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| <b>Title:</b>     | <b>Positron emission tomography (PET) for recurrent melanoma</b>  |
| <b>Agency:</b>    | <b>Medical Services Advisory Committee (MSAC)<br/>Mail Drop Point 106<br/>Commonwealth Department of Health and Ageing<br/>GPO Box 9848 Canberra ACT 2601 Australia<br/><a href="http://www.msac.gov.au">http://www.msac.gov.au</a></b> |
| <b>Reference:</b> | <b>MSAC Reference 35a Assessment report<br/>First printed June 2008<br/>ISBN 1-74186-648-0</b>  |

### **The procedure**

Positron emission tomography (PET) is a minimally invasive nuclear medicine imaging technique that provides information about function and metabolism that is complementary to the structural information provided computed tomography (CT). PET/CT machines combine both systems.

### **Aim**

To assess the safety, effectiveness and cost-effectiveness of the addition of PET/CT to the assessment of patients with biopsy proven recurrence of malignant melanoma considered on conventional staging to be potentially resectable with curative intent.

### **Results and conclusions**

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

**Effectiveness:** No direct evidence was found reporting the health outcomes of patients with recurrent melanoma, assessed with and without FDG-PET. Therefore, evidence for accuracy, change in management and the expected benefit of changes in treatment on health outcomes was considered to evaluate the effectiveness of PET using a linked evidence approach.

PET has greater diagnostic accuracy than conventional imaging for N- and M-staging, and is likely to detect additional sites of disease. PET leads to changes in patient management, most commonly the avoidance of surgery. PET is considered to lead to the avoidance of surgical morbidity in patients who avoid radical surgery. Expert opinion is that this leads to improved patient outcomes, but definitive evidence for whether this outweighs any potential benefit of surgery is lacking.

**Cost-effectiveness:** Analysis of costs and consequences (changes in management; health outcomes) over 3 months found PET is likely to be slightly cost saving in patients planned for lymphadenectomy (mean cost savings/100 patients: \$7,762 [95% confidence limits: \$259,713 to an additional \$204,550]). The confidence limits around cost savings indicate considerable uncertainty in this estimate and include a possibility of PET leading to additional costs. The cost offsets of avoiding surgery are likely to be greater for patients planned for surgery at other sites. The overall health outcomes associated with this are not known.

### **Recommendation**

MSAC finds that PET and PET/CT are more accurate than conventional staging for recurrent melanoma; likely to improve patient outcomes through the avoidance of radical surgery which is unlikely to provide long-term benefit; and potentially cost-saving compared with conventional staging for patients with biopsy-proven lymph node recurrence of melanoma who are considered for lymphadenectomy with curative intent. Cost savings may be greater in patients with visceral recurrences considered for curative surgery, but this could not be quantified. MSAC recommends that public funding is supported for this procedure when referred by a specialist.

### **Methods**

This report updates a previous MSAC review from 2000. A recent high quality health technology assessment (HTA) report from the National Coordinating Centre for HTA (NCCHTA)-United Kingdom (Facey et al 2007) was used as the basis of this assessment. A systematic review to December 2006 was undertaken to include more recent studies. In the absence of an overall measure of health outcome (eg life-years saved), modeled cost consequence analyses, including probabilistic sensitivity analyses, were conducted to explore short-term economic implications.