Two Case Scenarios

• Patient with concerns about safety and infection control issues prior to endoscopy...

• Patient with malignancy discovered relatively soon after a prior colonoscopy...
Defining a High Quality Endoscopic Facility

A place to go for optimal procedural outcomes and patient satisfaction

- What are the elements of quality in a unit?
- How can the patient (consumer) make an informed choice?
Choosing a Restaurant or a Hotel?

- Convenience, accessibility
- Facilities, services
- Courtesy and civility (staff)
- Safety
- Cost/value
- Reputation
  - Individual feedback, brand, or some ranking

How do we know about these things?
How Do We Choose in Practice?

• Prior experience
  – “I’ve been there before”

• Reputation
  – Friends
  – Branding (Motel 6, Ritz-Carlton, Mc Donalds)
  – Reviews (Trip Advisor, Yelp, Facebook, Twitter)
  – Rankings
Traditional Rankings for Restaurants and Hotels

• Zagat, AAA and Mobil
  – Rank 1-5

• Mobil rankings
  – 850 items for hotels
  – 270 items for restaurants

• What items are important for endoscopy units?
Good Endoscopy Experiences Need...

- Skilled endoscopists (experienced)
- Good facilities
- Optimal equipment
- Trained and motivated staff
- Policies and guidelines
- Quality improvement processes
Performance of Endoscopists Currently Being Measured and Compared (Benchmarking)

- Prep quality
- Cecal intubation rates
- Withdrawal times
- Adenoma detection rates
- Appropriate screening and surveillance intervals
- Much much more
Performance of Endoscopy Units Needs to Be Measured and Compared (Benchmarking)

• What to measure?
• How to measure?
• How to benchmark?
Hawthorne Effect

• The tendency of some people to work harder and perform better when they are participants in an experiment
• Individuals may change their behavior due to the attention they are receiving rather than because of any manipulation of independent variables
...Simply measuring quality improves quality.....
## Measuring Quality: Impact of Video Recording Colonoscopists

<table>
<thead>
<tr>
<th></th>
<th>Pre-awareness Score Mean (SD)</th>
<th>Post-awareness Score Mean (SD)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall quality index (1-5)</td>
<td>2.9 (0.9)</td>
<td>3.8 (0.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Fold examination (1-5)</td>
<td>2.5 (1.0)</td>
<td>3.5 (0.8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Luminal distention (1-5)</td>
<td>3.4 (1.0)</td>
<td>4.2 (0.7)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Clean-up (1-5)</td>
<td>3.0 (0.8)</td>
<td>3.9 (0.7)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Adequacy of inspection (1-5)</td>
<td>2.6 (1.0)</td>
<td>3.7 (0.8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Measured inspection time (min)</td>
<td>4.9 (2.2)</td>
<td>7.3 (1.8)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Measuring and Reporting Quality

Impact of a quarterly report card on colonoscopy quality measures

- 6 MDs from Indiana VA system
- Quarterly report cards (2009-11)
- Adenoma detection rate increased from 44.7% to 53.9% (p=0.013)
- Mostly proximal adenomas

A quarterly report card is associated with improved colonoscopy quality indicators

Metrics for Endoscopy Units: Demographics

- Nature of facility
  - Hospital, office, ASC, etc
- Years in use
- Accreditation agency
  - Recent rating
- Names of director and nurse manager
- Procedure volumes in last year, by type
- Number of procedure rooms and bays
- Number of trained staff (and grades)
Metrics: 
**Written Policies...**

- Credentialing and monitoring endoscopists
- Sedation and monitoring
- Cleaning and disinfection
- Risk reduction strategies
  - e.g., anticoagulant management
- Practice guidelines
  - e.g., surveillance intervals
  - Preps
- Communications with patients and referrers
  - Recall for surveillance, pathology results
Metrics:

Quality monitoring

- Process Measures
  - ASA class determined and recorded
  - Informed consent obtained
  - Cecal intubation rates
  - Written discharge instructions given
- Outcome Measures
  - Adenoma detection rate
  - Post ERCP pancreatitis rate
- Patient satisfaction data (ASGE tool and others)
- No show rates
- Safety data
  - Infection rates
  - Unplanned intubations and admissions

Then...Need systems for data review/improvement
Documenting Unit Quality

• Which data will be collected?
• How to collect those data?
• Who pays?
• How to compare the data?
  – Benchmarking
What to Measure?

