American College of Radiology
ACR Appropriateness Criteria®

Congenital or Acquired Heart Disease

Variant 1: **Child or adult. Repaired tetralogy of Fallot or pulmonary valve stenosis with concern for pulmonary valve dysfunction or branch pulmonary artery stenosis. Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRA chest without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	4	2	2	6	7
MRI heart function and morphology without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	2	2	4	9	4

References	Study Quality
15 (7677083)	3
16 (32653300)	4
17 (33022183)	3

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
MRI heart function and morphology without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	0	1	0	3	7	9

References	Study Quality
15 (7677083)	3
16 (32653300)	4
17 (33022183)	3

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
CTA chest with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	1	0	5	2	8	5	0
CT heart function and morphology with IV contrast	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	2	4	6	4	5

References	Study Quality
14 (26679548)	4
13 (26272851)	4

Procedure	Appropriateness	Evidence	RRL (adult)	RRL (ped)										
Radiography chest	Usually appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	7	7	0	0	0	2	3	3	8	4	0

References	Study Quality
9 (18377431)	4

Procedure	Appropriateness	Evidence	RRL (adult)	RRL (ped)										
CTA coronary arteries with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	2	5	4	8	1	0
MRA chest without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	1	0	0	2	5	5	4	3	1
Perfusion scan lung	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	1	1	0	2	7	6	3	0	1

References	Study Quality
12 (24468055)	4

Procedure	Appropriateness	Evidence	RRL (adult)	RRL (ped)										
Arteriography pulmonary	May be appropriate	Limited	☢☢☢☢ 10-30 mSv		5	5	0	0	0	5	11	4	0	0	0

References	Study Quality
12 (24468055)	4

Procedure	Appropriateness	Evidence	RRL (adult)	RRL (ped)										
Arteriography coronary with ventriculography	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	0	0	2	16	2	0	0	0

References	Study Quality
9 (18377431)	4
10 (16638542)	4
11 (20837914)	1

Procedure	Appropriateness	Evidence	RRL (adult)	RRL (ped)										
US echocardiography transesophageal	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	0	1	5	8	5	0	0	0

References	Study Quality
12 (24468055)	4

References		Study Quality
6 (22790360)		3
18 (15975339)		3

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function with stress without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	7	6	3	4	1	0	0	0	0
MRI heart function with stress without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	7	5	3	3	2	0	0	0	1
SPECT or SPECT/CT MPI rest and stress	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	2	2	7	5	7	1	0	0	0	0	0
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	1	1	0	0	0	0	0	0
MRA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	1	1	0	0	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	18	1	2	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	18	1	2	0	0	0	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	4	2	0	0	0	0	0	0

Variant 2: **Child or adult. Transposition of the great arteries after atrial switch. Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI heart function and morphology without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	1	0	1	0	2	4	13

References		Study Quality
22 (15851616)		3

Procedure	Appropriateness Category	Evidence	RRL (adult)	RRL (ped)										
MRA chest without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	1	0	1	0	2	3	2	8	4
MRI heart function and morphology without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	0	1	0	5	8	6

	References		Study Quality		
	22 (15851616)		3		

Procedure	Appropriateness Category	Evidence	RRL (adult)	RRL (ped)										
CTA chest with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	1	1	1	3	5	7	3	0
CT heart function and morphology with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	1	3	2	7	4	4
MRA chest without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	7	0	1	0	0	1	1	8	9	0
CTA coronary arteries with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	2	0	6	8	3	1	0	0
US echocardiography transesophageal	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	3	7	7	2	0	0
Radiography chest	May be appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	5	5	0	1	0	4	13	2	0	0	0
Arteriography pulmonary	May be appropriate	Limited	☢☢☢☢ 10-30 mSv		4	4	1	1	3	6	4	5	1	0	0

	References		Study Quality		
	21 (27372954)		4		

Procedure	Appropriateness Category	Evidence	RRL (adult)	RRL (ped)										
Arteriography coronary with ventriculography	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	9	6	5	0	0	0	0	0	0

	References		Study Quality		
	21 (27372954)		4		

Procedure	Appropriateness Category	Evidence	RRL (adult)	RRL (ped)										
MRI heart function with stress without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	8	8	4	0	0	0	0	0	0

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function with stress without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	8	6	5	1	0	0	0	0	0
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	20	0	0	0	0	0	1	0	0
MRA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	20	0	0	0	0	0	1	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	2	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	2	0	0	0	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	16	2	3	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]	1	1	14	3	3	0	0	0	1	0	0

Variant 3:   Child or adult. Transposition of the great arteries after arterial switch. Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI heart function and morphology without and with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	1	2	0	1	4	13

