

### Practice Guidelines You Need to Know

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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



### Guidelines support the practice of urban paramedic RSI protocols for TBI patients:

- a) True
- b) False



### All of the following are used in deciding to admit a 55 yo with syncope except:

- a) ECG
- b) Noncontrast head CT
- c) History of heart disease
- d) All of the above



An elderly woman with known hypertension and chronic heart failure presents with acute shortness of breath several hours after eating a bag of potato chips. Chest X ray reveals pulmonary edema. Which of the following represents best initial therapy?

- A. Nitroglycerine monotherapy
- B. Lasix monotherapy
- C. Nesiritide monotherapy
- D. Aspirin monotherapy



### Clinical Policies / Practice Guidelines

- Thousands in existence
- ACEP: 16
  - Chest Pain 1990
  - Sunsetting - no longer distributed
- National Guideline Clearinghouse:
  - [www.guideline.gov](http://www.guideline.gov)
  - Over 1700 guidelines registered



### Clinical Policies in Review / Preparation

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- Toxic ingestion
  - Acetaminophen / hyperbaric oxygen
- Abdominal pain
- Syncope
- Community acquired pneumonia
- Headache
- Early pregnancy
- Pulmonary embolism
- Deep vein thrombosis
- Pediatric fever
- Acute stroke



### Critically Appraising Clinical Policies

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- Why was the topic chosen
  - t-PA in stroke
  - Sedation and analgesia
- What are the authors' credentials
  - Were emergency physicians included
- What methodology was used
  - Consensus vs evidence based
- How as it reviewed
- When was it written / updated



### Do clinical policies change practice?

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- Wears. Headaches from practice guidelines. Ann Emerg Med 2002; 39:334-337
  - > 60% of practicing EPs use narcotics as first line medications
  - > Canadian Headache Society. Guidelines for the diagnosis and management of Migraine in clinical practice.
  - > Can Med Assoc J 1997; 156:1273-128US Headache Consortium.  
[www.aan.com/public/practice\\_guidelines](http://www.aan.com/public/practice_guidelines)



### Guideline Development

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- Consensus
- Evidence based



### Consensus

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



### Consensus: Examples

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- MAST trousers in traumatic shock
- Hyperventilation in severe TBI
- Narcotics in migraine headache therapy
- Blood cultures in CAP / 4 hour time antibiotic rule of CAP
- "Keep the brain dry" in severe TBI



### Consensus: Examples

- Gastric freezing for ulcers
  - Case series, historical controls in 1960s
  - ~15,000 pts treated
  - RCT showed ineffective in 1969
- Lidocaine prophylaxis in AMI
  - Intermediate outcome: suppression PVCs, VT
  - Pt-centered outcome: increased mortality



### 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



### Two Separate Questions

- How strong is the evidence from one study?
  - Critical appraisal
- How strong is the combined evidence from multiple studies?
  - Synthesis
  - Consistency in magnitude, direction
  - Sufficiency
    - Greater risk, cost, implausibility require greater evidence



### Interpreting the literature

- Terminology
  - MTBI: GCS of 15 or GCS 13-15?
- Patient population
  - Adult vs children
  - ED patients vs hospitalized patients
    - AHA / ACC recommendations
- Interventions / outcomes
  - Head trauma: abnormal CT or neurosurgical lesion?
  - Status epilepticus: end of motor activity or end of abnormal neuronal firing?



### 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



### 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



### Description of the Process

- Different societies use different classification schemes which may impact applications of the recommendation
- ACEP Class I evidence must have high quality support; AHA allows Class I evidence to include “general agreement that a given procedure or treatment is useful and effective”
  - AHA Class Ic recommendation is based on consensus of experts



### Medical Legal Implications

- Clinical policies can set standards for care and have been used in malpractice litigation
- May protect against “expert” testimony
  - Regional practice vs national “standards”
    - Steroids in spinal trauma
- Clinical policies developed using flawed methodology may be challenged
  - Consensus / Policy statements



### Deposition of Dr. X in a case of missed meningitis

Q. Do you read the policies of the American College of ER physicians?

A. I don't recall reading that policy. Is it something published by ACEP?

Q. Yes.

A. I don't recall reading it.



### Deposition of Dr. X in a case of missed meningitis

Q. So if toradol relieves a headache, does that cause you to believe the patient does not have meningitis in a patient in whom you are suspecting meningitis a possible cause of their headache

