

**APPENDIX T - Unit costs of anti-epileptic drugs for 2012 guideline**

Unit costs and weighted average unit costs for drug used in the treatment of focal and generalised epilepsies						
Drug name	Prescription Cost Analysis 2010 <sup>1</sup>	Usage weight (quantity/total)	BNF 2011 <sup>2</sup>			Weighted average cost/mg (£)
	Quantity (thousands)		Mg/Unit	Units/pack	Cost/pack	
Carbamazepine						0.00093
Carbamazepine_Tab 100mg	26,430.155	0.268	100	28	£5.69	0.00203
Tegretol_Tab 100mg	13,884.808	0.141	100	84	£2.07	0.00025
Tegretol Chewtab_Tab Chble 100mg	913.03	0.009	100	56	£3.16	0.00056
Carbamazepine_Tab 200mg	28,573.762	0.290	200	28	£4.99	0.00089
Tegretol_Tab 200mg	18,071.6	0.184	200	84	£3.83	0.00023
Tegretol Chewtab_Tab Chble 200mg	1,079.604	0.011	200	56	£5.88	0.00053
Carbamazepine_Tab 400mg	5,588.974	0.057	400	28	£6.59	0.00059
Tegretol_Tab 400mg	3,915.379	0.040	400	56	£5.02	0.00022
Carbamazepine Controlled Release						0.00046
Carbamazepine_Tab 200mg M/R	10,709.439	0.147	200	56	£5.20	0.00046
Carbagen SR_Tab 200mg	217.125	0.003	200	56	£5.20	0.00046
Tegretol Ret_Divitab 200mg	3,5515.884	0.487	200	56	£5.20	0.00046
Carbamazepine_Tab 400mg M/R	5,937.26	0.081	400	56	£10.24	0.00046
Carbagen SR_Tab 400mg	78.92	0.001	400	56	£10.24	0.00046
Tegretol Ret_Divitab 400mg	2,0538.88	0.281	400	56	£10.24	0.00046
Eslicarbazepine acetate						0.00643
Zebinix_Tab 800 mg	BNF	1.000	800	30	£154.20	0.00643
Oxcarbazepine						0.00144
Oxcarbazepine_Tab 150mg	1138.674	0.236	150	50	£11.02	0.00147
Trileptal_Tab 150mg	148.516	0.031	150	50	£8.50	0.00113
Oxcarbazepine_Tab 300mg	2150.822	0.445	300	50	£22.38	0.00149
Trileptal_Tab 300mg	340.609	0.070	300	50	£17.00	0.00113
Oxcarbazepine_Tab 600mg	890.827	0.184	600	50	£44.72	0.00149
Trileptal_Tab 600mg	162.122	0.034	600	50	£34.00	0.00113
Gabapentin						0.00035
Gabapentin_Cap 100mg	50830.727	0.199	100	100	£3.57	0.0004
Neurontin_Cap 100mg	2212.166	0.009	100	100	£18.29	0.0018
Gabapentin_Cap 300mg	168869.05	0.663	300	100	£8.83	0.0003
Neurontin_Cap 300mg	5933.72	0.023	300	100	£42.40	0.0014
Gabapentin_Cap 400mg	13171.567	0.052	400	100	£5.53	0.0001
Neurontin_Cap 400mg	745.965	0.003	400	100	£49.06	0.0012
Gabapentin_Tab 600mg	11485.387	0.045	600	100	£24.85	0.0004
Neurontin_Tab 600mg	176.025	0.001	600	100	£84.80	0.0014
Gabapentin_Tab 800mg	1407.884	0.006	800	100	£36.42	0.0005
Neurontin_Tab 800mg	44.1	0.000	800	100	£98.13	0.0012
Pregabalin						1.15 per unit*
Lyrica_Cap 25mg	10361.998	0.097	25	56	£64.40	1.15 per unit

