American College of Radiology
ACR Appropriateness Criteria®

Chronic Hip Pain

Variant 1: Chronic hip pain. Initial Imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography hip	Usually appropriate	Limited	☢☢☢ 1-10 mSv		9	9	0	0	0	0	0	0	0	2	13

References	Study Quality
12 (12783223)	3
14 (12578996)	4
13 (22915391)	4
15 (11567537)	4

Radiography pelvis	Usually appropriate	Limited	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	9	9	0	0	0	0	0	0	0	6	9

References	Study Quality
12 (12783223)	3
14 (12578996)	4
13 (22915391)	4
15 (11567537)	4

CT arthrography hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
CT hip without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	12	1	2	0	0	0	0	0	0
MR arthrography hip	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	0	0	0	1	0	0	0	0

MRI hip without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	1	0	1	0	0	0	0
MRI hip without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	0	1	0	0	0	0	0
Bone scan hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0
US hip	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	0	1	1	2	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	15	0	0	0	0	0	0	0	0
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	14	1	0	0	0	0	0	0	0

Variant 2: Chronic hip pain. Suspect noninfectious extra-articular abnormality, such as tendonitis or bursitis. Radiographs negative or nondiagnostic. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI hip without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	2	1	12

References	Study Quality
25 (16275576)	4
26 (16275579)	4
27 (16275574)	4
28 (16275584)	4
29 (16275577)	4

References	Study Quality
31 (16275583)	4
32 (16275580)	4
33 (16275578)	4
34 (16275571)	4
30 (19887296)	4
23 (22038311)	M
24 (31243547)	2
37 (26102391)	3
36 (33474984)	4
35 (22403167)	2

US hip	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	5	2	4	2	2

References	Study Quality
41 (21381497)	3
38 (8596860)	4
23 (22038311)	M
40 (18287424)	4
39 (21136580)	4

Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	May be appropriate	Moderate	Varies	Varies	5	5	0	0	0	1	9	2	2	0	1

References	Study Quality
19 (16177412)	4
22 (23852899)	2
21 (15494331)	3
20 (-3195116)	4

CT hip without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	7	2	4	2	0	0	0	0	0

References	Study Quality
18 (21298428)	2

CT arthrography hip	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		1	1	9	1	2	0	2	1	0	0	0

References	Study Quality
18 (21298428)	2
17 (24071389)	2
16 (20716653)	3

MR arthrography hip	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	1	2	0	2	1	0	0	0
MRI hip without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	0	1	1	3	1	0	0	0
Bone scan hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	4	1	0	0	0	0	0	0
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	2	0	0	0	0	0	0	0
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	14	1	0	0	0	0	0	0	0

Variant 3: Chronic hip pain. Suspect impingement or dysplasia. Radiographs negative or nondiagnostic. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography hip	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	0	3	7	5

References	Study Quality
60 (19455497)	3
69 (16530635)	4
70 (16530634)	4
68 (17114529)	2

MRI hip without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	0	2	8	5

References	Study Quality
58 (15800516)	2
18 (21298428)	2
65 (22933489)	3
66 (20872764)	2
67 (21048174)	2
56 (20859632)	M
16 (20716653)	3
57 (23073899)	2
59 (22878728)	2
71 (30048144)	3
53 (31023206)	3
72 (31633993)	2
52 (24656977)	2
55 (24370140)	2
54 (25022979)	2

References	Study Quality
64 (22907475)	2
69 (16530635)	4
70 (16530634)	4
68 (17114529)	2
58 (15800516)	2
47 (18984718)	4
65 (22933489)	3
48 (25558377)	3
44 (23395032)	4
45 (22985733)	2
46 (22492172)	4
42 (16211385)	4
43 (16721954)	4

