Impacting patient care through Laboratory Decision Support - Identification and alert of the patient's first Troponin-I increase

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America’s 100 Best Hospitals for Coronary Interventions and Cardiac Surgery

- 20,000 admissions
- 14,000 surgeries
- 67,000 emergency visits
- 316,000 outpatient visits
- 1,500,000 lab tests
- 330 open heart surgeries
- 475 Coronary Interventional Procedures
Physician Request

- Identification and alert of clinically significant Troponin values
Background

- Emergency Department
  - Call (cut-off)

- Inpatients
  - 1618 patient results (one month)
    - 323 (ED cut-off)
    - 61 meaningful
The Bottom Line

- **Data***:
  - Raw numbers and figures

- **Information***:
  - Data that has been processed and analyzed. The results are directly useful for those involved in the operations.

* Erin Brach. Introduction to Capturing and Analyzing Data. MAYO CLINIC
**The Solution**

- **CPOE**
  - Order
  - Result Posted (no delay)
- **DATA**
  - Test Performed
- **Information**
  - Alert Posted (Doctor role)
- **CDS**
  - Reviewed by Rules engine
  - Tech Notified to call Clinician

LIS

Live 3/31/2010
First Troponin-I increased alert

<table>
<thead>
<tr>
<th></th>
<th>Control Group</th>
<th>Study Group</th>
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<tbody>
<tr>
<td><strong>Time Frame</strong></td>
<td>Dec 2009-Feb 2010</td>
<td>Dec 2010-Feb 2011</td>
</tr>
<tr>
<td><strong>cTn Results</strong></td>
<td>5195</td>
<td>4755</td>
</tr>
<tr>
<td><strong>First Increase</strong></td>
<td>151</td>
<td>140</td>
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<tr>
<td><strong>No Patients</strong></td>
<td>142</td>
<td>130</td>
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<tr>
<td><strong>Cardiac Services</strong></td>
<td>67 (47.2%)</td>
<td>52 (40%)</td>
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<tr>
<td><strong>Non Cardiac Services</strong></td>
<td>75 (52.8%)*</td>
<td>78 (60%)*</td>
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*Only about 50% were seen by a cardiologist or has diagnosis for Acute Coronary Syndrome at admission or before the first alert
Clinical Impact (Patient)

- **Patient with no ACS Dx** (at admission)*
  - LOS: 7.89 days (Control)
  - 6.17 days (Study)
  - 14% (no change in Dx)
  - 86% ACS Dx (Change/New) NSTEMI
    - 47% (6 Hrs)
    - 60% (12 Hrs)
    - 70% (24 Hrs)

* Multiples co-morbidities (C.G.: 2.6; S.G.: 2.9)
Economic Impact (Hospital)*

- Savings: $300,000+

Based on Medicare patient and fully allocated cost

* Data Provided by Brad Peffley, VP Clinical Services
MedCentral Health System
In Conclusion

First Increased Troponin-I Alert Project is improving timely communication between hospital's services that leads to a more effective and efficient patient care.