Clinical Safety & Effectiveness Cohort # 13

Development of Gastrointestinal Endoscopic Quality Improvement Program, Quality Metrics & Reporting Tools (Equipment)

CENTER FOR PATIENT SAFETY & HEALTH POLICY
UT HEALTH SCIENCE CENTER
SAN ANTONIO

Educating for Quality Improvement & Patient Safety
The Team

• Division: GI
  – Adewale Ajumobi, MD, MBA (CS&E Participant)
  – Patty McCarroll, MBA (CS&E Participant)
  – Tisha Lunsford, MD (Team Member)
  – Rick Pena (Team Member)
  – Natalie Vasquez (Team Member)
  – Glenn W Gross, MD (Team Member)
  – Facilitator: Iba Aburizik

• Sponsor Department
  – GI Department
  – Tisha Lunsford, M.D
Background

• Colonoscopy is recommended for the prevention & detection of colon cancer.
• The quality of colonoscopy varies among endoscopists.
• To ensure uniform quality, national standards have been established.
• Some of the national standards have been incorporated in the Physician Quality Reporting System (PQRS).
• At the University Health System, there are no colonoscopy quality metrics or tools for reporting them.
What Are We Trying to Accomplish?

OUR AIM STATEMENT

• Increase the availability of reports on colonoscopy metrics (clinical performance) at University Health System from 0% to 100% by January 2014.
Pre-Intervention Data
Are you satisfied with the provision of data to show your personal clinical effectiveness?
Knowledge of personal colonoscopy metrics

- Knowledge of cecal intubation rate: 0%
- Knowledge of cecal intubation time: 0%
- Knowledge of withdrawal time: 0%
- Knowledge of polyp detection rate: 0%
- Knowledge of adenoma detection rate: 0%

Would like to know personal colonoscopy related quality metrics
- Yes: 100%
- No: 0%
Knowledge of national standards for colonoscopy metrics

• ADR for males
  - Correct answer: 40%
  - Incorrect answer: 60%

• ADR for females
  - Correct answer: 40%
  - Incorrect answer: 60%

• ADR for all
  - Correct answer: 40%
  - Incorrect answer: 60%
Knowledge of national standards for colonoscopy metrics

• Cecal intubation rate for screening colonoscopy
  - Correct answer: 10%
  - Incorrect answer: 90%

• Minimum Withdrawal time for screening colonoscopy
  - Correct answer: 60%
  - Incorrect answer: 40%
What to Measure?

• Literature Review
  - Guidelines
  - Scientific Studies
  - Opinion
• AHRQ Quality Measure Tools & Resources
• 2013 Physician Quality Reporting System (PQRS) Measures
• National Quality Forum
Endoscopy Unit Efficiency
- Wait Time
- Flow Time “throughput”
- Preparation Time
- Procedure Time
- Recovery Time

Clinical Performance
- Adenoma Detection Rate
- Cecal Intubation Rate
- Complication Rate
- Withdrawal Time
- Appropriate surveillance interval

Patient Satisfaction
- Availability
- Comfort
- Courtesy
- Promptness
- Competence
Clinical Performance Quality Metrics in Colonoscopy

• Cecal intubation rate: 95% for screening CSP
• Withdrawal time: minimum of 6mins
• Appropriate surveillance interval based on presence and type of polyp
  - PQRS & NQF Measure
• Adenoma detection rate: 25% for males, 15% for females & 20% general population
  - 2014 PQRS measure
  - Associated with interval cancer & mortality
ADR & Interval CA
Kaminski et al NEJM 2010

![Graph showing cumulative hazard rate over months with different ADR intervals.](image)

