ASCI cardiac MR appropriateness criteria questionnaire

Please provide your name, degree and affiliation correctly as they should appear in the publication.

Name and degree (ex. John Doe, MD, PhD): _____

Department and Hospital/Institute: _____

Hospital type (University hospital, Medical center, City hospital, Imaging center…): _____ How many in-patient beds? _____

Experience:

How many years have you been in the field of cardiovascular medicine? _____

Radiologists: How many cardiac MR examinations have you ever performed in the past? _____.

Cardiologists: How many examinations have you ever performed/ordered in the past? Cardiac MR:_____, PCI:_____.

Scoring appropriateness: (1 to 9)

Score 7 to 9: Appropriate test for the specific indication. Test is generally acceptable and a reasonable approach for the listed indication.

Score 4 to 6: Uncertain for specific indication. Test may be generally acceptable and may be a reasonable approach for the indication. Uncertainty also implies that more research or patient information or both are needed to classify the indication definitively.

Score 1 to 3: Inappropriate test for specific indication. Test is not generally acceptable and is not a reasonable approach for the indication.

Definition of 'cardiac MR':

If not specified, cardiac MR protocol may include motion, stress and rest perfusion, delayed gadolinium enhancement, flow measurement, black blood T2WI, and MR coronary angiography

Note: In the following tables, assume the logical operator between each variable listed for an indication is "AND" unless otherwise noted (e.g., Low pre-test probability of CAD AND No ECG changes and serial enzymes negative).

Abbreviations:

ACS: acute coronary syndromes; ARVD: arrhythmogenic right ventricular dysplasia; ASCI: Asian Society of Cardiovascular Imaging; ASD: atrial septal defect; CABG: coronary artery bypass grafting surgery; CAD: coronary artery disease; CCT: cardiac computed tomography; CHD: coronary heart disease; CMR: cardiac magnetic resonance imaging; CT: computed tomography; CTCA: computed tomography coronary angiography; ECG: electrocardiogram; MRCA: magnetic resonance coronary arteriography; MRI: magnetic resonance imaging; PCI: percutaneous coronary intervention; TEE: transesophageal echocardiography; VSD: ventricular septal defect.

Table 1 – Detection of CAD: Symptomatic

ASCI CMR indication No.		**Cardiac MR appropriateness (Please fill in your scoring here, 1: inappropriate to 9: appropriate)**
Evaluation of Chest Pain Syndrome		
1	- Low pre-test probability of CAD - ECG interpretable AND able to exercise	
2	- Intermediate pre-test probability of CAD - ECG interpretable AND able to exercise	
3	- Intermediate pre-test probability of CAD - ECG uninterpretable OR unable to exercise	
4	- High pre-test probability of CAD	
Evaluation of Intra-Cardiac Structures		
5	- Evaluation of suspected coronary anomalies	
Acute Chest Pain		
6	- Low pre-test probability of CAD - No ECG changes and serial enzymes negative	
7	- Intermediate pre-test probability of CAD - No ECG changes and serial enzymes negative	
8	- High pre-test probability of CAD - No ECG changes and serial enzymes negative	
9	- High pre-test probability of CAD - ECG—ST-segment elevation and/or positive cardiac enzymes	

Table 2 – Detection of CAD: Asymptomatic (Without Chest Pain Syndrome)

ASCI		**Cardiac MR appropriateness**
	Asymptomatic	
10	- Low CHD risk (Framingham risk criteria)	
11	- Moderate CHD risk (Framingham)	
12	- High CHD risk (Framingham)	

Table 3 – Risk Assessment: General Population

ASCI		**Cardiac MR appropriateness**
	Asymptomatic	
13	- Low CHD risk (Framingham)	(Use of coronary MRA)
14	- Moderate CHD risk (Framingham)	(Use of coronary MRA)
15	- High CHD risk (Framingham)	(Use of coronary MRA)

Table 4 - Detection of CAD with Prior Test Results

ASCI		**Cardiac MR appropriateness**
	Evaluation of Chest Pain Syndrome	
16	- Uninterpretable or equivocal stress test (exercise, perfusion, or stress echo)	
17	- Evidence of moderate to severe ischemia on stress test (exercise, perfusion, or stress echo)	

Table 5 – Risk Assessment with Prior Test Results

ASCI		**Cardiac MR appropriateness**
Asymptomatic		
18	- Normal prior stress test (exercise, nuclear, echo, MRI) - High CHD risk (Framingham) - Within 1 year of prior stress test	
19	- Equivocal stress test (exercise, stress SPECT, or stress echo) - Intermediate CHD risk (Framingham)	
20	- Coronary angiography (catheterization or CT) - Stenosis of unclear significance	

