Update in Hospital Medicine 2015

• Updated literature
• March 2014 – March 2015

Process:
• CME collaborative review of journals
  ▪ Including ACP J. Club, J. Watch, etc.
• Four hospitalists ranked articles
  ▪ Definitely include, can include, don’t include
Chose articles based on 3 criteria:

1) Change your practice/teaching
2) Modify your practice/teaching
3) Confirm your practice/teaching

• Hope to not use the words
  ▪ Mantel-Haenszel statistical method, fixed-effects, metaregression, weighted regression,….

• Focus on breadth, not depth
• Expertise in the room
Update in Hospital Medicine 2015

- Major reviews/short takes
- Case-based format
- Multiple choice questions
- Promote retention
Syllabus/Bookkeeping

- No conflicts of interest
- Final presentation available by email: sharpeb@medicine.ucsf.edu
You are long-call and your hard-working intern presents the next case.

She describes a 63 year-old man with a history of COPD and diabetes who presented with 3 days of fever, cough, and shortness of breath.

On presentation, his vitals were temperature 38.9°C, blood pressure 110/65, heart rate 100s, respiratory rate 28, and oxygen saturation 87% on room air, 96% on 2 liters.
His exam was notable for diffuse expiratory wheezes and crackles at the right base. His white blood cell count is 18,000 and his CXR shows a clear RLL infiltrate.

The team has diagnosed him with community-acquired pneumonia (CAP) and a COPD exacerbation and is admitting him to the stepdown unit.
Case Presentation

The intern states they will treat him with ceftriaxone and azithromycin.

The resident then asks, “Hey, I read this *New England Journal of Medicine* study that showed that maybe we don’t need the atypical coverage for pneumonia. What do you think about that study?”

How do you respond to the resident?
How do you respond to the resident about the recent NEJM study on treatment of CAP?

A. Regardless of that study, this sounds like a pretty typical pneumonia – it’s probably strep pneumo. Let’s just go with the ceftriaxone.

B. I think it’s a good study and I think we probably don’t need the atypical coverage in this case.

C. I think it’s a good study but I don’t think it is enough to change practice; let’s stick with the ceftriaxone and azithromycin.

D. What do you think about that study?
Treatment of CAP

Question: Do patients with CAP admitted to a non-ICU setting need atypical coverage?

Design: Cluster-randomized, crossover trial, 7 hospitals in the Netherlands
2283 pts. w/ CAP; mild-mod illness

1) β-lactam (amoxicillin, amox + clavulanate, 3rd-gen ceph.)
2) β-lactam + macrolide (azithro, clarithro, erythro)
3) Fluoroquinolone (levo or moxi)

Antibiotics could be adjusted

### Results

- Nearly 35% got antibiotics before admission
- Only 2% had atypicals (*Legionella, Mycoplasma*)
- Deviation in ~ 25% of patients

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- β-lactam non-inferior to both
- No difference in adverse events
Treatment of CAP

Question: Do pts. admitted with CAP need atypical coverage?

Design: Cluster-randomized; 2283 pts.; β-lactam v. β-lactam + macrolide v. fluoroquinolone

Conclusion: β-lactam monotherapy non-inferior to regimens w/ atypical coverage; no difference in side effects

Comment: Well-done study, intention-to-treat Generalizable? European study, pre-abx, antibiotic choices, long LOS, etc. Not quite enough to change practice; β-lactam + macro/doxy or fluoroquinolone

How do you respond to the resident about the recent NEJM study on treatment of CAP?

A. I think regardless of the study, this sounds like a pretty typical pneumonia – it’s probably strep pneumo so let’s just go with the ceftriaxone.

B. I think it’s a good study and I think we probably don’t need the atypical coverage in this case.

C. I think it’s a good study but I don’t think it is enough to change practice; let’s stick with the ceftriaxone and azithromycin.

D. What do **you** think about that study?
Case Presentation

The resident nods but you get a sense she is skeptical of your analysis.

