Update in Hospital Medicine
2008

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UCSF Division of Hospital Medicine
Update in Hospital Medicine 2008

- Updated literature in addition to other speakers
- Focus on breadth rather than depth
- Practical applications
  - Change, modify, confirm practice
- Hope to **not** use the words
  - Markov model, Kaplan-Meier, Student’s t-test
Update in Hospital Medicine 2008

• Sources: Review of major journals, ACP J. Club, Journal Watch, etc. (Oct 2007 – now)
• Case based format
• Major reviews/short takes

• Major topic areas:
  - CHF
  - COPD
  - Critical Care
  - Hip fracture
  - CAP
  - Treatment DVT
  - Hypercalcemia

Update in Hospital Medicine
Update in Hospital Medicine 2008

- Sources: Review of major journals, ACP J. Club, Journal Watch, etc.
- Case based format
- Major reviews/short takes
- Handouts today
A 65 year-old man with hypertension (HTN) and systolic congestive heart failure (CHF) presents with shortness of breath. His vital signs are normal other than tachypnea and hypoxia. Based on physical examination and studies, he is diagnosed with an exacerbation of his CHF. While writing his admission orders, you notice he has been on an ACE inhibitor and β-blocker for his CHF for more than a year.

You decide to continue the ACE inhibitor (creatinine is normal) but about the β-blocker, you sit back and wonder . . .
In the setting of a CHF exacerbation, should his β-blocker be continued or stopped?

A. The β-blocker should be stopped.

B. The β-blocker should be continued at the same dose.

C. The β-blocker should be continued but I’d cut the dose in half.

D. What? β-blockers for heart failure? Whatever. Next you’ll be telling me that estrogen causes heart disease...
**β-blocker in CHF Exacerbations**

**Question:** In CHF exacerbation, should β-blockers be continued or withdrawn?

**Design:** Prospective, registry CHF exac (2720 pts); All eligible for β-blockers at D/C

Compared 3 groups:

1) On β-blocker before & continued
2) On β-blocker before & stopped
3) Eligible for β-blocker but never treated

## Results

<table>
<thead>
<tr>
<th>Group</th>
<th>60-90 day mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>β-blocker continued</td>
<td>8.7%</td>
</tr>
<tr>
<td>β-blocker stopped</td>
<td>24.4%</td>
</tr>
<tr>
<td>β-blocker not given</td>
<td>13.8%</td>
</tr>
</tbody>
</table>

P < 0.001 for trend

Those continued on β-blockers had higher outpatient compliance
**β-blocker in CHF Exacerbations**

**Question:** In CHF exacerbation, should β-blockers be continued or withdrawn?

**Design:** Prospective, registry CHF exac (2720 pts); All eligible for β-blockers

**Conclusion:** In CHF exac, continuation of β-blocker → lower mortality vs. stopping or not starting

Highest risk for death in stopping

**Comments:** Supported by other large trial data

Absent other reasons, probably should cont β-blockers in CHF exacerbations

In the setting of a CHF exacerbation, should his β-blocker be continued or stopped?

A. The β-blocker should be stopped.

B. The β-blocker should be continued at the same dose.

C. The β-blocker should be continued but I’d cut the dose in half.

D. What? β-blockers for heart failure? Whatever. Next you’ll be telling me that estrogen causes heart disease...
The β-blocker is continued and he is diuresed. His wife, distraught by his hospitalization, forgot her inhalers at home (chronic COPD) and with progressive anxiety, complains of shortness of breath. She is taken to the ED where she is diagnosed with a COPD exacerbation.

You decide to treat with bronchodilators, antibiotics, and steroids. You write for intravenous steroids but the nurse asks, “Can’t we just give it PO? She’s eating fine.” You answer:
“Can’t we just give it PO?” You answer:

A. The data says that patients hospitalized with a COPD exacerbation should get IV steroids

B. We’ll give 2 days of IV, then switch to PO.

C. You know, that’s a good thought – let me switch it to PO prednisone.

D. Hmmm. That sounded a whole lot like a Recommendation to me. Where was the S, the B, or the A? Why don’t you just try again.
Steroids in COPD Exacerbations

Question: Oral or IV steroids in the treatment of COPD exacerbations?

