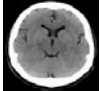



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**Optimizing Seizure and  
SE Patient Management:  
Seizure Therapies  
Workshop and Clinical  
Policy Review**



Edward P. Sloan, MD, MPH, FACEP




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**Clinical Decisions in  
Emergency Medicine**

**Ponte Vedra, FL  
June 22-23, 2007**

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**Clinical Policy: Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department With Seizures**

Policy statements and clinical policies are the official policies of the American College of Emergency Physicians and, as such, are not subject to the same peer review process as articles appearing in the journal. Policy statements and clinical policies of ACEP do not necessarily reflect the policies and beliefs of Annals of Emergency Medicine and its editors.

This clinical policy was developed by the ACEP Clinical Policies Committee and the Clinical Policies Subcommittee on Seizures. For a complete list, visit [www.acep.org](http://www.acep.org).

This clinical policy focuses on critical issues in the evaluation and management of adult patients with seizures. The medical literature was reviewed for articles that pertained to the critical questions posed. Subcommittee members and expert peer reviewers also supplied articles with direct bearing on this policy. This clinical policy focuses on 6 critical questions:

- I. What laboratory tests are indicated in the otherwise healthy adult patient with a new-onset seizure who has returned to a baseline normal neurologic status?
- II. Which new-onset seizure patients who have returned to a normal baseline require a head computed tomography (CT) scan in the emergency department (ED)?
- III. Which new-onset seizure patients who have returned to normal baseline need to be admitted to the hospital and/or started on an antiepileptic drug?
- IV. What are effective phenytoin or fosphenytoin dosing strategies for preventing seizure recurrence in patients who present to the ED after having had a seizure with a subtherapeutic serum phenytoin level?


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**New Onset Sz: Lab Testing**

- **What lab tests are indicated in the otherwise healthy adult patient with a new onset seizure who has returned to a baseline normal neurological status?**
- **(Outcome measure: abnormal lab that**
- **changes management)**

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### New Onset Sz: Lab Testing

- Level B recommendations:
  - Determine a serum glucose and sodium on patients with a first time seizure with no co-morbidities who have returned to their baseline
  - Obtain a pregnancy test in women of child bearing age
  - Perform a LP after a head CT either in the ED or after admission on patients who are immuno-compromised

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### New Onset Sz: Neuroimaging

- Which new onset seizure patients who have returned to a normal baseline require neuroimaging
  - in the ED?
- (Outcome measure: abnormal CT)

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### New Onset Sz: Neuroimaging

- Level B recommendations:
  - When feasible, perform a head CT of the brain in the ED on patients with a first time seizure
  - Deferred outpatient neuroimaging may be utilized when reliable follow-up is available

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### New Onset Sz: Dispo/AED Use

- Which new onset seizure patients who have returned to normal baseline need to be admitted to the hospital and / or started on an AED?
- (Outcome measure: short term morbidity or mortality)

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### New Onset Sz: Dispo/AED Use

- Level C recommendations:
  - Patients with a normal neurological examination can be discharged from the ED with outpatient follow-up
  - Patients with a normal neurological examination and no co-morbidities and no know structural brain disease do not need to be started on an anti-epileptic drug in the ED

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### Sz/SE: Phenytoin Loading

- What are effective phenytoin dosing strategies for preventing seizure recurrence in patients who present to the ED with a sub-therapeutic serum phenytoin level?
- (Outcome measure: short term seizure recurrence)

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## Sz/SE: Phenytoin Loading

- Level C recommendation:
  - Administer an intravenous or oral loading dose of phenytoin or intravenous or intramuscular fosphenytoin, and restart daily oral maintenance dosing.

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## Sz/SE SE Therapeutics

- What agent(s) should be administered to a patient in status who continues to seize despite a loading dose of a benzodiazepine and a phenytoin?
- (Outcome measure: cessation of
  - motor activity)

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## Sz/SE SE Therapeutics

- Level C recommendation:
  - Administer one of the following agents intravenously: “high-dose phenytoin,” phenobarbital, valproic acid, midazolam infusion, pentobarbital infusion, or propofol infusion.

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## Sz/SE: EEG Monitoring

- When should an EEG be performed in the ED?

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## Sz/SE: EEG Monitoring

- Level C recommendation:
  - Consider an emergent EEG for patients suspected of being in non-convulsive SE or in subtle convulsive SE, for patients who have received a long-acting paralytic, or for patients who are in a drug-induced coma.

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## ACEP Summary

- Evidence based clinical policies are useful tools in clinical decision making
- Policy does not create a “standard of care”
- Provides a foundation for clinical practice at a national level
- The current literature does not support the creation of any “level A” recommendations
  - 2 of the 6 clinical questions have



## A Proposed Protocol

- 0-20 min: Initial evaluation and benzos
- 20-40 min: Fosphenytoin infusions
- 40-60 min: Phenobarbital infusion,  
(valproate, levetiracetam infusions??)
- 60-90 min: Continuous infusion AEDs
- 90-120 min: CT, neuro consult
- 120-150 min: ICU, EEG monitoring

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## Questions?

[www.FERNE.org](http://www.FERNE.org)

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