

American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) Year 10 Update

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10/17/2024



COOK COUNTY
HEALTH

NSQIP Background

- ACS NSQIP is a nationally validated, risk-adjusted, outcomes-based program designed to measure and improve the quality of surgical care
- Built by surgeons for surgeons, ACS NSQIP provides participating hospitals with tools, analyses, and reports to make informed decisions about improving quality of care
- Peer-reviewed studies have demonstrated that ACS NSQIP is effective in improving the quality of surgical care while also reducing complications and costs

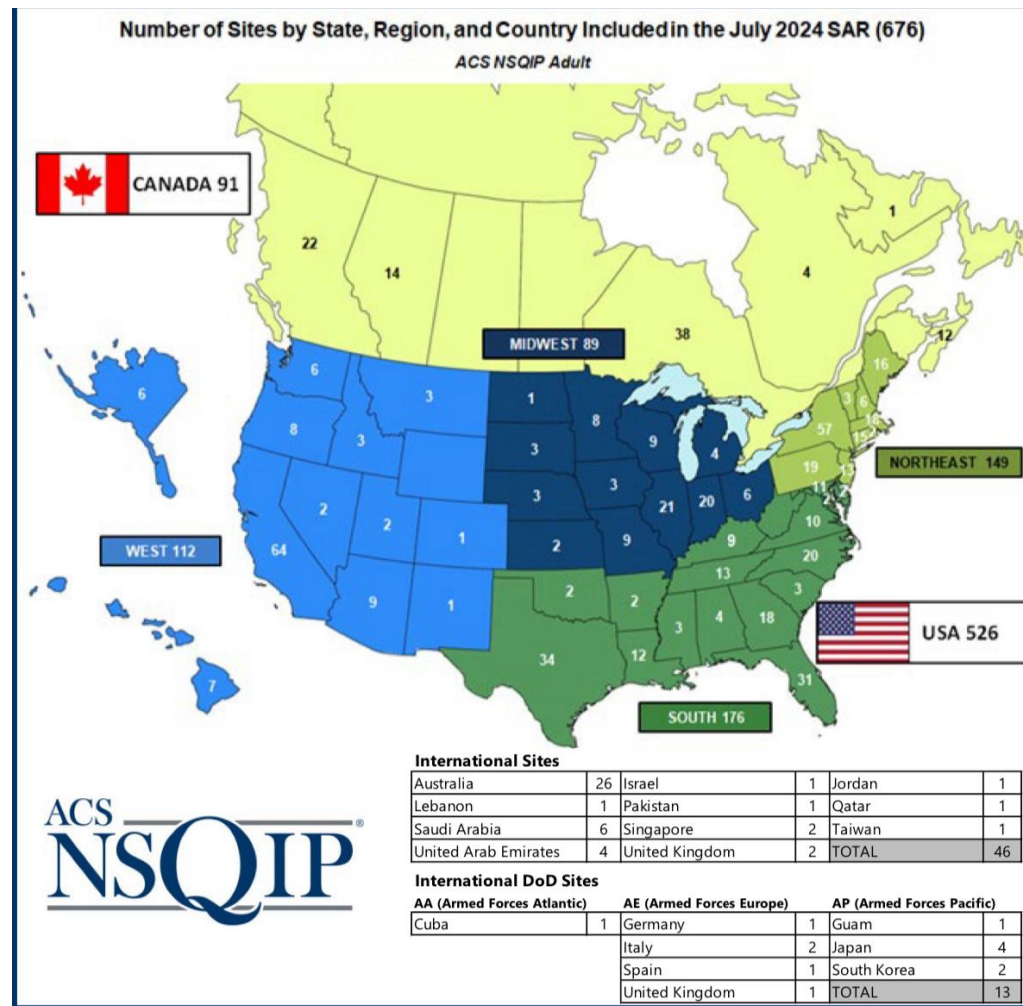
NSQIP Benefits

- Risk-adjusted reports benchmark hospitals and collaboratives to national data
- Real time "On-demand" risk adjustment and heat maps to identify problem areas
- National conferences and collaborative meetings to assist in reviewing and interpreting results
- Best practice tools, including evidence-based guidelines and case studies developed by leading U.S. surgeons
- Participation in Hospital Compare, a CMS program that allows voluntary public reporting of quality information to health care consumers
- Data validation and audits to ensure compliance to data standards

NSQIP History

- Originated in the Veterans Health Administration (1991)
- ACS received funding to implement NSQIP pilot program in private sector hospitals (2001)
- ACS expanded program to additional private sector hospitals (2004)
- ACS launched different NSQIP participation options tailored to hospital needs (2011)
- John H. Stroger, Jr. Hospital of Cook County joined (2014)

Participating Hospitals



Program Overview

- Includes general, vascular, and subspecialty surgery cases
- Includes target cases
- Program uses clinical data (not administrative data)
- Outcomes assessed at 30 days after index surgery (inpatient or outpatient)
- Highly standardized and validated data definitions
- Data collected by a trained abstractor
- Advanced data analytics and hospital audits ensure data quality
- Provides data-driven tools for clinical decision making

NSQIP Case Selection

Systematic Sampling Process

- Cases are selected based on the NSQIP inclusion/exclusion criteria
 - Inclusion based on CPT® codes of major cases
 - General exclusion criteria
 - Pediatrics
 - Trauma and Transplant
 - ASA class 6
- An 8 day cycle yields on average 250 surgical procedures (8 days eliminates bias due to day of week associated with surgeon operative schedule).
 - Once exclusion criteria are applied to about 30% of the cases, there are enough cases remaining to fulfill the 40 cases per cycle.

NSQIP Data Collection

- Preoperative data
- Demographics
- Clinical laboratory variables
- Surgical profile
- Clinical variables and complications
- Postoperative data
- 30-day outcomes (inpatient and outpatient)
- Custom fields allows sites to track their own variables of interest

Semi-annual Report (SAR) Content

Surgical Specialties

General surgery

Vascular

Colon Rectal

Cardiac

Gynecology

Neurosurgery

Orthopedics

Otolaryngology

Plastics

Thoracic

Urologic

Type of Complication

Cardiac

Pneumonia

Respiratory failure

Venous thromboembolism

Renal failure

Urinary tract infection

Surgical site infection

Sepsis

Return to operating room

Readmission

Length of stay

Targeted Cases

Every case of the following is abstracted:

- Colectomy
- Proctectomy
- ventral hernia repair
- bariatric surgery
- thyroidectomy
- spine surgery
- brain tumor
- transurethral resection of prostate
- bladder suspension
- total knee and total hip arthroplasty
- Breast reduction
- breast reconstruction
- Abdominoplasty
- lung resection



Data Available to Hospitals

Workstation Reports

- Permits immediate evaluation on non-risk adjusted data and comparisons to similar types of hospitals
- Hospitals can download case details for selected cases
- Custom reports are available upon request

On-demand Benchmarking

- Risk-adjusted and smoothed rates and comparison to the average ACS NSQIP hospital
- Monitor performance changes over time
- Quality estimates for unique groups of patients

Semiannual Reports (SARs)

- Risk-adjusted and smoothed odds ratios and comparison to the average ACS NSQIP - modeled for a single data year using gold-standard methodology

Participant Use Files (PUFs)

- De-identified Research file contains all cases reported from 2005 to date

Interpretation of Results

“Exemplary” is assigned if the hospital is a low statistical outlier or is in the 1st quartile of adjusted OR percentiles.

“Needs Improvement” is assigned if the hospital is a high statistical outlier or is in the 4th quartile of adjusted OR percentiles.

“As Expected” is assigned if the hospital is neither a statistical outlier nor in the 1st or 4th OR quartile.

Complete explanations of statistical methods and how results should be interpreted are in the SAR and available on the Resource Portal.

Semiannual Reports

Data listed subsequently are for semiannual reports since September 2014

- Semiannual reports contain one year of data, released every six months (rolling basis) Odds Ratio listed
- Red+H indicates high statistical outlier (needs improvement)
- Green+L indicates low statistical outlier (exemplary)
- The Odds Ratio (OR) represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure.

Cook County Health and ACS NSQIP

- John H. Stroger, Jr. Hospital (JSH) of Cook County joined ACS NSQIP in September 2014 as part of partnership with Blue Cross Blue Shield of Illinois and the Illinois Surgical Quality Improvement Collaborative (ISQIC).
- Team at this institution consists of:
 - Surgeon Champion: Mark A Wille, MD, FACS
 - Surgical Clinical Reviewer: Blessy Varghese, MSN, RN
 - NEW Surgical Clinical Reviewer: Christine Abadilla, MSN, RN
- Systematic sampling of 40 cases over 8 days
- Receive semiannual report every 6 months from NSQIP
 - Contain 12 months data
 - Benchmarked against other NSQIP hospitals
 - Risk-adjusted



Using NSQIP data to improve care: Surgical Site Infections

Second most common type of healthcare-associated infection (HAI) in U.S. Hospitals (290,000 per year)

Estimated cost: \$3.5-10 billion per year

Patient with SSI is:

- 5 times more likely to be admitted after discharge
- 2 times more likely to spend time in intensive care
- 2 times more likely to die after surgery

Kirkland KB, Briggs JP, Trivette SL, et al. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. *Infection Control and Hospital Epidemiology*. 1999;20:725-30.

