

# Referral guideline for imaging in patients presenting with shoulder pain

Updated by ACC (2017)



PREVENTION. CARE. RECOVERY.

Te Kaporeihana Awhina Hunga Whara

Clinical Suspicion and Notes	Imaging Recommendation (Grade of Recommendation)	High-tech Imaging (Grade of Recommendation)
<p><b>Acromioclavicular (AC) joint:</b></p> <p><b>AC joint instability</b> Usually secondary to trauma</p> <p><b>Other AC joint pathology</b> Including post-traumatic osteolysis, degenerative ACJ pathology</p> <p>Chronic – consider other shoulder components, osteophytes and impingement syndrome associated with inferior AC osteophytes and type 3 acromion (shape)</p>	<ul style="list-style-type: none"> <li>• X-ray mandatory prior to any other imaging investigation (C).</li> <li>• X-ray indicated following traumatic history to assess degree of damage and exclude fracture (C).</li> <li>• X-ray where there is clinical suspicion of clavicular osteolysis (C).</li> <li>• US not usually indicated but may be useful where there is clinical suspicion of associated rotator cuff (RC) involvement (C).</li> </ul>	<ul style="list-style-type: none"> <li>• MRI* may be useful to assess high-grade acute AC joint separations (C).</li> <li>• CT useful in characterising bony anatomy (C).</li> </ul>

\*CT useful where MRI contraindicated/unavailable (B)



Clinical Suspicion and Notes	Imaging Recommendation (Grade of Recommendation)	High-tech Imaging (Grade of Recommendation)
<p><b>Glenohumeral joint:</b></p> <p><b>Painful shoulder</b> with restriction of movement requires early investigation Adhesive capsulitis (frozen shoulder), OA, inflammatory or septic arthritis</p>	<ul style="list-style-type: none"> <li>• X-ray mandatory prior to any other imaging investigation; will differentiate between OA and adhesive capsulitis (C).</li> <li>• Result will direct treatment (C).</li> <li>• US indicated to investigate clinical suspicion of co-existing RC pathology (C).</li> <li>• US/X-ray-guided arthrocentesis are considered equal and may be indicated where there is clinical suspicion of septic arthritis (C).</li> </ul>	<ul style="list-style-type: none"> <li>• MRI* not primarily used for adhesive capsulitis, but indicated where there is uncertainty about the diagnosis or concern regarding inflammatory/infective arthritis (C).</li> </ul>
<p><b>Instability</b> (Multidirectional, voluntary/habitual instability, non-traumatic dislocation, generalised ligamentous laxity). Tears of labrum and/or capsule or the glenohumeral ligaments can lead to instability. Dislocation can cause RC tear in middle age or older age</p>	<ul style="list-style-type: none"> <li>• X-ray mandatory prior to any other imaging investigation (C).</li> <li>• X-ray indicated, for all first time dislocators, to confirm reduction and assess bony injury, pre reduction age&gt;40yrs, following failed reduction and in recurrent dislocation (C).</li> <li>• Consider US in middle aged or elderly to exclude co-existing RC tear (C).</li> </ul>	<ul style="list-style-type: none"> <li>• MRI/MRA* often indicated to investigate injury to labrum, GH joint and ligaments following dislocation (C).</li> <li>• CT indicated, to characterise bony morphology (C).</li> </ul>

\*CT useful where MRI contraindicated/unavailable (B)