Design: Rand, cont, double-blind, 210 pts; Prednisolone 60mg daily IV vs PO x 5d; (75% steroids 30-days before admission)

## Results

<table>
<thead>
<tr>
<th></th>
<th>PO</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of stay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in FEV1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of life scores</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Treatment failure:** Death, COPD readmit, Intensify treatment
## Results

<table>
<thead>
<tr>
<th></th>
<th>PO</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment failure</td>
<td>56%</td>
<td>62%*</td>
</tr>
<tr>
<td>Length of stay</td>
<td>11.2 d</td>
<td>11.9 d*</td>
</tr>
<tr>
<td>Change in FEV1</td>
<td>+0.12 L</td>
<td>+0.10 L*</td>
</tr>
<tr>
<td>Quality of life scores</td>
<td>Improved</td>
<td>Improved*</td>
</tr>
</tbody>
</table>

* Not significant

**Treatment failure:** Death, COPD readmit, Intensify treatment
## Results: Treatment Failure (3 months)

<table>
<thead>
<tr>
<th>Treatment Failure</th>
<th>PO (n=58)</th>
<th>IV (n = 66)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>3%</td>
<td>7%*</td>
</tr>
<tr>
<td>COPD readmit</td>
<td>19%</td>
<td>20%*</td>
</tr>
<tr>
<td>Intensify Treatment</td>
<td>78%</td>
<td>73%*</td>
</tr>
</tbody>
</table>

* Not significant

**Intensify Treatment:** Increase steroids, change antibiotics
Steroids in COPD Exacerbations

<table>
<thead>
<tr>
<th>Question:</th>
<th>Oral or IV steroids in the treatment of COPD exacerbations?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design:</td>
<td>Rand, cont, double-blind, 210 pts; Prednisolone 60mg daily IV vs PO x 5d;</td>
</tr>
<tr>
<td>Conclusion:</td>
<td>Oral steroids not inferior to IV steroids in COPD Exacerbations</td>
</tr>
<tr>
<td></td>
<td>No diff if on steroids at baseline</td>
</tr>
<tr>
<td></td>
<td>High need for intensification of treatment</td>
</tr>
<tr>
<td>Comments:</td>
<td>Guidelines (ATS) recommend oral steroids</td>
</tr>
<tr>
<td></td>
<td>Does not apply to severe COPD (ICU)</td>
</tr>
<tr>
<td></td>
<td>No guidance on duration, taper, dosing (10 d?)</td>
</tr>
</tbody>
</table>

“Can’t we just give it PO?” You answer:

A. The data says that patients hospitalized with a COPD exacerbation should get IV steroids.

B. We’ll give 2 days of IV, then switch to PO.

C. You know, that’s a good thought – let me switch it to PO prednisone.

D. Hmmm. That sounded a whole lot like a Recommendation to me. Where was the S, the B, or the A? Why don’t you just try again.
Case Continued

You re-write the order to give oral prednisone instead. The patient does well over the next few days and you prepare her for discharge. When you are going over her medications, you come across her proton pump inhibitor.

“You know, doc, I’ve been on this for years and I don’t know why. I think maybe they started it the last time I was in the hospital. Are there any downsides to taking these acid blockers?”
Short Take: Proton Pump Inhibitors

Use of PPIs has been shown (in retrospective, case-control studies) to be associated with:

- *Clostridium difficile*-associated diarrhea in the hospital.
- Community-acquired pneumonia in the first month of treatment.
- Osteoporotic fractures after 5-7 years of treatment.

Aseeri M. *Am J Gastroenterol.* 2008;103:2308.
Targownik LE. *CMAJ.* 2008;179:306.
You tell her there are side effects and stop it as she does not have a clear indication.

One year later you have the chance to care for her again, this time co-managing her on the orthopedic service – while raking leaves she fell and fractured her hip.