Institutional Projects

- Surgical Site Infections
 - Initial reports revealed occurrence near 1.5x rate of average NSQIP hospital
 - Assembled team and came up with treatment bundle.
 - Staged implementation began approximately 12/2016
 - 1/23-12/2023 semiannual report odds ratio of 1.1

Cook County Health and ACS NSQIP

Return on Investment

- ISQIC provides return on investment calculations for certain variables
- April 2019 report analyzed data from 7/2014-6/2015 compared to 1/2017-12/2017
- Time periods are before and after implementation of our institutional projects
- Relative change in rates calculated between two time groups
- Cost per complication calculated (estimated from 4 hospitals in a large metro health system adjusting for patient characteristics, procedure groupings, and site of care)
- Financial savings calculated

Cook County Health and ACS NSQIP

Return on Investment – Surgical Site Infections (Superficial)

- Baseline rate: 2.84%
- 2017 rate: 1.12%
- Relative change in rates: 61%
- Estimated number of events avoided: 96
- Estimated cost per complication: \$2,473
- Estimated financial savings (annually): \$237,210

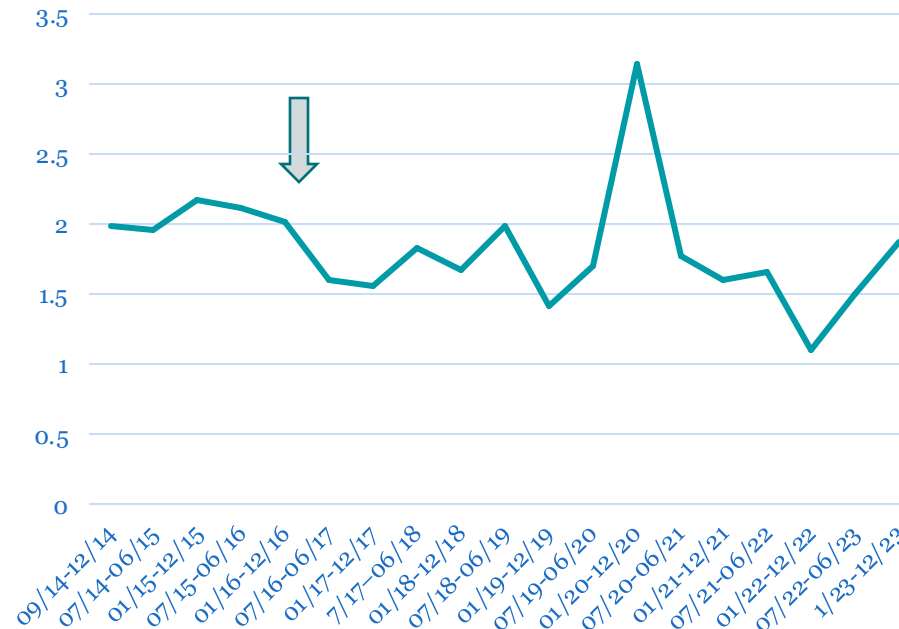
Prolonged NPO/NGT in Colectomy

- Prolonged NPO/NGT use is one of many potential occurrences in patients undergoing colectomy
- Occurrence indicates that bowel function has not returned after operation
- Prolonged NPO/NGT use leads to:
 - Increased length of stay
 - Reoperations
 - Decline in functional status
 - Increased discomfort and pain
 - Increased risk of pulmonary complications
 - Increased healthcare costs

Institutional Projects

- Prolonged nil-per-os/nasogastric tube use (NPO/NGT) in Colectomy
 - Initial reports revealed odds ratio of 2 (2x rate of average NSQIP hospital)
 - Assembled team and came up with treatment bundle.
 - Staged implementation began approximately 8/2016

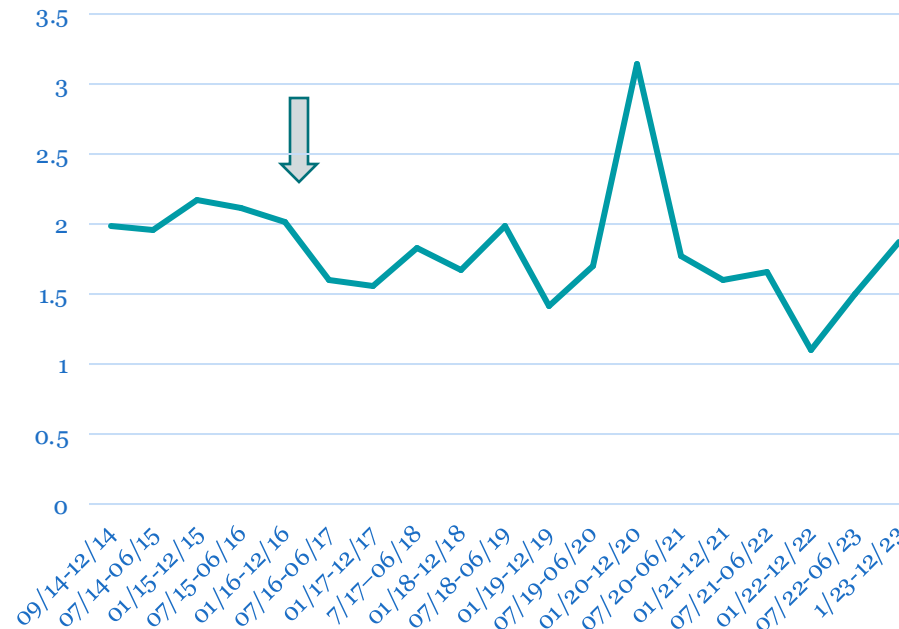
Prolonged NPO/NGT use Colectomy



Institutional Projects

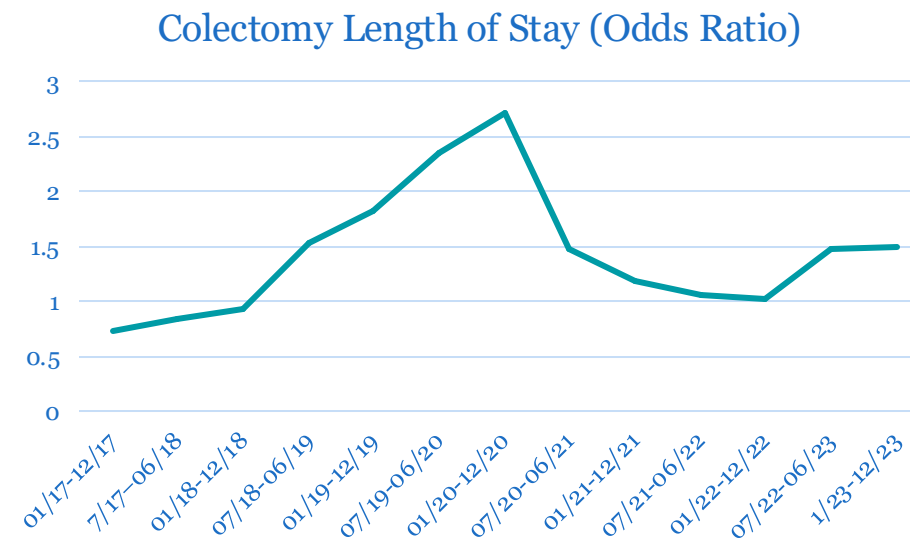
- Prolonged nil-per-os/nasogastric tube use (NPO/NGT) in Colectomy
 - 7/2021-6/2022 semiannual report demonstrated odds ratio of 1.66
 - Continuing to work with stakeholders to identify areas for improvement
 - Goal directed fluid management compliance 64% in 2023
 - Process Improvement is a continuous effort

Prolonged NPO/NGT use Colectomy



Institutional Projects

- Prolonged nil-per-os/nasogastric tube use (NPO/NGT) in Colectomy can lead to increased length of stay
- Increased length of stay can significantly increase costs of hospitalization
- Despite having an increased rate of prolonged NPO/NGT, our length of stay odds ratio for the most recent SAR (1/23-12/23) is 1.5 (not statistically significantly different from average NSQIP hospital)



Cook County Health and ACS NSQIP

Return on Investment – Prolonged NPO/NGT after Colectomy

- Baseline rate: 33.66%
- 2017 rate: 23.42% (2021-2022 rate 22.88%)
- Relative change in rates: 30%
- Estimated number of events avoided: 35
- Estimated cost per complication: \$10,205
- Estimated financial savings (annually): \$353,993

Cook County Health and ACS NSQIP

Cost of NSQIP Participation

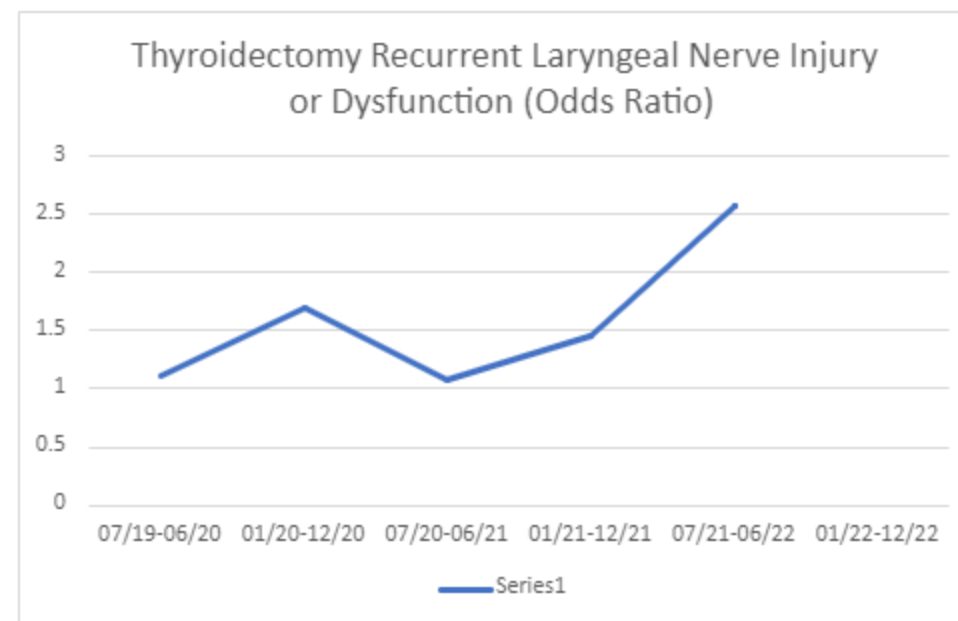
- Surgical Clinical Reviewer: \$115,000
- ACS NSQIP Annual Fee: \$27,000
- Total Cost of NSQIP Participation: \$142,000

Thyroidectomy: Recurrent Laryngeal Nerve Injury/Dysfunction

- RLN injury or dysfunction is a significant complication in thyroid surgery, with symptoms including airway obstruction, hoarseness, and vocal weakness.

- Initial data from the 7/21-6/22 semiannual report indicated an odds ratio of 2.58, marking us as an outlier.

- A review was initiated to assess the accuracy of these findings, including discussions with thyroid surgeons and prospective documentation changes.



Thyroidectomy: Recurrent Laryngeal Nerve Injury/Dysfunction

Review and Feedback from Surgeons

3/2023:

- Dr. Amna Khokar and Blessy reviewed general surgery cases and found discrepancies in the variable definition for RLN injury.
- Of 36 cases, 7 were assigned the RLN injury occurrence, with varying numbers across different surgeons.

Documentation Changes:

- Discussions about improving how symptoms like hoarseness are documented to reduce potential overreporting or misclassification.

Thyroidectomy: Recurrent Laryngeal Nerve Injury/Dysfunction

Review and Feedback from Surgeons

Our group contacted clinical support at NSQIP regarding failure of their model to include important risk factors.

NSQIP releases new guidelines incorporating additional risk factors into their modeling (only new hoarseness counts)

August 2023 Report:

- Real-time abstraction found 3 cases of RLN injury between 3/14/23-5/25/23.

Thyroidectomy: Recurrent Laryngeal Nerve Injury/Dysfunction

Updated Data on Thyroid Surgery Outcomes

October 2023 Review by Dr. Patel:

- ENT: 2 occurrences in 6 cases, warranting further investigation (cancer cases)
- General Surgery: 3 occurrences in 26 cases, reasonable given post-op expectations.
- Endocrine Surgery: 1 occurrence in 20 cases, well within expected bounds.