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	Quantity (thousands)		Mg/Unit	Units/pack	Cost/pack	
Lyrica_Cap 50mg	18856.113	0.176	50	84	£96.60	1.15 per unit
Lyrica_Cap 75mg	29056.262	0.271	75	56	£64.40	1.15 per unit
Lyrica_Cap 100mg	12355.96	0.115	100	84	£96.60	1.15 per unit
Lyrica_Cap 150mg	20666.125	0.193	150	56	£64.60	1.15 per unit
Lyrica_Cap 200mg	5236.684	0.049	200	84	£96.60	1.15 per unit
Lyrica_Cap 225mg	701.32	0.007	225	56	£64.40	1.15 per unit
Lyrica_Cap 300mg	10063.88	0.094	300	56	£64.40	1.15 per unit
Lacosamide						0.01504
Vimpat_Tab 50mg	659.324	0.404	50	14	£10.81	0.01544
Vimpat_Tab 100mg	560.939	0.344	100	56	£86.50	0.01544
Vimpat_Tab 150mg	155.861	0.096	150	56	£129.74	0.01544
Vimpat_Tab 200mg	253.994	0.156	200	56	£144.16	0.01544
Lamotrigine						0.00291
Lamictal_Tab Disper 2mg	28.874	0.000	2	30	£10.45	0.1742
Lamotrigine_Tab Disper 5mg	2008.644	0.021	5	28	£2.27	0.0162
Lamictal_Disper Tab 5mg	320.896	0.003	5	28	£7.82	0.0559
Lamotrigine_Tab 25mg	16347.436	0.174	25	56	£2.25	0.0016
Lamictal_Tab 25mg	1623.4	0.017	25	56	£19.61	0.0140
Lamotrigine_Tab Disper 25mg	5574.185	0.059	25	56	£2.91	0.0021
Lamictal_Disper Tab 25mg	1076.51	0.011	25	56	£19.61	0.0140
Lamotrigine_Tab 50mg	22048.586	0.234	50	56	£3.07	0.0011
Lamictal_Tab 50mg	2622.738	0.028	50	56	£33.35	0.0119
Lamotrigine_Tab 100mg	26279.799	0.279	100	56	£4.53	0.0008
Lamictal_Tab 100mg	3687.358	0.039	100	56	£57.53	0.0103
Lamotrigine_Tab Disper 100mg	3034.782	0.032	100	56	£5.86	0.0010
Lamictal_Disper Tab 100mg	593.692	0.006	100	56	£57.53	0.0103
Lamotrigine_Tab 200mg	7439.145	0.079	200	30	£7.51	0.0007
Lamictal_Tab 200mg	1456.54	0.015	200	56	£97.79	0.0087
Levetiracetam						0.00182
Keppra_Tab 250mg	16063.295	0.301	250	60	£29.70	0.00198
Keppra_Tab 500mg	24828.787	0.466	500	60	£52.30	0.00174
Keppra_Tab 750mg	3556.445	0.067	750	60	£89.10	0.00198
Keppra_Tab 1g	8842.828	0.166	1000	60	£101.10	0.00169
Tiagabine						0.08178
Gabitril_Tab 5mg	157.751	0.560	5	100	£40.89	0.08178
Gabitril_Tab 10mg	73.267	0.260	10	100	£81.77	0.08177
Gabitril_Tab 15mg	50.905	0.181	15	100	£122.66	0.08177
Topiramate						0.00826
Topiramate Cap 15mg	1195.201	0.036	15	60	£16.61	0.0185
Topamax_Sprinkle Cap 15mg	394.972	0.012	15	60	£14.79	0.0164
Topiramate Cap 25mg	3136.283	0.094	25	60	£24.91	0.0166
Topamax_Sprinkle Cap 25mg	528.531	0.016	25	60	£22.18	0.0148
Topiramate_Tab 25mg	8997.266	0.271	25	60	£6.17	0.0041
Topamax_Tab 25mg	731.793	0.022	25	60	£19.29	0.0129