- Colonoscopy and Colorectal Cancer Prevention
- EGD Measures
- IBD
- Hepatitis C
- Patient Experience
- Endoscopy Unit Measures
Measuring Quality in Gastrointestinal Endoscopy
Priority Quality Indicators for Colonoscopy

1. Adenoma detection rate
2. Use of recommended screening and surveillance intervals
3. Cecal intubation rate

2015 AJG and GIE
From Joint Task Force of the ACG and ASGE for GI Endoscopic Quality Indicators
Priority Quality Indicators for EGD

1. Frequency with which (unless contraindicated) endoscopic treatment is given to ulcers with active bleeding or non-bleeding visible vessels.
2. Frequency with which patients diagnosed with gastric or duodenal ulcers have documented plans to test for *H. pylori* infection.
3. Frequency with which appropriate prophylactic antibiotics are given in patients with cirrhosis with acute upper GI bleeding who undergo EGD.
4. Frequency of proton pump inhibitor use for suspected peptic ulcer bleeding.

2015 AJG and GIE
From Joint Task Force of the ACG and ASGE for GI Endoscopic Quality Indicators
Priority Quality Indicators for ERCP

1. Appropriate indication
2. Cannulation rate
3. Stone extraction success rate
4. Frequency of post-procedure pancreatitis

2015 AJG and GIE
From Joint Task Force of the ACG and ASGE for GI Endoscopic Quality Indicators
Priority Quality Indicators for EUS

1. Frequency with which all gastrointestinal cancers are staged with the AJCC/UICC TNM staging system
2. Diagnostic rates of malignancy and sensitivity in patients undergoing EUS-FNA of pancreatic masses
3. Incidence of post EUS-FNA adverse events (bleeding, perforation and acute pancreatitis)

2015 AJG and GIE From Joint Task Force of the ACG and ASGE for GI Endoscopic Quality Indicators
Collecting The Data:

*Using a Registry*
GIQuIC:
GI Quality Improvement Consortium

- 501(c)3 status letter received [GI Quality Improvement Consortium, Ltd (GIQuIC)]
  - Partnership of ASGE and ACG
- Data validated by audit
- Registry housed with Quintiles Outcome
GIQuIC

- Direct endowriter to database upload
- Manual data entry available
- Benchmarking monthly, quarterly, annually
- Benchmarking reports customized by data manager at each participating facility
- On line registration available
Data Collection and Reporting

Collects all data from all procedures

- 84 data points
- All data points can be downloaded for customized reporting by the user i.e. facility(ies) can measure whatever they may be interested in
Adenoma Detection Rate
Site versus Entire Study

Adenoma Detection Rate
Percentage of patients age 50 and over undergoing screening colonoscopy with a finding of at least one adenomas polyp.
Time Period: 01/2013 - 12/2015, Site: GIQuIC Sponsor Site (1036)

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Male Goal</th>
<th>Female Goal</th>
<th>Both Male and Female (Combined) OR Neither Male nor Female Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data For: Adenoma Detection Rate

<table>
<thead>
<tr>
<th>Benchmark Group</th>
<th>Time Period</th>
<th>Numerator</th>
<th>Denominator</th>
<th>% of Patients</th>
<th>95% C.I. Low</th>
<th>95% C.I. High</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Sites</td>
<td>2013</td>
<td>988</td>
<td>2947</td>
<td>33.3%</td>
<td>31.9%</td>
<td>35.2%</td>
</tr>
<tr>
<td>My Sites</td>
<td>2014</td>
<td>1670</td>
<td>4303</td>
<td>38.8%</td>
<td>37.4%</td>
<td>40.3%</td>
</tr>
<tr>
<td>My Sites</td>
<td>2015</td>
<td>476</td>
<td>1067</td>
<td>44.6%</td>
<td>41.6%</td>
<td>47.7%</td>
</tr>
<tr>
<td>Entire Study</td>
<td>2013</td>
<td>3424</td>
<td>113917</td>
<td>32.9%</td>
<td>32.6%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Entire Study</td>
<td>2014</td>
<td>112379</td>
<td>312113</td>
<td>36.0%</td>
<td>35.9%</td>
<td>36.2%</td>
</tr>
<tr>
<td>Entire Study</td>
<td>2015</td>
<td>15112</td>
<td>90766</td>
<td>36.8%</td>
<td>36.5%</td>
<td>37.2%</td>
</tr>
</tbody>
</table>
Cecal Intubation Rate
Site versus Entire Study

