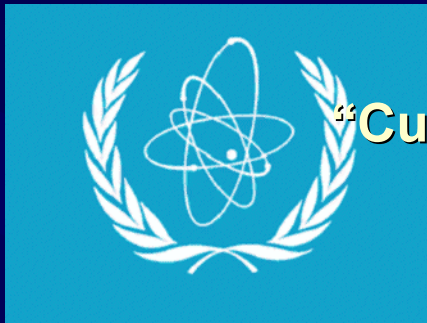




American Society of Nuclear Cardiology review of the ACCF/ASNC appropriateness criteria for single-photon emission computed tomography myocardial perfusion imaging (SPECT MPI)

**Prepared by the ASNC Quality Assurance Subcommittee for  
Quality in Imaging Standards.  
Reviewed by members of the ASNC Quality Assurance Committee.  
Approved by the ASNC Board of Directors, September 6, 2007.**

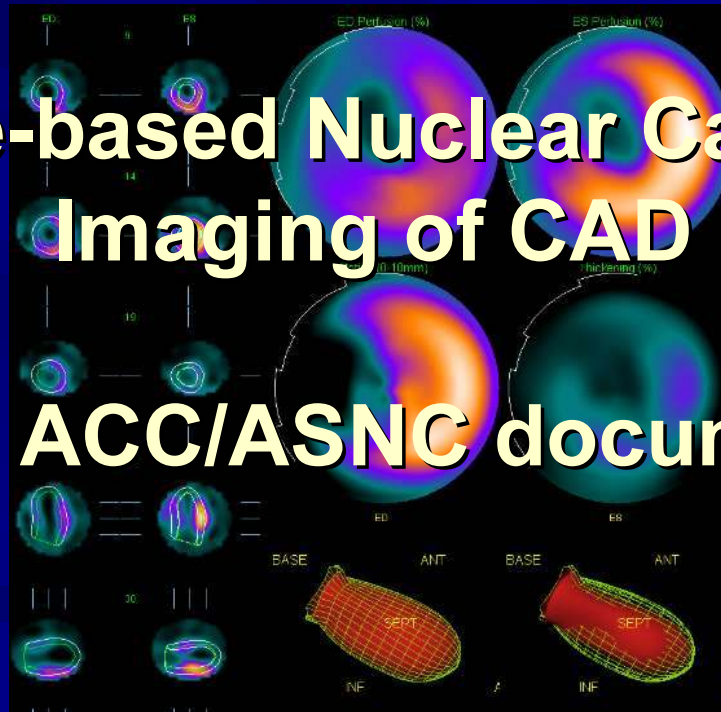
**J Nucl Cardiol 2007;14:e26-38**



**Technical Meeting on:  
“Current Role of Nuclear Cardiology in the  
Management of Cardiac Diseases”  
Vienna, 5-9 May 2008  
Vienna International Centre**

**Evidence-based Nuclear Cardiology:  
Imaging of CAD**

**The ACC/ASNC document**



## **ACCF/ASNC APPROPRIATENESS CRITERIA**

# ACCF/ASNC Appropriateness Criteria for Single-Photon Emission Computed Tomography Myocardial Perfusion Imaging (SPECT MPI)

A Report of the American College of Cardiology Foundation  
Quality Strategic Directions Committee Appropriateness Criteria  
Working Group and the American Society of Nuclear Cardiology

*Endorsed by the American Heart Association*

JACC Vol. 46, No. 8, 2005  
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## **Main contents of the document**

- ▶ Review of definitions and classification structure**
- ▶ Suggested new indications for SPECT MPI**
- ▶ Review of individual indications**

# **Review of definitions and classification structure**

- ▶ **Definition of CHEST PAIN SYNDROME**
- ▶ **Definition of HIGH CHD RISK**

## Review of definitions and classification structure

### ▶ Definition of CHEST PAIN SYNDROME

#### *Recommendation:*

“Any constellation of *signs* or symptoms that the physician believes to be consistent with obstructive CAD ...including *new ECG changes*”.

## Review of definitions and classification structure

- ▶ Definition of CHEST PAIN SYNDROME
- ▶ Definition of **HIGH CHD RISK**

### *Recommendation:*

“The presence of DM, *peripheral arterial disease or other coronary risk equivalents*, or the 10-year absolute CHD risk >20%”.

## **Suggested new indications for SPECT MPI**

- ▶ **Syncope**
- ▶ **Troponin elevation**
- ▶ **Use of type 1C antiarrhythmic drugs**
- ▶ **New ECG abnormalities**
- ▶ **Incomplete revascularization**
- ▶ **End-stage renal disease**



## Suggested new indications for SPECT MPI

### ▶ Syncope

“Ischemia evaluation is appropriate in patients with unexplained syncope who are at risk for, or with a history of CAD” (AHA/ACCF statement on the Evaluation of Syncope).

