LABORATORY PROCESS IMPROVEMENT THROUGH POINT-OF-CARE TESTING

Bailey TM, Topham TM, Wantz S, et al. J Qual Improv. 1997;23:362-380.

Bailey and colleagues concluded that POCT simplified the blood analysis process, reduced annual blood-processing costs, reduced turn-around time, and did not increase nursing workload.

Key Points

- POCT saved the hospital nearly $400,000 compared with the total annual cost of the traditional approach for delivering blood analysis.
  - Average cost per test panel was $15.33 with the traditional process and $8.03 with POCT.
  - Although the annual supply costs for POCT were higher than the traditional approach ($5.32 per test panel), labor savings were greater.
  - Average savings per test panel with POCT: $7.30.

- Shifting to POCT simplified the complex blood analysis process.
  - POCT eliminated 4 steps on the patient care floor and 10 steps in the laboratory.

Study Overview

Published in 1997, *Laboratory Process Improvement Through Point-of-Care Testing* provides an in-depth comparison of the traditional blood analysis process and point-of-care testing (POCT) at Methodist Clinical Laboratory Services in Indianapolis. The laboratory was part of a vertically integrated health system that included a tertiary-care teaching hospital, as well as a health care plan that served more than 100,000 members.

The central hospital laboratory performed about 1.7 million billable laboratory test panels annually. In addition, the health system had 3 satellite stat laboratories: one exclusively served the pediatric intensive care unit, a second supported the adult and neonatal intensive care departments, and a third supported the open-heart surgery patients. Collectively these 3 laboratories processed about 53,000 tests annually on site.

The paper reports the results of a 4-year period during which the clinical laboratory service was actively restructuring its work processes to include a POCT initiative. The POCT approach was introduced in an effort to optimize the decision cycle time while simultaneously reducing the overall cost of tabulating and delivering the results. The authors compared the health system's traditional blood analysis process and POCT with regard to cost per test panel, nursing time spent, and overall turnaround time.

- Turn-around time with POCT was about 15 minutes shorter than the traditional central laboratory process, and nearly 11 minutes shorter than the stat laboratory process.
  - In some departments, more rapid turn-around time led to altered care pathways that allowed for immediate treatment by caregivers based upon test results.

- The process change away from traditional testing and to POCT did not increase nursing workload.
  - Nurses spent on average 3 minutes, 10 seconds performing tasks associated with traditional blood analysis and 2 minutes, 57 seconds performing POCT functions.

Expert Commentary by Gary L. Rickel, MT (ASCP), POCT Coordinator, Department of Laboratories, Seattle Children's Hospital, Seattle, WA

As Bailey and colleagues described in their article, we also experienced numerous process improvements when we updated our POCT system at Seattle Children's Hospital to the epoc® blood analysis system. The most striking improvement has been the simplified process. Laboratory assistants no longer need to label cartridges with expiration dates or stock the floor with POCT supplies 3 times a day, a process that we estimate took at least 1 hour daily. Since the test cards can be stored for up to 6 months at room temperature, we have been able to move inventory control to Central Supply. The single-use, self-calibrating test cards, each with a full test menu, have simplified quality control and inventory management and enabled us to reduce inventory space. The bar-coded test cards make it easy to track inventory and order new supplies.

With the wireless capabilities of the epoc® blood analysis system, results are now delivered in real time and critical results are automatically flagged and transmitted to the patient's electronic medical record in seconds. Test results are immediately accessible to physician and laboratory staff, enabling faster treatment decisions to be made.

From a financial perspective, we estimate an annual savings of about $85,000 with our updated POCT system. Quality control is quick and easy, and requires 1 test card rather than the 3 cartridges necessary with our previous system. We save time on inventory distribution by placing our shipments through Central Supply. And staff no longer needs to perform calibration checks or monitor refrigerator temperatures, which frees them up to perform other duties.

POCT has streamlined the testing process in our facility. These efficiencies have eliminated unnecessary steps, reduced complexity, and improved the care we deliver to our patients.

You may obtain full-text copies of *Laboratory Process Improvement Through Point-of-Care Testing* at: **http://bit.ly/O7MWIQ.**

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