

Seizure & Status Epilepticus (SE) – ED/Inpatient/ICU Clinical Practice Guideline

For Patients > 2months old

Status Epilepticus defined as: (i) continuous clinical and/or electrographic seizure activity >5 minutes
(ii) recurrent seizure activity without return to baseline in between seizures

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Time of Seizure

Medications

Interventions

0-10 min

Stage I
Impending
SE

No IV Access

Midazolam Intranasal
0.2 mg/kg
Max single dose 10mg
Max volume 1mL per nostril
OR
Diazepam Per Rectum
≤5yo and ≥5kg: 0.5mg/kg
6-11yo: 0.3mg/kg
≥12yo: 0.2mg/kg
Max single dose 20mg
OR
Midazolam IM
0.2 mg/kg
Max single dose 10mg

IV Access

Lorazepam IV (Preferred)
0.1mg/kg;
slow IV push
Max single dose 4mg
OR
Diazepam IV
0.2mg/kg dose slow IV push
Max single dose 10mg

If patient already received Stage I at home or EMS, proceed to Stage II recommendations

- Stabilize patient (airway, breathing, circulation, neurologic exam)
- Time seizure from its onset, monitor vital signs
- Assess oxygenation, give oxygen via nasal canula/mask, consider intubation if needed
- Initiate cardiac and respiratory monitoring
- Obtain IV access
- If appropriate collect:
 - CMP, CBC with diff, toxicology screen, AED trough levels
- Collect finger stick blood glucose
If glucose <60mg/dl, administer 5mL/kg D10W IV

Seizure resolved within 5 min?

YES

Give additional dose of any agent listed in Stage I while preparing second-line agent.

NO

- Monitor for return to baseline level of consciousness.
- If **new onset** seizure refer to new onset seizure guideline
- If **known seizure** disorder contact neurologist as needed
- If does not return to baseline consider admission
- If recurrent seizures: Continue with algorithm at stage II

10-30 min

Stage II
Established SE

Second-Line Medication: (choose one):

- **Fosphenytoin IV**; 20mg PE/kg x1 dose
Max 1500mg PE/dose; Infuse over 7-10 minutes
[Do not use in patients with known SCN1a/Dravet Syndrome]
- OR
- **Levetiracetam IV** 60mg/kg x1 dose
Max single dose 4500mg; Infuse over 15 minutes

Seizure Resolved

If seizure not resolved, proceed to Alternative Second-Line medications

Call Neurology and prepare order for alternative second-line agent

Administer Alternative Second-Line Medication
(see above dosing info)
Levetiracetam (if not previously given)
OR
Fosphenytoin (if not previously given)

- Criteria to transport from UC to the ED:**
- Stage I medication did not resolve seizure
 - Patient not at baseline mental status
 - Respiratory depression and/or concern for airway
 - Onset of new symptoms

If patient in ED or Inpatient:

- Consult Neurology/Consider EEG (Inpatient)
- Consider admission to Inpatient or ICU

Adjunct Second-Line options:

- Consider in cases of medication shortage or if patient already on adjunct medication:
- **Valproic acid**: IV, 40mg/kg x 1 dose (**only** in patients known to take as home medication) Max single dose 3000mg, infuse over 20 min
 - **Phenobarbital**: IV, 20mg/kg x1 dose; Max single dose 1000mg; Infuse over 20 minutes
 - **Lacosamide**: IV, 10 mg/kg x1 dose (max single dose 200-400mg); infuse over 30 min

Seizure resolved

YES

- If new onset seizure, refer to new onset seizure guideline
- If established patient, follow up with PCP/ Epileptologist/Neurologist
- Consider admission

NO

30-60 min

Stage III
Refractory SE

Third-Line Medication

- *Midazolam IV infusion:**
- Bolus: 0.2 mg/kg (Max single dose 10 mg)
 - Start continuous infusion at 0.1 mg/kg/hr.
 - Re-bolus every 5 minutes until clinical seizures stop
 - Increase drip rate in increments of 0.05-0.1 mg/kg/hr (Max dose 2 mg/kg/hr) in consultation with neurology

- *Manage per Neurology
- Contact ICU for admission
- Mechanical ventilation
- +/- vasopressors
- Individualized etiologic work-up
- Consider continuous EEG monitoring

Adjunct Third-Line Medication Option:

- Pentobarbital IV infusion:**
5-10 mg/kg load over 1 hour, then begin infusion at 1mg/kg/hr

>24 hours
Stage IV

Super Refractory SE

If seizure persists or recurs after 24 hours of Continuous Infusion therapy, consider Epileptologist consult