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	Quantity (thousands)		Mg/Unit	Units/pack	Cost/pack	
Topiramate_Cap 50mg	2474.092	0.074	25	60	£40.93	0.0273
Topamax_Sprinkle Cap 50mg	536.458	0.016	50	60	£36.45	0.0122
Topiramate_Tab 50mg	6546.043	0.197	50	60	£10.74	0.0036
Topamax_Tab 50mg	617.274	0.019	50	60	£31.69	0.0106
Topiramate_Tab 100mg	5557.901	0.167	50	60	£12.52	0.0042
Topamax_Tab 100mg	587.762	0.018	100	60	£56.76	0.0095
Topiramate_Tab 200mg	1691.822	0.051	100	60	£17.21	0.0029
Topamax_Tab 200mg	221.378	0.007	200	60	£110.23	0.0092
Sodium Valproate						0.000335
Sod Valpr_Tab 100mg	6608.459	0.075	100	100	£5.60	0.00056
Epilim_Crble Tab 100mg	5148.628	0.058	100	100	£5.60	0.00056
Sod Valpr_Tab E/C 200mg	27916.595	0.316	200	100	£4.83	0.00024
Epilim 200_Tab E/C 200mg	21766.115	0.246	200	100	£7.70	0.00039
Sod Valpr_Tab E/C 500mg	13166.247	0.149	500	100	£10.09	0.00020
Epilim 500_Tab E/C 500mg	13344.6	0.151	500	100	£19.25	0.00039
Sodium Valproate liquid solutions						0.00059
Sod Valpr_Oral Soln 200mg/5ml S/F	69437.969	0.448	200	60	£5.42	0.00045
Epilim_Liq 200mg/5ml S/F	40499.408	0.261	200	60	£9.33	0.00078
Epilim_Syr 200mg/5ml	45161.056	0.291	200	60	£7.78	0.00065
Vigabatrin						0.00062
Sabril_Tab 500mg	1102.879	1.000	500	100	£30.84	0.00062
Zonisamide						0.01511
Zonegran_Cap 25mg	744.951	0.157	25	14	£8.82	0.02520
Zonegran_Cap 50mg	1456.745	0.306	50	56	£47.04	0.01680
Zonegran_Cap 100mg	2552.121	0.537	100	56	£62.72	0.01120
Clobazam						0.01560
Clobazam_tab 10 mg	BNF	1.000	10	30	4.68	0.01560
Clonazepam						0.03508
Rivotril_tab 0.5 mg	2.692	0.212	0.5	100	3.69	0.07380
Rivotril_tab 2 mg	9.996	0.788	2	100	4.93	0.02465
Phenobarbital						0.00108
Phenobarbital_tab 15 mg	27.345	0.105	15	28	0.95	0.00226
Phenobarbital_tab 30 mg	167.078	0.640	30	28	0.96	0.00114
Phenobarbital_tab 60 mg	66.812	0.256	60	28	0.71	0.00042
Ethosuximide						0.00117
Emeside_Syr Paed 250mg/5ml		0.139	250	40	6.6	0.00066
Blkcurrant	811.285					
Zarontin_Syr 250mg/5ml	3206.285	0.551	250	40	4.22	0.00042
Ethosuximide capsules 250mg	1805.868	0.310	250	56	38.23	<b>0.00273</b>

\*The same costing method was not used for pregabalin, because all capsules, regardless of size, are the same price (£1.15). Estimating a weighted average unit cost based on the cost per milligram of different sized capsules would therefore be inappropriate. Instead, the unit cost is calculated as the cost per capsule (i.e. £1.15).

Liquid and syrup preparations as well as suppositories were excluded from the cost calculation of all costs except those for ethosuximide and sodium valproate. The exclusion of these preparations is not expected to impact the weighted average cost of any drug as they represent a very small minority of prescriptions. However, for ethosuximide, the unit cost of the syrup preparation is much lower than the cost for capsules. Therefore, for ethosuximide, the weight average presented in the table above is comprised only of ethosuximide syrup.