A. It's an indicator that would decrease the likelihood.

Q. If toradol relieved their headache, would you rely on that as a factor in ruling out meningitis?

A. It is part of the package.



### Clinical Policy: Critical issues in the evaluation and management of patients presenting to the ED with acute headache. Ann Emerg Med 2002; 39:108-122

- Does a response to therapy predict the etiology of an acute headache?
  - Level A recommendation: None
  - Level B recommendation: None
  - Level C recommendation: Pain response to therapy should not be used as the sole indicator of the underlying etiology of an acute headache



### Guidelines for Prehospital Management of TBI

- Multidisciplinary: Brain Trauma Foundation / Grant from NHTSA
- Evidence Based
- Prehospital care is the “first link” in appropriate care in TBI
- Prehospital providers play a key role in determining the need for trauma center access



### BTF Recommendations: Level 3

- Establish an airway in patients who have severe head injury, the inability to maintain an adequate airway, or hypoxemia not corrected by supplemental O<sub>2</sub>
- Confirm intubation by utilization of auscultation plus at least one other technique that includes end-tidal CO<sub>2</sub> measurement.
- In ground transported patients in urban environments, the routine use of paralytics to assist endotracheal intubation in patients who are spontaneously breathing and maintaining an oxygen saturation above 90% on supplemental is O<sub>2</sub> not recommended
- EMS systems implementing endotracheal intubation protocols including the use of RSI protocols should monitor blood pressure, oxygenation, and ETCO<sub>2</sub>.
- Avoid hyperventilation (unless the patient shows signs of herniation) and correct immediately when identified.



## Conclusions

- Guideline development lends itself to a multi-disciplinary approach and helps to identify best practice patterns
- Evidence based clinical policies are useful tools in clinical decision making
- Clinical policy development must be rigorous
- Clinical policies do not create a “standard of care” and do not necessarily override “expert witness”
- Clinical policy dissemination continues to be a challenge

ferne\_pv\_2007\_clinpolicy\_jagoda\_062307\_finalcd



## SYNCOPE

**Clinical Policy: Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department with Syncope**  
*Annals of Emergency Medicine* 2007;49:431

J. Stephen Huff, Wyatt Decker, James Quinn,  
Andrew Perron, Anthony Napoli, Suzanne Peeters



### What is syncope? Introduction

- Symptom complex
- Transient loss of consciousness and postural tone
- Spontaneous recovery
- It's not vertigo, seizures, coma, altered mentation



### Methodology

- Inclusion criteria - search criteria
- Exclusion criteria
  - children
  - syncope secondary to another disease process
  - chest pain, seizures, headache, abdominal pain, dyspnea, hypotension, hemorrhage



### 1. What history and physical examination data help risk-stratify patients with syncope?

- Prodromal symptoms - duration
- Position changes or seated?
- Rate of recovery
- Movements during event\*



### Past medical history\*

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- Cardiac
  - CAD / CHF - Ejection fraction < 30%
  - Valvular heart disease
- Cardiac risk factors / Age
- Medications
  - QT period prolonging medications



### Historical green lights

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- Recurrent syncope +/-
- Psychologically noxious stimulus
- Reflex syncope



### Physical exam red flags

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- Maybe - orthostatic VS changes
- Maybe - blood pressure L & R arms
- Maybe - irregular pulse
- Signs of congestive heart failure
- Hypotension
- Significant murmur



### What history and physical examination data help risk-stratify patients with syncope?

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- **Level A:** Use history or physical examination findings consistent with heart failure to help identify patients at higher risk of adverse outcome
- **Level B**
  - Consider older age, structural heart disease, or a history of coronary artery disease as risk factors for adverse outcome.
  - Consider younger patients with syncope that is nonexertional, without history or signs of cardiovascular disease, a family history of sudden death, and without comorbidities to be at low risk of adverse events.
- **Level C - none**



### What diagnostic testing data help to risk-stratify patients with syncope?

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- History and physical guide ancillary studies
- Routine laboratory work usually unrewarding\*



### Electrocardiography

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- Electrocardiography - ECG almost all cases
  - PR interval
  - QT interval
  - Right ventricular strain patterns
  - Heart blocks



2. What diagnostic testing data help to risk-stratify patients with syncope?

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- **Level A:** Obtain a standard 12-lead ECG in patients with syncope
- **Level B - None**
- **Level C**
  - Laboratory testing and advanced investigative testing such as echocardiography or cranial CT scanning need not be routinely performed unless guided by the specific findings in the history or physical examination



3. Who should be admitted after an episode of syncope of unclear cause?

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- Does admission influence outcomes?
- Common sense
- Evidence



Who should be admitted after an episode of syncope of unclear cause?