She undergoes an uncomplicated R hip arthroplasty. On the day of discharge as you’re preparing the discharge medications, her husband asks some questions, including...
“Listen, Doc, is there anything we can do to keep her from breaking any bones in the future?” You answer:

A. Sure, she can get some fancy hip protectors – those will work.
B. Two glasses of milk a day – does the body good.
C. She can get an intravenous medication once a year to protect her bones.
D. Calcium and vitamin D.
E. Yeah, uh, she could stop falling.
**HORIZON: Zoledronic Acid after Hip Fracture**

**Question:** Does zoledronic acid reduce repeat fx and mortality after hip fracture?

**Design:** 2127 pts w/ hip fracture, within 90d p fx
Random to yearly zoledronic acid v placebo
75% women, all vit D & Ca^{2+}

Lyles KW. *NEJM.* 2007;357:1799-809.
Zoledronic Acid in Hip Fx

<table>
<thead>
<tr>
<th></th>
<th>Zoledronic</th>
<th>Placebo</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Fracture</td>
<td>8.6%</td>
<td>13.9%</td>
<td>0.001</td>
</tr>
<tr>
<td>Mortality, 1yr</td>
<td>9.6%</td>
<td>13.3%</td>
<td>0.001</td>
</tr>
</tbody>
</table>

NNT = 27

No difference in adverse events including atrial fibrillation

Lyles KW. *NEJM.* 2007;357:1799-809.
HORIZON: Zoledronic Acid after Hip Fracture

Question: Does zoledronic acid reduce fx and mortality after hip fracture?

Design: Plac-cont, random 2127 pts w/ hip fracture zoledronic acid v placebo yearly;

Results: Zoledronic acid reduces fx and mort if given w/in 90days of hip fx
No difference in side effects

Conclusion: High mortality after hip fx: pts should get bisphosphonate + Ca/vit D

Comment: Consider prescription in hospital, include in discharge summary

Lyles KW. NEJM. 2007;357:1799-809.
“Listen, Doc, is there anything we can do to keep her from breaking any bones in the future?” You answer:

A. Sure, she can get some fancy hip protectors – those will work.
B. Two glasses of milk a day – does the body good.
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D. Calcium and vitamin D. Done.
E. Yeah, uh, she could stop falling.
“Listen, Doc, is there anything we can do to keep her from breaking any bones in the future?” You answer:

A. Sure, she can get some fancy hip protectors – those will work.
B. Two glasses of milk a day – does the body good.
C. She can get an intravenous medication once a year to protect her bones.
D. Calcium and vitamin D. Done.
E. Yeah, uh, don’t fall.
Short take: Hip protectors

- Prospective, randomized trial of hip protectors in 1042 nursing home residents showed no protection against hip fracture.
- Growing evidence hip protectors are not helpful.

HIP PRO. JAMA. 2007;298:413-22.
Summary

- **Definitely**
  1) Treat osteoporosis in patients after hip fracture.
  2) Absent contraindications, continue β-blockers in CHF exacerbations.
  3) Use oral steroids (instead of IV) in non-severe COPD exacerbations.

- **Consider**
  1) Stopping proton-pump inhibitors unless there are clear indications.
Case Presentation

A 75 year-old woman with HTN and diabetes presents with fever, cough, and confusion. On admission, she is diagnosed with community-acquired pneumonia (CAP) and you institute appropriate antibiotic and supportive therapies.

In addition, she is found to have a calcium of 13.1 mg/dL. You are concerned that some of her confusion may be from the hypercalcemia and want to start immediate treatment.
What treatments do you begin in the first 24 hours to treat the hypercalcemia?

A. Intravenous fluids
B. Intravenous bisphosphonate
C. Lasix diuresis (once euvolemic)
D. Prednisone
E. A and B
F. A and C
G. A, B, and D
H. Are you kidding? This is the last talk of the conference. I hate these questions with multiple possible answers.
Treatment of Hypercalcemia

Questions: What is the most effective treatment for hypercalcemia? Should we use IV furosemide?

Design: Narrative lit review of furosemide tx; compare to data for bisphosphonates

## Results

<table>
<thead>
<tr>
<th></th>
<th>Furosemide for hypercalcemia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total articles</td>
<td></td>
</tr>
<tr>
<td>Randomized-controlled trials</td>
<td></td>
</tr>
<tr>
<td>Total patients</td>
<td></td>
</tr>
<tr>
<td>Last published article</td>
<td></td>
</tr>
</tbody>
</table>

Rare rapid correction; lots of electrolyte abnormalities

Treatment of Hypercalcemia

Questions: What is the most effective treatment for hypercalcemia? Should we use IV furosemide?

Design: Narrative lit review of furosemide tx; compare to data for bisphosphonates

Conclusion: Very little (old) lit on furosemide, before bisphosphonates;
No evidence lasix effective
Extensive data for bisphosphonates (RCTs)

Comment: IV fluids + bisphosphonates 1st line
Add calcitonin for severe symptoms
Furosemide only for clear volume overload

What treatments do you begin in the first 24 hours to treat the hypercalcemia?