Photodocumentation of the Cecum - All Colonoscopies
Percentage of colonoscopies into the cecum including photodocumentation of one or more of the ileocecal valve, appendiceal orifice, or terminal ileum.
Time Period: 01/2013 - 12/2015, Sites: GIQuIC Sponsor Site (1026)

<table>
<thead>
<tr>
<th>Benchmark Group</th>
<th>Time Period</th>
<th>Numerator</th>
<th>Denominator</th>
<th>% of Patients</th>
<th>95% C.I. Low</th>
<th>95% C.I. High</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Sites</td>
<td>2013</td>
<td>8197</td>
<td>11141</td>
<td>73.6%</td>
<td>72.8%</td>
<td>74.4%</td>
</tr>
<tr>
<td>My Sites</td>
<td>2014</td>
<td>11013</td>
<td>11702</td>
<td>94.1%</td>
<td>93.3%</td>
<td>94.8%</td>
</tr>
<tr>
<td>My Sites</td>
<td>2015</td>
<td>2450</td>
<td>2540</td>
<td>96.5%</td>
<td>95.7%</td>
<td>97.2%</td>
</tr>
<tr>
<td>Entire Study</td>
<td>2013</td>
<td>261554</td>
<td>30661</td>
<td>85.3%</td>
<td>85.2%</td>
<td>85.5%</td>
</tr>
<tr>
<td>Entire Study</td>
<td>2014</td>
<td>693537</td>
<td>765152</td>
<td>90.7%</td>
<td>90.7%</td>
<td>90.8%</td>
</tr>
<tr>
<td>Entire Study</td>
<td>2015</td>
<td>201737</td>
<td>215017</td>
<td>93.8%</td>
<td>93.8%</td>
<td>94.0%</td>
</tr>
</tbody>
</table>
Adenoma Detection Rate
Physician Comparison

Adenoma Detection Rate
Percentage of patients age 50 and over undergoing screening colonoscopy with a finding of at least one adenomatous polyp.
Time Period: 01/2013 - 12/2015, Site: GIQuIC Sparsely Site (1026)

Data For: Adenoma Detection Rate
Male Goal: 80%, Female Goal: 20%, Both Male and Female (Combined) OR Neither Male nor Female Goal: 20%

<table>
<thead>
<tr>
<th>Benchmark Group</th>
<th>Time Period</th>
<th>Numerator</th>
<th>Denominator</th>
<th>% of Patients</th>
<th>95% C.I. Low</th>
<th>95% C.I. High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/Female</td>
<td>2014.5</td>
<td>86</td>
<td>107</td>
<td>44.4%</td>
<td>41.6%</td>
<td>47.7%</td>
</tr>
<tr>
<td>Blue Physician 1</td>
<td>2014.5</td>
<td>23</td>
<td>46</td>
<td>50.0%</td>
<td>35.0%</td>
<td>65.1%</td>
</tr>
<tr>
<td>Green Physician 2</td>
<td>2014.5</td>
<td>35</td>
<td>62</td>
<td>56.5%</td>
<td>43.3%</td>
<td>69.1%</td>
</tr>
<tr>
<td>Yellow Physician 3</td>
<td>2014.5</td>
<td>56</td>
<td>80</td>
<td>69.0%</td>
<td>39.9%</td>
<td>56.6%</td>
</tr>
<tr>
<td>Purple Physician 4</td>
<td>2014.5</td>
<td>56</td>
<td>110</td>
<td>50.7%</td>
<td>24.1%</td>
<td>42.6%</td>
</tr>
</tbody>
</table>
GIQuIC: Current Data

• Over 2,000,000 colonoscopies with >10,000 new colonoscopies per week
  (From July 2010-Oct 2012: 100,000 colonoscopies added, October 2013: 350,000 total colonoscopies in registry)

• Over 300 organizations

• Over 2,500 physicians

• Registration continues and there is lag time before procedure submission due to software updates and training

• Significant clinical research project
Site Name  
Colonoscopies performed 1/1/13-3/31/14  

