Early Discharge and its Effect on ED Length of Stay and Access Block

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Presentation Overview

• Motivation

• Analysis Methodology

• The Effect of Discharge Peak Timing

• The next Step - Simulating Early Discharge

• Forecasting and Scheduling @ AEHRC
Motivation

Overcrowding in Hospitals: an International Crisis

- Increased wait times.
- Increased medical errors.
- Increased length of stay.
- Increased medical negligence claims.
- Increased walkouts.
- Ambulance diversion.
- Patient safety at risk.
- Unnecessary deaths.
Motivation

The Magic Fixes

Better Capacity Management

Early Discharge

Admissions/hr

Discharges/hr

Hour of Day

8.13

19.75
Analysis Methodology

The Data

Analysis Period: 1st October 2007 to 31st March 2010 (913 days)
Analysis Methodology

Defining Discharge Peak Categories

<table>
<thead>
<tr>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Category 4</th>
<th>Category 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharges ‘d1’</td>
<td>Admissions</td>
<td>Category 3</td>
<td>Discharges ‘d2’</td>
<td></td>
</tr>
</tbody>
</table>

5 hours

Hour of Day

Number of Patients

Planning Acute Capacity and Management (PAC Man) | Sankalp Khanna
Occupancy vs Discharge Peak Category
ED LOS & Access Block vs Discharge Peak Category

23 Hospitals

Group 1
> 900 Beds

Group 2
300-900 Beds

Group 3
< 300 Beds
Simulating Early Discharge
Forecasting and Scheduling @ AEHRC
Enabling hospitals to better manage their resources & hence reduce waiting times

Planning and Optimisation

Patient Flow Analytics

Readmission Risk Prediction
From Access Block to NEAT Compliance

[Graph 1] % discharged patients vs Hour of Day

- Access Block
- 4-Hour Breach

[Graph 2] % Discharged Patients vs z-score

- Mean Occupancy
- 4-Hour Breach
- Access Block
Thank you

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