Case Reviews:

- Detailed findings from the review of specific cases with extensive cancer and gross involvement of nerves support the outcomes.
- No quality of care issue identified, and new NSQIP definition likely to reduce issues in future cases.

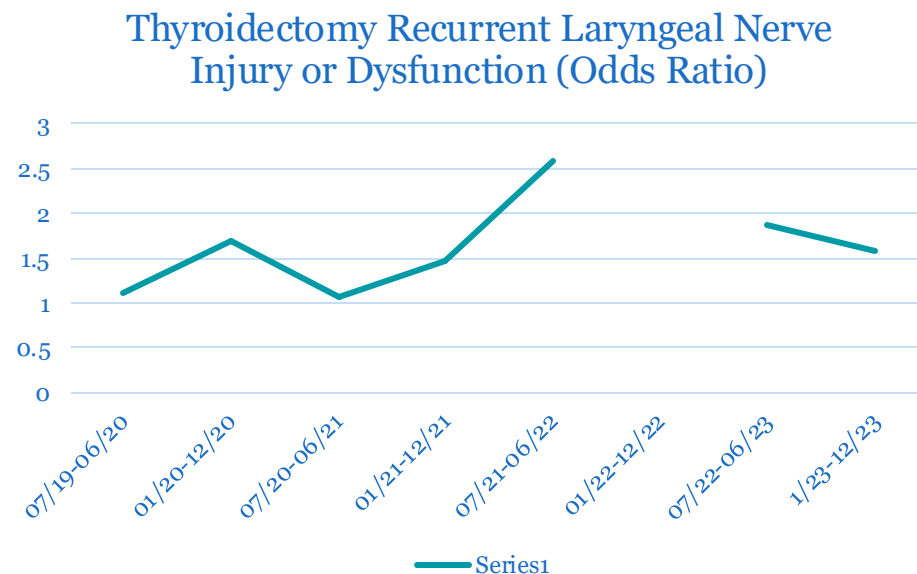
Thyroidectomy: Recurrent Laryngeal Nerve Injury/Dysfunction

Impact of Interventions on Recurrent Laryngeal Nerve Injury Rates

Laryngeal Nerve Injury Rates

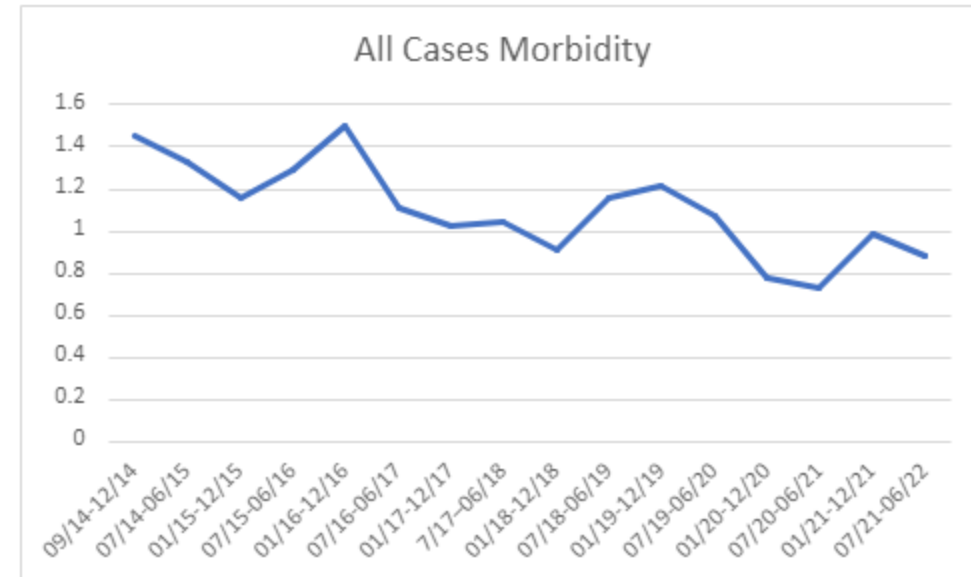
- The graph reflects the trend of RLN injury rates from 2021 to the most recent data in 2023.

- Following our identification of the issue in March 2023 and the implementation of the new NSQIP definition in July 2023, there is a noticeable decline in the RLN injury rates.



Cook County Health and ACS NSQIP

- Morbidity (All Cases)
 - Looks at all occurrences for all cases abstracted at our institution
 - Since joining the program, have enjoyed continued improvement relative to other NSQIP hospitals overall
 - First semiannual report 09/14-12/14 odds ratio of 1.45.
 - Current semiannual report 1/23-12/23 odds ratio of 1.12



Cook County Health and ACS NSQIP

- Utilize clinically rigorous data abstraction methods
- Have identified several opportunities for improvement
- Ongoing projects, proven results
- Improving patient care
- Decrease institutional health care costs
- Worthwhile return on investment

Appendix



COOK COUNTY
HEALTH

Individual Site Summary Report

- Provides historical data from hospital
- Odds ratios are provided for each SAR period, going back ten SAR periods, covering five years of data
- Can display and recognize trends easily
- Green/Pink indicate high or low outlier status

All Cases*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
ALLCASES Mortality	1.00	0.96	0.92	0.89	0.99	1.38	1.17	0.84	0.83	0.95
ALLCASES Morbidity	1.16	1.21	1.07	0.78	0.73 L	0.99	0.88	0.92	1.12	1.14
ALLCASES Cardiac	1.19	1.27	1.55	1.28	0.77	1.34	1.30	0.94	1.19	1.57
ALLCASES Pneumonia	1.05	0.60	0.70	0.65	0.64	0.96	0.73	0.59	0.55	0.58
ALLCASES Unplanned Intubation	1.76 H	1.44	1.47	1.55 H	1.09	1.41	1.20	0.97	0.97	0.85
ALLCASES Ventilator > 48 Hours	2.10 H	1.44	1.49	1.22	1.07	1.87 H	1.43	1.22	1.58	1.80 H
ALLCASES VTE	1.23	1.14	0.89	0.70	0.67	1.02	1.19	1.03	0.98	1.08
ALLCASES Renal Failure	0.83	0.66	0.95	1.01	0.81	0.92	0.76	0.64	0.71	1.18
ALLCASES UTI	1.26	1.14	0.87	0.58	0.86	1.13	0.98	1.29	1.10	1.09
ALLCASES SSI	1.20	1.58 H	1.23	0.76	0.77	0.90	0.92	1.05	1.19	1.10
ALLCASES Sepsis	0.80	0.59	0.44 L	0.56 L	0.55	0.79	0.90	0.65	0.60	1.06
ALLCASES C.diff Colitis			0.84	1.42	1.11	1.17	2.21 H	1.54	0.93	1.15
ALLCASES Unplanned Reoperation	1.25	1.12	1.11	1.18	1.13	1.13	0.93	0.94	0.96	0.87
ALLCASES Unplanned Readmission	1.21	1.16	0.93	0.86	0.94	0.98	1.05	1.05	0.98	1.06

Measure*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
MEASURE ALLCASES Death or Serious Morbidity	1.13	1.03	0.99	1.01	0.95	1.08	0.86	0.88	1.01	1.04
MEASURE ALLCASES Elderly Death or Serious Morbidity	1.21	0.91	0.75	0.91	1.05	1.02	0.88	0.94	1.14	1.28
MEASURE COLON Death or Serious Morbidity	0.97	0.93	1.15	1.25	0.82	0.96	1.06	0.79	0.79	1.12
MEASURE COLON SSI	0.98	1.18	1.07	0.99	0.76	0.93	1.17	1.18	1.24	1.45
MEASURE ALLCASES Deep/OS SSI	0.89	1.17	0.99	0.78	0.73	1.07	1.20	1.05	1.22	1.47 H
MEASURE ALLCASES UTI	1.13	1.22	1.02	0.67	0.84	1.01	0.93			
MEASURE LEB Death or Serious Morbidity	0.95	0.91	0.78	0.78	0.90	0.96	0.89			

Geriatric*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
GERIATRIC ALLCASES Mortality								0.96	0.99	1.20
GERIATRIC ALLCASES Morbidity								0.93	1.13	1.11
GERIATRIC ALLCASES Death or Serious Morbidity								1.07	1.20	0.97
GERIATRIC ALLCASES SSI								1.15	1.16	1.08
GERIATRIC ALLCASES Unplanned Reoperation								1.10	1.10	1.03
GERIATRIC ALLCASES Unplanned Readmission								1.15	1.00	0.95
GERIATRIC GEN Mortality								1.05	0.97	1.02
GERIATRIC GEN Morbidity								0.96	0.97	0.93
GERIATRIC GEN Death or Serious Morbidity								1.07	1.12	0.94
GERIATRIC GEN SSI								1.02	1.17	1.09
GERIATRIC GEN Unplanned Reoperation								1.03	1.09	1.07
GERIATRIC GEN Unplanned Readmission								1.13	0.96	0.99
GERIATRIC ORTHO Mortality								0.96	1.00	1.08
GERIATRIC ORTHO Morbidity								0.92	0.98	1.11
GERIATRIC ORTHO Death or Serious Morbidity								0.92	0.98	1.08
GERIATRIC ORTHO SSI								0.98	0.99	0.97
GERIATRIC ORTHO Unplanned Reoperation								0.98	0.99	0.99
GERIATRIC ORTHO Unplanned Readmission								0.96	0.99	1.01

*For the "over time" report, only outlier status is addressed in color codes.