So you decide to pull out this article to bolster your argument:

Original Investigation

β-Lactam Monotherapy vs β-Lactam–Macrolide Combination Treatment in Moderately Severe Community-Acquired Pneumonia
A Randomized Noninferiority Trial

Nicolas Garin, MD; Daniel Genné, MD; Sebastian Carballo, MD, DPhil; Christian Chuard, MD; Gerhardt Eich, MD; Olivier Hugli, MD, MPH; Olivier Lamy, MD; Mathieu Nendaz, MD, MHPE; Pierre-Auguste Petignat, MD; Thomas Perneger, MD, PhD; Olivier Rutschmann, MD, MPH; Laurent Seravalli, MD; Stephan Harbarth, MD, MS; Arnaud Perrier, MD

Update in Hospital Medicine
Short Take: Treatment of CAP

In an RCT in Switzerland, 580 patients with mild-moderate CAP admitted to the hospital received β-lactam monotherapy or β-lactam + macrolide.

β-lactam monotherapy was not non-inferior (i.e. was inferior) in failure to reach clinical stability at day 7 (41.3% vs. 33.4%, p=0.07).

β-lactam monotherapy also led to higher rates of 30-day readmission (7.9% vs. 3.1%, p=0.01).

Case Presentation

The resident is, well, still not impressed.

But, the patient receives ceftriaxone and azithromycin and does well. He is discharged two days later.

Unfortunately, the patient is readmitted to you on the faculty service 3 weeks later. He presented with shortness of breath and cough and was found to have an acute COPD exacerbation (no pneumonia).

He has acute respiratory failure requiring non-invasive ventilation and is admitted to the ICU.
Case Presentation

You prescribe bronchodilators and antibiotics and plan on giving systemic corticosteroids.

What dose of steroids do you prescribe for this patient with a COPD exacerbation requiring ICU admission?
What is the appropriate dose for the corticosteroids?

A. Methylprednisolone 1 gram every 6 hours.
B. Methylprednisolone 125mg every 6 hours.
C. Prednisone 60mg twice a day.
D. Prednisone 60mg once a day.
E. Hey you, Giants fan, why don’t we give him the same dose of steroids Barry Bonds was taking?
Steroids in COPD Exacerbation

Question: In COPD exacerbations requiring ICU care, what is the optimal dose of corticosteroids?

Design: Observational cohort study; 17,239 pts with a COPD exacerbation, admit to ICU; Compared low-dose vs. high-dose steroids during first 48 hours;

- Low-dose = ≤ 240 mg methylprednisolone/day
- High-dose = > 240mg methylprednisolone/day

Results

- 64% (11,083) given high-dose steroids
- Average doses: 100mg vs. 315mg per day
- Prednisone: 125mg vs. 400mg per day

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** With matching & propensity scoring
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- Decreased need for insulin therapy (22.7% v 25.1%, p<0.01)
- Decreased fungal infections (3.3% v 4.4%, p<0.01)

** With matching & propensity scoring
## Steroids in COPD Exacerbation

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<td>Conclusion:</td>
<td>Trend toward lower mortality with low-dose steroids; shorter LOS, lower costs, less insulin, less fungal infection;</td>
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<td>Comments:</td>
<td>Retrospective, database, confounders, etc. Confirms studies in non-ICU patients. Most pts should get low-dose steroids. Dose not clear – 60mg once daily? Twice daily?</td>
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What is the appropriate dose for the corticosteroids?

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D. **Prednisone 60mg once a day.**
E. Hey you, Giants fan, why don’t we give him the same dose of steroids Barry Bonds was taking?
Short Take: COPD & NIPPV

In a retrospective cohort of 25,628 patients with an acute COPD exacerbation who got NIPPV or mechanical ventilation, after propensity scoring and matching, NIPPV (70% of patients) was associated with:

- Lower mortality (OR 0.54*)
- Less hospital-acquired pneumonia (OR 0.53*)
- Shorter length of stay (1.6 days*)
- Lower costs (- $5673*)

Case Presentation

He slowly improves with treatment of his severe COPD exacerbation and is discharged 6 days later.

Unfortunately, the patient is readmitted to you when you are back on the teaching service, this time with a few hours of hematemesis.

His is given an intravenous proton pump inhibitor in the ED and transported to the ICU.
Case Presentation

An EGD is performed within a few hours and reveals a visible vessel in the gastric antrum which is treated with cautery. This is deemed to be a “high-risk bleeding ulcer.”

You are rounding with the team in the afternoon and discussing the case.

You turn to the intern and ask, “What do you want to do with the PPI?”
How does the intern respond to your question about the PPI?

A. Can we stop it since they treated the ulcer during the EGD?
B. We have to continue a drip for 72 hours, right?
C. I think we can switch to twice daily PPI.
D. Uhh, I don’t know, what do you want to do about the PPI?
E. Umm, whatever the GI fellow tells me to do?
Question: Is intermittent PPI dosing non-inferior to bolus + infusion in patients with high-risk bleeding ulcers?

Design: Systematic review & meta-analysis, RCT comparing intermittent vs. continuous PPI; high-risk ulcers
13 studies, 1733 patients

- Intermittent variable dose, frequency, route
  - Most common: 40mg daily or BID
  - 80mg IV bolus + 8mg/hour infusion x 72 hours

**Results**

- No suggestion of publication bias

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*Update in Hospital Medicine*
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- No differences in 30-day bleeding, surgery, urgent intervention, or transfusions
- Oral and IV intermittent PPI similar

Question: For patients with high-risk bleeding ulcers, what is the optimal route for the PPI?

Design: Syst review & meta-analysis; 13 RCTs high-risk ulcers; intermittent vs. bolus PPIs

Conclusion: Trend toward less bleeding at 7 days in intermittent group; no difference in 30 d bleeding, mortality, surgery, transfusions; Oral and IV PPI similar

Comment: Variable quality studies but all RCTs Enough acid suppression w/ intermittent? Dose & route unclear but probably don’t need the infusion; clear cost savings
Probably PO BID once taking POs

How does the intern respond to your question about the PPI?

A. Can we stop it since they treated the ulcer during the EGD?
B. We have to continue a drip for 72 hours, right?
C. I think we can switch to twice daily PPI.
D. Uhh, I don’t know, what do you want to do about the PPI?
E. Umm, whatever the GI fellow tells me to do?
Case Presentation

He is given 40mg IV BID of a PPI until he is taking POs the next morning. He is then discharged later that day on 40mg PO BID.

As you walk back to your office, reflecting on the past few weeks, you wonder if all the discontinuity impacts clinical outcomes.
In a retrospective study of 18,375 patients admitted to a non-teaching service at an academic medical center, less continuity of care was associated with:

1) Increased cost
2) Lower readmission rates

In a retrospective study of 474 patients admitted to a nonteaching service at an academic medical center, less continuity was not associated with increased adverse events.

Case Summary

Definitely

1. Continue providing atypical coverage to patients admitted with CAP
2. Prescribe lower doses of corticosteroids COPD exacerbations in the ICU

Consider

1. Using non-invasive ventilation to improve outcomes in COPD exacerbations.
2. Using intermittent PPI dosing in patients with high-risk ulcers
3. Hospitalist discontinuity may not negatively impact clinical outcomes
Case Presentation

A 52 year-old man with a history of hepatitis C infection, cirrhosis, and chronic ascites presents to the ED with diarrhea and mild abdominal pain. He takes lasix, aldactone, carvedilol, and lactulose. He cannot remember when he last took his lactulose.

On exam, the patient is afebrile, blood pressure 110/70, and he is mildly confused. His abdomen is distended with obvious ascites and is not tender.
Case Presentation

Lactulose is administered with “good” results.

The Liver Service is consulted and they state they will “see the patient in the morning” and “maybe we’ll do a paracentesis.”

Which of the following do you recommend?
Which of the following do you recommend?

A. Send a stool culture as the likely cause of the diarrhea is bacterial overgrowth
B. Insist that the paracentesis must be done now to rule out SBP, no excuses
C. Do not use lactulose in a patient with diarrhea, should use a non-absorbable antibiotic instead
D. Give lactulose hourly until the floor staff complain about the bed linen, that’s when you know you have treated hepatic encephalopathy adequately
Timing of paracentesis to diagnose bacterial peritonitis

Question: Is delayed paracentesis associated with worse outcomes for patients with SBP?