A. Intravenous fluids
B. Intravenous bisphosphonate
C. Lasix diuresis (once euvolemic)
D. Prednisone
E. A and B
F. A, B, and C
G. A, B, and D
H. Are you kidding? This is the last talk of the conference. I hate these questions with multiple possible answers.
Case Continued

She is given intravenous fluids and a bisphosphonate and her calcium normalizes. Over the next 3 days, you determine her hypercalcemia is from hyperparathyroidism plus excess calcium and vitamin D intake and arrange follow-up.

On day 3, you start to think about discharge as she is improving with treatment of her CAP. She is feeling better, her vital signs are normal, her mental status is normal, and she is eating and taking pills. The only thing is that her O₂ saturation is only 88% on room air (95% on 2 L nasal cannula).

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Regarding her discharge, you would do which of the following?

A. I’d discharge her. As long as she has only one vital sign “instability,” it’s OK.

B. I would get her home O₂ for a couple of days and discharge her.

C. I’d keep her until her O₂ saturation is improved.

D. I would ask my case manager when to discharge – I trust him to make the decision with every patient. He has this great program called InterQual that tells me what to do . . .
Discharge Criteria for CAP

Question: Which vital sign abnormalities at discharge in CAP predict readmission or mortality?

Design: Prospective, 870 pts d/c with CAP; Predictors of 30-day readmit or death

Abnormal Vital Signs:
- Temperature > 37.5°C
- Resp rate > 24/min
- Oxygen Sat < 90%
- SBP < 90mmHg
- Heart rate > 100/min

Discharge Criteria for CAP


*Update in Hospital Medicine*
### Results: Discharge Criteria

<table>
<thead>
<tr>
<th>Predictors Readmission</th>
<th>Hazard Ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp &gt; 37.5°C</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>SBP &lt; 90mmHg</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Resp rate &gt; 24</td>
<td>1.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Heart rate &gt; 100</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>$O_2$ Sat &lt; 90%</td>
<td>3.2</td>
<td>0.03</td>
</tr>
</tbody>
</table>

### Results: Discharge Criteria

<table>
<thead>
<tr>
<th>Predictors Death at 30 days</th>
<th>Hazard Ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp &gt; 37.5°C</td>
<td>4.5</td>
<td>0.05</td>
</tr>
<tr>
<td>SBP &lt; 90mmHg</td>
<td>2.6</td>
<td>0.01</td>
</tr>
<tr>
<td>Resp rate &gt; 24</td>
<td>2.4</td>
<td>0.03</td>
</tr>
<tr>
<td>Heart rate &gt; 100</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>O₂ Sat &lt; 90%</td>
<td>2.4</td>
<td>0.03</td>
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## Results: Discharge Criteria

<table>
<thead>
<tr>
<th>Predictors Death at 30 days</th>
<th>Hazard Ratio</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp &gt; 37.5$^\circ$C</td>
<td>4.5</td>
<td>2</td>
</tr>
<tr>
<td>SBP &lt; 90mmHg</td>
<td>2.6</td>
<td>1</td>
</tr>
<tr>
<td>Resp rate &gt; 24</td>
<td>2.4</td>
<td>1</td>
</tr>
<tr>
<td>$O_2$ Sat &lt; 90%</td>
<td>2.4</td>
<td>1</td>
</tr>
</tbody>
</table>

Score $\geq$ 2 points = unsafe discharge

**Figure 1.** Kaplan-Meier survival plot of proposed instability score for 30-day mortality. The total instability score was obtained by adding the weight of each of the selected variables, and the instability criterion for temperature was $> 37.5^\circ$C. The log-rank test detected statistically significant differences between score 0 vs $\geq 2$ ($p < 0.0001$), score 1 vs $\geq 2$ ($p = 0.0004$).
Discharge Criteria for CAP

**Question:** What vital sign abnormalities at discharge in CAP predict readmission or mortality?

**Design:** Prospective, 870 pts d/c with CAP; Predictors of 30-day readmit or death

**Conclusion:** Hypoxia (< 90% RA) inc risk readmit; Fever is best predictor of 30-d mortality

**Comment:** More than 1 abnl vital sign is still bad
Be careful with O$_2$ sat < 90%
Be nervous about ongoing fever

Regarding her discharge, you would do which of the following?

