ADENA THOUGHT LEADERS CONFERENCE SERIES PRESENTS

ADENA CHEST PAIN SUMMIT
IS AN EXPEDITED OUTPATIENT EVALUATION A SAFE ALTERNATIVE TO ADMISSION?
Physicians accurately identify pts who want abx only 27% of the time.

Chest pain admissions vary with physician risk tolerance

Emergency physicians at 2 university hospitals
Compared risk aversion to testing and admission decisions
Malpractice fear accounted for a significant variability in decision making:
- Almost double hospitalization of low risk patients
- Increased use of diagnostic tests


Survey of 1,029 EPs w 84% response rate
- 395 comfortable with a 1-2% miss rate
- 267 comfortable with < 1% miss rate
- 227 comfortable with < 0.1% miss rate

HIPPO Essentials poll: What level of MACE is acceptable?

What is the acceptable miss rate?

What is the risk of admitting patients?

Mortality 1/160 patients

James JT. J Patient Safety 2013
Ethics in Emergency Medicine

HOW DO WE BALANCE THE LONG-TERM HEALTH OF A PATIENT WITH THE SHORT-TERM RISK TO THE PHYSICIAN?

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Abstract—Background: There is a wide variation in practice patterns among emergency medicine physicians; many factors weigh into the medical decision-making process including the health of the patient as well as short-term risk to the physician. Objective: The objective of our discussion is to illustrate specific scenarios where medical decisions are focused on the physician’s short-term risk, then to propose an approach to shifting the balance to the patient’s long-term health. Methods: Using recent data on keywords—chest pain; medical decision making; risk to patient; shared decision making

This question strikes at the heart of decision making in the emergency department (ED)—whether to order a brain computed tomography scan on a well-appearing child with a head injury, whether to meet perceived ex-

Cam Berg Study

- urban/suburban system (2 campuses)
- all patients evaluated for ACS in ED
- 1/1/12-5/31/17
- before/after cohorts

outcomes

LOS
testing strategy (troponin, stress tests, diagnostic angiography, revascularization)
disposition
MI frequency
readmissions
cost-of-care
6 week post-index MACE
Cam Berg Study

- 42,276 patients in total
- prior behavior
  - 54.1% hospital admission
  - 5.2% AMI
  - 3.15% MACE
- current behavior
  - 17.5% hospital admission
  - 5.6% AMI
  - 2.72% MACE
- local methodology
  - incentives
  - follow-up/access
  - communication
ED discharges

○ 35,124 sent home

○ 9 deaths within 5 days
  all cause
  all sources

9 patients

○ 4 AMA with AMI diagnosed
○ 3 hospice

○ 1 died in planned OR procedure day following discharge
○ 1 presented 2 days later, admitted, V tach arrest
How does CRACE differ from MACE?

MACE = Major adverse cardiac event

CRACE = Clinically relevant adverse cardiac event

What is the risk of CRACE?
How many had a CRACE?

4/7266:
- Cardiac arrest = 2
- Inpatient STEMI = 2

0.06%

How many had a CRACE?

4/7266:
- Cardiac arrest = 2
- Inpatient STEMI = 2

0.01%
Systematic review of HEART score studies

- 26 studies worldwide
- Retrospective and prospective
- 41497 patients included
- Low-risk HEART (0-3): 5 deaths (0.1%)
<table>
<thead>
<tr>
<th>Study</th>
<th>Sample size</th>
<th>Deaths HEART score 0–3</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backus 2013</td>
<td>2388</td>
<td>1 of 870 (0.1%)</td>
<td>20-year-old male, suicide seven days after index chest pain visit</td>
</tr>
<tr>
<td>Poldervaart 2017</td>
<td>1766</td>
<td>1 of 715 (0.1%)</td>
<td>One death of unknown cause four weeks after initial presentation and physician error in HEART score calculation—age greater than 65 and prior stroke suggest HEART score should have been 4</td>
</tr>
<tr>
<td>Chew 2018</td>
<td>1642</td>
<td>3 of 877 (0.3%)</td>
<td>Described as clear non-cardiac deaths</td>
</tr>
</tbody>
</table>

**Moderate HEART Score Deaths**

- **84 y.o. Male**
  - Dx: Stable Angina
  - Non-cardiac Death on HD 33

- **64 y.o. Male**
  - Dx: Recurrent CP +Cath on HD 2 +CABG on HD 11
  - Death on HD 21

- **81 y.o. Female**
  - Dx: PE
  - Managed Med Died HD 1

- **70 y.o. Male**
  - Dx: “no cardiac cause”
  - BP 95/55
  - Died HD 8

- **52 y.o. Male**
  - Dx: ACS
  - BP 95/55
  - Died on HD 6
  - Unknown COD

- **34 y.o. Male**
  - Dx: Infarct
  - BP 79/38
  - Died in ED
What is the risk of death in patients with nSTEMI?

Short-term risk (5 days) of death in patients with NSTEMI was 0.02% (1/5,000) 0.8% at 6 months

Hess et al. JAMA Cardiol 2016
What is the role of cardiovascular testing?

Dr. Michael Pallaci, DO
Discussion Panelist and Presenter
Adena Emergency Medicine Residency Program Director
Attending Emergency Medicine Physician
Adena Health System

2010 ACC/AHA GUIDELINES

Confirmatory test after negative ED evaluation
**Cardiovascular Testing and Clinical Outcomes in Emergency Department Patients With Chest Pain**

**Results:**
1. Increased downstream testing  
2. No change AMI admissions

**Noninvasive Cardiac Testing vs Clinical Evaluation Alone in Acute Chest Pain**

**AT 28 DAYS, NO CHANGE IN:**
- PCI/CABG/MACE  
- Missed ACS  
- Return ED visits
Why do cardiologists recommend PCI for stable angina?

