

## Economic evidence tables for review question: What antiseizure therapies (monotherapy or add-on) are effective in the treatment of tonic or atonic seizures/drop attacks?

**Table 20: Economic evidence tables**

Study details	Treatment strategies	Study population, design and data sources	Results	Comments
<p><b>Author &amp; year:</b> Benedict 2010</p> <p><b>Country:</b> United Kingdom</p> <p><b>Type of economic analysis:</b> Cost Effectiveness Analysis</p> <p><b>Source of funding:</b> Eisai Ltd</p>	<p><b>Interventions in detail:</b></p> <p>Rufinamide (RUF)</p> <p>Lamotrogine (LTG)</p> <p>Topirimate (TPM)</p> <p>Standard therapy (ST)</p>	<p><b>Population characteristics:</b></p> <p>Not reported but as the base-line and effectiveness data are based on 3 studies identified in the accompanying clinical evidence review (Glauser 2008, Motte 1997, Sachdeo 1999). The studies had a mean age of 14, 10 and 11 years respectively.</p> <p><b>Modelling approach:</b></p> <p>Individual patient simulation model</p> <p><b>Source of base-line and effectiveness data:</b></p> <p>Baseline seizure frequency and 'drop attacks' was taken from Glauser 2008 discussed in detail in the accompanying clinical evidence review.</p> <p>Effectiveness data for Rufinamide was taken from patient level data Glauser 2008. Motte 1997 and Sachdeo 1999 were used to inform effectiveness for LTG, TPM and ST</p> <p><b>Source of cost data:</b></p>	<p><b><u>Drop Attack Analysis</u></b></p> <p><b>Total Costs (95% CI not reported)</b></p> <ul style="list-style-type: none"> <li>LTG: £50,975</li> <li>TPM: £50,728</li> <li>RUF: £50,985</li> <li>ST: £51,437</li> </ul> <p><b>Mean reduction in drop attacks (95% CI not reported)</b></p> <ul style="list-style-type: none"> <li>LTG: 26.3%</li> <li>TPM: 27.4%</li> <li>RUF: 30.4%</li> <li>ST: 24.2%</li> </ul> <p><b>ICER for TPM (cost per 1% reduction in drop attacks):</b></p> <ul style="list-style-type: none"> <li>Vs LTG: Dominated</li> <li>Vs RUF: £62</li> <li>Vs ST: Dominated</li> </ul> <p><b><u>Total Seizures Analysis</u></b></p> <p><b>Total Costs (95% CI not reported)</b></p> <ul style="list-style-type: none"> <li>LTG: £37,064</li> <li>TPM: £38,557</li> <li>RUF: £38,828</li> </ul>	<p><b>Perspective:</b></p> <ul style="list-style-type: none"> <li>UK NHS &amp; PSS</li> </ul> <p><b>Currency:</b></p> <ul style="list-style-type: none"> <li>UK pound sterling (£)</li> </ul> <p><b>Cost year:</b></p> <ul style="list-style-type: none"> <li>2006/7</li> </ul> <p><b>Time horizon:</b></p> <ul style="list-style-type: none"> <li>3 years (5 years investigated in sensitivity analysis)</li> </ul> <p><b>Discounting:</b></p> <ul style="list-style-type: none"> <li>3.5% costs per annum</li> <li>0% outcomes per annum</li> </ul> <p><b>Applicability:</b> Partially Applicable-results not reported in quality adjusted life years.</p> <p><b>Limitations:</b> Potentially serious limitations</p> <p><b>Other comments:</b></p> <p>Unclear why different anal-</p>

