## Introduction

Linen management work processes rely heavily on physical counting, whether for verification of clean linens received or soiled linens that pose hygiene concerns.

Linen losses that go up to 15% per year after stock take resulted in hospital overstocking linens to meet fulfillment and compensate losses.

## Methodology

**RFID solution to bring about:**
- Improved management in linen losses
- Improved visibility in laundry billing
- Reduction of linen stock holding by 1 par
- Reduction of time taken for stock take
- Reduction in manpower and processing time

### Preparation Work

- Delivered RFID tags to linen supplier at factory for sewing
- Optimised with appropriate positioning of RFID tags on each linen type
- Commissioned the linens with product names
- Worked with vendor on trolley material and design so as to optimise readability of linens by RFID scanner

### Testing of RFID Equipment

- Conducted accuracy testing of linens using RFID equipment
- Performed software testing to ensure smooth transmission of information into system after scanning

### Training of Linen Attendants

- Linen attendants are trained to use the RFID system through on-the-job training.
- Buddy system on ground is implemented to promote interactive learning

## Results

### 1. Losses Management

- Losses reduced from 15% to 7% with RFID implementation

### 2. Par Level Reduction

- Utilisation tracking and losses mitigation can further assist to reduce from 6 to 5 par of linens which is equivalent to approximately $500,000 based on 1,400 beds

### 3. Time and Manpower Savings

<table>
<thead>
<tr>
<th>Activity</th>
<th>Total Number of Trolley for Packing Daily</th>
<th>Total Time Spent Without RFID</th>
<th>Manpower Required Without RFID</th>
<th>Total Time Spent With RFID</th>
<th>Manpower Required With RFID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replenishment of Clean Linens</td>
<td>60</td>
<td>600 minutes</td>
<td>8</td>
<td>180 minutes</td>
<td>6</td>
</tr>
<tr>
<td>Stock Take</td>
<td>3 days</td>
<td>8</td>
<td>1 day</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Time and number of manpower savings for replenishment of clean linens and stock take

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time saved per day (hrs)</th>
<th>Number of manpower savings per month</th>
<th>Total manpower savings per month</th>
<th>Total manpower savings per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replenishment of Clean Linens</td>
<td>7</td>
<td>2</td>
<td>$6,600</td>
<td>$277,200</td>
</tr>
<tr>
<td>Stock Take</td>
<td>2</td>
<td>5</td>
<td>$16,500</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Total manpower savings for replenishment of clean linens and stocktaking

## Conclusion

Implementing RFID tracking system has greatly improved our Linen Management. Not only does the system provides visibility and tracking of different linens, it also comes with other benefits that included reduction in time and manpower spent in replenishment and stock taking. The reduction resulted in substantial cost savings and optimise efficiency in the operational front. Furthermore, utilisation rates can be monitored and better forecasted. Such availability of data allows hospital to function on a lower par level and the ability to manage losses at an earlier stage.