

APPENDIX Q- Unit costs of anti-epileptic drugs for 2011 guideline

Unit costs and weighted average unit costs for drug used in the treatment of focal and generalised epilepsies						
Drug name	Prescription Cost Analysis 2008 ¹	Usage weight (quantity/total)	BNF 2010 ²			Weighted average cost/mg (£)
	Quantity (thousands)		Mg/ Unit	Units/ pack	Cost/ pack	
Carbamazepine						0.00103
Carbamazepine_Tab 100mg	28,343.879	0.275	100	28	£6.02	0.00215
Tegretol_Tab 100mg	13,950.636	0.135	100	84	£2.43	0.00029
Tegretol Chewtab_Tab Chble 100mg	906.067	0.009	100	56	£3.72	0.00066
Carbamazepine_Tab 200mg	31,220.109	0.303	200	28	£5.53	0.00099
Tegretol_Tab 200mg	18,011.791	0.175	200	84	£4.50	0.00027
Tegretol Chewtab_Tab Chble 200mg	1,017.260	0.010	200	56	£6.92	0.00062
Carbamazepine_Tab 400mg	5,922.096	0.057	400	28	£6.59	0.00059
Tegretol_Tab 400mg	3,747.428	0.036	400	56	£5.90	0.00026
Carbamazepine Controlled Release						0.00047
Carbagen SR_Tab 200mg	174.353	0.003	200	56	£4.88	0.00044
Tegretol Ret_Divitab 200mg	34,293.787	0.632	200	56	£5.30	0.00047
Carbagen SR_Tab 400mg	53.122	0.001	400	56	£9.63	0.00043
Tegretol Ret_Divitab 400mg	19,722.059	0.364	400	56	£10.44	0.00047
Eslicarbazepine acetate						0.00643
Zebinix_Tab 800 mg	BNF	1.000	800	30	£154.20	0.00643
Oxcarbazepine						0.00134
Oxcarbazepine_Tab 150mg	961.433	0.232	150	50	£9.91	0.00132
Trileptal_Tab 150mg	103.370	0.025	150	50	£10.00	0.00133
Oxcarbazepine_Tab 300mg	1,921.425	0.465	300	50	£20.14	0.00134
Trileptal_Tab 300mg	252.028	0.061	300	50	£20.00	0.00133
Oxcarbazepine_Tab 600mg	797.257	0.193	600	50	£40.18	0.00134
Trileptal_Tab 600mg	100.395	0.024	600	50	£40.00	0.00133
Gabapentin						0.00028
Gabapentin_Cap 100mg	35,362.243	0.196	100	100	£3.94	0.00039
Neurontin_Cap 100mg	312.554	0.002	100	100	£18.29	0.00183
Gabapentin_Cap 300mg	119,783.183	0.665	300	100	£5.52	0.00018
Neurontin_Cap 300mg	1,922.583	0.011	300	100	£42.40	0.00141
Gabapentin_Cap 400mg	10,037.696	0.056	400	100	£5.91	0.00015
Neurontin_Cap 400mg	420.444	0.002	400	100	£49.06	0.00123
Gabapentin_Tab 600mg	10,751.519	0.060	600	100	£41.06	0.00068
Neurontin_Tab 600mg	186.128	0.001	600	100	£84.80	0.00141
Gabapentin_Tab 800mg	1,244.665	0.007	800	100	£54.19	0.00068
Neurontin_Tab 800mg	44.268	0.000	800	100	£98.13	0.00123
Pregabalin						0.00769*
Lyrica_Cap 25mg	5,294.631	0.085	25	56	£64.40	0.04600

