Improvement In Inventory Management And Storage Of Items In National Heart Centre Using Lean Methodology.

Background

The National Heart Centre (NHC) has 139 beds with 4 operating theatres, 5 catheterization labs and 11 in-patient wards. Due to the lack of an electronic inventory system, managing supply chain in NHC is challenging and time-consuming. In addition, the area where items are stored is limited and not organized. This has negative effects on patient care and workflow.

Current Conditions

- Frequent cancellation of procedures: Approximately 15 cases per month.
- Increase in the length of stay with an average cost of 150 Omani Riyals per day.
- Underutilization of Cath lab slot by 2 Doctors, 2 nurses, and 2 technologists per lab.
- Increase in waiting lists.
- Lengthy process of ordering out of stock items.
- Value Stream Mapping (VSM, lean method) used to visualize the steps and time taken.
- All stores’ items not organized in a scientific way (5s to be implemented).

Objectives

1. Reduce lead time of processing out of stock of surgical items in NHC by 50% by December 2018.
2. Reducing total surgical items inventory checking time in Cardiac Cath Lab by 90% by December 2018.
3. Implementing 5s Methodology in all NHC stores by December 2018.

Root Cause Analysis

Action Plan

<table>
<thead>
<tr>
<th>What</th>
<th>Where</th>
<th>Why</th>
<th>Who</th>
<th>By When</th>
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<tbody>
<tr>
<td>NHC lean team regular meetings</td>
<td>NHC-National Heart Center</td>
<td>To evaluate process in NHC</td>
<td>NHC lean champion and NHC admin</td>
<td>Regular from October 2018 every Tuesday 2-4pm</td>
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<tr>
<td>Contact IT Department</td>
<td>IT Dept.</td>
<td>Create e-portal for communication and inventory system</td>
<td>Jamila</td>
<td>Jun 15, 2018</td>
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<tr>
<td>Contact Surgical Store Dept., Contact distributors</td>
<td>Cath Lab - NHC</td>
<td>Eliminate over-processing</td>
<td>Ala</td>
<td>Dec 20, 2017</td>
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<tr>
<td>Contact Purchasing Department</td>
<td>Cath Lab - NHC</td>
<td>Reduce lead time of item delivery</td>
<td>Jamila</td>
<td>Jan 15, 2018</td>
</tr>
<tr>
<td>Implement 5s in all National Heart Center stores</td>
<td>All national Heart Center stores, cardiac cath lab procedures room and pharmacy</td>
<td>Eliminate waste</td>
<td>Jamila All teams from all department</td>
<td>December 2018</td>
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Outcomes

- No cancellation of procedures.
- Lead time of processing out of stock of surgical items in National Heart Center reduced by 50%.
- Other stakeholders contacted and visual map for the ordering process done.
- 5S completed in all NHC stores cardiac cath lab procedures rooms and NHC pharmacy by December 2018 with the following outcomes:
  1. Cost saving around 11,000 O.R.
  2. Time saving from 7 min to 1 min in searching for any items from any store in the National Heart Center.
  3. Saving 1 hrs / day in dispensing medication prescription.
  4. Staff Satisfaction 95% based on surveys.
  5. For the Cardiac Cath lab procedures time improved by 20%.
- Initiation of inventory system project started by March 2018 with following outcomes:
  1. Cost saving 26,000 R.O (online coding app)
  2. Time saving for tracking surgical items from 7.72 days to 75 min (see figure below)
- Official commitment from vendors to National Heart Center to deliver items one month from the time they receive LPO.