A. I’d discharge her. As long as she has only one vital sign “instability,” it’s OK.

B. I would get her home O$_2$ for a couple of days and discharge her.

C. I’d keep her until her O$_2$ saturation is improved.

D. I would ask my case manager when to discharge – I trust him to make the decision with every patient. He has this great program called InterQual that tells me what to do . . .
Case Continued

You wait another day and the following morning her $O_2$ saturation is 91% on room air and you prepare her discharge paperwork.

As you write her discharge prescription, you pause to consider her antibiotic course for her CAP. . . .
What is the appropriate duration of treatment for her CAP?

A. Treat her for a total of 2 weeks.
B. Wait, she only got 3 days of IV therapy. She needs to stay in the hospital to get 7 days of IV antibiotics.
C. Treat her for a total of 10 days
D. Treat her for a total of 7 days.
E. Who cares. She probably won’t take it anyway. I hate my job.
Duration of therapy in CAP
Duration of antibiotic therapy in CAP

Question: In pts with CAP, what is the appropriate duration of antibiotic therapy?

Design: Meta-analysis of 15 RCTs, 2796 pts with mild to moderate CAP

- Short (≤7d) regimen v. extended course
- Excluded trials w/ bronchitis, COPD, HCAP

Li JZ. Am J of Med 2007; 120(9):783-790.
## Results

<table>
<thead>
<tr>
<th></th>
<th>Risk of clinical failure: short v. extended course RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All antibiotics</strong></td>
<td>0.89 (0.78-1.02)</td>
</tr>
<tr>
<td><strong>Macrolides</strong></td>
<td>0.88 (0.71-1.09)</td>
</tr>
<tr>
<td><strong>Fluoroquinolones</strong></td>
<td>0.88 (0.71-1.08)</td>
</tr>
<tr>
<td><strong>β-lactams</strong></td>
<td>0.92 (0.63-1.36)</td>
</tr>
</tbody>
</table>

*Update in Hospital Medicine*
Duration of antibiotic therapy in CAP

Question: In CAP, what is the appropriate duration of therapy?

Design: Meta-analysis 15 RCTs, 2796 pts, mild to mod CAP

Results: No differences in clin failure, adverse events or bact response w/ short (<7 days) vs. extended

Conclusion: Extended course therapy does not improve clinical outcomes in mild to mod CAP

Comments: Elderly patients were under-represented. Some antibiotics (e.g. doxycycline) not evaluated. Shorter courses probably effective (7 days).

Li JZ. Am J of Med 2007;120(9):783-790.
Mandell LA. CID 2007;44:S27.
What is the appropriate duration of treatment for her CAP?

A. Treat her for a total of 2 weeks.
B. Wait, she only got 3 days of IV therapy. She needs to stay in the hospital to get 7 days of IV antibiotics.
C. Treat her for a total of 10 days
D. Treat her for a total of 7 days.
E. Who cares. She probably won’t take it anyway. I hate my job.
Short Take: Pneumococcal Vaccine

- Prospective study, 3415 pts, 6 hospitals
- Patients hospitalized with CAP w/prior pneumococcal vaccination had 40% lower adjusted rate of ICU admission compared to those not previously vaccinated.

Summary

- **Definitely**
  1) Give pneumovax to patients hospitalized with CAP

- **Consider**
  1) Not discharging patients with CAP with hypoxia, fever, or two vital sign abnormalities.
  2) Giving antibiotics for 7 days or less for mild to moderate CAP

- **Stop**
  1) Using furosemide in the treatment of hypercalcemia

*Update in Hospital Medicine*
A frail 89 year-old woman with metastatic colon cancer presents with shortness of breath and confusion. She is in septic shock from pneumonia requiring intubation and vasopressors.

After 3 hours, she is finally stabilized and you are leaving after a long day. As you walk through the doors of the ICU, the nurse yells out, “Hey, her blood sugar is 187 mg/dL. Aren’t we supposed to have tighter glucose control? Do you want to start an insulin drip?”
How should you respond to the nurse’s request regarding the insulin drip?

