OBJECTIVES

Briefly summarize practice changing and affirming studies pertaining to hospital medicine from the past year.

Provide key take-aways for each article.
No disclosures
Topic Overview

**Antibiotic stewardship**
- Negative predictive value of MRSA nares
- Rapid: Prevalence of anaerobes in aspiration pneumonia

**Dyspnea**
- Prevalence of PE in COPD exacerbations
- Rapid: Bedside ultrasound, racial bias in pulse oximetry

**Super Rapid-Fire Potpourri**
- Updates on updates
- Potential paradigm shift: rate vs rhythm control in early Afib
Antibiotic Stewardship
Negative Predictive Value of MRSA Nares

~250,000 patients

23% +MRSA nares on admit

8.3% +MRSA cultures

MRSA Culture by Site

- Blood
- Wound
- Pulmonary
- Urine
- Intra-abdominal

23%
### Negative Predictive Value of MRSA Nares

**Clinical culture site** | **NPV, MRSA nares screening**
--- | ---
Blood | 96.5%
Respiratory | 96.1%
Wound | 93.1%
Urine | 99.2%
Intra-abdominal | 98.6%

**Take Away:**

Use **negative MRSA nares** to avoid or de-escalate anti-MRSA antibiotics.
Prevalence of Anaerobes in Community Acquired Pneumonia\textsuperscript{5}

Take Away

Avoid empiric coverage of anaerobes for community acquired aspiration pneumonia

**Consistent with current IDSA guidelines**
Dyspnea: undifferentiated
Prevalence of PE in COPD Exacerbation Hospitalization

Table 2: The Revised Geneva Score*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficients</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age &gt; 65 y</td>
<td>0.39</td>
<td>1</td>
</tr>
<tr>
<td>Previous DVT or PE</td>
<td>1.05</td>
<td>3</td>
</tr>
<tr>
<td>Surgery (under general anesthesia) or fracture (of the lower limbs) within 1 mo</td>
<td>0.78</td>
<td>2</td>
</tr>
<tr>
<td>Active malignant condition (solid or hematologic malignant condition, currently active or considered cured &lt; 1 y)</td>
<td>0.45</td>
<td>2</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unilateral lower-limb pain</td>
<td>0.97</td>
<td>3</td>
</tr>
<tr>
<td>Hemoptysis</td>
<td>0.74</td>
<td>2</td>
</tr>
<tr>
<td>Clinical signs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75–94 beats/min</td>
<td>1.20</td>
<td>3</td>
</tr>
<tr>
<td>≥95 beats/min</td>
<td>0.67</td>
<td>5</td>
</tr>
<tr>
<td>Pain on lower-limb deep venous palpation and unilateral edema</td>
<td>1.34</td>
<td>4</td>
</tr>
<tr>
<td>Clinical probability</td>
<td>Low</td>
<td>0–3 total</td>
</tr>
<tr>
<td>Intermediate</td>
<td>4–10 total</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>≥11 total</td>
<td></td>
</tr>
</tbody>
</table>

* DVT = deep venous thrombosis; PE = pulmonary embolism.

Clinical Probability of PE Algorithm

- High probability (Geneva score ≥ 11)
  - CT PE and bilateral LE duplex

- Low/intermediate probability (Geneva score < 11)
  - D-dimer
    - ≥ 500ng/mL
      - CT PE + duplex
    - < 500ng/mL
      - No additional testing
Prevalence of PE

5.9% All patients

12.7% Alternative Etiology of Exacerbation Less Likely

Take Away:
Consider screening for PE in patients with acute COPD exacerbation, particularly when an alternative diagnosis is less likely.
Bedside Ultrasound for Undifferentiated Acute Dyspnea: New ACP Clinical Guideline

Diagnosing heart failure:
- Sensitivity: 76%
- Specificity: 96%

No difference in LOS, in-hospital mortality, and readmission

<table>
<thead>
<tr>
<th></th>
<th>POCUS + Standard Care</th>
<th>Standard Care only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct initial diagnosis</td>
<td>95%</td>
<td>50%</td>
</tr>
<tr>
<td>Correct diagnosis at 4hrs</td>
<td>88%</td>
<td>64%</td>
</tr>
<tr>
<td>Appropriate treatment after 4hrs</td>
<td>78%</td>
<td>57%</td>
</tr>
</tbody>
</table>

