AHRQ Safety Program for Improving Surgical Care and Recovery

Final Report Appendixes

Agency for Healthcare Research and Quality

Contents

Glossary of Terms and Abbreviations

ACC: American College of Cardiology
ACS: American College of Surgeons
AHA: American Hospital Association
AHRQ: Agency for Healthcare Research and Quality
ASA: American Society of Anesthesiologists
BMI: Body mass index
CC: Coaching call
CFIR: Consolidated Framework for Implementation Research
CI: Confidence interval
COVID-19: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
CPT: Current procedural terminology
CUSP: Comprehensive Unit-based Safety Program
DVT: Deep vein thrombosis
EGS: Emergency General Surgery
EHR: Electronic Health Record
EMR: Electronic Medical Records System
ERAS: Enhanced Recovery After Surgery
FTP: File transfer protocol
HCAHPS: Hospital Consumer Assessment of Healthcare Providers and Systems survey
ISCR: AHRQ Safety Program for Improving Surgical Care and Recovery
ILOS: Ileus and length of stay >75th percentile
Intraop: intraoperative
JHH: The Johns Hopkins Hospital
JHU: Johns Hopkins University Armstrong Institute for Patient Safety and Quality
LOS: Length of stay
MIS: Minimally invasive surgery
NLW: National leader webinar
NPO: Nothing by mouth
NPT: National Project Team
NSQIP: ACS National Surgical Quality Improvement Program
OAS-CAHPS: Outpatient and Ambulatory Surgery Consumer Assessment of Healthcare Providers and Systems survey
OR: Odds ratio
OR: Operating Room
ORCA: Organizational Readiness to Change Assessment
Orthopedic surgery or orthopedic service line: refers to both hip fracture surgery/service line and hip/knee replacement surgery/service line
PACU: Post Anesthesia Care Unit
PE: Pulmonary embolism
POD: Postoperative day
Post-op: Postoperative
PPX: Prophylaxis
Preop: Preoperative
P.R.N: Pro re neta, meaning as the need arises
PROMIS: Patient-Reported Outcomes Measurement Information System Global Health Outcomes Scale
QI: Quality Improvement
RBC: Red blood cell and whole blood products
ROBF: Return of bowel function
Rx: Prescription
SIRS: Systemic inflammatory response syndrome
SNF: Skilled Nursing Facility
SSI: Surgical site infection
TXA: Tranexamic acid
UCSF: University of California San Francisco
UTI: Urinary tract infection
UVA: University of Virginia
VCU: Virginia Commonwealth University
VTE: Venous thromboembolism
VUS: Composite outcome comprised of VTE, UTI, or SSI
UW: University of Washington

Appendix A. AHRQ ISCR Sharing Library

Disclaimer: The materials in the Improving Surgical Care and Recovery (ISCR) Sharing Library are only provided as educational examples and were not created by AHRQ or its contractors. These documents are not included in the AHRQ Safety Program for Improving Surgical Care and Recovery Toolkit that is posted on AHRQ's website for the ISCR program. Documents in the sharing library using the term Enhanced Recovery After Surgery (ERAS) generally refer to the evidence-based concept of perioperative pathways to improve patient care and outcomes, which is the foundation of ISCR.

The findings and recommendations in these documents are those of the authors, who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in these documents should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services.

Any practice described in these documents must be applied by healthcare practitioners in accordance with professional judgement and standards of care in regard to the unique circumstances that may apply in each situation they encounter.

Use of brand, manufacturer, or vendor names is for identification only and does not imply endorsement by the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

ISCR Sharing Library (Resources from hospitals participating in the ISCR)

University of California San Francisco (UCSF) Orthopedic Bundled Payment Program Resources

- Care Transitions Outreach Program Handout
- Ortho Bundled Payment 90-Day Phone Call Scripts
- Skilled Nursing Facility Outreach Script
- Hospital Visit Script
- Example Healthcare Navigator Face Card
- Example Bundled Payment Program Coordinator Job Description

Program Implementation and Staff Training (for all service lines)

- Opioid Risk Tool – Courtesy of Drugabuse.gov
- Enhanced Recovery After Surgery (ERAS) Debriefing Process – Courtesy of AMITA Health System
- Emergency General Surgery Enhanced Recovery Pathway – Courtesy of Carolinas Medical Center
- Emergency General Surgery Enhanced Recovery Discharge Narcotic Algorithm – Courtesy of Carolinas Medical Center
- Hip Fracture Algorithm – Courtesy of Intermountain Healthcare
- Total Joint Program – Pain Medication Record Tool – Courtesy of Legacy Salmon Creek Medical Center
- Total Joint Program – Poster Presentation – Pain Medication Record Tool – Courtesy of Legacy Salmon Creek Medical Center
- Gynecologic Enhanced Recovery Program Presentation for Staff Education – Courtesy of Sparrow Hospital
- Example Colorectal Enhanced Recovery Grid – Courtesy of The Johns Hopkins Hospital
- Staff ERAS Promotion on Intranet - Courtesy of Norman Regional Health System
- ISCR Pocket Guide – Courtesy of Barnes Jewish Hospital
- Hip Fracture Treatment Algorithm Poster – Courtesy of Virginia Commonwealth University (VCU)
- Colon Surgery and Wound Class Documentation – Courtesy of Huntsville Hospital
- ERAS Clinician Paper Checklist for Clinicians – Courtesy of University of Virginia (UVA)
- ERAS education "tip sheet" for postoperative staff education – Courtesy of UVA
- ERAS Nurse Coordinator Job Description – Courtesy of UVA
- ERAS Care Coordinator Job Description – Courtesy of UVA