References	Study Quality
28 (29748700)	3
21 (27372954)	4
26 (15591430)	2
27 (20452235)	2

Procedure	Appropriateness	Strength	RRL (adult)	RRL (ped)												
MRA chest without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	1	3	3	4	5	5
MRI heart function and morphology without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	3	0	4	8	6

References	Study Quality
28 (29748700)	3
21 (27372954)	4
26 (15591430)	2
27 (20452235)	2

Procedure	Appropriateness	Strength	RRL (adult)	RRL (ped)												
CTA chest with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	1	0	0	5	4	8	3	0
CT heart function and morphology with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	1	3	2	7	5	3
MRA chest without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	7	0	1	0	1	3	5	5	4	2
MRI heart function with stress without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	1	1	4	3	7	4	0

References	Study Quality
28 (29748700)	3
26 (15591430)	2
29 (20416135)	4

Procedure	Appropriateness	Strength	RRL (adult)	RRL (ped)												
Radiography chest	Usually appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	7	7	0	0	1	2	5	1	10	1	0
CTA coronary arteries with IV contrast	May be appropriate	Moderate	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	0	6	8	4	2	0

References	Study Quality
24 (29090351)	3
19 (28632651)	4
25 (19356445)	2

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
		23 (33028389)		Good											
MRI heart function with stress without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	0	0	2	1	6	3	6	2	0
		References		Study Quality											
		28 (29748700)		3											
		26 (15591430)		2											
		29 (20416135)		4											
SPECT or SPECT/CT MPI rest and stress	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	5	5	0	0	2	2	12	3	1	0	0
		References		Study Quality											
		30 (31119712)		4											
Arteriography pulmonary	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	3	3	7	2	4	1	0	0	0
Arteriography coronary with ventriculography	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	4	2	6	4	2	2	0	0	0
		References		Study Quality											
		21 (27372954)		4											
US echocardiography transesophageal	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	4	2	5	3	4	2	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	8	2	2	1	6	1	1	0	0
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	1	0	0	0	1	0	0
MRA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	1	0	0	0	1	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	18	1	2	0	0	0	0	0	0

| MRA neck without and with IV contrast | Usually not appropriate | Expert Consensus | O 0 mSv | O 0 mSv [ped] | 1 | 1 | 18 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

Variant 4: Child. Suspected or confirmed congenital or acquired coronary artery abnormality. Incomplete or inadequate assessment of coronary morphology after transthoracic echocardiography. Next imaging study.

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	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	9	0	0	0	0	1	0	0	4	16

References	Study Quality
35 (33755749)	2

MRA chest without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	1	5	9	4	0

References	Study Quality
36 (31371063)	3
38 (21921132)	2
37 (34540764)	3

MRA chest without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	2	5	9	4	0

References	Study Quality
36 (31371063)	3
38 (21921132)	2
37 (34540764)	3

MRI heart function and morphology without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	5	4	7	3	0
MRI heart function and morphology without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	4	5	8	3	0

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
Arteriography coronary with ventriculography	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	2	3	6	4	1	5

References	Study Quality
33 (33614558)	2

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
MRI heart function with stress without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	9	7	2	2	0

References	Study Quality
39 (32069111)	2
36 (31371063)	3

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
CTA chest with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	1	6	1	4	7	0	0	1

References	Study Quality
34 (28356445)	4

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
CT heart function and morphology with IV contrast	May be appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	0	0	1	10	6	1	1	1
MRA abdomen without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	2	0	1	5	9	3	0	0	0
MRI heart function with stress without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	0	13	5	0	1	0

References	Study Quality
39 (32069111)	2
36 (31371063)	3

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
SPECT or SPECT/CT MPI rest and stress	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	5	5	0	0	2	1	4	3	8	2	0

References	Study Quality
40 (28385257)	4

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	9	2	2	3	3	1	1	0	0

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US echocardiography transesophageal	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	5	0	10	1	3	1	1	0	0
Arteriography pulmonary	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	12	4	2	1	0	0	2	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	16	1	2	1	0	1	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	2	1	0	2	0	0	0
Radiography chest	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	11	6	2	0	1	0	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	4	1	0	1	1	0	1	0

Variant 5:   Child. Known single ventricle physiology. Preoperative evaluation for stage 2 single ventricle palliation. Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRA chest without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	0	6	10	4
MRI heart function and morphology without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	1	2	1	4	8	5

References	Study Quality
42 (19616678)	2

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function and morphology without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	1	1	0	2	8	8

