

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

Diffuse Lung Disease

Variant 1: Suspected diffuse lung disease. 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	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	9	9	0	0	0	0	0	0	0	1	11

References	Study Quality
30 (18806139)	4
38 (8153310)	2
40 (1535900)	4
44 (2717730)	2
53 (15878493)	2
55 (3797650)	2
57 (1620845)	3
28 (25317858)	3
29 (18982210)	4
31 (26571061)	2
61 (21926853)	3
62 (20622689)	2
49 (25810444)	2
56 (25810443)	2
50 (23293132)	3
75 (25106847)	2
51 (24953093)	2

43 (24038345)	2
69 (23392130)	1
41 (19997848)	2
82 (31335694)	2
48 (26452110)	4
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
2 (24032382)	4
66 (24927326)	4
34 (27180021)	1
33 (26901003)	4
9 (30168753)	4
27 (29154106)	4
72 (23222877)	1
59 (25203455)	4
32 (25591580)	4
64 (25211168)	4
76 (27809901)	2
73 (27758993)	2
83 (26724656)	2
68 (26253261)	4
54 (28877976)	4
63 (28583621)	4
35 (28515041)	4
67 (28483105)	4
52 (27811068)	4
60 (30467322)	2
36 (30053966)	2
81 (28929225)	2

47 (30344228)	2
37 (31094467)	4
58 (18235106)	2
65 (12703023)	2
70 (24479411)	2
71 (17218621)	1
74 (10632484)	2
77 (12802000)	2
78 (30139770)	2
79 (28493789)	2
80 (25262954)	2
10 (32706311)	4

Radiography chest	Usually appropriate	Strong	☼ <0.1 mSv	☼ <0.03 mSv [ped]	7	7	0	0	0	1	0	0	6	1	4
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References	Study Quality
38 (8153310)	2
40 (1535900)	4
44 (2717730)	2
119 (642974)	4
49 (25810444)	2
50 (23293132)	3
51 (24953093)	2
43 (24038345)	2
41 (19997848)	2
120 (21622551)	2
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
121 (22098943)	4
47 (30344228)	2

CT chest with IV contrast	May be appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	0	0	3	4	3	2	0	0	0
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References	Study Quality
30 (18806139)	4
38 (8153310)	2
40 (1535900)	4
44 (2717730)	2
53 (15878493)	2
55 (3797650)	2
57 (1620845)	3
28 (25317858)	3
29 (18982210)	4
31 (26571061)	2
61 (21926853)	3
62 (20622689)	2
49 (25810444)	2
56 (25810443)	2
50 (23293132)	3
75 (25106847)	2
51 (24953093)	2
43 (24038345)	2
69 (23392130)	1
41 (19997848)	2
82 (31335694)	2
48 (26452110)	4
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
2 (24032382)	4
66 (24927326)	4

34 (27180021)	1
33 (26901003)	4
9 (30168753)	4
27 (29154106)	4
72 (23222877)	1
59 (25203455)	4
32 (25591580)	4
64 (25211168)	4
76 (27809901)	2
73 (27758993)	2
83 (26724656)	2
68 (26253261)	4
54 (28877976)	4
63 (28583621)	4
35 (28515041)	4
67 (28483105)	4
52 (27811068)	4
60 (30467322)	2
36 (30053966)	2
81 (28929225)	2
47 (30344228)	2
37 (31094467)	4
58 (18235106)	2
65 (12703023)	2
70 (24479411)	2
71 (17218621)	1
74 (10632484)	2
77 (12802000)	2
78 (30139770)	2
79 (28493789)	2
80 (25262954)	2

		10 (32706311)			4													
MRI chest without IV contrast	Usually not appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	2	2	5	3	2	0	0	1	0	0	1			

References	Study Quality
107 (20027548)	1
118 (18356432)	2
111 (23523024)	2
112 (24355658)	2
115 (25816104)	4
108 (28067202)	2
113 (27107755)	2
110 (26981454)	2
114 (29297607)	2
117 (28860333)	4
116 (30658930)	4
109 (30801449)	4
106 (26537956)	2

FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Strong	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	2	2	5	2	3	0	1	0	0	0	1			

References	Study Quality
90 (19289428)	3
87 (27581824)	4
92 (21242947)	2
95 (23900129)	4
91 (27842667)	2
97 (27339874)	3
105 (25447964)	4
85 (25007087)	4
89 (24751452)	2
101 (24703482)	4
98 (24234183)	2