ISCR Patient Education

- Emergency Appendectomy Patient Guide – Courtesy of CHRISTUS St. Michael
- Emergency Laparotomy Patient Guide – Courtesy of CHRISTUS St. Michael
- ERAS Colorectal Patient Education Booklet: Spanish Version - Courtesy of AMITA Health System
- EGS Appendectomy Pamphlet – Courtesy of the University of Rochester Medical Center
- EGS Cholecystectomy Pamphlet – Courtesy of the University of Rochester Medical Center
- Colorectal – Earn Your Ticket Home - Courtesy of AMITA Health System
- Hip Fracture Emergency Surgery-Patient Recovery Guide (Courtesy of California Pacific Medical Center)
- Surgical Question Prompt List Intervention for Patient Engagement in Surgical Decision Making (Courtesy of Dr. Gretchen Schwarze)
- Best Case/Worst Case: HighStakes Surgical Decisions Toolkit (Courtesy of Dr. Gretchen Schwarze)
- Colorectal Start Guide – Courtesy of Columbus Regional Healthcare System
- Orthopedic Start Guide – Courtesy of Columbus Regional Healthcare System
- Colorectal – Earn Your Ticket Home – Courtesy of Columbus Regional Healthcare System
- Orthopedic – Earn Your Ticket Home – Courtesy of Columbus Regional Healthcare System
- Colorectal Surgery Bag – Courtesy of Columbus Regional Healthcare System
- Orthopedic Surgery Bag – Courtesy of Columbus Regional Healthcare System
- ERAS HEALS Patient Education-Colorectal – Courtesy of White Plains Hospital
- ERAS HEALS Patient Education-Head and Neck – Courtesy of White Plains Hospital
- ERAS HEALS Patient Education-HPB Surgery – Courtesy of White Plains Hospital
- ERAS HEALS Patient Education-Hysterectomy – Courtesy of White Plains Hospital
- ERAS HEALS Patient Education-Lung Surgery – Courtesy of White Plains Hospital
- ERAS HEALS Patient Education-Spine – Courtesy of White Plains Hospital
- ERAS HEALS Patient Education-Vascular – Courtesy of White Plains Hospital
- ERAS HEALS Patient Education-Bariatric – Courtesy of White Plains Hospital
- Diabetes Medication Instructions for Procedures that Require Fasting – Courtesy of Mayo Clinic
- Colon Surgery Scheduling and Patient Education – Courtesy of Carolinas HealthCare System
- ERAS HEALS Patient Education – Courtesy of White Plains Hospital
- Patient Handout – Sample Bowel Prep Protocol – Erythromycin
- Patient Handout – Sample Skin Prep Before Surgery Protocol – Soap
- Patient Handout – Sample Bowel Prep Protocol – Metronidazole
- Patient Handout – Sample Skin Prep Before Surgery Protocol – Cloths
- Earn your Ticket Home after Colon Surgery – Courtesy of Nebraska Methodist Hospital
- Scripting for Preoperative Colon Interviews – Courtesy of Carolinas HealthCare System
- Pre-Operative ERAS Colon Prep Box Contents – Courtesy of Carolinas HealthCare System
- Chlorhexidine Gluconate (CHG) Shower Patient Instructions – Courtesy of Carolinas HealthCare System
- Diet recommendations for Diabetic Colon Bundle Patients – Courtesy of Carolinas HealthCare System
- Using an Incentive Spirometer – Courtesy of Carolinas HealthCare System
- Sample Patient Education Booklet – Courtesy of Norman Regional Health System
- Sample Patient Education Booklet: Restore Hip and Knee Guidebook – Courtesy of Hill Country Memorial
- Risk Assessment and Prediction Tool – Courtesy of VCU
- Sample Patient Chewing Gum Packaging
    - Sample Gum Packaging – Courtesy of Presence Saint Joseph Hospital
    - Sample Gum Packaging, Product Dimensions – Courtesy of Presence Saint Joseph Hospital

Electronic Health Record Order sets & Checklists

- ERAS Colorectal Checklist – Courtesy of AMITA Health System
- Sample Epic ERAS Patient Flag – Courtesy of Memorial Hospital West

- Joint Replacement Order Set Pre-Intraop/Post Anesthesia Care Unit (PACU) – Courtesy of Salem Regional Medical Center
- Colorectal ERAS Pathway Build in Epic Pathways – Courtesy of St. Charles Bend
- Colorectal Pathway Screen Shots in Epic Pathways – Courtesy of St. Charles Bend
- Epic Source of Truth for ISCR Variables Tool – Courtesy of UC Davis
- Joint Replacement Order Set Pre-OP – Courtesy of Hill Country Memorial
- Joint Replacement Order Set Post-OP – Courtesy of Hill Country Memorial
- Pre-Op checklist – Courtesy of Norman Regional
- Intra-Op checklist – Courtesy of Norman Regional
- Sample Electronic Health Record Sets – University of Alabama
- Sample Electronic Health Record Sets – Johns Hopkins Hospital
- Example ERAS Nursing Flow Sheet in Epic – Courtesy of Medical University of South Carolina
- Sample Electronic Health Record Order Set (Hip Fracture Surgery) – Courtesy of VCU
- Sample Electronic Health Record Order Set (Hip/Knee Replacement Surgery) – Courtesy of VCU
- Epic Checklist Examples with Screenshots of Epic Checklist Components – Courtesy of UVA

ISCR Clinical Practice Guidelines, Protocols or Papers

- SSI Prevention
    - Providone Iodine Irrigation Info – Courtesy of Dr. Patch Dellinger
    - Antibiotic Choice & SSI After Colectomy – Courtesy of Dr. Patch Dellinger
- Lidocaine Protocols
    - Lidocaine Infusion Standard Operating Procedure – Courtesy of Vanderbilt University Medical Center
    - Lidocaine Infusion Education Flyer – Courtesy of Vanderbilt University Medical Center
- ISCR Pathway Referenced Guidelines and Protocols
    - Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery (pp. 197–202)
    - American Society of Anesthesiologists Practice Guidelines for Preoperative Fasting, March 2017
    - American College of Surgeons and Surgical Infection Society: Surgical Site Infection Guidelines, 2016 Update
    - Centers for Disease Control and Prevention Guideline for the Prevention of Surgical Site Infection, 2017
- Glucose Protocols
    - Perioperative Glucose Protocol – Courtesy of University of Washington (UW)
    - Perioperative Glucose Policy – Courtesy of White Plains Hospital
    - Operating Room and Preop Holding Insulin Infusion Protocol – Courtesy of UW
    - Operating Room and Preop Holding Insulin Infusion Protocol Orders – Courtesy of UW
    - Standard Insulin Algorithm – Courtesy of UW
    - Low Dose Continuous Lidocaine IV Guideline – Courtesy of UVA
    - Post-Op Glucose Control Pathway – Courtesy of Maine Medical Center
- Misc. guidelines, protocols or papers
    - Evidence Review Conducted for the Agency for Healthcare Research and Quality Safety Program for Improving Surgical Care and Recovery: Focus on Anesthesiology for Bariatric Surgery
    - Impact of Endocrine and Diabetes Team Consultation on Hospital Length of Stay for Patients with Diabetes
    - Implementation Costs of an Enhanced Recovery After Surgery Program in the United States: A Financial Model and Sensitivity Analysis Based on Experiences at a Quaternary Academic Medical Center
    - Restrictive versus Liberal Fluid Therapy for Major Abdominal Surgery

