**Optimisation of Bed Turnaround Process in a Hospital using Resource Visualisation**

**(Lakshmi Sivaram, Padmanabhan Rajendrakumar)**

**Motivation**

One of the major problems many hospitals face today is the inefficient management of beds or the inefficient bed tracking systems that are available. Available of beds in a unit or department is a key measure to maximise patient care and effective cost management. Hospital beds left unoccupied as a result of waiting for the staff members to service the beds and to get it ready for the next patient is a significant cost to the Health Industry. The *Bed Turnaround Time (BTAT)* in question extended from the time discharge instructions were given to the patient to the time a new patient arrives. Many people are involved in the process of discharging a patient and preparing the bed for the next admitted patient. However, most of the process is currently manual which involves physically checking the rooms to check the availability, assigning staff for servicing them based on the status, etc. The current *Bed Turnaround Time (BTAT)* is around 2.7 hours for a bed. It is estimated that unutilized beds during turnaround time cost $12M annually.

The goal of this project is to optimise the process involved through visualization of resources in an efficient way, and to look out for any trends in the dataset with regards to patient discharges and admissions, with an ultimate aim of improving the Bed Turnaround Time. We aim to improve communication among departments and staff members to ensure the patient flow process is efficient and fast, and thereby reduce the Bed Turnaround Time by at least 50%.

**Dataset**

Patient discharge log of a unit [Partially available]

Patient Transfers (transfer datetime, unit) [Simulate data]

Bed status in each unit [Simulate data]

Cleaner info, Porter info [Simulate data]

Hospital layout [Awaiting input/Simulate]

*What are the important pieces of information you’ll be using?*

Patient Admission details to see the pattern over a period and compare with Discharges.

Wait-times (if available) to correlate with the Bed-turnaround time

*More data might be simulated if required.*

**Patterns/Interactions**

Availability of bed status (Clean, Occupied, Dirty)

Availability of Cleaner/Porter info

Potential discharges/ transfers in a day

Total admissions statistics (to see the trend in the weekday - - any peaks during weekend? Friday?)

**Timeframe**

|  |  |  |  |
| --- | --- | --- | --- |
| **Start Date** | **End Date** | **Activity** | **Status** |
| 15-Feb | 25-Feb | Background Research/Literature Review | Completed |
| 20-Feb |  | Data Collection | In Progress |
| 01-Mar | 15-Mar | Viz Implementation - Phase 1 |  |
| 16-Mar | 31-Mar | Viz Implementation - Phase 1 |  |
| 01-Apr | 10-Apr | Fine Tuning/Project Writing |  |