

Health economic analyses

Mechanical thrombectomy with stent retrievers



* Consult your local representative for programs availability in your regions

¹ Hamza Achit et al. Cost-Effectiveness of Thrombectomy in Patients With Acute Ischemic Stroke. The THRACE Randomized Controlled Trial. Stroke 2017

² Michelle H. Leppert et al. Cost-effectiveness of intra-arterial treatment as an adjunct to intravenous tissue-type plasminogen activator for acute ischemic stroke. Stroke 2015

³ Health Information and Quality Authority. Health technology assessment of a national emergency endovascular service for mechanical thrombectomy in the management of acute ischaemic stroke. 25 January 2017

⁴ Jeban Ganesalingam et al. Cost-utility analysis of mechanical thrombectomy using stent retrievers in acute ischemic stroke. Stroke 2015

⁵ MSAC Application 1428. Mechanical thrombectomy For acute ischaemic stroke due to large vessel occlusion. Submission to the Medical Services Advisory Committee. June 2016

⁶ Health quality Ontario. Mechanical thrombectomy in patients with acute ischemic stroke: a health technology assessment. September 2015

⁷ TLV. Hälsoekonomisk utvärdering av trombektomi - del 1. <https://www.tlv.se/Medicinteknik/Medicinteknikuppdraget/avslutade-halsoekonomiska-bedomningar/Halsoekonomisk-utvardering-av-trombektomi/> (accessed: May 10, 2017).

⁸ Wolfgang G. et al. Cost-effectiveness of endovascular stroke therapy a patient subgroup analysis from a US healthcare perspective. Stroke 2016

⁹ Mattias Aronsson et al. Cost-effectiveness of endovascular thrombectomy in patients with acute ischemic stroke. Neurology 2016

¹⁰ Dutch National Healthcare Institute.

<https://www.zorginstituutnederland.nl/publicaties/standpunten/2016/12/21/intra-arteriele-behandeling-van-het-acute-herseneninfarct> (accessed: May 10, 2017).

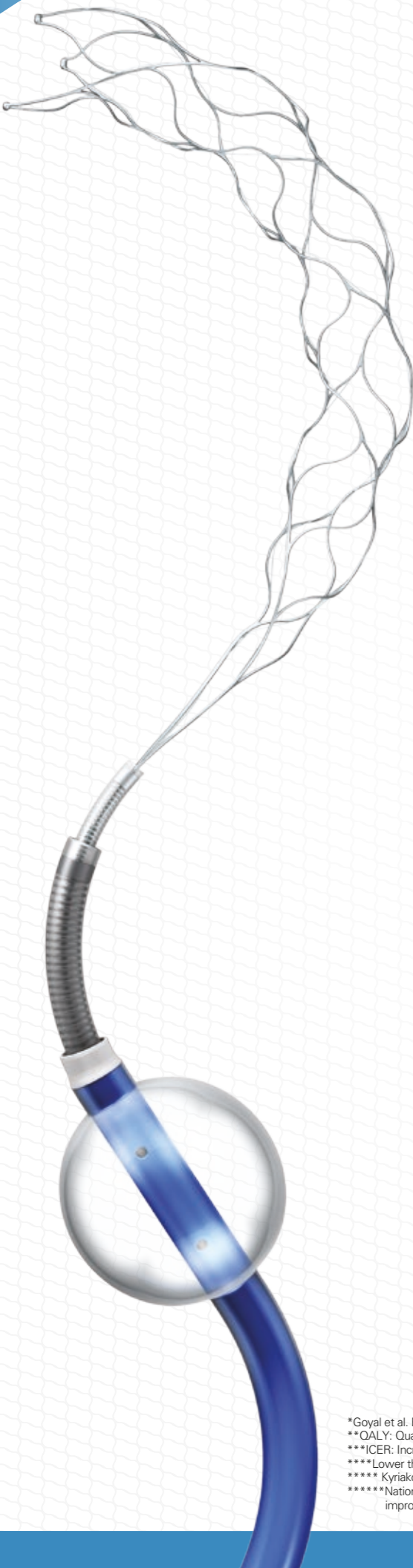
¹¹ Theresa I. Shireman et al. Cost-Effectiveness of Solitaire Stent Retriever Thrombectomy for Acute Ischemic Stroke. Results From the SWIFT-PRIME Trial (Solitaire With the Intention for Thrombectomy as Primary Endovascular Treatment for Acute Ischemic Stroke). Stroke 2017