100 (23486337)	2
86 (23429384)	2
88 (20665390)	4
96 (21899998)	2
99 (22879080)	2
94 (22128762)	2
104 (23942907)	2
103 (26359263)	2
93 (26166096)	4
102 (25995034)	2

CT chest without and with IV contrast	Usually not appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	9	1	0	0	1	0	0	1	0
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References	Study Quality
30 (18806139)	4
38 (8153310)	2
40 (1535900)	4
44 (2717730)	2
53 (15878493)	2
55 (3797650)	2
57 (1620845)	3
28 (25317858)	3
29 (18982210)	4
31 (26571061)	2
61 (21926853)	3
62 (20622689)	2
49 (25810444)	2
56 (25810443)	2
50 (23293132)	3
75 (25106847)	2
51 (24953093)	2
43 (24038345)	2

69 (23392130)	1
41 (19997848)	2
82 (31335694)	2
48 (26452110)	4
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
2 (24032382)	4
66 (24927326)	4
34 (27180021)	1
33 (26901003)	4
9 (30168753)	4
27 (29154106)	4
72 (23222877)	1
59 (25203455)	4
32 (25591580)	4
64 (25211168)	4
76 (27809901)	2
73 (27758993)	2
83 (26724656)	2
68 (26253261)	4
54 (28877976)	4
63 (28583621)	4
35 (28515041)	4
67 (28483105)	4
52 (27811068)	4
60 (30467322)	2
36 (30053966)	2
81 (28929225)	2
47 (30344228)	2

37 (31094467)	4
58 (18235106)	2
65 (12703023)	2
70 (24479411)	2
71 (17218621)	1
74 (10632484)	2
77 (12802000)	2
78 (30139770)	2
79 (28493789)	2
80 (25262954)	2
10 (32706311)	4

MRI chest without and with IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	1	1	7	5	0	0	0	0	0	0	0
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References	Study Quality
107 (20027548)	1
118 (18356432)	2
111 (23523024)	2
112 (24355658)	2
115 (25816104)	4
108 (28067202)	2
113 (27107755)	2
110 (26981454)	2
114 (29297607)	2
117 (28860333)	4
116 (30658930)	4
109 (30801449)	4
106 (26537956)	2

Variant 2: Confirmed diffuse lung disease. Suspected acute exacerbation or acute deterioration. Initial Imaging.

Variant 3: Confirmed diffuse lung disease without acute clinical deterioration. Routine follow-up imaging clinically indicated.

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	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	9	9	0	0	0	0	0	0	0	1	11

References	Study Quality
38 (8153310)	2
40 (1535900)	4
44 (2717730)	2
61 (21926853)	3
62 (20622689)	2
49 (25810444)	2
50 (23293132)	3
51 (24953093)	2
43 (24038345)	2
69 (23392130)	1
150 (21412103)	2
41 (19997848)	2
48 (26452110)	4
153 (25916462)	2
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
9 (30168753)	4
27 (29154106)	4
72 (23222877)	1
59 (25203455)	4

64 (25211168)	4
76 (27809901)	2
73 (27758993)	2
68 (26253261)	4
63 (28583621)	4
67 (28483105)	4
154 (27565631)	2
60 (30467322)	2
47 (30344228)	2
8 (15894598)	1
70 (24479411)	2
125 (21071764)	3
126 (15653982)	4
127 (9196515)	4
128 (27314401)	4
129 (9240543)	4
130 (24522562)	1
131 (22580808)	2
132 (8697837)	2
133 (16145289)	2
134 (22805187)	2
135 (25896472)	4
136 (10511155)	2
137 (22446354)	2
138 (10934089)	4
139 (23096169)	2
140 (20858818)	4
141 (1503008)	4
142 (12232448)	4
143 (17135233)	4
144 (10667656)	4

145 (15232373)	2
146 (21298694)	2
147 (8372179)	2
148 (15642299)	2
149 (18270375)	2
151 (20538446)	2
152 (27829068)	4
10 (32706311)	4

Radiography chest	May be appropriate (Disagreement)	Expert Opinion	☼ <0.1 mSv	☼ <0.03 mSv [ped]	5	5	0	0	3	5	1	1	2	0	0
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References	Study Quality
38 (8153310)	2
40 (1535900)	4
44 (2717730)	2
49 (25810444)	2
50 (23293132)	3
51 (24953093)	2
43 (24038345)	2
41 (19997848)	2
120 (21622551)	2
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
121 (22098943)	4
47 (30344228)	2

CT chest with IV contrast	May be appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	1	1	4	1	4	1	0	0	0
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References	Study Quality
38 (8153310)	2