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- **New approach - risk stratification**
- **Following history, physical examination, ECG**
- **Who needs further workup?**
  - Inpatient or observation unit?
- **Moving away from specific diagnostic assignment....**



Low Risk Group

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- **Age < 50 years\***
- **No history of cardiovascular disease**
- **Symptoms of reflex or neurally-mediated syncope**
- **Normal cardiovascular examination**
- **Normal ECG findings**



High Risk Group

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- **Chest pain suggestive ACS**
- **History or signs of congestive heart failure**
- **History of moderate / severe valvular disease**
- **ECG abnormalities**
  - ischemic changes, prolonged QT (>500 ms)
  - complete heart block, brady or tachy rhythms



Intermediate Risk Group

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- **Age ≥50 years**
- **History of CAD, CHF, MI**
- **Family history of unexplained sudden death**
- **Cardiac devices without evidence of dysfunction**



### San Francisco Syncope Rule

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- Systolic BP < 90 mmHg at triage
- Shortness of Breath
- History Congestive Heart Failure
- Abnormal ECG
- Hematocrit < 30%

If any positive, then at high risk for serious outcome  
If all negative, then at low risk for serious outcome



### Who should be admitted after an episode of syncope of unclear cause?

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- **Level A**- none specified
- **Level B**
  - Admit patients with syncope and evidence of heart failure or structural heart disease
  - Admit patients with syncope and other factors that lead to stratification as high-risk for adverse outcome (older age / comorbidities, Abnormal ECG\*, HCT < 30, History of heart failure or CAD)
- **Level C**- none specified

\*ECG - acute ischemia, dysrhythmias, or significant conduction abnormalities

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### Hypertensive Management in the Asymptomatic Patient: First do no harm

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Ponte Vedra 2007



### Case Presentation

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- 42 yo obese male presents complaining of chronic knee pain with no acute injury. He is otherwise asymptomatic but...
- Triage Vitals- BP 210/115
- Now what?



### Background

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- HTN affects 50 million people in the US and approximately 1 billion world wide
- Normotensive patients at age 55 have a 90% lifetime risk for development

JNC 7



### Question #1

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- Initiation of medical management is recommended at which level of BP?
  - A. 120/75
  - B. 140/90
  - C. 135/80
  - D. 160/100



### Prehypertension

- Significant risk for progression to hypertension
- Patients in the 130–139/80–89 mmHg BP range are at twice the risk to develop hypertension as those with lower values.

Chobanian AV et al. [The JNC 7 Report]. *JAMA*. 2003.  
Vasan RS et al. *N Engl J Med*. 2001.



### Increased CVD Risk

- Patients 40-70 yrs double their CVD risk with each increment of 20 mmHg SBP or 10 mmHg DBP from 115/75 to 185 mmHg

Lewington S et al. *Lancet*. 2002  
Chobanian AV et al. [The JNC 7 Report]. *JAMA*. 2003.



### Question 2

- Are blood pressure measurements accurate for screening for asymptomatic hypertension in the ED?  
A. Yes  
B. No



### ACEP Recommendations

- Are ED BP readings accurate and reliable for screening asymptomatic patients for HTN?
  - **Level B** - If 2 or more measurements are elevated with a SBP > 140 mmHg or DBP > 90 mmHg, the patient should be referred for follow-up for possible HTN and appropriate BP management
  - **Level C** - Pts with 1 elevated BP reading may require further screening in the outpt setting



### Is there Benefit with Acute Blood Pressure Reduction in Asymptomatic Patients?

- Beyond making us feel better?!