References	Study Quality
42 (19616678)	2

Procedure	Appropriateness	Rating	Adult RRL	Pediatric RRL												
CTA chest with IV contrast	Usually appropriate	Moderate	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	5	5	6	4	1

	References	Study Quality
	44 (33078501)	2

Procedure	Appropriateness	Rating	Adult RRL	Pediatric RRL												
CT heart function and morphology with IV contrast	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	1	1	4	2	4	5	4

	References	Study Quality
	43 (24930614)	4

Procedure	Appropriateness	Rating	Adult RRL	Pediatric RRL												
Arteriography pulmonary	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv		7	7	0	0	2	0	6	1	6	5	1

	References	Study Quality
	41 (26356648)	4

Procedure	Appropriateness	Rating	Adult RRL	Pediatric RRL												
Arteriography coronary with ventriculography	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	0	0	11	8	1

	References	Study Quality
	42 (19616678)	2
	41 (26356648)	4

Procedure	Appropriateness	Rating	Adult RRL	Pediatric RRL												
MRA chest without IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	1	11	5	2
US echocardiography transesophageal	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	1	0	0	2	8	9	0	0	0
Radiography chest	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	3	3	3	4	5	1	6	0	0	1	1
CTA coronary arteries with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	8	4	1	1	0	0	0	0
MRI heart function with stress without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	10	9	1	0	0	0	0	0	0

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function with stress without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	10	7	3	0	0	0	0	0	0
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	1	0	0	0	0	1	0
MRA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	1	0	0	0	0	1	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	1	0	0	1	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	1	0	0	1	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	2	1	0	0	1	0	0	0
SPECT or SPECT/CT MPI rest and stress	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	1	1	15	3	1	0	0	1	1	0	0

Variant 6:   Child. Known single ventricle physiology. Preoperative evaluation for stage 3 single ventricle palliation (total cavopulmonary connection). Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI heart function and morphology without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	1	2	1	3	7	6

References	Study Quality
49 (-3194075)	4
50 (24254479)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function and morphology without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	2	0	1	0	2	6	10

References	Study Quality

49 (-3194075)				4										
50 (24254479)				4										
CTA chest with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	5	6	7	2	1
		References		Study Quality										
		48 (27618316)		4										
CT heart function and morphology with IV contrast	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	1	0	2	3	8	4	3
		References		Study Quality										
		47 (28889811)		3										
Arteriography pulmonary	Usually appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		7	7	0	0	0	0	2	3	10	4	1
Arteriography coronary with ventriculography	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	0	1	11	7	1
		References		Study Quality										
		45 (19660367)		2										
		46 (22077996)		2										
MRA chest without and with IV contrast	Usually appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	7	7	1	0	1	0	3	4	4	6	2
MRA chest without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	1	8	8	3	0	0
US echocardiography transesophageal	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	2	9	7	2	0	0
Radiography chest	May be appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	5	5	0	1	3	4	10	2	0	0	0
CTA coronary arteries with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	5	3	8	2	0	2	0	0	0

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function with stress without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	10	2	4	1	3	0	0	1	0
MRI heart function with stress without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	9	2	5	0	3	0	1	1	0
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	18	0	1	1	0	0	0	1	0
MRA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	1	1	1	0	0	0	0	1
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	18	1	1	0	0	0	1	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	18	1	1	0	0	0	1	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	1	3	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]	1	1	14	2	2	0	1	1	1	0	0

Variant 7:   Child or adult. Known single ventricle physiology. Postoperative evaluation after stage 3 single ventricle palliation (total cavopulmonary connection). Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI heart function and morphology without and with IV contrast	Usually appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	2	0	3	3	13

References	Study Quality
53 (12234957)	3
55 (-3194077)	4
54 (28548989)	4

Procedure	Appropriateness	Evidence	RRL (Adult)	RRL (Pediatric)	Panel Median	Median	1	2	3	4	5	6	7	8	9
		References			Study Quality										
		56 (34934948)			2										
MRI heart function and morphology without IV contrast	Usually appropriate	Moderate	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	0	2	1	4	7	6
		References			Study Quality										
		53 (12234957)			3										
		55 (-3194077)			4										
		54 (28548989)			4										
		56 (34934948)			2										
CTA chest with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	2	8	5	4	2
		References			Study Quality										
		53 (12234957)			3										
		48 (27618316)			4										
		52 (-3194076)			4										
CT heart function and morphology with IV contrast	Usually appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	1	2	6	8	2	2
MRA chest without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	1	0	5	1	9	3	1
		References			Study Quality										
		53 (12234957)			3										
		52 (-3194076)			4										
MRA chest without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	2	1	8	5	4
		References			Study Quality										
		53 (12234957)			3										
		52 (-3194076)			4										
CTA coronary arteries with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	0	9	8	3	0	0
		References			Study Quality										
		52 (-3194076)			4										