- Preoperative Optimization Papers
    - 2014 American College of Cardiology (ACC)/American Hospital Association (AHA) Guideline on Perioperative Cardiovascular Evaluation and Management of Patients Undergoing Noncardiac Surgery

    - Practice Advisory for Pre-anesthesia Evaluation – An Updated Report by the American Society of Anesthesiologists Task Force on Pre-anesthesia Evaluation
    - Guidelines – The measurement of adult blood pressure and management of hypertension before elective surgery
    - Withholding vs. Continuing Angiotensin-converting Enzyme Inhibitors or Angiotensin II Receptor Blockers before Noncardiac Surgery
    - NPO practice guidelines for preoperative fasting
    - Society of Anesthesia and Sleep Medicine Guidelines on Preoperative Screening and Assessment of Adult Patients with Obstructive Sleep Apnea
    - Perioperative Beta Blockade in Noncardiac Surgery – A Systematic Review for the 2014 ACC:AHA Guideline on Perioperative Cardiovascular Evaluation and Management of Patients Undergoing Noncardiac Surgery
    - The Perioperative Surgical Home – A New Role for the Acute Pain Service
- Delirium Resources
    - The Sinai Abbreviated Geriatric Evaluation Tool – Courtesy of the Sinai Center for Geriatric Surgery
    - Delirium Prevention Brochure for Patients, Family & Friends – Courtesy of Sinai Center for Geriatric Surgery
    - Patient Risk Factors for Postoperative Delirium – Courtesy of the ACS NSQIP/AGS Best Practice Guidelines for Optimal Preoperative Assessment for the Older Surgical Patient
    - Clinical Practice Guideline for Postoperative Delirium in Older Adults – Courtesy of the American Geriatrics Society
    - Delirium Guideline Evidence Table – Courtesy of the American Geriatrics Society
    - Abstracted Clinical Practice Guideline for Postoperative Delirium in Older Adults – Courtesy of the American Geriatrics Society
    - Preserving Perioperative Brain Health Through a Patient Safety Lens
    - Perioperative Delirium Prevention and Treatment Pathway – Courtesy of UCSF
    - Delirium Algorithm – Courtesy of UCSF
    - Delirium PACU and Intraop bundles – Courtesy of UCSF
    - Delirium Prevention Order Set – Courtesy of UCSF
- Catheter-Associated Urinary Tract Infection (CAUTI) Guidelines and Protocols
    - Preventing Catheter-Associated Urinary Tract Infections (CAUTI)- Nurse Driven Protocol for Urinary Catheter Removal – Courtesy of UCSF

ISCR Program Hospital Recognition

- Poster – Baltimore Washington Medical Center ISCR Program

Appendix B. Program Impact: Process and Outcome Measure Results

AHRQ Improving Surgical Care And Recovery (ISCR) Colorectal Surgery Cohorts 1–4, Orthopedic Surgery Cohorts 2–4, Gynecologic Surgery Cohorts 3–4, Emergency General Surgery Cohort 4

ISCR Outcome and Process Measure Results*

Statistical Addendum

Binomial Outcomes

Calculation of predicted value from logistic regression results
Assume there is only one continuous predictor variable x: months in the ISCR program, take the binary Colorectal outcome of Ileus as an example.

The Ileus event probability is *P*, the model is:

$$\ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 x$$

At $x = 0$, the baseline risk for Ileus is P_b,

$$\ln\left(\frac{P_b}{1-P_b}\right) = \beta_0 + \beta_1 \cdot 0$$

$$\beta_0 = \ln\left(\frac{P_b}{1-P_b}\right)$$

At 18th month, $x = 18$, the risk of Ileus is P_{18},

$$\ln\left(\frac{P_{18}}{1-P_{18}}\right) = \beta_0 + 18\beta_1$$

Solve the above equation for P_{18}:

$$P_{18} = \frac{\exp(\beta_0 + 18\beta_1)}{1 + \exp(\beta_0 + 18\beta_1)}$$

* (Note: See Chapter 4, Section 1 of the Final Report for more information on the service lines. Table 13 in Chapter 4 provides outcome measure definitions.)

For β_1, if the $OR$is given in modeling results, $\beta_1 = \ln(OR)$
Example: For Ileus, modeling results for odds ratio (by month): $OR = 0.9853$.

So:

$$\beta_0 = \ln(0.9851) = -0.01481$$

The baseline risk for Ileus is $P_b = 0.1729$.
So:

$$\beta_0 = \ln\left(\frac{P_b}{1 - P_b}\right) = \ln\frac{0.1729}{1 - 0.1729} = -1.5652$$

Plug in β_0, $\beta_1$and $x = 18$ to get the Ileus risk after 18 months:

$$P_{18} = \frac{\exp\left[\left(-1.5652 + 18 \times (-0.01481)\right)\right]}{1 + \exp\left[\left(-1.5652 + 18 \times (-0.01481)\right)\right]} = 0.1380$$

Continuous Outcomes

Calculation of predicted value from negative binomial regression results
Because Return of Bowel unction (ROBF) and Length of Stay (LOS) are based on a negative binomial model, parameter values can't be used directly to estimate time effects.

Assume there is only one continuous predictor variable x: months in the ISCR program, ROBF as dependent (outcome) variable. (Note: See Chapter 4, Section 1: Primary Statistical Analysis (page 40) of the final report for more information on the construction of the negative binomial regression models for continuous outcome measures.)

