American College of Radiology ACR Appropriateness Criteria[®]

Tracheobronchial Disease

Variant 1: Adult. Clinically suspected tracheal or bronchial stenosis. Initial imaging.

	Appropriat	teness	207							F	inal '	Fabu	latio	ns		
Procedure	Categor	ry	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without IV contrast	Usually appropria	y ate	Strong	֎֎֎ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	8	8	0	0	0	0	1	0	3	8	2
			References		Study	v Quality										
			23 (22013293)			4										
			22 (11752944)			2										
			21 (17430592)			2										
			20 (14605057)			2										
			19 (33992979)			2										
CT chest with IV contrast	Usually appropria	y ate	Strong	֎֎֎ 1-10 mSv	⊕⊕⊕⊕ 3- 10 mSv [ped]	7	7	0	0	0	0	5	1	4	1	3
			References		Study	v Quality										
			23 (22013293)			4										
			22 (11752944)			2										
			21 (17430592)			2										
			20 (14605057)			2										
			19 (33992979)			2							-			
Radiography chest	Usually appropria	y ate	Limited	& <0.1 mSv	Image: Second state Image: Second state Image: Second state [ped]	7	7	0	0	0	0	2	1	5	4	1
			References		Study	v Quality										

		22 (11752944)			2										
CTA chest with IV contrast	May be appropriate	Expert Consensus	ଝେଝ 1-10 mSv	&&&& 3- 10 mSv [ped]	5	5	1	1	2	0	8	2	0	0	0
CT neck and chest with IV contrast	May be appropriate	Expert Consensus	ବେବେବ 10-30 mSv		5	5	0	0	0	1	9	1	2	0	0
CT neck and chest without IV contrast	May be appropriate	Expert Consensus	ବ୍ୟବ୍ୟକ 10-30 mSv		5	5	0	0	0	0	8	1	4	0	0
MRI chest without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	4	3	4	0	2	1	0	0	0
CT neck with IV contrast	Usually not appropriate	Expert Consensus	ଡଡଡ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	2	2	3	5	1	1	2	0	1	0	0
CT neck without IV contrast	Usually not appropriate	Expert Consensus	ଙଙ୍କ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	2	2	3	5	1	1	3	0	0	0	0
MRI chest without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	6	2	3	0	3	0	0	0	0
Radiography neck	Usually not appropriate	Expert Consensus	ତତ 0.1-1mSv		2	2	4	6	2	1	0	0	0	0	0
CT neck and chest without and with IV contrast	Usually not appropriate	Expert Consensus	ବେବେବେ 10-30 mSv		2	2	6	6	1	0	0	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	ଡଡଡ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	7	5	1	0	0	0	0	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	ଡଡଡ 1-10 mSv	€€€€ 3- 10 mSv [ped]	1	1	8	1	1	1	1	1	1	0	0
FDG-PET/CT skull base to mid- thigh	Usually not appropriate	Expert Consensus	ବ୍ୟବ୍ୟକ 10-30 mSv	∞∞∞∞ 3- 10 mSv [ped]	1	1	9	1	2	1	0	0	1	0	0

Variant 2: Adult. Tracheal or bronchial stenosis. Pre- or posttreatment assessment.

	Appropria	ateness	~ ~ ~							F	'inal '	Tabu	latior	ıs		
Procedure	Catego		SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without IV contrast	Usual appropr		Strong	ତତତ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	8	8	0	0	0	1	0	0	4	7	2
			References		Study	V Quality										
			26 (11776117)			2										
			25 (23168655)			4										
	_		24 (25384279)			4										
			13 (19002699)			2										
			12 (26332466)			4										
			11 (8784012)			4										
CT chest with IV contrast	Usual appropr		Strong	֎֎֎ 1-10 mSv	ଡଡଡଡ 3- 10 mSv [ped]	7	7	0	0	1	0	4	1	3	2	3
	_		References		Study	/ Quality										
			26 (11776117)			2										
			25 (23168655)			4										
			24 (25384279)			4										
	_		19 (33992979)			2										
			13 (19002699)			2										
			12 (26332466)			4										
			11 (8784012)			4				1	1	I			,	
Radiography chest	Usual appropr		Expert Consensus	֎ <0.1 mS∖	/	7	7	1	0	0	0	4	0	3	3	2
CT neck and chest without IV contrast	May appropr		Expert Consensus	ତତତତ 10-3 mSv	0	6	6	0	1	0	1	4	2	2	3	1
CTA chest with IV contrast	May l appropr		Expert Consensus	ଡେଡଡ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	5	5	0	0	0	1	11	1	0	0	0