A. “I can’t believe I forgot – get the insulin drip going – our goal is to be *intense*: blood sugars of 80-110mg/dL.”

B. “Sure, start the drip but our goal is just to get her to about 150mg/dL.”

C. “Nah, just use the standard subcutaneous insulin protocol. As long as she is below 200 mg/dL.”

D. “Blood sugar? Blood sugar? Hey, why don’t you come over here and check my blood sugar?!?”
Intensive Insulin in the ICU

Question: Should we have “intensive” insulin management in the ICU (goal blood sugar)?

Design: Meta-analysis, 29 trials, 8432 pts; mixed medical/surgical ICUs; goal < 150 mg/dL; Subgroups type of ICU, intensity

Wiener RS. JAMA. August 2008;300:933.
## Results: Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Intensive Insulin</th>
<th>Usual Care</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New dialysis need</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Septicemia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypoglycemia (&lt;40mg/dL)</td>
<td></td>
<td></td>
<td></td>
</tr>
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Wiener RS. *JAMA*. August 2008;300:933.
## Results: Outcomes

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<th></th>
<th>Intensive Insulin</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>21.6%</td>
<td>23.3%</td>
<td>NS</td>
</tr>
<tr>
<td>New dialysis need</td>
<td>11.2%</td>
<td>12.1%</td>
<td>NS</td>
</tr>
<tr>
<td>Septicemia</td>
<td>10.9%</td>
<td>13.4%</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Hypoglycemia (&lt;40 mg/dL)</td>
<td>13.7%</td>
<td>2.5%</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

Lower septicemia limited to surgical ICUs only

Wiener RS. *JAMA*. August 2008;300:933.
### Results: Mortality

<table>
<thead>
<tr>
<th>Mortality</th>
<th>Intensive Insulin</th>
<th>Usual Care</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ICU patients</td>
<td>21.6%</td>
<td>23.3%</td>
<td>NS</td>
</tr>
<tr>
<td>Surgical ICU</td>
<td>8.8%</td>
<td>10.7%</td>
<td>NS</td>
</tr>
<tr>
<td>Medical ICU</td>
<td>26.9%</td>
<td>29.7%</td>
<td>NS</td>
</tr>
<tr>
<td>Med/Surg ICU</td>
<td>26.0%</td>
<td>26.9%</td>
<td>NS</td>
</tr>
</tbody>
</table>

No difference in outcomes between very tight (< 110mg/dL) and moderate (< 150mg/dL) control.

*Update in Hospital Medicine*

Wiener RS. *JAMA.* August 2008;300:933.
### Intensive Insulin in the ICU

<table>
<thead>
<tr>
<th><strong>Question:</strong></th>
<th>Should we have “intensive” insulin management in the ICU (goal blood sugar)?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design:</strong></td>
<td>Meta-analysis, 29 trials, 8432 pts; mixed medical/surgical ICUs; goal &lt; 150 mg/dL;</td>
</tr>
<tr>
<td><strong>Conclusions:</strong></td>
<td>Tight glucose does not lower (or increase mortality); higher hypoglycemia</td>
</tr>
<tr>
<td></td>
<td>Sepsis maybe lower in surgical pts.</td>
</tr>
<tr>
<td><strong>Comment:</strong></td>
<td>Well-done meta-analysis; high sugar is bad</td>
</tr>
<tr>
<td></td>
<td>Time/workflow limitations problematic</td>
</tr>
<tr>
<td></td>
<td>Goal &lt; 180 mg/dL?? (&quot;NICE-SUGAR&quot; coming)</td>
</tr>
</tbody>
</table>

Wiener RS. *JAMA*. August 2008;300:933.
How should you respond to the nurse’s request regarding the insulin drip?

A. “I can’t believe I forgot – get the insulin drip going – our goal is to be *intense*: blood sugars of 80-110mg/dL.”

B. “Sure, start the drip but our goal is just to get her to about 150mg/dL.”

C. “Nah, just use the standard subcutaneous insulin protocol. As long as she is below 200 mg/dL.”

D. “Blood sugar? Blood sugar? Hey, why don’t you come over here and check my blood sugar?!?”
Short Take: Blood transfusions in ICU

- Systematic review of 45 studies (272,596 pts) of RBC transfusions in critically ill patients.

- Only one study with benefit – patients with active acute MI with HCT < 30%.

- In 42/45 studies, risks outweighed benefits; increased risk of death, infection, and ARDS.