Drug treatment for convulsive status epilepticus	
Indication / Dose	Acquisition cost
<b>Clonazepam</b>	
<ul style="list-style-type: none"> <li>By intravenous injection into a large vein (over at least 2 minutes) <i>or</i> by intravenous infusion, 1 mg, repeated if necessary; child all ages, 500 micrograms</li> </ul>	Rivotril® <ul style="list-style-type: none"> <li>Injection, clonazepam 1 mg/mL in solvent, net price 1-mL amp (with 1 mL water for injections) = 60p</li> </ul>
<b>Diazepam</b>	
<ul style="list-style-type: none"> <li>Status epilepticus and febrile convulsions, by intravenous injection, 10 mg at a rate of 1 mL (5 mg) per minute, repeated once after 10 minutes if necessary; child under 12 years, 300–400 micrograms/kg [unlicensed dose], repeated once after 10 minutes if necessary</li> <li>By rectum as rectal solution, adult and child over 12 years, 10–20 mg, repeated once after 10–15 minutes if necessary (max. 30 mg); elderly 10 mg (max. 15 mg); neonate [unlicensed] 1.25–2.5 mg; child 1 month–1 year [unlicensed] 5 mg; 1–2 years 5 mg; 2–12 years 5–10 mg</li> </ul>	Diazepam (Non-proprietary) <ul style="list-style-type: none"> <li>Injection (solution), diazepam 5 mg/mL Net price 2-mL amp = 45p</li> <li>Injection (emulsion), diazepam 5 mg/mL (0.5%). See Appendix 6. Net price 2-mL amp = 91p</li> <li>Rectal tubes (= rectal solution), diazepam 2 mg/mL, net price 1.25-mL (2.5-mg) tube = 90p, 2.5-mL (5-mg) tube = £1.41; 4 mg/mL, 2.5-mL (10-mg) tube = £1.88</li> </ul>
<b>Fosphenytoin</b>	
<ul style="list-style-type: none"> <li>Status epilepticus, by intravenous infusion (at a rate of 100–150 mg(PE)/minute), initially 20 mg(PE)/kg then by intravenous infusion (at a rate of 50–100 mg(PE)/minute), 4–5 mg(PE)/kg daily in 1–2 divided doses, dose adjusted according to response and trough plasma-phenytoin concentration</li> <li>child 5 years and over, by intravenous infusion (at a rate of 2–3 mg(PE)/kg/minute), initially 20 mg(PE)/kg then by intravenous infusion (at a rate of 1–2 mg(PE)/kg/minute), 4–5 mg(PE)/kg daily in 1–4 divided doses, dose adjusted according to response and trough plasma-phenytoin concentration</li> </ul>	Pro-Epanutin® <ul style="list-style-type: none"> <li>Injection, fosphenytoin sodium 75 mg/mL (equivalent to phenytoin sodium 50 mg/mL), net price 10-mL vial = £40.00</li> </ul>
<b>Midazolam</b>	
<ul style="list-style-type: none"> <li>By buccal administration [unlicensed], adult and child over 10 years, 10 mg repeated once after 10 minutes if necessary; child up to 6</li> </ul>	Midazolam (Non-proprietary) <ul style="list-style-type: none"> <li>Oral liquid, midazolam 2.5 mg/mL, 100 mL Available from 'special-order'</li> </ul>

