Title:	**Deep Brain Stimulation (DBS) for symptoms of Parkinson's disease -April 2001**
Agency:	Medical Services Advisory Committee (MSAC) Commonwealth Department of Health and Ageing GPO Box 9848 Canberra ACT 2601 Australia. **http://www.msac.gov.au**
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Aim

To assess the safety and effectiveness of the procedure and under what circumstances public funding should be supported for the procedure.

Conclusions and results

Safety Limited evidence suggests that DBS has less frequent, less severe adverse effects relative to ablative surgery. One of the benefits of DBS is the reversibility of the procedure Long-term studies are needed.

Effectiveness

- *of DBS relative to ablative surgery*. More randomised controlled trials focusing on patient quality of life are required to assess the long-term effectiveness of DBS. There is some evidence that thalamic stimulation significantly improves some aspects of quality of life.
- *of DBS relative to medical treatment*. Although two studies show some added effect of DBS over medical therapy, no conclusions can be made due to deficiencies in the studies available. More long-term studies of improved methodological quality are needed.

Cost-effectiveness One study regarding thalamic DBS compared to thalamotomy indicates that DBS costs $17,000-$51,000 more than ablative surgery over five years.

Recommendations

- Interim funding of DBS should be supported for patients whose response to medical therapy is not sustained and is accompanied by unacceptable motor fluctuations
- Technology is to be reviewed in three years.

Method

MSAC conducted a systematic review of the biomedical literature from 1966 to September 2000 using biomedical electronic databases, the Internet and international health technology agency websites to identify studies which compared DBS to ablative surgery or medical treatment. This review sought data on forms of DBS (thalmic stimulation, pallidal stimulation and sub-thalmic stimulation) that targeted different areas of the basal ganglia for control of different symptoms.

Further studies

Two trials are underway and one will commence soon comparing DBS to ablative surgery:

1. Kings Healthcare R&D consortium;
2. University Hospital, Birmingham, NHS trust; and
3. University College London Hospitals NHS Trust (due to commence in 2002).

Queens College London is investigating potential cognitive gains and losses from DBS and the Medical University of South Carolina is investigating the mood effects of DBS.