American College of Radiology
ACR Appropriateness Criteria®

Lung Cancer Screening

Variant 1: Lung cancer screening. Patient 50 to 80 years of age and 20 or more packs per year smoking history and currently smoke or have quit within the past 15 years. Initial 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 screening	Usually appropriate	Strong	☢☢☢ 1-10 mSv		9	9	0	0	0	0	0	0	0	2	14

References	Study Quality
3 (21714641)	3
20 (29989522)	2
23 (30129479)	4
19 (27364640)	2
22 (29729002)	2
24 (30377905)	2
18 (31995683)	2
21 (33687469)	4
12 (33687470)	4
15 (34636916)	4
25 (31246249)	2

CT chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	0	2	1	2	0	0	1	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	0	2	0	2	1	0	0	0

MRI chest without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	11	0	3	1	1	0	0	0	0

References	Study Quality
30 (29992387)	4
29 (27665148)	4
28 (31748855)	2

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

References	Study Quality
26 (27688481)	2
27 (30527183)	4

Radiography chest	Usually not appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	11	2	3	0	0	0	0	0	0

References	Study Quality
3 (21714641)	3

Variant 2: Lung cancer screening. Patient younger than 50 years of age and 20 or more packs per year history of smoking and one additional risk factor (ie, radon exposure or occupational exposure or cancer history or family history of lung cancer or history of COPD or history of pulmonary fibrosis). Initial 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 screening	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		3	3	2	4	3	2	5	0	0	1	0

References	Study Quality
33 (32728771)	4
34 (33327274)	2
35 (33430831)	4
32 (33581343)	2

References	Study Quality
37 (30138066)	2
36 (30325420)	2
31 (29632062)	4
12 (33687470)	4
1 (35020204)	4

CT chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	0	1	1	2	0	0	1	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	0	1	0	2	1	0	0	0
MRI chest without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	0	0	1	1	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	15	0	0	0	1	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	14	1	0	0	1	0	0	0	0
Radiography chest	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	13	1	2	0	0	0	0	0	0

Variant 3: Lung cancer screening. Patient of any age with less than 20 packs per year history of smoking, and no additional risk factor (ie, radon exposure or occupational exposure or cancer history or family history of lung cancer or history of COPD or history of pulmonary fibrosis). Initial 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 screening	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		2	2	7	6	4	0	0	0	0	0	0

References	Study Quality
35 (33430831)	4
44 (33514608)	4
43 (31848206)	2

39 (32482786)	2
45 (28724283)	2
42 (28783541)	2
40 (28874145)	2
38 (30445189)	2
41 (17290054)	4

CT chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	0	0	1	0	0	0	1	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	0	0	0	1	0	0	0
MRI chest without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	0	1	0	1	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	15	0	0	0	1	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	1	0	0	0	0	0	0	0
Radiography chest	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	15	1	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.**