

INCLUSION CRITERIA

- Patients 30 days of age or older presenting with **5 minutes** or more of continuous generalized convulsive seizure activity or recurrent seizure activity without recovery between seizures

EXCLUSION CRITERIA

- Age $\leq$ 1 month (or 44 weeks postmenstrual age if the infant was premature)
- Suspicion of non-epileptic seizure
- Known in-hospital seizure action plan in place differing from pathway
- Intoxication
- Hyponatremia
- Hypoglycemia
- Known head trauma
- Known metabolic disease

MEASURES

- Use of appropriate first line antiseizure medication selection
- Appropriate second-line antiseizure medication selection
- Percent intubation within 6 hours of antiseizure medication administration

¹SECOND LINE ANTISEIZURE MEDICATION

Levetiracetam, fosphenytoin, and valproate sodium have similar efficacy. Levetiracetam can be prepared more rapidly. If taking levetiracetam home dosing > 80 mg/kg/day or > 1500 mg BID, give Fosphenytoin **or** Valproate Sodium as second line antiseizure medication.

LABS AND DIAGNOSTICS

- Obtain CBC, CMP, magnesium, phosphorous
- Consider tox screen, HCG (females), antiseizure medication levels
- Obtain infectious workup as indicated
- Consider neuroimaging after stabilization

PICU ADMISSION CRITERIA

- Respiratory compromise after seizure cessation
- Cardiovascular instability
- Ongoing seizure after second line antiseizure medication

INITIAL ASSESSMENT

- Note seizure onset time in RN seizure flowsheet
- Assess airway, breathing, circulation and reassess after administration of each medication
- Place on CR monitor and pulse ox
- Obtain point of care glucose and ISTAT
- Obtain IV/IO access
- Evaluate if benzodiazepines given prior to arrival and only administer a total of 2 benzodiazepine doses

First Line Medication

- **ADMINISTER** Lorazepam IV
- If no IV access, then Midazolam IM/IN

Continued seizures?

No

Yes

Repeat First Line Medication

- **ADMINISTER** Lorazepam IV **or** Midazolam IM/IN

Continued seizures
5 min after antiseizure
Med given?

No

Yes

Second Line Medication

- **ADMINISTER** Levetiracetam¹ IV
- Consult Neurology
- If on Acute Care unit, consider Rapid Response Team (RRT) activation

Continued seizures
10 min after infusion
completed?

No

Yes

Third Line Medication

- **ADMINISTER** Fosphenytoin IV **or** Valproate Sodium IV (avoid under 2 years old) **or** Levetiracetam IV (Note: Third line antiseizure medication must be different from second line antiseizure medication)
- **ORDER** Midazolam loading bolus and continuous infusion IV to **start within the 60 minute window**

Start continuous EEG (if possible)

Continued seizures?

No

Yes

Continuous Infusion

- **ADMINISTER** Midazolam loading bolus and continuous infusion IV in collaboration with Intensivist

Further management per Neurology.
Refer to PICU admit criteria on page 2.

0-5 min

5 min

10 min

15 min

35 min

60 min

Medication	Dosage	Route	Max. per Dose
Lorazepam	0.1 mg/kg/dose	IV	4 mg
Midazolam	First Line Dose: 0.2 mg/kg/dose Loading Bolus Dose: 0.2 mg/kg/dose Continuous Infusion Dose: 0.05 - 2 mg/kg/hr	IM/IN IV IV	10 mg
Fosphenytoin	20 mg PE/kg/dose	IV	1500 mg PE
Valproate Sodium	40 mg/kg/dose	IV	3000 mg
Levetiracetam	60 mg/kg/dose	IV	4500 mg (Stage 5 CKD 20 mg/kg/dose)

Second Line Medications

Drug	Indications	Contraindications & Cautions
Fosphenytoin	- Already taking Phenytoin, suspected poor adherence - Alternatives contraindicated or previously ineffective	- Significant hypotension - Bradycardia, heart block - Porphyria - Dravet syndrome or SCN1A related epilepsy - Overdose of recreational drugs or antidepressants
Valproate Sodium	- Already taking Valproate, suspected poor adherence - Generalized epilepsy - Alternatives contraindicated or previously ineffective	- Patients $\leq$ 2 years old - Women of childbearing age - Pre-existing liver disease or pancreatitis - Known metabolic disorder predisposing to hepatotoxicity - Caution in acute stroke or brain injury (risk of thrombocytopenia)
Levetiracetam	- Already taking Levetiracetam, suspected poor adherence - Need for minimal drug interactions - Alternatives contraindicated or previously ineffective	Reduce dose in Stage 5 CKD to 20 mg/kg/dose

Disclaimer: The clinical pathways are based upon publicly available medical evidence and/or a consensus of medical practitioners at Nemours Children's Health ("Nemours") and are current at the time of publication. These clinical pathways are intended to be a guide for practitioners and may need to be adapted for each specific patient based on the practitioner's professional judgment, consideration of any unique circumstances, the needs of each patient and their family, and/or the availability of various resources at the health care institution where the patient is located.

VERSION MANAGEMENT

- Version 1.0 (6/27/2023): Go Live.
- Version 2.0 (2/27/2026): Look back review completed

Questions about this pathway should be directed to **clinicalpathways@nemours.org**.

AUTHORS & REFERENCES

Central Florida Authors: Marcella Escoto Ventura (Critical Care), Melanie Ortiz (Neurology), Ju Tang (Neurology)

Delaware Valley Authors: Daniel Dirnberger (Neonatology), Elizabeth Wright-Jin (Neurology), Lynn Fuchs (Neonatology), Rodney Scott (Neurology)

North Florida Autor: Fernando Galan (Neurology)

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