The model is:

$$\ln(ROBF) = \beta_0 + \beta_1 x$$

At $x = 0$, the $\mathrm{ROBF} = \mathrm{ROBF}_B$, which is the baseline of ROBF.

$$\ln(ROBF_B) = \beta_0 + \beta_1 \cdot 0$$

$$\beta_0 = \ln(ROBF_B)$$

At the 18th month, $x = 18$

$$\ln(ROBF) = \ln(ROBF_B) + 18\beta_1$$

$$ROBF = \exp[\ln(ROBF_B) + 18\beta_1]$$

Example:

Model results for ROBF with parameter: $\beta_1 = -0.0031$, $\mathrm{ROBF}_B = 2.23$, the ROBF after 18 months:

$ROBF = \exp[\ln(2.11) + 18 \times (-0.0031)] = \exp[0.7462] = 2.11$ days

Event Rate

The event rate is the proportion of the number of analysis-eligible cases abstracted with the reported outcome relative to the total number of analysis-eligible cases abstracted for that service line. In the venous thromboembolism model report for colorectal surgery (Table B1), event rate = events/N or 846/42,873=0.020 which corresponds to a 2.0% event rate.

Odds Ratio (Confidence Interval) or Parameter (P-value)

Model reports for binary outcomes (eg Venous Thromboembolism) will report an odds ratio for each predictor in the model, along with the 95% confidence interval in parentheses; a bold odds ratio and confidence interval indicates that the predictor is significant in the model (ie 1.000 is not contained in the 95% confidence interval). Model reports for continuous outcomes (eg Return of Bowel Function) will report a negative binomial beta-value model parameter for each predictor in the model, along with the p-value in parentheses; a bold model parameter and p-value indicates that the predictor is significant in the model (ie p-value <0.05).

Table B1. Model Report With Service Line = Colorectal Surgery
Outcome: VTE N=42,873 Events=846 Event Rate=0.020

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.965 (0.806, 1.156)
Age (75–84 vs <65)	**1.371 (1.104, 1.702)**
Age (>=85 vs <65)	1.205 (0.865, 1.680)
Gender (Male vs Female)	1.092 (0.961, 1.242)
Race_2 (Black or African American vs White)	**1.298 (1.051, 1.604)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.759 (0.454, 1.270)
Race_2 (Unknown vs White)	1.208 (0.857, 1.702)
Hispanic (Unknown vs No)	0.728 (0.447, 1.185)
Hispanic (Yes vs No)	1.126 (0.847, 1.496)
Pre-operative Sepsis (SIRS) vs None)	**1.773 (1.350, 2.327)**
Pre-operative Sepsis (Sepsis vs None)	**1.548 (1.213, 1.974)**
Pre-operative Sepsis (Septic shock vs None)	**2.016 (1.484, 2.740)**
Emergency Surgery (Yes vs No)	1.132 (0.914, 1.401)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.528 (1.280, 1.825)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.969 (1.541, 2.516)**
Cohort (2 vs 1)	0.998 (0.788, 1.264)
Cohort (3 vs 1)	0.989 (0.787, 1.244)
Cohort (3B vs 1)	0.965 (0.634, 1.469)
Cohort (4 vs 1)	0.842 (0.584, 1.215)
Calendar Months From Cohort Start Month (for time construct)	0.993 (0.979, 1.007)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.259 (1.932, 2.641)**
Number of Hospitals	233

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VTE: Venous thromboembolism

Table B2. Model Report With Service Line = Colorectal Surgery
Outcome: UTI N=42,873 Events=795 Event Rate=0.019

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.352 (1.134, 1.612)**
Age (75–84 vs <65)	**1.325 (1.068, 1.642)**
Age (>=85 vs <65)	**1.959 (1.510, 2.542)**
Gender (Male vs Female)	**0.603 (0.526, 0.691)**
Race_2 (Black or African American vs White)	0.926 (0.719, 1.193)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.016 (0.652, 1.583)
Race_2 (Unknown vs White)	1.052 (0.781, 1.417)
Hispanic (Unknown vs No)	0.862 (0.557, 1.335)
Hispanic (Yes vs No)	1.236 (0.919, 1.662)
Preoperative Sepsis (SIRS vs None)	1.315 (0.945, 1.830)
Preoperative Sepsis (Sepsis vs None)	0.845 (0.598, 1.192)
Preoperative Sepsis (Septic shock vs None)	1.380 (0.875, 2.178)
Emergency Surgery (Yes vs No)	0.931 (0.682, 1.271)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.502 (1.248, 1.806)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.759 (1.324, 2.338)**
Cohort (2 vs 1)	**1.387 (1.073, 1.792)**
Cohort (3 vs 1)	**1.403 (1.037, 1.897)**
Cohort (3B vs 1)	1.308 (0.897, 1.905)
Cohort (4 vs 1)	1.066 (0.683, 1.665)
Calendar Months From Cohort Start Month (for time construct)	0.998 (0.982, 1.014)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.631 (2.263, 3.059)**
Number of Hospitals	233

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; UTI: Urinary tract infection

Table B3. Model Report With Service Line = Colorectal Surgery
Outcome: SSI N=42,873 Events=3,867 Event Rate=0.090

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.846 (0.775, 0.923)**
Age (75–84 vs <65)	**0.705 (0.631, 0.787)**
Age (>=85 vs <65)	**0.508 (0.431, 0.599)**
Gender (Male vs Female)	1.009 (0.931, 1.093)
Race_2 (Black or African American vs White)	0.987 (0.839, 1.161)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.014 (0.814, 1.263)
Race_2 (Unknown vs White)	1.004 (0.844, 1.195)
Hispanic (Unknown vs No)	**0.696 (0.544, 0.892)**
Hispanic (Yes vs No)	**1.231 (1.055, 1.435)**
Preoperative Sepsis (SIRS vs None)	**1.440 (1.239, 1.674)**
Preoperative Sepsis (Sepsis vs None)	**1.947 (1.682, 2.253)**
Preoperative Sepsis (Septic shock vs None)	**1.662 (1.327, 2.082)**
Emergency Surgery (Yes vs No)	**1.184 (1.047, 1.338)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.346 (1.244, 1.456)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.348 (1.157, 1.570)**
Cohort (2 vs 1)	1.072 (0.908, 1.265)
Cohort (3 vs 1)	1.056 (0.860, 1.298)
Cohort (3B vs 1)	**0.608 (0.423, 0.872)**
Cohort (4 vs 1)	1.002 (0.670, 1.499)
Calendar Months From Cohort Start Month (for time construct)	1.001 (0.993, 1.009)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.569 (2.333, 2.829)**
Number of Hospitals	233

