The Cross-Covering Resident and the “Full Fever Work-Up”

Jessica Howard-Anderson, M.D.1, Kristin Schwab, M.D.1, Roswell Quinn, M.D., Ph.D.1,2, Christopher Graber, M.D.3

1. Internal Medicine, David Geffen School of Medicine, University of California Los Angeles (UCLA); 2. Internal Medicine, VA Greater Los Angeles Healthcare System, Los Angeles, CA; 3. Infectious Diseases, VA Greater Los Angeles Healthcare System, Los Angeles, CA

BACKGROUND

• When signing out patients overnight, resident physicians typically inform the cross-covering resident on whether to do a “full fever work-up” (FFWU) if their patient has a fever.
• The tests included in the FFWU are not clearly defined.
• There are no established guidelines on when a FFWU is indicated.
• Study Objective: To explore what cross-covering residents order as part of a fever work up overnight, how often this is performed, and how much influence there is from written signout instructions.

METHODS

• 12-question survey was emailed to all 142 Internal Medicine residents.
• Survey addressed:
  • Definitions of fever and FFWU
  • How often and in what clinical scenarios tests are ordered
  • Residents’ perspectives on FFWU and signout process
  • Surveys were anonymous and confidential.

Example Epic signout template used by the residents:

Severity: Sick? (Yes/No)
Code:
Contact:
ID/Brief Course: 71 yo Female w/ ***
Active Problem List: *** # #
Changes Today: ***
Pertinent Exam: ***
TO DO: [ ] ***
CONCERNS/CONTINGENCIES:
--- IF, - FFWU: (Yes/No?) (Last was ***)

RESULTS

Baseline Characteristics:
• 73 residents responded to the survey (51% response rate).
• 36% PGY1; 36% PGY2; 25% PGY3; 4% PGY4

What is the FFWU?

Figure 1: FFWU Definition

“When the primary resident instructs you (the cross-cover resident) to order a “full fever work-up” in a patient who has a fever overnight, what do you think this means you should order? Check all that apply.”

Percentage of Time Test was Selected

<table>
<thead>
<tr>
<th>Test</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest Xray*</td>
<td>97%</td>
</tr>
<tr>
<td>Blood cultures*</td>
<td>97%</td>
</tr>
<tr>
<td>UA with reflex to culture*</td>
<td>96%</td>
</tr>
<tr>
<td>Lactate</td>
<td>41%</td>
</tr>
<tr>
<td>Sputum culture</td>
<td>11%</td>
</tr>
<tr>
<td>Urine culture</td>
<td>7%</td>
</tr>
<tr>
<td>Fungal blood culture</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

*45.2% chose ONLY bacterial blood cultures, UA with reflex to culture and chest Xray

• “How often do you order the following tests as part of your fever work up in an immunocompetent patient who has a fever overnight?”
  • 69% “always” order bacterial blood cultures.
  • 66% “always” order UA with reflex to culture.
  • 48% “always” order a CXR.

When is the FFWU Ordered?

• “After what amount of time would you re-order a fever work-up in a patient with a repeat fever? Assume the patient has not been bacteremic during the hospitalization.”
  • 21% would repeat a FFWU with a recurrent fever at 24 hrs.
  • 71% would repeat a FFWU with recurrent fever at 48 hrs.
  • 38% would repeat a FFWU for change in clinical status.

What is the Reliance on Signout?

• 88% reported that they “always” or “often” follow the instructions related to a FFWU on the sign-out.
  • However, only 27% thought that the signout instructions were “always” or “often” kept up to date and accurate.

• When presented with a clinical scenario of a febrile, non-septic patient with CAP, 55% of respondents changed what tests they would order depending on whether the signout indicated to do a FFWU.

CONCLUSIONS/FUTURE PLANS

• At our institution, the definition of FFWU varies considerably, yet residents often order blood cultures, urinalysis and chest x-ray reflexively for patients with a fever overnight.
• Residents recognize that the overnight fever work-up is rarely evidence-based or cost-effective.
• Residents frequently rely on the FFWU instructions over patients’ symptoms or clinical impressions.
• Next steps (currently on-going):
  • Prospectively identify overnight febrile patients.
  • Chart review to track orders, antibiotic changes, patient and clinical scenarios, adverse events.

What do Residents Believe?

Figure 2: Is the FFWU Evidenced-Based?

“My approach to evaluating and managing cross cover patients who have a fever overnight is evidenced-based?

Percentage Agree/Disagree

<table>
<thead>
<tr>
<th>Percentage Agree/Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree (8%)</td>
</tr>
<tr>
<td>Disagree (27%)</td>
</tr>
<tr>
<td>Neutral (49%)</td>
</tr>
<tr>
<td>Agree (14%)</td>
</tr>
<tr>
<td>Strongly Agree (1%)</td>
</tr>
</tbody>
</table>

Figure 3: Is the FFWU Cost-Effective?

“My approach to evaluating and managing cross cover patients who have a fever overnight is cost-effective?

Percentage Agree/Disagree

<table>
<thead>
<tr>
<th>Percentage Agree/Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree (8%)</td>
</tr>
<tr>
<td>Disagree (33%)</td>
</tr>
<tr>
<td>Neutral (41%)</td>
</tr>
<tr>
<td>Agree (16%)</td>
</tr>
<tr>
<td>Strongly Agree (1%)</td>
</tr>
</tbody>
</table>

REFERENCES