American College of Radiology
ACR Appropriateness Criteria®

Suspected Pulmonary Embolism

Variant 1: Suspected pulmonary embolism. Intermediate probability with a negative D-dimer or low pretest probability.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography chest	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CTA chest with IV contrast	May be appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT chest with IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	0
US duplex Doppler lower extremity	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	0
Tc-99m V/Q scan lung	Usually not appropriate		☢☢☢ 1-10 mSv		2	n/a	0	0	0	0	0	0	0	0	0
US echocardiography transthoracic resting	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CTA chest with IV contrast with CTV lower extremities	Usually not appropriate		☢☢☢ 1-10 mSv		2	n/a	0	0	0	0	0	0	0	0	0
CT chest without IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
MRA chest without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0

US echocardiography transesophageal	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
Arteriography pulmonary with right heart catheterization	Usually not appropriate		☢☢☢☢ 10-30 mSv		1	n/a	0	0	0	0	0	0	0	0	0
MRA chest 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

Variant 2: Suspected pulmonary embolism. Intermediate probability with a positive D-dimer or high pretest probability.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT chest with IV contrast	Usually appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
Radiography chest	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
CTA chest with IV contrast	Usually appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
Tc-99m V/Q scan lung	Usually appropriate		☢☢☢ 1-10 mSv		7	n/a	0	0	0	0	0	0	0	0	0
US duplex Doppler lower extremity	Usually appropriate		O 0 mSv	O 0 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
MRA chest without and with IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	6	n/a	0	0	0	0	0	0	0	0	0
CTA chest with IV contrast with CTV lower extremities	May be appropriate		☢☢☢ 1-10 mSv		5	n/a	0	0	0	0	0	0	0	0	0

US echocardiography transthoracic resting	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	0
Arteriography pulmonary with right heart catheterization	Usually not appropriate		☢☢☢☢ 10-30 mSv		3	n/a	0	0	0	0	0	0	0	0	0
US echocardiography transesophageal	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT chest without IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
MRA chest without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0

Variant 3: Suspected pulmonary embolism. Pregnant patient.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography chest	Usually appropriate		☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
US duplex Doppler lower extremity	Usually appropriate		O 0 mSv	O 0 mSv [ped]	8	n/a	0	0	0	0	0	0	0	0	0
CTA chest with IV contrast	Usually appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
Tc-99m V/Q scan lung	Usually appropriate		☢☢☢ 1-10 mSv		7	n/a	0	0	0	0	0	0	0	0	0
CT chest with IV contrast	Usually appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0

Arteriography pulmonary with right heart catheterization	May be appropriate		☢☢☢☢ 10-30 mSv		4	n/a	0	0	0	0	0	0	0	0	0
CTA chest with IV contrast with CTV lower extremities	Usually not appropriate		☢☢☢ 1-10 mSv		3	n/a	0	0	0	0	0	0	0	0	0
MRA chest without IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	0
MRA chest without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	0
US echocardiography transesophageal	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
US echocardiography transthoracic resting	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT chest without IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	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.**