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; SSI: Surgical site infection

Table B4. Model Report With Service Line = Colorectal Surgery
Outcome: VUS N=42,873 Events=5,085 Event Rate=0.119

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.931 (0.862, 1.005)
Age (75–84 vs <65)	**0.872 (0.791, 0.962)**
Age (>=85 vs <65)	**0.782 (0.679, 0.900)**
Gender (Male vs Female)	0.948 (0.888, 1.013)
Race_2 (Black or African American vs White)	1.003 (0.875, 1.149)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.980 (0.810, 1.185)
Race_2 (Unknown vs White)	1.028 (0.869, 1.216)
Hispanic (Unknown vs No)	**0.728 (0.573, 0.924)**
Hispanic (Yes vs No)	**1.240 (1.067, 1.441)**
Preoperative Sepsis (SIRS vs None)	**1.446 (1.254, 1.667)**
Preoperative Sepsis (Sepsis vs None)	**1.780 (1.561, 2.031)**
Preoperative Sepsis (Septic shock vs None)	**1.742 (1.416, 2.144)**
Emergency Surgery (Yes vs No)	**1.164 (1.046, 1.294)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.382 (1.287, 1.484)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.450 (1.276, 1.647)**
Cohort (2 vs 1)	1.122 (0.971, 1.297)
Cohort (3 vs 1)	1.059 (0.882, 1.270)
Cohort (3B vs 1)	**0.714 (0.518, 0.985)**
Cohort (4 vs 1)	0.968 (0.668, 1.402)
Calendar Months From Cohort Start Month (for time construct)	1.000 (0.993, 1.007)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.588 (2.378, 2.816)**
Number of Hospitals	233

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VUS: Composite outcome comprised of venous thromboembolism, urinary tract infection, or surgical site infection

Table B5. Model Report With Service Line = Colorectal Surgery
Outcome: LOS binary N=42,785 Events=9,964 Event Rate=0.233

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.176 (1.105, 1.251)**
Age (75–84 vs <65)	**1.383 (1.276, 1.499)**
Age (>=85 vs <65)	**1.638 (1.454, 1.845)**
Gender (Male vs Female)	**1.138 (1.076, 1.205)**
Race_2 (Black or African American vs White)	**1.602 (1.440, 1.781)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.071 (0.891, 1.289)
Race_2 (Unknown vs White)	1.114 (0.959, 1.293)
Hispanic (Unknown vs No)	0.734 (0.537, 1.005)
Hispanic (Yes vs No)	1.079 (0.950, 1.225)
Preoperative Sepsis (SIRS vs None)	**1.660 (1.465, 1.882)**
Preoperative Sepsis (Sepsis vs None)	**2.141 (1.915, 2.393)**
Preoperative Sepsis (Septic shock vs None)	**1.816 (1.537, 2.145)**
Emergency Surgery (Yes vs No)	**1.533 (1.398, 1.681)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.830 (1.711, 1.957)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**3.066 (2.719, 3.456)**
Cohort (2 vs 1)	1.064 (0.906, 1.250)
Cohort (3 vs 1)	0.989 (0.860, 1.137)
Cohort (3B vs 1)	1.269 (1.000, 1.611)
Cohort (4 vs 1)	0.981 (0.811, 1.187)
Calendar Months From Cohort Start Month (for time construct)	**0.993 (0.987, 0.998)**
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.232 (2.117, 2.354)**
Number of Hospitals	233

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of Stay; SIRS: Systemic inflammatory response syndrome

Table B6. Model Report With Service Line = Colorectal Surgery
Outcome: LOS N=42,785

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.0574 (<.0001)**
Age (75–84 vs <65)	**0.1200 (<.0001)**
Age (>=85 vs <65)	**0.1560 (<.0001)**
Gender (Male vs Female)	**0.0423 (<.0001)**
Race (Black or African American vs White)	**0.1578 (<.0001)**
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.0134 (0.4574)
Race (Unknown vs White)	0.0294 (0.0608)
Hispanic (Unknown vs No)	**-0.0573 (0.0149)**
Hispanic (Yes vs No)	**0.0284 (0.0420)**
Preoperative Sepsis (SIRS vs None)	**0.1975 (<.0001)**
Preoperative Sepsis (Sepsis vs None)	**0.2586 (<.0001)**
Preoperative Sepsis (Septic shock vs None)	**0.2797 (<.0001)**
Emergency Surgery (Yes vs No)	**0.1411 (<.0001)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.2027 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.3881 (<.0001)**
Cohort (2 vs 1)	0.0011 (0.9634)
Cohort (3 vs 1)	-0.0046 (0.8468)
Cohort (3B vs 1)	0.0461 (0.2979)
Cohort (4 vs 1)	-0.0429 (0.1954)
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.8172 (<.0001)**
Calendar Months From Month 1	**-0.0025 (<.0001)**
Number of Hospitals	233

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of stay; SIRS: Systemic inflammatory response syndrome

Table B7. Model Report With Service Line = Colorectal Surgery
Outcome: Ileus N=29,775 Events=4,730 Event Rate=0.159

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.149 (1.052, 1.256)**
Age (75–84 vs <65)	**1.259 (1.122, 1.412)**
Age (>=85 vs <65)	**1.507 (1.284, 1.769)**
Gender (Male vs Female)	1.015 (0.940, 1.096)
Race_2 (Black or African American vs White)	**1.362 (1.167, 1.591)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.901 (0.729, 1.112)
Race_2 (Unknown vs White)	0.888 (0.696, 1.133)
Hispanic (Unknown vs No)	0.810 (0.454, 1.444)
Hispanic (Yes vs No)	1.008 (0.835, 1.217)
Preoperative Sepsis (SIRS vs None)	1.126 (0.957, 1.324)
Preoperative Sepsis (Sepsis vs None)	**1.482 (1.300, 1.689)**
Preoperative Sepsis (Septic shock vs None)	**1.424 (1.131, 1.792)**
Emergency Surgery (Yes vs No)	**1.443 (1.229, 1.695)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.323 (1.201, 1.457)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.602 (1.372, 1.871)**
Cohort (2 vs 1)	1.071 (0.726, 1.581)
Cohort (3 vs 1)	0.897 (0.677, 1.188)
Cohort (3B vs 1)	1.209 (0.831, 1.758)
Cohort (4 vs 1)	0.981 (0.708, 1.359)
Calendar Months From Cohort Start Month (for time construct)	**0.985 (0.975, 0.996)**
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.297 (2.068, 2.551)**
Number of Hospitals	191

