Clinical Safety & Effectiveness
Cohort # 24
Team #4
Improving Efficiency in Advanced Endoscopy

UT Health San Antonio
Quality & Lifelong Learning

University Health System

MD Anderson Cancer Center
Making Cancer History®
The Team

• Division
• CS&E Participant: Veronica Lao MD, anesthesiologist
• Sandeep Patel MD, medical director of advanced endoscopy
• Bob Edwards RN, Clinical and Interventional Endoscopy Coordinator
• Chris Moreau, GI and transplant coordinator
• Irene Martinez RN, patient care coordinator
• Edward Garcia, endoscopy center director
• Virginia Travieso, director of ancillary nursing
• Facilitator: Sherry Martin

• Sponsor Department
  – Emily Volk MD
Background Data

Currently, inpatient advanced endoscopy cases are a struggle to complete and many cases need to be rescheduled or cancelled.

In 2016, the average number of inpatient cases per month was 25.5 and in 2018, the average number of inpatient cases was 35.5.
Background Data

SPC p-Chart - Percent Cancellations / Rescheduled

- UCL
- Avg=0.134
- LCL

% Cancels/Resched

Month

What We Are Trying to Accomplish?

OUR AIM STATEMENT

Our goal is to reduce the percentage of cancellations and rescheduling of inpatients from baseline of 13.4% to 10.7% (reduction of 20%) in advanced endoscopy by May 14, 2019.

The process begins with the initial call for a consult to the GI fellow and ends with the patient being brought into the room for the procedure. This is important to improve because cancellations and rescheduling causes delays in patient care (diagnosis, treatment, and discharge) and prevents clinicians from being efficient.
How Will We Know That a Change is an Improvement?

• Types of measures: the percentage of inpatient cases that are cancelled or rescheduled compared to prior our intervention.

• How you will measure: Outcome measure – cancellations = Self coded sheet, cancellations and reasons for each

• Process measure- reasons: change of care plan, schedule management, abnormal labs, cardiac issues, not NPO

• Specific targets for change: targets include INR>1.5, platelets<50, etc to reduce cancelled/rescheduled cases from a baseline of 13.4% to 10.7% (reduction of 20%) in advanced endoscopy by May 14, 2019.
# Data Collection

<table>
<thead>
<tr>
<th>Type of Measure</th>
<th>Measure</th>
<th>Data Elements</th>
<th>Data Category</th>
<th>Data Source</th>
<th>Data Frequency</th>
<th>Data Steward</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong></td>
<td># of scheduled inpatients</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Bob Edwards</td>
<td></td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td># cancelled/rescheduled inpatients</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Fellow</td>
<td></td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>Percent CR inpatients</td>
<td>#CR/#inpatients on schedule</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Charge nurse</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>% Change of care plan</td>
<td>#Change of care plan /#CR</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Charge nurse</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>% Schedule management</td>
<td>#Schedule management/#CR</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Bob Edwards</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>% Abnormal labs</td>
<td>#Abnormal labs/#CR</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Bob Edwards</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>% Cardiac Issues</td>
<td>#incomplete cardiac workup/#CR</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Bob Edwards</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>% Not NPO</td>
<td>#Not NPO/#CR</td>
<td>existing</td>
<td>Manual</td>
<td>Monthly</td>
<td>Bob Edwards</td>
</tr>
</tbody>
</table>
Reasons for Cancellation/Rescheduling

- Abnormal Labs
- More workup per anes
- More workup per GI
- not NPO
- Anes unavailable
- Pt had other procedure
- Pt on blood thinner

INR and Platelets
Background Data

SPC p-Chart - Percent Cancelled due to Abnormal Labs

- UCL
- Avg = 0.262
- LCL = 0.000

Month:
- Sep 2018
- Oct 2018
- Nov 2018
- Dec 2018
- Jan 2019
- Feb 2019
- Mar 2019

% Cancelled due to Abnormal Labs:
- 0.0%
- 20.0%
- 40.0%
- 60.0%
- 80.0%
- 100.0%
- 120.0%
Contributors to Abnormal Labs Causing Case Cancellation

**Problem Statement**
Labs are abnormal and case gets cancelled.

**Policy**
- GI cannot put orders in for patient until they are in AE
- Assumed roles
- No standard cutoff for labs
- Diff attending preferences
- Primary team doesn't put in order
- Primary team does not see note
- GI team does not notify Primary
- People don't know which labs to order
- High INR not corrected
- No one follows up on results
- Responsibility for labs not clear
- Values needed for procedure not understood by teams

**Procedure**
- Labs are not done
- Incorrect labs ordered
- Nurse does not have order
- Order not placed
- Primary didn't place order or put in wrong order
- GI cannot put orders in for patient until they are in AE
- Handoff issues between admitting team and night float team
- Time of procedure not known
- No set inpatient slots
- Lab specimens lost
- Timing of lab orders (results not back in time)
- Computer system not working

**People - Care Team**
- Patient not on floor
- Patient has multiple VN so results are lost
- Unable to draw blood from patient
- No consent for transfusion
- FFP at right time
- Procedure schedule not known
- Task delayed due to other duties

**People - Patient**
- Diff attending preferences
- No consent for transfusion
- FFP at right time
- Procedure schedule not known
- Task delayed due to other duties

