Does Distance Matter? Presence of a CT scanner within the ER department and its Effect on ER Patient Throughput

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OBJECTIVE

- We hypothesize that a CT scanner in the ER will decrease the time between imaging requisition and completion, and final patient disposition for specific, comparable diagnoses
- This will shorten CT workup times and as a result:
  ✓ Improve ER workflow and patient wait times
  ✓ Could improve outcomes of hyperacute diagnoses
  ✓ Minimize patient transport to reduce risk of injury

RESULTS

Table 1 – Descriptive Characteristics of Both Hospitals

<table>
<thead>
<tr>
<th>Variables</th>
<th>General</th>
<th>Civic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Count</td>
<td>920</td>
<td>775</td>
</tr>
<tr>
<td>Age (years)</td>
<td>58.38 (17.93)</td>
<td>60.05 (17.99)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>460 (46.75)</td>
<td>438 (49.32)</td>
</tr>
<tr>
<td>Female</td>
<td>524 (53.25)</td>
<td>450 (50.68)</td>
</tr>
</tbody>
</table>

Outcomes:
- Normal & discharged: 384 (40.81) vs 314 (35.36)
- Abnormal & discharged: 205 (21.79) vs 227 (25.56)
- Admitted: 181 (19.23) vs 159 (17.91)
- Admitted but unrelated to CT findings: 83 (8.82) vs 104 (11.71)
- Acute surgery: 86 (9.14) vs 80 (9.01)
- Died (within 48 hrs): 2 (0.21) vs 4 (0.45)

CONCLUSION

1) Increase Patient Throughput
- Decrease patient wait times without compromising care:
- Decreases patient anxiety & improves caregiver experiences in ER

2) Improves Patient Safety
- Prior studies have shown that patient transport increases risk of injury and unnecessary complications

3) Improves Cost-Effectiveness
- Increase # of patients seen in the same time period
- Increase # of available ER beds
- REACT Trial estimates £635 per trauma patient saved

DISCUSSION

Strengths:
- Hospitals have same administration, CT Techs, ER staff, radiologists and residents
- Dedicated ER radiologist in both centers
- Resident overnight (5:00-8:00 on Weekdays, Weekends 8:00-8:00) with staff support

Limitations:
- Cannot account for extrinsic radiological factors (accidents, weather, OACIS/computer malfunctions etc.)
- Variation in Workload – particular day in ER may have high volume of patients or low number of staff, including porters
- Technological issues – Preliminary or final reporting time not always present
- Cost of CT scanner ($175,000 - $300,000)

REFERENCES