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		<p>Resource use was estimated through telephone interviews with 5 UK doctors specialising in paediatric epilepsy.</p> <p>Unit drug costs were taken from the BNF 2007. Other medical cost and adverse event costs were estimated from PSSRU 2006 costs and NHS reference costs 2005/6.</p> <p><b>Source of QoL data:</b></p> <p>Utility values were not applied in the model.</p>	<ul style="list-style-type: none"> <li>ST: £38,366</li> </ul> <p><b>Mean reduction in seizures (95% CI not reported)</b></p> <ul style="list-style-type: none"> <li>LTG: 25.8%</li> <li>TPM: 25.1%</li> <li>RUF: 27.0%</li> <li>ST: 22.1%</li> </ul> <p><b>ICER for LTG (cost per 1% reduction in seizures):</b></p> <ul style="list-style-type: none"> <li>Vs TPM: Dominated</li> <li>Vs RUF: £2151</li> <li>Vs ST: Dominated</li> </ul>	yses result in different total costs.
<p><b>Author &amp; year:</b></p> <p>Verdian 2010</p> <p><b>Country:</b></p> <p>United Kingdom</p> <p><b>Type of economic analysis:</b></p> <p>Cost Utility Analysis</p> <p><b>Source of funding:</b></p> <p>Eisai Ltd</p>	<p><b>Interventions in detail:</b></p> <p>Rufinamide (RUF)</p> <p>Lamotrogine (LTG)</p> <p>Topirimate (TPM)</p>	<p><b>Population characteristics:</b></p> <p>Not reported but as the base-line and effectiveness data are based on 3 studies identified in the accompanying clinical evidence review (Glauser 2008, Motte 1997, Sachdeo 1999). The studies had a mean age of 14, 10 and 11 years respectively.</p> <p><b>Modelling approach:</b></p> <p>Markov Model</p> <p><b>Source of base-line and effectiveness data:</b></p> <p>An indirect treatment comparison of 3 studies (Glauser 2008, Motte 1997, Sachdeo 1999) included in the accompanying clinical evidence review was used to estimate treatment effectiveness and proportion of treatment</p>	<p><b>Total Costs (95% CI)</b></p> <ul style="list-style-type: none"> <li>LTG: £21,783 (£17,309-£26,887)</li> <li>TPM: £23,360 (£18,972-£28,927)</li> <li>RUF: £24,992 (£20,928-£29,910)</li> </ul> <p><b>QALYs (95% CI)</b></p> <ul style="list-style-type: none"> <li>LTG: 1.42 (1.27-1.57)</li> <li>TPM: 1.36 (1.21-1.53)</li> <li>RUF: 1.44 (1.30-1.59)</li> </ul> <p><b>Incremental Costs for RUF (95% CI)</b></p> <ul style="list-style-type: none"> <li>Vs LTG: £3,209 (-£1,392-£4,935)</li> <li>Vs TPM: £1,632 (-£189-£3,523)</li> </ul> <p><b>Incremental QALYs for RUF (95% CI)</b></p> <ul style="list-style-type: none"> <li>Vs LTG: 0.021 (0.081-0.120)</li> <li>Vs TPM: 0.079 (0.039-0.179)</li> </ul> <p><b>ICER for RUF (cost per QALY)</b></p> <ul style="list-style-type: none"> <li>Vs LTG: £154,831</li> </ul>	<p><b>Perspective:</b></p> <ul style="list-style-type: none"> <li>UK NHS &amp; PSS</li> </ul> <p><b>Currency:</b></p> <ul style="list-style-type: none"> <li>UK pound sterling (£)</li> </ul> <p><b>Cost year:</b></p> <ul style="list-style-type: none"> <li>2006/7</li> </ul> <p><b>Time horizon:</b></p> <ul style="list-style-type: none"> <li>3 years (5 years investigated in sensitivity analysis)</li> </ul> <p><b>Discounting:</b></p> <ul style="list-style-type: none"> <li>3.5% costs per annum</li> <li>3.5% outcomes per annum</li> </ul> <p><b>Applicability:</b> Directly Applicable</p>

Study details	Treatment strategies	Study population, design and data sources	Results	Comments
		<p>limiting adverse events.</p> <p><b>Source of cost data:</b></p> <p>Resource use was estimated based on a survey of doctors specialising in paediatric epileptology.</p> <p>Drug and other medical cost and adverse event costs were estimated from PSSRU 2007 costs and NHS reference costs 2006/7</p> <p><b>Source of QoL data:</b></p> <p>Health state utilities were elicited from 119 members of the UK general population using time trade-off methodology. These estimated utility values were not reported in the published paper.</p>	<ul style="list-style-type: none"> <li>Vs TPM: £20,538</li> </ul> <p><b>Deterministic sensitivity analysis:</b></p> <p>Results were most sensitive to transition probabilities between health states associated with the ASMs. Changes to other parameters, discounting rate and time horizon resulted in comparable results.</p> <p><b>Probabilistic sensitivity analysis:</b></p> <p><i>Probability RUF cost effective at £20,000 per QALY threshold compared to:</i></p> <ul style="list-style-type: none"> <li>TPM: 52%</li> <li>LTG: 8%</li> </ul> <p><b>Probability RUF cost effective at £30,000 per QALY threshold compared to:</b></p> <ul style="list-style-type: none"> <li>TPM: 65%</li> <li>LTG: 15%</li> </ul> <p>No probabilistic sensitivity analysis presented which compared all three interventions simultaneously</p>	<p><b>Limitations:</b> Potentially serious limitations. There is a lack of transparency around a number of key parameters including utilities and effectiveness. The study is also funded by the manufacturer of Rufinamide.</p> <p><b>Other comments:</b> LGS is considered an orphan disease by the European Medicines Agency. NICE typically relax their threshold of £20,000 at which new technologies are recommended when considering drugs for such conditions.</p>

ASM: antiseizure medications; BNF: British National Formulary; CEA: cost effectiveness analysis; CI: confidence interval; CUA: cost utility analysis; ICER: incremental cost effectiveness ratio; LGS: Lennox-Gastaut Syndrome LTG: lamotrigine; PSS: Personal Social Services; PSSRU: Personal Social Services Research Unit; QALY: quality adjusted life year; QoL: quality of life. RUF: rufinamide; ST: standard therapy TPM: topiramate; VS: versus