		71 (30048144)		3												
		72 (31633993)		2												
Radiography hip additional views	May be appropriate	Limited	☢☢ 0.1-1mSv		6	6	0	0	0	2	3	3	1	0	6	
		References		Study Quality												
		47 (18984718)		4												
CT arthrography hip	May be appropriate	Limited	☢☢☢ 1-10 mSv		5	5	0	0	0	1	12	2	0	0	0	
		References		Study Quality												
		17 (24071389)		2												
		16 (20716653)		3												
		44 (23395032)		4												
		42 (16211385)		4												
		43 (16721954)		4												
CT hip without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv		5	5	0	1	0	1	6	3	2	1	1	
		References		Study Quality												
		62 (8451409)		4												
		47 (18984718)		4												
		48 (25558377)		3												
		44 (23395032)		4												
		45 (22985733)		2												
		46 (22492172)		4												
		42 (16211385)		4												
		43 (16721954)		4												
		49 (29406341)		4												
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	May be appropriate	Moderate	Varies	Varies	5	5	0	0	2	0	11	2	0	0	0	
		References		Study Quality												
		19 (16177412)		4												

22 (23852899)	2
21 (15494331)	3
20 (-3195116)	4

US hip	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	3	3	4	3	2	2	3	0	1	0	0

References	Study Quality
41 (21381497)	3
17 (24071389)	2
39 (21136580)	4
73 (27405494)	2

MRI hip without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	8	2	5	0	0	0	0	0	0

References	Study Quality
64 (22907475)	2
34 (16275571)	4
61 (8657921)	3
62 (8451409)	4
63 (12606867)	4
65 (22933489)	3
66 (20872764)	2
67 (21048174)	2

Bone scan hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	12	1	1	1	0	0	0	0	0

References	Study Quality
44 (23395032)	4
42 (16211385)	4
43 (16721954)	4

CT hip without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	12	2	1	0	0	0	0	0	0

References	Study Quality
44 (23395032)	4
42 (16211385)	4
43 (16721954)	4

Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv		1	1	12	1	2	0	0	0	0	0	0

References	Study Quality
50 (26745810)	4
51 (31470763)	4

Variant 4: Chronic hip pain. Suspect labral tear. Radiographs negative or nondiagnostic. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography hip	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	2	2	11

References	Study Quality
76 (10430132)	2
77 (17383908)	3
78 (11479747)	4
80 (19380568)	3
81 (15972331)	4
58 (15800516)	2
82 (16857978)	2
18 (21298428)	2
75 (22865251)	2
56 (20859632)	M
16 (20716653)	3
57 (23073899)	2
59 (22878728)	2

		79 (17712555)		4												
		52 (24656977)		2												
MRI hip without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	0	3	6	6	
		References		Study Quality												
		76 (10430132)		2												
		77 (17383908)		3												
		78 (11479747)		4												
		69 (16530635)		4												
		70 (16530634)		4												
		86 (16436825)		4												
		68 (17114529)		2												
		58 (15800516)		2												
		79 (17712555)		4												
		85 (29843749)		2												
CT arthrography hip	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	0	0	6	3	4	1	1	
		References		Study Quality												
		18 (21298428)		2												
		17 (24071389)		2												
		74 (30838104)		3												
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	May be appropriate	Moderate	Varies	Varies	5	5	0	0	0	2	12	1	0	0	0	
		References		Study Quality												
		22 (23852899)		2												
		21 (15494331)		3												
		20 (-3195116)		4												
US hip	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	2	2	6	3	2	2	1	0	1	0	0	
		References		Study Quality												

		88 (19421915)		1												
		41 (21381497)		3												
		17 (24071389)		2												
		39 (21136580)		4												
		87 (30203593)		3												
CT hip without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	12	1	1	1	0	0	0	0	0
MRI hip without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	8	2	3	0	2	0	0	0	0
		References		Study Quality												
		34 (16275571)		4												
		61 (8657921)		3												
		62 (8451409)		4												
		63 (12606867)		4												
		84 (20173149)		3												
		83 (25277527)		3												
Bone scan hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	11	3	0	1	0	0	0	0	0
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	1	1	0	0	0	0	0	0
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	15	0	0	0	0	0	0	0	0