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome

Table B8. Model Report With Service Line = Colorectal Surgery
Outcome: ROBF N=29,775

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.0375 (0.0003)**
Age (75–84 vs <65)	**0.0390 (0.0016)**
Age (>=85 vs <65)	**0.0826 (<.0001)**
Gender (Male vs Female)	0.0041 (0.6213)
Race (Black or African American vs White)	**0.0636 (<.0001)**
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	-0.0022 (0.9313)
Race (Unknown vs White)	-0.0015 (0.9446)
Hispanic (Unknown vs No)	-0.0012 (0.9701)
Hispanic (Yes vs No)	0.0146 (0.4254)
Preoperative Sepsis (SIRS vs None)	0.0172 (0.4290)
Preoperative Sepsis (Sepsis vs None)	**0.1417 (<.0001)**
Preoperative Sepsis (Septic shock vs None)	**0.2370 (<.0001)**
Emergency Surgery (Yes vs No)	**0.0989 (<.0001)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.0527 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.1089 (<.0001)**
Cohort (2 vs 1)	-0.0536 (0.2418)
Cohort (3 vs 1)	-0.0319 (0.4762)
Cohort (3B vs 1)	0.0877 (0.2469)
Cohort (4 vs 1)	-0.0375 (0.5192)
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.8382 (<.0001)**
Calendar Months From Month 1 (for time construct)	**-0.0031 (0.0002)**
Number of Hospitals	191

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; ROBF: Return of bowel function; SIRS: Systemic inflammatory response syndrome;

Table B9. Model Report With Service Line = Colorectal Surgery
Outcome: ILOS N=32,608 Events=9,636 Event Rate=0.296

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.165 (1.093, 1.241)**
Age (75–84 vs <65)	**1.389 (1.274, 1.514)**
Age (>=85 vs <65)	**1.672 (1.457, 1.919)**
Gender (Male vs Female)	**1.080 (1.016, 1.147)**
Race_2 (Black or African American vs White)	**1.616 (1.444, 1.807)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.005 (0.853, 1.183)
Race_2 (Unknown vs White)	1.028 (0.861, 1.227)
Hispanic (Unknown vs No)	0.762 (0.465, 1.248)
Hispanic (Yes vs No)	1.078 (0.925, 1.256)
Preoperative Sepsis (SIRS vs None)	**1.519 (1.315, 1.756)**
Preoperative Sepsis (Sepsis vs None)	**2.048 (1.800, 2.328)**
Preoperative Sepsis (Septic shock vs None)	**1.409 (1.161, 1.710)**
Emergency Surgery (Yes vs No)	**1.602 (1.432, 1.793)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.579 (1.468, 1.698)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.483 (2.190, 2.814)**
Cohort (2 vs 1)	1.120 (0.896, 1.399)
Cohort (3 vs 1)	0.997 (0.829, 1.198)
Cohort (3B vs 1)	**1.275 (1.058, 1.536)**
Cohort (4 vs 1)	1.040 (0.826, 1.309)
Calendar Months From Cohort Start Month (for time construct)	**0.988 (0.980, 0.995)**
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.278 (2.134, 2.433)**
Number of Hospitals	191

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; ILOS: Ileus and length of stay >75th percentile; SIRS: Systemic inflammatory response syndrome

Table B10. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: VTE N=4,635 Events=100 Event Rate=0.022

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.853 (0.411, 1.773)
Age (75–84 vs <65)	0.632 (0.320, 1.249)
Age (>=85 vs <65)	0.719 (0.323, 1.600)
Gender (Male vs Female)	1.168 (0.800, 1.706)
Race_2 (Black or African American vs White)	0.920 (0.445, 1.902)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.994 (0.480, 2.057)
Race_2 (Unknown vs White)	1.868 (0.947, 3.683)
Hispanic (Unknown vs No)	0.847 (0.187, 3.849)
Hispanic (Yes vs No)	0.491 (0.210, 1.146)
Preoperative Sepsis (SIRS vs None)	1.448 (0.957, 2.191)
Preoperative Sepsis (Sepsis vs None)	**0.000 (0.000, 0.000)**
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	0.808 (0.474, 1.380)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.092 (0.642, 1.859)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	0.772 (0.329, 1.810)
Hematocrit (Low vs Normal)	1.281 (0.784, 2.093)
Cohort (3 vs 2)	1.216 (0.829, 1.784)
Cohort (3B vs 2)	0.991 (0.618, 1.591)
Cohort (4 vs 2)	0.698 (0.394, 1.237)
Calendar Months From Cohort Start Month (for time construct)	1.010 (0.974, 1.048)
CPT Linear Risk (a linearized risk score for procedure complexity)	1.060 (0.452, 2.486)
Albumin	0.678 (0.440, 1.046)
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VTE: Venous thromboembolism

Table B11. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: UTI NN=4,635 Events=134 Event Rate=0.029

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	2.404 (0.914, 6.323)
Age (75–84 vs <65)	**3.408 (1.271, 9.136)**
Age (>=85 vs <65)	2.091 (0.675, 6.477)
Gender (Male vs Female)	0.795 (0.510, 1.242)
Race_2 (Black or African American vs White)	**0.236 (0.058, 0.957)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.487 (0.169, 1.405)
Race_2 (Unknown vs White)	1.345 (0.665, 2.717)
Hispanic (Unknown vs No)	1.855 (0.708, 4.856)
Hispanic (Yes vs No)	0.888 (0.437, 1.804)
Preoperative Sepsis (SIRS vs None)	1.754 (0.977, 3.149)
Preoperative Sepsis (Sepsis vs None)	**0.000 (0.000, 0.000)**
Preoperative Sepsis (Septic shock vs None)	3.702 (0.566, 24.205)
Emergency Surgery (Yes vs No)	0.663 (0.402, 1.094)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.233 (0.710, 2.142)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	1.151 (0.657, 2.015)
Hematocrit (Low vs Normal)	1.248 (0.859, 1.813)
Cohort (3 vs 2)	1.148 (0.650, 2.029)
Cohort (3B vs 2)	0.846 (0.294, 2.433)
Cohort (4 vs 2)	**0.247 (0.101, 0.603)**
Calendar Months From Cohort Start Month (for time construct)	0.985 (0.945, 1.027)
CPT Linear Risk (a linearized risk score for procedure complexity)	1.110 (0.504, 2.442)
Albumin	0.838 (0.510, 1.377)
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; UTI: Urinary tract infection