<p>months, 300 micrograms/kg (max. 2.5 mg); 6 months–1 year, 2.5 mg; 1–5 years, 5 mg; 5–10 years, 7.5 mg</p> <ul style="list-style-type: none"> <li>• Conscious sedation, by intravenous administration, neonate, initially by intravenous injection 150-200 micrograms/kg followed by continuous infusion of 1 microgram/kg/minute (increased by 1 microgram/kg/minute every 15 minutes until seizure controlled; max 5 micrograms/kg/minute); child 1 month-18 years, initially by continuous intravenous infusion of 1 microgram/kg/minute (increased by 1 microgram/kg/minute every 15 minutes until seizure controlled; max 5 micrograms/kg/minute)</li> <li>• Sedative in combined anaesthesia, by intravenous injection, 30-100 micrograms/kg repeated as required or by continuous intravenous infusion, 30–100 micrograms/kg/hour (elderly lower doses needed); child not recommended</li> <li>• Premedication, by deep intramuscular injection, 70–100 micrograms/kg (elderly or debilitated 25–50 micrograms/kg) 20–60 minutes before induction; by intravenous injection, 1–2 mg 5–30 minutes before procedure, repeated as required (elderly or debilitated 0.5 mg, repeat dose slowly as required);</li> <li>• Induction (but rarely used), by slow intravenous injection, 150–200 micrograms/kg (elderly or debilitated 50–150 micrograms/kg) given in divided doses (max. 5 mg) at intervals of 2 minutes; max. total dose 600 micrograms/kg; child 7–18 years initially 150 micrograms/kg (max. 7.5 mg) given in steps of 50 micrograms/kg (max. 2.5 mg) over 2–5 minutes; wait for 2–5 minutes then give additional doses of 50 micrograms/kg (max. 2.5 mg) every 2 minutes if necessary; max. total dose 500 micrograms/kg (not exceeding 25 mg)</li> <li>• Sedation of patients receiving intensive care, by slow intravenous injection, initially 30–300 micrograms/kg given in steps of 1–2.5 mg every 2 minutes, then by slow intravenous injection or by continuous intravenous infusion, 30–200 micrograms/kg/hour; reduce</li> </ul>	<p>manufacturers or specialist importing companies</p> <ul style="list-style-type: none"> <li>• Injection , midazolam (as hydrochloride) 1 mg/mL, net price 2-mL amp = 50p, 5-mL amp = 60p, 50-mL vial = £7.87; 2 mg/mL, 5-mL amp = 65p; 5 mg/mL, 2-mL amp = 58p, 10-mL amp = £2.50</li> </ul> <p>Hypnovel®</p> <ul style="list-style-type: none"> <li>• Injection , midazolam (as hydrochloride) 2 mg/mL, net price 5-mL amp = 85p; 5 mg/mL, 2-mL amp = 72p</li> </ul>
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dose (or reduce or omit initial dose) in hypovolaemia, vasoconstriction, or hypothermia; lower doses may be adequate if opioid analgesic also used; neonate under 32 weeks gestational age by continuous intravenous infusion, 30 micrograms/kg/hour, neonate over 32 weeks gestational age and child under 6 months 60 micrograms/kg/hour, child over 6 months by slow intravenous injection, initially 50–200 micrograms/kg, then by continuous intravenous infusion	
<b>Paraldehyde</b>	
<ul style="list-style-type: none"> <li>By rectum (doses expressed as undiluted paraldehyde), adult and child over 12 years, 20 mL; child up to 3 months 0.5 mL, 3–6 months 1 mL, 6–12 months 1.5 mL, 1–2 years 2 mL, 2–5 years 3–4 mL, 5–12 years 5–10 mL</li> </ul>	Paraldehyde (Non-proprietary) <ul style="list-style-type: none"> <li>Enema, 8–50%, available from ‘special-order’ manufacturers or specialist importing companies</li> </ul>
<b>Phenobarbital sodium</b>	
<ul style="list-style-type: none"> <li>Status epilepticus, by intravenous injection (dilute injection 1 in 10 with water for injections), 10 mg/kg at a rate of not more than 100 mg/minute; max. 1 g</li> </ul>	Phenobarbital (Non-proprietary) <ul style="list-style-type: none"> <li>Injection, phenobarbital sodium 200 mg/mL, net price 1-mL amp = £2.00</li> </ul>
<b>Phenytoin sodium</b>	
<ul style="list-style-type: none"> <li>By slow intravenous injection or infusion (with blood pressure and ECG monitoring), status epilepticus, 18 mg/kg at a rate not exceeding 50 mg per minute, as a loading dose (see also notes above); maintenance doses of about 100 mg should be given thereafter at intervals of every 6–8 hours, monitored by measurement of plasma concentrations; rate and dose reduced according to weight; child 18 mg/kg as a loading dose (neonate 15–20 mg/kg at rate of 1–3 mg/kg/minute)</li> </ul>	Phenytoin (Non-proprietary) <ul style="list-style-type: none"> <li>Injection, phenytoin sodium 50 mg/mL with propylene glycol 40% and alcohol 10% in water for injections, net price 5-mL amp = £3.40</li> </ul> Epanutin® Ready-Mixed Parenteral <ul style="list-style-type: none"> <li>Injection, phenytoin sodium 50 mg/mL with propylene glycol 40% and alcohol 10% in water for injections, net price 5-mL amp = £4.88</li> </ul>

Drug treatment for severe myoclonic epilepsy in infancy	
Indication / Dose	Acquisition cost
<b>Stiripentol</b>	
<ul style="list-style-type: none"> <li>Severe myoclonic epilepsy in infancy, by mouth, child 3–18 years, initially 10 mg/kg in 2–3 divided doses; titrate dose over minimum of 3 days to max 50 mg/kg/day in 2–3 divided doses</li> </ul>	Diacomit® <ul style="list-style-type: none"> <li>Capsules, stiripentol 250 mg, net price 60-cap pack = £248.00; 500 mg, 60-cap pack = £493.00.</li> <li>Powder, stiripentol 250 mg, net price 60-sachet pack = £284.00; 500 mg, 60-sachet pack = £493.00</li> </ul>

## References

- 1 Information Centre for Health and Social Care. *Prescription Cost Analysis 2010*. Available from: <http://www.ic.nhs.uk/pubs/prescostanalysis2010>.
- 2 Joint Formulary Committee. *British National Formulary*. 61(March). 2011. London, British Medical Association and Royal Pharmaceutical Society of Great Britain.