

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

Chronic Chest Pain—High Probability of Coronary Artery Disease

Variant 1: Chronic chest pain; high probability of coronary artery disease. No known ischemic heart disease. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations									
							1	2	3	4	5	6	7	8	9	
CTA coronary arteries with IV contrast	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv		8	8	0	0	0	1	0	0	4	6	5	
		References	Study Quality													
		39 (31005540)	3													
		38 (31696294)	Good													
		37 (27141095)	Good													
		36 (24486266)	2													
		35 (26475205)	2													
		34 (23562923)	4													
		33 (22032711)	2													
		32 (-3194082)	2													
		31 (17981829)	M													
		30 (22261160)	2													
		29 (31189617)	Good													
		28 (21597986)	M													
		27 (19038879)	1													
		26 (19095130)	2													
		25 (19007693)	1													
Arteriography coronary	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv		8	8	0	0	2	0	0	1	4	4	5	

Rb-82 PET/CT heart	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv		7	7	0	0	1	0	2	1	6	4	2
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References	Study Quality
61 (18022106)	2
60 (23219297)	3
59 (19608135)	3
58 (23040573)	Good
57 (17332611)	2
56 (16733686)	2
55 (19555834)	4
52 (20482819)	M
48 (23804252)	3

SPECT or SPECT/CT MPI rest and stress	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	7	7	0	0	0	1	0	1	8	3	3
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References	Study Quality
65 (19288163)	3
66 (22554604)	M
68 (23291392)	2
69 (23086965)	2
67 (17174808)	3
64 (11897441)	2
63 (11216963)	2
62 (11772873)	2

US echocardiography transthoracic resting	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	6	6	0	0	0	6	2	3	3	2	0
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MRI heart function and morphology without and with IV contrast	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	5	5	0	0	0	4	6	4	2	0	0
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References	Study Quality
45 (24083836)	2

MRA coronary arteries without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	2	5	8	1	0	0	0	0	0
		References	Study Quality												
		40 (17112982)	3												
MRI heart function and morphology without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	3	3	2	2	6	2	4	0	0	0	0
CTA triple rule out	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		3	3	5	2	5	2	1	1	0	0	0
Nuclear medicine ventriculography	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		2	2	4	6	5	1	0	0	0	0	0
US echocardiography transesophageal	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	2	2	6	3	6	0	1	0	0	0	0

Variant 2: Chronic chest pain; high probability of coronary artery disease. Known ischemic heart disease with no prior definitive treatment. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Arteriography coronary	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv		8	8	0	1	1	0	0	1	3	3	7
		References	Study Quality												
		76 (23946263)	1												
		75 (22924638)	1												
		79 (32227753)	1												
		78 (32227755)	1												
		77 (19144937)	1												
		8 (8409054)	1												
MRI heart function with stress without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	8	8	0	0	1	1	0	2	4	6	2
		References	Study Quality												
		6 (22236462)	2												

52 (20482819)	M
51 (17903634)	Good
49 (23771988)	Good
48 (23804252)	3
47 (19356575)	2
46 (24342416)	3

Rb-82 PET/CT heart	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv		8	8	0	0	0	1	2	1	3	7	2
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References	Study Quality
61 (18022106)	2
60 (23219297)	3
59 (19608135)	3
58 (23040573)	Good
57 (17332611)	2
56 (16733686)	2
55 (19555834)	4
48 (23804252)	3

SPECT or SPECT/CT MPI rest and stress	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	8	8	0	0	0	0	1	2	5	5	3
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References	Study Quality
65 (19288163)	3
66 (22554604)	M
68 (23291392)	2
69 (23086965)	2
67 (17174808)	3
64 (11897441)	2
63 (11216963)	2
62 (11772873)	2

CTA coronary arteries with IV contrast	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv		7	7	0	0	0	1	1	2	6	2	4
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References	Study Quality
85 (29322167)	2
84 (27072303)	M
30 (22261160)	2
36 (24486266)	2
28 (21597986)	M
33 (22032711)	2
25 (19007693)	1
26 (19095130)	2
27 (19038879)	1
34 (23562923)	4
35 (26475205)	2
37 (27141095)	Good
38 (31696294)	Good
89 (19539075)	Inadequate
88 (31833413)	2
87 (26205589)	2
86 (29305348)	Good
83 (21835321)	2
82 (32029127)	4

MRI heart function and morphology without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	7	7	0	0	0	2	1	1	10	2	0
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References	Study Quality
70 (11028482)	3
98 (15117834)	2
97 (17437737)	3
96 (11078769)	3
95 (18212288)	2
94 (15193689)	3
93 (25846255)	3
92 (20865262)	2

MRI heart function and morphology without IV contrast	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	4	4	2	3	3	4	2	2	0	0	0
CTA chest with IV contrast	Usually not appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	3	3	2	4	3	3	2	1	0	0	1
		References	Study Quality												
		24 (24221182)	3												
CTA triple rule out	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		3	3	4	3	8	0	1	0	0	0	0
CT coronary calcium	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		2	2	8	2	3	2	1	0	0	0	0
MRA coronary arteries without IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	2	2	5	4	6	1	0	0	0	0	0
		References	Study Quality												
		42 (23833284)	2												
		41 (20828652)	2												
MRA coronary arteries without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	2	2	4	5	6	0	1	0	0	0	0
		References	Study Quality												
		40 (17112982)	3												
Nuclear medicine ventriculography	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		2	2	4	7	1	1	1	2	0	0	0
US echocardiography transesophageal	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	2	2	4	5	5	1	0	0	1	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.