Digestive Health – Southwest Endoscopy 2016 Quality Report

Our 2016 our quality and value management program focused on one primary area of interest:

- Performing high-quality colonoscopy

High-quality Colonoscopy

We selected nine measures for analysis and reporting to the GI Quality Improvement Consortium Ltd (GIQuIC), a non-profit collaboration of the American College of Gastroenterology and the American Society for Gastrointestinal Endoscopy. GIQuIC is a CMS Qualified Clinical Data Registry (QCDR) that is reporting our data to CMS' Physician Quality Reporting System (PQRS) program. Structured procedure data were initially captured in our endoscopic report generator software system, Clinical Outcomes Research Initiative (CORI). Deidentified data were uploaded to the GIQuIC registry, which was built and is maintained by Quintiles, Inc.

> **A history of endoscopy-related data sharing at Digestive Health – Southwest Endoscopy (DHA-SEC)**
> DHA-SEC has a longstanding commitment to collecting and sharing high-quality endoscopy data for the purposes of creating an effective medical record that supports patient care needs, clinical quality improvement processes and outcomes research. DHA implemented use of the CORI endoscopy report generator for procedures performed at Mercy Regional Medical Center in 1999. The Southwest Endoscopy Center has used CORI for all procedures that it has performed since opening, in February 2001. Endoscopy reports have been completed in this system for over 58,000 procedures as January 2017 (42,980 procedures at the Southwest Endoscopy Center and 15,043 procedures at Mercy Regional Medical Center). From 1999 through 2014 we were able to compare our data to the data of other CORI consortium facilities. We began reporting to GIQuIC in 2013. GIQuIC accepts reports from multiple software systems as well and allows manual reporting, providing an opportunity for data comparison against a much larger and more diverse universe of endoscopy facilities. For comparison, in 2013 the CORI consortium performed 63,519 colonoscopy procedures while in 2016 GIQuIC reported 1,692,897 colonoscopies, 670,157 of which were defined to be screening colonoscopies. At this time, the GIQuIC database contains over 4.4 million deidentified colonoscopy reports. The number of colonoscopy procedures, screening and total, performed annually in the United States is not known. A series of extrapolations based on 2002-2003 data and published in 2004 estimated the performance of 1.69 million screening colonoscopies annually in the United States (*Vijan S, Inadomi J, Hayward RA, et al. Projections of demand and capacity for colonoscopy related to increasing rates of colorectal cancer screening in the United States. Aliment Pharmacol Ther. 2004;20:507-15*). While the proportion of U.S. colonoscopies that are reported to the GIQuIC registry is also not known, it is reasonable to conclude that it is less than 15%, based on these data, even if only minimal growth in colonoscopy volume over the last 10 years is assumed. While the GIQuIC data set represents a small minority of U.S. endoscopy procedures, it is currently the largest data set of its type in the world. It is our belief that the GIQuIC endoscopists we compare ourselves to in this report are likely to be outperforming endoscopists who do not report. The voluntary reporting of endoscopy data requires a distinguishing commitment to quality, willingness to be reported to and interest in sharing performance with others. It also requires a substantial investment of financial and physician time resources.

Data were collected, analyzed and compared to the reference data set of all GIQuIC participants, at the level of individual endoscopists, and for our facility in the aggregate. We provide and discuss our facility-wide aggregate date in this report. Our individual endoscopist reports are used internally for the purpose of identifying opportunities for clinical improvement.

We reported 100% of the procedures performed at the Southwest Endoscopy Center during 2016. A full calendar year of data was collected for Patrick D. Gerstenberger, MD, Steven R. Christensen, MD and Stuart B. Saslow, MD. Our 9 selected measures include 2 outcome measures and cover 3 NQS domains.

Measure 1A: Conventional Adenoma Detection Rate (not including serrated lesions)

Percentage of patients age 50 and over undergoing screening colonoscopy with a finding of at least one conventional adenoma or colorectal cancer during screening colonoscopy

Type – Outcome

NQS Domain - Effective Clinical Care

Why is this measure important?

