Patient with seizure > 5 minutes
- Determine prior history of seizures with EMS or caregiver
- Determine if anti-seizure medications were given prior to arrival
- Initiate ABCDE, oxygen, continuous pulse oximetry and CR monitoring

Exclusion Criteria
- Neonates < 30 days
- Patients with psychogenic non-epileptic attacks

Administer midazolam (IM or IN) 0.2mg/kg/dose (max 10mg/dose)
1-3 mos (4-6kg) = 1mg (0.2mL)
4-16 mos (7-9kg) = 1.25mg (0.25mL)
17mos-5yr (10-19kg) =2.5mg (0.5mL)
6-11yrs (20-37kg) = 5mg (1mL)
>12yr (>38kg) = 10mg (2mL)

Does patient have IV access?
- Yes
  - Administer midazolam IV 0.2mg/kg/dose (max 10mg/dose)
  - Lorazepam IV 0.1mg/kg/dose (max 4mg/dose)
- No
  - Determine if anti-seizure medications were given prior to arrival
  - Initiate ABCDE, oxygen, continuous pulse oximetry and CR monitoring
  - Obtain EPOC panel
  - Obtain anticonvulsant levels for established seizure patients
  - Correct reversible causes (i.e. hyponatremia & hypoglycemia)
  - Administer midazolam IV 0.2mg/kg/dose (max 10mg/dose)
  - Lorazepam IV 0.1mg/kg/dose (max 4mg/dose)

Reassess in 5 minutes - seizure stopped?
- Yes
  - Reassess airway, breathing, and circulation
  - Repeat 2nd dose of benzodiazepine AND administer second line medication
  - (Administer second line medication even if seizure stops after 2nd benzodiazepine dose)
- No
  - Reassess in 5 minutes - seizure stopped?
  - Yes
    - Reassess airway, breathing, and circulation
    - Administer another alternative second line medication (3rd loading med)
  - No
    - Reassess in 5 minutes - seizure stopped?
      - Yes
        - Reassess airway, breathing, and circulation
        - Administer another alternative second line medication (3rd loading med)
      - No
        - Contact Critical Care Team and treat for refractory SE with continuous midazolam or pentobarbital infusion with continuous EEG monitoring recommended on transfer

Established Seizure Patient
- Administer loading dose of home medication if IV formulation is available OR initiate second line medications
- Reassess in 5 minutes - seizure stopped?
- Yes
  - Reassess airway, breathing, and circulation
  - Administer loading dose of an alternative second line medication (2nd loading med)
- No
  - Reassess airway, breathing, and circulation
  - Administer loading dose of an alternative second line medication (2nd loading med)

New Onset Seizures
- Second line/Loading Medications:
  1. Levetiracetam 60mg/kg/dose IV (Max 4500mg) OR
  2. Fosphenytoin 20mg/kg/dose IV (Max 1500mg)
  *Excluding Dravet syndrome OR
  3. Lacosamide 10mg/kg/dose IV (max 400mg/dose for load; 200mg/dose for maintenance)
  OR
  4. Valproic Acid 40mg/kg/dose IV (max 3000mg)
  *Only >2 years old or patients with Dravet syndrome OR
  **If above unavailable, consider phenobarbital 20mg/kg/dose IV (Max 1000mg)
  ***Consider ordering two loading meds

Does patient have IV access?
- Yes
  - Administer midazolam (IM or IN) 0.2mg/kg/dose (max 10mg/dose)
  - 1-3 mos (4-6kg) = 1mg (0.2mL)
  - 4-16 mos (7-9kg) = 1.25mg (0.25mL)
  - 17mos-5yr (10-19kg) =2.5mg (0.5mL)
  - 6-11yrs (20-37kg) = 5mg (1mL)
  - >12yr (>38kg) = 10mg (2mL)
- No
  - Monitor patient
  - Airway protection
  - Consult Neurology
  - Consider further labs as clinically indicated (CBC, CMP, Mg, and Phos; toxicology screen, HcG)
  - Obtain video EEG if subclinical or focal seizure is suspected
  - Consider LP if encephalitis or meningitis is suspected
  - Consider initiation of maintenance therapy
  - Consider imaging with fast brain MRI or CT head if MRI unavailable

Treat hypoglycemia
- D10 5mL/kg
- Glucagon IM
- < 5yr 0.5mg OR > 5yr 1mg

Treat hyponatremia (Na < 120)
- 3% saline 4mL/kg

Dravet syndrome

Disclaimer: Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement and taking into account individual patient and family circumstances.

ChildrensOmaha.org/Pathways
Updated 12/2022
### IM/IN Midazolam Dosing

<table>
<thead>
<tr>
<th>Age (weight)</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 months old (4-6kg)</td>
<td>1mg (0.2mL)</td>
</tr>
<tr>
<td>4-16 months old (10-19kg)</td>
<td>1.25mg (0.25mL)</td>
</tr>
<tr>
<td>17 months to 5 years old (10-19kg)</td>
<td>2.5mg (0.5mL)</td>
</tr>
<tr>
<td>6-11 years old (20-37kg)</td>
<td>5mg (1mL)</td>
</tr>
<tr>
<td>&gt;12 years old (&gt;38kg)</td>
<td>10mg (2mL)</td>
</tr>
</tbody>
</table>

### 1st Line Benzodiazepine Dosing

- **Midazolam IV**
  - 0.2mg/kg/dose (max 10mg)
- **Lorazepam IV**
  - 0.1mg/kg/dose (max 4mg)

### Second Line Dosing

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levetiracetam</td>
<td>60mg/kg/dose IV (max 4500mg)</td>
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<td>20mg/kg/dose IV (max 1500mg)</td>
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<td></td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>20mg/kg/dose IV (max 1000mg)</td>
</tr>
</tbody>
</table>

### Infusion Dosing

- **Midazolam Infusion**
  - Bolus: 0.2mg/kg IV once
  - Followed by: Continuous infusion: initiate at 0.1mg/kg/hr
  - Titration: Bolus continuous infusion rate and increase by 0.1mg/kg/hr every 15 minutes as needed for cessation of electrographic seizures on EEG or burst suppression to a max of 2mg/kg/hr

- **Pentobarbital Infusion**
  - Bolus: 5mg/kg IV once
  - Followed by: Continuous infusion: Initiate at 1mg/kg/hr
  - Can bolus 5mg/kg from infusion every 30 minutes until burst suppression
  - Titration: Increase by 0.5 mg/kg/hr every 8 hours as needed to max of 4mg/kg/hr

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