General/Vascular*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
GV Mortality	1.01	1.02	0.83	0.76	0.85	0.95				
GV Morbidity	1.12	1.13	0.82	0.68 L	0.69 L	0.83				
GV Cardiac	1.26	1.27	0.98	0.78	0.74	0.97				
GV Pneumonia	1.23	0.78	0.69	0.66	0.92	1.38				
GV Unplanned Intubation	1.44	1.46	1.00	1.05	1.07	1.23				
GV Ventilator > 48 Hours	1.86	1.39	0.88	0.86	0.85	1.20				
GV VTE	1.00	1.10	1.04	0.79	0.73	0.96				
GV Renal Failure	0.97	0.90	0.91	0.98	0.95	1.11				
GV UTI	0.75	0.65	0.63	0.70	0.82	0.71				
GV SSI	1.15	1.51 H	1.11	0.72	0.63 L	0.85				
GV Sepsis	0.97	0.82	0.54	0.68	0.66	0.79				
GV C.diff Colitis	0.86	0.79	1.28	1.59	1.24	1.28				
GV Unplanned Reoperation	1.21	1.00	1.08	1.16	0.85	0.96				
GV Unplanned Readmission	1.08	1.09	1.01	0.93	0.96	0.89				

General*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
GEN Mortality	1.05	1.08	0.88	0.82	0.81	0.92	1.04	0.98	0.89	0.82
GEN Morbidity	1.19	1.20	0.94	0.81	0.72	0.83	0.75	0.76	1.00	1.04
GEN Cardiac	1.03	1.06	1.17	0.95	0.71	0.94	1.02	0.79	1.04	1.60
GEN Pneumonia	1.10	0.70	0.75	0.75	0.91	1.34	0.99	0.72	0.71	0.68
GEN Unplanned Intubation	1.41	1.32	0.99	1.16	1.08	1.22	1.12	1.00	0.98	0.91
GEN Ventilator > 48 Hours	1.79	1.34	0.96	1.00	0.85	1.19	1.11	0.97	0.98	1.22
GEN VTE	1.03	1.12	1.10	0.82	0.72	0.99	1.03	1.16	1.22	1.17
GEN Renal Failure	1.01	0.92	0.97	1.07	0.91	1.06	0.91	0.59	0.62	0.90
GEN UTI	0.77	0.67	0.65	0.74	0.86	0.75	0.78	1.22	1.21	0.95
GEN SSI	1.27	1.68 H	1.25	0.81	0.65	0.84	0.83	0.82	1.15	1.22
GEN Sepsis	1.02	0.86	0.58	0.72	0.69	0.85	0.80	0.57	0.66	0.90
GEN C.diff Colitis	0.87	0.80	1.11	1.50	1.32	1.12	1.81	1.51	0.90	1.21
GEN Unplanned Reoperation	1.30	1.11	1.18	1.25	0.97	1.09	1.02	0.86	0.93	0.92
GEN Unplanned Readmission	1.17	1.16	1.04	0.98	1.04	0.92	0.98	1.09	1.09	1.16
Emergency T GEN Mortality	1.07	1.21	1.06	0.91	0.90	1.12	1.04	1.09	1.17	0.91
Emergency T GEN Morbidity	1.11	1.12	0.96	0.88	0.87	1.12	0.94	0.89	0.92	1.10

Colorectal*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
COLORECT Mortality	1.11	1.26	1.06	0.88	0.79	0.96	0.91	0.96	1.00	0.95
COLORECT Morbidity	1.00	0.94	0.89	0.96	0.78	1.01	1.04	0.97	1.05	1.15
COLORECT Cardiac	1.12	1.06	1.08	1.00	0.83	0.99	1.13	0.97	1.18	2.08
COLORECT Pneumonia	1.07	0.77	0.96	0.94	0.85	1.10	0.99	0.99	0.82	0.83
COLORECT Unplanned Intubation	1.17	1.11	1.03	1.09	0.94	0.94	0.95	0.98	0.99	1.10
COLORECT Ventilator > 48 Hours	1.21	1.12	1.03	1.02	0.88	1.38	1.17	0.91	0.96	1.31
COLORECT VTE	1.05	1.05	0.99	0.87	0.80	1.02	1.05	1.31	1.47	1.09
COLORECT Renal Failure	1.06	1.00	0.85	0.98	0.94	1.31	1.20	0.79	0.82	0.98
COLORECT UTI	0.90	0.84	0.81	0.81	0.80	0.82	0.88	1.45	1.21	0.78
COLORECT SSI	0.96	1.14	1.06	0.97	0.77	0.95	1.09	1.09	1.19	1.27
COLORECT Sepsis	1.14	0.97	0.71	0.98	0.92	0.77	0.73	0.63	0.85	1.51
COLORECT C.diff Colitis	0.91	0.87	1.07	1.07	1.07	1.34	1.51	1.22	1.05	1.13
COLORECT Unplanned Reoperation	1.07	0.94	1.18	1.22	0.96	1.32	1.32	0.89	0.89	1.07
COLORECT Length of Stay	1.48	1.73 H	2.23 H	2.46 H	1.38	1.14	1.06	1.09	1.54	1.55
COLORECT Unplanned Readmission	1.11	1.12	1.01	0.97	0.95	0.87	1.13	1.13	0.87	0.86

*For the "over time" report, only outlier status is addressed in color codes.



Targeted - General*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T GEN Colectomy Mortality	1.10	1.23	1.07	0.86	0.80	0.98	0.95	0.96	0.99	0.97
T GEN Colectomy Morbidity	1.00	0.97	0.93	0.96	0.80	1.04	1.13	1.05	1.08	1.24
T GEN Colectomy Cardiac	1.08	1.07	1.09	1.01	0.83	0.96	1.09	0.97	1.15	1.95
T GEN Colectomy Pneumonia	1.03	0.79	0.97	0.96	0.87	1.16	1.02	0.84	0.67	0.87
T GEN Colectomy Unplanned Intubation	1.13	1.07	1.01	1.07	0.95	0.95	0.98	0.99	1.00	1.13
T GEN Colectomy Ventilator > 48 Hours	1.19	1.09	1.06	1.02	0.88	1.54	1.19	0.93	1.04	1.35
T GEN Colectomy VTE	1.04	1.03	0.99	0.88	0.85	1.01	1.06	1.19	1.32	1.09
T GEN Colectomy Renal Failure	1.08	1.01	0.92	0.99	0.96	1.24	1.21	0.87	0.89	1.03
T GEN Colectomy UTI	0.92	0.83	0.84	0.91	0.85	0.85	0.96	1.29	1.06	0.88
T GEN Colectomy SSI	1.00	1.13	1.04	0.95	0.81	0.94	1.14	1.12	1.18	1.33
T GEN Colectomy Sepsis	1.11	1.02	0.75	0.96	0.96	0.81	0.80	0.73	0.96	1.75
T GEN Colectomy C.diff Colitis	0.91	0.87	1.07	1.04	1.03	1.26	1.38	1.25	1.01	1.10
T GEN Colectomy Unplanned Reoperation	1.08	0.96	1.17	1.21	0.99	1.25	1.25	0.97	0.95	1.08
GEN Colectomy Length of Stay	1.54	1.83 H	2.36 H	2.72 H	1.48	1.19	1.06	1.03	1.48	1.50
T GEN Colectomy Unplanned Readmission	1.12	1.16	1.02	0.97	0.98	0.88	1.13	1.14	0.89	0.88
T GEN Colectomy Anastomotic Leak	1.08	1.26	0.97	0.93	0.96	0.93	0.98	0.85	0.86	0.90
T GEN Colectomy Prolonged NPO/NGT Use	1.99 H	1.42	1.71 H	3.15 H	1.77 H	1.61 H	1.66 H	1.11	1.50	1.88 H
Emergency T GEN Colectomy Morbidity	1.12	1.20	0.95	0.86	0.79	1.01	1.05	0.94	0.92	0.99
T GEN Proctectomy Mortality										0.99
T GEN Proctectomy Morbidity							0.90	0.91	0.96	0.88
T GEN Proctectomy Cardiac							0.96	0.96		
T GEN Proctectomy Pneumonia										0.98
T GEN Proctectomy Unplanned Intubation							0.99			
T GEN Proctectomy Ventilator > 48 Hours								0.99	0.98	
T GEN Proctectomy VTE								1.04	1.18	1.00
T GEN Proctectomy Renal Failure							0.92	0.90	0.91	0.99
T GEN Proctectomy UTI							0.96	1.03	1.17	0.96
T GEN Proctectomy SSI							0.93	0.96	1.03	0.93
T GEN Proctectomy Sepsis							0.93	0.86	0.95	0.92
T GEN Proctectomy Unplanned Reoperation							0.93	0.90	0.97	0.97
GEN Proctectomy Length of Stay		0.95	0.96	0.95	0.93	0.98	1.07	1.25	1.22	1.37
T GEN Proctectomy Anastomotic Leak							0.95	0.95	0.98	0.97
T GEN Proctectomy Prolonged NPO/NGT Use							1.08	1.26	1.33	1.22
GEN Major Hepatectomy Length of Stay						1.12				
GEN Partial Hepatectomy Length of Stay	0.91	0.82	0.91	0.82				0.90	0.94	
GEN Distal Pancreatectomy Length of Stay	1.77	1.07		1.86	1.54			0.84	0.83	0.88
GEN Whipple Pancreatectomy Length of Stay	0.82	1.38	2.35	1.88	1.57	1.57	1.38	1.18	0.70	1.06
T GEN VHR Mortality	0.99	0.97	0.98		0.99	0.98	0.98	0.99	0.98	
T GEN VHR Morbidity	1.02	1.00	0.98	1.08	1.16	1.34	1.24	1.04	0.98	0.88
T GEN VHR Cardiac	0.98	0.99	0.97	0.95	0.99		0.98		1.07	1.88
T GEN VHR Pneumonia	0.97	0.94	0.95	0.96	0.94	1.30	1.18	0.93	0.97	0.86
T GEN VHR Unplanned Intubation		0.99			0.96	1.76	1.33		0.98	0.92
T GEN VHR Ventilator > 48 Hours	0.99	0.98	0.97	0.96	0.98	1.37		0.97	0.96	0.92
T GEN VHR VTE	0.98	0.99	0.96	0.98	0.99	0.99	0.99		0.98	1.03
T GEN VHR Renal Failure	0.99		1.57	2.29	0.97			0.96	0.91	0.88
T GEN VHR UTI	0.97	0.97	0.98	0.97		1.07	1.24	1.37	0.95	0.87
T GEN VHR SSI	1.08	1.08	0.87	1.02	1.12	1.27	1.12	0.99	0.94	0.88
T GEN VHR Sepsis	0.97	0.96	0.96	0.93	0.95	1.61	1.37	0.97	0.95	0.81
T GEN VHR C.diff Colitis	0.98	0.99	0.97	0.97				0.99		
T GEN VHR Unplanned Reoperation	0.96	0.96	0.93	0.94	0.96	1.05	1.04	0.91	0.89	0.88
T GEN VHR Unplanned Readmission	0.98	0.96	0.92	1.00	0.97	0.96	0.98		0.98	0.91
T GEN Bariatric Mortality									0.95	
T GEN Bariatric Morbidity	1.25	1.21	0.91	1.06	0.99	0.79	0.56	0.96	1.24	1.17

*For the "over time" report, only outlier status is addressed in color codes.

