CLMA ICE Winner: How Collaboration between Lab, Physicians, and Nurses Improved Emergency Department Patient Outcomes at Kaiser South Sacramento Medical Center – and with les POC Testing.

*Sue Traub, CLS, MHA*
Kaiser Permanente

- Founded in 1945, Kaiser Permanente is one of the nation’s largest not-for-profit health plans, serving more than 10.6 million members, with headquarters in Oakland, California. It comprises:
  - Kaiser Foundation Hospitals and their subsidiaries
  - Kaiser Foundation Health Plan, Inc.
  - The Permanente Medical Groups.
- At Kaiser Permanente, physicians are responsible for medical decisions. The Permanente Medical Groups, which provide care for Kaiser Permanente members, continuously develop and refine medical practices to help ensure that care is delivered in the most efficient and effective manner possible.

South Sacramento Kaiser Medical Center

- Recipient of Healthgrades' highest distinction of America's Best 100 Hospitals in 2016.
- Recipient of the American Heart Association’s Gold Plus Quality Award for Stroke Care.
- Joint Commission Advance Primary Stroke Center.

217 Licensed Beds
Level II Trauma Center with 46 Emergency Rooms
Improvement Project – Lab & ED

- Integrate Resources.
- Utilize Experts.
- Improve Communication Between Departments.
- Build Teamwork by Creating Shared Goals.
- Engage Front Line Staff.
- Build Respect.
- Create Strong Organizational Culture.

Improve Patient Outcomes.
Improved Stat Protime Turn Around Times to Improve Emergency Department Patient Throughput.

- **Project SMART Goal:**
  To reduce average ED STAT Protime TAT from 54 minutes to 45 minutes or less from when order is placed by provider to test completion by September 1, 2015.

- **Customer Benefit:**
  PT often last item need for provider to decide patient outcome. ED Physician can discharge patients sooner.
  - Improved ED Throughput – Decreased Patient LOS.
  - Improve Stroke Patient Care (PT is on Stroke Lab Order Set).
  - Improve Trauma Patient Care
Root Cause Analysis – ED & Lab
Protime Optimization Project 2015

Materials
- Pediatric Tubes are OK
- Test tubes not accessible

People
- Staffing levels
- RN want patients stuck less
- Phlebotomist assertiveness

Process
- Rainbow draw - hemolysis
- Not standardized

Instruments
- Rainbow draw - hemolysis
- One Coag Instrument
- STATS only
- Label printers
- Health Connect order priorities

Environment
- Tube systems downtime
- CDA location

Technology
- Rainbow draw - hemolysis
- One Coag Instrument
- STATS only

Reduce ED PT TAT

Increasing Clinical Effectiveness
Shifting Our Focus Beyond the Laboratory
Spaghetti Map – Coagulation CLS
Assessment Results – Final Process

1. **Specimen delivered and put in bucket**
   - Lab Asst receives specimen in US
   - Lab Asst delivers specimen to Coag area

2. **Specimen arrives via Tube**
   - Lab Asst delivers specimen to Coag area
   - Lab Asst puts specimen in centrifuge and tells CLS if present

3. **Is specimen acceptable?**
   - YES
     - CLS cancels test & call ED Unit Assistant
   - NO
     - Does test need repeating?
       - YES
         - Repeat test
       - NO
         - Repeat result until match

4. **Result test**
   - Result test
   - YES
   - Result test

5. **Unit Assistant informs RN/MD**
   - Yes
     - Time still needed?
       - YES
         - Back to In ED Process Map – MD places order.
     - NO
     - END
Improve ED Protime Stat TAT

Reduce ED PT TAT to 45 min from order to completion

Reduce ED PT TAT to 10 min from MD to draw and 10 min from draw to received

Reduce ED PT TAT to 20 min from received to completion

PT Specimen draw

Critical Ill drawn by RNs

All others drawn by Lab Phlebotomist

Only use ED Tube System

Identify on bag NUID of who drew blood

Change to using STAT spin centrifuge

Instrument to be moved for leaner process

Coag CLS no longer covers Blood Gasses

PT specimen transportation

PT specimen processed

Large Display of ED TAT

PT specimen tested

INCREASING CLINICAL EFFECTIVENESS
Shifting Our Focus Beyond the Laboratory
ED Average Hourly Arrival Volume

SSC ED Average Hourly Arrivals
April - September 2015

INCREASING CLINICAL EFFECTIVENESS
Shifting Our Focus Beyond the Laboratory
What Changes Lead to Improvement?

Who Draws the Blood?
- Phlebotomist added to ED
- All non-critically ill patients drawn by lab phlebotomist

How to get specimen to Lab quickly?
- Specimens are tubed
- ED Phlebotomist hours changed to match patient volume

How to speed up testing?
- Use STAT centrifuge
- CDA labels changed to print in Lab

Turn Around Time monitors in the Lab.
- Move Coagulation Instruments.
- Desk L.A. responds to strokes in Radiology
- Change duties of Coagulation CLS

Act Plan Study Do

Testing and adaptation
## How Will We Know a Change Is an Improvement?