CT neck without IV contrast	May be appropriate (Disagreement)	Expert Opinion	ଚଚ ଚଚ 1-10 mSv	��� 0.3- 3 mSv [ped]	5	5	3	5	1	0	2	0	2	0	0
FDG-PET/CT skull base to mid- thigh	May be appropriate	Strong	ବ୍ୟବ୍ୟ 10-30 mSv	���� 3- 10 mSv [ped]	5	5	0	0	2	2	6	3	0	0	0
		References		Study	v Quality										
		27 (27055141)			2										
		28 (33236543)			2					-		-			
CT neck and chest with IV contrast	May be appropriate	Expert Consensus	ତତତତ 10-30 mSv		5	5	0	0	0	0	12	0	1	0	0
MRI chest without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	4	3	3	2	2	0	0	0	0
MRI chest without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	4	3	3	2	2	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	ଡେଡେ 1-10 mSv		2	2	5	7	1	0	0	0	0	0	0
CT neck with IV contrast	Usually not appropriate	Expert Consensus	ଡେଡେ 1-10 mSv	��� 0.3- 3 mSv [ped]	2	2	2	6	1	0	3	1	0	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	ଝେଝ 1-10 mSv	���� 3- 10 mSv [ped]	2	2	7	1	1	1	3	0	1	0	0
Radiography neck	Usually not appropriate	Expert Consensus	ତତ 0.1-1mSv		2	2	6	2	1	1	4	0	0	0	0
CT neck and chest without and with IV contrast	Usually not appropriate	Expert Consensus	֎֎֎֎ 10-30 mSv		1	1	7	5	1	0	0	0	0	0	0

Variant 3: Adult. Clinically suspected tracheomalacia or bronchomalacia. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations 1 2 3 4 5 6 7 8 9

	Appropri	iateness								F	'inal '	Tabu	latio	ns		
Procedure	Categ		SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without IV contrast	Usua approp		Strong	େଇଇ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	9	9	0	0	0	0	1	0	1	3	9
			References		Study	V Quality										
			31 (24361144)			3										
			30 (11419175)			2										
			29 (15798155)			2										
			17 (19420322)			2										
Radiography chest	May approp (Disagre	oriate	Expert Opinion	愛 < 0.1 mSv		5	5	0	4	1	2	0	0	3	2	1
CT neck and chest without IV contrast	May approp (Disagre	oriate	Expert Opinion	ବ୍ୟବ୍ୟବ୍ୟ 10-30 mSv		5	5	0	1	2	1	5	2	2	0	0
CT chest with IV contrast	Usuall approp		Expert Consensus	ବ୍ଷବ୍ତ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	3	3	3	1	5	0	3	1	1	0	0
CTA chest with IV contrast	Usuall approp		Expert Consensus	ବ୍ଷବ୍ତ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	2	2	5	3	0	1	4	1	0	0	0
CT neck with IV contrast	Usuall approp		Expert Consensus	ବ୍ୟବତ୍ତ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	2	2	3	5	2	0	3	1	0	0	0
CT neck without IV contrast	Usuall approp		Expert Consensus	ତତତ 1-10 mSv	≎≎≎≎ 0.3- 3 mSv [ped]	2	2	4	6	3	0	0	0	0	0	0
MRI chest without IV contrast	Usuall approp		Strong	O 0 mSv	O 0 mSv [ped]	2	2	5	7	1	0	0	0	0	0	0
			References		Study	V Quality										
			32 (28796542)			2										
			33 (15517280)			2										
MRI chest without and with IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	6	6	1	0	0	0	0	0	0

Radiography neck	Usually not appropriate	Expert Consensus	֎֎ 0.1-1mSv		2	2	7	2	2	1	2	0	0	0	0
CT neck and chest with IV contrast	Usually not appropriate	Expert Consensus	ତେତେତେ 10-30 mSv		2	2	3	5	1	1	3	0	0	0	1
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	ଝେଝେ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	9	1	1	0	2	1	0	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	ଝଝଝ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	8	3	1	0	1	1	0	0	0
FDG-PET/CT skull base to mid- thigh	Usually not appropriate	Expert Consensus	ବ୍ଟବ୍ଟ 10-30 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	11	1	1	0	0	1	0	0	0
CT neck and chest without and with IV contrast	Usually not appropriate	Expert Consensus	ତତତତ 10-30 mSv		1	1	7	5	1	0	0	0	0	0	0

Variant 4: Adult. Tracheomalacia or bronchomalacia. Pre- or posttreatment assessment.

