Define

Problem Statement

In Specimen Receiving at the QEH Lab, the current process of specimen handling has:

• no shipping or delivery standards
• inadequate staffing
• lacks organization and guidelines

This results in delay in transporting specimens to lab divisions, causing stress for staff and clients.
Define

Specimen Receiving:
The area at the front of the lab where all specimens are dropped off.

We receive:

• Inpatient and outpatient specimens
• Drop offs from the public, courier, porter, and tube.
• Approximately 2000 specimens per day.
Central Accessioning:

This area is centrally located within the lab and is responsible for:

- Sorting and matching specimens with requisitions
- Entering lab tests into CIS
- Attaching Cerner bar-code labels to specimens
- Transporting specimens to appropriate divisions
Specimen Receiving
Receiving/Sorting Process

Specimen Arrival

- Porter
- Tube
- Courier

• Fast-track STAT/Priority specimens

Is the information complete/acceptable?

Complete the missing information

Are the specimens "Routine"?

Are the specimens "Barcoded"?

Is a "Sort" required?

Begin "Sorting Process" (Barcoded)

Are specimens required for "Accessioning"?

Place specimens & requisitions in appropriate bins for "Accessioning" Divisions
- Central Accessioning
- Cytology
- Histology
- Microbiology

Immediate transport to Division(s) for "Accessioning"

1600-0800 Place in appropriate storage bins (ie. Fridge or bench)

Transport specimens to Divisions (for Receiving)

Deliver specimens to appropriate benches

Is the information complete/acceptable?

Is a "Sort" required?

Begin "Sorting Process" (Non-Barcoded)

Place specimens (+ requisitions +/- transfer lists) in appropriate bins for "Receiving" Divisions
- BTS
- Chemistry
- Cytology
- Hematology
- Histology
- Immunology
- Microbiology
- Urine Lab

1600-0800 Place in appropriate storage bins (ie. Fridge or bench)

Is a "Sort" required?

Deliver specimens to appropriate benches

Created for Health PEI
Courtesy of LearningToSee LTS CONSULTING

ONE ISLAND FUTURE
ONE ISLAND HEALTH SYSTEM
Central Accessioning
Receiving/Sorting Process

Begin to lay out requisitions on sorting bench

Fast-track STAT/Priority specimens

Arrival of routine specimens (Central Accessioning)

Are the requisitions complete?

Have "client" fax/tube a completed request form

Proceed to match specimens with requisitions

Do the requisitions and specimens match?

Acceptable identifiers? (Policy)

Are the containers appropriate?

Can you identify the patient?

Can do the requisitions and specimens match?

Contact the "Client" to confirm the identity of the actual patient

Cancel the requests in CIS

Is notification required?

Notify "Client" of cancellation

Complete report

File an incident report

File requisition/store specimen 48 hrs

Are the orders "routine"?

Immediately transport to STAT/Priority tray for "Order Entry"

Pick up specimens, arranging each patient in "Accessioning Rack", keeping requisitions in corresponding order.

Place racks with corresponding requisitions on routine section of Accessioning bench

Accession the orders in Department Order Entry (DOE)

Are the orders "routine"?
What did we measure?

• Method of Arrival
  - Porter, Unknown, Public, Clinic Courier, Hospital Courier

• Wait Time (time from discovery to start of sort)
  – Specimen Receiving
  – Central Accessioning

• Sorting Time
  – Specimen Receiving
  – Central Accessioning
Measure

• Delivery
  – # of steps and # of trips
  – time spent delivering

• Defects
  – Sorting and Delivery processes

• Individual Lab Divisions
  – Number of samples received
  – Survey regarding current delivery process
Measure

• Specimen Receiving from 2000 to 0700 hr (Evening and Night shifts)
  – How many Technologists responded to the buzzer
  – Number of samples arriving by porter or tube
  – How many specimens were STAT vs. Routine
  – Number of samples arriving for each lab division
Average Time from Discovery to End of Sort