### Adenoma detection rate

<table>
<thead>
<tr>
<th>ADR</th>
<th>Number</th>
<th>Events</th>
<th>Hazard Rate</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥20.0%</td>
<td>9,255</td>
<td>1</td>
<td>1.00</td>
<td>0.008</td>
</tr>
<tr>
<td>15.0–19.9%</td>
<td>6,607</td>
<td>7</td>
<td>10.94 (1.37–87.01)</td>
<td>0.02</td>
</tr>
<tr>
<td>11.0–14.9%</td>
<td>13,281</td>
<td>12</td>
<td>10.75 (1.36–85.06)</td>
<td>0.02</td>
</tr>
<tr>
<td>&lt;11.0%</td>
<td>15,883</td>
<td>22</td>
<td>12.50 (1.51–103.43)</td>
<td>0.02</td>
</tr>
</tbody>
</table>
• For every 1% ↓ in ADR
  - Interval CRC risk ↑ by 3%
  - Interval CRC death ↑ by 4%
Table 4. Rates of Detection of Lesions According to Mean Withdrawal Time for Procedures in Which No Polyps Were Removed.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>All Physicians (N=12)</th>
<th>Less Than 6 Minutes (N=3)</th>
<th>6 Minutes or Longer (N=9)</th>
<th>P Value†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects with adenomas (%)</td>
<td>24.2±8.3</td>
<td>11.8±2.2</td>
<td>28.3±4.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Adenomas per subject screened (no.)</td>
<td>0.50±0.26</td>
<td>0.17±0.07</td>
<td>0.61±0.20</td>
<td>0.006</td>
</tr>
<tr>
<td>Subjects with advanced neoplasia (%)</td>
<td>5.5±2.3</td>
<td>2.6±1.1</td>
<td>6.4±1.7</td>
<td>0.005</td>
</tr>
<tr>
<td>Advanced neoplastic lesions per subject screened (no.)</td>
<td>0.06±0.03</td>
<td>0.03±0.01</td>
<td>0.07±0.02</td>
<td>0.005</td>
</tr>
</tbody>
</table>

$r_s=0.90, P<0.001$
Appropriate surveillance interval

Utilization of Surveillance Colonoscopy in Community Practice

Robert E. Schen, MD,1 PAUL F. PINSKY,¹ JOEL L. WEISSFELD,5 LANCE A. YOKOCHI,3 DOUGLAS J. REDING,9
RICHARD B. HAYES,4 TIMOTHY CHURCH,5 SUSAN YURGALEVICH,7 V. PAUL DORIA-ROSE,4 TOM HICKEY,9
THOMAS RILEY,9 and CHRISTINE D. BERG

Overuse of Screening Colonoscopy in the Medicare Population

James S. Goodwin, MD; Amanpal Singh, MD, MS; Nischita Reddy, MD; Taylor S. Riall, MD, PhD; Yong-Fang Kuo, PhD

45.1% got unnecessary colonoscopies

69% did not get necessary colonoscopy

42.5% got unnecessary colonoscopy after a negative exam

NQF 0658
How to obtain performance data

• Manual collection
• Database extraction and software integration.
• Registry
  - GIQUIC (Quintiles Outcome, ACG, ASGE)
  - AGA Digestive Health Outcomes Registry (Inovalon, AGA)
Log in to Endoworks

Search Endoworks for screening colonoscopies (SCSP)

Search individual reports for completed SCSP

Search individual reports for SCSP with polyps

Identify adenoma in pathology reports

Search individual pathology report using list B

Create a list of all completed SCSP (list A) and SCSP w polyps (list B)

Create a list of completed SCSP with adenoma (list C)

Calculate ADR by dividing list C by list A

Log in to sunrise
Time spent obtaining 1 colonoscopy data necessary for ADR calculation

- Log in to Endoworks and Sunrise: 2.30-3.00 mins
- Obtaining list of screening CSP and screening CSP with polyps: 1:15-2.00 mins
- Obtaining pathology reports: 1.50-3.10 mins
- Total time: 4.95-8.10 mins
## Which registry to join?

<table>
<thead>
<tr>
<th>Parameters</th>
<th>AGA Outcome Registry</th>
<th>GIQUIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership/Partnership</td>
<td>AGA</td>
<td>ACG and ASGE</td>
</tr>
<tr>
<td>Cost</td>
<td>$200/yr for AGA members</td>
<td>$5400/yr for 9 staff physicians</td>
</tr>
<tr>
<td></td>
<td>$350/yr for non-members</td>
<td>Free for fellows</td>
</tr>
<tr>
<td></td>
<td>$1250 set up fee</td>
<td>No set-up fee</td>
</tr>
<tr>
<td></td>
<td>$17.50 monthly participation fee per provider</td>
<td>No monthly participation fee</td>
</tr>
<tr>
<td>Colonoscopy PQRS reporting</td>
<td>$150 per provider per year</td>
<td>Free</td>
</tr>
<tr>
<td>Other PQRS measures</td>
<td>Not free</td>
<td>Free</td>
</tr>
<tr>
<td>Data Retrieval</td>
<td>Quarterly</td>
<td>Any time</td>
</tr>
<tr>
<td>ADR</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Surveillance interval</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Cecal intubation rate</td>
<td>Not included</td>
<td>Included</td>
</tr>
<tr>
<td>Cecal intubation time</td>
<td>Not included</td>
<td>Included</td>
</tr>
<tr>
<td>Withdrawal time</td>
<td>Not included</td>
<td>Included</td>
</tr>
</tbody>
</table>
Intelligent Data Mining