Caveat: with experienced POCUS operators using a portable device (not handheld)

Take Away: 
POCUS may be a useful adjunct in patients presenting with undifferentiated dyspnea
Racial Bias in Pulse Oximetry Readings

Frequency of Occult Hypoxemia by Race

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Michigan</td>
<td>3.6%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Multicenter cohort</td>
<td>6.2%</td>
<td>17.0%</td>
</tr>
</tbody>
</table>

Take Away: Black patients with nearly 3x frequency of occult hypoxemia compared to white patients.
Treatment and Outcomes of Inpatient Hypertension

### Table 3. Inpatient Outcomes by Treatment Status

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Unmatched cohort</th>
<th>Matched cohort</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No treatment</td>
<td>Treatment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 11,917)</td>
<td>(n = 5,904)</td>
<td></td>
</tr>
<tr>
<td>Composite outcome</td>
<td>728 (6.1)</td>
<td>738 (12.5)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Stroke</td>
<td>10 (0.1)</td>
<td>6 (0.1)</td>
<td>.92</td>
</tr>
<tr>
<td>AKI</td>
<td>690 (5.8)</td>
<td>690 (11.7)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Myocardial injury</td>
<td>51 (0.4)</td>
<td>76 (1.3)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Length of stay after index BP, mean (SD), d</td>
<td>2.69 (2.2)</td>
<td>4.00 (2.53)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Matched cohort</td>
<td>Treatment</td>
<td>P value</td>
</tr>
<tr>
<td></td>
<td>No treatment</td>
<td>Treatment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 4,520)</td>
<td>(n = 4,520)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Composite outcome</td>
<td>371 (8.2)</td>
<td>499 (11)</td>
<td>&lt;.99</td>
</tr>
<tr>
<td>Stroke</td>
<td>4 (0.1)</td>
<td>4 (0.1)</td>
<td>&gt;.99</td>
</tr>
<tr>
<td>AKI</td>
<td>357 (7.9)</td>
<td>466 (10.3)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Myocardial injury</td>
<td>26 (0.6)</td>
<td>53 (1.2)</td>
<td>.003</td>
</tr>
<tr>
<td>Length of stay after index BP, mean (SD), d</td>
<td>2.27 (1.27)</td>
<td>2.27 (1.27)</td>
<td>.36</td>
</tr>
</tbody>
</table>

Abbreviations: AKI, acute kidney injury; BP, blood pressure.

### Take Away:
Avoid treating inpatient hypertension unless there are signs/symptoms of end organ damage.
Iron deficiency defined as:

- Ferritin < 100
- Ferritin 100-299 + TSAT < 20%

**Take Away:**
Evaluate for iron deficiency in patients admitted with acute heart failure exacerbation and reduced ejection fraction; consider IV supplementation if iron deficient.
Looking to the Future
Potential paradigm shift
Atrial Fibrillation: Rate vs Rhythm Control \textsuperscript{2,3,10} \\
Does Timing Matter?

Take Away:
Consider Cardiology referral for patients with new onset (<1 yr) Afib to discuss possible rhythm control strategy.
Summary of Take Aways

Use **negative MRSA nares** to **avoid or de-escalate anti-MRSA antibiotics**

Empiric antibiotic selection for **aspiration pneumonia** should **not include anaerobic coverage**

Consider screening for **PE** in patients with **acute COPD exacerbation**, particularly when an alternative diagnosis is less likely

**POCUS** may be a useful **adjunct** in patients presenting with **undifferentiated dyspnea**

Check for **occult hypoxemia** in **Black patients** (and other patients of color)

**Avoid treating inpatient hypertension** unless there are signs/symptoms of end organ damage

Evaluate for iron deficiency in patients admitted with **acute heart failure exacerbation** and reduced ejection fraction; consider IV supplementation if iron deficient

Consider **Cardiology referral** for patients with **new onset (<1 yr) Afib** to discuss possible **rhythm control** strategy
References


References


