**Recognition of Status Epilepticus**

An unresponsive patient with either one of the following has convulsive status epilepticus:
- Seizure >5 min and/or ongoing seizure on arrival to ED
- 2 or more seizures without full recovery of consciousness between seizures

**Pre-Hospital Care**

- If one dose of benzodiazepine given, repeat dose x 1 and prepare 2nd line agent
- If multiple doses of benzodiazepines given, move directly to 2nd line agent

**From arrival in ED with ongoing seizure**

- **5 min**
  - **First Line Agents: Benzodiazepines**
    - If IV access, give 1st dose of:
      - Lorazepam 0.1 mg/kg (MAX 4 mg) IV over 2 min OR one of:
        - Midazolam IV 0.1 mg/kg (MAX 10 mg) IV over 2 min
        - Diazepam 0.2 mg/kg (MAX 10 mg) IV over 3 min
    - If no IV access, give 1st dose of:
      - Midazolam IM 0.15 mg/kg (MAX 10 mg) (preferred) OR one of:
        - Midazolam intranasal 0.2 mg/kg (MAX 10 mg; 1 mL/nasal of 5mg/mL solution)
        - Midazolam buccal 0.5 mg/kg (MAX 10 mg)
        - Diazepam rectal 0.5 mg/kg (MAX 20 mg)
  - ! Reassess ABCs, monitor for respiratory depression
    - If still seizing:

- **10 min**
  - Repeat dose of First Line Agent (as above)
  - Obtain intraosseous (IO) access if failed IV attempts x 2 and persistent seizure
  - Prepare second line agent
  - ! Reassess ABCs, monitor for respiratory depression
    - If still seizing:

- **15 min**
  - **Second Line Agents:**
    - Give one of:
      - Fosphenytoin (20 mg PE*/kg in NS, MAX 1000 mg PE*) IV/IO over 10 min OR
      - Levetiracetam 60 mg/kg/dose (MAX 3000 mg) IV/IO over 15 min OR
      - Phenytoin (20 mg/kg in NS, MAX 1000 mg) IV/IO over 20 min OR
      - Phenobarbital (20 mg/kg in NS, MAX 1000 mg) IV/IO over 20 min
    - Prepare third line agent
  - ! Reassess ABCs, monitor for respiratory depression
    - If still seizing:

- **30 min**
  - **Third Line Agents:**
    - Administer alternative anticonvulsant from second line agent used. (E.g. if fosphenytoin/phenytoin given, use levetiracetam or phenobarbital)

**Initial Management**

- **• Initiate ABCs, cardiorespiratory and BP monitoring**
- **• O₂ 10–15 L/min non-rebreather mask**
- **• Establish IV lines x 2 (NS)**
- **• Rapid bedside glucose**
  - If less than 3 mmol/L, give 5 mL/kg D10W IV push, then start D10W infusion @ 5 mL/kg/hr. Recheck glucose in 5 min.

- **• Monitor for respiratory depression, hypotension, arrhythmias**
- **• Give acetaminophen 15 mg/kg/dose (MAX 650 mg) PR ip febrile**

- **• Consider other investigations:**
  - Electrolytes, blood gas, calcium, CBC, serum glucose
  - Other: anticonvulsant drug levels, LFs, blood & urine culture

**Pediatric Referral Centre Discussion**

**CONSIDERATION OF:**
- Need for intubation vs. bag-mask ventilation; hypercapnia is common, will resolve with seizure cessation and non-invasive respiratory support
- Additional workup including full septic workup, use of antibiotics/antivirals, brain imaging
- Persistent altered LOC possibly related to non-convulsive status epilepticus or severe underlying brain disorder
- Other anticonvulsants (e.g. midazolam infusion, valproic acid, pyridoxine)

**CAUTION!**

- Do not give more than 2 doses of benzodiazepines
- Benzodiazepines and phenobarbital may cause respiratory depression, especially if given rapidly
- Phenytoin and fosphenytoin may cause arrhythmias and/or hypotension

**TO CONSIDER:**
- Phenobarbital or levetiracetam are more effective in infants less than or equal to 6 months
- Avoid phenytoin/fosphenytoin in intoxicated patients
- If patient is currently on phenytoin give partial loading dose of phenytoin (10 mg/kg) or fosphenytoin (10 mg PE*/kg)

*PE = Phenytoin Equivalents