Procedure	Appropriateness	Evidence	Adult RRL	Ped RRL												
Arteriography coronary with ventriculography	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	0	10	8	2	0	0

	References		Study Quality													
	52 (-3194076)		4													

Procedure	Appropriateness	Evidence	Adult RRL	Ped RRL												
US echocardiography transesophageal	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	1	6	11	1	0	0
Arteriography pulmonary	May be appropriate	Limited	☢☢☢☢ 10-30 mSv		5	5	0	0	0	0	13	5	2	0	0

	References		Study Quality													
	52 (-3194076)		4													

Procedure	Appropriateness	Evidence	Adult RRL	Ped RRL												
Radiography chest	May be appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	4	4	3	2	5	5	4	0	0	1	1
MRI heart function with stress without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	7	2	7	2	2	0	1	0	0

	References		Study Quality													
	57 (26917538)		2													
	58 (20631032)		3													

Procedure	Appropriateness	Evidence	Adult RRL	Ped RRL												
MRI heart function with stress without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	7	0	6	4	3	0	0	1	0

	References		Study Quality													
	57 (26917538)		2													
	58 (20631032)		3													

Procedure	Appropriateness	Evidence	Adult RRL	Ped RRL												
SPECT or SPECT/CT MPI rest and stress	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	2	2	10	3	5	3	0	0	0	0	0
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	2	1	0	0	0	0	1	0
MRA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	1	2	0	0	0	0	0	1

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	☢ 0 mSv	☢ 0 mSv [ped]	1	1	19	0	2	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	☢ 0 mSv	☢ 0 mSv [ped]	1	1	19	0	2	0	0	0	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	3	1	3	0	0	1	0	0

Variant 8:   Child or adult. Known or suspected anomalous pulmonary venous return with inadequate evaluation after transthoracic echocardiography. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA chest with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	9	0	0	0	0	0	2	6	3	10

References	Study Quality
64 (11044048)	3
65 (23341089)	2
66 (19506848)	3
67 (29550261)	4
68 (22236895)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRA chest without and with IV contrast	Usually appropriate	Limited	☢ 0 mSv	☢ 0 mSv [ped]	9	9	0	0	1	0	0	0	3	6	11

References	Study Quality
68 (22236895)	4
69 (19184180)	4
70 (8126275)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function and morphology without and with IV contrast	Usually appropriate	Limited	☢ 0 mSv	☢ 0 mSv [ped]	8	8	0	0	0	0	0	2	8	6	4

References	Study Quality
68 (22236895)	4

Procedure	Appropriateness	Evidence	Adult Radiation	Pediatric Radiation	R1	R2	1	2	3	4	5	6	7	8	9
				71 (12804753)	2										
MRA chest without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	3	4	5	5	3

References	Study Quality
68 (22236895)	4
69 (19184180)	4
70 (8126275)	4

Procedure	Appropriateness	Evidence	Adult Radiation	Pediatric Radiation	R1	R2	1	2	3	4	5	6	7	8	9
MRI heart function and morphology without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	1	12	5	2

References	Study Quality
68 (22236895)	4
71 (12804753)	2

Procedure	Appropriateness	Evidence	Adult Radiation	Pediatric Radiation	R1	R2	1	2	3	4	5	6	7	8	9
CT heart function and morphology with IV contrast	May be appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	0	10	6	4	0	0
MRA abdomen without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	4	10	4	1	0	0
MRA abdomen without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	1	13	3	2	0	0
US echocardiography transesophageal	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	6	3	8	2	1	0	0	0	0

References	Study Quality
72 (1772706)	4
73 (9137235)	4
74 (16238553)	4

Procedure	Appropriateness	Evidence	Adult Radiation	Pediatric Radiation	R1	R2	1	2	3	4	5	6	7	8	9
Radiography chest	Usually not appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	3	3	7	3	4	2	4	0	0	0	0

References	Study Quality
65 (23341089)	2

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CTA coronary arteries with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	10	2	4	1	3	1	0	0	0
Arteriography pulmonary	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		2	2	6	5	8	0	1	0	0	0	0
Arteriography coronary with ventriculography	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	5	6	7	2	0	0	0	0	0

References	Study Quality
61 (16784931)	3
62 (6235060)	4
63 (16580428)	4
60 (27831520)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI heart function with stress without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	10	3	4	3	1	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	19	0	2	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	18	1	2	0	0	0	0	0	0
MRI heart function with stress without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	3	5	2	0	0	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	19	0	1	1	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]	1	1	17	2	2	0	0	0	0	0	0

Variant 9:   Child or adult. Suspected aortic coarctation with inadequate evaluation after transthoracic echocardiography. Next imaging study.

