American College of Radiology
ACR Appropriateness Criteria®

Chronic Dyspnea-Noncardiovascular Origin

Variant 1: Adult. Chronic dyspnea. Unclear etiology. 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 appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	9	1	0	0	0	0	0	0	1	16

References	Study Quality
29 (2802893)	3
28 (21215608)	2
3 (22962929)	4
2 (15864893)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
CT chest without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	0	0	6	8	4	0	0	0

References	Study Quality
27 (14872104)	4
28 (21215608)	2
26 (25447621)	3

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
CT chest with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	3	4	2	0	1	0	0	0

References	Study Quality
3 (22962929)	4
2 (15864893)	4
6 (36436973)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	9	6	2	1	0	0	0	0	0
MRI chest without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	1	0	1	1	0	0	0
MRI chest without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	1	1	0	0	1	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	2	0	0	1	0	0	0	0
US chest	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	13	5	0	0	0	0	0	0	0

References	Study Quality
32 (26687671)	4
30 (31927551)	4
31 (36740691)	2

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Fluoroscopy chest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	12	3	0	1	1	0	0	1	0

Variant 2:   Adult. Chronic dyspnea. Suspected chronic obstructive pulmonary disease (COPD). 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 appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	9	1	0	0	0	0	0	1	2	14

References	Study Quality
62 (19631518)	4
61 (11194777)	4
39 (36907372)	4
19 (26333307)	4

Procedure	Appropriateness	Strength	RRL (adult)	RRL (ped)												
CT chest without IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	1	0	0	1	2	2	3	3	6

References	Study Quality
57 (16537852)	3
42 (1535900)	4
46 (18351420)	3
53 (19938970)	3
34 (25961632)	4
37 (26098755)	2
43 (23220894)	2
44 (25442794)	3
45 (24710855)	3
47 (25474145)	3
48 (24703520)	3
49 (24334816)	2
50 (22514236)	3
51 (27776670)	3
55 (25844673)	3
56 (22016483)	2
38 (27168432)	2
41 (35866756)	2
36 (37210745)	1
39 (36907372)	4
52 (30256767)	2
54 (29458372)	1
40 (30759006)	4
35 (32017932)	1

Procedure	Appropriateness	Strength	RRL (adult)	RRL (ped)												
CT chest with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	5	3	2	0	0	0	0	0

References	Study Quality

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
				33 (27865580)	4										
MRI chest without IV contrast	Usually not appropriate	Strong	☢ 0 mSv	☢ 0 mSv [ped]	2	2	8	4	2	1	2	1	0	0	0

References	Study Quality
58 (26744928)	3
59 (21392914)	2
60 (25575114)	3
16 (27882425)	2
19 (26333307)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US chest	Usually not appropriate	Limited	☢ 0 mSv	☢ 0 mSv [ped]	2	2	9	4	3	0	0	0	1	0	1

References	Study Quality
63 (32614240)	1

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	4	3	1	0	0	0	0	0
MRI chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢ 0 mSv	☢ 0 mSv [ped]	1	1	12	2	1	1	2	0	0	0	0
V/Q scan lung	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	12	3	1	1	0	0	0	0	1
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	1	0	0	0	1	0	0
Fluoroscopy chest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	3	1	1	1	1	0	1	0

Variant 3:   Adult. Chronic dyspnea. Suspected small airways 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	Limited	☢☢☢ 1-10	☢☢☢☢ 3-	8	8	0	0	1	0	1	1	2	6	7

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
	appropriate		mSv	10 mSv [ped]											

		References		Study Quality		
		14 (23764129)		4		
		15 (27296816)		4		
		64 (32885932)		4		
		65 (32005432)		4		

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Radiography chest	Usually appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	8	8	0	0	1	1	2	1	4	3	6
CT chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	5	3	1	1	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	4	2	1	0	0	0	0	0
MRI chest without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	15	2	1	0	0	0	0	0	0

		References		Study Quality		
		18 (31036773)		2		

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
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	1	1	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	16	1	0	0	0	0	1	0	0
US chest	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	1	2	0	0	0	0	0	1
Fluoroscopy chest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	2	2	0	0	0	0	1	0

Variant 4: Adult. Chronic dyspnea. Known or suspected prior COVID-19 infection. 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	1	0	0	3	4	10