Targeted - General*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T GEN Bariatric Cardiac							0.84			
T GEN Bariatric Pneumonia							0.94		0.89	0.91
T GEN Bariatric Unplanned Intubation									0.97	
T GEN Bariatric VTE							1.21			
T GEN Bariatric Renal Failure										0.89
T GEN Bariatric UTI	0.98	0.96	0.96		0.77			1.02		
T GEN Bariatric SSI	1.55	1.43	0.92	0.92	0.87		0.64	0.96	1.30	1.31
T GEN Bariatric Sepsis	0.99	0.98		0.92	0.79		0.89	0.77	0.92	0.95
T GEN Bariatric C.diff Colitis							0.98			
T GEN Bariatric Unplanned Reoperation	0.99	1.08		1.09	1.32	1.01	0.68	0.84	1.27	1.49
T GEN Bariatric Unplanned Readmission	1.12	1.31	1.04	1.15	1.34	1.14	1.11	1.03	1.36	1.43
GEN Esophagectomy Length of Stay		0.90		0.89	0.93			0.82	0.72	0.82
T GEN Thyroidectomy Morbidity			0.99	0.85	0.86	0.86	0.83		0.92	0.75
T GEN Thyroidectomy Cardiac					0.96					
T GEN Thyroidectomy Pneumonia			0.99			0.86	0.82			
T GEN Thyroidectomy Unplanned Intubation			0.95	0.85		0.94	0.91			
T GEN Thyroidectomy Ventilator > 48 Hours					0.94					
T GEN Thyroidectomy VTE							0.98		0.98	1.12
T GEN Thyroidectomy UTI				0.96						0.97
T GEN Thyroidectomy SSI			0.94	0.95	1.10	1.00	0.83		0.96	0.84
T GEN Thyroidectomy Sepsis										0.96
T GEN Thyroidectomy Unplanned Reoperation			1.25	1.94		0.84	0.89		0.94	0.81
T GEN Thyroidectomy Unplanned Readmission			1.04		1.08	1.21	1.04		0.96	
T GEN Thyroidectomy Hypocalcemia			1.07	1.37	1.32	0.70	0.78		0.63	0.51
T GEN Thyroidectomy Severe Hypocalcemia			1.29	1.71	1.30	0.75	0.68		0.74	
T GEN Thyroidectomy RNL Injury or Dysfunction			1.11	1.69	1.07	1.46	2.58 H		1.87	1.58
T GEN Thyroidectomy Neck Hematoma Bleeding			1.04	1.32	1.00	0.70	0.88		0.93	0.81

Otolaryngology*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
OTO Mortality		0.97								0.93
OTO Morbidity	0.93	1.09	0.93	0.92	1.01	0.91	0.98	0.85	0.90	1.06
OTO Cardiac		0.96	0.98	0.97	0.99	0.99	0.99	0.98	0.98	0.94
OTO Pneumonia	0.90	0.99		0.96	0.95	0.95	0.95	0.88	0.79	0.84
OTO Unplanned Intubation		0.96		0.95	0.96	0.97	0.99	0.98	0.97	
OTO Ventilator > 48 Hours	0.97	0.90	0.96	0.94		0.97	0.96	0.87	1.56	1.44
OTO VTE		0.98	0.98		0.95		0.99	0.96	0.88	
OTO Renal Failure										0.97
OTO UTI		0.96	0.94	0.94	0.92		0.96	0.98	1.10	1.48
OTO SSI	1.19	1.24	1.11	1.02	1.22	1.01	1.10	0.98	0.94	0.92
OTO Sepsis	0.93		0.92	0.88	0.96	0.97	0.94	0.93	0.88	0.94
OTO C.diff Colitis					0.99	0.99	1.00		0.97	0.96
OTO Unplanned Reoperation	1.01	1.24	2.04	1.62	1.05	1.00	0.86	1.13	1.78	1.74
OTO Unplanned Readmission	1.02	1.22	1.57	1.17	1.20	1.33	1.18	1.13	1.11	1.14

*For the "over time" report, only outlier status is addressed in color codes.



Vascular*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
VASC Mortality	0.97	0.94	0.92	0.84	1.00	1.01	0.92	0.90	0.96	0.92
VASC Morbidity	0.92	0.90	0.67	0.64	0.83	0.94	0.77	0.86	1.07	0.95
VASC Cardiac	1.16	1.18	0.84	0.79	0.97	1.02	0.95	0.94	1.20	1.15
VASC Pneumonia	1.16	1.12	0.85	0.79	1.10	1.10	0.81	0.88	0.87	0.81
VASC Unplanned Intubation	1.07	1.21	1.04	0.90	0.99	1.03	0.95	1.01	1.02	0.96
VASC Ventilator > 48 Hours	1.14	1.11	0.80	0.75	1.00	1.09	0.81	0.83	0.93	0.97
VASC VTE	0.93	0.91	0.81	0.85				0.94	0.89	0.83
VASC Renal Failure	0.99	0.96	0.93	0.92	1.02	1.09	0.82	0.93	0.96	0.94
VASC UTI	0.98	0.95	0.91	0.87	0.93	0.90	0.88	1.20	1.12	0.87
VASC SSI	0.82	0.73	0.66	0.65	0.83	0.97	0.98	1.20	1.02	0.79
VASC Sepsis	0.90	0.92	0.83	0.84	0.88	0.87	0.85	0.82	0.94	0.80
VASC C.diff Colitis	0.93	0.94	0.91	1.25	0.90	1.16	1.87	1.37	0.92	
VASC Unplanned Reoperation	0.93	0.77	0.79	0.91	0.73	0.81	0.83	0.93	0.85	0.93
VASC Unplanned Readmission	0.92	0.95	0.97	0.88	0.86	0.96	1.00	0.94	0.92	0.99

Targeted - Vascular*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
VASC AAAE Length of Stay						0.80	0.80	0.96		0.67
VASC AIO Length of Stay	0.96	0.95	1.32	1.30	0.98	1.22	1.51	1.21	0.71	1.26
VASC LEO Length of Stay	0.83	0.59	0.78	0.90	0.63	1.08	1.38	1.03	1.23	1.73

Cardiac*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
CARD Mortality	0.96	1.03				1.44	1.00	0.94	0.75	0.94
CARD Morbidity	0.92	1.24	1.89 H	1.44	0.85	1.40	0.89	0.89	1.24	1.54
CARD Cardiac	0.87	0.99	1.35	1.14			1.11	0.98	0.86	0.99
CARD Pneumonia	1.15	0.60	0.60	0.62	0.55	0.64	0.51	0.51	0.83	0.69
CARD Unplanned Intubation	1.05	1.12	1.16		1.00	1.05	1.11	1.03		
CARD Ventilator > 48 Hours	0.91	1.48	2.01	1.16	1.31	4.00 H	2.10	3.00 H	4.74 H	2.09
CARD VTE	1.04			0.74	0.89	1.02	1.19		0.81	1.01
CARD Renal Failure	0.83	0.81	0.99	1.01	0.85	0.81	0.84	1.00	1.03	1.37
CARD UTI	0.93	0.95	0.98			0.95			0.91	1.16
CARD SSI	1.10	3.83 H	2.87 H	1.26	0.99	1.02	0.95	0.88	0.76	1.39
CARD Sepsis	0.86	0.81	0.76	0.91	0.86	0.91	1.10	1.09	1.01	1.06
CARD C.diff Colitis	0.97	0.80				0.98	0.98	0.97		0.94
CARD Unplanned Reoperation	1.15	1.08	1.06	0.84	1.00	1.18	1.13	1.06	0.68	0.70
CARD Unplanned Readmission		1.14		0.98				0.94	0.98	1.11

Thoracic*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
THOR Mortality		0.95	1.06	1.09	1.19	0.93		1.22	1.12	
THOR Morbidity	0.99	1.11	1.62	1.39	0.82	0.96	1.01	0.85	0.85	0.82
THOR Cardiac	0.96	1.35	2.27	2.00	0.90	0.96	0.99	0.95	0.92	0.88
THOR Pneumonia	0.89	0.80	1.17	1.41	0.87	0.82	0.88	0.80	0.76	0.75
THOR Unplanned Intubation	1.31	1.06	1.38	1.44	0.95	0.97	0.96	0.91	1.06	1.02
THOR Ventilator > 48 Hours	1.20	1.16	1.66	1.37	0.95	1.20	1.13	0.95	1.07	
THOR VTE	1.19	1.12	0.86	0.94	0.98	1.12	1.08	0.98		
THOR Renal Failure		0.92	1.65	1.20		0.98	0.91	0.88	0.83	0.87
THOR UTI	0.94	0.88	0.90	0.99	0.96	0.98	0.96	0.96	0.96	
THOR SSI	1.11	1.10	1.07	0.88	0.88	0.94	0.95	1.08	1.01	0.87
THOR Sepsis	1.16	0.82	0.82	0.95	0.98	0.97	0.97	0.87	0.82	0.80
THOR C.diff Colitis			0.90				0.99			

*For the "over time" report, only outlier status is addressed in color codes.



Thoracic*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
THOR Unplanned Reoperation	1.12	1.11	1.06	1.22	1.02	0.88	1.14	1.40	1.08	0.79
THOR Unplanned Readmission	1.02	1.05	0.88	0.84	1.05	1.16	1.06	1.02	0.98	0.99

Targeted - Thoracic Lung Resection*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T THOR Lung Resection Mortality		0.91	0.85	0.94	0.98	0.97	0.99	0.99		
T THOR Lung Resection Morbidity	0.97	1.10	1.27	1.08	0.89	0.89	0.90	0.87	0.84	0.85
T THOR Lung Resection Cardiac	0.96	1.32	2.24	2.56	0.94	0.98	1.00	0.98	0.98	0.98
T THOR Lung Resection Pneumonia		0.77	1.03	1.05	0.91	0.89	0.94	0.90	0.89	0.87
T THOR Lung Resection Unplanned Intubation	1.15	1.11	1.65	1.73	0.95	0.99		0.94		
T THOR Lung Resection Ventilator > 48 Hours	0.96	0.84	2.27	1.63	0.95	0.98		0.98		
T THOR Lung Resection VTE		1.42	0.91		0.97	0.98				
T THOR Lung Resection Renal Failure		0.95	1.22	1.10			0.98	0.97	0.97	0.96
T THOR Lung Resection UTI	0.97	0.92	0.91	0.98	0.99	0.97	0.99	0.98	0.99	1.00
T THOR Lung Resection SSI	0.92	1.22	1.15	0.96	0.95	0.94	0.96	0.95	0.93	0.90
T THOR Lung Resection Sepsis	0.99	0.80	0.80	0.96	0.98	0.98		0.98	0.94	0.95
T THOR Lung Resection C.diff Colitis							1.00			0.99
T THOR Lung Resection Unplanned Reoperation	1.27	1.20	1.20	1.43	0.94	0.94	1.15	1.37	1.16	0.87
THOR Lung Resection Length of Stay	0.77	0.72	0.74	0.74	0.60	0.47	1.12	1.10	0.35	0.48
T THOR Lung Resection Unplanned Readmission	1.05	1.03	0.85	0.93	0.97	0.94	0.95	0.96	1.01	1.03

