Using Lean process for improvement in Newborn screening

Washington State Department of Health

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What is Lean?

As explained on the ‘Lean in Washington’ website:

• The term "Lean" refers to a set of systemic management practices developed in the mass production era with Ford in the early 1900s and the Toyota Production System in the late 1940s.

• Lean provides proven principles that are helping Washington state government to create a culture that encourages respect, creativity and innovative problem solving to continuously improve and eliminate waste from government processes.

• Lean works to align efforts across state agencies and deliver results that matter to Washingtonians.
Identifying areas of improvement

- Metabolic treatment product logistics
- Billing for specimens
- Receiving and accessioning specimens
Central Receiving

3000 newborn specimens per week are received on average.

Specimens are delivered via USPS, FedEx, and hospital couriers.
The LEAN Process

- Received 2 four-hour training sessions from a Lean consultant
- Team consisted of
  - 6 lab staff
  - 1 follow-up staff
  - 1 central receiving staff
- Several working sessions over six months
  - Identified and phased in changes
- Evaluated changes six month after implementation
Brainstorming Sessions

Key Performance Measures

1. Decrease # of sps lost from post 6 monthly
2. Reduce amount of time spent in mail room - Daily
3. Reduce the time spent in mailroom counting sps. Weekly
4. Accuracy in counting sps - Weekly
5. Reducing the time spent between mail room if until punching
6. Reduce errors in accessioning - Weekly

Base Target: 20

Current State of the Process

- Mail Receiving by mailroom staff
- Postal
- FedEx/UPS
- STAT received upon request
- Courier
- Staff check at their convenience
- Prior to cutoff
- 10:00 - 10:45
- 11:00
- 2:00 PM
- 3:30 PM
- 7:00 PM
- 3:00 PM

In NBS Lab
- Mail is opened if checkbox is present then the specimens are checked off.
- Mail is sorted into Newborn & followup specimens and unsuitables.
- Double checked by a different staff.
- Stamping - previous day is first except unsuitables.
(Signed aw by Gift Care) don’t forget to send the current day.
(done in groups of 80)
- Punching is done simultaneously with stamping.
  Group 3 is done before Group 5 punch.
- Accessioning (Punching could be done prior to accessioning in Neometrics)
Identifying areas of improvement

The Lean team:

• Mapped the current state of receiving and accessioning
• Identified areas that needed improvement
Mapping possible changes

- The Lean group worked to identify high impact low effort projects
Key Performance Indicators

Main objectives were:

- Decrease the number of courier specimens lost
- Increase the accuracy of counting courier specimens
- Reduce errors during specimen accessioning
- Reduce the amount of redundant staff time checking mail
- Reduce the amount of Operations staff time spent counting courier specimens
Improving Accuracy by Counting Cards

• All cards are counted by the courier and then recorded on the courier delivery log
• Receiving staff verifies the courier’s count at delivery
• Newborn Screening Staff verifies the receiving staff count at pick-up
Courier deliveries

- Tracking all courier deliveries
- Immediate confirmation of samples received
- Manifest check
- Written record for NBS follow up staff to use as reference

**Blue**: Mailroom staff checkmarks
**Red**: NBS staff checkmarks
Saving and checking envelopes

Envelopes checked with light box after initial opening

Envelopes are then saved for a week

The envelopes are checked a fourth and final time before they are recycled
Accessioning worksheet

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<th>Julian Day</th>
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- Created new worksheet
- Tracks time of receipt
- Improved Accessioning Accuracy
Reducing Staff Time Spent

• Small changes were made to save time such as a white board showing who is going to receive mail
• Simple improvements made the process more efficient
## Results after implementing Lean Changes

<table>
<thead>
<tr>
<th>Key Performance Indicators</th>
<th>Before Lean</th>
<th>Results After Lean</th>
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<tbody>
<tr>
<td>Number of specimens lost during 6 month period after implementing Lean practices</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Accuracy of courier specimen counts</td>
<td>Unknown</td>
<td>100%</td>
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<tr>
<td>Number of daily trips made to central receiving to check for specimens</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Number of accessioning errors</td>
<td>13</td>
<td>0</td>
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</tbody>
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Questions?

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Washington State Department of Health
Newborn Screening Program