

Clinical Policies' Development and Applications

Critical Issues for the Evaluation and Management of Adult Patients Presenting with Seizures

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ACEP and Clinical Policies

- Committee formed in 1987
- Meetings with DM Eddy
- Fatal flaw: decision to concentrate on symptoms or complaints
- Topics chosen from complaints with high frequency, high risk, or high cost
- New directions

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Clinical Policies / Practice Guidelines

- Over 3000 in existence
- ACEP: 15
 - Chest Pain 1990
 - Sunsetting - no longer distributed
 - Archive – reviewed and kept on website
- National Guideline Clearinghouse:
 - www.guideline.gov
 - Over 550 guidelines registered

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Why are Clinical Policies Being Written?

- Differentiate “evidence based” practice from “opinion based”
 - Clinical decision making
 - Education
 - Reducing the risk of legal liability for negligence
- Improve quality of health care
 - Assist in diagnostic and therapeutic management
- Improve resource utilization
 - May decrease or increase costs
- Identify areas in need of research

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Guideline Development: Time and Cost

- Time: 1 - 3 YEARS
- Cost:
 - ACEP: \$10,000
 - AANS: \$100,000
 - AHCPR: \$1,000,000
 - WHO: \$2,000,000

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Interpreting the Literature

- Terminology
 - Status epilepticus
- Patient population
 - Children vs adults
 - CT + vs CT -
- Interventions / outcomes
 - Termination of motor activity vs termination of electrical activity

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Critically Appraising Clinical Policies

- Why was the topic chosen
- What are the authors' credentials
- What methodology was used
- Was it field tested
- When was it written / updated

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Do Clinical Policies Change Practice?

- ACEP Chest Pain Policy: Emergency physician awareness. Ann Emerg Med 1996; 27:606-609 Clinical policy published in 1990
 - 163 / 338 (48%) response to survey
 - 54% aware of the policy
 - Majority of those aware did not know content
- Wears. Headaches from practice guidelines. Ann Emerg Med 2002; 39:334-337
 - Canadian Headache Society. Guidelines for the diagnosis and management of Migraine in clinical practice.
 - Can Med Assoc J 1997; 156:1273-128 US Headache Consortium. www.aan.com/public/practice guidelines
 - 60% of practicing EPs use narcotics as first line medications

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Cabana et al. Why don't physicians follow clinical practice guidelines. JAMA 1999; 282:1458-1465

- Review of 76 articles dealing with adherence
- Barriers to physician adherence identified:
 - Lack of familiarity (more common than lack of awareness)
 - Lack of agreement
 - Lack of self-efficacy (lack of access to intervention, lack of resources / support / social systems)
 - Lack of outcome expectancy (lack of confidence that an intervention will change the outcome)
 - Patient related barriers (inability to overcome patient expectation)

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Huizenga et al. Guidelines for the management of severe head injury: Are emergency physicians following them? Acad Emerg Med 2002; 9:806-812

- 319 / 566 survey responses (56%) to 3 cases
 - 78% corrected hypotension
 - 46% used prophylactic hyperventilation
 - 14% used glucocorticoids
 - 8% used prophylactic mannitol
- Authors conclusion: A majority of emergency physicians are managing TBI according to the guidelines
- My conclusion: 7 years post publication, a significant number of emergency physicians are not correctly managing severe TBI

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Guideline Development

- Informal Consensus
- Formal consensus
- Evidence based

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Informal Consensus

- Group of experts assemble
- "Global subjective judgment"
- Recommendations not necessarily supported by scientific evidence
- Limited by bias

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Informal Consensus: Examples

- MAST trousers in traumatic shock
- Hyperventilation in severe TBI
- Oxygen for patient with chest pain
- Magnesium level for patients who have had a seizure

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Formal Consensus

- Group of experts assemble
- Appropriate literature reviewed
- Recommendations not necessarily supported by scientific evidence
- Limited by bias and lack of defined analytic procedures

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Formal Consensus: Limitations

- High dose phenytoin
- Phenytoin to prevent post-traumatic epilepsy

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Evidence Based Guidelines

- Define the clinical question
 - Focused question better than global question
 - Outcome measure must be determined
- Grade the strength of evidence
- Incorporate practice patterns, available expertise, resources and risk benefit ratios

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Description of the Process

- Medical literature search
- Secondary search of references
- Articles graded
- Recommendations based on strength of evidence
- Multi-specialty and peer review

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Description of the Process

Strength of evidence (Class of evidence)

- I: Randomized, double blind interventional studies for therapeutic effectiveness; prospective cohort for diagnostic testing or prognosis
- II: Retrospective cohorts, case control studies, cross-sectional studies
- III: Observational reports; consensus reports