### Family of Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Operational Definition</th>
<th>Type</th>
<th>Data Collection Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD order to specimen draw</td>
<td>The time between when order is placed in HC and specimen is drawn.</td>
<td>Process</td>
<td>• Weekly RILIS reports.</td>
</tr>
<tr>
<td># of ED patients drawn by ED phlebotomists.</td>
<td>The percentage of patients in the ED drawn by the Lab phlebotomists will be monitored</td>
<td>Process</td>
<td>• Daily RILIS reports.</td>
</tr>
<tr>
<td>Specimen received to test completion</td>
<td>The time between when test in received in Lab LIS to completed in Lab LIS</td>
<td>Process</td>
<td>• Weekly RILIS reports.</td>
</tr>
<tr>
<td>Overall TAT from MD order to test completion</td>
<td>The time between when test is ordered in HC and resulted in Lab LIS</td>
<td>Outcome</td>
<td>• Weekly RILIS Reports.</td>
</tr>
<tr>
<td># of ED blood culture contaminations</td>
<td>The frequency that the PT test is the last test before patient discharge</td>
<td>Balance</td>
<td>• Regional Monthly RILIS Reports</td>
</tr>
<tr>
<td>PT TAT from door to test completion</td>
<td>JC standard of tracking when patient arrives in ED to PT test completion</td>
<td>Balance</td>
<td>• Stroke Committee audits</td>
</tr>
</tbody>
</table>
Process Measure: Shows average weekly percentage of ED draws performed by the Lab Phlebotomists.

Drawn by Lab Phlebo / Ave % of draws done by Lab Phlebo p Chart
Process Measurement: Shows the weekly average time from MD placing the PT order to patient being drawn.

xBAR: Turn Around Time - MD Order to Draw

INCREASING CLINICAL EFFECTIVENESS
Shifting Our Focus Beyond the Laboratory
Project Outcome Measure: Weekly average ED STAT Protime TAT from order to result.

xBar Chart: ED Protime TAT - Outcome Measure
## Control Plan–Monitoring for Sustainability

<table>
<thead>
<tr>
<th>Metric</th>
<th>Metric Definition</th>
<th>Measureme nt Method</th>
<th>Measurement Frequency</th>
<th>Goal</th>
<th>Control / Monitoring</th>
<th>Reporting Frequency</th>
<th>Alert Flags</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAT Order to draw</td>
<td>Average Time of draw – time of order</td>
<td>Data from RILIS PT ED STAT TAT Report</td>
<td>Daily &amp; Weekly</td>
<td>10 min</td>
<td>Report is run weekly</td>
<td>Reviewed when outcome metric not met.</td>
<td>&gt;30 min</td>
<td>Notify Supvr &amp; root cause</td>
</tr>
<tr>
<td>TAT recv’d in Lab to test result</td>
<td>Average Time of test result – time recv’d in Lab</td>
<td>Data from RILIS PT ED STAT TAT Report</td>
<td>Daily &amp; Weekly</td>
<td>15 min</td>
<td>Report is run weekly</td>
<td>Reviewed when outcome metric not met.</td>
<td>&gt;45 min</td>
<td>Notify Supvr &amp; root cause</td>
</tr>
<tr>
<td>TAT Order to test result</td>
<td>Average Time of test resulted – time of order</td>
<td>Data from RILIS PT ED STAT TAT Report</td>
<td>Daily &amp; Weekly</td>
<td>45 min</td>
<td>Report is run weekly</td>
<td>Outcome measure reviewed Every two weeks at meeting</td>
<td>&gt; 2 hours – review above metrics</td>
<td>Notify Supvr &amp; root cause</td>
</tr>
</tbody>
</table>

**INCREASING CLINICAL EFFECTIVENESS**  
Shifting Our Focus Beyond the Laboratory
ED STAT Protime TAT sustained
Balancing Measure:
ED Blood Cultures Contaminations

ED Blood Culture Contamination Rate was 0% two of the last three months of the project.
Balancing Measure:
ED iSTAT Usage – 26% reduction!

ER iSTAT Volumes - 2015

CH-8  CG4  EG7  TROP
Total ER IStat Usage Report 2016

INCREASING CLINICAL EFFECTIVENESS
Shifting Our Focus Beyond the Laboratory
ED Physician Feedback

– Champion Support: “A mosquito sneaks in and sucks your blood before you even know they were there. Over the past few weeks I have scarcely put in orders and the mosquito flies in and out before I am done interviewing the patient (not even an ouch) and often the labs are back after seeing the next patient. This trial with additional lab techs has been "phenomenal" just from an efficiency standpoint but when you add in the contamination and hemolysis issues it becomes even more helpful. We love the "mosquito" lab techs They are making a huge impact!!!!”

– ED Chief.

– “Fantastic- you guys are amazing!” - Assistant Physician In Chief (PIC) over ED.
ED LOS Acuity Levels: 1-3

6 minute improvement! 2600 less patient hours or 108 less patient days.
Lessons Learned

– Need RN Buy-In:
  RN Survey monkey response: “Now I can spend more of my time doing other nursing tasks like education, meds, disposition etc. instead of worrying about their blood draw”.

– ED Phlebotomist can become a respected part of the patient care team with pictures on wall and a communication channel.

– Standardized workflows.

– Establish priorities.
What went well.

- Physician engagement
- Leadership support
- Improvement advisor training

What could have been better.

- More RN representation
- Committee member from off shifts
Spread

• Regional Lab Quality – New Regional Goal of 15 minute Stroke PT TAT From Lab Received to Test Completion.

• Regional Lab Quality – Decision to move away from Point Of Care Testing for Stroke PT.

• Beginning of Collaboration with L/D and Perinatal with Pilot of Lab Phlebotomists drawing all specimens of Non-critically Ill Patients.
Thanks To:

The ED PT Project Team
The Improvement Advisor Team
The Sponsor: AMGA
The Champions: Chief of ED & Assistant PIC
Front line staff:
Lab Clinical Lab Scientists
Lab Phlebotomists
ED RNs
ED Techs
Lab Assistants
2016 CLMA-Increasing Clinical Effectiveness Winner!
Questions?