

**American College of Radiology
ACR Appropriateness Criteria®**

Suspected Osteomyelitis of the Foot in Patients with Diabetes Mellitus

Variant 1: Suspected osteomyelitis of the foot in patients with diabetes mellitus. 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	0	0	11
		References	Study Quality												
		11 (28366223)	4												
		12 (21636263)	4												
		13 (20567730)	4												
CT foot with IV contrast	Usually not appropriate	Expert Consensus	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	10	0	1	0	0	0	0	0	0
CT foot without IV contrast	Usually not appropriate	Expert Consensus	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	10	0	1	0	0	0	0	0	0
CT foot without and with IV contrast	Usually not appropriate	Expert Consensus	⊕ <0.1 mSv	⊕⊕ 0.03-0.3 mSv [ped]	1	1	10	0	1	0	0	0	0	0	0
MRI foot without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	10	0	0	1	0	0	0	0	0
MRI foot without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	9	0	0	1	1	0	0	0	0
Tc-99m 3-phase bone scan foot	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		1	1	10	0	0	0	0	1	0	0	0

29 (15049523)	4
28 (8518119)	3
27 (21868781)	4
26 (23897135)	3
25 (10421237)	3
24 (18036160)	2
23 (17242312)	M
22 (19098186)	3

MRI foot without IV contrast	Usually appropriate	Strong	0 mSv	0 mSv [ped]	8	8	0	1	0	0	1	1	1	4	3
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References	Study Quality
2 (28497161)	3
22 (19098186)	3
21 (16037509)	3
20 (9169715)	3
19 (18956147)	3
18 (15863990)	3
17 (24764120)	4
28 (8518119)	3
27 (21868781)	4
26 (23897135)	3
25 (10421237)	3
24 (18036160)	2
23 (17242312)	M
29 (15049523)	4

CT foot with IV contrast	May be appropriate	Limited	<0.1 mSv	0.03-0.3 mSv [ped]	5	5	0	0	0	1	9	2	0	0	0
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References	Study Quality
15 (29058098)	4
16 (18025514)	4
17 (24764120)	4

In-111 WBC scan foot	May be appropriate	Limited	☼☼☼☼ 10-30 mSv		4	4	1	1	2	2	5	0	0	0	0
		References			Study Quality										
		34 (16702459)			4										
		35 (3157204)			3										
Tc-99m 3-phase bone scan and In-111 WBC scan foot	May be appropriate	Limited	☼☼☼☼ 10-30 mSv		4	4	1	1	0	5	5	0	0	0	0
		References			Study Quality										
		32 (3171695)			3										
		33 (2341891)			3										
In-111 WBC and Tc-99m sulfur colloid marrow scan foot	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv		2	2	6	2	1	1	2	0	0	0	0
		References			Study Quality										
		36 (9476948)			3										
		37 (17127204)			4										
Tc-99m 3-phase bone scan and In-111 WBC scan and Tc-99m sulfur colloid marrow scan foot	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv		2	2	4	3	0	2	2	0	1	0	0
		References			Study Quality										
		36 (9476948)			3										
		38 (26706230)			3										
CT foot without and with IV contrast	Usually not appropriate	Limited	☼ <0.1 mSv	☼☼ 0.03-0.3 mSv [ped]	1	1	11	0	1	0	0	0	0	0	0
		References			Study Quality										
		3 (27587513)			4										
		13 (20567730)			4										
		15 (29058098)			4										
		16 (18025514)			4										
		17 (24764120)			4										
Tc-99m 3-phase bone scan foot	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		1	1	6	0	1	2	1	1	0	0	0

References	Study Quality
30 (26883537)	4
31 (10395336)	3

US foot	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	7	1	0	2	1	0	0	0	0
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Variant 3: Soft-tissue swelling with ulcer. Suspected osteomyelitis of the foot in patients with diabetes mellitus with or without neuropathic arthropathy. Additional imaging following radiographs.

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

References	Study Quality
2 (28497161)	3
21 (16037509)	3
20 (9169715)	3
19 (18956147)	3
18 (15863990)	3
17 (24764120)	4
29 (15049523)	4
28 (8518119)	3
27 (21868781)	4
26 (23897135)	3
25 (10421237)	3
24 (18036160)	2
23 (17242312)	M
22 (19098186)	3

MRI foot without IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	8	8	0	1	0	0	1	0	2	4	3
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References	Study Quality
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2 (28497161)	3
22 (19098186)	3
21 (16037509)	3
20 (9169715)	3
19 (18956147)	3
18 (15863990)	3
17 (24764120)	4
27 (21868781)	4
26 (23897135)	3
25 (10421237)	3
24 (18036160)	2
23 (17242312)	M
28 (8518119)	3
29 (15049523)	4

CT foot with IV contrast	May be appropriate	Limited	☼ <0.1 mSv	☼☼☼ 0.03-0.3 mSv [ped]	5	5	0	0	0	2	8	1	1	0	0
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References	Study Quality
3 (27587513)	4
13 (20567730)	4
15 (29058098)	4
16 (18025514)	4
17 (24764120)	4

CT foot without IV contrast	May be appropriate	Limited	☼ <0.1 mSv	☼☼☼ 0.03-0.3 mSv [ped]	5	5	1	0	1	2	4	2	1	0	0
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References	Study Quality
3 (27587513)	4
13 (20567730)	4
15 (29058098)	4
16 (18025514)	4
17 (24764120)	4

In-111 WBC scan foot	May be appropriate	Limited	☼☼☼☼ 10-30 mSv		4	4	1	1	1	3	5	0	0	0	0
		References			Study Quality										
		35 (3157204)			3										
		34 (16702459)			4										
In-111 WBC and Tc-99m sulfur colloid marrow scan foot	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv		2	2	6	2	1	1	2	0	0	0	0
		References			Study Quality										
		36 (9476948)			3										
		37 (17127204)			4										
Tc-99m 3-phase bone scan and In-111 WBC scan and Tc-99m sulfur colloid marrow scan foot	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv		2	2	6	2	0	1	2	0	1	0	0
		References			Study Quality										
		36 (9476948)			3										
		38 (26706230)			3										
CT foot without and with IV contrast	Usually not appropriate	Limited	☼ <0.1 mSv	☼☼ 0.03-0.3 mSv [ped]	1	1	10	0	1	0	0	0	0	0	0
		References			Study Quality										
		3 (27587513)			4										
		13 (20567730)			4										
		15 (29058098)			4										
		16 (18025514)			4										
		17 (24764120)			4										
US foot	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	7	1	2	1	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.