Design: Observational cohort of early (<12 hrs) vs. delayed (12-72 hrs) paracentesis

- 239 patients with confirmed SBP
  - 141 got early paracentesis
  - 98 got delayed paracentesis

- Groups well matched

- Primary outcome: In-hospital Mortality
- Other outcomes: Timing of antibiotics, 3-month mortality

Results: Delayed Paracentesis Associated with Increased Risk of In-hospital Mortality

Increased Risk:

\[ HR_{\text{adj}} = 1.9 \]

(95% CI: 1.05 – 3.3)

Results: 3-Month Mortality

Early Paracentesis: 21%  
Delayed Paracentesis: 37%  
P = 0.03

Results: Timing of Antibiotics

Results: Days in ICU

Early Paracentesis: 1.3
Delayed Paracentesis: 4.0


*Update in Hospital Medicine*
**Bottom Line: Timing of Paracentesis**

**Question:** Is delayed paracentesis associated with worse outcomes for patients w/ SBP?

**Conclusions:**
- Delayed paracentesis is associated with increased mortality
- Timing of antibiotic administration may be important
- Interpret results with caution given observational study

Which of the following do you recommend?

A. Send a stool culture as the likely cause of the diarrhea is bacterial overgrowth

B. **Insist that the paracentesis must be done now to rule out SBP, no excuses**

C. Do not use lactulose in a patient with diarrhea, should use a non-absorbable antibiotic instead

D. Give lactulose hourly until the floor staff complain about the bed linen, that’s when you know you have treated hepatic encephalopathy adequately
Case Presentation

Paracentesis revealed Spontaneous Bacterial Peritonitis (SBP). The patient was treated with intravenous Cefotaxime for 5 days for peritonitis, and Lactulose & Rifaximin for encephalopathy.

Given the patient’s history of esophageal varices you plan to restart the carvedilol. But you are unsure if the patient has ever had a variceal bleed, and whether that is important in making the decision. Hmm…
Which is true regarding non-selective beta-blockers in patients with cirrhosis?

A. Non-selective beta-blockers should not be used in patients who have had SBP
B. NSBBs should be used for secondary prophylaxis in patients with history of variceal bleed
C. NSBBs should be used as primary prophylaxis for all patients with varices even without history of bleed
D. NSBBs, known as “the aspirin of hepatologists”, have so many hemodynamic benefits, they should be used in virtually all patients with cirrhosis
Non-selective Beta-blockers in patients with Spontaneous Bacterial Peritonitis

Question: Are NSBBs beneficial in patients whose course of cirrhosis is complicated by an episode of SBP?

Design: Retrospective Cohort

- 607 patients with paracentesis
- Benefits of NSBBs compared in patients with SBP vs. without SBP
- Outcomes: Mortality, Hepatorenal syndrome
- Well done despite observational study

Results: Benefits of Beta-blockers in Patients Without SBP

Results: Beta-blockers Harmful in Patients with SBP

Kaplan-Meier Curves from the study, removed for copyright reasons

Mandorfer et al. Gastroenterology. 2014;146(7):1680-90
Results: Beta-blockers Harmful in Patients with SBP

Hepato-renal Syndrome within 90 days of SBP

- No NSBB: 11%
- NSBB: 24%

Window Theory of β-blockers in Cirrhosis

Cardiac compensatory reserve

Gut bacterial translocation

Sympathetic nervous system activity

SBP

BB: No effect on survival

Window Opens

BB: Improve survival:
- ↓ Variceal bleeding
- ↓ Bacterial translocation

Compensated and Decompensated Cirrhosis

Window Closes

BB: reduce survival:
- Negative hemodynamics

Early Cirrhosis

End-stage Cirrhosis

Question: Are beta-blockers beneficial in patients with cirrhosis who have had SBP?

Conclusions:
- SBP may mark a point in the progression of cirrhosis when beta-blockers become harmful.
- Beta-blockers associated with increased mortality.
- Beta-blockers associated with increased risk for hepato-renal syndrome.