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Drug name	Prescription Cost Analysis 2008 ¹	Usage weight (quantity/total)	BNF 2010 ²			Weighted average cost/mg (£)
	Quantity (thousands)		Mg/ Unit	Units/ pack	Cost/ pack	
Lyrica_Cap 50mg	10,363.528	0.167	50	84	£96.60	0.02300
Lyrica_Cap 75mg	19,037.079	0.307	75	56	£64.40	0.01533
Lyrica_Cap 100mg	6,631.439	0.107	100	84	£96.60	0.01150
Lyrica_Cap 150mg	12,370.116	0.199	150	56	£64.60	0.00769
Lyrica_Cap 200mg	2,703.720	0.044	200	84	£96.60	0.00575
Lyrica_Cap 225mg	91.825	0.001	225	56	£64.40	0.00511
Lyrica_Cap 300mg	5,539.575	0.089	300	56	£64.40	0.00383
Lacosamide						0.01287
Vimpat_Tab 50mg	11.753	0.673	50	14	£9.01	0.01287
Vimpat_Tab 100mg	5.710	0.327	100	14	£18.02	0.01287
Vimpat_Tab 100mg	BNF		100	56	£72.08	0.01287
Vimpat_Tab 150mg	BNF		150	14	£27.03	0.01287
Vimpat_Tab 150mg	BNF		150	56	£108.12	0.01287
Vimpat_Tab 200mg	BNF		200	56	£144.16	0.01287
Lamotrigine						0.00380
Lamictal_Tab Disper 2mg	12.700	0.000	2	30	£10.45	0.17417
Lamotrigine_Tab Disper 5mg	2,202.826	0.027	5	28	£2.67	0.01907
Lamictal_Disper Tab 5mg	216.587	0.003	5	28	£7.82	0.05586
Lamotrigine_Tab 25mg	13,530.867	0.165	25	56	£2.77	0.00198
Lamictal_Tab 25mg	1,563.729	0.019	25	56	£19.61	0.01401
Lamotrigine_Tab Disper 25mg	5,355.181	0.065	25	56	£3.41	0.00244
Lamictal_Disper Tab 25mg	1,067.487	0.013	25	56	£19.61	0.01401
Lamotrigine_Tab 50mg	18,686.056	0.228	50	56	£3.73	0.00133
Lamictal_Tab 50mg	2,488.610	0.030	50	56	£33.35	0.01191
Lamotrigine_Tab 100mg	22,343.027	0.273	100	56	£9.63	0.00172
Lamictal_Tab 100mg	3,575.992	0.044	100	56	£57.53	0.01027
Lamotrigine_Tab Disper 100mg	2,842.949	0.035	100	56	£6.50	0.00116
Lamictal_Disper Tab 100mg	516.704	0.006	100	56	£57.53	0.01027
Lamotrigine_Tab 200mg	6,208.746	0.076	200	30	£27.53	0.00459
Lamictal_Tab 200mg	1,345.826	0.016	200	56	£97.79	0.00873
Levetiracetam						0.00183
Keppra_Tab 250mg	13,064.790	0.326	250	60	£29.70	0.00198
Keppra_Tab 500mg	19,692.355	0.491	500	60	£52.30	0.00174
Keppra_Tab 750mg	2,176.527	0.054	750	60	£89.10	0.00198
Keppra_Tab 1g	5,191.151	0.129	1000	60	£101.10	0.00169
Tiagabine						0.08336
Gabitril_Tab 5mg	208.441	0.586	5	100	£41.68	0.08336
Gabitril_Tab 10mg	90.375	0.254	10	100	£83.36	0.08336
Gabitril_Tab 15mg	56.591	0.159	15	100	£125.04	0.08336
Topiramate						0.0114 [†]
Topiramate Cap 15mg	300.692	0.010	15	60	£16.83	0.0187
Topamax_Sprinkle Cap 15mg	1,227.613	0.040	15	60	£14.79	0.016433
Topiramate Cap 25mg	813.929	0.027	25	60	£25.24	0.016827
Topamax_Sprinkle Cap 25mg	2,800.321	0.092	25	60	£22.18	0.014787

