



<b>Title</b>	<b>Systematic Review of the Effectiveness and Cost Effectiveness, and Economic Evaluation, of Myocardial Perfusion Scintigraphy for the Diagnosis and Management of Angina and Myocardial Infarction</b>
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<b>Reference</b>	Health Technol Assess 2004;8(30). Jul 2004. <a href="http://www.ncchta.org/execsumm/summ830.htm">www.ncchta.org/execsumm/summ830.htm</a>

## Aim

To assess the effectiveness and cost effectiveness of single photon emission computed tomography (SPECT) myocardial perfusion scintigraphy in diagnosing and managing angina and myocardial infarction (MI).

## Conclusions and results

Included were 21 diagnostic and 46 prognostic studies, 2 studies comparing SPECT with electrocardiography (ECG)-gated SPECT, and 1 study comparing SPECT with attenuation-corrected SPECT. The diagnostic values of SPECT were generally higher than those of stress ECG. SPECT may be able to identify lower risk patients for whom coronary angiography (CA) might be avoided. Normal SPECT scans were associated with a benign prognosis and medical rather than invasive management. Four studies of post-MI patients reported SPECT to be valuable in stratifying patients into at-risk groups for further cardiac events. The 2 studies comparing SPECT with ECG-gated SPECT found in favor of gated SPECT. The study comparing SPECT with attenuation-corrected SPECT reported the latter to be more accurate. Systematic review of economic evaluations indicated that strategies involving SPECT were likely either to be dominant or to produce more QALYs at an acceptable cost. There was less agreement about which of the strategies was optimal. An economic model suggested that, for low prevalence, the incremental cost per unit of output (true positives diagnosed, accurate diagnosis, QALY) for the move from stress ECG–SPECT–CA and from stress ECG–CA to SPECT–CA might be considered worthwhile. The least costly and least effective strategy was stress ECG–SPECT–CA. Sensitivity analysis suggested that the cost effectiveness of SPECT–CA improved if SPECT results allowed for adopting a management strategy without recourse to CA. As time decreased, the incremental cost per QALY increased.

## Recommendations

Measurement of outcomes, management, setting, and patient characteristics varied considerably. The evidence

tended to favor SPECT in terms of test sensitivity (based on a relatively small number of diagnostic studies). SPECT added valuable independent, incremental prognostic information to that from stress ECG and/or CA, which helped to risk-stratify patients and influence how their condition was managed. All of the prognostic studies were observational and may be biased by unknown confounding factors. Although the ECG-gated and attenuation-corrected SPECT findings seem promising, it is difficult to draw conclusions from so few studies.

## Methods

Please refer to the full monograph for details of the methods.

## Further research/reviews required

Further research is needed on the effectiveness and cost effectiveness, diagnostically and prognostically, of (a) gated and attenuation-corrected SPECT compared with standard SPECT, (b) standard SPECT compared with stress echocardiography, and (c) the uncertainty surrounding the results presented in the cost-effectiveness analysis.