Which is true regarding non-selective beta-blockers in patients with cirrhosis?

A. **Non-selective beta-blockers should not be used in patients who have had SBP**
B. NSBBs should be used for secondary prophylaxis in patients with history of variceal bleed
C. NSBBs should be used as primary prophylaxis for all patients with varices even without history of bleed
D. NSBBs, known as “the aspirin of hepatologists”, have so many hemodynamic benefits, they should be used in virtually all patients with cirrhosis
Case Presentation

A 57 year-old man with history of daily alcohol use presents with jaundice & anorexiaia and says, “I feel sick”.

He has an enlarged and tender liver. Labs reveal ALT = 94, AST=257, T. Bili=9.2, INR 1.9, Albumin 2.9. (Meld=22). Hep A, B, & C serologies are negative.
Case Presentation

You diagnose severe Alcoholic Hepatitis and are concerned about alcohol withdrawal.

In addition to treating withdrawal you consider Prednisolone. But you have heard that Pentoxifylline may be beneficial. You are not sure what to do.
Which of the following is true regarding Pentoxifylline for Severe Alcoholic Hepatitis?

A. There is more research supporting the use of Prenisolone than supporting the use of Pentoxifylline
B. Recent research demonstrates that Pentoxifylline is non-inferior to Prenisolone
C. Combination therapy (Prednisolone & Pentoxifylline) is superior to Prednisolone alone
D. Prednisolone? Isn’t that an old medication? Why not just use Prednisone?
Study 1: Prednisolone vs. Pentoxifylline

One Month Survival

- Prednisolone: 88.1%
- Pentoxifylline: 75.8%

P = 0.08

Study 2: Combination (Prednisolone & Pentoxifylline) VS. Pentoxifylline Alone

Three Month Survival

- Combo Tx: 70.0%
- Pentoxifylline: 83.3%

P = 0.37

Bottom Line: Treatment of Severe Alcoholic Hepatitis

Conclusions:

• Pentoxifylline may be inferior to Prednisolone

• Combination therapy did not show benefit over single agent

• Prednisolone still first line therapy

Which of the following is true regarding Pentoxifylline for Severe Alcoholic Hepatitis?

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B. Recent research demonstrates that Pentoxifylline is non-inferior to Prednisolone
C. Combination therapy (Prednisolone & Pentoxifylline) is superior to Prednisolone alone
D. Prednisolone? Isn’t that an old medication? Why not just use Prednisone?
Summary

Definitely

1) Non-selective beta-blockers should be stopped in patients whose course of cirrhosis has been complicated by SBP

2) There should be no delay in performing diagnostic paracentesis (and starting antibiotics) in patients with suspected SBP

3) Prednisolone is first line agent for the treatment of severe alcoholic hepatitis

Consider

1) Pentoxifylline as alternative agent for severe alcoholic hepatitis
Update in Hospital Medicine
You are hearing about the next patient from the intern.

She describes a 63 year-old man with a history of atrial fibrillation, HTN, and diabetes who presented with 3 days of fever and RUQ abdominal pain.

On presentation, his vitals were temperature 38.7 °C, blood pressure 140/72, heart rate 110s, respiratory rate 17, and oxygen saturation 95% on room air.
Case Presentation

His exam was notable for severe RUQ pain on palpation with a positive Murphy’s Sign. His white blood cell count is 24,000. A RUQ ultrasound is concerning for acute cholecystitis.

The team believes he likely has acute cholecystitis and started antibiotics. They consulted surgery.

Surgery saw him in the ED and recommended his infection resolve for eventual cholecystectomy in six weeks.
What is your response to plan to delay the surgery?

A. Listen to the surgeons – they know best about surgery
B. Ask the surgeon to operate now
C. This is a surgical problem – why is he on my service
D. You saw a lap cholecystectomy in medical school so now you can do one.
Early vs. Late Cholecystectomy

Question: For patients with acute cholecystitis, is there increased risk in performing cholecystectomy early in disease course?

Design: Retrospective propensity matched cohort study of patients admitted through ED from 154 hospitals.