Neurosurgery*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
NSG Mortality	0.98	0.97	1.00	0.94	0.88	1.37	1.26	0.95	1.01	1.17
NSG Morbidity	1.05	0.98	0.90	0.98	1.02	1.28	1.45	1.17	0.91	1.01
NSG Cardiac	0.99	0.98	1.09	1.14	0.94	1.31	1.36	1.05	1.04	1.18
NSG Pneumonia	0.95	0.93	0.93	0.83	0.75	0.94	1.04	1.11	0.99	1.00
NSG Unplanned Intubation	0.97	0.96	1.09	1.32	1.27	1.16		0.96	0.94	0.88
NSG Ventilator > 48 Hours	0.94	0.90	1.06	1.16	1.49	1.32	1.14	1.03	1.03	1.21
NSG VTE	0.97	0.98	0.92	0.88	0.90	1.05	1.15	0.99	0.99	1.10
NSG Renal Failure	0.98	0.99		0.95	0.96	0.96	0.92	0.88	0.89	0.93
NSG UTI	1.14	1.10	0.93	0.89	0.90	1.31	1.39	1.05	1.03	1.23
NSG SSI	1.13	1.07	0.90	0.90	1.05	1.09	1.19	1.10	0.73	0.72
NSG Sepsis	0.94	0.93	0.89	0.79	0.84	0.91	1.13	1.04	0.79	1.47
NSG C.diff Colitis	0.99		0.94	0.98			0.99	0.97	0.98	0.97
NSG Unplanned Reoperation	1.00	0.97	0.96	1.26	1.36	1.05	1.09	1.09	0.98	0.85
NSG Unplanned Readmission	1.05	1.05	0.93	1.04	1.08	1.02	1.05	0.99	0.88	0.91

Targeted - NSG*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T NSG Spine Mortality			0.99	0.94	0.97	1.20	1.09		1.10	
T NSG Spine Morbidity	1.07	1.12	0.99	1.03	0.95	1.22	1.39	1.08	0.86	0.88
T NSG Spine Cardiac	0.99	0.99	1.34	1.28	0.98	1.43	1.55	1.06		0.98
T NSG Spine Pneumonia	0.96	0.97	0.99	0.95	0.93	0.97	0.97	0.96	0.96	0.94
T NSG Spine Unplanned Intubation	0.99	0.99	1.09	1.17	1.20	1.26	1.25	0.98	0.98	0.97
T NSG Spine Ventilator > 48 Hours	0.98	0.98	0.99	1.27	1.48	1.34	1.43	1.06	0.98	
T NSG Spine VTE	0.98	0.98	0.96	0.92	0.93	1.13	1.23	1.03	1.01	1.05
T NSG Spine Renal Failure	0.98	0.98	0.97	0.99		0.97	0.94	0.93	0.95	0.94
T NSG Spine UTI	1.13	1.12	0.97	0.97	0.96	1.17	1.21	0.92	0.91	1.11
T NSG Spine SSI	1.13	1.14	0.94	0.94	0.89	0.90	1.06	1.01	0.82	0.85
T NSG Spine Sepsis	0.97	0.97	0.95	0.95	0.95	0.96	1.18	1.11	0.89	0.89
T NSG Spine C.diff Colitis	0.99	0.99	0.98		0.97	0.98	0.98	0.99		1.00

*For the "over time" report, only outlier status is addressed in color codes.

Targeted - NSG*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T NSG Spine Unplanned Reoperation	1.02	1.02	0.93	1.10	1.01	1.02	1.08	1.05	1.02	0.94
T NSG Spine Unplanned Readmission	0.98	1.04	0.98		1.03	1.03	1.03	0.92	0.84	0.95
T NSG Brain Tumor Mortality		0.98	0.99	0.99		0.94	1.21		0.98	0.96
T NSG Brain Tumor Morbidity	0.99	0.96	0.97	0.98	0.95	1.02	1.20	1.11	0.94	0.99
T NSG Brain Tumor Cardiac		1.00	0.99	0.99		0.99	0.99		0.99	2.60
T NSG Brain Tumor Pneumonia	1.00	0.99	1.00	1.00			1.12	1.08		0.96
T NSG Brain Tumor Unplanned Intubation	0.99	0.98	0.99	0.99	0.99	0.98		1.00	0.98	0.96
T NSG Brain Tumor Ventilator > 48 Hours	0.99	0.99	0.97	0.99			0.99	0.99	0.97	0.95
T NSG Brain Tumor VTE			0.99	0.99	0.99	0.97		0.99	0.98	1.14
T NSG Brain Tumor Renal Failure							0.97	0.99	1.00	
T NSG Brain Tumor UTI	1.00	0.98	1.00	0.99	0.98	1.13	1.40	0.99	0.98	1.03
T NSG Brain Tumor SSI	1.00	0.98	0.97	1.00	0.99	0.96	0.96	0.97	0.96	0.92
T NSG Brain Tumor Sepsis	1.00	0.99	0.99	0.98	0.98		0.98	0.98	0.96	1.31
T NSG Brain Tumor C.diff Colitis							0.99			
T NSG Brain Tumor Unplanned Reoperation		0.98	0.99	1.06	1.06	0.96	0.94	0.98	0.96	0.95
NSG Brain Tumor Length of Stay	1.21	1.22	0.98	0.99	1.54	1.70	1.05	1.03	1.27	1.18
T NSG Brain Tumor Unplanned Readmission	1.00	0.98	0.98				1.00	0.99	0.99	0.97

Orthopedic*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
ORTHO Mortality	1.05	0.97	0.97	1.11	1.15	1.10	1.03	0.94	0.98	1.22
ORTHO Morbidity	0.95	0.90	0.96	0.93	0.75	0.77	0.68	0.77	0.90	1.20
ORTHO Cardiac	1.25	1.19	0.93	0.91	0.93	0.93	0.88	0.90	0.95	1.15
ORTHO Pneumonia	0.95	0.93	1.12	1.11	0.93	0.94	0.93	0.92	0.94	1.29
ORTHO Unplanned Intubation	1.24	0.96	0.96	1.09	0.97	0.97	0.95	0.98	0.99	1.05
ORTHO Ventilator > 48 Hours	1.27	0.98	0.98	0.94	0.93	0.97	0.98	0.97	0.98	1.14
ORTHO VTE	1.13	0.89	0.89	0.88	0.88	1.05	1.01	0.87	0.89	0.81
ORTHO Renal Failure				0.98	0.97	0.97	0.89	0.85	0.90	1.01
ORTHO UTI	1.14	1.09	1.11	1.11	0.92	0.91	0.85	0.87	0.91	0.81
ORTHO SSI	0.86	0.95	0.88	0.74	0.78	0.79	0.75	0.92	1.12	0.96
ORTHO Sepsis	0.94	0.93	0.94	0.92	0.95	0.95	0.93	0.94	0.89	1.70
ORTHO C.diff Colitis	0.96		0.97	0.97	0.98	0.99	0.98	0.97	0.98	0.98
ORTHO Unplanned Reoperation	1.09	1.20	0.99	0.89	1.10	1.09	0.85	0.82	0.92	1.07
ORTHO Unplanned Readmission	1.01	0.95	0.93	0.93	0.95	0.85	0.80	0.86	0.90	1.09

Targeted - Orthopedic*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T ORTHO TKA Mortality			1.00		1.00	1.00				
T ORTHO TKA Morbidity	0.99	0.99	0.98	0.98	0.99	0.99	1.00	0.98	0.98	0.99
T ORTHO TKA Cardiac			1.00	1.00		1.00			1.00	1.00
T ORTHO TKA Pneumonia			1.00	1.00	1.00	1.00				
T ORTHO TKA Unplanned Intubation		1.00	1.00		1.00	1.00	1.00			1.00
T ORTHO TKA Ventilator > 48 Hours										1.00
T ORTHO TKA VTE	0.99	0.99	0.98	0.99	0.99	0.99	1.00	0.99	0.99	1.00
T ORTHO TKA Renal Failure	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00
T ORTHO TKA UTI	1.00	1.00	0.99	0.99	1.00	1.00	1.00	1.00	0.99	1.00
T ORTHO TKA SSI	0.99	0.99	0.98	0.99	0.99	0.99	1.00	0.99	0.98	0.99
T ORTHO TKA Sepsis		1.00	1.00	1.00		1.00	1.00		1.00	1.00
T ORTHO TKA C.diff Colitis			1.00	1.00						
T ORTHO TKA Unplanned Reoperation	1.00	0.99	0.99		1.00	1.00	1.00	0.99	0.99	1.00
T ORTHO TKA Unplanned Readmission	1.00	0.99	0.99	0.99	1.00	1.00	1.00	0.99	0.99	1.00
T ORTHO THA Mortality	1.00	1.00	1.00	1.00	1.00	0.98	0.99	0.99	0.99	1.00

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Targeted - Orthopedic*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T ORTHO THA Morbidity	0.98	0.96	0.98	0.99	1.00	0.95	0.93	0.96	0.94	0.92
T ORTHO THA Cardiac	0.99		0.99	1.00	1.00	0.98	0.97	0.96	0.97	0.97
T ORTHO THA Pneumonia	0.99	0.99		1.00	1.00	0.94	0.99	0.99	0.99	0.97
T ORTHO THA Unplanned Intubation	0.99				1.00	0.94				
T ORTHO THA Ventilator > 48 Hours							1.00		0.98	
T ORTHO THA VTE	1.25	0.98	0.99	1.00	1.00	1.25	1.13	0.97	0.98	0.98
T ORTHO THA Renal Failure	1.00			1.00	1.00	0.94	0.97	0.96	0.94	0.99
T ORTHO THA UTI	0.99	0.99	1.00	1.00	1.00	0.98	0.99	0.99	0.98	0.98
T ORTHO THA SSI	0.98	0.96	0.98	1.00	1.00	0.97	0.96	0.98	0.97	0.94
T ORTHO THA Sepsis	0.99		0.99	1.00	1.00	0.95	0.99	0.99	0.99	0.97
T ORTHO THA C.diff Colitis	1.00		1.00			1.00		0.97		0.99
T ORTHO THA Unplanned Reoperation	1.17	1.11	0.97	1.00	1.00	0.97	0.97	0.98	0.99	0.97
T ORTHO THA Unplanned Readmission	0.99	0.98	0.99	1.00	1.00	0.96	0.95	0.98	0.98	0.96
T ORTHO Hip Fracture Mortality	1.15	0.93	0.98							
T ORTHO Hip Fracture Morbidity	1.01	0.95	0.99							
T ORTHO Hip Fracture Cardiac	0.95	0.94	0.99							
T ORTHO Hip Fracture Pneumonia	0.96	0.98	1.00							
T ORTHO Hip Fracture Unplanned Intubation	1.41	0.94	1.00							
T ORTHO Hip Fracture Ventilator > 48 Hours	1.37	0.99	1.00							
T ORTHO Hip Fracture VTE	1.18	0.99								
T ORTHO Hip Fracture Renal Failure	1.00	0.98	0.99							
T ORTHO Hip Fracture UTI	0.94	0.94	0.99							
T ORTHO Hip Fracture SSI	0.97	0.99	1.00							
T ORTHO Hip Fracture Sepsis	0.96	0.96	1.00							
T ORTHO Hip Fracture C.diff Colitis	0.98	0.99								
T ORTHO Hip Fracture Unplanned Reoperation	0.99	1.00	1.00							
T ORTHO Hip Fracture Unplanned Readmission	1.16	1.00	0.99							
T ORTHO Hip Fracture Pressure Sore	2.25	2.98	0.98							
T ORTHO Hip Fracture Delirium	0.92	0.90	0.97							