<table>
<thead>
<tr>
<th>Facility</th>
<th>Time in Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Polyclinic (am &amp; pm)</td>
<td>77</td>
</tr>
<tr>
<td>BPC/Parkdales</td>
<td>64</td>
</tr>
</tbody>
</table>

Date: May 12-30, 2011
Analyze

Defect Frequency on Specimen Arrival for Total Collection Period

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folded Reqs</td>
<td>144</td>
</tr>
<tr>
<td>Photocopied Reqs</td>
<td>34</td>
</tr>
<tr>
<td>Missing Reqs</td>
<td>13</td>
</tr>
<tr>
<td>Wrong Reqs</td>
<td>10</td>
</tr>
<tr>
<td>Missing Specimens</td>
<td>10</td>
</tr>
<tr>
<td>Leaking Specimen</td>
<td>4</td>
</tr>
<tr>
<td>Incomplete Reqs</td>
<td>3</td>
</tr>
<tr>
<td>Extra Container</td>
<td>3</td>
</tr>
<tr>
<td>Wrong Container</td>
<td>1</td>
</tr>
</tbody>
</table>

Date Range: May 12-31, 2011
Analyze

• A significant amount of time is spent sorting specimens/requisitions in both Specimen Receiving and Central Accessioning.

• A significant amount of “Technologist” time is spent logging in bar-coded specimens in Chemistry, Hematology and Immunology.

• The arrival of the courier run from the West, followed closely by two major clinics causes a bottleneck in the flow of specimens through the receiving area.
Analyze

- The survey of the lab indicated that most divisions would like to receive their routine specimens within 15-30 minutes of arrival in Specimen Receiving.

- Kathy’s Daily Delivery Service
  - 123 trips
  - 16,526 steps ➤12.2 km
  - To all nine divisions
  - 55 trips (47%) to Central Accessioning
Analyze

Specimen Receiving from 2000 to 2330
• Average of 12 trips ➤ 1.0 km per shift
• 20 % of the time two Technologists responded
• 10 % of the time Routine specimens arrived

Specimen Receiving from 2330 to 0700
• Average of 17 trips ➤ 1.5 km per shift
• 3 % of the time two Technologists responded
• 9 % of the time Routine specimens arrived
Analyze

What is a ‘trip’ for the Evening and Night Shifts?
Improve

Aim Statement

By the end of this project, we aim to reduce the required time for handling specimens (from discovery to end of sort in Central Accessioning) by 50%.
The team came up with 20 improvement ideas and implemented 6 Plan-Do-Study-Act (PDSA) cycles.
Improve

PDSA #1

- Re-route the “logging in/receiving” of bar-coded blood specimens from Laboratory Divisions (5) to Central Accessioning.
- Pilot site: West Courier (PCH, Western Hospital, CHO/Beechwood, Stewart Memorial)
Average Time from Discovery to End of Sort
West Run

<table>
<thead>
<tr>
<th>Facility</th>
<th>West Before</th>
<th>West After</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR &amp; Divisions</td>
<td>146</td>
<td>48</td>
</tr>
<tr>
<td>SR &amp; CA</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Date: May 11-Jun 30, 2011
Improve

Discovery & Sorting Time For Chemistry, Hematology and Immunology before PDSA and the Discover & Sorting time for Central Accessioning

- CHEMISTRY/HEMATOLOGY/IMMUNOLOGY
- MEDIAN

Created for Health PEI
Courtesy of LearningToSee LTS Consulting
Improve

PDSA #2

- Standardize transport containers (totes) so specimens will arrive organized, decreasing the amount of time required for sorting.

- Pilot site: Polyclinic (am & pm runs)
Improve

Tote Specimen Map & Instructions (Non-Barcode Specimens)

Packing blood specimens:
In an effort to improve efficiency and client service, we ask that you group blood specimens by patient.

Please stack requisitions in the same order as specimens, seal inside the provided plastic bag, and place inside the plastic carrier.

