction
    - Internal and External rotation at 90° with comparison ratio to determine lack of posterior capsule extensibility (GIRD)
    - Extension
  - Overpressure
  - PROM
    - Muscle Length
      - Pectoralis major and minor
      - Short head of biceps/coracobrachialis
      - Latissimus dorsi
    - Passive accessory mobility, linear mobility, and stress testing
      - Glenohumeral
        - Anterior capsule: Superior/inferior, anterior/posterior
        - Posterior capsule: Superior/inferior, anterior/posterior
        - Inferior capsule: Upward, downward rotation, lateral
          - Acromioclavicular
          - Sternoclavicular
          - Scapulothoracic
  - Special tests
    - Rotator cuff tear/impingement
      - Rent Sign
      - Supine impingement test
      - Lift-off test
      - Internal rotation lag sign
      - External rotation lag sign
      - Drop test
      - Empty can/supraspinatus test
      - Crossover test
    - Impingement
      - Neer’s test
      - Hawkins-Kennedy test
      - Painful arc test
    - Labral tear and instability
      - Biceps load test II
      - Crank test
      - Clunk test
      - Jerk test
      - Speed’s test
      - Apprehension test
Shoulder Sprain/Strain
Clinical Practice Guideline

- Relocation test
- Anterior release/Surprise test
- Active compression test/O’Brien’s test
- Anterior slide test
- Relocation test
- Neer’s test
- Sulcus sign
- Load and Shift

  o Labral test
    - Compression Rotation Test
    - Pronated Load Test

• Neurologic Screening
  o Monosynaptic Reflex
  o Dermatomes
  o Myotomes
  o C-Spine Compression/Distraction
  o Upper limb tension tests (ULTTs)
    - ULTT 1 (median nerve dominant)
      a. Patient supine, depress shoulder, abduct to approximately 110°, supinate forearm, and extend elbow, wrist, and fingers
      b. Side bend head/neck both toward and away
      c. Assess normal vs. abnormal response (see Butler. 1991)
    - ULTT 2 (radial nerve dominant)
      a. Patient supine, depress shoulder, shoulder abducted and internally rotated, pronate forearm, extend elbow, and flex the wrist
      b. Side bend head/neck both toward and away
      c. Assess normal vs. abnormal response (see Butler. 1991)
    - ULTT 3 (ulnar nerve dominant)
      a. Patient supine, extend wrist, supinate forearm, fully flex elbow, depress and abduct shoulder
      b. Side bend head/neck both toward and away
      c. Assess normal vs. abnormal response (see Butler. 1991)

Establish Plan of Care
• Based on history, tests, and measures

GOALS/OUTCOMES
• ROM
  o Shoulder ROM: 90% of AMA guides or equal to the uninvolved extremity

    | Normal | 90% |
    |--------|-----|
    | Flexion| 180°| 160°|
    | Extension| 50°| 45°|
    | Abduction| 180°| 160°|
    | External rotation| 90°| 80°|
Internal rotation 90° 80°

- Functional cervical ROM or a minimum of 80% of AMA guides:
  - Flexion 60° 50°
  - Extension 75° 60°
  - Rotation 80° 65°
  - Side bend 45° 35°

- Pain: 2/10 following activity, 0/10 at rest
- Strength: Equal to uninvolved side or 4+/5 on manual muscle test for shoulder girdle musculature
- Functional activities
  - Able to reach into back pocket or fasten undergarments
  - Able to comb hair
  - Able to reach into cupboard or lift overhead
  - Perform work/ADL tasks (weight- and repetition-specific)

- Return to functional status and activity level (current/prior) for ADLs and vocational, recreational, and sports activities as identified by patient
- Independence in a progressive home exercise program emphasizing function

**INTERVENTION**

**Number of Visits: 6–12**

**Coordination, Communication, and Documentation**

- Provision of services between admission and discharge that facilitate cost-effective and efficient integration or reintegration to home, community, or work
- Documentation of therapeutic intervention is required for each episode of care and serves as the basic foundation for communication
- Coordination and additional communication will depend on the patient’s impairment and home/work/community/leisure situation and requirements. Such services may include:
  - Case management
  - Coordination of care and collaboration with those integral to the patient’s rehabilitation program
  - Coordination and monitoring of the delivery of available resources
  - Referrals to other healthcare professionals
  - Identification of resources, support groups, or advocacy services
  - Provision of educational or training information
  - Technical assistance
Patient Instruction

Basic Anatomy and Biomechanics
- Musculature, ligaments, and joint structure in relation to shoulder motion
- Mechanism of rotator cuff in relation to depression of humeral head to avoid impingement
- Review effects of proper posture and humeral head seating in glenoid fossa

Handouts
- Specific home program
- Proper body mechanics for lifting, carrying, pushing, and pulling
- Commercially available products, such as:
  - Krames Communications (100 Grundy Lane, San Bruno, CA 94066):
  - Shoulder Owner's Manual
  - Rotator Cuff Injuries

Functional Considerations
- Optimal positions of rest
- Body mechanics to avoid unnecessary stress on shoulder complex
- Avoidance of activities that cause exacerbation of symptoms