Table B12. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: SSI N=4,635 Events=45 Event Rate=0.010

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.826 (0.316, 2.158)
Age (75–84 vs <65)	0.678 (0.267, 1.720)
Age (>=85 vs <65)	0.402 (0.150, 1.076)
Gender (Male vs Female)	0.617 (0.339, 1.126)
Race_2 (Black or African American vs White)	0.310 (0.061, 1.581)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.535 (0.103, 2.788)
Race_2 (Unknown vs White)	1.135 (0.232, 5.540)
Hispanic2 (Yes/Unknown vs No)	0.631 (0.209, 1.912)
Sepsis2 (SIRS/Sepsis/Septic Shock vs None)	0.552 (0.151, 2.026)
Emergency Surgery (Yes vs No)	1.313 (0.745, 2.313)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.233 (0.531, 2.861)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	1.392 (0.398, 4.870)
Hematocrit (Low vs Normal)	1.062 (0.596, 1.893)
Transfusion (Yes vs No)	1.469 (0.440, 4.904)
Cohort (3 vs 2)	0.854 (0.408, 1.789)
Cohort (3B vs 2)	0.243 (0.034, 1.742)
Cohort (4 vs 2)	0.990 (0.375, 2.617)
Calendar Months From Cohort Start Month (for time construct)	1.029 (0.967, 1.096)
CPT Linear Risk (a linearized risk score for procedure complexity)	2.728 (0.795, 9.363)
Albumin	0.639 (0.321, 1.272)
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; SSI: Surgical site infection

Table B13. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: VUS N=4,635 Events=249 Event Rate=0.054

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.089 (0.665, 1.783)
Age (75–84 vs <65)	1.111 (0.698, 1.768)
Age (>=85 vs <65)	0.823 (0.475, 1.425)
Gender (Male vs Female)	0.841 (0.654, 1.082)
Race_2 (Black or African American vs White)	0.505 (0.255, 1.002)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.733 (0.480, 1.118)
Race_2 (Unknown vs White)	**1.554 (1.025, 2.357)**
Hispanic (Unknown vs No)	0.937 (0.408, 2.154)
Hispanic (Yes vs No)	0.615 (0.346, 1.092)
Preoperative Sepsis (SIRS vs None)	**1.488 (1.014, 2.182)**
Preoperative Sepsis (Sepsis vs None)	**0.000 (0.000, 0.000)**
Preoperative Sepsis (Septic shock vs None)	1.585 (0.246, 10.198)
Emergency Surgery (Yes vs No)	0.785 (0.556, 1.108)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.080 (0.766, 1.525)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	1.019 (0.645, 1.608)
Hematocrit (Low vs Normal)	1.260 (0.982, 1.616)
Transfusion (Yes vs No)	1.046 (0.540, 2.024)
Cohort (3 vs 2)	0.983 (0.681, 1.419)
Cohort (3B vs 2)	0.641 (0.259, 1.591)
Cohort (4 vs 2)	**0.493 (0.340, 0.716)**
Calendar Months From Cohort Start Month (for time construct)	1.001 (0.973, 1.030)
CPT Linear Risk (a linearized risk score for procedure complexity)	1.029 (0.411, 2.576)
Albumin	**0.721 (0.535, 0.971)**
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VUS: Composite outcome comprised of venous thromboembolism, urinary tract infection, or surgical site infection

Table B14. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: LOS binary N=4,619 Events=991 Event Rate=0.215

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.619 (0.501, 0.764)**
Age (75–84 vs <65)	**0.671 (0.518, 0.870)**
Age (>=85 vs <65)	**0.702 (0.543, 0.907)**
Gender (Male vs Female)	**1.278 (1.083, 1.508)**
Race_2 (Black or African American vs White)	1.256 (0.952, 1.657)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.745 (0.377, 1.472)
Race_2 (Unknown vs White)	1.362 (0.835, 2.222)
Hispanic (Unknown vs No)	**0.661 (0.444, 0.984)**
Hispanic (Yes vs No)	**0.639 (0.410, 0.996)**
Pre-operative Sepsis (SIRS vs None)	**2.022 (1.543, 2.648)**
Pre-operative Sepsis (Sepsis vs None)	1.032 (0.503, 2.114)
Pre-operative Sepsis (Septic shock vs None)	1.084 (0.297, 3.955)
Emergency Surgery (Yes vs No)	1.119 (0.861, 1.454)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.497 (1.226, 1.829)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.998 (1.499, 2.664)**
Hematocrit (Low vs Normal)	**1.260 (1.056, 1.504)**
Transfusion (Yes vs No)	1.345 (0.882, 2.050)
Cohort (3 vs 2)	1.138 (0.743, 1.741)
Cohort (3B vs 2)	0.674 (0.340, 1.336)
Cohort (4 vs 2)	**1.827 (1.029, 3.243)**
Calendar Months From Cohort Start Month (for time construct)	1.015 (0.995, 1.036)
CPT Linear Risk (a linearized risk score for procedure complexity)	2.883 (0.813, 10.224)
Albumin	**0.607 (0.480, 0.768)**
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of stay; SIRS: Systemic inflammatory response syndrome

