Neuro.Wiki

PEDIATRIC AED DOSING

Pediatric anti-seizure drug loading, dosing, target levels, and formulations. "Not before" = minimum age. Target levels in µg/mL unless noted. Verify all doses before prescribing.

Drug	Not before	Loading	Peds dosing (start–max)	Target level	Peds formulations
First-generation					
Carbamazepine (Tegretol)	—	—	5–35 mg/kg/d (TID)	4–12 µg/mL	Susp 20/mL; chewable tab 100 mg
Ethosuximide (Zarontin)	3 years	—	10–40 mg/kg/d (BID)	40–100 µg/mL	Syr 50/mL; cap 250 mg
Phenytoin	—	15–20 mg/kg*	4–8 mg/kg/d (BID)	10–20 µg/mL (free 1–2)	Susp 25/mL; chewable 50 mg
Valproate	6 months	40 mg/kg	10–60 mg/kg/d (BID/TID)	50–100 µg/mL	Syr 50/mL
Phenobarbital	—	15–20 mg/kg	3–6 mg/kg/d (QD)	10–40 µg/mL	Elixir 4/mL; tab 15/30/60/100
Clonazepam	—	—	0.01–0.2 mg/kg/d Max: <1 mg if <1 yr, 6 mg >1 yr	20–70 ng/mL	Tab 0.5/1/2; ODT 0.125–2 mg
Second-generation					
Gabapentin (Neurontin)	3 years	—	10–50 mg/kg/d (TID)	2–20 µg/mL	Syr 50/mL
Topiramate (Topamax)	2 years	—	1–9 mg/kg/d (BID; max 400 mg)	5–20 µg/mL	Sprinkle 15/25
Lamotrigine	2 years	—	0.3–15 mg/kg/d (BID; slow titration, ½ with valproate)	2.5–15 µg/mL	Chewable 2/5/25; disintegrating 25/50/100
Levetiracetam (Keppra)	1 month	60 mg/kg	10–60 mg/kg/d (BID)	12–46 µg/mL	Syr 100/mL
Oxcarbazepine (Trileptal)	2 years	—	10–60 mg/kg/d (BID)	3–35 µg/mL (MHD)	Sus 60/mL
Zonisamide (Zonegran)	16 years	—	2–12 mg/kg/d (off-label <16 y)	10–40 µg/mL	Cap 25/50/100
Tiagabine (Gabitril)	12 years	—	4–32 mg/d (QHS)	20–200 ng/mL	—
Felbamate (Felbatol)	2 years	—	15–45 mg/kg/d (TID)	30–60 µg/mL	Susp 120 mg/mL
Third-generation					
Lacosamide (Vimpat)	1 month	10 mg/kg	2–15 mg/kg/d (BID, by wt)	10–20 µg/mL	Syr 10 mg/mL
Brivaracetam (Briviact)	1 month	—	1–5 mg/kg BID (by weight)	0.2–2 µg/mL	Sus 10/mL
Clobazam (Onfi)	2 years	—	≤30 kg: 5 mg HS; >30 kg: 5 mg BID (max 20 / 40 mg/d)	30–300 ng/mL	Susp 2.5/mL; tab 10/20
Perampanel (Fycompa)	4 years	8–36 mg†	2–12 mg QHS	180–980 ng/mL	Susp 0.5 mg/mL
Vigabatrin (Sabril)	1 month	—	50–150 mg/kg/d (BID)	not routinely monitored	Sachets 500 mg
Rufinamide (Banzel)	1 year	—	10–45 mg/kg/d (BID, with food)	5–30 µg/mL	Susp 40/mL
Eslicarbazepine (Aptiom)	4 years	—	200–300 mg start (by weight) → 600–900 mg	3–35 µg/mL	—
Newest agents (2018+)					
Cannabidiol (Epidiolex)	1 year	—	2.5 → 10 mg/kg BID (12.5 for TSC)	not established	Oral soln 100 mg/mL
Fenfluramine (Fintepla)	2 years	—	0.1–0.35 mg/kg BID (max 26 mg/d; 17 with stiripentol)	not established	Oral soln 2.2 mg/mL
Ganaxolone (Ztalmy)	2 years	—	≤28 kg: up to 21 mg/kg TID; >28 kg: up to 600 mg TID (with food)	not established	Oral susp 50 mg/mL

***Phenytoin oral load:** 400 → 2h → 300 → 2h → 300 mg (1000 mg over 6 h). **†Perampanel** loaded orally off-label. Loading = IV loads for status epilepticus.

SEIZURE RESCUE MEDICATIONS FOR CLUSTERS — CAREGIVER / HOME USE

Give for a seizure lasting **≥5 minutes** or a cluster of seizures. **Call 911** if the seizure does not stop or clusters continue.
Intranasal: Midazolam nasal spray (Nayzilam) 5 mg, may repeat once after 10 min · Diazepam nasal spray (Valtoco) 5–20 mg by weight/age.
Buccal (cheek): Midazolam 0.5 mg/kg (max 10 mg).
Rectal: Diazepam rectal gel (Diastat) 0.2–0.5 mg/kg.
Dissolvable wafer (ODT): Clonazepam (Klonopin wafers) 0.25–0.5 mg · Lorazepam 0.05–0.1 mg/kg.