The adenoma detection rate (ADR) is generally accepted to be the single most important current quality measure by gastroenterologists performing screening colonoscopy. We know that colonoscopy is not a perfect cancer prevention tool. Cancers occasionally are found in patients who have had a prior colonoscopy (interval cancer). Studies have shown a near-linear inverse relationship between an individual colonoscopists' ADR and the frequency with which interval cancers arise in his or her patients. Said another way, a colonoscopist's ADR provides a direct measure of that colonoscopists effectiveness in reducing the risk of interval cancer and cancer-related mortality. Nearly all studies addressing this issue have shown marked variation in adenoma detection rates among colonoscopists. In a widely reported recent New England Journal of Medicine paper (*Corley D, Jensen CD, Marks AR et al. Adenoma detection rate and risk of colorectal cancer and death. N Engl J Med 2014;370:1298-306*) each 1% increase in ADR above 20% was associated with a 3% reduction in colorectal cancer incidence and a 5% reduction in colorectal cancer-related mortality. Industry-defined benchmark target ADRs in 2014 were ≥15% in women and ≥25% in men (or ≥20% in a male/female population). In 2015 these target benchmark ADRs were increased to ≥20% for women and ≥30% for men (or ≥25% in a male/female population) (*Rex DK, Schoenfeld PS, Cohen J, et al. Quality indicators for colonoscopy. Gastrointest Endosc. 2015;81:31-53*).

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**282**	**699**	**40.3%**	**36.7%**	**44.1%**
GIQuIC Reference Group	243,421	648,429	37.5%	37.5%	37.7%

Overlapping confidence intervals

What our performance for this measure means

Screening colonoscopies at the Southwest Endoscopy Center have a high ADR. SEC's ADR is higher than the GIQuIC reference group's ADR (though not in a statistically significant manner, as the 95% confidence intervals overlap). Based on the previously discussed relationships between ADR and the frequency of interval cancer and mortality related to colon cancer, colonoscopies performed at the Southwest Endoscopy Center may be less likely to be associated with interval colon cancers and colon cancer-related death than colonoscopies performed by GIQuIC endoscopists as a whole.

Measure 1B: Total Adenoma Detection Rate (including conventional adenomas and serrated lesions)

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

Type – Outcome
NQS Domain - Effective Clinical Care

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**357**	**774**	**46.1%***	**42.6%**	**49.8%**
GIQuIC Reference Group	265,151	670,157	39.6%	39.5%	39.7%

**Non-overlapping confidence intervals*

What our performance for this measure means
Screening colonoscopies at the Southwest Endoscopy Center have a very high ADR when serrated lesions are added to the count of conventional adenomas. Serrated lesions represent an important potentially premalignant type of polyp that is excluded from the ADR determination used in Measure 1A. SEC's ADR is higher than the GIQuIC reference group's ADR in a statistically significant manner. Based on the previously discussed relationships between ADR and the frequency of interval cancer and mortality related to colon cancer, colonoscopies performed at the Southwest Endoscopy Center are less likely to be associated with interval colon cancers and colon cancer-related death than colonoscopies performed by GIQuIC endoscopists as a whole.

Measure 2: Adequacy of bowel preparation

Percentage of colonoscopies with a bowel preparation rated adequate or better (Boston Bowel Preparation Score of 6 or higher)
Type - Process
NQS Domain - Effective Clinical Care

Why is this measure important?
High-quality colonoscopy requires adequate bowel cleansing. Unfortunately, up to 20-25% of colonoscopies in some studies are reported to have inadequate bowel preparation. Adverse consequences of inadequate bowel preparation include lower adenoma detection rates, longer procedural time, lower cecal intubation rates, increased electrocautery risk and shorter intervals between examinations. Adenoma miss rates in patients with suboptimal bowel preparation are high. Bowel cleansing for colonoscopy is the subject of recent detailed guideline developed by the U.S. Multi-Society Task Force on Colorectal Cancer (*Johnson DA, Barkun AN, Cohen LB, et al. Optimizing adequacy of bowel cleansing for colonoscopy: recommendations from the U.S. multi-society task force on colorectal cancer. Gastrointest Endosc. 2014;80:543-62*).