All requisitions must have:
- Patient’s last name & given name(s) AND correct MRN/PHN
- No alias or nicknames
- Ordering physician’s full last name and initial
- Out-of-province patients must have province indicated on requisition

Packing non-blood specimens:
A separate plastic carrier (with foam holders removed) should be used if sending specimens other than blood (ie. urine, swabs, histology specimens, etc.).

Multiple C&S and/or Chlamydia swabs may be sent sealed together in a biohazard bag.

Please DO NOT:
- Fold requisitions or tie to specimen
- Pack mail or non-laboratory requisitions in with specimens
- Insert Chlamydia swabs in foam holders
- Insert blood specimens between foam holders
Improve

Average Time from Discovery to End of Sort
(Specimen Receiving & Central Accessioning)

Polyclinic Before
Polyclinic After

Time in Minutes
Date: May 11-Jun30, 2011

77
16
Improve Accessioning Process

Total Time to Enter Samples per Run Mornings

Total Time to Enter Samples Afternoon

Date
Minutes
Mornings Median
PDSA

Date
Minutes
Afternoons Median
PDSA
Improve

PDSA #3

– Re-organize Specimen Receiving area using the 5S improvement tool:
  • Sort
  • Set in Order
  • Shine
  • Standardize
  • Sustain
Improve
Improve
Improve
PDSA #4

- Introduce STAT biohazard bags for the transportation of priority specimens within QEH facility in preparation for CPOE (Computerized Provider Order Entry) scheduled for November, 2011

- Bags are boldly labeled STAT and colored red to show urgency
Improve

- Introduce a “re-set” button in Specimen Receiving
- Install an additional shelf in Specimen Receiving
Improve

Aim Statement

By the end of this project, we aim to reduce the required time for handling specimens (from discovery to end of sort in Central Accessioning) by 50%.
Improve

How well did we do?

The results far exceeded our aim for this project:

- PDSA #1
  Re-routing: 67% improvement

- PDSA #2
  Standardized totes/roadmaps: 79% improvement

- No defects in sorting/delivery processes
Improve

Comments on the Changes

Chemistry
- Specimens delivered earlier, already sorted into racks
- Used to have 1-4 Technologists logging in specimens
- Now have more time to perform ‘technologist’ duties

Hematology, Immunology, BTS, Microbiology
- Technologists do not have to go get their work in SR
- Comparable delivery times

Cytology, Histology, Urine lab
- No noticeable changes

Central Accessioning
- Anxious to roll out standardized totes to other clinics
Control

• Sustaining Data Points
• 5 minute 5S Audit
• Report Cards
  - weekly, biweekly, then every 3 months
Thank you for being TOTE HAPPY!

Things you are doing well:

- Bloods sorted by patient
- “Other” specimens separate from blood
- Requisitions in order
- Tote labeled properly (blood vs. “other”)
- Mail separate from specimens

Areas for improvement:

Please contact Nancy in QEH Central Accessioning at 894-2513 or notify us in writing using the back of this form if you have any comments or concerns!

Thanks again for helping us improve our client services!
Lessons We Learned

- Surprised at how busy and complicated Specimen Receiving is
- Importance of baseline measures
- Small changes can make a huge difference
- How important it is to follow all of the steps of the DMAIC cycle
- Ask nicely and coworkers will record a lot of data!
- Decisions in one area make a big impact on another
- A Lean project takes a lot of work
- COMMUNICATION, COMMUNICATION, COMMUNICATION!
Where are we going next with this project?

- Finish rolling out the totes to all other clinics
- Reroute other bar-coded specimens to Central Accessioning (KCMH, QEH Venipuncture)
- Implement improvements at the other facilities

Next Project Ideas

- Combine Specimen Receiving/Central Accessioning areas
- Improve off-Island test referral process through centralization
- Streamline telephone calls coming into Lab Divisions
- Remote printing
- Poll Lab Divisions for project ideas within each
The Team!