Cognitive Load of Faculty Working in the ED’s Acute Care Areas

Sub survey with point-in-time data

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How Do We Measure Attending Load?

• Currently many staff attending coverage based on dispositioning 2 patients per hour
• How many patients can an attending reasonably manage?
• Pure productivity metric is complex
Factors Attributing to Cognitive Load

**Staff Trying to Access the Physician**
- APPs
- Residents (PGY factor)
- Consultants
- Nursing
- Techs
- Ancillary services
- Referral calls

**Patients in Rooms**
- Acutely ill
- Boarding
- Working up

**Surrounding Environment**
- Total ED dept census
- Patients waiting to be seen / bedded
- Hospital census / boarding burden
- Patient arrivals and departures / EMS arrivals
- Pressure to meet dept/hospital metrics
On a typical Monday at 3pm in your Main ED/acute area:
- how many patients are in beds or hall spaces?
- how many attendings are working?
- how many APPs are working?
- how many residents are working?

**Answer:**
On average:
- Main ED: 56 patients
- Attendings: 4
- APPs: 3
- Residents: 5

One Attending manages 16 patients
One APP/Resident manages 7.5 patients
GOING DEEPER: SUB SURVEY

CHAMPIONED BY:
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Survey Design

- 17 EDs
- Various sizes and regions
- Departmental Snapshot Monday and Thursday @ 5pm and 6pm once a month for 5 months (Oct – Feb)
- Census, waiting, boarding, throughput, acuity, staffing, arrivals and departures, NEDOCs, and hospital occupancy
Monday @ 5PM: Big Picture

Total ED Census: 87 patients
Monday @ 5PM: Big Picture

Main ED / Acute Area Census: 53 patients
45 in beds
8 in hallway spaces
Monday @ 5PM: Big Picture

Waiting Room: 22 patients

**Average Wait Times**

*With Screening Provider:*
- Pre-screen: 62 mins
- Post-screen: 122 mins

*Without Screening Provider:*
- Pre-screen: 80 mins
Monday @ 5PM: Big Picture

9 patients waiting > 45 mins to see a provider
Monday @ 5PM: Big Picture

Other Areas: 12 patients
Monday @ 5PM: Big Picture
Monday @ 5PM: Big Picture

Boarders: 18
ICU boarders: 1.4
Average time boarding: 7.4hrs
Monday @ 5PM: Big Picture

ED Observation: 8 patients
What happens between 5–6 PM?

- 13 patients arrive
  - 3 EMS arrivals
  - 12 decisions
    - 3.6 pts hospitalized
    - 7 pts discharged
    - 1.2 pts placed in ED obs
- 11 patients leave
  - 2.2 boarders to floor

**NET GAIN OF 2.6 PTS**
## Monday vs Thursday 5PM

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Thursday</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ED Census</td>
<td>89</td>
<td>81</td>
<td>-8</td>
</tr>
<tr>
<td>Main ED Census</td>
<td>53</td>
<td>50</td>
<td>-3</td>
</tr>
<tr>
<td>Total Boarders</td>
<td>18</td>
<td>17</td>
<td>-1</td>
</tr>
<tr>
<td>ICU Boarders</td>
<td>1.4</td>
<td>1.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>Avg Boarding Time</td>
<td>6.8 hrs</td>
<td>8.3 hrs</td>
<td>+1.5 hrs</td>
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<tr>
<td>ED Obs</td>
<td>9</td>
<td>9</td>
<td>0</td>
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<tr>
<td>Patients in Waiting Room</td>
<td>24</td>
<td>17</td>
<td>-7</td>
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<tr>
<td>Patients Waiting &gt; 45 mins</td>
<td>10</td>
<td>6</td>
<td>-4</td>
</tr>
<tr>
<td>Avg Prescreen Wait Time</td>
<td>1.2 hrs</td>
<td>0.9 hrs</td>
<td>-0.2 hrs</td>
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<tr>
<td>Avg Postscreen Wait Time</td>
<td>1.9 hrs</td>
<td>1.6 hrs</td>
<td>-0.3 hrs</td>
</tr>
<tr>
<td>Arrivals Between 5-6pm</td>
<td>13</td>
<td>12</td>
<td>-1</td>
</tr>
<tr>
<td>Net Change 5-6pm</td>
<td>+2.6</td>
<td>+1.2</td>
<td>-1.4</td>
</tr>
<tr>
<td>% Hospital Occupancy</td>
<td>86.2%</td>
<td>89.5%</td>
<td>+3.3%</td>
</tr>
<tr>
<td>% Med/Surg Occupancy</td>
<td>85.1%</td>
<td>89.3%</td>
<td>+4.2%</td>
</tr>
<tr>
<td>% ICU Occupancy</td>
<td>82.8%</td>
<td>88.6%</td>
<td>+5.8%</td>
</tr>
</tbody>
</table>

**On Thursdays:**
Less ED patients, better ED throughput, but hospital census and boarding time has increased
Monday @ 5PM: Main ED Occupancy

53 PATIENTS

45 BEDS

8 HALLWAY SPACES

121 OCCUPANCY*

* main ED census / main ED beds

AAAEM
Academy of Administrators in Academic Emergency Medicine
Monday @ 5PM: Acuity

1
LEVEL 1

23
LEVEL 2

26
LEVEL 3

3
LEVEL 4/5

* main ED census / main ED beds
Monday @ 5PM: Boarding Patients

53 PATIENTS  16 BOARDERS  29.7% OCCUPIED BY BOARDERS

* main ED census / main ED beds
One Big Happy Family

ATTENDINGs

PGY1: 0.6  PGY2: 0.8  PGY3/4: 1  APP: 1  PGY1: 0.6  PGY2: 0.8  PGY3/4: 1  APP: 1

EXTENDERs

PATIENTs
Main ED: Attending Coverage

Avg. Main ED Pts Per Attending
Decision Times: Think Compound Interest

As an attending manages more patients, time from bed to disposition compounds.

- At 30 pts disposition time is 150 hours (~5 hrs per pt).
- At 20 pts disposition time is roughly 80 hours (~4 hrs per pt).
Summary

• Balancing act
  – Stress and burnout if managing >30 pts?
    • Studies have shown that “higher levels of acute and chronic stress, fatigue, psychological distress, depression, and burnout are associated with a greater likelihood of making medical errors and providing suboptimal or poorer patient care”
  – How do annual clinical hour requirements correlate – do we lessen hours/shifts for high load settings?
    • Sprints vs marathons
      – Do you have adequate recovery time between sprints?
    – Efficiency skills (closing the loop, touch it once, control patient volume, etc.)

• Next steps