Plastic*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
PLAST Mortality							1.00			
PLAST Morbidity	1.13	0.84	0.74	0.95	1.06	0.86	1.06	1.04	0.81	0.75
PLAST Cardiac				0.98		1.00		0.99		
PLAST Pneumonia				0.96	0.99	0.99	0.98	0.99	0.99	0.96
PLAST Unplanned Intubation	1.00			0.99		1.00				
PLAST Ventilator > 48 Hours				0.99	0.99		1.00	1.00	1.00	1.00
PLAST VTE			1.12		0.99	1.00	0.99	1.00		
PLAST Renal Failure				0.98	0.99		1.00	1.00	0.98	0.98
PLAST UTI	0.98	0.97	0.95	0.96	0.98	0.97	0.98	0.99	0.99	0.95
PLAST SSI	1.19	0.85	0.76	1.01	1.13	0.87	1.13	1.11	0.85	0.80
PLAST Sepsis	0.98	0.96	0.92	0.93	0.97	0.98	0.99	0.98	0.97	0.94
PLAST C.diff Colitis							1.00	0.99	1.00	
PLAST Unplanned Reoperation	1.08	1.05	0.99	0.99	1.05	1.06	0.97	0.93	0.91	0.91
PLAST Unplanned Readmission	1.07	1.07	1.02	1.01	0.97	0.95	1.24	1.25	0.90	0.91

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Targeted - Plastic*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T PLAST Flap Mortality								1.00		1.00
T PLAST Flap Morbidity	0.99			0.97				0.95	0.98	0.99
T PLAST Flap Cardiac								1.00		
T PLAST Flap Pneumonia	1.00			0.99				1.00	1.00	
T PLAST Flap Unplanned Intubation	1.00									1.00
T PLAST Flap Ventilator > 48 Hours	1.00							0.99	1.00	1.00
T PLAST Flap VTE	1.00							0.99	0.99	
T PLAST Flap Renal Failure								1.00	1.00	
T PLAST Flap UTI								1.00	1.00	0.98
T PLAST Flap SSI	1.00			0.96				0.96	0.98	0.99
T PLAST Flap Sepsis	1.00			0.99				1.00	0.99	1.00
T PLAST Flap C.diff Colitis								1.00	1.00	
T PLAST Flap Unplanned Reoperation	0.99			0.98				0.99	1.00	0.99
T PLAST Flap Unplanned Readmission	1.00			0.99				0.98	0.99	1.00
T PLAST Breast Reduction Morbidity	0.98	0.98			0.98	0.98	0.96	0.98	0.98	0.93
T PLAST Breast Reduction VTE							1.00	1.00		
T PLAST Breast Reduction UTI							1.00	1.00		
T PLAST Breast Reduction SSI	0.99	0.98			0.98	0.98	0.97	0.97	0.98	0.93
T PLAST Breast Reduction Unplanned Reoperation	1.00	0.97				1.00	1.00	1.00	0.99	0.96
T PLAST Breast Reduction Unplanned Readmission	0.99	0.99			1.00	1.00	1.00	1.00		0.99
T PLAST Breast Reconstruction Morbidity	0.97	0.94	0.83	1.12	1.26	0.96	0.99	1.00	0.96	0.97
T PLAST Breast Reconstruction Cardiac							1.00			1.00
T PLAST Breast Reconstruction Pneumonia							1.00	1.00	1.00	
T PLAST Breast Reconstruction VTE							1.00	1.00		1.00
T PLAST Breast Reconstruction Renal Failure							1.00	1.00	1.00	
T PLAST Breast Reconstruction UTI										1.00
T PLAST Breast Reconstruction SSI	0.97	0.95	0.83	1.17	1.26	0.96	0.99	1.00	0.96	0.97
T PLAST Breast Reconstruction Sepsis	1.00	0.98	0.94	0.97	0.97	0.99	1.00	1.00	1.00	1.00
T PLAST Breast Reconstruction Unplanned Reoperation	1.10	1.08	0.92	0.91	1.12	1.08	1.00	1.00	0.98	0.98
T PLAST Breast Reconstruction Unplanned Readmission	1.08	1.21	1.16	1.10	0.96	0.99	1.00	1.00	0.99	0.99
T PLAST Abdominoplasty Morbidity		0.99	0.99				0.96		0.98	0.92
T PLAST Abdominoplasty Pneumonia							1.00			
T PLAST Abdominoplasty UTI									1.00	
T PLAST Abdominoplasty SSI		0.98	0.98				0.96	0.92	0.98	0.94
T PLAST Abdominoplasty Sepsis										1.00
T PLAST Abdominoplasty Unplanned Reoperation		0.99	0.99				0.99	0.99	0.99	0.96
T PLAST Abdominoplasty Unplanned Readmission		0.99	0.98				0.98	0.98	0.99	0.95

Gynecology*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
GYN Mortality			0.83	0.96	0.97	0.97			0.99	0.89
GYN Morbidity	1.27	1.33	1.28	0.87	1.26	1.71	1.74	1.86 H	1.80 H	1.20
GYN Cardiac		0.75	0.79	0.93	0.93	0.94	1.89	1.78	1.88	0.89
GYN Pneumonia	1.19			0.81	0.89	0.93	0.96	0.90	0.90	0.99
GYN Unplanned Intubation	1.55	2.15	2.04	0.94	0.96	0.98	0.99			0.97
GYN Ventilator > 48 Hours	0.96	0.71	0.80	0.97	0.94	0.97		0.98		
GYN VTE	1.14	1.13		0.94	1.06	0.98	1.13			1.07
GYN Renal Failure				0.92		0.97	1.24	1.15	1.14	1.09
GYN UTI	1.35	1.59	1.52	0.84	1.21	1.72	1.65	1.39	1.01	0.95
GYN SSI	1.13	1.27	1.28	1.20	1.45	1.82	1.49	1.76	2.33 H	1.48
GYN Sepsis	0.78	0.64	0.71	0.88	0.90	1.06	1.15	0.85	0.83	0.85
GYN C.diff Colitis	0.89			0.95	0.92	0.99	0.99			0.97
GYN Unplanned Reoperation	0.96	0.93	0.96	0.97	1.20	1.43	0.97	1.03	0.99	0.85

*For the "over time" report, only outlier status is addressed in color codes.

Gynecology*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
GYN Unplanned Readmission	1.02	1.03	0.90	0.89	0.93	1.12	1.08	0.94	0.99	0.95

Targeted - Gynecology*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T GYN Cancer Hyst/Myom Mortality	0.95	0.94								
T GYN Cancer Hyst/Myom Morbidity	0.79	0.81	0.96							
T GYN Cancer Hyst/Myom Cardiac	0.95	0.98	0.99							
T GYN Cancer Hyst/Myom Pneumonia	0.94	0.82	0.94							
T GYN Cancer Hyst/Myom Unplanned Intubation		0.94	0.97							
T GYN Cancer Hyst/Myom Ventilator > 48 Hours	0.97									
T GYN Cancer Hyst/Myom VTE	0.97									
T GYN Cancer Hyst/Myom UTI	0.93	1.01	1.11							
T GYN Cancer Hyst/Myom SSI	0.88	1.00	1.07							
T GYN Cancer Hyst/Myom Sepsis	0.90	0.86	0.95							
T GYN Cancer Hyst/Myom C.diff Colitis	0.96		0.95							
T GYN Cancer Hyst/Myom Unplanned Reoperation	1.03	0.98	0.93							
T GYN Cancer Hyst/Myom Unplanned Readmission	0.97	0.99	1.01							
T GYN Cancer Hyst/Myom Intestinal Obstruction	1.63	1.31	1.79							
T GYN Cancer Hyst/Myom Ureteral Obstruction	0.98									
T GYN Cancer Hyst/Myom Anastomotic Leak	0.98	0.85								
T GYN NonCancer Hyst/Myom Morbidity	1.68	1.79 H	1.70 H							
T GYN NonCancer Hyst/Myom Cardiac			0.99							
T GYN NonCancer Hyst/Myom Pneumonia	1.13	1.73	1.73							
T GYN NonCancer Hyst/Myom Unplanned Intubation	1.56									
T GYN NonCancer Hyst/Myom Ventilator > 48 Hours			0.95							
T GYN NonCancer Hyst/Myom VTE		1.11	1.22							
T GYN NonCancer Hyst/Myom Renal Failure	0.97	0.95								
T GYN NonCancer Hyst/Myom UTI	1.47	1.72	1.50							
T GYN NonCancer Hyst/Myom SSI	1.27	1.48	1.23							
T GYN NonCancer Hyst/Myom Sepsis	0.93	0.85	0.84							
T GYN NonCancer Hyst/Myom C.diff Colitis	0.97	0.89	0.93							
T GYN NonCancer Hyst/Myom Unplanned Readmission	1.12	1.16	1.00							
T GYN NonCancer Hyst/Myom Intestinal Obstruction	1.46	1.14	1.19							
T GYN NonCancer Hyst/Myom Ureteral Obstruction	0.95	0.88	0.94							
T GYN NonCancer Hyst/Myom Anastomotic Leak	0.89									

Urology*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
URO Mortality	0.97	0.94	0.93	0.97	0.90	1.19	1.14			1.00
URO Morbidity	1.14	0.94	0.74	0.72	0.89	1.05	0.98	1.08	0.99	1.17
URO Cardiac	0.95	0.91	0.90	0.91	0.93	0.96	0.93	0.93	1.29	1.11
URO Pneumonia	0.94	0.87	0.84	0.87	0.92	0.94	0.92	0.89	0.88	0.88
URO Unplanned Intubation	0.99	0.97	1.09	1.16	0.97	1.11	1.06	0.99	0.98	0.98
URO Ventilator > 48 Hours		0.94	0.92	0.94	0.98	0.98	0.97	0.96	0.99	0.97
URO VTE	1.10	1.10	0.95	0.95	0.94	0.98	0.99	0.97	0.97	0.95
URO Renal Failure	0.98	0.80	0.84	0.92	0.97	0.95	0.90	0.90	1.08	1.44
URO UTI	1.61	0.92	0.64	0.68	1.04	1.19	0.80	1.06	1.01	1.23
URO SSI	1.00	1.22	1.05	0.90	0.97	0.81	1.04	1.33	0.91	0.81
URO Sepsis	0.94	0.83	0.85	0.87	0.93	1.06	1.22	1.16	1.04	1.03
URO C.diff Colitis	0.98		0.93	0.97		0.99	0.98	0.99	1.28	
URO Unplanned Reoperation	1.28	1.14	0.91	0.91	1.22	1.07	0.93	0.96	1.10	0.94
URO Unplanned Readmission	1.11	1.08	0.95	0.95	0.98	1.10	1.18	1.27	1.13	1.01