<table>
<thead>
<tr>
<th>NYC Colonoscopy Quality Indicators Summary</th>
<th>TARGET</th>
<th>CQI SITES N=31,840¹</th>
<th>SITE NAME N=6,385¹</th>
<th>PHYSICIAN 1 N=800¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening Colonoscopies</td>
<td></td>
<td>58% (18,450)</td>
<td>49% (3,160)</td>
<td>45% (360)</td>
</tr>
<tr>
<td>Female Adenoma Detection Rate</td>
<td>≥ 15%</td>
<td>18% (9,500)²</td>
<td>20% (1,690)²</td>
<td>19% (180)²</td>
</tr>
<tr>
<td>Male Adenoma Detection Rate</td>
<td>≥ 25%</td>
<td>27% (6,500)²</td>
<td>26% (1,300)²</td>
<td>25% (135)²</td>
</tr>
<tr>
<td>Total Adenoma Detection Rate</td>
<td></td>
<td>22% (16,000)²</td>
<td>23% (2990)²</td>
<td>22% (315)²</td>
</tr>
<tr>
<td>Cecal intubation with photo documentation</td>
<td>95%</td>
<td>80%</td>
<td>94%</td>
<td>99%</td>
</tr>
<tr>
<td>Average withdrawal time (minutes)</td>
<td>≥ 6</td>
<td>6.7 (17,510)³</td>
<td>8.0 (1,790)³</td>
<td>6.5 (250)³</td>
</tr>
<tr>
<td>% adequate bowel preparation</td>
<td>-</td>
<td>75%</td>
<td>96%</td>
<td>97%</td>
</tr>
<tr>
<td>Ten-year follow-up interval for negative colonoscopies</td>
<td>-</td>
<td>35%</td>
<td>33%</td>
<td>31%</td>
</tr>
</tbody>
</table>

**Diagnosic Colonoscopy**  
25% (7,940)  

**Surveillance Colonoscopies**  
17% (5,450)  

---

1. *N* is the number of all colonoscopies for patients 50 years and older.
2. The number in parentheses is the number of screening colonoscopies for average-risk patients 50 years and older, excluding those with missing pathology results. **Missing pathology results for female and male patients are 3 and 2 reports, respectively.** Adenoma detection rate (ADR) was not calculated for number of screening procedures less than 50 or % of missing pathology results greater than 20%.
3. The number in parentheses is the number of screening colonoscopies for patients 50 years and older without biopsies taken.

---

“This report was supported by Grant/Cooperative Agreement IU58DP0000783 from the Centers for Disease Control and Prevention (CDC) and the New York State Department of Health (NYSDOH). Its contents are solely the responsibility of the New York City Department of Health and Mental Hygiene and do not necessarily represent the official views of CDC or NYSDOH.”
GIQuIC Measures

1. History and physical documentation
2. Informed consent documentation including potential adverse events
3. Adequacy of bowel prep
4. Written discharge instructions for outpatients
5. ASA risk stratification
GIQuIc Measures

6. Indication documentation
7. Cecal intubation with photo documentation (screening, surveillance, diagnostic, cumulative)
8. Adenoma detection rate (male and female)
9. Polyp morphology and size documented
10. Immediate complications
DDW 2013...
ADR as a Valid Quality Measure

Physician Adenoma Detection Rate Variability and Subsequent Colorectal Cancer Risk Following a Negative Colonoscopy

– Corley, Jensen, Marks, et al

<table>
<thead>
<tr>
<th>Adenoma detection rate quartile</th>
<th>Hazards ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20.3%</td>
<td>1.74 (1.36-2.24)</td>
</tr>
<tr>
<td>20.3-25.2%</td>
<td>1.52 (1.14-2.04)</td>
</tr>
<tr>
<td>25.3-32%</td>
<td>1.31 (1.00-1.73)</td>
</tr>
<tr>
<td>&gt;32.1%</td>
<td>1</td>
</tr>
</tbody>
</table>

Physician ADR is an independent predictor of subsequent CRC risk following a negative colonoscopy
Is ADR a Valid Quality Measure?

