

Title:	Positron emission tomography (PET) for myocardial viability
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Aim

To assess the safety, effectiveness and cost-effectiveness of PET/CT for assessing myocardial viability by comparison with alternative tests (single-photon emission computed tomography [SPECT]/contrast enhanced magnetic resonance imaging [CE-MRI]/dobutamine echocardiography [DE]) in patients with moderate to severe left ventricular systolic dysfunction.

Methods

This report updates a previous MSAC review from 2000. A recent high quality health technology assessment (HTA) report from the Ontario Medical Advisory Secretariat (Medical Advisory Secretariat, 2005) was used as the basis of this assessment. A systematic review to December 2009 was undertaken to include more recent studies. The financial implications of unconditional public funding for PET were estimated as the potential costs to the Medicare Benefits Schedule (MBS) compared with the costs of using SPECT, CE-MRI or DE using estimates of utilisation based on the expert opinion of the advisory panel.

Results and conclusions

Safety: PET and PET/CT are considered safe procedures.

Effectiveness: Two randomised controlled trials (RCTs) compared the health outcomes of patients with systolic LV dysfunction being considered for revascularisation between those assessed with and without FDG-PET (comparator of SPECT in 1 study, and standard treatment which could include an alternative method of viability testing in another). Neither study demonstrated a statistically significant difference between arms in either cardiac death or major adverse cardiac events.

Evidence that FDG-PET viability testing (either alone or in combination with a myocardial perfusion test) offers significantly higher sensitivity or specificity than alternative tests (SPECT, CE-MRI and DE) was not identified.

Data on patient management were extracted from the 2 direct-evidence studies which showed no difference in rates of CABG between arms. One RCT reported higher rates of revascularisation in the PET arm. The impact of revascularisation relative to medical management in patients assessed to have viable myocardium on patient outcomes is uncertain.

Economic considerations: From an estimated range of 3000 to 5000 myocardial viability assessments a year, the gross costs of testing were estimated as \$3 546 000 to \$5 910 000 for FDG-PET, \$1 479 000 to \$2 465 000 for CE-MRI and \$1 215 000 to \$2 025 000 for DE.