Direct Interventions

Acute Phase: 3–6 Visits
- Therapeutic exercise and home program
  - PROM
    - Codman’s
    - Pulley
    - Wand
  - Pain-free AROM
  - High-repetition and low-resistance with purpose of promoting vascularization of healing tissues
    - Internal/external rotation with elbow at side and arm in 30° abduction with isometric adduction force to increase subacromial space
    - Scapular retraction/depression
      - Sidelying manually resisted scapular motions/PNF patterns
  - Upper-body ergometry
  - Postural correction exercises
  - Neuromuscular/balance/proprioceptive reeducation
    - Humeral head seating
    - Pain-free modified plantargrade position for elbow propping
    - Bodyblade®
  - Cardiovascular conditioning
    - Walking program
• Lower-extremity cycling
• Manual therapy techniques
  o Soft-tissue techniques
    • Soft-tissue mobilization
    • Myofascial release/stretching
    • Ischemic compression to trigger-points
    • Friction massage
  o Joint mobilization
    • Grades I–II to inhibit pain and guarding
    • Grades III–V to hypomobilities of the scapulothoracic, glenohumeral, sternoclavicular, acromioclavicular, or cervical/thoracic spine
  o ROM
    • Within pain-free range specific to rotator cuff musculature
    • Shoulder girdle including posterior capsule stretching
    • Pectorals
    • Cervical/thoracic musculature
• Physical agents and mechanical modalities
  o Cryotherapy/thermal modalities
  o Athermal, deep thermal modalities
• Goals/outcomes
  o Pain: 4/10 following activity, 2/10 or less at rest
  o Pain-free ROM: 50% of AMA guides
    • Flexion: 90°
    • Extension: 25°
    • Abduction: 90°
    • Internal rotation: 45°
    • External rotation: 45°
  o Increased duration of uninterrupted sleep (set specific goal based on number of interrupted hours of sleep at initial evaluation)

Procedure Codes (CPT): 97010, 97014, 97016, 97026, 97032, 97033, 97035, 97110, 97112, 97113, 97124, 97140, 97150, 97530, 97535, 97537, 97760, 97799, A6250, A9273, A9300, E0190, G0283, MISCUNLISTED

Subacute Phase: 3–6 Visits
• Therapeutic exercise and home program
  o Progressive strengthening (isometric, pulley, resistive bands, free-weight)
    • Exercises should not elicit painful response
    • Use resistive bands, surgical tubing for internal/external rotation, elbow flexed at 90° and arm in 30° abduction with isometric adduction force to increase subacromial space
    • Isometrics in planes not tolerating banded resistance
    • Internal rotation lying on involved side
    • External rotation lying on uninvolved side
    • Rotator cuff isolation: “empty can” position
Shoulder Sprain/Strain
Clinical Practice Guideline

- Shoulder extension
  a. Prone with arm hanging off table or forward bent at waist in standing
  b. Extend arm to side of trunk (0°)
- Flexibility/posture correction
  - Pectoralis minor/Latissimus dorsi stretching
  - Posterior capsule/“Sleeper stretch”
- Neuromuscular/balance/proprioceptive reeducation
  - Quadruped multidirectional rocking
  - Three-point rocking
  - Push-up Plus
  - Push-up Plus off therapeutic ball
  - Bodyblade®
  - Rhythmic stabilization with arm at 90° and 120° in supine and sitting and 90° in scaption with open palm on ball at wall
- Plyometric activities including: medicine ball toss at hip level with internal/external motion, kneeling 90° abduction and external rotation, and prone 90° abduction/90° elbow flexion
- Progress into vocational/sport-specific activity

- Manual therapy techniques
  - Joint mobilization
    - Grades III–IV to persistent hypomobilities of the glenohumeral, sternoclavicular, acromioclavicular, and scapulothoracic regions
    - Grades III–V to cervical/thoracic spine
  - Continue effective soft-tissue techniques
  - Muscle energy techniques to glenohumeral joint horizontal abductors to improve posterior capsule extensibility

- Physical agents and mechanical modalities
  - Continue effective modalities as in acute phase with increased emphasis on use as needed at home

- Goals/outcomes
  - Shoulder ROM: 90% of AMA guides or equal to the uninvolved extremity
    - Flexion: 160°
    - Extension: 45°
    - External rotation: 80°
    - Internal rotation: 80°
    - Abduction: 160°
  - Pain: 2/10 following activity, 0/10 at rest
  - Strength: Equal to uninvolved side or 4+/5 on manual muscle test of scapular musculature and rotator cuff
  - Functional activities
    - Able to reach into back pocket or fasten undergarments
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Functional Carryover
• Importance of maintaining proper posture of the cervical/thoracic spine to optimize glenohumeral positioning
• Ergonomic modification to work and home environments
• Avoidance of activities that increase pain
• Pain-free sleeping positions
• Proper lifting/throwing mechanics emphasizing the use of lower extremities and trunk to generate and attenuate force at the shoulder

DISCHARGE PLANNING AND PATIENT RESPONSIBILITY

Criteria for Discharge
• All rehabilitation goals/outcomes achieved with possible exception of return to pain-free function for vocational or sports activities
• The therapist determines that further progression and attainment of all rehabilitation goals/outcomes will be achieved with patient’s continued efforts/compliance with home program outside the clinical environment
• If continuing pain and instability prevents patient progression, consider orthopedic consultation

Circumstances Requiring Additional Visits
• Cervical pathology or radiating signs/symptoms
• Inability to progress because current vocational demands are exacerbating symptoms
• Special occupational needs that require extensive strengthening
• Multiple injury sites
• Presence of ligamentous laxity

Home Program
• Motor performance
• Flexibility
• Advanced functional diagonals with stretching/shortening, strengthening, or speed training exercise program related to functional needs
• Cardiovascular conditioning

Monitoring
• Follow-up contact by patient to report progress or exacerbation of symptoms
REFERENCES