- Compared ≤ 7 days versus 4-12 weeks
- Primary outcome: Major bile duct (BD) injury

## Results

- 7,110 patients matched

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de Mestral et al. *Ann Surg* 2014; 259: 10-15
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de Mestral et al. *Ann Surg* 2014; 259: 10-15

*Update in Hospital Medicine*
### Results

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**LOS ↓** 1.9 days

de Mestral et al. *Ann Surg* 2014; 259: 10-15
Early vs. Late Cholecystectomy

Question: Will surgical complications increase if cholecystectomy is performed early?

Design: Retrospective cohort study of patients admitted through ED from 154 hospitals

Conclusion: Early surgery has less bile duct injury and lower length of stay
No increase in mortality, open cholecystectomy, or converting to open

Comment: Patients were matched; not randomized
First study to show benefits of early intervention
Should push for early surgery

What is your response to plan to delay the surgery?

A. Listen to the surgeons – they know best about surgery

B. **Ask the surgeon to operate now**

C. This is a surgical problem – why is he on my service

D. You saw a lap cholecystectomy in medical school so now you can do one.
Case Continues

Your other patient who was suppose to have surgery decided to eat a pancake breakfast. Since there is now OR time the surgeons will do the lap cholecystectomy.

As they come to do their preoperative evaluation they notice she is on warfarin for stroke prophylaxis from atrial fibrillation. So they cancel her surgery and ask you to bridge her.
As the intern prepares to order the heparin drip for the patient . . .

A. You make sure there is no bolus since he was on warfarin
B. You say he can be on enoxaparin
C. You call back the surgeon and tell him to operate anyway
D. You tell the intern bridging is for the weak
To Bridge or Not To Bridge?

Question: For patients on stroke prophylaxis for atrial fibrillation what is the outcome of bridging versus not bridging when stopping oral anticoagulation.

Design: Prospective observation cohort study from a national registry of 176 sites.

- Compared Bridging versus no Bridging
- Outcomes: 30 day adverse events

Results – 30 day outcomes

- 1724 had no bridging vs. 503 with bridging

<table>
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<tr>
<td>Overall</td>
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<td>13%</td>
<td>1.94*</td>
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* P ≤ 0.0001

Question: Should we bridge patients on warfarin perioperatively?

Design: Prospective observation cohort study

Conclusion: Bridging is significantly associated with increased bleeding events
           Not Bridging does not increase incidence of stroke or MI

Comment: Cohort not randomized
           Significant differences in patients
           Risk stratify patients and have a higher threshold to bridge
           Awaiting result of BRIDGE trial

# ACCP Stratification

## Table 1: ACCP's suggested risk stratification for perioperative thromboembolism*

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Mechanical heart valve</th>
<th>Atrial fibrillation</th>
<th>Venous thromboembolism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong> (&gt;$10%$/yr risk of ATE or &gt;$10%$/mo risk of VTE)</td>
<td>Any mechanical mitral valve Older aortic valve Recent (&lt; 6 mo) stroke or TIA</td>
<td>CHADS$_2$ score of 5 or 6 Recent (&lt; 3 mo) stroke or TIA Rheumatic valvular heart disease</td>
<td>Recent (&lt; 3 mo) VTE Severe thrombophilia</td>
</tr>
<tr>
<td><strong>Moderate</strong> (4%–10%/yr risk of ATE or 4%–10%/mo risk of VTE)</td>
<td>Bileaflet aortic valve and one of the following: atrial fibrillation, prior stroke/TIA, hypertension, diabetes, heart failure, age &gt; 75 yr</td>
<td>CHADS$_2$ score of 3 or 4</td>
<td>VTE within past 3–12 mo Recurrent VTE Nonsevere thrombophilic conditions Active cancer</td>
</tr>
<tr>
<td><strong>Low</strong> (&lt;4%/yr risk of ATE or &lt;2%/mo risk of VTE)</td>
<td>Bileaflet aortic valve without atrial fibrillation and no other risk factors for stroke</td>
<td>CHADS$_2$ score of 0–2 (and no prior stroke or TIA)</td>
<td>Single VTE within past 12 mo and no other risk factors</td>
</tr>
</tbody>
</table>

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ACCP = American College of Chest Physicians; ATE = arterial thromboembolism; VTE = venous thromboembolism; TIA = transient ischemic attack

With permission from: Jaffer. *CCJM* 2009 11;76(Suppl_4):S37-S44
As the intern prepares to order the heparin drip for the patient . . .