¹² Fernando de Andre's-Nogales et al. Cost-effectiveness of mechanical thrombectomy using stent retriever after intravenous tissue plasminogen activator compared with intravenous tissue plasminogen activator alone in the treatment of acute ischaemic stroke due to large vessel occlusion in Spain. European Stroke Journal 2017

¹³ Kyriakos Lobotesis et al. Cost-effectiveness of stent retriever thrombectomy in combination with IV t-PA compared with IV t-PA alone for acute ischemic stroke in UK. JME 2016

¹⁴ Katarina Steen Carlsson et al. Long-term cost-effectiveness of thrombectomy for acute ischaemic stroke in real life: An analysis based on data from the Swedish Stroke Register (Riksstroke). International Journal of Stroke 2017

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Effectiveness: 2.5x more patients with functional independence (mRS 0 - 2) at 90 days* leads to QALY** gained in favor of stent retriever + IV t-PA

Cost saving: Higher costs with stent retrievers are offset by the long term cost savings***** (less need for in-home care and special housing*****) due to improved patient outcomes*



stent retriever + IV t-PA



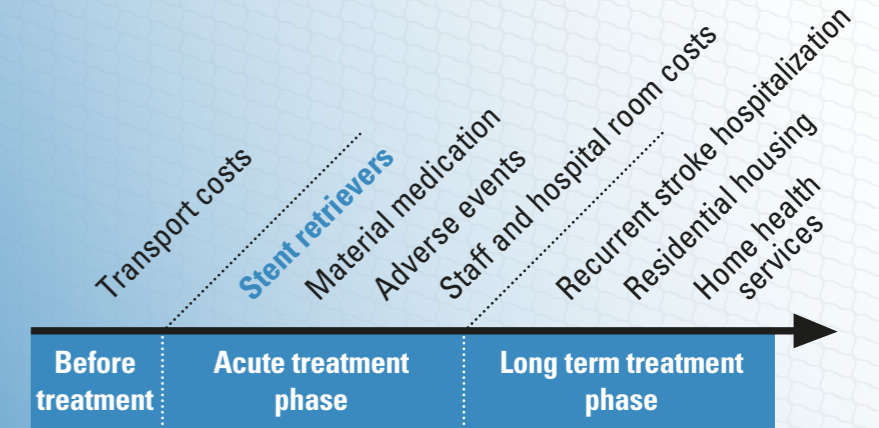
IV t-PA

HERMES meta-analysis*

- MR CLEAN
- EXTEND-IA
- ESCAPE
- SWIFT PRIME
- REVASCAT

Cost-effectiveness

$$ICER^{***} = \frac{\Delta \text{ Cost (\$)}}{\Delta \text{ Effectiveness (QALY^{**})}}$$

