American College of Radiology
ACR Appropriateness Criteria®

Chronic Elbow Pain

Variant 1: Evaluation for chronic elbow pain. First test.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography elbow	Usually appropriate	Expert Consensus	☢ <0.1 mSv		9	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 2: Mechanical symptoms (locking, clicking, limited motion); suspect intra-articular osteocartilaginous body or synovial abnormality; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually appropriate	Expert Consensus	☢☢ 0.1-1mSv		8	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually appropriate	Expert Consensus	☢☢ 0.1-1mSv		8	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		1	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 3: Suspect occult fracture or other bone abnormality; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	May be appropriate	Expert Consensus	☢☢ 0.1-1mSv		5	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		2	n/a	0	0	0	0	0	0	0	0	0
MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	May be appropriate		☢☢☢ 1-10 mSv		4	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 4: Assess stability of osteochondral injury; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0

CT arthrography elbow	Usually appropriate	Expert Consensus	☢☢ 0.1-1mSv		8	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		3	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		1	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 5: Palpable soft-tissue mass; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI elbow without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		2	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		3	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		3	n/a	0	0	0	0	0	0	0	0	0

Variant 6: Suspect chronic epicondylitis, refractory to empirical treatment; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	n/a	0	0	0	0	0	0	0	0	0
MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		2	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 7: Suspect collateral ligament tear; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
US elbow	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	n/a	0	0	0	0	0	0	0	0	0
Radiography elbow stress views	May be appropriate	Expert Consensus	☢ <0.1 mSv		6	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	May be appropriate	Expert Consensus	☢☢ 0.1-1mSv		5	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		2	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		1	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 8: Suspect biceps tendon tear; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		1	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 9: Suspect nerve abnormality; radiographs nondiagnostic.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0

US elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		1	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 10: Elbow stiffness; suspect heterotopic ossification/osteophytosis by radiography. Next test.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT elbow without IV contrast	Usually appropriate	Expert Consensus	☢☢ 0.1-1mSv		9	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

US elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	May be appropriate		☢☢☢ 1-10 mSv		5	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

Variant 11: Suspect inflammatory arthritis or bursitis; radiographs obtained.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI elbow without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
MRI elbow without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	n/a	0	0	0	0	0	0	0	0	0
US elbow	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
3-phase bone scan elbow	Usually not appropriate		☢☢☢ 1-10 mSv		3	n/a	0	0	0	0	0	0	0	0	0
CT arthrography elbow	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
CT elbow with IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0

CT elbow without IV contrast	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	n/a	0	0	0	0	0	0	0	0	0
MR arthrography elbow	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Appendix Key

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

Appropriateness Category: The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

SOE: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality**: The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

RRL: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

Rating: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Median: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Final tabulations: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at **www.acr.org/ac.**