APHL and Abbott Laboratories Lean Pilot Project

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OBJECTIVE

As public health laboratories continue to be challenged to do more with less, many have looked at using Lean principles to improve processes, eliminate waste, and increase efficiency. One of the Association of Public Health Laboratories' (APHL) Diamond level corporate members, Abbott Laboratories, offered to conduct a pilot project of Lean workflow assessments in three member laboratories.

PROJECT DESIGN

The pilot sites were selected through an application and review process. Staff from interested public health laboratories (PHL) were required to complete an application that described specific goals and efficiency challenges for their laboratory. Sixteen applications were received and reviewed by APHL and Abbott staff, with selection based on the scope of the project and best matches for the skills and knowledge of the Abbott consultant. The selected sites were the public health laboratories in Rhode Island (RI), Missouri (MO), and Long Beach, CA. RI PHL's Molecular Laboratory wanted to improve the efficiency of their organization and process flow. MO PHL indicated a need to utilize the Lean principles to improve their sample receipt and accessioning processes. Long Beach requested to have their overall flow of samples evaluated to identify ways to work more efficiently and improve productivity.

PROCESS

The consultant, Sheila Moore, MSA, BA, MT(ASCP)SH, certified as a Lean Six Sigma Black Belt spent 1-2 days at each site in winter 2013, where she studied the overall work flow and collected data by direct observation, measurement and interviews with staff at various levels. Ms. Moore used the information to create process maps (Figure 1) to demonstrate unnecessary steps or potential areas of duplication. Also as needed, she created workflow diagrams (spaghetti map) that showed the flow of the steps needed to complete an activity (Figure 2). Her recommendations to the laboratories included detailed suggestions on incorporating new processes such as inventory control systems and moving some manual tests to automated methods. and on which steps to possibly eliminate or how to decrease steps. The recommended next steps for each laboratories are summarized in Figures 3, 4 and 5.

FOLLOW-UP

Since the assessments and report outs were completed in March 2013, initial implementation is just beginning and no measurements of impact have yet been conducted. Progress is being made beginning with creating awareness and to engage staff, training on Lean has begun in all laboratories. Staff have either participated in the summary sessions or have participated in training on Lean (using material provided by Abbott) which included outlining what the benefits will be to implementing some of the recommendations and how to use the data that was collected.

Several of the changes that were recommended will require further time and cost analysis before implementing, but based on the assessments the following activities have begun:

- Long Beach has purchased an automated instrument for some of its STD testing and a barcode system. The walkaway instrument will free staff to begin other project besides just conducting testing, QC, and maintenance.
- MO has begun meetings with unit managers on writing a laboratory wide procedure for sample acceptance and rejection criteria and is currently working with Human Resources to reclassify key employee job descriptions.
- RI began with a laboratory wide cleaning project, which included removing unused equipment and outdated computers; removing all sticky notes and random picture and cleaning out drawers and cabinets, thus freeing up space to store needed supplies and equipment closer to the work area.

Figure 1. Current Pre-Analytic Process Map

Figure 2. Pertussis Workflow

Figure 3. Missouri Public Health Laboratory Summary of Recommendations

Goal	Recommendation
Increase efficiency	Eliminate "wait" periods by redefining specimen processing responsibilities.
Increase ability to handle surges in testing	Cross-train technologists whose specimen processing duties have been reduced.
Standardize procedures and protocols	Specimen rejection policy can be applied uniformly by the central services staff.
Break down resistance to change	Educate staff on CLIA requirements and include staff in decision making.

Figure 4. Rhode Island Public Health Laboratory Summary of Recommendations

Goal	Recommendation
Improve workflow	Reduce extra processing time by combining second check of requisitions with accessioning on sample arrival.
Save money	Institute inventory control system and centralize ordering and storage of common supplies.
Free up technical staff from pre-analytical steps	Cross-train specimen processing staff for sample accessing and sample kit preparation.

Figure 5. Long Beach Public Health Laboratory Summary of Recommendations

Goal	Recommendation
Increase efficiency	Eliminate redundant or unnecessary procedures, implement barcoded labels, automate recordkeeping, autoverify.
Staff has been reduced, while testing is expected to increase	When possible, upgrade equipment to more automated analyzers.
Rabies sample collection is very time consuming.	Require submitters to extricate animal brains.

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Acknowledgements/Sources

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