The patient’s blood sugar is managed in the 150-200 mg/dL range. She continues to remain critically ill despite maximal treatment.

On hospital day 4, she develops a swollen R arm (same side as her IJ). An ultrasound shows an acute RUE DVT. You wonder if she needs anti-coagulation . . .
How should you manage this new catheter-associated upper extremity DVT?

A. Just take the line out and put the IJ on the other side – I wouldn’t anti-coagulate.

B. You treat it just like a lower extremity DVT – full dose anti-coagulation.

C. I would take the line out and start low dose coumadin daily but not full-dose anti-coagulation.

D. Anti-coagulate? But the arms veins are so tiny... I’m sure a clot there can’t cause any problems. Don’t worry about it . . .
**Treatment of Upper Extremity DVT**

**Question:** What is the appropriate anti-coagulation strategy for UEDVT?

**Design:** Prospective, observational study (RIETE), new acute DVT; follow 3 mo outcomes; 11,564 pts, 512 (4.4%) with UEDVT

## Results: RIETE Registry

<table>
<thead>
<tr>
<th></th>
<th>UEDVT</th>
<th>LE DVT</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>54</td>
<td>66</td>
<td>&lt;0.001</td>
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<td>Immobility</td>
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**Results: RIETE Registry**

- All patients treated with systemic anti-coagulation
- Follow-up was 3 months

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<tr>
<td>Recurrent DVT</td>
<td>2.3%</td>
<td>1.7%</td>
<td>NS</td>
</tr>
<tr>
<td>Recurrent PE</td>
<td>1.8%</td>
<td>1.2%</td>
<td>NS</td>
</tr>
<tr>
<td>Major bleeding</td>
<td>2.1%</td>
<td>2.2%</td>
<td>NS</td>
</tr>
<tr>
<td>Mortality</td>
<td>11.0%</td>
<td>7.0%</td>
<td>p&lt;0.05</td>
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Question: What is the appropriate anti-coagulation strategy for UEDVT? Treat UEDVT and LE DVT the same?

Design: Pros, obs study (RIETE), new DVT; follow 3 mo outcomes; 512 pts with UEDVT

Conclusion: UEDVT less often with clinically overt PE Recurr VTE or bleed same as LE DVT w/ tx (including catheter-associated) Cancer common in UEDVT (38%)

Comments: Should treat UEDVT like LE DVT for drug, intensity, duration (minimum 3 months)

How should you manage this new catheter-associated upper extremity DVT?

A. Just take the line out and put the IJ on the other side – I wouldn’t anti-coagulate.

B. You treat it just like a lower extremity DVT – full dose anti-coagulation.

C. I would take the line out and start low dose coumadin daily but not full-dose anti-coagulation.

D. Anti-coagulate? But the arms veins are so tiny... I’m sure a clot there can’t cause any problems. Don’t worry about it . . .
Short Take: Platelets with Heparins

- Meta-analysis of 13 studies (5,275 pts) comparing UFH with LMWH to treat PE or DVT; incidence of thrombocytopenia.

- Rate of thrombocytopenia was the same in patients treated with UFH and LMWH.

- Rates of heparin-induced thromboctyopenia (lab confirmed) and HITT were no different (low).

You start a heparin drip for the upper extremity DVT. Unfortunately, she does not improve and remains vasopressor- and ventilator-dependent with progressive renal failure from ATN.

You meet with her three children to discuss her overall prognosis. You tell them, “Given her cancer and how sick she has gotten, even if we do everything, I don’t think she can survive.”
How do you think this family feels about you giving them a prognosis?

A. Families (surrogate decision-makers) generally don’t want to hear the prognosis.

B. They are thankful you provided a prognosis and trust your estimation.

C. They want you to be more specific and give them a percent chance of survival.

D. They are thankful you provided a prognosis but don’t trust your estimation.

E. This one was hard to come up with a “joke” answer. But, if you are the type of person that likes the “joke” answer so you can see the 1% who answered it, answer E.

Update in Hospital Medicine
Prognosis in Critical Illness

Question: Do surrogate decision-makers trust prognosis and how do they use the info?

Design: Interview 50 surrogates of pts in ICU; 3 academic hospitals; qual analysis

Asked: Should surrogates believe the doctor’s predictions that a patient probably will not survive? Why or why not?

