

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

**Routine Chest Imaging**

**Variant 1: Routine chest imaging for hospital admission. No clinical concern for cardiopulmonary disease. Initial Imaging.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography chest	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	2	2	7	5	4	1	0	0	0	0	0
		References		Study Quality											
		11 (31897494)		2											
		12 (20928990)		4											
CTA chest with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	14	0	0	1	1	0	0	0	0
CT chest with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	14	0	0	0	1	1	0	0	0
CT chest without IV contrast	Usually not appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	17	0	0	0	0	0	0	0	0
		References		Study Quality											
		9 (31407223)		2											
		10 (26781150)		4											
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	14	0	0	0	2	0	0	0	0
MRI chest without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	0	0	0	0	0	0	0

MRI chest without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	1	1	0	0	0	0	0	0
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	⊛⊛⊛⊛ 10-30 mSv	⊛⊛⊛⊛ 3-10 mSv [ped]	1	1	15	0	1	0	0	0	0	0	0
CTA chest without and with IV contrast	Usually not appropriate	Expert Consensus	⊛⊛⊛ 1-10 mSv		1	1	14	1	0	0	1	0	0	0	0

**Variant 2: Routine preoperative chest imaging for noncardiothoracic surgery. No history of chronic cardiopulmonary disease or cardiothoracic surgery. Initial imaging.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography chest	Usually not appropriate	Limited	⊛ <0.1 mSv	⊛ <0.03 mSv [ped]	2	2	4	7	5	0	1	0	0	0	0

References	Study Quality
20 (21959515)	2
19 (2383834)	4
18 (8269561)	M
17 (15983140)	4
16 (28810091)	4
15 (24716201)	4
14 (15525886)	4
13 (21911881)	4
6 (6645012)	4
5 (87976)	4

CTA chest with IV contrast	Usually not appropriate	Expert Consensus	⊛⊛⊛ 1-10 mSv	⊛⊛⊛⊛ 3-10 mSv [ped]	1	1	13	2	0	1	0	0	0	0	0
CT chest with IV contrast	Usually not appropriate	Limited	⊛⊛⊛ 1-10 mSv	⊛⊛⊛⊛ 3-10 mSv [ped]	1	1	10	1	1	1	1	1	1	0	0

References	Study Quality
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28 (21722852)	4
27 (22156267)	4
26 (16618955)	2
24 (29708905)	4
23 (8004892)	4
22 (3383317)	4
21 (29477256)	4
20 (21959515)	2
15 (24716201)	4
14 (15525886)	4
13 (21911881)	4

CT chest with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	6	6	5	0	0	0	0	0	0
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References	Study Quality
15 (24716201)	4
14 (15525886)	4
13 (21911881)	4

CT chest without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	3	6	5	1	2	0	0	0	0
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References	Study Quality
15 (24716201)	4
14 (15525886)	4
13 (21911881)	4

CTA chest with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	12	1	1	1	0	1	0	0	0
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CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	11	2	1	0	0	1	1	0	0
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MRI chest without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	12	1	1	2	0	0	0	0	0
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MRI chest without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	12	1	1	2	0	0	0	0	0
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	13	1	0	1	1	0	0	0	0
CTA chest without and with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		1	1	12	2	0	1	1	0	0	0	0

**Variant 4: Routine chest imaging. History of chronic cardiopulmonary disease with stable clinical findings. Surveillance chest imaging.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT chest without IV contrast	May be appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	1	1	2	13	0	0	0	0
		References	Study Quality												
		33 (28473092)	4												
		32 (32370962)	4												
		31 (33075377)	4												
		30 (34794591)	4												
Radiography chest	May be appropriate	Limited	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	5	5	0	0	1	2	7	5	2	0	0
		References	Study Quality												
		33 (28473092)	4												
		32 (32370962)	4												
		30 (34794591)	4												
CT chest with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	3	3	7	1	3	1	2	1	0	0	1
CTA chest with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	9	1	2	1	2	0	1	0	0

CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	11	1	2	0	0	1	0	0	1
MRI chest without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	1	1	9	3	2	1	0	1	0	0	0
		References		Study Quality											
		34 (32870136)		4											
		35 (24361974)		4											
MRI chest without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	1	1	9	3	2	1	0	1	0	0	0
		References		Study Quality											
		34 (32870136)		4											
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	12	2	1	0	0	1	0	0	0
CTA chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	9	1	4	0	1	0	1	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](http://www.acr.org/ac).