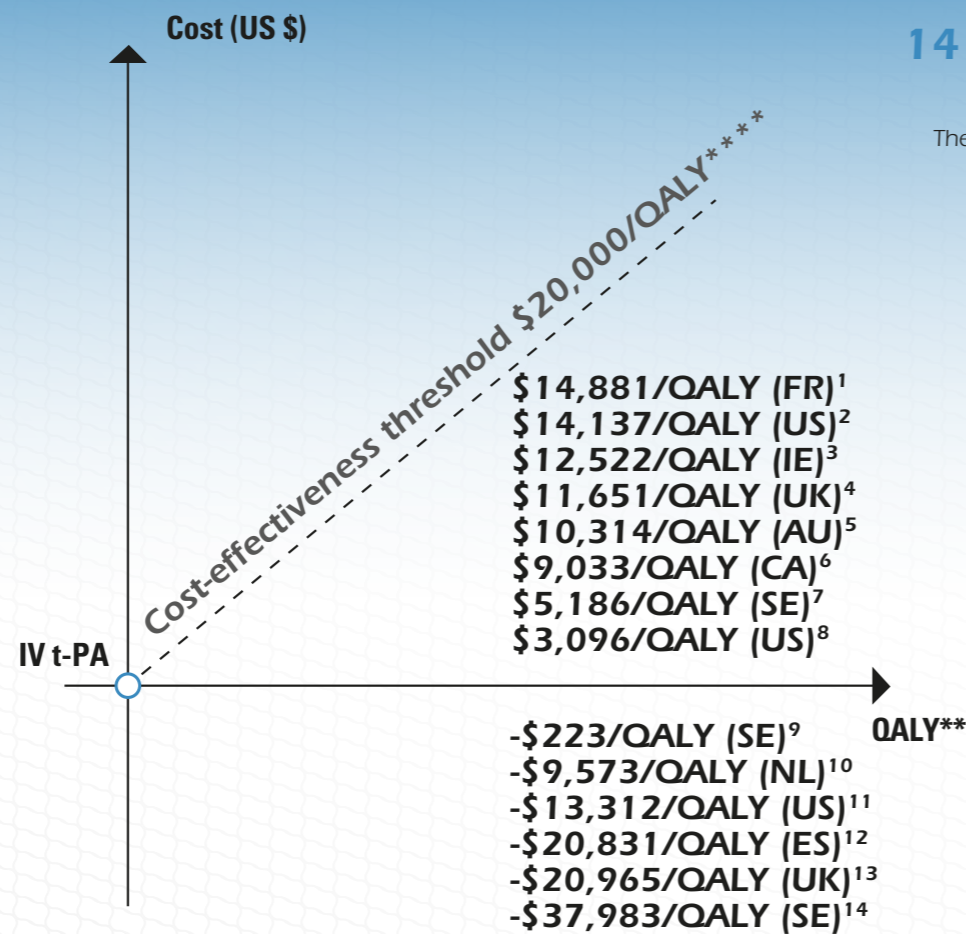


Cost-effectiveness results

14 cost-effectiveness analyses

References 1, 3, 6 and 10 calculated the ICER on a 1, 10, 5 and 2-year time horizon respectively. The other ICERs are calculated on a lifetime time horizon.

ICERs around the world



ICER < \$20,000/QALY

stent retriever + IV t-PA is **cost-effective** compared to IV t-PA alone

ICER < 0

stent retriever + IV t-PA is **dominant** (more effective and less expensive) compared to IV t-PA alone

*Goyal et al. Endovascular thrombectomy after large-vessel ischaemic stroke: a meta-analysis of individual patient data from five randomised trials. Lancet. 2016 Apr 23;387(10029):1723-31;

**QALY: Quality Adjusted Life Year (1 QALY can be reflected as 1 year in perfect health);

***ICER: Incremental Cost-Effectiveness Ratio;

****Lower threshold commonly used: <http://www.idshealth.org/wp-content/uploads/2015/01/CE-Thresholds-IDS-Working-Group-Final-Report.pdf> (accessed May 12, 2017);

***** Kyriakos Lobotisis et al. Cost-effectiveness of stent retriever thrombectomy in combination with IV t-PA compared with IV t-PA alone for acute ischemic stroke in UK. JME 2016;

*****National Institute for Health and Care Excellence. Quality and productivity: proven case study from the Royal stoke university hospital. Mechanical thrombectomy for large vessel occlusion stroke: improving clinical outcomes and reducing cost. March 2016. <https://www.nice.org.uk/savingsandproductivityandlocalpracticeresource?id=2599> (accessed May 10, 2017)