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Drug name	Prescription Cost Analysis 2008 ¹	Usage weight (quantity/total)	BNF 2010 ²			Weighted average cost/mg (£)
	Quantity (thousands)		Mg/Unit	Units/pack	Cost/pack	
Topiramate_Tab 25mg	1,432.558	0.047	25	60	£6.17	0.004113
Topamax_Tab 25mg	7,178.39	0.235	25	60	£19.29	0.01286
Topiramate_Cap 50mg	627.143	0.021	25	60	£41.47	0.027647
Topamax_Sprinkle Cap 50mg	2,180.174	0.071	50	60	£36.45	0.01215
Topiramate_Tab 50mg	1,070.152	0.035	50	60	£10.74	0.00358
Topamax_Tab 50mg	5,294.092	0.173	50	60	£31.69	0.010563
Topiramate_Tab 100mg	943.998	0.031	50	60	£12.52	0.004173
Topamax_Tab 100mg	4,861.795	0.159	100	60	£56.76	0.00946
Topiramate_Tab 200mg	288.537	0.009	100	60	£17.21	0.002868
Topamax_Tab 200mg	1,527.437	0.050	200	60	£110.23	0.009186
Sodium Valproate						0.00035
Sod Valpr_Tab 100mg	6,765.912	0.073	100	100	£5.60	0.00056
Epilim_Crble Tab 100mg	5,153.266	0.056	100	100	£5.60	0.00056
Sod Valpr_Tab E/C 200mg	29,028.450	0.314	200	100	£5.35	0.00027
Epilim 200_Tab E/C 200mg	23,744.936	0.257	200	100	£7.70	0.00039
Sod Valpr_Tab E/C 500mg	13,940.187	0.151	500	100	£11.31	0.00023
Epilim 500_Tab E/C 500mg	13,887.265	0.150	500	100	£19.25	0.00039
Sodium Valproate liquid solutions						0.00062
Sod Valpr_Oral Soln 200mg/5ml S/F	72,493.449	0.469	200	60	£6.13	0.00051
Epilim_Liq 200mg/5ml S/F	44,694.524	0.289	200	60	£9.33	0.00078
Epilim_Syr 200mg/5ml	37,281.177	0.241	200	60	£7.78	0.00065
Vigabatrin						0.00062
Sabril_Tab 500mg	1,297.353	1.000	500	100	£30.84	0.00062
Zonisamide						0.01565
Zonegran_Cap 25mg	596.112	0.196	25	14	£8.82	0.02520
Zonegran_Cap 50mg	926.105	0.305	50	56	£47.04	0.01680
Zonegran_Cap 100mg	1,518.816	0.499	100	56	£62.72	0.01120
Clobazam						0.01560
Clobazam_tab 10 mg	BNF	1.000	10	30	4.68	0.01560
Clonazepam						0.06922
Rivotril_tab 0.5 mg	10,518.978	0.877	0.5	100	3.77	0.07540
Rivotril_tab 2 mg	1,474.981	0.123	2	100	5.03	0.02515
Phenobarbitone						0.00114
Phenobarbital_tab 15 mg	1,680.280	0.089	15	28	0.85	0.00202
Phenobarbital_tab 30 mg	13,008.542	0.691	30	28	1.06	0.00126
Phenobarbital_tab 60 mg	4,149.979	0.220	60	28	0.66	0.00039
Ethosuximide						0.00047
Emeside_Syr Paed 250mg/5ml Blkcurrant	680.672	0.171	250	40	6.6	0.00066
Zarontin_Syr 250mg/5ml	3,295.646	0.829	250	40	4.31	0.00043
Ethosuximide capsules 250mg	BNF		250	56	38.23	0.00273

*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 based on the cost per milligram of a 150 mg capsule only.

†The same costing method could not be used for topiramate, because the cost for non-proprietary topiramate was available only on the NHS Electronic Drug Tariff (accessed 20 October 2010). Therefore, the weighted average unit cost of topiramate was calculated using data from the Prescription Cost Analysis, the BNF (for branded Topamax) and the NHS Electronic Drug Tariff (for non-proprietary topiramate).