Variant 5: Chronic hip pain. Radiographs equivocal or positive for mild osteoarthritis. Evaluate articular cartilage integrity. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MR arthrography hip	Usually	Strong	O 0 mSv	O 0 mSv	9	9	0	0	0	1	0	0	2	3	9

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
	appropriate			[ped]											

References	Study Quality
89 (21822939)	4
95 (26001258)	4
52 (24656977)	2
55 (24370140)	2

MRI hip without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	3	4	8

References	Study Quality
98 (27325163)	4
93 (25352941)	3
91 (16037508)	1
18 (21298428)	2
89 (21822939)	4
85 (29843749)	2

CT arthrography hip	May be appropriate	Strong	☢☢☢ 1-10 mSv		6	6	0	0	0	2	2	4	2	3	2

References	Study Quality
93 (25352941)	3
90 (16242374)	3
91 (16037508)	1
92 (16990027)	2
18 (21298428)	2
89 (21822939)	4

Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually not appropriate	Limited	Varies	Varies	2	2	7	1	2	2	1	1	0	1	0

References	Study Quality

		94 (30415421)			4											
CT hip without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	12	2	0	1	0	0	0	0	0
MRI hip without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	9	2	4	0	0	0	0	0	0

		References			Study Quality											
		97 (26304042)			3											
		96 (28209142)			Inadequate											
Bone scan hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0
US hip	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	3	1	1	0	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	1	0	1	0	0	0	0	0
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	2	0	0	0	0	0	0	0
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	15	0	0	0	0	0	0	0	0

Variant 6: Chronic hip pain. Radiographs suspicious for intra-articular synovial hyperplasia or neoplasia, including nodular synovitis, diffuse tenosynovial giant cell tumor, osteochondromatosis, other synovial neoplasm. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI hip without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	1	0	1	8	5
MRI hip without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	1	0	2	1	4	6
CT arthrography hip	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv		4	4	1	1	3	4	5	0	0	0	1

CT hip without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	4	3	4	2	2	0	0	0	0
Image-guided aspiration hip	Usually not appropriate	Limited	Varies	Varies	3	3	6	0	2	3	4	0	0	0	0

References	Study Quality
99 (2845469)	4
100 (2383449)	4

MR arthrography hip	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	7	2	5	1	0	0	0	0	0
Bone scan hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0
US hip	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	1	2	1	0	0	1	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	0	0	2	0	0	0	0	0
CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	0	3	0	0	0	1	0	1
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	13	0	0	1	0	0	1	0	0
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	14	0	1	0	0	0	0	0	0

Variant 7: Chronic hip pain with low back or knee pathology or pain. Radiographs demonstrate hip osteoarthritis. Want to quantify amount of pain related to the hip. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	Usually appropriate	Moderate	Varies	Varies	9	9	0	0	0	0	2	1	0	3	9

References	Study Quality
19 (16177412)	4
22 (23852899)	2
21 (15494331)	3
20 (-3195116)	4

CT arthrography hip	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		1	1	11	2	2	0	0	0	0	0	0

References	Study Quality
93 (25352941)	3
90 (16242374)	3
91 (16037508)	1
92 (16990027)	2
13 (22915391)	4
18 (21298428)	2

CT hip without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	0	1	0	0	1	0	0	0
MR arthrography hip	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	10	1	1	2	1	0	0	0	0

References	Study Quality
13 (22915391)	4

MRI hip without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	2	0	0	0	0	0	0
MRI hip without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	1	0	1	1	0	0	0
Bone scan hip	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	12	0	1	1	0	0	0	0	1
US hip	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	0	1	0	1	0	0	0	0
CT hip with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0

CT hip without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	1	0	0	0	0	0	0	0
Fluoride PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	14	0	0	0	0	0	0	0	1

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.**