**Plant**
<table>
<thead>
<tr>
<th>Aim</th>
<th>Primary drivers</th>
<th>Secondary Drivers</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim:</strong> To reduce the percentage of cancelled and rescheduled inpatients in advanced endoscopy from baseline of 13.4% to 10.7% (reduction of 20%) in advanced endoscopy by May 14, 2019</td>
<td>Labs are abnormal at the time of procedure.</td>
<td>Correct labs not ordered (no INR drawn).</td>
<td>GI team takes role of entering required labs – T&amp;S, INR, CBC. Educating GI fellows and nurses on order set. Completed May 14.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schedule not known so timing for correction of abnormal labs is difficult (administration of FFP for coagulopathy or RBCs for anemia).</td>
<td>Building in inpatient slots to schedule to help better define a set procedure time. Completed April 22.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cutoffs for acceptable lab work differ between attending endoscopists.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Relying on primary team to place orders.</td>
<td>GI team takes role of entering required labs. Education of floor nurses to carry out order set and what to do with abnormal lab values. Completed May 2.</td>
</tr>
<tr>
<td></td>
<td>Anesthesiologist needing additional information.</td>
<td>Patients added to schedule not known until the day of.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>No set screening in process for patients with complex medical issues that need to be addressed prior to general anesthesia.</td>
<td>Build into order set indications for more cardiac information (if has CEID will need indication/interrogation, if CAD/MI/CHF will need EKG from last year, if ESRD will need potassium day of procedure)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Abnormal vital signs not seen until patient arrives in holding area.</td>
<td>Build into order set acceptable VS criteria.</td>
</tr>
</tbody>
</table>
Interventions:

• Developing and implementing an order set that GI fellow places into EHR for inpatients to ensure correct labs are ordered.
  – Order set to include agreed upon cutoffs for abnormal values.

• Building a checklist for patients with cardiac issues to decrease additional information anesthesiologist needs at last minute.

• Creating dedicated inpatient slots to establish a better timeframe for scheduling.
**Interventions**

<table>
<thead>
<tr>
<th>EGD</th>
<th>EUS</th>
<th>ERCP</th>
<th>ESD/EMR upper/lower</th>
<th>Flex Sig Colonoscopy</th>
<th>Retrograde Enteroscopy</th>
<th>Antegrade Enteroscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prep: Lower Procedures - Golytely 1/2 Gallon 6pm 1/2 Gallon 11pm night before - Clear Liquid Diet day before</td>
<td></td>
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<tr>
<td><strong>NPO status</strong></td>
<td>Patient needs to be NPO 8 hours pre procedure including any tube feedings (Golytely is considered CLD-2 hours pre procedure) (Chewing gum-up to anesthesia discretion)</td>
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</tr>
<tr>
<td><strong>Isolation</strong></td>
<td>Contact Isolations - last case of the day (unless otherwise coordinated to be 1st case of the day)</td>
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</tr>
<tr>
<td><strong>Allergies</strong></td>
<td>O2/Room Air</td>
<td>Telemetry</td>
<td>Code Status</td>
<td>Glucose (accu check/time)</td>
<td>Dentition</td>
<td></td>
</tr>
<tr>
<td><strong>Anticoagulation</strong></td>
<td>HOLD-Lovenox/Heparin SQ day of procedure. Heparin Drip- Hold 6 hrs or discretion of MD Coumadin/Plavix 5-7 days. Eliquis 1-3 days</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Heart Disease Cardiopulmonary Status</strong></td>
<td>If so, needs recent EKG, ECHO, STRESS TEST and/or CARDIOLOGY NOTE (Clearance)</td>
<td></td>
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<tr>
<td><strong>LABS (Any abnormal results will need to be reported to Primary Team ASAP for possible correction)</strong></td>
<td>HCG (within admission)</td>
<td>H&amp;H (Hemoglobin) &lt; 7.0 - 7.5 (PRBC transfusion - anesthesia discretion) and/or Type &amp; Screen available.</td>
<td>K+ &lt; 3.0 will need replacement &gt; 5.0 (depending on patient's Renal history/anesthesia discretion)</td>
<td>Note: that only IV replacement is to be used for correction of abnormal low results.</td>
<td>Platelets &lt; 50 (Platelets transfusion)</td>
<td>INR &gt; 1.5 (FFP transfusion)</td>
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</tr>
</tbody>
</table>
Interventions

• Order Set which fellow will place once determining patient should be scheduled for procedure. Implemented May 14, 2019.

• Educating nurses on 5ACU about new order set. Completed May 2, 2019.

• Reserving first case of the day at 7:30 for inpatient consults. Started April 22, 2019.
Return on Investment

Each extra day in the hospital: $1410 floor, $4043 ICU.

Current C/R rate 13.4%, goal of 10.7%
Average monthly scheduled inpatient cases: 44.

If we reach our goal: savings of $20100-57600/year.
SPC p-Chart: Percent Inpatients Canceled in AE Lab

Baseline

Interventions

Percent canceled in AE lab


Month
Lessons Learned

• Challenges of adopting this project from all sides
• Getting everyone to trust the data
• Waiting for approval is a challenge
What’s Next

• Feedback to providers about the new data.
• We will finish our pilot on 5ACU and make changes to roll out the interventions to all the floors.
• Re-educating if needed.
Sustainment

• Dr. Sandeep Patel, medical director of advanced endoscopy – continued education of fellows
• Bob Edwards, advanced endoscopy clinical coordinator – data collection
• Irene Martinez, Advanced Endoscopy Charge Nurse – data collection
• Kelly Reyna, advanced GI physicians assistant – data collection and education
Thank you!