A. You make sure there is no bolus since he was on warfarin
B. You say he can be on enoxaparin
C. You call back the surgeon and tell him to operate anyway
D. You tell the intern bridging is for the weak
You and the team decide not to bridge the patient because you can’t take any more complications.

The nurse pages the intern as she is about to give the ampicillin/sulbactam. She notices that the patient has an allergy bracelet with penicillin written on it and asks that you please advise.
Short take: Penicillin allergies

In a retrospective case control match of Kaiser patients, a documented penicillin allergy was associated with:

• Increased LOS by 0.59 days and increased admissions
• Increased OR of C diff (1.234), MRSA (1.141), VRE (1.4)
• Increased likelihood of getting vancomycin, ciprofloxacin, and clindamycin

Case Summary

Definitely

1. Push for early surgery in acute cholecystitis

Consider

1. Not bridging all patients with atrial fibrillation
2. Consulting allergy to remove PCN allergy
Case Presentation

The intern on your team presents a new admission – a 72 year-old woman with metastatic lung cancer who presented with acute shortness of breath and chest pain.

On presentation, she was afebrile, blood pressure 138/47 mmHg, heart rate 120s, respiratory rate 28, and oxygen saturation 86% on room air (94% on 6 Liters).
Case Presentation

A CT scan ordered by the ED showed a large saddle pulmonary embolism (PE). She was started on low molecular weight heparin.

A few hours later, she remains symptomatic, tachycardic, and hypoxic. A troponin is elevated at 2.45 ng/mL and a transthoracic echocardiogram shows acute right ventricular (RV) dysfunction.

You ask the intern, do you think we should use thrombolytics?
How does the intern respond to your question?

A. No. There is no mortality benefit to thrombolytics in PE whatever the risk.

B. No. Thrombolytics only have a mortality benefit in patients who are hemodynamically unstable (i.e. high risk).

C. Yes. All saddle emboli need thrombolytics.

D. Yes. There is a mortality benefit to thrombolytics in intermediate-risk PE.

E. Thrombolytics? No. I think we probably can discharge her and have her follow up in PE clinic. Oh yeah, and we’ll discharge by noon. And vaccinate her. And sit down while we tell her. And smile.
Use of Thrombolytics in PE

Question: Do thrombolytics improve mortality in patients with acute PE (including intermediate-risk patients)?

Design: Meta-analysis of 16 RCTs, 2115 patients with acute PE; Compared thrombolytics vs. anti-coagulation; stratified by risk

- Intermediate risk: evidence of RV strain
- RV strain: echo, troponin, or BNP
- Trials excluded patients who were high risk for bleed

### Results

- 70% intermediate risk, 10% high risk, 20% unclear

<table>
<thead>
<tr>
<th>Intermediate-Risk PE</th>
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- Similar results for the other 30% of patients

* p < 0.05

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- Mortality lower in both groups

* p < 0.05

Use of Thrombolytics in PE

Question: Do thrombolytics improve mortality in patients with acute PE?

Design: Meta-analysis of 16 trials, 2115 patients

Conclusion: In intermediate risk, lower PE mortality, less recurrent PE; increased major bleeding, ICH; possibly only increased bleeding in patients > 65 years old

Comment: Well done but not perfect

Stronger case in young patients without bleeding risk or ICH risk

Unclear in patients > 65 years old

Choice should be made patient by patient

How does the intern respond to your question?

A. No. There is no mortality benefit to thrombolytics in PE whatever the risk.
B. No. Thrombolytics only have a mortality benefit in patients who are hemodynamically unstable (i.e. high risk).
C. Yes. All saddle emboli need thrombolytics.
D. Yes. There is a mortality benefit to thrombolytics in intermediate-risk PE.
E. No. I think we probably can discharge her and have her follow up in intermediate-risk PE clinic. Oh yeah, and discharge by noon.
How does the intern respond to your question?

