Improving productivity, quality, and turnaround times in the H&E workcell through implementation of LEAN process changes and the Ventana Symphony

Aims

50 cases per day x 685 ft² = 34,000 ft² per day

Accessioning 9 ft² 3 ft² 6 ft²

Case Assembly 126 ft² 100 ft² 26 ft²

Slide processing (2007-8)

December 2374 2598

Productivity

Figure 2: Baseline process performance and demand rate time needed to match demand

Materials and Methods

The pathology laboratory at OU Medical Center operates 10 hours a day, six days a week, supporting the healthcare needs for the OU Oral Pathology and some on-campus research operations. The need to improve TAT for the benefit of patient care and fiscal share) is an important “pillar goal” of the medical center, which has worked to improve throughput in the operating room suites, and decreasing length of stay (LOS).

We used concurrent process data in process productivity under standard and substandard systems of workers. We modeled work load and scale conditions affecting H&E workcell productivity in order to develop a quantitative model to predict productivity. The largest obstacles are the bottlenecks noted in actual process capability, some of which were eliminated or reduced by the process changes, internal benchmarks based on past performance can be utilized effectively as an evaluation measure. We have not implemented any new process changes, introduced any new equipment, or altered our workflow procedures.

How widely acknowledged are the risks of the status quo? How much are the benefits of this change recognized by those involved in the change? How widely acknowledged are the risks of the status quo?

Figure 3: Baseline floorplans and process flow diagram

Figure 4: Floorplan and process diagram following change

Table 1: Comparison of monthly productivity following LEAN process changes

4 of 4 dimensions support a high to medium need for change management

Table: LEAN process changes

Figure 7: 40th conference: Improving the impact of Lean on our organization

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Lean production methods, originating in industrial settings such as Ford, Toyota and others, have been applied more broadly in the healthcare sector over the past decade with promising results. Laboratories in particular have been early adopters. Most of the reports of such successes to date have emphasized the gains to be had from increased automation, but relatively less attention has been given to the implementation of an industrial approach to operational excellence. This approach involves the use of existing management tools and decision-making processes, but introduces additional strategies that focus on the effective and efficient use of resources for the benefit of the organization and its clients. In this case, the clients are the patients and the process is the production of quality results.

There is a common misconception that Lean is about automation. This is not the case. It is about reducing waste and doing only what adds value. Waste can be of several kinds: time, motion, and inventory. Lean is about identifying and eliminating these wastes in order to increase the value delivered to the customer. The key is to focus on the customer’s needs and to make sure that the process is designed to meet those needs. The Lean methodology is based on the principles of continuous improvement, standardization, and the elimination of waste.

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Reports of potential impacts on productivity and leads have also been forthcoming. While these results are not yet conclusive, the potential benefits of Lean methods are evident. In this case, the clients are the patients and the process is the production of quality results.

Table 2 Inventory or wait times for specimens between process steps

<table>
<thead>
<tr>
<th>Process step</th>
<th>Wait pre-LEAN</th>
<th>Wait post-lean</th>
<th>Percent improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessing to Grossing</td>
<td>2.5 hours</td>
<td>2.5 hours</td>
<td>0.0%</td>
</tr>
<tr>
<td>Gross Embedding to Processor</td>
<td>3.5</td>
<td>1.0</td>
<td>14%</td>
</tr>
<tr>
<td>Microtomy to H&amp;E Staining</td>
<td>2.3</td>
<td>2.5</td>
<td>0.0%</td>
</tr>
<tr>
<td>H&amp;E Staining to Case Assembly</td>
<td>1.0</td>
<td>2.75</td>
<td>55%</td>
</tr>
</tbody>
</table>

References: