EMS-ED handoff: Can team-based reporting improve markers of clinical efficiency in an adult emergency room?

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**INTRODUCTION**

- EMS gives report to ED staff after transporting patients to the ED
- During EMS-ED handoff, 91% of paramedics give patient report ≥ 2 times²
  - Fragmented communication → critical information loss +/- delays in care
- Standardized communication tools increase clarity and clinical efficiency (CE)
  - Improved CE associated with decreased length-of-stay (LOS) and patient mortality
  - Time-to-first labs is an established surrogate for CE
- We used **time-to-first labs** to evaluate how a standardized EMS-ED handoff protocol affects CE markers in the Adult ED
- UF Health Adult ED uses an **asynchronous, opportunity-based reporting (OBR)** protocol for EMS-ED handoffs
- We trialed a “swarming” **synchronous, team-based reporting (TBR)** protocol

**METHODS**

**Type:** Quality improvement project (QIP)

**Setting:** Adult ED

**Design:** Four Plan-Do-Study-Act (PDSA) Cycles
  - 2-week control (asynchronous OBR)
  - 2-week intervention (synchronous TBR)

**Sample:**
- Control: n = 99
- Intervention: n = 37

**Goal:** Improve CE markers by 20%

**METHODS**

- **Predictor variables**
  - Asynchronous OBR protocol
    - 1
  - Provider
  - Change Nurse
  - EMS Report
  - Primary Nurse
  - 3

- **Synchronous TBR protocol**
  - 1
  - Provider
  - Ancillary Nurse
  - EMS Report

- **Outcome variables (CE markers):**
  - Time-to-provider assigned to patient
  - Time-to-CBC ordered
  - Time-to-CBC collection
  - Time-to-CBC resulted
  - Time-to-disposition

**Analysis**

- Start time for all encounters was based on when the patient was physically roomed
- Simple descriptive statistics of pre- and post-intervention CE markers (mean, standard deviation)

**METHODS**

**RESULTS**

- Figure 1. Control: Asynchronous opportunity-based reporting (OBR) protocol

**RESULTS**

- Figure 2. Intervention: Synchronous, team-based reporting (TBR) protocol

- **Figure 3. Barplot demonstrating % decrease in time for CE markers from pre-(OBR) and post-(TBR) intervention.**

- **Table 1: Average Time (min)**

<table>
<thead>
<tr>
<th>Roomed-to-action</th>
<th>Pre (n=99)</th>
<th>Post (n=37)</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient assigned</td>
<td>21.3</td>
<td>3.9</td>
<td>-17.4 (-82%)</td>
</tr>
<tr>
<td>CBC ordered</td>
<td>23.5</td>
<td>14.1</td>
<td>-9.4 (-40%)</td>
</tr>
<tr>
<td>CBC collection</td>
<td>47.8</td>
<td>29.5</td>
<td>-18.3 (-38%)</td>
</tr>
<tr>
<td>CBC resulted</td>
<td>85.2</td>
<td>69.9</td>
<td>-15.3 (-19%)</td>
</tr>
<tr>
<td>Patient disposition</td>
<td>340.5</td>
<td>283.0</td>
<td>-57.5 (-18%)</td>
</tr>
</tbody>
</table>

**CONCLUSION**

- Synchronous team-based reporting during EMS-ED handoff is associated with a 18% increase (-57.5 minutes) in clinical efficiency
- Next step: Expand to entire department and evaluate at scale

**REFERENCES**


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- UF Health Emergency Department
  - Attending physicians
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