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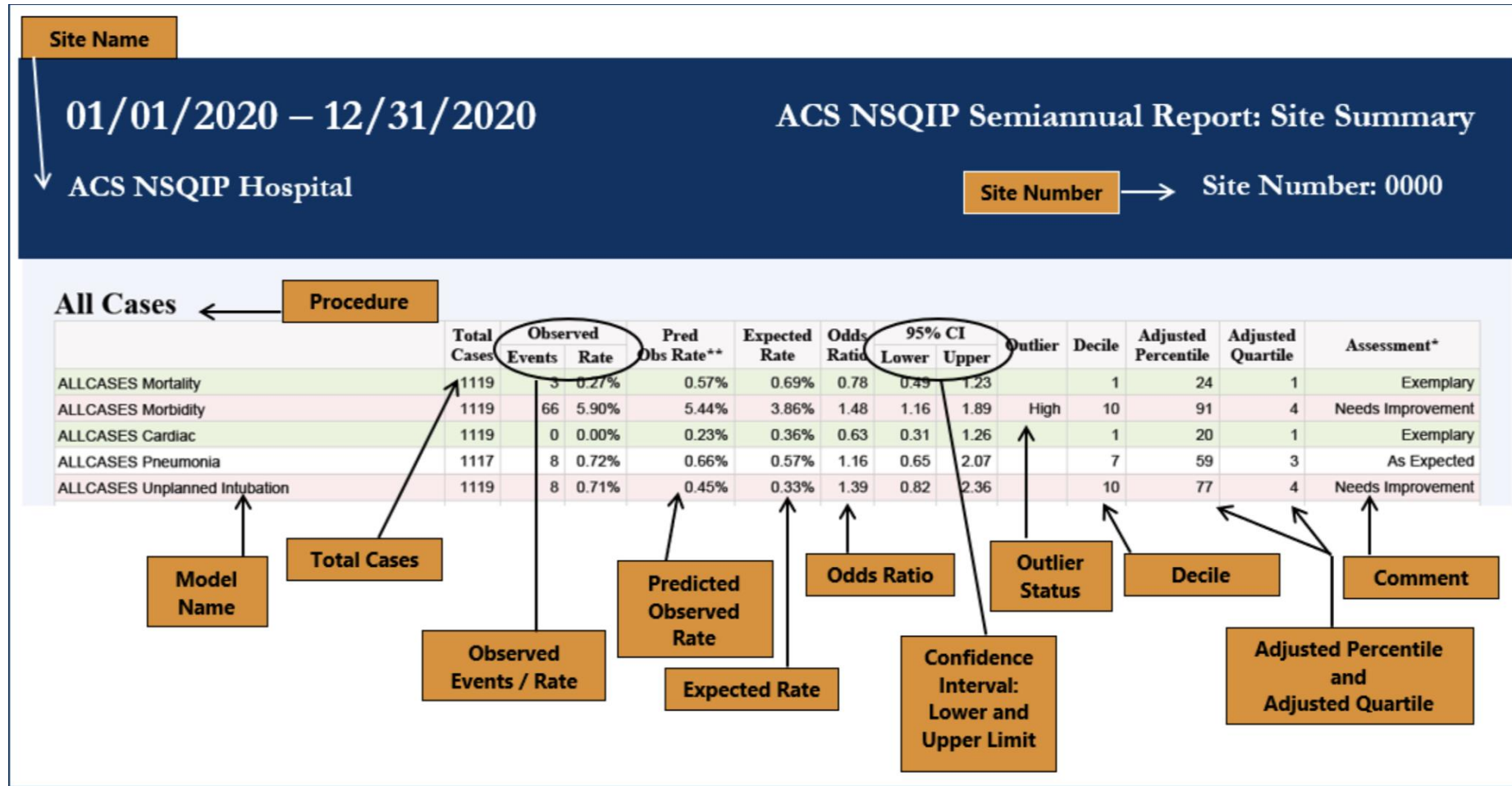


Targeted - Urology*

	07/18-06/19	01/19-12/19	07/19-06/20	01/20-12/20	07/20-06/21	01/21-12/21	07/21-06/22	01/22-12/22	07/22-06/23	01/23-12/23
T URO TURP Mortality	0.99						0.99	1.00		
T URO TURP Morbidity	0.88	0.82	1.08	1.06	1.12	1.99	1.22	0.78	0.78	1.33
T URO TURP Cardiac		0.99		0.92			1.00	0.99	0.98	0.96
T URO TURP Pneumonia						0.95				
T URO TURP Unplanned Intubation								0.99	1.00	0.99
T URO TURP VTE		0.97			0.97		0.94		0.99	0.96
T URO TURP Renal Failure							0.96	0.97	0.98	0.98
T URO TURP UTI	0.87	0.83	0.84	0.83	1.32		1.04	0.75	0.79	1.51
T URO TURP SSI							0.96	1.00	0.98	0.97
T URO TURP Sepsis		0.98			0.96	0.94	0.96	0.97	0.97	0.90
T URO TURP C.diff Colitis							0.99	1.00		
T URO TURP Unplanned Reoperation	0.95	0.96	0.91	0.88	1.24	1.39	0.84	0.88	0.92	0.97
T URO TURP Unplanned Readmission	0.92	0.89	0.93	0.95	0.94	0.94	0.91	0.93	0.91	1.06
T URO Bladder Suspension Morbidity	0.88	1.43	1.12	0.99	0.84	1.13	1.29	1.33	1.14	0.86
T URO Bladder Suspension UTI	0.89	0.91	0.91	0.98	0.88	1.05		1.63	1.21	0.92
T URO Bladder Suspension SSI			6.29				0.97			0.92
T URO Bladder Suspension Unplanned Readmission	0.95	0.96					0.99			
T URO Prostatectomy Morbidity	1.19	0.97	1.02							
T URO Prostatectomy Cardiac			1.00							
T URO Prostatectomy Pneumonia		1.00								
T URO Prostatectomy VTE	1.28	1.24								
T URO Prostatectomy Renal Failure	0.99		1.00							
T URO Prostatectomy UTI	1.31	0.89	0.90							
T URO Prostatectomy SSI	0.92	1.09	1.16							
T URO Prostatectomy Sepsis	0.96	0.98	0.98							
T URO Prostatectomy C.diff Colitis		0.97	1.00							
T URO Prostatectomy Unplanned Reoperation	1.76	1.32	0.91							
T URO Prostatectomy Unplanned Readmission	1.18	1.27	1.02							
T URO Prostatectomy Anastomotic Leak		0.91	0.95							
T URO Prostatectomy Rectal Injury		1.32	0.98							
T URO Prostatectomy Prolonged NPO/NGT Use		1.05	0.98							
T URO Prostatectomy Ureteral Obstruction		0.89								
T URO Prostatectomy Urinary Leak/Fistula		1.34	1.36							
T URO Prostatectomy Lymphocele / Leak / Fluid		0.88	0.95							
T URO Nephrectomy Morbidity	1.09									
T URO Nephrectomy Cardiac	0.98									
T URO Nephrectomy Pneumonia	0.95									
T URO Nephrectomy SSI	0.93									
T URO Nephrectomy Sepsis	0.99									
T URO Nephrectomy Unplanned Reoperation	0.97									
URO Nephrectomy Length of Stay	0.77	1.12	1.82	2.39	2.02	2.27	1.53	0.97	2.62	2.71
T URO Nephrectomy Unplanned Readmission	1.01									
T URO Cystectomy Mortality	0.99									
T URO Cystectomy Morbidity	0.98									
T URO Cystectomy Cardiac	0.98									
T URO Cystectomy Pneumonia	0.99									
T URO Cystectomy Unplanned Intubation	1.00									
T URO Cystectomy VTE	1.00									
T URO Cystectomy Renal Failure	0.99									
T URO Cystectomy SSI	0.97									
T URO Cystectomy Sepsis	0.98									
T URO Cystectomy Unplanned Reoperation	0.99									
URO Cystectomy Length of Stay	0.97	0.96				1.43	1.26	0.99	1.42	1.62

*For the "over time" report, only outlier status is addressed in color codes.

Individual Site Summary Report (Detailed)



Prolonged NPO/NGT in Colectomy Bundle

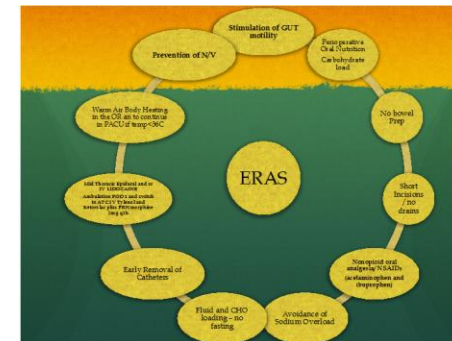
Intervention Bundle

- Preoperative Teaching
- Mechanical Bowel Preparation prior to surgery
- Preoperative oral antibiotic taken
- Clearfast or Carbohydrate drink
- Opioid-sparing medications/Intravenous Tylenol given preoperatively
- Epidural placed
- Opioid-sparing drips intraoperatively
- Goal-directed fluid management intraoperatively
- Limit post-operative fluids (bolus)
- Ambulation within 24 hours
- Feeding within 24 hour

A Guide to Bowel Surgery



COOK COUNTY HEALTH
& HOSPITALS SYSTEM
CCHHS



Abbreviations Definitions

GV = General and Vascular Surgery Cases

VTE = Venous Thromboembolism

UTI = Urinary Tract Infection

SSI = Surgical Site Infection

ROR = Return to Operating Room

GEN= General Surgery Cases

COLORECT = Colorectal Surgery Cases

VASC = Vascular Surgery Cases

SS = Subspecialty

NSG = Neurosurgery

URO = Urology

THOR = Thoracic Surgery

AAA = Aortic Abdominal Aneurysm

NPO/NGT = Nil-per-os/Nasogastric Tube

VHR = Ventral Hernia Repair

TURP = Transurethral Resection of Prostate

TKA = Total Knee Arthroplasty

THA = Total Hip Arthroplasty

PLAST = Plastic Surgery

Surgical Site Infection (SSI) Bundle

Intervention Bundle

- Chlorhexidine Bath Written Instructions
- Chlorhexidine Bath Video
- Laparotomy Discharge Instructions
- Neomycin and metronidazole oral antibiotic preoperatively for colectomy
- Proper re-dosing of antibiotics
- Separate closing tray
- Normothermia at surgery completion
- Gown/Glove/Drape change during wound closure for gastrointestinal surgery
- Glove change during wound closure for gynecologic surgery