

Customer Challenges

- Potential nurse shortage
- Value added tasks vs. non-value added tasks
- Movement efficiency for nurses
- Patient length of stay

PROJECT SUMMARY

The management team at a hospital was interested in improving patient satisfaction. The goals of maximizing time allotted for patient care and ensuring that the nursing staff had an appropriate workload were identified. The hospital requested from PMC both the documentation and analysis of how the nursing staff spent their day. To be determined were any resources over or under capacity, and what steps might be undertaken to reduce non-value-added tasks while increasing value-added activities.

To achieve these understandings, industrial engineering and lean healthcare methods were applied. The findings, as well as process improvement recommendations were provided.

SYSTEM DESCRIPTION

The scope of the system studied included the Medical-Surgery (Med/Surge), Emergency Room (ER), and Intensive Critical Care Unit (ICCU) departments of the hospital. Within each department tasks were performed by the various nursing staff.

Each department included three personnel resource types:

- Charge Nurse (CN)
- Registered Nurses (RN)

OPPORTUNITY

Patient care and satisfaction were dependent on more than just the qualifications of the nursing staff resources in each unit; it was vital to assign the appropriate number of each resource to each department, and to design each task sequence in a manner that minimized waste.

To ensure that patients received the highest quality care possible, and resources were being used in an appropriate manner, a thorough review and analysis of the current process was needed.

Three primary areas of concern were to be addressed:

- Determining amount of time current process allowed for providing patient care
- Revealing resources over or under capacity
- Identifying process improvements to increase the amount of time spent on patient care

Case Study: Medical Technology Improved by Industrial Engineering methods

APPROACH

PMC applied a suite of industrial engineering methods to address the hospital's needs. Such methods included: time and motion studies, process mapping, and root cause analysis.

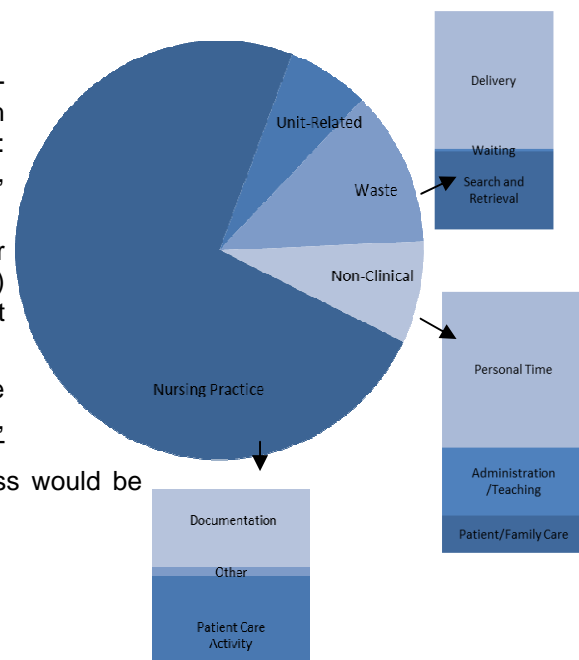
PMC utilized a custom designed Microsoft Excel based application with Random Time Generator (RTG) to ensure randomness of samples, and to facilitate rapid analysis of data via pivot tables. In addition to quantitative data collection, thorough qualitative data collection of task elements was also recorded during process mapping procedures. The data sets were used in conjunction to perform root cause analysis.

SOLUTION

Random sampling data allowed for the determination of how staff members spent their time. Each task was grouped into one of four care categories: Nursing Practice, Unit-Related Tasks, Non-Clinical, and Waste.

Capacity analysis performed on all resources under study. The Personal, Delay, and Fatigue (PD&F) percentage for each resource in each department was reviewed.

It was shown that PCT resources in the Med/Surge and ICCU have PD&F time beyond the allowance, and therefore have available capacity. If these PCT resources were utilized more efficiently some stress would be alleviated from the remaining nursing staff.



Breakdown of nursing resource time usage

BENEFIT

PMC provided the workload data required to support an accurate interpretation of how personnel spent their time within each of the hospital departments. PMC's team performed several detailed analyses on the resultant data which illustrated the amount of time devoted to patient care and care coordination tasks, as well as non-clinical activities and time wasted.

Several process improvement opportunities were identified and detailed solutions were presented. These solutions will reduce the amount of time spent on non-value-added tasks and increase the amount of time spent on patient care and improving the overall level of patient satisfaction.