	Appropriateness	005							F	Final	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without IV contrast	Usually appropriate	Strong	ଝେଡେଡ 1-10 mSv	ଙଙଙଙ 3- 10 mSv [ped]	8	8	0	0	0	0	1	2	3	4	4
		References		Study	Quality										
		8 (29957676)			2										
		30 (11419175)			2										
		36 (18520570)			2										
		35 (15855094)			4							-			
CTA chest with IV contrast	May be appropriate	Expert Consensus	ତତତ 1-10 mSv	େହେତେ 3- 10 mSv [ped]	5	5	0	2	0	1	8	1	1	0	0
CT chest with IV contrast	May be appropriate	Expert Consensus	ଝେଡେଡ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	5	5	0	0	0	0	8	4	1	0	0

CT neck and chest with IV contrast	May approp	Expert Consensus	ବବବବ 10-30 mSv)	5	5	0	0	1	0	10	1	1	0	0
CT neck and chest without IV contrast	May approp	Expert Consensus	ଡଡଡଡ 10-30 mSv)	5	5	0	0	0	1	11	0	1	0	0
Radiography chest	Usuall approp	Expert Consensus	֎ < 0.1 mSv	Image: Second state Image: Second state Image: Second state [ped]	3	3	3	2	3	1	3	1	1	0	0
CT neck with IV contrast	Usuall approp	Expert Consensus	֎֎֎ 1-10 mSv	��� 0.3- 3 mSv [ped]	2	2	4	4	2	0	3	0	1	0	0
CT neck without IV contrast	Usuall approp	Expert Consensus	ତତତ 1-10 mSv	��� 0.3- 3 mSv [ped]	2	2	5	5	2	1	0	0	0	0	0
MRI chest without IV contrast	Usuall approp	Strong	O 0 mSv	O 0 mSv [ped]	2	2	5	6	2	0	0	0	0	0	0
		References		Study	/ Quality										
		 32 (28796542)			2										
		33 (15517280)			2										
MRI chest without and with IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	6	6	1	0	0	0	0	0	0
Radiography neck	Usuall approp	Expert Consensus	֎֎ 0.1-1mS	v	2	2	6	2	4	0	2	0	0	0	0
CT chest without and with IV contrast	Usuall approp	Expert Consensus	֎֎֎ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	9	0	2	0	2	0	1	0	0
CT neck without and with IV contrast	Usuall approp	Expert Consensus	ତେତ 1-10 mSv	ଡେଡେଡ 3- 10 mSv [ped]	1	1	9	2	1	0	1	0	1	0	0
FDG-PET/CT skull base to mid- thigh	Usuall approp	Expert Consensus	ତତତତ 10-30 mSv)	1	1	10	1	2	0	1	0	0	0	0
CT neck and chest without and with IV contrast	Usuall approp	Expert Consensus	ଡଡଡଡ 10-30 mSv)	1	1	7	5	1	0	0	0	0	0	0

	Appropri	ateness	005				D (1				F	inal	Tabu	latio	ns		
Procedure	Categ		SOE	Adults RR		Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without IV contrast	Usua approp	lly riate	Strong	ତତତ 1-1(mSv	0	≎≎≎≎≎ 3- 10 mSv [ped]	9	9	0	0	0	0	0	0	1	4	9
			References			Study	v Quality										
		46 (27296814)					2										
							2										
			44 (24328736)				2										
			43 (32843159)				4										
			42 (34292274)				2										
			41 (7618537)				2										
			40 (20627931)				4										
			39 (8536394)				2										
			38 (10397098)				2										
			37 (18195376)				4		_		-						
Radiography chest	Usua approp		Limited	֎ <0.1 mS	Sv	✤ <0.03 mSv [ped]	7	7	1	0	0	0	3	1	6	2	1
			References			Study	v Quality										
			9 (30442957)				4										
			10 (26024063)				4										
			40 (20627931)				4										
CTA chest with IV contrast	May approp		Expert Consensus	ତେତେ 1-1(mSv	0	֎֎֎֎ 3- 10 mSv [ped]	5	5	0	2	1	0	8	1	1	0	0
MRI chest without IV contrast	May approp		Limited	O 0 mSv	/	O 0 mSv [ped]	4	4	5	0	2	3	2	1	1	0	0
			References			Study	Quality										

Variant 5: Adult. Clinically suspected bronchiectasis. Initial imaging.