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E. No. I think we probably can discharge her and have her follow up in intermediate-risk PE clinic. Oh yeah, and discharge by noon.
Case Presentation

For a number of reasons, you decide not to use thrombolytics.

Unfortunately, she has progressive hypoxia and a rapid response is called three times. She is now requiring a non-rebreather facemask and is confused and tachypneic.

You realize that no one on the team discussed her overall goals or clearly clarified her code status.

You wonder what could have been done to improve the DNR/DNI discussion and documentation.
Which of the following is most likely to improve DNR/DNI decision making?

A. Patient information leaflet in appropriate language provided at admission
B. Education and training of residents in DNR/DNI conversations
C. Scripted conversation at the time of admission about DNR/DNI preferences
D. Introduction of rapid response teams to respond to deteriorating patients
E. Directing the intern to “Go in there and get that DNR!”
DNR/DNI Decisions

Question: What interventions improve use and outcomes associated with DNR/DNI decisions?

Design: Systematic review of 37 articles with an intervention;
Variable interventions to improve use or documentation of DNR/DNI orders

- 8 RCTs, 27 before/after studies, 2 cluster controlled
- Most in the United States

Results

• Studies fell into 4 main themes

1) Structured communication
2) Specialist teams (e.g. RRTs)
3) Standardized DNR/DNI documentation
4) Provider or patient education

1) Structured communication (2 studies)
   - Prospective RCT of structured communication on admission
     - Improved documentation (92% v. 38%)
     - Patients willing to discuss (98%)

2) Specialist teams (e.g. RRTs) (8 studies)
   - RRTs increased documentation of DNR/DNI
   - Decrease in cardiac arrest

Results

- Studies fell into 4 main themes

3) Standardized documentation (10 studies)
   - Standardizing forms may improve documentation

4) Provider or patient education (5 studies)
   - Generally not an effective intervention

Question: What interventions improve use and outcomes of DNR/DNI decisions?

Design: Systematic review, 37 articles

Conclusion: Some evidence for structured communication, RRTs intervening. Standardized documentation may help. Education alone is ineffective.

Comment: Comprehensive review, most poor quality, variable interventions. Use scripted intervention or teach an approach. Consider collaboration with your RRT.
Which of the following is most likely to improve DNR/DNI decision making?

A. Patient information leaflet in appropriate language provided at admission
B. Education and training of residents in DNR/DNI conversations
C. **Scripted conversation at the time of admission about DNR/DNI preferences**
D. **Introduction of rapid response teams to respond to deteriorating patients**
E. Directing the intern to “Go in there and get that DNR!”
Short Take: Apple a Day?

In an cross-sectional study of a national sample of adults in the U.S., daily apple eaters (~ 9%) were more educated, less white, and smoked less than non-daily apple eaters.

Daily apple eaters saw physicians with similar frequency.

They maybe used fewer prescriptions.

In an experimental model a sterile-gloved hand was immersed in a culture of pathogenic *E. coli*. Then different greetings (hand shake, high five, fist bump) were repeated 5 times with a sterile-gloved hand. This recipient hand was cultured.

Nearly twice as many bacteria were transferred during a handshake compared with a high-five. The fist bump consistently led to the lowest transmission of bacteria.

Short Take: Handshake vs. Fist Bump?

Case Summary

Consider

1. Thrombolysis in younger patients (< 65 years old) with intermediate risk PE
2. Teaching a structured approach to DNR/DNI conversations on admission
3. Working with your RRT to address goals of care routinely
4. An apple a day may not keep the doctor away
5. Fist bump!
Update in Hospital Medicine 2015

Brad Sharpe, MD, SFHM, FACP
UCSF Division of Hospital Medicine

Amit Pahwa, MD
Johns Hopkins Department of Medicine

William Southern, MD, MS
Albert Einstein College of Medicine

Sponsored by the SGIM Academic Hospitalist Taskforce