

UCSD STATUS EPILEPTICUS GUIDELINE

for generalized OR complex partial status, either continuous or without return to baseline mental status in between seizures

**0-3
min
from
sz
start**

- **Diagnose:** FSBG, CBC, CMP, coags, AED levels, troponin, ABG, utox, salicylates, EtOH level. Stat noncon head CT or MRI after pt stops seizing.
- **ABC:** cardiac monitor (cycle BP q2min), ensure IV access, intubate if O2 sat low >3min



ONGOING SEIZURE?

**3-10
min**

- **Lorazepam 2-4mg IVP STAT. Repeat q5 min until seizures stop (max total 0.1mg/kg)**
- If no IV access, give midazolam 10mg IM/intransal/buccal. If midazolam unavailable, give Diastat 20mg PR (diazepam 20mg IV can be given PR if Diastat unavailable)
- Thiamine 100mg IV and 50mL of D50 IV if low/unknown FSBG
- Page anesthesia to prep for possible intubation

AND

- **Load 1 AED STAT (send pharmacist/RN/tech to pharmacy to obtain immediately):**
Fosphenytoin 20mg/kg IV @150mg/min (max 2g, MUST be on cardiac monitor).
OR
Valproate 20mg/kg IV over 10 min (do NOT use in surgical or bleeding patients due to risk of platelet dysfxn).
OR
If pt is taking Keppra/phenobarbital/topamax at home, or if PHT/VPA are contraindicated, load IV Keppra (50mg/kg IV (up to 4g) at 100mg/min), IV Phenobarbital 20mg/kg IV at 50-100mg/min), or NG/PO Topamax (200-400mg)
Note: Keppra is NOT FDA approved for treatment of status epilepticus and is less effective than PHT/VPA, so should not be used unless PHT/VPA contraindicated)



ONGOING SEIZURE?

**10-20
min**

- **Intubation and burst suppressant if generalized status, or vitals unstable. If complex partial status and vitals stable, consider not intubating until minute 20.**
- **After intubation, start burst suppressant, PLACE STAT cEEG / SEDLINE***
Midazolam load*: 0.2mg/kg IVP bolus; repeat 0.1-0.2mg/kg boluses q5min until sz stop, up to max total loading dose 2mg/kg. Start IV midazolam drip at 5 mg/h, may increase to max of 50 mg/h. Decrease dose in renal failure. May ↓BP.
OR
Propofol load*: 1mg/kg IVP bolus; repeat 1-2mg/kg boluses q3-5min until sz stop, up to max total load 10mg/kg. Start IV propofol drip at 20mcg/kg/min, may increase to 200 mcg/kg/min. Check lactate/trigly/CK q8h. May ↓BP.

* To order cEEG, look under "neurophysiology orderables" in EPIC, order "Prolonged EEG," state "cEEG," then page on-call EEG tech. NCC MUST be consulted to order cEEG (or neuro attending willing to oversee cEEG q2-4h). cEEG only available 8am-8pm. SEDLINES are in anesthesia tech monitoring room (in OR's) at HC and in JMC 3F and should be used when cEEG is unavailable.

OR

Phenobarbital load*: 20mg/kg IV load at 50-100 mg/min



ONGOING SEIZURE?

**20-60
min**

- **Intubate and load burst suppressant (Midazolam OR Propofol OR Phenobarbital)**
- **If burst suppressant already started, bolus/titrate up q5 minutes; maximize dose**
- **Load additional AED:** If already loaded with fosphenytoin, give additional fosphenytoin 10mg/kg IV at 150mg/min. If already loaded with valproate, give additional valproate 10mg/kg IV over 5 min. If seizures continue, load 20mg/kg IV with whichever you have not already given.
- If unable to use either PHT/VPA, load Keppra 2g over 20 min or Lacosamide 400mg IV



ONGOING SEIZURE?

**>60
min**

- **Add another burst suppressant** (propofol or midazolam or phenobarbital)
- **Consider ketamine:** load 2mg/kg. Start drip @10 mcg/kg/min, increase up to 50 mcg/kg/min
- **Consider pentobarbital*:** load 5mg/kg at 50mg/min; repeat 5 mg/kg boluses until sz stop. Start drip at 1mg/kg/h, may increase up to 10mg/kg/h.
- **Consider additional AED's:** Keppra IV, Lacosamide IV, Topamax (200-400mgPO)



ONGOING SEIZURE?

>days

- Consider adding: lidocaine drip, ketogenic diet, moderate hypothermia, epilepsy surgery

ADDITIONAL POINTS TO CONSIDER:

- **Avoid fever, hypoxia, hypotension;** these exacerbate sz and increase mortality
- **Treat quickly and precisely per protocol:** 74% of pts stop seizing if protocol is followed exactly; only 29% will stop if protocol is not exactly followed (Aranda, 2010)
- **If pt stops clinically seizing but mental status is not improving** within 20 minutes, or has not returned to baseline mental status within 1hr, **obtain cEEG** (up to 50% of patients with generalized status epilepticus have NCSz after clinical sz stop).
- **Status epilepticus kills:** mortality is 17-26%, disability in survivors 40%

Jan Claassen and Lawrence J. Hirsch. "Status Epilepticus," in *Decision Making in Neurocritical Care*, Jennifer Frontera, Ed. NY: Thieme, 2009. Pp 63-75.

Brophy GM et al, *Guideline for the Evaluation and Management of Status Epilepticus. Neurocritical Care*, April 2012

Chen JW, Wasterlain CG. *Status epilepticus: pathophysiology and management in adults. Lancet Neurol* 2006;5(3): 246-256

Ziai, W and Kaplan, P. *Seizures and Status Epilepticus in the Intensive Care Unit. Semin Neurol* 2008;28:668-681

Claassen J, Mayer SA, Kowalski RG, Emerson RG, Hirsch LJ. *Detection of electrographic seizures with continuous eeg monitoring in critically ill patients. Neurology* 2004;62:1743-1748