American College of Radiology
ACR Appropriateness Criteria®

Acute Trauma to the Foot

Variant 1: Adult or child >5 years old. Acute injury to the foot; positive Ottawa Rules, suspicious for fracture. First study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
X-ray foot	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 2: Adult or child >5 years old. Acute injury to the foot; does not meet the Ottawa Rules; no focal tenderness in the foot or palpable abnormality of the foot on physical examination; able to walk; neurologically intact (including no peripheral neuropathy). First study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
X-ray foot	Usually not appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 3: Adult or child >5 years old. Acute injury to the foot; does not meet the Ottawa Rules; patient is not neurologically intact and/or has a peripheral neuropathy that involves the feet. First study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
X-ray foot	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 4: Adult or child >5 years old. Acute injury to the foot; does not meet the Ottawa Rules; patient has polytrauma. First study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
X-ray foot	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 5: Adult or child >5 years old. Acute injury to the foot; does not meet the Ottawa Rules; physical examination is concerning for a Lisfranc injury. First study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
X-ray foot	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
X-ray foot with weight bearing	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 6: Adult or child >5 years old. Acute injury to the foot; physical examination is concerning for a Lisfranc injury. Radiographs are normal and patient is not able to tolerate a weight-bearing radiographic view. 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 foot without IV contrast	Usually appropriate		O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 7: Adult or child >5 years old. Acute injury to the foot; physical examination is concerning for an acute tendinous rupture or dislocation in the foot; radiographs 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
MRI foot without IV contrast	Usually appropriate		O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
US foot	May be appropriate		O 0 mSv	O 0 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	May be appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 8: Adult or child >5 years old. Metatarsal-phalangeal joint injury. Suspect plantar plate injury. First study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
X-ray foot	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
X-ray foot forced dorsiflexion lateral	May be appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
Fluoroscopy foot	May be appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
MRI foot without IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 9: Adult or child >5 years old. Acute injury to the foot; physical examination is concerning for penetrating trauma with a foreign body in the soft tissues. First study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
X-ray foot	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
US foot	Usually appropriate		O 0 mSv	O 0 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI foot without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 10: Adult or child >5 years old. Acute injury to the foot; physical examination is concerning for penetrating trauma with a foreign body in the soft tissues. Radiographs of the foot are negative. Next best 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		O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0

MRI foot without IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT foot without IV contrast	May be appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate		☢ <0.1 mSv	☢☢ 0.03-0.3 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.**