

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

Suspected New-Onset and Known Nonacute Heart Failure

Variant 1: Suspected new-onset nonacute heart failure, not previously diagnosed. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US echocardiography transthoracic resting	Usually appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	0	0	1	1	2	4	8
			References	Study Quality											
			36 (22713289)	4											
			40 (22104551)	3											
			41 (23500216)	4											
			42 (15808765)	3											
			43 (16510467)	2											
			44 (16115798)	2											
			45 (11263606)	3											
			46 (11348601)	2											
			47 (21722451)	4											
			48 (26910112)	Good											
			49 (24286578)	4											
			50 (25572643)	2											
			51 (25783858)	3											
			52 (24813438)	2											
			53 (21155032)	3											
			54 (21944161)	2											

Radiography chest	Usually appropriate	Strong	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	8	8	0	0	0	0	3	0	4	4	5
		References		Study Quality											
		37 (20045607)		3											
		38 (21517671)		2											
		39 (22994440)		2											
		40 (22104551)		3											
CTA coronary arteries with IV contrast	May be appropriate (Disagreement)	Expert Opinion	⊕⊕⊕ 1-10 mSv		5	5	0	3	6	3	0	2	1	0	0
MRI heart function and morphology without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	1	2	6	2	0	3	0	1	0
		References		Study Quality											
		41 (23500216)		4											
		58 (19755468)		2											
MRI heart function and morphology without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	1	3	7	2	2	0	0	0	0
		References		Study Quality											
		41 (23500216)		4											
		58 (19755468)		2											
Nuclear medicine ventriculography	Usually not appropriate	Strong	⊕⊕⊕ 1-10 mSv		3	3	5	2	4	2	2	0	0	0	0
		References		Study Quality											
		41 (23500216)		4											
		55 (19443475)		2											
		56 (21029826)		1											
		57 (20299607)		1											
US echocardiography transthoracic stress	Usually not appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	3	3	3	2	6	2	2	0	0	0	0
		References		Study Quality											
		36 (22713289)		4											

40 (22104551)	3
41 (23500216)	4
42 (15808765)	3
43 (16510467)	2
44 (16115798)	2
45 (11263606)	3
46 (11348601)	2
47 (21722451)	4
48 (26910112)	Good
49 (24286578)	4
50 (25572643)	2
51 (25783858)	3
52 (24813438)	2
53 (21155032)	3
54 (21944161)	2

MRI heart with function and vasodilator stress perfusion without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	3	4	4	3	0	0	0	0	1
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References	Study Quality
41 (23500216)	4
58 (19755468)	2

MRI heart with function and inotropic stress without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	3	3	6	2	1	0	0	0	0
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References	Study Quality
41 (23500216)	4
58 (19755468)	2

FDG-PET/CT heart	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	2	6	0	2	2	0	0	0
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References	Study Quality
24 (24781009)	4
23 (19672592)	4

65 (23769272)	2
66 (26805452)	2
67 (21778591)	3
68 (24863953)	4
69 (26058890)	2
70 (21602549)	3
71 (26559428)	4
72 (24184245)	1
73 (22874137)	2
74 (22383372)	2
75 (21601421)	2
76 (21458230)	2
77 (23747067)	3
78 (21685198)	4
79 (22291430)	2
80 (21788358)	2
81 (26811160)	Inadequate
82 (24150723)	4
83 (26082167)	2
84 (26941415)	2

MRI heart function and morphology without and with IV contrast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	2	1	5	6	2
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References	Study Quality
85 (26005800)	2

MRI heart function and morphology without IV contrast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	7	7	0	0	1	0	4	3	3	4	1
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References	Study Quality
85 (26005800)	2

Nuclear medicine ventriculography	May be appropriate	Limited	☢☢☢ 1-10 mSv		5	5	0	1	0	5	6	3	0	0	0
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References	Study Quality
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		41 (23500216)			4												
CTA coronary arteries with IV contrast	May be appropriate	Expert Consensus	☼☼☼ 1-10 mSv		4	4	1	0	2	5	5	2	0	0	0		
Arteriography coronary	May be appropriate	Limited	☼☼☼ 1-10 mSv		4	4	1	2	2	6	3	1	0	0	0		

References	Study Quality
86 (23112002)	4
87 (23811839)	4
88 (24975907)	4

US echocardiography transthoracic stress	Usually not appropriate	Moderate	0 0 mSv	0 0 mSv [ped]	3	3	3	2	3	4	2	1	0	0	0		
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References	Study Quality
51 (25783858)	3
61 (25119893)	3
62 (27118225)	4
63 (25355298)	4
64 (25187609)	2
65 (23769272)	2
66 (26805452)	2
67 (21778591)	3
68 (24863953)	4
69 (26058890)	2
70 (21602549)	3
71 (26559428)	4
72 (24184245)	1
73 (22874137)	2
74 (22383372)	2
75 (21601421)	2
76 (21458230)	2
77 (23747067)	3
78 (21685198)	4

			79 (22291430)		2													
			80 (21788358)		2													
			81 (26811160)		Inadequate													
			82 (24150723)		4													
			83 (26082167)		2													
			84 (26941415)		2													
MRI heart with function and vasodilator stress perfusion without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	3	2	5	2	3	0	0	0	0	0	0	0
			References		Study Quality													
			85 (26005800)		2													
MRI heart with function and inotropic stress without IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	4	1	6	4	0	0	0	0	0	0	0	0
			References		Study Quality													
			85 (26005800)		2													
MRI heart with function and inotropic stress without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	4	1	6	4	0	0	0	0	0	0	0	0
			References		Study Quality													
			85 (26005800)		2													
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	3	3	5	3	4	2	2	0	0	0	0	0	0	0
SPECT or SPECT/CT MPI rest and stress	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	3	3	5	1	5	3	1	0	0	0	0	0	0	0
Radiography chest	Usually not appropriate	Expert Consensus	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	2	2	8	1	2	0	4	0	1	0	0	0	0	0
Rb-82 PET/CT heart	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		2	2	5	4	1	2	2	1	1	0	0	0	0	0

Variant 3: Confirmed new-onset heart failure with reduced ejection fraction of uncertain etiology: ischemic versus nonischemic.

FDG-PET/CT heart	May be appropriate (Disagreement)	Expert Opinion	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	0	0	4	4	5	0	2	0	0
		References	Study Quality												
		41 (23500216)	4												
		96 (18794272)	3												
		97 (19223407)	3												
MRI heart function and morphology without IV contrast	May be appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	4	4	3	1	3	6	2	0	0	0	0
		References	Study Quality												
		98 (26251006)	2												
		99 (21900085)	2												
		100 (21789747)	1												
Nuclear medicine ventriculography	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		3	3	3	5	6	1	1	0	0	0	0
		References	Study Quality												
		41 (23500216)	4												
US echocardiography transthoracic resting	Usually not appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	3	3	2	1	9	1	2	0	0	0	0
		References	Study Quality												
		90 (16098295)	2												
		91 (19609896)	2												
		92 (17336751)	2												
Radiography chest	Usually not appropriate	Expert Consensus	☼ <0.1 mSv	☼ <0.03 mSv [ped]	2	2	7	3	3	1	1	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.