Prognosis in Critical Illness

- Overall, 44/50 (88%) of surrogates expressed doubt in physicians’ ability to prognosticate

- Four main reasons given for doubt:
  1) Belief that God could alter the course
  2) Predicting the future is inherently inaccurate
  3) Prior experiences with inaccurate prognostication
  4) Experiences with prognosis during that hospital stay

Prognosis in Critical Illness

- Overall, 44/50 (88%) of surrogates expressed doubt in physicians’ ability to prognosticate
- Four main reasons given for doubt
- But all 50/50 (100%) wanted physicians to disclose prognostic estimates (even when poor)
- Most stated prognosis important to help them prepare for possibility of death

## Prognosis in Critical Illness

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<th>Do surrogate decision-makers trust prognosis and how do they use the info?</th>
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<td>Design:</td>
<td>Interviews 50 surrogates of pts in ICU; 3 academic hospitals; qual analysis</td>
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<tr>
<td>Conclusion:</td>
<td>Many surrogates harbor doubt re: prognosis Yet, highly valued, use prognosis in decisions</td>
</tr>
<tr>
<td>Comment:</td>
<td>Small, qualitative study; Awareness reality of prognostic estimates Surrogates (patients?) want to discuss prognosis</td>
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How do you think this family feels about you giving them a prognosis?

A. Families (surrogate decision-makers) generally don’t want to hear the prognosis.
B. They are thankful you provided a prognosis and trust your estimation.
C. They want you to be more specific and give them a percent chance of survival.
D. They are thankful you provided a prognosis but don’t trust your estimation.
E. This one was hard to come up with a “joke” answer. But, if you are the type of person that likes the “joke” answer so you can see the 1% who answered it, answer E.
The oldest daughter thanks you for giving them a sense of her condition and her poor prognosis.

She responds, “It’s just so hard to figure out what to do. I don’t think she’d want to suffer anymore but it is so hard to let her go.”

You reach out and touch her hand and say:
You reach out, touch her hand & say:

A. “I think it is time to let her go – we can make sure she is comfortable.”

B. “Did she ever talk about what she would want if she got this sick?”

C. “It is very hard to be in this situation because I know you love her so much.”

D. “Well, look at it this way, if you let her go now, she won’t have to pay back any of the $700 billion bail-out package.”

Update in Hospital Medicine
Statements of Empathy

Question: How often do MDs use empathetic statements in family meetings? Impact?

Design: 51 audiotaped family mtngs, crit ill pts; Analyzed for “statements of empathy” Surrog. rated quality of communication

Empathy: explicit acknowledge emotion/internal state of family member

Overall, 34/51 (66%) of conferences had at least one statement of empathy.

Mainly about difficulty of having a loved one sick, challenge of surrogate decision making, and dealing with death.

Significant association between empathetic statements and satisfaction with communication (p=0.04).

Selph RB. JGIM. Sept 2008;23:1311.
Statements of Empathy

Question: How often do MDs use empathetic statements in family meetings? Impact?

Design: 51 audiotaped family mtngs, crit ill pts; Analyzed for “statements of empathy”

Conclusion: Up to 1/3 had no empathetic statements. Empathetic statements increased satisfaction.

Comment: Small, qualitative study. May be missing opportunities. Easy to put into practice.

Selph RB. JGIM. Sept 2008;23:1311.
Summary

- **Definitely**
  1) Give bisphosphonates to patients after hip fracture.
  2) Treat osteoporosis in patients after hip fracture.
  3) Absent contraindications, continue β-blockers in CHF exacerbations.
  4) Use oral steroids (instead of IV) in non-severe COPD exacerbations.
  5) Give pneumovax to patients hospitalized with CAP
Summary

- **Consider**
  1) Not revascularizing patients prior to surgery unless unstable/would need anyway.
  2) Stopping proton-pump inhibitors unless there are clear indications.
  3) Not discharging patients with CAP with hypoxia, fever, or two vital sign abnormalities.
  4) Giving antibiotics for 7 days or less for mild to moderate CAP

- **STOP**
  1) Giving inappropriate doses of enoxaparin in ACS.
  2) Using furosemide in the treatment of hypercalcemia
Update in Hospital Medicine
2008

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Assistant Clinical Professor
UCSF Division of Hospital Medicine