

Comparison of AEDs

	Carbamazepine (CBZ)	Oxcarbazepine (OXC)	Valproic Acid/Divalproex (VPA/DVA)	Gabapentin (GBP)	Topiramate (TPM)
Doses	300-1600mg/day BID-TID dosing *available in CR form	600-1200mg/day in divided doses	750-3000mg/day BID-TID dosing	900-3600mg/day TID dosing	50-400mg/day BID dosing
Meta- bolism	Liver & P-gp * induces own metabolism	Liver * DOES NOT induce own metabolism	Liver	Not metabolized, Eliminated by renal excretion	P-gp, (70% is eliminated unchanged in urine)
Drug levels	17-54 µmol/L (Cdn) 4-12 mcg/ml (USA) * Frith: 3wks after Rx started, Verani: initially 2 levels taken 4 wks apart & both agree with testing 5d after Δ dose or +/- other Rx	Not required but can be done to optimize sz control in geriatric or pregnant pts or those w/ renal insufficiency	350-800 µmol/L (Cdn) 50-115 mcg/ml (USA) *initially 2 levels to establish dosage, 3-5d after Rx started & 5d after Δ dose or +/- other Rx (Verani); Frith recommends only if toxicity or non-compliance suspected, & DeLeon q.6 months thereafter	Not required	Not required
W/U	<ol style="list-style-type: none"> 1. CBC, plats & diff 2. E-, BUN, sCr, LFTs 3. Other AED levels (baseline) 4. TSH 5. ECG (>45yrs) 6. BMD 7. r/o pregnancy 	<ol style="list-style-type: none"> 1. E- 2. Cr, LFTs 3. Other AED levels (baseline) 	<ol style="list-style-type: none"> 1. CBC, plats & diff 2. LFTs 3. Other AED levels 4. Lipid profile (total, HDL & TG) 5. ♀: wt & BMI & r/o pregnancy 6. Consider serum testosterone in young ♀ 7. BMD 8. Serum amylase & lipase 	BUN & sCr Ht, wt & BMI & waist circ	<ol style="list-style-type: none"> 1. Baseline serum bicarbonate 2. BUN & sCr 3. LFTs 4. Other AED levels 5. Ht, wt, BMI & waist circ 6. r/o pregnancy
F/U	Repeat #1 & 2 monthly X 3 months, then annually AED levels semiannually Annually: BMI & waist circ. TSH & EKG if changes B4/after CBZ BMD if risk factors for osteopenia **Increased risk of SJS in certain Asian populations.	Na+ levels X 1 st 3 months then semiannually or when suspected hyponatremia.	Repeat #1 & 2 monthly X2, then 2-3X/yr (Verani); Repeat #1 & 2 monthly X6, then annually (Frith). Repeat #4 & 5 q.3 months X4, then annually. Test #6 if s/s of menstrual irregularities or hyperandrogenism; also test prolactin, LH & TSH, & for insulin resistance & HTN. BMI & waist circ annually Ammonia levels if lethargy & Δ LOC.	LH & TSH sCr if renal toxicity suspected BMI q.3 months for the 1 st yr	Periodic serum bicarbonate; sCr if renal toxicity suspected (risk of kidney stones) BMI & waist circ semiannually

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	Lamotrigine (LTG)	<i>Levetiracetam (LEV)</i>	<i>Zonisamide (ZNS) (*sulfa Rx)</i>	<i>Tiagabine (TGB)</i>	<i>Phenobarbitol (PB)</i>	<i>Phenytoin (PHT)</i>
Doses	100-500mg/day BID dosing	1000-3000 mg/day BID dosing	100-600mg/day in single or BID dosing	32-56mg/day BID-QID dosing Take WITH food	15-180mg/day in single or divided doses	300-400mg/day in single or divided doses
Meta- bolism	Liver (NO effect on P450 Enzymes)	Not metabolized, Eliminated by renal excretion (66% eliminated unchanged in urine)	Liver	Liver	Liver	Liver
Drug levels	Not required	Not required	Not required	Not required	65-150 µmol/L (Cdn) 20-40 mcg/ml (USA)	40-80 µmol/L (Cdn) 10-20 mcg/ml (USA)
W/U	Skin exam CBC & diff, LFTs, E-, sCr, Other AED levels r/o pregnancy	CBC, plats & diff, sCr	CBC & diff, LFTs, sCr Serum bicarb Other AED levels Ht, wt, BMI & waist circ.	LFTs, Other AED levels	CBC & diff, LFTs, sCr & BUN other AED levels r/o pregnancy	CBC & diff, LFTs, folate? ECG other AED levels serum albumin r/o pregnancy
F/U	CBC, LFTs annually **monitor closely for skin rash or mouth ulcers SJS in first 2-6 months	CBC & diff, sCr annually	CBC & diff, LFTs, sCr annually (risk of kidney stones) Waist circ & BMI semiannually	none	CBC & diff, LFTs & PB levels monthly X 3, then semiannually. BMD/Vit D	Lft & PHT levels monthly X 3, then semiannually CBC & diff, LFTs, folate annually. BMD/Vit D

Virani, A., Bezchlibnyk-Butler, K., & Jeffries, J., *Clinical Handbook of Psychotropic Drugs*, (2012); Saskatoon City Hospital, *Rx Files Drug Comparison Charts*, (2008), Bhaumik, S. & Branford, D., *The Frith Prescribing Guidelines for Adults with Intellectual Disabilities*, (2008), DeLeon, J., *A Practitioner's Guide to Prescribing Antiepileptics and Mood Stabilizers for Adults with Intellectual Disabilities* (2012).

***Use alphabetic order to recall drug levels (in USA units: mcg/ml units):** CBZ (4-12), Dilantin (10-20), PB (20-40), VPA (50-115)