Reduced Time in the Emergency Department Directly Correlates with Door to Reperfusion Time

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On Behalf of the Southwest Texas Regional Advisory Council Cardiac Systems Performance Improvement Committee

### Introduction

- Reduced time to reperfusion has demonstrated better outcomes in STEMI patients.
- Current clinical guidelines recommend door to reperfusion time of less than 90 minutes, our current local guideline is 60 minutes.
- Door to reperfusion can be divided into Emergency Department time and cath Lab time.
- Definitive care is only delivered in the cath Lab.

### Methods

- STRAC generates a report of all STRAC Regional EMS Heart Alert cases monthly.
- EMS cases are sent to PCI receiving facility to report outcomes to STRAC.
- Data is compiled and analyzed by the Office of the Medical Director for San Antonio Fire Department.
- Results are reported to the Regional Cardiac Systems Process Improvement Committee monthly and to the medical community quarterly.

### Results

**Table 1. Demographics of the STRAC Regional STEMI patients.**

<table>
<thead>
<tr>
<th>Dates</th>
<th>1/1/2015 – 6/30/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of EMS heart alerts</td>
<td>209</td>
</tr>
<tr>
<td>Total heart alerts with stentable lesion</td>
<td>117 (56%)</td>
</tr>
<tr>
<td>Age</td>
<td>62 ± 13 years</td>
</tr>
<tr>
<td>Gender</td>
<td>76% male</td>
</tr>
</tbody>
</table>

**Table 2. Critical time interval for STEMI patients.**

<table>
<thead>
<tr>
<th>Time Interval</th>
<th>Mean 911 to Device 89 ± 27 min</th>
</tr>
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<tbody>
<tr>
<td>Mean PCI Center Door to Device</td>
<td>53 ± 24 min</td>
</tr>
<tr>
<td>Mean ED Time</td>
<td>31 ± 18 min</td>
</tr>
<tr>
<td>Mean Cath Lab Time</td>
<td>22 ± 13 Min</td>
</tr>
</tbody>
</table>

**Figure 1.** Temporal distribution of all STEMI patients with a documented device time.

**Figure 2.** Correlation of Goal Emergency Department time of 25 minutes (blue horizontal bar) with meeting door to reperfusion goal time of 60 minutes (red horizontal bar). Inset: Cath Lab time for patient population. Indicates first patient with a greater than 25 minute ED time.

### Conclusion

Reducing the Emergency Department time to 25 minutes or less resulted in meeting the goal reperfusion time significantly.

Any process under the control of the facility (interventionalist availability, Cath Lab/Team availability, Nonlifesaving interventions) should be directed toward meeting a 25 minute emergency department time.

### Limitations

- 97% of patients were reperfused in less than 60 minutes with a < 25 minute ED Wait Time.
- 52% of patients in the ED > 25 minutes were reperfused in less than 60 minutes \( p<0.001 \).
- No difference in Cath Lab time as a function of ED wait time. \( p=0.9 \).

This data set includes all patients – inclusive of those requiring resuscitation and other life saving interventions.