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**2,029**	**2,050**	**99.0%***	**98.5%**	**99.4%**
GIQuIC Reference Group	1,602,835	1,692,897	94.7%	94.7%	94.8%

**Non-overlapping confidence intervals*

What our performance for this measure means
Colonoscopy bowel preparation at the Southwest Endoscopy Center is highly effective, and statistically superior to the performance of GIQuIC endoscopists as a whole.

Measure 3: Photodocumentation of the cecum (also known as cecal intubation rate) – All Colonoscopies

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

Type – Process

Effective Clinical Care

Why is this measure important?

Colon polyps and the cancers that may arise from them form in all sections of the colon. A complete colonoscopy is one that reaches and fully examines the cecum. A colonoscopy that fails to reach the cecum is incomplete, and will fail to detect lesions in the unexamined areas. Incomplete colonoscopies require consideration of additional testing, such as repeating colonoscopy, referring the patient to a more experienced colonoscopist, or performing an alternative examination, such as CT colonography (virtual colonoscopy) or capsule colonoscopy (pill camera colonoscopy). The ability to perform a complete colonoscopy is a well-accepted measure of a colonoscopist's technical skill.

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**1,998**	**2,008**	**99.5%***	**99.1%**	**99.8%**
GIQuIC Reference Group	1,537,013	1,589,387	96.7%	96.7%	96.8%

**Non-overlapping confidence intervals*

What our performance for this measure means

Colonoscopies at the Southwest Endoscopy Center almost always reach the cecum, and our performance is statistically superior to the performance of GIQuIC endoscopists as a whole.

Measure 4: Photodocumentation of the cecum (also known as cecal intubation rate) – Screening Colonoscopies

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

Type – Process

NQS Domain - Effective Clinical Care

Why is this measure important?

See discussion for measure 3. This measure applies only to screening colonoscopies, while measure 3 applies to all colonoscopies.

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**807**	**811**	**99.5%***	**98.8%**	**99.9%**
GIQuIC Reference Group	704,441	723,583	97.4%	97.4%	97.4%

**Non-overlapping confidence intervals*

What our performance for this measure means

Screening colonoscopies at the Southwest Endoscopy Center almost always reach the cecum, and our performance is statistically superior to the performance of GIQuIC endoscopists as a whole.

Measure 5: Incidence of perforation*

Percentage of total patients experiencing a perforation during colonoscopy, recognized immediately (before the patient leaves the facility)

Type – Outcome

NQS Domain - Patient Safety

Why is this measure important?

Perforation is a known, uncommon but serious complication of colonoscopy. Hospital care and surgical management are often necessary. It is associated with a high rate of morbidity and mortality, with up to 5% of perforations being fatal. Published rates of perforation related to colonoscopy show marked variation.

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**0**	**2,050**	**0.0%**	**0.0%**	**0.2%**
GIQuIC Reference Group	91	1,692,875	0.0%	0.1%	0.1%

This is an inverse measure in which a lower performance rate (closer to zero versus 100) is better.

What our performance for this measure means

Perforation is a rare complication of colonoscopy at the Southwest Endoscopy Center, and for GIQuIC endoscopists as a whole.

Measure 6: Appropriate follow-up interval for normal colonoscopy in average risk patients

Percentage of average-risk patients aged 50 years and older receiving a screening colonoscopy without biopsy or polypectomy who had a recommended follow-up interval of at least 10 years for repeat colonoscopy documented in their colonoscopy report

Type – Process

NQS Domain - Communication and Care Coordination

Why is this measure important?

