

<b>Title:</b>	<b>Positron emission tomography (PET) for oesophageal and gastric cancer</b>
<b>Agency:</b>	<b>Medical Services Advisory Committee (MSAC) Mail Drop Point 106 Commonwealth Department of Health and Ageing GPO Box 9848 Canberra ACT 2601 Australia <a href="http://www.msac.gov.au">http://www.msac.gov.au</a></b>
<b>Reference:</b>	<b>MSAC Reference 35b(i) Assessment report First printed October 2008 ISBN 1-74186-705-3</b>

### **Aim**

To assess the safety, effectiveness and cost-effectiveness of the addition of PET/CT to the assessment of: a) primary cancer of the oesophagus or the gastro-oesophageal junction (GEJ) considered suitable for definitive treatment as determined by conventional staging; b) residual oesophageal or GEJ cancer following definitive chemo-radiation considered suitable for salvage surgery as either (i) a replacement for CT in staging biopsy-proven residual disease, or (ii) in addition to endoscopy and biopsy where residual disease has not been confirmed; and c) biopsy proven primary gastric cancer that is considered potentially curable by conventional staging including laparoscopy (with peritoneal cytology).

### **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 oesophageal or gastric cancer, 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.

Evidence for the incremental accuracy of PET over conventional staging in the assessment of residual disease following definitive chemo-radiation, and in the staging of primary gastric cancer in addition to conventional staging including laparoscopy was not identified.

PET increases the detection of distant metastases from primary oesophageal cancer, in association with an increase in the number of false positive findings for metastatic disease, and also identifies synchronous neoplasms. PET leads to changes in patient management, most commonly the avoidance of surgery. PET is considered to lead to the avoidance of surgical morbidity and mortality in patients who avoid oesophagectomy. Expert opinion is that this leads to improved patient outcomes in terms of quality of life, but definitive evidence for whether this outweighs any potential benefit of surgery is lacking.

**Economic considerations:** Decision analytic modelling, including probabilistic sensitivity analyses, of short-term costs and consequences (changes in management; health outcomes) found PET is likely to be cost saving (saving of \$159 351 per 100 patients; 95% confidence limits \$13 125–\$348 730), due to the avoidance of treatments with curative intent following both true-positive and false-positive results. The overall health outcomes associated with this are not known.

### **Recommendation**

MSAC finds that PET is safe. MSAC finds that there are insufficient data to evaluate the effectiveness of PET for the assessment of residual oesophageal or GEJ cancer following definitive chemo-radiation considered suitable for salvage surgery, or for biopsy proven primary gastric cancer considered potentially curable, and does not recommend public funding for these indications. MSAC finds that the addition of PET to the conventional staging of primary cancer of the oesophagus or the GEJ is clinically effective and likely to be cost saving and recommends that public funding is supported for this indication.

### **Methods**

This report updates a previous MSAC review from 2001. 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 2007 was undertaken to include more recent studies. In the absence of an overall measure of health outcome (eg life-years saved), a modelled cost consequence analysis was conducted to explore economic implications.