Data Cleansing & Data Integrity

- Olympus Extract
- ProVation Extract
- GMed Extract
- Others Extract

Consolidated Data

Exploratory Data Analysis

Reports

Web

Metrics Reporting
- MD Access Via Web
- Reports
- Data Cube
- Discussion Board

Data Warehouse Design/Architecture

Improve Health Outcomes

Benchmarking Performance Management
Unexpected Problem

- Objection to language in contract with registry
- Change in director of endoscopy
- Flawed GIQUIC Interface from Olympus
  - No connectivity
  - Difficult to use template
  - Missing data
- Change in physician behavior
  - More required items to complete in report
  - Need to add pathology results & revise recommendations.
## Facility Information

**Facility Name:** BEXAR COUNTY HOSPITAL DISTRICT; 4502 MEDICAL DRIVE; SAN ANTONIO, TX 78229  
**Customer Contact:** Dr. Adewale Ajumobi/Juan 'John' Navarro  
**Phone:** 310-801-0942/210-413-2432  
**Email:** Ajumobi@uthscsa.edu, Juan.Navarro@uhs-sa.com  

## Service Escalation Details

**Service Escalation #:**  
**Olympus Owner:**  
**Olympus Assigned Resources:** Delia McDermott, Jed Lacy, Philip  
**Olympus Sr. Management:**

## IT Issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
<th>Resolution</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>GiQUIC criteria data missing</td>
<td>Cecal intubation rate confirmed by photography is not being captured as confirmed by latest data from GiQUIC</td>
<td>In progress: Action Required submission to TAC to investigate issue and provide resolution. 12/18/2013</td>
</tr>
<tr>
<td>41</td>
<td>Report Template customization - INDICATIONS</td>
<td>Most of indications for colonoscopy are falling under &quot;under&quot; instead of going to screening for colon neoplasia.</td>
<td>In progress: Investigating issue to provide resolution. 12/18/2013</td>
</tr>
<tr>
<td>42</td>
<td>Clinical Benchmarking Issues</td>
<td>Clinical benchmarking issues.</td>
<td>In progress: Investigating issue to provide resolution. 12/18/2013</td>
</tr>
</tbody>
</table>

## Clinical Benchmarking Upload Not Functional & uploading

**Contact:** Olympus Product Development to address inability to reflect all data from the three facilities & participating Physician ID  
**Resolution:** Configuration file was configured to address multi-facility and addition of participating Physician ID as shown in GiQUIC contract and allowances. 25-Nov-2013
<table>
<thead>
<tr>
<th>No</th>
<th>Doctor</th>
<th>Patient</th>
<th>Exam Type</th>
<th>Exam Performed</th>
<th>Date Modified</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brady III, Charles, E</td>
<td>Colon</td>
<td>11/26/2013 07:54:00</td>
<td>11/26/2013 10:05:16</td>
<td>8: Race categorization not satisfied</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Alishahi, Yasmin</td>
<td>Colon</td>
<td>11/26/2013 09:05:00</td>
<td>11/26/2013 10:00:49</td>
<td>8: Race categorization not satisfied</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Alishahi, Yasmin</td>
<td>Colon</td>
<td>11/27/2013 09:53:00</td>
<td>11/27/2013 11:55:05</td>
<td>20: ASA Classification not selected</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Brady III, Charles, E</td>
<td>Colon</td>
<td>12/02/2013 08:14:00</td>
<td>12/02/2013 10:13:38</td>
<td>30: GI Prep quality not found</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Wright, Randy, P</td>
<td>Colon</td>
<td>12/02/2013 09:08:00</td>
<td>12/02/2013 11:47:59</td>
<td>8: Race categorization not satisfied</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Gross, Glenn, W</td>
<td>Colon</td>
<td>12/02/2013 09:30:00</td>
<td>12/02/2013 11:24:36</td>
<td>20: ASA Classification not selected</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Parker, Allan</td>
<td>Colon</td>
<td>12/02/2013 09:25:00</td>
<td>12/02/2013 01:01:39</td>
<td>77-85: Complications section not completed</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Schindler, Amy, E</td>
<td>Colon</td>
<td>11/25/2013 12:00:00</td>
<td>11/26/2013 08:13:20</td>
<td>30: GI Prep quality not found</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Wright, Randy, P</td>
<td>Colon</td>
<td>12/02/2013 08:04:00</td>
<td>12/02/2013 11:41:09</td>
<td>20: ASA Classification not selected</td>
<td></td>
</tr>
</tbody>
</table>
Post-Intervention Data
Adenoma Detection

