



# Evidence Based Medicine in the Emergency Medicine Clerkship



David A. Wald, DO, Clare Roepke, MD, Katie Fane, MD, Jeff Barrett, MD  
Department of Emergency Medicine  
Lewis Katz School of Medicine, Philadelphia, PA

## RATIONALE

- ✓ A standardized approach on how to best incorporate evidence based medicine (EBM) into the clinical clerkships does not exist
- ✓ At our institution, all mandatory clinical rotations are expected to incorporate an EBM exercise, however the approach is left up to the discretion of the clerkship leadership
- ✓ To provide a more uniform experience, we developed a standardized EBM assignment for all students completing their 4<sup>th</sup> year emergency medicine (EM) rotation at our institution

## METHODS

- ✓ We developed 4 case vignettes focusing on the following; Case A - Cervical Spine injury, Case B - Syncope, Case C - Community Acquired Pneumonia, Case D - Pulmonary Embolism
- ✓ These were felt to be common clinical conditions, relevant to the practice of EM and possible to apply a validated clinical decision or clinical score to assist with clinical decision making to address the clinical question
- ✓ Case vignettes were standardized in their format and ended with a dichotomous lead in question focusing on a single decision point; the need for further work up or the need for hospital admission
- ✓ At the beginning of each rotation block, students were randomly assigned to one of the 4 cases and were responsible for submitting their assignment as a word document by the end of the 2<sup>nd</sup> Wednesday of the rotation
- ✓ The submission format was adopted from a previous publication (*Evid Based Med. 2007;12:66-68*)

## RESULTS

- ✓ 80 assignments were submitted (73 students, 7 campus students submitted a 2<sup>nd</sup> assignment)
- ✓ May - September 2017
- ✓ Post-assignment questionnaire: 63 responses, 5 students who submitted a 2<sup>nd</sup> assignment completed a 2<sup>nd</sup> questionnaire
- ✓ What did students think?: being assigned a case and clinical question: excellent 23 (37%), Very Good 27 (43%), Fair 1 (2%), Poor 1 (2%)
- ✓ Format preference: I would prefer to be assigned a case and clinical question: 53 (84%) versus develop own clinical question: 10 (16%)
- ✓ Format easy to follow?: Strongly Agree: 45 (71%), Agree 18 (29%)
- ✓ Were the cases relevant?: Very relevant 56 (92%), Somewhat relevant 5 (8%) \*\*\*
- ✓ Time commitment: researching, writing, posting: <1 hour 1 (2%), 1-2 hours 16 (25%), 2-3 hours 24 (38%), 3-4 hours 12 (19%), 4-5 9 (14%), >5 1 (2%)
- ✓ Did you learn something?: yes 59 (94%), no 4 (6%)
- ✓ Did you review other submissions?: Yes 30 (48%), No 33 (52%); and if so was this helpful: Yes 27 (93%)

### Submission Format:

- ✓ Case summary: state the question you are addressing
- ✓ Search strategy
- ✓ Importance / relevance of study
- ✓ Study description
- ✓ Primary / secondary outcome measures
- ✓ How can results be applied to your case?
- ✓ Answer the clinical case

### POTENTIAL IMPACT or LESSONS LEARNED:

- ✓ Assignment was viewed positively
- ✓ Easy to follow format
- ✓ Reasonable time commitment
- ✓ Clinically relevant assignment
- ✓ CDRs were appropriately applied
- ✓ Knowledge applied to patient care

**Question:**  
Should this patient be admitted to the hospital?

## Case B

A 40 year old male presents to the emergency department about one hour after having a brief syncopal episode at home. During your evaluation he is awake, alert and able to answer your questions. The patient reports that while getting ready for work he felt dizzy and the next thing he remembers was his wife leaving over him on the bedroom floor. His wife reports that she saw him collapse and that he was on the bedroom floor for 15-20 seconds before he began to wake up. The patient denied having chest pain, shortness of breath or a headache prior to the event. The patient remembers waking up after collapsing and seems to be back to baseline. Currently he feels a little lightheaded. No seizure like activity was noted by the wife.

PMH: HTN  
 Meds: Amlodipine 5mg daily  
 Allergies: NDA  
 Social Hx: Smokes cigarettes occasionally, social EtOH use  
 Family Hx: Father with MI at 65, mother with CVA at 66. Both parents are alive, no siblings  
 Exam: HR 89 RR 16 BP 130/80 T 98.1°F Wt 220 lb RA  
 GEN: Concerned but well-appearing  
 HEENT: No trauma, PERIL  
 CV: Regular rhythm, no murmur  
 Pulm: Clear lung fields bilaterally  
 Abd: Soft, non-tender  
 Neuro: GCS 15, CN intact, motor strong and symmetric, gait steady  
 Ext: No edema or calf tenderness  
 Initial diagnostic testing includes a CBC, BMP an ECG and a chest radiograph.

WBC	8.2	Na	139
Hgb	15.1	K	4.5
Hct	44	Cl	100
Plt	225	CO2	29
		BUN	22
		Cr	1.0
		Gluc	112
		Ca	8.5

### Case Specific Differences

	Case A	Case B	Case C	Case D
# of students assigned to the case	22	21	18	19
Answers to the question	All recommended imaging	21 recommended discharge 1 recommended admission	All recommended discharge	All recommended further testing
Total # of articles cited	9	16	15	16
Most common article cited	Stiell IG, et al. The Canadian C-Spine rule versus the NEXUS Low-Risk Criteria in Patients with Trauma. NEJM. 2003; 349: 2510-2518.	Quinn, J. Prospective Validation of the San Francisco Syncope Rule to predict patients with serious outcomes. Ann Emerg Med. 2006; 47: 448-454.	Fine, MJ, et al. A prediction rule to identify low-risk patients with community acquired pneumonia. NEJM. 1997; 336: 243-250.	Crane S, et al. Retrospective Validation of the Pulmonary Embolism rule-out criteria rule in 'PE unlikely' patients with suspected pulmonary embolism. Eur J Emerg Med. 2016; epub ahead of print.