References	Study Quality
7 (34794591)	4
66 (33175876)	2
81 (33901788)	2
73 (34032292)	2
11 (34374591)	4
78 (33497317)	1
77 (34284567)	2
75 (34536697)	1
68 (37216955)	4
74 (33964245)	2
13 (35226158)	2
71 (33419891)	2
76 (33798931)	4
79 (34148855)	4
70 (34957743)	2
12 (36427055)	1
69 (37404150)	Good
72 (36782191)	2
67 (32474479)	2
80 (32734297)	2

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
Radiography chest	Usually appropriate	Strong	☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	9	1	0	0	0	0	0	2	3	12

References	Study Quality
85 (33172844)	4
78 (33497317)	1
84 (34473811)	2

MRI chest without IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	3	3	8	1	4	2	1	2	0	0	0

References	Study Quality
83 (34251585)	1
82 (36253228)	2
21 (36596692)	2
20 (36749209)	2
22 (35762891)	2

US chest	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	3	3	6	2	2	5	1	1	0	0	1

References	Study Quality
90 (36103083)	1
88 (36564240)	2
89 (34091869)	2
86 (35906952)	4
87 (35429016)	2

CT chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	9	3	4	1	0	1	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	1	3	1	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	13	0	2	0	2	0	1	0	0
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	0	0	0	1	0	0	0	0

Fluoroscopy chest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	15	1	1	0	0	0	0	1	0

Variant 5: Adult. Chronic dyspnea. Suspected disease of the pleura or chest wall. 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 appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	9	0	0	0	1	0	0	2	6	9

References	Study Quality
97 (8796649)	3

CT chest with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	1	0	0	0	1	2	5	3	6

References	Study Quality
91 (25077699)	4
92 (26076488)	2

CT chest without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	1	0	2	2	6	2	5

References	Study Quality
93 (9017800)	4
91 (25077699)	4
92 (26076488)	2

MRI chest without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	7	1	6	2	2	0	0	0	0

References	Study Quality
94 (2028857)	4
95 (26502346)	2
96 (26214770)	3

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI chest without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	6	1	7	2	2	0	0	0	0
US chest	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	7	2	4	0	5	0	0	0	0

	References		Study Quality	
	99 (-3197610)		4	

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	3	4	1	1	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	10	4	2	1	1	0	0	0	0
Fluoroscopy chest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	2	1	0	1	0	0	1	0

Variant 6: Adult. Chronic dyspnea. Suspected diaphragm dysfunction. 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 appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	9	9	1	0	0	0	0	0	1	5	11

	References		Study Quality	
	106 (17368210)		2	

| CT chest without IV contrast | May be appropriate | Limited | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 5 | 5 | 0 | 0 | 0 | 3 | 12 | 2 | 1 | 0 | 0 |

	References		Study Quality	
	100 (28549021)		2	

| CT chest with IV contrast | May be appropriate | Expert Consensus | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 4 | 4 | 0 | 0 | 3 | 11 | 4 | 0 | 0 | 0 | 0 |

Procedure	Appropriateness	Strength	Adult RRL	Pediatric RRL											
MRI chest without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	6	3	3	1	3	1	1	0	0

References	Study Quality
103 (35273448)	1

Procedure	Appropriateness	Strength	Adult RRL	Pediatric RRL											
US chest	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	3	3	6	2	4	4	2	0	0	0	0

References	Study Quality
108 (23382111)	4
107 (24211983)	3
109 (25165390)	2
110 (26994409)	2
111 (23110443)	3
112 (27701744)	3
113 (24700122)	3
114 (26620221)	2
115 (26357011)	3
116 (25971723)	2
117 (27167428)	3

Procedure	Appropriateness	Strength	Adult RRL	Pediatric RRL											
Fluoroscopy chest	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	9	0	4	1	2	1	0	1	0

References	Study Quality
101 (22411950)	4
102 (23778774)	2

Procedure	Appropriateness	Strength	Adult RRL	Pediatric RRL											
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	3	3	2	0	0	0	0	0
MRI chest without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	11	2	2	1	2	0	0	0	0

References	Study Quality
104 (17145404)	3
105 (27391236)	3

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.**