

Continuous Quality Improvement in the DSHS Laboratory

LRN Bandera Conference
February 26, 2014

How it began

- } Budget cuts
- } APHL Funding
- } Lean Six Sigma Yellow Belt training for 20 individuals
- } 36 completed 5S projects



Current

- } Further funding for more in depth training
 - } 19 more Yellow Belts
 - } 8 Green Belts
 - } 5 working in Newborn Screening
 - } 3 working in Media Prep
 - } 4 Black Belts

- } All belts are required to complete a project



Yellow Belt Projects

- } 10 are working with a Green or Black belt project
- } Standardization of SOPs
- } Developing a Shadowing Program
- } Creating a new inventory system
- } Assessing the need for a pipette calibration team
- } Glassware inventory project – for ISO accreditation
- } 5S Project



Newborn Screening Project

The goal is to examine processes from the arrival of specimens in the laboratory to the final reporting step in an effort to remove delays, duplications and bottlenecks.

- } The team of 5 worked together to collect data over all the testing areas
- } Analyzed the data
- } Presented to management
- } 5 individual projects were selected



Green Belt Projects – Newborn Screening

- } A team of 5 working in Newborn Screening
 - } Check in and Punching – Tiffunee Odoms
 - } Data Entry and Logistics – Cathy Snider
 - } T4 - Linda Cao
 - } Galactosemia – Shawn Tupy
 - } Mass Spectrometry – Andrew Vinyard



Newborn Screening Green Belt Project Turn Around Time Project

Newborn Screening Turn Around Time (TAT) Review

The Laboratory Services Section will use Lean Six Sigma to implement Continuous Quality Improvement.

The process used to Lean Six Sigma is DMAIC. What is DMAIC?

Lean Six Sigma is a methodology that integrates concepts and tools from both Lean (waste reduction) and Six Sigma (defect reduction).

Lean addresses the reduction of waste and cycle time.

The Sigma focuses on reducing errors and customer dissatisfaction.

DEFINE: Define the process, the area of responsibility, and the customer. (Who, What, Where, When, How, Why)

MEASURE: Measure the current process and gather relevant data. Identify key metrics and measurement methods.

ANALYZE: Analyze the data to highlight our areas of concern and effect relationships. Identify and select possible solutions.

IMPROVE: Improve or redesign the current process.

CONTROL: Control the process to ensure that the improvements are sustained.

30,000 Foot View

Deliver to Hospital Customers

Customer: Hospital and Clinician (after a year) - responsible for initial data points. Hospital and Clinician responsible for making the process work. Deliver to patient. Lab staff: receive & deliver data to patient. Hospital and Clinician responsible for making the process work. Deliver to patient. Lab staff: receive & deliver data to patient. Hospital and Clinician responsible for making the process work. Deliver to patient. Lab staff: receive & deliver data to patient.

Measure

DATA ANALYSIS NBS TURN AROUND TIME (TAT)

Test Results From PA Lab Testing Sites

Improving Turnaround of TAT Data

Typical TAT for TAT Data

Relative Turnaround Comparison for Each Area

Five project areas were identified for further analysis.

Abundant clinical data generated from the following areas: Genetic Testing, and Newborn Screening (NBS) - Congenital Hypothyroidism (T4/TSH), Phenylketonuria (PKU), and Galactosemia (GAL) - Clinical and Testing.

Data Entry, Results Reporting, and Specimen Information Logistics

Galactosemia CQI Project

- Construct a current process map
- Identify areas of opportunity with the team
- Create process maps for the workflow improvements to include areas and team
- Select workflow enhancements to trial for 3 months
- Measure the impact of the changes on the process and re-evaluate

Tandem Mass Spectrometry

- The goal of this project is to reduce the turnaround time for abnormal results in tandem mass spectrometry. The goal is to reduce the turnaround time for abnormal results in tandem mass spectrometry. The goal is to reduce the turnaround time for abnormal results in tandem mass spectrometry.
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Congenital Hypothyroidism (T4/TSH)

1.2 The Workflow Process

Galactosemia CQI Project



Green Belt Projects – Media Prep

The overall goal for the Media Preparation Group is the reduction of waste.

- } A team of 3 working in Media Preparation Area
 - } Inventory
 - } Internal Waste Reduction
 - } 12 week schedule



Black Belt Projects

- } Four Projects
 - } Communication in the Laboratory
 - } Courier Transit Project
 - } Tuberculosis Testing Process Improvements
 - } Molecular Area Turn Around Time



Future Plans

- } Build a “White Belt” Training program in the laboratory
- } Create a 5 Year CQI Plan
- } Continue working on projects