Strength of evidence can be downgraded based on methodologic flaws

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Description of the Process

- Strength of recommendations:
 - A / Standard: Reflects a high degree of certainty based on Class I studies
 - B / Guideline: Moderate clinical certainty based on Class II studies
 - C / Option: Inconclusive certainty based on Class III evidence

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Evidence Based Guidelines: Limitations

- Different groups can read the same evidence and come up with different recommendations
 - MTBI
 - t-PA in stroke
 - Steroids in spinal trauma

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Seizure Clinical Policy

- Frequently seen in the ED
- Symptom of potentially life threatening disease
- Associated with potential morbidity and mortality
- ACEP Seizure Clinical Policy
 - 1993 - Approach based
 - 1997 - Revision
 - 2003 – Critical questions; evidence based

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Seizure Epidemiology in Emergency Medicine

- 1% of adult ED visits
- 2% of pediatric ED visits
- Most common ED etiologies are not epilepsy related:
 - Alcoholism
 - Stroke
 - Trauma
 - CNS infection
 - Metabolic / Toxin
 - Tumor
 - Fever in children
- 50,000 – 100,000 ED cases of status epilepticus annually
 - 20% mortality

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Population Based Study of the Epidemiology of Status Epilepticus

- Most epidemiology studies focus on patients with epilepsy and not on the epidemiology of seizures *per se*
- Fewer than half the cases of status identified were managed by a neurologist
- Over 50% of status cases occurred in patients with no prior history of epilepsy

Delorenzo et al. Neurology 1996; 46:1029-1035

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Seizure Practice Guidelines

- Treatment of convulsive status epilepticus. Epilepsy Foundation of America. JAMA 1993; 270:854-859.
- The neurodiagnostic evaluation of the child with first simple febrile seizure. AAP. Pediatrics 1996; 97:769-775.
- The role of phenytoin in the management of alcohol withdrawal syndrome. Am Soc Addiction Med 1994 / 1998
- Evaluating the first nonfebrile seizure in children. AAN. Neurology 2000; 55:616-623.
- Role of anti-seizure prophylaxis following head injury. BTF / AANS. J Neurotrauma 2000; 17:549-553.
- Treatment of the child with a first unprovoked seizure. AAN. Neurology 2003; 60:166-175
- Antiepileptic drug prophylaxis in severe traumatic brain injury. Neurology 2003; 60:10-16

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ACEP Clinical Policy

- Identify questions of clinical importance to emergency department management of patients with seizures
- Analyze the quality of data available related to acute management of patients with seizures
- Differentiate anecdotal experience from practice supported by evidence

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ACEP Clinical Policy

1. What lab tests are indicated in the otherwise healthy adult patient with a new onset seizure who has returned to a baseline normal neuro status?
2. Which new onset seizure patients who have returned to a normal baseline require neuroimaging in the ED?
3. Which new onset seizure patients who have returned to normal baseline need to be admitted to the hospital and / or started on an AED?

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ACEP Clinical Policy

4. What are effective phenytoin dosing strategies for preventing sz recurrence in patients who present to the ED with a subtherapeutic serum phenytoin level?
5. 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?
6. When should an EEG be performed in the ED?

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New Onset Sz: Laboratory Testing

What lab tests are indicated in the otherwise healthy adult patient with a new onset seizure who has returned to a baseline normal neuro status?

(outcome measure is abnormal test that changes management)

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New Onset Sz: Laboratory Testing

- Level A recommendations: None
- 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 immunocompromised

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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 A recommendations: None
- 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: Disposition/AED Loading

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: Disposition/AED Loading

- Level A recommendations: None
- Level B recommendations: None
- Level C recommendations:
 - Patients with a normal neurologic examination can be discharged from the ED with outpatient follow-up
 - Patients with a normal neurologic examination and no co-morbidities and no known 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 subtherapeutic serum phenytoin level?

(outcome measure: short term seizure recurrence)

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Sz/SE: Phenytoin Loading

- Level A recommendations. None
- Level B recommendations. None
- Level C recommendations:
 - 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 A recommendations. None
- Level B recommendations. None
- Level C recommendations:
 - Administer 1 of the following agents intravenously: a phenytoin at high-dose, 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 A recommendations. None
- Level B recommendations. None
- Level C recommendations:
 - Consider an emergent EEG in patients suspected of being in nonconvulsive status epilepticus or in subtle convulsive status epilepticus, patients who have received a long-acting paralytic, or patients who are in a drug-induced coma.

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Summary

- Evidence based clinical policies are useful tools in clinical decision making
- Clinical policies do not create a “standard of care” but do provide a foundation for clinical practice at a national level
- The current literature on acute seizure management does not support the creation of any “level A” recommendations
 - Only 2 of the 6 clinical questions have sufficient evidence to support “level B” recommendations
 - 4 of the 6 recommendations are “level C”

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Questions?

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