SPECT MPI is frequently the initial diagnostic test in patients with unexplained syncope.

*SPECT MPI would be appropriate in pts. with unexplained syncope and at risk of myocardial ischemia.*

## Suggested new indications for SPECT MPI

### ▶ Troponin elevation

Patients with mild troponin elevation and no other markers of ACS are commonly referred to SPECT MPI.

In patients with atypical symptoms and elevated troponin levels SPECT MPI may help to stratify risk and guide management.

*SPECT MPI should be evaluated in patients with troponin elevation in different clinical scenarios.*

## Suggested new indications for SPECT MPI

### ▶ Use of type 1C antiarrhythmic drugs

Drugs recommended for patients with atrial fibrillation.

Documented proarrhythmic risks of type 1C agents in Patients with CHD or LV dysfunction.

*Testing with SPECT MPI to exclude ischemia before initiating therapy with 1C drugs should be appropriate.*

## Suggested new indications for SPECT MPI

- ▶ **New ECG abnormalities**  
(while not included in Chest Pain Syndrome)

Newly recognized abnormalities are common referral indications for SPECT MPI.

*In asymptomatic patients, SPECT MPI should be considered in those with intermediate-high risk of CAD and new ECG changes, especially ST-T abnormalities.*

## Suggested new indications for SPECT MPI

### ▶ Incomplete revascularization

Patients frequently undergo target or 'culprit vessel' revascularization, with additional disease noted in other vessels.

These patients are a common referral for follow-up SPECT MPI, even if asymptomatic.

*SPECT MPI would be appropriate in post-revasc. pts. in whom there is a residual stenosis of unclear clinical significance.*

## Suggested new indications for SPECT MPI

### ▶ End-stage renal disease (ESRD)

ESRD is associated with high CV mortality rate.

These pts. have high prevalence of abnormal MPI, representing adverse CV prognosis.

*ESRD should be evaluated as an additional indication for SPECT MPI.*

## Review of individual indications

- ▶ **Agreement of panelists rankings for each indication**
  - Good agreement: n = 33
  - Poor agreement: n = 20
- ▶ **Indications with poor agreement according to classification**
  - Inappropriate (n=3): 21, 36, 47
  - Uncertain (n=11): 2, 11, 13, 14, 18, 26, 34, 42, 43, 46, 48
  - Appropriate (n=5): 3, 5, 12, 22, 24
- ▶ **Detailed review of indications with *poor agreement* resulted in 6 recommended revisions**

## Review of individual indications

▶ **Indication 26: Risk assessment with prior test results. Asymptomatic, CT coronary angiography with stenosis of unclear significance. (6.5 = U)**

- **Coronary CT angio has high NPV but low PPV**
- **Only 29% of positive CT angio have a positive MPI**
- **Calcium score >400 (low PPV) is an Appropriate indication for MPI (#27)**

**Recommendation: *Change from Uncertain to Appropriate.***



## Review of individual indications

- ▶ Indication 42: Risk assessment: post-revasc. (PCI or CABG). Asymptomatic. Asymptomatic prior to revasc., <5 years after PCI. (6.0 = U)
- ▶ Indication 43: Risk assessment: post-revasc. (PCI or CABG). Asymptomatic. Symptomatic prior to revasc., <5 years after PCI. (5.5 = U)
- Positive MPI is a potent predictor of cardiac events.
- No clear evidence on the importance of sympt. pre-revasc.

**Recommendation: *Change from Uncertain to Appropriate.***

## Review of individual indications

- ▶ **Indication 47: Risk assessment: post-revasc. (PCI or CABG). Asymptomatic. Symptomatic prior to revasc., <2 years after PCI. (3.0 = I)**
- **Indication 46 (asymptomatic pre-revasc.) is Appropriate.**
- **No supporting evidence using symptoms before revasc. to differentiate appropriateness of SPECT MPI.**

**Recommendation: *Change from Inappropriate to Uncertain.***

## Review of individual indications

- ▶ Indication 48: Risk assessment: post-revasc. (PCI or CABG). Asymptomatic. Asymptomatic prior to revasc.,  $\geq 2$  years after PCI. (6.5 = U)
- ▶ Indication 49: Risk assessment: post-revasc. (PCI or CABG). Asymptomatic. Symptomatic prior to revasc.,  $\geq 2$  years after PCI. (5.5 = U)
- MPI is widely used in this setting particularly for pts. at high risk for reestenosis based on anatomic or procedural factors.

**Recommendation:** *Change from Uncertain to Appropriate.*

## Conclusion

- ▶ Two systemic issues in patients characterization to be revised.
- ▶ Six new indications suggested.
- ▶ Six changes in classification suggested,
  - 5 from *'Uncertain'* to *'Appropriate'*
  - 1 from *'Inappropriate'* to *'Uncertain'*.

Thank you