Percentage of patients age 50 and over undergoing screening colonoscopy with a finding of at least one adenomatous polyp.

Time Period: 01/1998 - 12/2013; Site: University Hospital GI Lab (1287)

- Male Goal: 25%
- Female Goal: 15%
Average Withdrawal Time (Min)

Includes the average withdrawal duration for screening colonoscopy without intervention and with valid time data.

Time Period: 01/1998 - 12/2013; Site: University Hospital GI Lab (1287)
Adverse Events

Percentage of total patients having an early (prior to discharge) adverse event; percentage of each type of adverse event
Time Period: 01/1998 - 12/2013; Site: University Hospital GI Lab (1287)

Adverse Events

<table>
<thead>
<tr>
<th>Type of Adverse Event</th>
<th>Percent of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Adverse Event</td>
<td>100</td>
</tr>
<tr>
<td>Bowel Perforation</td>
<td>0</td>
</tr>
<tr>
<td>Bleeding</td>
<td>0</td>
</tr>
<tr>
<td>ED Visit</td>
<td>0</td>
</tr>
<tr>
<td>Hospital Admission</td>
<td>0</td>
</tr>
<tr>
<td>Other Adverse Event</td>
<td>0</td>
</tr>
<tr>
<td>Sedation Related</td>
<td>0</td>
</tr>
<tr>
<td>Death</td>
<td>0</td>
</tr>
</tbody>
</table>

MySites-2013
Photodocumentation of the Cecum—Screening Colonoscopies

Percentage of screening colonoscopies into the cecum including photodocumentation of one or more of the ileocecal valve, appendiceal orifice, or terminal ileum.

Time Period: 01/09/2014 - 01/13/2014; Site: University Hospital GI Lab (1287)
Adenoma Detection

Percentage of patients age 50 and over undergoing screening colonoscopy with a finding of at least one adenomatous polyp.

Time Period: 01/1998 - 12/2013; Site: University Hospital GI Lab (1287)

Did the Fellow Physician perform the procedure?: Yes; Fellow Physician: 1871777698 - ADEWALE AJUMOBI; Year of Fellowship: Year 2;

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Male Goal: 25%

Female Goal: 15%
## Return on Investment

<table>
<thead>
<tr>
<th>Cost</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olympus Interface b/w Endowriter and GIQUIC = $11,400</td>
<td>Work hours saved 10mins per CSP = 166.6hrs/1000CSP Last year: 4000 CSP (UH) = 666.4hrs This year projection: &gt;10,000 CSP (UH, MARC, Brady) = 1,666hrs At minimum wage @ UH of $11.8 = 19,658.8 At appropriate work title of data manager = $65,000/yr.</td>
</tr>
<tr>
<td>GIQUIC (Registry) = $5400 annually</td>
<td>Meets PQRS requirement = 0.5% payment bonus or 1.5% payment penalty avoidance on Medicare beneficiaries. Meets NQF Measure.</td>
</tr>
<tr>
<td>After year 3, Interface maintenance = $1,500 annually</td>
<td>Basis for other quality improvement efforts</td>
</tr>
<tr>
<td></td>
<td>Marketing</td>
</tr>
<tr>
<td></td>
<td>Contracts acquisition</td>
</tr>
</tbody>
</table>
Next Step: Moving Forward

- Improve areas of deficiency
- Fellows performance
- Under performers vs. Over performers
- Patient satisfaction
- Endoscopy unit efficiency
Acknowledgement

• UH leadership team
• GI Fellows and Staff
• GI Techs and Nurses
• IT Manager-Juan Navarro
• Dr. Patterson & CES Course Facilitators
Thank you!