

<b>Title:</b>	<b>Positron emission tomography (PET) for non-small-cell lung cancer and solitary pulmonary nodules</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 16 Assessment report First printed May 2006 ISBN 0 642 82751 6</b>

### **Aim**

To assess:

- the preoperative value of PET plus usual staging in patients with potentially curable non-small-cell lung cancer (NSCLC)
- the additional value of PET in patients with a solitary pulmonary nodule (SPN) where the results of conventional imaging or tests have been inconclusive or unavailable

### **Conclusions and results**

#### ***Safety***

PET is a non-invasive and safe diagnostic procedure.

#### ***Effectiveness: NSCLC***

The addition of PET improves the diagnostic accuracy of conventional work-up in staging of NSCLC (sensitivity approximately 90%; specificity greater than 95%) and leads to changes in clinical management. There may be potential improvements in survival due to PET in patients with more extensive disease on conventional staging; however, further outcome data is required.

#### ***Effectiveness: SPN***

PET is highly sensitive in differentiating between malignant and benign lesions in patients with indeterminate biopsy results (97%, 95% confidence interval [CI] 88–99%) or indeterminate lesions after conventional imaging (89%, 95% CI 85–92%). PET has a lower specificity in patients with indeterminate biopsy results (74%, 95% CI 56–86%) or indeterminate lesions after conventional imaging (69%, 95% CI 51–83%). There is currently no direct evidence that the use of PET in patients with SPN changes clinical management or improves patient outcomes. However, it can be inferred that if PET detects lung cancer at an earlier stage, or avoids unnecessary surgery, patient outcomes will be improved.

#### ***Cost-effectiveness***

The incremental cost of using PET for staging NSCLC was estimated at \$189 per patient with an associated 0.046 gain in life years saved. The cost per life year saved was estimated at \$41,087. A cost-effectiveness analysis was not undertaken for SPN.

### **Recommendations**

MSAC agreed that public funding for positron emission tomography (PET) for solitary pulmonary nodules (SPN) and non-small-cell lung cancer (NSCLC) should be supported. The Minister for Health and Ageing accepted this recommendation on 2 March 2005.

### **Methods**

MSAC conducted a systematic review of the biomedical literature from 1999 to February 2003 for NSCLC, and from 1966 to February 2003 for SPN. Reference lists and health technology assessment websites were also searched. A decision analytic economic model was conducted for NSCLC and a summary of published cost-effectiveness studies was undertaken for SPN.