- Treating ischemia and the ‘open artery’ hypothesis
- Potential regret for not intervening if a cardiac event could be averted
  - Current evidence: not a concern
- Alleviation of symptoms
  - ORBITA?
- Alleviation of patient anxiety
- Medicolegal considerations

Lin et al. Arch int med. 2007
Utility of simplicity for low-risk chest pain patients

Ezra A Amsterdam and Sandhya Venugopal

with chest pain is neither necessary nor cost-effective. Prasad et al. have persuasively reviewed the evidence against this practice in terms of increased costs, the absence of improved clinical outcomes and obsolete rationale. Indeed, in the current state of our knowledge, it is reasonable to call a halt to routine predischarge testing in favor of physician discretion in the selection of patients for PDT.
In adult patients with suspected acute non–ST-elevation acute coronary syndromes in whom acute myocardial infarction has been excluded, does further diagnostic testing (eg, provocative, stress test, computed tomography [CT] angiography) for acute coronary syndrome prior to discharge reduce 30-day major adverse cardiac events?

Level A Recommendations
None specified.

Level B Recommendations
Do not routinely use further diagnostic testing (coronary CT angiography, stress testing, myocardial perfusion imaging) prior to discharge in low-risk patients in whom acute myocardial infarction has been ruled out to reduce 30-day major adverse cardiac events.

Level C Recommendations
Arrange follow-up in 1 to 2 weeks for low-risk patients in whom myocardial infarction has been ruled out. If no follow-up is available, consider further testing or observation prior to discharge (Consensus recommendation).
In adult patients with suspected acute non-ST-elevation acute coronary syndromes in whom acute myocardial infarction has been excluded, does further diagnostic testing (e.g., provocative, stress test, computed tomography [CT] angiography) for acute coronary syndrome prior to discharge reduce 30-day major adverse cardiac events?

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**Level C Recommendations**
Arrange follow-up in 1 to 2 weeks for low-risk patients in whom myocardial infarction has been ruled out. If no follow-up is available, consider further testing or observation prior to discharge (Consensus recommendation).
What's Next?

Prepared For:

1. Your Chest Pain Diagnosis
   - Your first test results are **STABLE** for a heart attack.
   - Blood tests for an enzyme called troponin are done to check whether your heart has been damaged. Additional tests are done to identify whether you have heart disease during your emergency visit.
   - An electrocardiogram (ECG) is done to check whether your heart is beating properly and rule out cardiac problems.

2. What You Can Do
   - Monitoring your risk will help you avoid future problems. You should take the following steps:
     - A Stress Test is done to check how your heart handles exercise and to rule out possible heart problems.
     - A coronary CT angiogram (CTA) takes images of the arteries to your heart to check for a blockage in the flow of blood.

   - Your chest pain is an ongoing sign of a FUTURE heart attack.

3. Your Personal Risk Evaluation
   - Your risk of having a heart or stroke attack within 60 days as determined by examining the people at risk who came to the Emergency Department with chest pain.

   - If every 100 people like you who came to the Emergency Department with chest pain,
     - 1 had a heart or stroke attack within 60 days of the Emergency Department visit, 59 did not.

4. Would you like to have additional heart testing during this emergency visit or decide later during an outpatient appointment?
   - I would like to have a stress test or coronary CT angiogram during my emergency visit. I know that this may be easier if my own primary doctor performs it.
   - I would like to be seen by a heart doctor within 24-48 hours and be told whether I need additional testing.
   - I would like to schedule an appointment on my own to consult with my primary care physician.
   - I would like my Emergency Department doctor to schedule an appointment for me.

   - Your chest pain is an ongoing sign of a FUTURE heart attack.
1. Obtain appropriate data on which to base the decision
   - Use the HEART score

2. Shared Decision Making
   - A decision between 2 reasonably alternative pathways
   - Need appropriate data
   - Patient-specific data
     - HEART 0-3: ~1% (1-2%)/<0.1%
     - HEART 4: 4%/<0.1%
     - HEART 5: 10%/<0.1%
   - Explain in terms patients can understand (script, visual aid)

3. Set expectations for follow up
   - Timing
   - Discussion of +/- stress test with outpatient provider
ACPS MISSION STATEMENT

• Whereas myocardial infarction is one of the leading causes of death;
• Whereas emergency physicians should be cognizant of patient populations such as diabetics, women and the elderly which may have their acute coronary syndrome (ACS) present atypically;
• Whereas the risk of ACS after a negative emergency department (ED) evaluation is significantly lower than upon initial ED presentation;
• Whereas the risk for a major adverse cardiac event (MACE) is very low in patients with a low risk HEART score in the immediate post-ED evaluation period;
• Whereas the risk of a clinically relevant adverse cardiac event (CRACE) is extremely low in the immediate post-ED evaluation period;
• Whereas there is a risk to a hospital admission including nosocomial infection, deep vein thrombosis, pneumonia, sundowning, falls, false positive tests, and expense to the patient and health-care system;

ACPS CONCLUSION: After a negative ED evaluation for chest pain, an expedited outpatient evaluation with primary care or cardiology is an acceptable alternative to admission

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