Clinical Suspicion and Notes	Imaging Recommendation (Grade of Recommendation)	High-tech Imaging (Grade of Recommendation)
<p><b>Subacromial disorders:</b></p> <p>Rotator cuff Subacromial bursa disorders Consider cuff and/or bursa involvement</p>	<ul style="list-style-type: none"> <li>• X-ray mandatory prior to any other imaging investigation (C).</li> <li>• X-ray recommended post injury for moderate to severe pain.</li> <li>• US indicated as next investigation following X-ray (C).</li> </ul>	<ul style="list-style-type: none"> <li>• MRI* indicated for problem solving and assessing reparability (C).</li> </ul>
<p><b>Sternoclavicular (SC) joint disorders:</b></p> <p>Injuries to the SC joint are uncommon; occur mainly as a result of compression forces to the chest in MVAs and sport</p>	<ul style="list-style-type: none"> <li>• No indication for X-ray or US<sup>†</sup>; usually inconclusive and difficult to interpret.</li> </ul>	<ul style="list-style-type: none"> <li>• CT indicated; best line of investigation for SC joint (B).</li> </ul>
<p>* CT useful where MRI contraindicated/unavailable (B)</p> <p><sup>†</sup> Except where posterior dislocation is suspected</p> <p><b>Patients presenting with undiagnosed shoulder pain:</b> Not all patients will fit into defined categories or patients may fit into more than one category. This document is intended only as a guide. In the patient with persistent pain and/or weakness, consider the differential diagnoses more broadly, including cervical spine involvement and Red flags (refer to the shoulder injury management guideline<sup>1</sup>).</p> <p><b>Health and safety notes:</b> When planning an investigation with exposure to ionising radiation (X-ray, CT), the referring clinician should question all female patients of child bearing age about the possibility that they are pregnant. Consideration should also be given to modalities where there is no exposure to ionising radiation (US, MRI).</p> <p>CT and MRI images may be degraded by prostheses or internal fixation devices.</p> <p>Contraindications to MRI: metallic foreign bodies (FBs) in the orbits, aneurysm clips, pacemakers, cochlear implants, recently inserted stents (6/52), marked obesity. Patients who are intolerant of remaining stationary and/or being in an enclosed space are unlikely to be suitable for CT and MRI.</p>		

1. The Diagnosis and Management of Soft Tissue Shoulder Injuries and Related Disorders: best practice evidence-based guidelines. Accident Compensation Corporation and New Zealand Guidelines Group. July 2004.

## Grades of Recommendation:

- A The recommendation is supported by good evidence (multiple high quality studies with low risk of bias).
- B The recommendation is supported by fair evidence (consistent results from multiple studies, but with some risk of bias).
- C\*\* The recommendation is supported by expert opinion only, based on level 4 evidence in the text, and the expertise within the multidisciplinary team.
- I No recommendation can be made because the evidence is insufficient (ie, evidence is lacking, of poor quality or conflicting and the balance of benefits and harms cannot be determined).

\*\* The expertise within the Expert Advisory Group was relied on because these specific issues were not addressed within the scope of the evidence review.

## Statement of Intent

This evidence-based best practice imaging referral guideline has been produced to help health practitioners recognise when imaging is appropriate and to make necessary onward referral. The guideline reflects best practice based on the latest available evidence but it is not intended to replace clinical decision making in each individual case.

## Guideline development

The 2011 imaging guideline has been reviewed and no changes deemed necessary. The review was conducted with input from the Expert Advisory Group. The Group included representatives from the New Zealand Orthopaedic Association Knee Society (NZOA) and Royal Australasian and New Zealand College of Radiologists (RANZCR).

The 2011 imaging guideline was to supplement the Imaging section of the shoulder injury management guideline.<sup>1</sup> It represents a summary of findings of an evidence-based report<sup>2</sup> and best practice recommendations refined through consultations with clinicians.

The 2011 guideline was developed with input from the Expert Advisory Group. The Group included representatives from:

- NZOA shoulder specialists – Khalid Mohammed, Alex Malone
- RANZCR – Mark Coates, Andrew Kingzett-Taylor, Quentin Reeves
- Physiotherapy New Zealand – Angela Cadogan
- Sport and Exercise Medicine Physician New Zealand – Ruth Hight
- General Practice Rural Network – Graeme Fenton
- Musculoskeletal physician – Mark Johnston
- ACC – Natalie Hardaker, Peter Larking, Alastair Wilson, Margaret Macky

## Endorsement

This guideline is endorsed by:

- New Zealand Orthopaedic Association
- Royal Australian and New Zealand College of Radiologists, New Zealand branch.

## Acknowledgements

ACC would like to thank the NZOA, the RANZCR and members of the Expert Advisory Group for their assistance in reviewing this guideline.

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<sup>1</sup> The Diagnosis and Management of Soft Tissue Shoulder Injuries and Related Disorders: best practice evidence-based guidelines. Accident Compensation Corporation and New Zealand Guidelines Group. July 2004.

<sup>2</sup> Hardaker, N. (2010) Shoulder Imaging – Review of Existing Guidelines. Brief Report for ACC.