CQI Texas

Improving Timeliness through a Systematic Investigation of Process Workflows
Lean Six Sigma

CQI Texas
**Define:** Purpose

Day 1: Birth
Day 2: Collection
Day 3: NBS Lab
Day 4: Time Critical Positives
Day 5: Time Sensitive Positives
Day 6: All Results
Day 7: Goal = 95%

- **29.8%**
- **71.2%**
- **12.1%**
Define Constraints Analysis
Low Hanging Fruit

Report Generation Time

8 am only

8 am and 3 pm

1st Screen Lab TAT

% Reported within 7 days of Birth

% within 4 Days Receipt
Define: **Purpose**

Day 1

- Birth

Day 2

- Collection

Day 3

- NBS Lab

Day 4

- Time Critical Positives

Day 5

- Time Sensitive Positives

Day 6

- All Results

Day 7

- 29.8%

- 71.2%

**Goal = 95%**
Define: Constraints Analysis

Initiation of Punching

Start of testing

Data Entry deadlines
**Define: Goal**

**Goal**
Increase the % of:

1. 1st screens punched same day.  **16.3%**

2. Time critical positives punched same day.  **12.1%**
Measure
Measure: Lean Assessment

1. Courier delivery times
2. Check-In bundle ready times
3. Avg. specimen volumes by day of week
4. Punching completion times:
   a. Multipuncher (2, 4, 6 plates)
   b. Panthera (8 plates)
Measure

Wisdom of the Org

1. Current / Projected workflows
2. Current / Projected staffing maps
3. Recommendations / Issues / Concerns
Analyze
**Analyze**

**Workload Models**

**Bundle Availability**

<table>
<thead>
<tr>
<th>Time</th>
<th>% of Bundles Ready</th>
<th>Avg. Specimens Ready</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30</td>
<td>21</td>
<td>515</td>
</tr>
<tr>
<td>13:00</td>
<td>61</td>
<td>1495</td>
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<tr>
<td>14:30</td>
<td>99</td>
<td>2426</td>
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</table>
Improve
Redefined accessioning deadlines
Established continuous workflow
Defined bundle pickup and delivery tasks / times
Defined:
  • Punching oversight requirements
  • Communications
Elimination of Requested Repeats (RRs)

- Systemwide inefficiencies
- No time benefit if all specimens punched same day.
- Specimens marked as Requested Repeat given accessioning priority

<table>
<thead>
<tr>
<th>Day Punched</th>
<th>Totals</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Same Day</td>
<td>581</td>
<td>94.63%</td>
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<tr>
<td>2nd Day</td>
<td>22</td>
<td>3.58%</td>
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<tr>
<td>3rd Day</td>
<td>10</td>
<td>1.63%</td>
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<tr>
<td>4th Day</td>
<td>1</td>
<td>0.16%</td>
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</table>

Specimens marked test category 3 – Previous abnormal

*Improve: Test Categories*
Improve: Staffing

- 3 additional Positions
- Adjusted staff hours
- Additional Saturday staffing

<table>
<thead>
<tr>
<th>Area</th>
<th>Pre-Chip</th>
<th>Full Workload</th>
<th>Reduced Workload</th>
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<tbody>
<tr>
<td>Endos</td>
<td>3</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>G&amp;B</td>
<td>3</td>
<td>4</td>
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<tr>
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<td>3</td>
<td>4</td>
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<td>HGB</td>
<td>0</td>
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<td>MSMS</td>
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<tr>
<td>Total</td>
<td>13</td>
<td>23</td>
<td>20</td>
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</table>
**Improve**

**Reduced Saturday Workload**

- No negative impact on 1st screens
- Normalizes Monday punching workflow
- Reduces weekend staffing
- Reduces time needed for demo entry to complete entry of workload received on Saturday

### Change in Carryover %

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<tr>
<th>Specimen Category</th>
<th>1sts</th>
<th>2nds</th>
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<tr>
<td>Estimated</td>
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<tr>
<td>Actual</td>
<td>0.1</td>
<td>15.4</td>
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</table>
**Improve: Punching / Sampling**

**Start**

1. **Are there any bundles remaining that have not been 4B punched?**
   - **YES** → Sign out and complete 4B for the individual bundle
   - **NO** → **Are there any 1st bundles of a batch remaining that have not yet been punched?**

2. **Are there any 1st bundles of a batch remaining that have not yet been punched?**
   - **YES** → Pick up and complete 4A punch on remaining bundles of batch
   - **NO** → **Sign out the individual bundle and complete 4A punch**

**End**
**Improve:** Punching / Sampling

### Mon - Fri

<table>
<thead>
<tr>
<th>Time</th>
<th>Receiving</th>
<th>Punching</th>
<th>CAI Retent</th>
<th>CAI Data</th>
<th>CAI AD</th>
<th>IRT Retent</th>
<th>IRT Data</th>
<th>IRT AD1</th>
<th>T4 W11</th>
<th>T4 Bil2</th>
<th>T4 Retent</th>
<th>T4 Poucher 1</th>
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### Saturday

<table>
<thead>
<tr>
<th>Time</th>
<th>G&amp;B</th>
<th>Endos</th>
<th>SCID</th>
<th>HGB</th>
<th>MSMS</th>
<th>Total</th>
<th>G&amp;B</th>
<th>Endos</th>
<th>SCID</th>
<th>HGB</th>
<th>MSMS</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>10:00 - 12:15</td>
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<td>6</td>
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<td>1:15 – 3:45</td>
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<td>1</td>
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</tbody>
</table>
Control
Control

% Punched Same Day

Percent Specimens Punched Same Day as Received

- Initial Screens
- Followup Screens
- Time Critical Disorders
- Time Sensitive Disorders

16.3%
93.1%
Control
Time Critical Disorders

Baseline Process

New Process
Control

Time Sensitive Disorders

Baseline Process

New Process
Control: Outcome

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>Collection</td>
<td>NBS Lab</td>
<td>Time Critical Positives</td>
<td>Time Sensitive Positives</td>
<td>All Results</td>
<td>29.8%</td>
</tr>
</tbody>
</table>
Additional Opportunities

- **HGB**
  Process workflow

- **GALT / BIOT**
  GSP

- **SCID**
  New Extraction Protocol

- **Report Generation**
  Automation
Thank you!