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
Clonazepam	
<ul style="list-style-type: none"> 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 	Rivotril® <ul style="list-style-type: none"> Injection, clonazepam 1 mg/mL in solvent, net price 1-mL amp (with 1 mL water for injections) = 61p
Diazepam	
<ul style="list-style-type: none"> 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 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 	Diazepam (Non-proprietary) <ul style="list-style-type: none"> Injection (solution), diazepam 5 mg/mL Net price 2-mL amp = 45p Injection (emulsion), diazepam 5 mg/mL (0.5%). See Appendix 6. Net price 2-mL amp = 92p Rectal tubes (= rectal solution), diazepam 2 mg/mL, net price 1.25-mL (2.5-mg) tube = 90p, 2.5-mL (5-mg) tube = £1.67; 4 mg/mL, 2.5-mL (10-mg) tube = £1.65
Fosphenytoin	

<ul style="list-style-type: none"> • 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 • 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 	<p>Pro-Epanutin®</p> <ul style="list-style-type: none"> • Injection , fosphenytoin sodium 75 mg/mL (equivalent to phenytoin sodium 50 mg/mL), net price 10-mL vial = £40.00
Midazolam	
<ul style="list-style-type: none"> • By buccal administration [unlicensed], adult and child over 10 years, 10 mg repeated once after 10 minutes if necessary; child up to 6 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 • 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) • 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 • 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); • Induction (but rarely used), by slow 	<p>Midazolam (Non-proprietary)</p> <ul style="list-style-type: none"> • Oral liquid , midazolam 2.5 mg/mL, 100 mL Available from ‘special-order’ manufacturers or specialist importing companies • 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 <p>Hypnovel®</p> <ul style="list-style-type: none"> • Injection , midazolam (as hydrochloride) 2 mg/mL, net price 5-mL amp = 86p; 5 mg/mL, 2-mL amp = 73p

<p>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)</p> <ul style="list-style-type: none"> • 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 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 	
Paraldehyde	
<ul style="list-style-type: none"> • 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 	<p>Paraldehyde (Non-proprietary)</p> <ul style="list-style-type: none"> • Enema, 8–50%, available from ‘special-order’ manufacturers or specialist importing companies
Phenobarbital sodium	
<ul style="list-style-type: none"> • 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 	<p>Phenobarbital (Non-proprietary)</p> <ul style="list-style-type: none"> • Injection, phenobarbital sodium 200 mg/mL, net price 1-mL amp = £2.00
Phenytoin sodium	
<ul style="list-style-type: none"> • 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 	<p>Phenytoin (Non-proprietary)</p> <ul style="list-style-type: none"> • Injection, phenytoin sodium 50 mg/mL with propylene glycol 40% and alcohol 10% in water for injections, net price 5-mL amp = £3.40 <p>Epanutin® Ready-Mixed Parenteral</p>

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)	<ul style="list-style-type: none"> Injection , phenytoin sodium 50 mg/mL with propylene glycol 40% and alcohol 10% in water for injections, net price 5-mL amp = £4.88
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Drug treatment for severe myoclonic epilepsy in infancy	
Indication / Dose	Acquisition cost
Stiripentol	
<ul style="list-style-type: none"> 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 	Diacomit® <ul style="list-style-type: none"> Capsules, stiripentol 250 mg, net price 60-cap pack = £248.00; 500 mg, 60-cap pack = £493.00. Powder, stiripentol 250 mg, net price 60-sachet pack = £284.00; 500 mg, 60-sachet pack = £493.00

References

- 1 Department of Health. *Prescription Cost Analysis 2008*. Available from: <http://www.ic.nhs.uk/statistics-and-data-collections/primary-care/prescriptions/prescription-cost-analysis-2008>.
- 2 Joint Formulary Committee. *British National Formulary*. 59(March). 2010. London, British Medical Association and Royal Pharmaceutical Society of Great Britain.