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In: Value in Health. 2017, Glasgow, Scotland: Elsevier.

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DOI link to article:

<https://doi.org/10.1016/j.jval.2017.08.1402>

Date deposited:

03/11/2017

Embargo release date:

20 October 2018

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Cost-Effectiveness of Mechanical Thrombectomy Compared with Standard Treatment in Patients with Acute Ischaemic Stroke

Heggie R¹, Wu O¹, White P², Ford G³, Brown M⁴, Clifton A⁵, Wardlaw J⁶, Muir K¹

1 University of Glasgow, Glasgow, UK, 2 Newcastle University, Newcastle, UK, 3 Oxford Academic Health Science Network, Oxford, UK, 4 University College London, London, UK, 5 St George's University Hospitals NHS Foundation Trust, London, UK, 6 Edinburgh University, Edinburgh, UK

Objectives: To determine the cost-effectiveness of mechanical thrombectomy, compared with standard treatment, from the perspective of the UK NHS and PSS.

Methods: We undertook a cost-effectiveness analysis alongside the Pragmatic Ischaemic Stroke Thrombectomy Evaluation (PISTE) trial. In addition, a decision-analytic model was developed to estimate the long-term cost-effectiveness of thrombectomy using all available trial evidence. Meta-analysis was used to estimate the clinical effectiveness; resource use and costs were sourced from the PISTE study and the broader literature. Value of implementation analysis was used to estimate the potential value of implementing this treatment into routine clinical practice within the UK NHS. As health budget responsibility is devolved within the UK, we plan to estimate the five-year budget impact of introducing mechanical thrombectomy into routine practice within the devolved NHS in Scotland.

Results: Compared with standard treatment, thrombectomy was not shown to be cost-effective within-trial/90-day period. However, the reverse was observed with the long-term model (ICER £3,857 per QALY gained). We estimate that 42,525 patients are potentially eligible to receive this treatment in the UK over a five year period. The net monetary benefit (health benefit in monetary terms) is £13,704 per patient. Assuming a five-year time horizon and full implementation, the value of implementation was £542 million. We estimate the “break-even” value of implementation activity point at approximately 26% implementation.

Conclusions: Based on a lifetime horizon, mechanical thrombectomy is cost-effective compared with standard care. If implementation is greater than 26%, the value of implementation is greater than the cost of implementation.