40 (1535900)	4
44 (2717730)	2
61 (21926853)	3
62 (20622689)	2
49 (25810444)	2
50 (23293132)	3
51 (24953093)	2
43 (24038345)	2
69 (23392130)	1
150 (21412103)	2
41 (19997848)	2
48 (26452110)	4
153 (25916462)	2
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
9 (30168753)	4
27 (29154106)	4
72 (23222877)	1
59 (25203455)	4
64 (25211168)	4
76 (27809901)	2
73 (27758993)	2
68 (26253261)	4
63 (28583621)	4
67 (28483105)	4
154 (27565631)	2
60 (30467322)	2
47 (30344228)	2
8 (15894598)	1

70 (24479411)	2
125 (21071764)	3
126 (15653982)	4
127 (9196515)	4
128 (27314401)	4
129 (9240543)	4
130 (24522562)	1
131 (22580808)	2
132 (8697837)	2
133 (16145289)	2
134 (22805187)	2
135 (25896472)	4
136 (10511155)	2
137 (22446354)	2
138 (10934089)	4
139 (23096169)	2
140 (20858818)	4
141 (1503008)	4
142 (12232448)	4
143 (17135233)	4
144 (10667656)	4
145 (15232373)	2
146 (21298694)	2
147 (8372179)	2
148 (15642299)	2
149 (18270375)	2
151 (20538446)	2
152 (27829068)	4
10 (32706311)	4

MRI chest without IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	2	2	6	3	1	0	0	1	0	0	1
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References	Study Quality
107 (20027548)	1
118 (18356432)	2
111 (23523024)	2
112 (24355658)	2
115 (25816104)	4
108 (28067202)	2
113 (27107755)	2
110 (26981454)	2
114 (29297607)	2
117 (28860333)	4
116 (30658930)	4
109 (30801449)	4
106 (26537956)	2

FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Strong	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	5	2	2	1	2	0	0	0	0
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References	Study Quality
90 (19289428)	3
87 (27581824)	4
92 (21242947)	2
95 (23900129)	4
91 (27842667)	2
89 (24751452)	2
98 (24234183)	2
100 (23486337)	2
86 (23429384)	2
96 (21899998)	2
99 (22879080)	2
93 (26166096)	4
102 (25995034)	2

CT chest without and with IV contrast	Usually not appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	8	1	1	0	1	0	0	1	0
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References	Study Quality
38 (8153310)	2
40 (1535900)	4
44 (2717730)	2
61 (21926853)	3
62 (20622689)	2
49 (25810444)	2
50 (23293132)	3
51 (24953093)	2
43 (24038345)	2
69 (23392130)	1
150 (21412103)	2
41 (19997848)	2
48 (26452110)	4
153 (25916462)	2
42 (2928513)	4
46 (2217770)	4
39 (2006262)	2
45 (1959296)	2
9 (30168753)	4
27 (29154106)	4
72 (23222877)	1
59 (25203455)	4
64 (25211168)	4
76 (27809901)	2
73 (27758993)	2
68 (26253261)	4
63 (28583621)	4
67 (28483105)	4

154 (27565631)	2
60 (30467322)	2
47 (30344228)	2
8 (15894598)	1
70 (24479411)	2
125 (21071764)	3
126 (15653982)	4
127 (9196515)	4
128 (27314401)	4
129 (9240543)	4
130 (24522562)	1
131 (22580808)	2
132 (8697837)	2
133 (16145289)	2
134 (22805187)	2
135 (25896472)	4
136 (10511155)	2
137 (22446354)	2
138 (10934089)	4
139 (23096169)	2
140 (20858818)	4
141 (1503008)	4
142 (12232448)	4
143 (17135233)	4
144 (10667656)	4
145 (15232373)	2
146 (21298694)	2
147 (8372179)	2
148 (15642299)	2
149 (18270375)	2
151 (20538446)	2

		152 (27829068)			4												
		10 (32706311)			4												
MRI chest without and with IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	1	1	8	3	1	0	0	0	0	0	0	0	0
		References	Study Quality														
		107 (20027548)	1														
		118 (18356432)	2														
		111 (23523024)	2														
		112 (24355658)	2														
		115 (25816104)	4														
		108 (28067202)	2														
		113 (27107755)	2														
		110 (26981454)	2														
		114 (29297607)	2														
		117 (28860333)	4														
		116 (30658930)	4														
		109 (30801449)	4														
		106 (26537956)	2														

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.