Table 6 – CAD Detection in Pediatric Patients with Kawasaki Disease

ASCI		**Cardiac MR appropriateness**
Asymptomatic		
21	- No previous definitive test (invasive angiography, MRCA or CTCA) available	
22	- Previous tests (invasive angiography, CMR or CCT) documented coronary aneurysm/stenosis, for follow up	
Symptomatic		
23	- No previous definitive test (invasive angiography, MRCA or CTCA) available	
24	- Previous tests (angiography, CMR or CCT) documented coronary aneurysm/stenosis, for follow up	

Table 7 - Risk Assessment: Preoperative Evaluation for Non-Cardiac Surgery

ASCI		**Cardiac MR appropriateness**
Low-Risk Surgery		
25	- Intermediate perioperative risk	
Intermediate- or High-Risk Surgery		
26	- Intermediate perioperative risk	

Table 8 – Risk Assessment: Preoperative Evaluation for Cardiac Surgery or Endovascular Intervention

ASCI		**Cardiac MR appropriateness**
Preoperative evaluation		
27	- Use of MRI for CAD evaluation before valve surgery	
28	- Anatomic assessment before percutaneous device closure of ASD or VSD or percutaneous aortic valve replacement	
29	- Evaluation of complex lesions before PCI (ie, chronic total occlusions, bifurcation lesions)	

Table 9 - Detection of CAD: Post-Revascularization (PCI or CABG)

ASCI		**Cardiac MR appropriateness**
Evaluation of Chest Pain Syndrome		
30	- Evaluation of bypass grafts and coronary anatomy	
31	- History of percutaneous revascularization with stents	
Asymptomatic		
32	- Evaluation of bypass grafts and coronary anatomy - Less than 5 years after CABG	
33	- Evaluation of bypass grafts and coronary anatomy - Greater than or equal to 5 years after CABG	
34	- Evaluation for in-stent restenosis and coronary anatomy after PCI	

Table 10 – Structure and Function

ASCI		Cardiac MR appropriateness
Morphology		
35	- Assessment of complex congenital heart disease including anomalies of coronary circulation, great vessels, and cardiac chambers and valves	
36	- Assessment of post-operative congenital heart disease, such as residual pulmonary stenosis, ventricular septal defect and patency check for Blalock-Taussig shunt	
37	- Evaluation in patients with new onset heart failure to assess etiology	
Evaluation of Ventricular and Valvular Function		
38	- Evaluation of LV function following myocardial infarction OR in heart failure patients	
39	- Evaluation of LV function following myocardial infarction OR in heart failure patients - Patients with technically limited images from echocardiogram	
40	- Quantification of LV function - Discordant information that is clinically significant from prior tests	
41	- Evaluation of specific cardiomyopathies (infiltrative [amyloid, sarcoid], HCM, or due to cardiotoxic therapies)	
42	- Characterization of native and prosthetic cardiac valves - Patients with technically limited images from echocardiogram or TEE	
43	- Evaluation for arrhythmogenic right ventricular cardiomyopathy (ARVC) - Patients presenting with syncope or ventricular arrhythmia	
44	- Evaluation of myocarditis or myocardial infarction with normal coronary arteries - Positive cardiac enzymes without obstructive atherosclerosis on angiography	
Evaluation of Intra- and Extra-Cardiac Structures		

45	- Evaluation of cardiac mass (suspected tumor or thrombus) - Patients with technically limited images from echocardiogram or TEE	
46	- Evaluation of pericardial conditions (pericardial mass, constrictive pericarditis, or complications of cardiac surgery) - Patients with technically limited images from echocardiogram or TEE	
47	- Evaluation of pulmonary vein anatomy prior to invasive radiofrequency ablation for atrial fibrillation - Left atrial and pulmonary venous anatomy including dimensions of veins for mapping purposes	

Table 11 – Detection of Myocardial Scar and Viability

ASCI		**Cardiac MR appropriateness**
Evaluation of Myocardial Scar		
48	- To determine the location and extent of myocardial infarction including 'no-reflow' regions - Post-acute myocardial infarction	
49	- To detect post PCI myocardial necrosis	
50	- To determine viability prior to revascularization	

Comments/Suggestions

Do you have any further indication suggestion for cardiac MR? Please list.	
Any other comments or suggestions?	