### Outcomes With and Without Treatment

- VA Coop Trial of 1967- RCT with placebo control
  - 143 pts with DBP 115-130
  - No adverse outcomes with treatment versus placebo
    - 4 pts did develop significant complications after 4 months including sudden death, elevated Cr, CHF and ruptured AAA



## ACEP Recs for Asymptomatic HTN

- **Level B-**
  - (1) Rapidly lowering BP is unnecessary and may be harmful in some pts.
  - (2) Initiating treatment is not necessary when definitive follow-up is available
  - (3) When ED treatment is initiated, BP should be lowered gradually and should not be expected to normalize in the ED



## Future Areas of Research

- What is the acute work-up for asymptomatic hypertension in the ED?
  - Some limited studies

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## Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department with Acute Heart Failure Syndromes



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1<sup>st</sup> Dutch North Sea Emergency Medicine Congress  
Egmond Aan Zee, The Netherlands  
June 8, 2007



## Heart Failure - US Statistics

- 5 million with heart failure (2.3%)
- 550,000 new cases annually
- Annual death rate 18.7%
- 1 million hospital admissions annually
- 80% of admissions are through the ED
- Leading discharge diagnosis > 65 yo
- Costs  $\approx$  \$ 30 billion US

AHA. Heart Disease and Stroke Statistics: 2005 Update; 2005.  
AHA. 2002 Heart and Stroke Statistical Update; 2002  
(ADHERE). Am Heart J. 2005;149:209-216



## Question #1

Does a B-type natriuretic polypeptide (BNP) or NT-ProBNP measurement improve the diagnostic accuracy over standard clinical judgment in the assessment of possible acute heart failure syndromes in the ED?



## Question #1

### Patient Management Recommendations

- *Level A recommendations.* None specified.



### Question #1

- **Level B recommendations.**  
The addition of a single BNP or NT-proBNP measurement can improve the diagnostic accuracy compared to standard clinical judgment alone in the diagnosis of acute heart failure syndrome among patients presenting to the ED with acute dyspnea.  
Use the following guidelines:
  - BNP <100 pg/dL or NT-proBNP <300 pg/dL  
Acute heart failure syndrome unlikely\*  
(Approximate LR- = 0.1)
  - BNP >500 pg/dL or NT-proBNP >1,000 pg/dL  
Acute heart failure syndrome likely  
(Approximate LR+ = 6)



### Question #1

- **Level C recommendations.**
  - None specified.

#### Unit Conversions

BNP conversion: 100 pg/mL=22 pmol/L

NT-proBNP conversion: 300 pg/mL=35 pmol/L



### Question #2

- Is there a role for noninvasive positive-pressure ventilatory support in the ED management of patients with acute heart failure syndromes and respiratory distress?



### Question #2

- Patient Management Recommendations
- **Level A recommendations.**
    - None specified.



### Question #2

- **Level B recommendations.**  
Use 5 to 10 mm Hg CPAP by nasal or face mask as therapy for dyspneic patients with acute heart failure syndrome without hypotension or the need for emergent intubation to improve heart rate, respiratory rate, blood pressure, reduce the need for intubation, and possibly reduce in-hospital mortality.



### Question #2

- **Level C recommendations.**  
Consider using BiPAP as an alternative to CPAP for dyspneic patients with acute heart failure syndrome; however, data regarding the possible association between BiPAP and myocardial infarction remain unclear.



### Question #3

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Should vasodilator therapy (eg, nitrates, nesiritide, and ACE inhibitors) be prescribed in the ED management of patients with acute heart failure syndromes?



### Question #3

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**Patient Management Recommendations**

- *Level A recommendations.*  
None specified.



### Question #3

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- *Level B recommendations.*  
Administer intravenous nitrate therapy to patients with acute heart failure syndromes and associated dyspnea.



### Question #3

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- *Level C recommendations.*
  1. Due to the lack of clear superiority of nesiritide over nitrates in acute heart failure syndrome and the current uncertainty regarding its safety, nesiritide generally should not be considered first line therapy for acute heart failure syndromes.
  2. Angiotensin-converting enzyme (ACE) inhibitors may be used in the initial management of acute heart failure syndromes, although patients must be monitored for first dose hypotension.



### Question #4

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**Patient Management Recommendations**

- *Level A recommendations.*  
None specified.



### Question #4

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- *Level B recommendations.*  
Treat patients with moderate-to-severe pulmonary edema resulting from acute heart failure with furosemide in combination with nitrate therapy.



### Question #4

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- *Level C recommendations.*
  1. Aggressive diuretic monotherapy is unlikely to prevent the need for endotracheal intubation compared with aggressive nitrate monotherapy.
  2. Diuretics should be administered judiciously, given the potential association between diuretics, worsening renal function, and the known association between worsening renal function at index hospitalization and long-term mortality.



### AHFS Clinical Policy

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- Annals of Emergency Medicine May 2007
- Policy with evidentiary table available online
- Available now for download at:  
[www.acep.org](http://www.acep.org)

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