**Physician Adenoma Detection Rate Variability and Subsequent Colorectal Cancer Risk Following a Negative Colonoscopy**

<table>
<thead>
<tr>
<th>314,872 colonoscopies</th>
<th>n</th>
<th>Early Cancer ≥ 6mos &lt; 3 yrs</th>
<th>n</th>
<th>Delayed Cancer ≥ 3 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>189</td>
<td>(CI 95%)</td>
<td>364</td>
<td>(CI 95%)</td>
</tr>
<tr>
<td>ADR, Quintiles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤19.05%</td>
<td>48</td>
<td>1.00 (reference)</td>
<td>103</td>
<td>1.00 (reference)</td>
</tr>
<tr>
<td>19.06%-23.85%</td>
<td>36</td>
<td>0.94 (0.63, 1.42)</td>
<td>73</td>
<td>0.94 (.68, 1.30)</td>
</tr>
<tr>
<td>23.86%-28.04%</td>
<td>46</td>
<td>1.09 (0.76, 1.57)</td>
<td>59</td>
<td>0.75 (0.58, 0.96)</td>
</tr>
<tr>
<td>28.41%-33.50%</td>
<td>44</td>
<td>0.67 (0.39, 1.14)</td>
<td>88</td>
<td>0.67 (0.50, 0.90)</td>
</tr>
<tr>
<td>&gt;35.51%</td>
<td>15</td>
<td>0.40 (0.23, 0.69)</td>
<td>41</td>
<td>0.62 (0.39, 0.97)</td>
</tr>
</tbody>
</table>

Other non-GI Specific Registries

• The OR Benchmarks® Collaborative (ORBC)
  – McKesson and OR Manager, Inc.
  – Formed an automated benchmarking service
  – Designed specifically for surgery
    • Provides monthly trended data on multiple key performance indicators (KPIs)
    • Focusses on capacity and quality

• Medical Group Management Association (MGMA)

• The Advisory Board Company
Other non-GI Specific Registries

- McKesson and OR Manager, Inc. formed, The OR Benchmarks® Collaborative (ORBC) an automated benchmarking service designed specifically for surgery that provides monthly trended data on multiple key performance indicators (KPIs) focusing on capacity and quality.
- OR The OR Benchmarks® Collaborative (ORBC) Collaborative OR
- Medical Group Management Association (MGMA)
- The Advisory Board Company
Measuring and Improving Quality and Safety in an Endoscopy Unit...

What to measure?

Ideal measures

- Easy to measure
- Highly relevant
- Wide performance gap
- Low gaming potential
Measuring and Improving Quality and Safety in an Endoscopy Unit...

*What to measure?*

- Written discharge instructions
- Split dose preps
- Follow up contact shortly after procedure
  - Identify complications and ongoing issues
- Follow up contact within 30 days of procedure
- Pathology specimen tracking
- Written instructions concerning management of antiplatelet agents and anticoagulants post-procedure
Measuring and Improving Quality and Safety in an Endoscopy Unit...

*What to measure?*

- **Endoscopy room “turnover time”**
  - Time from procedure complete to room ready for the next patient

- **Total duration of “endoscopy experience”**
  - Arrival at facility to departure from facility
    - Some portions of that out of facility's control
  - Duration from nursing assessment to “ready for discharge”
    - All of that under facility’s control
Measuring and Improving Quality and Safety in an Endoscopy Unit...

*What to measure?*

- Reprocessing and infection control
  - Outcomes difficult to assess
  - Process may be a proxy for outcomes
    - Core competency assessment for personnel reprocessing endoscopes
    - Documentation that key steps in reprocessing are completed for each cycle
CMS OP Patient Satisfaction survey

- Voluntary
- Data collection program beginning in January 2016
- 37-question survey
- Data will be reported on www.medicare.gov after 12 months
- Survey, will be administered by Press Ganey
- Will cover both ambulatory surgical centers and hospital outpatient surgery departments
CMS OP Patient Satisfaction survey

• Questions
  – Check-in process
  – Facility environment
  – Patient's experience communicating with administrative staff and providers,
  – Attention to comfort, pain control,
  – How well pre- and post-surgery care information is provided
  – Patient's overall experience

• Facilities can start measurement now
  – Can gain insights to address any deficiencies early,
  – Placing facilities in a strong position when the program is mandated
Measuring and Improving Quality and Safety in an Endoscopy Unit...

- Collect the data
- Analyze the data
- Feed data back appropriately
  - Benchmarking
- Use results to drive further improvements
Quality In Endoscopy: *The Bottom Line Today*

**Barrier**
- Lack of EMR
- Understanding what is at stake
- Avoidance of change

**Keys to Success**
- Physician and Nursing leadership
- Frequent feedback
- Practice-wide focus
- Make it simple as possible
That’s All Folks!!!