

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

# Noninvasive Clinical Staging of Primary Lung Cancer

**Variant 1: Noninvasive initial clinical staging of non-small-cell lung carcinoma.**

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	Limited	☻☻☻ 1-10 mSv	☻☻☻☻ 3-10 mSv [ped]	9	9	0	0	0	0	0	1	1	2	9
		References		Study Quality											
		12 (12527573)		4											
		13 (16731115)		3											
		14 (18291191)		2											
		11 (23649440)		4											
		15 (28651988)		4											
FDG-PET/CT skull base to mid-thigh	Usually appropriate	Strong	☻☻☻☻ 10-30 mSv	☻☻☻☻ 3-10 mSv [ped]	9	9	0	0	0	0	0	2	1	1	9
		References		Study Quality											
		35 (19144446)		3											
		13 (16731115)		3											
		17 (14688710)		3											
		19 (11978336)		1											
		30 (17588407)		3											
		29 (18024539)		3											
		36 (12665681)		4											
		33 (15140545)		3											
		22 (19571281)		1											

31 (21330566)	Good
11 (23649440)	4
16 (11380213)	2
18 (15197196)	1
20 (10478250)	2
21 (14693872)	2
23 (16151765)	1
24 (15620991)	Good
25 (21587082)	2
26 (24082283)	3
27 (26013292)	4
28 (-3127897)	4
32 (9724372)	2
34 (21354739)	Good
37 (9636830)	3

MRI head without and with IV contrast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	0	3	2	3	5
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References	Study Quality
39 (17762336)	4
42 (6094117)	4
11 (23649440)	4
40 (14568686)	3
41 (10189463)	2

CT chest without IV contrast	Usually appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	7	7	0	1	0	0	2	2	3	3	2
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References	Study Quality
12 (12527573)	4
13 (16731115)	3
14 (18291191)	2
11 (23649440)	4
15 (28651988)	4

CT abdomen and pelvis with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	1	0	3	5	1	0	3
		References	Study Quality												
		11 (23649440)	4												
CT head with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	6	6	0	0	1	0	5	4	3	0	0
		References	Study Quality												
		43 (1902031)	4												
		44 (10084481)	3												
		11 (23649440)	4												
CT head without and with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	0	0	2	1	8	2	0	0	0
		References	Study Quality												
		43 (1902031)	4												
		44 (10084481)	3												
		11 (23649440)	4												
MRI abdomen without and with IV contrast	May be appropriate	Moderate	○ ○ mSv	○ ○ mSv [ped]	5	5	1	0	1	1	9	1	0	0	0
		References	Study Quality												
		31 (21330566)	Good												
		49 (23549390)	4												
MRI chest without and with IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	5	5	1	1	2	2	5	2	0	0	0
		References	Study Quality												
		45 (18349458)	4												
		46 (18373824)	3												
		47 (16028243)	3												
		48 (23593186)	2												
MRI head without IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	5	5	0	0	4	1	5	3	0	0	0

		References		Study Quality											
		11 (23649440)		4											
		40 (14568686)		3											
Bone scan whole body	May be appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	1	0	1	4	5	2	0	0	0
		References		Study Quality											
		35 (19144446)		3											
		34 (21354739)		Good											
		38 (21094027)		Good											
CT abdomen and pelvis without IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	2	0	3	3	5	0	0	0	0
		References		Study Quality											
		11 (23649440)		4											
CT abdomen and pelvis without and with IV contrast	May be appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	4	4	1	0	3	3	4	2	0	0	0
		References		Study Quality											
		11 (23649440)		4											
MRI abdomen without IV contrast	May be appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	4	4	1	0	3	5	4	0	0	0	0
CT head without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	3	3	3	1	6	1	2	0	0	0	0
		References		Study Quality											
		43 (1902031)		4											
		44 (10084481)		3											
		11 (23649440)		4											
MRI chest without IV contrast	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	3	3	2	1	4	4	1	1	0	0	0
		References		Study Quality											
		45 (18349458)		4											



			55 (3034008)		3													
			59 (15310768)		2													
			60 (15258700)		2													
			31 (21330566)		Good													
			34 (21354739)		Good													
			37 (9636830)		3													
			51 (23649448)		4													
			52 (23307985)		4													
			56 (21409347)		3													
			57 (19921339)		3													
			58 (15057156)		3													
CT abdomen and pelvis with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	3	3	1	0	6			
		References			Study Quality													
		55 (3034008)			3													
CT chest without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	1	4	3	2	1	2			
		References			Study Quality													
		50 (25310425)			4													
		51 (23649448)			4													
CT head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	0	0	0	1	7	4	1	0	0			
		References			Study Quality													
		51 (23649448)			4													
MRI abdomen without and with IV contrast	May be appropriate	Moderate	O O mSv	O O mSv [ped]	5	5	1	0	1	0	5	5	1	0	0			
		References			Study Quality													
		31 (21330566)			Good													
		49 (23549390)			4													

MRI head without IV contrast	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	5	5	0	0	3	3	6	1	0	0	0
Bone scan whole body	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	1	0	1	4	5	2	0	0	0
		References		Study Quality											
		62 (10473359)		4											
		51 (23649448)		4											
		63 (27877227)		3											
CT abdomen and pelvis without IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	2	0	1	7	2	1	0	0	0
		References		Study Quality											
		55 (3034008)		3											
CT abdomen and pelvis without and with IV contrast	May be appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	4	4	1	0	4	3	3	2	0	0	0
		References		Study Quality											
		55 (3034008)		3											
CT head without and with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	0	1	4	3	4	1	0	0	0
		References		Study Quality											
		51 (23649448)		4											
MRI abdomen without IV contrast	May be appropriate	Moderate	0 0 mSv	0 0 mSv [ped]	4	4	2	0	2	3	4	2	0	0	0
		References		Study Quality											
		31 (21330566)		Good											
		49 (23549390)		4											
MRI chest without and with IV contrast	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	4	4	1	0	2	5	5	0	0	0	0
		References		Study Quality											





## **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).