

When to Start Anti-Epileptic Therapy • Two or more seizures within 6 months • Status epilepticus (>5 min) or cluster seizures (≥2 in 24h) • Prolonged/severe post-ictal periods • Structural brain lesion identified

First-Line Anti-Epileptic Drugs

Drug	Grade	Starting Dose	Therapeutic Level	Key Considerations
Phenobarbital	A	2–2.5 mg/kg PO q12h	15–35 µg/mL CBC/Chem: 2wk, 6wk, q6mo	Most efficacious. Sedation, PU/PD early. Monitor for blood dyscrasias, hepatotoxicity.
Potassium Bromide	B	40 mg/kg/day PO	1–3 mg/mL Check at 3–4 months	Long half-life. Avoid high-Cl diets. Watch for bromism. NOT for cats.
Zonisamide	C	5–10 mg/kg PO q12h (7–10 if with pheno)	No validated level CBC/Chem monitoring	Unpredictable efficacy. Hepatotoxicity risk—monitor like phenobarbital.
Levetiracetam (Keppra)	C	30 mg/kg PO q8h (ER: q12h, no cutting)	None required No max dose	Very safe. Unpredictably effective. Short half-life (3h). Can dose higher.

✓ Adequate Seizure Control

- No more than 1 seizure every **4–6 weeks**
- Seizures **<3 minutes** in length
- **No cluster seizures**
- Minimal drug side effects

Goal is reduction, not elimination. Warn owners most dogs will still have occasional seizures.

⚠ When to Adjust Therapy

- Sub-therapeutic + seizures → **increase 25%**
- Maxed first drug → **add second agent**
- Idiosyncratic toxicity → **stop immediately, switch**
- Dose-dependent toxicity → **reduce, add hepatoprotectant**

Max out one drug before adding another (unless severe side effects).

🍬 Cluster Buster Protocol

Clorazepate: 0.5–1 mg/kg PO q8h × 6 doses
Start after recovery from first seizure

Levetiracetam: Double dose × 6 doses (q8h)
Safe even if already on Keppra

📅 Client Instructions

Seizure Calendar: Record date, time, duration
Contact vet if: Increased frequency, 2+ seizures in 24h

Emergency: Seizure >5 minutes → **go directly to vet**
Post-ictal: Abnormal behavior for hours is normal

"I'd recommend you start phenobarbital because it's most likely to work. If you want to start zonisamide or Keppra, I'm fine with that—but it's our duty to explain that these medications might not work as well." — Dr. Susan Arnold, DACVIM (Neurology)

Source: Dr. Susan Arnold, DACVIM (Neurology) | "Neurology In A Nutshell" — Vet On It CE, Feb 2026 | Based on 2016 ACVIM Consensus Statement

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