

American College of Radiology
ACR Appropriateness Criteria®

Acute Trauma to the Foot

Variant 1: Adult or child older than 5 years of age. Acute trauma to the foot. Ottawa rules can be evaluated without exclusionary criteria. Ottawa rules are negative. No suspected abnormalities in regions not evaluated by the Ottawa rules. Initial imaging.

[illegible]

CT foot with IV contrast	Usually not appropriate	Limited	☼ <0.1 mSv	☼☼☼ 0.03-0.3 mSv [ped]	1	1	16	0	0	0	0	1	0	0	0
		References		Study Quality											
		22 (15546842)		4											
		21 (15333345)		3											
CT foot without IV contrast	Usually not appropriate	Limited	☼ <0.1 mSv	☼☼☼ 0.03-0.3 mSv [ped]	1	1	13	1	0	0	1	1	1	0	0
		References		Study Quality											
		22 (15546842)		4											
		21 (15333345)		3											
CT foot without and with IV contrast	Usually not appropriate	Limited	☼ <0.1 mSv	☼☼☼ 0.03-0.3 mSv [ped]	1	1	16	0	0	1	0	0	0	0	0
		References		Study Quality											
		22 (15546842)		4											
		21 (15333345)		3											
MRI foot without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
US foot	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	1	1	12	1	1	0	2	0	1	0	0
		References		Study Quality											
		13 (20943841)		3											
		23 (25269589)		2											
		14 (29876703)		4											

Variant 3: Adult or child older than 5 years of age. Acute trauma to the foot. Ottawa rules cannot be evaluated due to exclusionary criteria. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography foot	Usually appropriate	Strong	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	9	9	0	0	0	0	0	0	0	2	15
		References	Study Quality												
		24 (16096591)	2												
		25 (8669741)	1												
		5 (9774943)	4												
CT foot without IV contrast	May be appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	5	5	0	0	1	0	10	3	0	3	0
		References	Study Quality												
		22 (15546842)	4												
		21 (15333345)	3												
		26 (26797374)	3												
CT foot with IV contrast	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	17	0	0	0	0	0	0	0	0
		References	Study Quality												
		22 (15546842)	4												
		21 (15333345)	3												
		26 (26797374)	3												
CT foot without and with IV contrast	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	15	0	0	0	0	0	2	0	0
		References	Study Quality												
		22 (15546842)	4												
		21 (15333345)	3												
		26 (26797374)	3												
MRI foot without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	11	3	1	0	1	0	0	1	0

MRI foot without and with IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	13	2	1	1	0	0	0	0	0
US foot	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	1	1	16	1	0	0	0	0	0	0	0

References	Study Quality
24 (16096591)	2
28 (11856673)	4
27 (9423650)	2

Variant 4: Adult or child older than 5 years of age. Acute trauma to the foot. Ottawa rules can be evaluated without exclusionary criteria. Ottawa rules are negative. Suspected pathology in an anatomic area not addressed by Ottawa rules (not involving the midfoot; eg, metatarsal-phalangeal joint, metatarsal, toe, tendon, etc). Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography foot	Usually appropriate	Limited	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	9	9	0	0	0	0	0	0	2	1	14

References	Study Quality
29 (23015979)	4
31 (25239377)	2
30 (23091286)	3

Radiography foot with weightbearing	Usually appropriate	Limited	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	9	9	0	0	0	0	0	0	3	4	10
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References	Study Quality
29 (23015979)	4
32 (22915389)	4

CT foot without IV contrast	May be appropriate (Disagreement)	Expert Opinion	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	5	5	2	1	0	1	7	3	2	1	0
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References	Study Quality
33 (10584818)	2

		21 (15333345)			3												
CT foot with IV contrast	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	15	0	0	1	0	1	0	0	0		
		References		Study Quality													
		33 (10584818)		2													
		21 (15333345)		3													
CT foot without and with IV contrast	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	15	0	0	1	0	1	0	0	0		
		References		Study Quality													
		33 (10584818)		2													
		21 (15333345)		3													
MRI foot without IV contrast	Usually not appropriate	Strong	⊖ 0 mSv	⊖ 0 mSv [ped]	1	1	11	0	0	1	4	1	0	0	0		
		References		Study Quality													
		38 (19048208)		4													
		34 (22619270)		2													
		36 (12496521)		1													
		37 (18820039)		3													
		35 (21645348)		3													
MRI foot without and with IV contrast	Usually not appropriate	Strong	⊖ 0 mSv	⊖ 0 mSv [ped]	1	1	13	1	0	3	0	0	0	0	0		
		References		Study Quality													
		38 (19048208)		4													
		34 (22619270)		2													
		36 (12496521)		1													
		37 (18820039)		3													
		35 (21645348)		3													
US foot	Usually not appropriate	Limited	⊖ 0 mSv	⊖ 0 mSv [ped]	1	1	14	2	1	0	0	0	0	0	0		
		References		Study Quality													

MRI foot without IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	3	0	4	10
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References	Study Quality
55 (10464721)	4
54 (18287423)	3
38 (19048208)	4
41 (21098178)	4
29 (23015979)	4
42 (19696279)	3
43 (9694121)	4
33 (10584818)	2
44 (19339574)	3
37 (18820039)	3
21 (15333345)	3
45 (22915209)	2
46 (18440481)	4
39 (22453857)	4
51 (26888876)	2
56 (27336454)	4
52 (29112474)	3
53 (29570372)	3

US foot	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	5	5	0	0	1	0	11	5	0	0	0
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References	Study Quality
58 (17996621)	4
57 (18094286)	3
63 (18095247)	4
64 (16819605)	3
32 (22915389)	4
59 (19244072)	4
39 (22453857)	4

43 (9694121)	4
33 (10584818)	2
44 (19339574)	3
22 (15546842)	4
21 (15333345)	3
45 (22915209)	2
46 (18440481)	4
48 (28112555)	4
47 (27234977)	4

MRI foot without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	14	1	0	0	0	0	2	0	0
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References	Study Quality
55 (10464721)	4
54 (18287423)	3
38 (19048208)	4
41 (21098178)	4
29 (23015979)	4
42 (19696279)	3
43 (9694121)	4
33 (10584818)	2
44 (19339574)	3
37 (18820039)	3
21 (15333345)	3
45 (22915209)	2
46 (18440481)	4
39 (22453857)	4
51 (26888876)	2
56 (27336454)	4
52 (29112474)	3
53 (29570372)	3

Variant 6: Adult or child older than 5 years of age. Acute trauma to the foot. Suspect penetrating trauma with a foreign body. Radiographs of the foot are negative. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US foot	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		24 (16096591)	2												
		28 (11856673)	4												
		25 (8669741)	1												
		27 (9423650)	2												
CT foot without IV contrast	May be appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	5	5	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		66 (22744349)	2												
MRI foot without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		28 (11856673)	4												
		66 (22744349)	2												
CT foot with IV contrast	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		66 (22744349)	2												
CT foot without and with IV contrast	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References	Study Quality												
		66 (22744349)	2												
		References	Study Quality												

		66 (22744349)			2											
MRI foot without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0	
		References			Study Quality											
		28 (11856673)			4											
		66 (22744349)			2											

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.