		47 (26707785)			2										
CT chest with IV contrast	Usually not appropriate	Expert Consensus	ଷଷଷ 1-10 mSv	֎֎֎֎ 3- 10 mSv [ped]	2	2	2	5	3	0	2	0	0	1	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	ଡଙ୍କ 1-10 mSv	֎֎֎֎ 3- 10 mSv [ped]	1	1	7	4	2	0	0	0	0	0	0
CT neck with IV contrast	Usually not appropriate	Expert Consensus	ଷଷତ 1-10 mSv	&&& 0.3- 3 mSv [ped]	1	1	10	1	2	1	0	0	0	0	0
CT neck without IV contrast	Usually not appropriate	Expert Consensus	ଷଷଷ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	10	0	4	0	0	0	0	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	ଷଷଷ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	1	1	11	0	2	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	8	1	2	1	2	0	0	0	0
FDG-PET/CT skull base to mid- thigh	Usually not appropriate	Expert Consensus	ବ୍ୟବ୍ୟକ 10-30 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	1	1	12	0	2	0	0	0	0	0	0
Radiography neck	Usually not appropriate	Expert Consensus	֎֎ 0.1-1mSv		1	1	11	1	1	0	0	1	0	0	0
CT neck and chest with IV contrast	Usually not appropriate	Expert Consensus	ବ୍ୟବ୍ୟବ 10-30 mSv		1	1	8	2	2	0	1	1	0	0	0
CT neck and chest without IV contrast	Usually not appropriate	Expert Consensus	֎֎֎֎ 10-30 mSv		1	1	9	1	3	0	1	0	0	0	0
CT neck and chest without and with IV contrast	Usually not appropriate	Expert Consensus	ତତତତ 10-30 mSv		1	1	10	0	2	0	1	1	0	0	0

Variant 6: Adult. Bronchiectasis. Assessment of complications or treatment response.

	Appropri	iateness	~~~							F	'inal '	Tabu	latio	ns		
Procedure	Categ		SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest without IV contrast	Usua approp		Strong	ତତତ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	8	8	0	0	0	0	1	0	3	4	6
			References		Study	Quality										
			56 (34380092)			2										
			55 (33172424)			2										
			54 (28427555)			2										
			53 (24059365)			2										
			52 (28968457)			2										
			51 (28275170)			2										
			50 (30531034)			2										
			49 (28150579)			2										
			43 (32843159)			4										
			42 (34292274)			2										
			40 (20627931)			4										
Radiography chest	Usua approp		Limited	≎ < 0.1 mSv		7	7	0	0	0	0	3	1	3	2	2
			References		Study	/ Quality										
			40 (20627931)			4							-			
CTA chest with IV contrast	May approp		Expert Consensus	ଝେଝ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	5	5	0	1	0	1	8	2	1	0	0
CT chest with IV contrast	May approp		Expert Consensus	ଡେଡେ≎ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	5	5	0	1	0	2	9	1	0	0	0
MRI chest without IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	6	4	3	0	0	0	0	0	0
CT chest without and with IV contrast	Usuall approp		Expert Consensus	ତେତେ 1-10 mSv	€€€€ 3- 10 mSv [ped]	1	1	8	4	1	0	0	0	0	0	0

CT neck with IV contrast	Usually not appropriate	Expert Consensus	ଡଡଡ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	1	1	9	1	3	0	0	1	0	0	0
CT neck without IV contrast	Usually not appropriate	Expert Consensus	ଝେଝେ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	1	1	10	1	3	0	0	0	0	0	0
CT neck without and with IV contrast	Usually not appropriate	Expert Consensus	ଝେଝେ 1-10 mSv	ହତତତ 3- 10 mSv [ped]	1	1	11	0	3	0	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	9	0	2	0	2	0	1	0	0
FDG-PET/CT skull base to mid- thigh	Usually not appropriate	Expert Consensus	ବ୍ୟବ୍ୟକ୍ତ 10-30 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	11	2	1	0	0	0	0	0	0
Radiography neck	Usually not appropriate	Expert Consensus	֎֎ 0.1-1mSv		1	1	11	1	2	0	0	0	0	0	0
CT neck and chest with IV contrast	Usually not appropriate	Expert Consensus	ବେବେବ 10-30 mSv		1	1	8	2	2	0	1	0	0	1	0
CT neck and chest without IV contrast	Usually not appropriate	Expert Consensus	ବେବେବ 10-30 mSv		1	1	8	1	4	0	0	0	1	0	0
CT neck and chest without and with IV contrast	Usually not appropriate	Expert Consensus	ତତତତ 10-30 mSv		1	1	10	0	3	0	0	0	0	1	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.