Average risk patients who have no polyps or cancers identified on a high-quality examination should undergo colonoscopy again in 10 years, based on current guidelines. Inappropriate interval examinations are known to be frequently performed, resulting in the expensive overuse of resources and exposure of patients to unnecessary

procedural risks. Justifiable reasons for failing to adhere to this guideline may include matters related to family history or other risk factors that are not incorporated in the measure, inadequate bowel preparation, incomplete colonoscopy, and a technically difficult colonoscopy limiting the confidence of the colonoscopist's ability to examine all areas of the colonic lining.

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**163**	**186**	**87.6%***	**82.1%**	**92.0%**
GIQuIC Reference Group	207,190	251,089	82.5%	82.4%	82.7%

Overlapping confidence intervals

What our performance for this measure means
Southwest Endoscopy Center colonoscopists adhere closely to guidelines recommending a 10 year follow-up interval in writing after normal colonoscopy in average-risks patients, and our performance for this measure is superior to our GIQuIC reference group as a whole (though not in a statistically significant manner, as shown by overlapping confidence intervals).

Measure 8: Age appropriate screening colonoscopy*

Percentage of patients age 85 years or older undergoing screening colonoscopy
Type – Outcome
NQS Domain - Efficiency and Cost Reduction

Why is this measure important?
The U.S. Preventative Services Task Force (USPST) recommends against screening for colorectal cancer in individuals older than 85 years because substantial data suggests that the benefits of screening in this group fail to exceed the harms.

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**1**	**788**	**0.1%**	**0.1%**	**0.8%**
GIQuIC Reference Group	684	722,551	0.1%	0.1%	0.2%

This is an inverse measure in which a lower performance rate (closer to zero versus 100) is better.

What our performance for this measure means
Screening colonoscopy is rarely performed in patients over the age of 85 at the Southwest Endoscopy Center or by GIQuIC endoscopists as a whole.

Measure 12: Appropriate indication for colonoscopy

Percentage of colonoscopy procedures performed for an indication that is included in a published standard list of appropriate indications and the indication is documented.
Type – Process

NQS Domain - Effective Clinical Care

Why is this measure important?
Colonoscopy is an expensive and invasive procedure. It should only be performed when it is clinically appropriate to do so. The American Society for Gastrointestinal Endoscopy periodically reviews the published literature and expert consensus. It most recently published a list of indications reflecting current consensus in 2012. The target compliance rate for this indication is expected to be >80% (recognizing that not all appropriate medical decision-making fits within clinical guidelines.

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**1,968**	**2,050**	**96.0%***	**95.1%**	**996.9%**
GIQuIC Reference Group	1,484,109	1,692,875	87.7%	87.7%	87.8%

**Non-overlapping confidence intervals*

What our performance for this measure means
Colonoscopy at the Southwest Endoscopy Center is nearly always performed for standard accepted indications, and our performance for this measure is statistically superior to that of the GIQuIC reference group as a whole.

Measure 15: Appropriate 3-Year Follow-up

Percentage of average-risk patients aged 50 years and older receiving a screening colonoscopy with biopsy or polypectomy and pathology findings of 3-10 adenomas, Advanced Neoplasm (>= 10 mm, high grade dysplasia, villous component), Sessile serrated polyp >= 10 mm OR sessile serrate polyp with dysplasia OR traditional serrated adenoma who had a recommended follow-up interval of 3 years for repeat colonoscopy

Type – Process

NQS Domain – Communication and Care Coordination

	Numerator	Denominator	% of Patients	95% Confidence Interval Low	95% Confidence Interval High
Southwest Endoscopy Center	**53**	**66**	**80.3%**	**68.7%**	**89.1%**
GIQuIC Reference Group	40,571	57,648	70.4%	70.1%	70.8%

Overlapping confidence intervals

What our performance for this measure means
Repeat colonoscopy in high risk patients is recommended in writing at an interval comporting to USMSTF guidelines in a very high proportion of patients, and our performance for this measure is superior to that of the GIQuIC reference group as a whole (though not in a statistically significant manner, as shown by overlapping confidence intervals).