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

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA chest with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	0	0	1	0	1	0	4	6	9

References	Study Quality
78 (28377475)	4
77 (14975985)	3
79 (25714305)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
MRA chest without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	0	0	1	5	4	10

References	Study Quality
81 (15699283)	3
79 (25714305)	4
80 (8489869)	3
82 (21861960)	3

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
MRA chest without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	1	1	3	7	4	4

References	Study Quality
81 (15699283)	3
79 (25714305)	4
80 (8489869)	3
82 (21861960)	3

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
MRI heart function and morphology without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	5	9	4	1

References	Study Quality
75 (21947983)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
MRI heart function and morphology without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	2	10	6	2

References	Study Quality
75 (21947983)	4

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
CT heart function and morphology with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	4	3	2	7	3	0	0	0
Arteriography coronary with ventriculography	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	1	2	4	9	4	0	0	0

References	Study Quality
76 (7585760)	2

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											
US echocardiography transesophageal	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	7	1	9	2	1	0	0	0	0
Radiography chest	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	3	3	7	1	7	2	3	0	0	0	0
CTA coronary arteries with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	10	2	3	3	2	0	1	0	0
Arteriography pulmonary	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		1	1	13	4	2	0	0	2	0	0	0
MRA abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	1	1	1	0	0	1	0	0
MRA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	0	2	1	0	0	0	1	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	0	3	0	0	0	1	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	17	0	3	0	0	0	0	1	0
MRI heart function with stress without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	2	6	0	0	0	1	0	0
MRI heart function with stress without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	3	6	0	0	0	0	1	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	18	1	1	1	0	0	0	0	0

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
SPECT or SPECT/CT MPI rest and stress	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	1	1	16	1	4	0	0	0	0	0	0

Variant 10: Child. Known aortopathy or connective tissue disease. Surveillance of the aorta after inadequate or incomplete evaluation by transthoracic echocardiography. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRA chest without and with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	1	0	0	0	0	6	14

References	Study Quality
91 (32453278)	2
92 (32531300)	4
93 (32167203)	2

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CTA chest with IV contrast	Usually appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	0	0	0	0	3	3	3	4	8
MRA chest without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	1	0	2	1	5	6	6

References	Study Quality
91 (32453278)	2
92 (32531300)	4
93 (32167203)	2

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRA abdomen without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	1	0	0	2	12	5	0

References	Study Quality
86 (20687249)	4

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRA abdomen without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	2	0	13	4	1

References	Study Quality

Procedure	Appropriateness	Evidence	Adult RRL	Pediatric RRL											

		References		Study Quality												
		86 (20687249)		4												
MRA neck without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	1	0	1	1	12	5	0
		References		Study Quality												
		94 (21730308)		2												
MRA neck without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	0	1	11	6	1
		References		Study Quality												
		94 (21730308)		2												
MRI heart function and morphology without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	1	7	8	3	1	0
		References		Study Quality												
		95 (2913733)		4												
		96 (31342116)		3												
		97 (20861133)		3												
CTA coronary arteries with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	0	0	3	8	5	4	0	0
MRI heart function and morphology without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	3	8	6	2	1	0
		References		Study Quality												
		95 (2913733)		4												
		96 (31342116)		3												
		97 (20861133)		3												
US echocardiography transesophageal	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	4	1	3	7	4	1	0	0	1
CT heart function and morphology with IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	1	4	6	4	4	1	0	0	0
		References		Study Quality												
		90 (19375878)		2												

Radiography chest	Usually not appropriate	Limited	☢ <0.1 mSv	☢ <0.03 mSv [ped]	3	3	5	3	6	4	2	0	0	0	0

	References		Study Quality	
	98 (20591885)		4	

Arteriography pulmonary	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		2	2	8	5	3	3	0	1	0	0	1
Arteriography coronary with ventriculography	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	3	5	2	1	1	0	0	0

	References		Study Quality	
	89 (27733430)		2	

MRI heart function with stress without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	11	5	5	0	0	0	0	0	0
MRI heart function with stress without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	3	5	0	0	0	0	0	0
FDG-PET/CT heart	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	0	2	1	0	0	0	0	1
SPECT or SPECT/CT MPI rest and stress	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	1	1	17	1	3	0	0	0	0	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.**