Table B15. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: LOS N=4,619

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**-0.0787 (0.0211)**
Age (75–84 vs <65)	-0.0218 (0.4887)
Age (>=85 vs <65)	-0.0472 (0.1342)
Gender (Male vs Female)	**0.0527 (0.0093)**
Race (Black or African American vs White)	-0.0207 (0.6048)
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	-0.0418 (0.4429)
Race (Unknown vs White)	0.0332 (0.5150)
Hispanic (Unknown vs No)	**-0.2090 (0.0055)**
Hispanic (Yes vs No)	-0.0009 (0.9831)
Pre-operative Sepsis (SIRS vs None)	**0.2075 (<.0001)**
Pre-operative Sepsis (Sepsis vs None)	0.0583 (0.6436)
Pre-operative Sepsis (Septic shock vs None)	0.1473 (0.3787)
Emergency Surgery (Yes vs No)	**0.0621 (0.0218)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.1584 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.2590 (<.0001)**
Preoperative Hematocrit (Low vs Normal)	**0.0738 (0.0006)**
Preoperative Transfusionion (Yes vs No)	**0.1474 (0.0015)**
Cohort (3 vs 2)	0.0317 (0.6247)
Cohort (3B vs 2)	-0.0518 (0.6574)
Cohort (4 vs 2)	0.1640 (0.0931)
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.0993 (0.0250)**
Calendar Months From Month 1 (for time construct)	0.0015 (0.4248)
Preoperative Albumin	**-0.1430 (<.0001)**
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of stay; SIRS: Systemic inflammatory response syndrome

Table B16. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: Intra Postop Transfusion N=4,635 Events=901 Event Rate=0.194

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.888 (0.675, 1.167)
Age (75–84 vs <65)	0.961 (0.704, 1.312)
Age (>=85 vs <65)	1.061 (0.761, 1.480)
Gender (Male vs Female)	**0.775 (0.640, 0.937)**
Race_2 (Black or African American vs White)	**1.665 (1.142, 2.428)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.068 (0.728, 1.566)
Race_2 (Unknown vs White)	0.920 (0.542, 1.562)
Hispanic (Unknown vs No)	0.937 (0.427, 2.059)
Hispanic (Yes vs No)	0.991 (0.711, 1.383)
Pre-operative Sepsis (SIRS vs None)	**1.365 (1.033, 1.803)**
Pre-operative Sepsis (Sepsis vs None)	1.007 (0.305, 3.324)
Pre-operative Sepsis (Septic shock vs None)	0.206 (0.026, 1.649)
Emergency Surgery (Yes vs No)	0.870 (0.608, 1.247)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.291 (0.977, 1.706)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2–- No/Mild Disturb)	**1.515 (1.070, 2.146)**
Hematocrit (Low vs Normal)	**5.183 (4.278, 6.280)**
Transfusion (Yes vs No)	1.472 (0.912, 2.375)
Cohort (3 vs 2)	1.106 (0.724, 1.689)
Cohort (3B vs 2)	0.666 (0.387, 1.148)
Cohort (4 vs 2)	0.977 (0.590, 1.620)
Calendar Months From Cohort Start Month (for time construct)	1.019 (0.996, 1.042)
CPT Linear Risk (a linearized risk score for procedure complexity)	**1.890 (1.508, 2.367)**
Albumin	**0.782 (0.640, 0.956)**
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome

Table B17. Model Report With Service Line = Orthopedic – Hip Fracture Surgery
Outcome: Return to Operating Room N=4,635 Events=116 Event Rate=0.025

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.421 (0.223, 0.796)**
Age (75–84 vs <65)	**0.293 (0.158, 0.541)**
Age (>=85 vs <65)	**0.203 (0.110, 0.374)**
Gender (Male vs Female)	0.922 (0.579, 1.468)
Race_2 (Black or African American vs White)	0.276 (0.064, 1.197)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.918 (0.368, 2.290)
Race_2 (Unknown vs White)	1.157 (0.400, 3.351)
Hispanic (Unknown vs No)	**0.000 (0.000, 0.000)**
Hispanic (Yes vs No)	0.813 (0.363, 1.820)
Preoperative Sepsis (SIRS vs None)	1.470 (0.739, 2.925)
Preoperative Sepsis (Sepsis vs None)	0.961 (0.135, 6.829)
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	1.240 (0.922, 1.666)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**2.028 (1.142, 3.601)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.761 (1.452, 5.247)**
Hematocrit (Low vs Normal)	1.330 (0.876, 2.020)
Cohort (3 vs 2)	0.970 (0.693, 1.357)
Cohort (3B vs 2)	0.536 (0.227, 1.266)
Cohort (4 vs 2)	**0.493 (0.329, 0.740)**
Calendar Months From Cohort Start Month (for time construct)	1.020 (0.976, 1.066)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.513 (1.086, 5.815)**
Albumin	0.725 (0.495, 1.063)
Number of Hospitals	58

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome

Table B18. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: VTE N=18,653 Events=140 Event Rate=0.008

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.835 (1.203, 2.798)**
Age (75–84 vs <65)	**2.297 (1.365, 3.862)**
Age (>=85 vs <65)	**4.388 (2.425, 7.938)**
Gender (Male vs Female)	1.273 (0.923, 1.755)
Race_2 (Black or African American vs White)	1.221 (0.731, 2.039)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	**0.000 (0.000, 0.000)**
Race_2 (Unknown vs White)	1.400 (0.673, 2.912)
Hispanic (Unknown vs No)	0.669 (0.186, 2.410)
Hispanic (Yes vs No)	1.300 (0.695, 2.432)
Pre-operative Sepsis (SIRS vs None)	1.374 (0.232, 8.123)
Pre-operative Sepsis (Sepsis vs None)	**0.000 (0.000, 0.000)**
Pre-operative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	**4.704 (1.413, 15.665)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.031 (0.676, 1.573)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	0.524 (0.082, 3.329)
Hematocrit (Low vs Normal)	**1.646 (1.085, 2.497)**
Cohort (3 vs 2)	1.202 (0.820, 1.761)
Cohort (3B vs 2)	0.762 (0.127, 4.551)
Cohort (4 vs 2)	**0.334 (0.117, 0.957)**
Calendar Months From Cohort Start Month (for time construct)	1.011 (0.974, 1.049)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.418 (1.113, 5.255)**
Albumin	0.836 (0.484, 1.444)
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VTE: Venous thromboembolism

Table B19. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: UTI N=18,653 Events=133 Event Rate=0.007

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.730 (1.141, 2.622)**
Age (75–84 vs <65)	**1.949 (1.242, 3.060)**
Age (>=85 vs <65)	**6.382 (3.477, 11.713)**
Gender (Male vs Female)	**0.663 (0.449, 0.979)**
Race_2 (Black or African American vs White)	1.247 (0.637, 2.440)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.903 (0.140, 5.802)
Race_2 (Unknown vs White)	1.344 (0.632, 2.857)
Hispanic (Unknown vs No)	0.939 (0.290, 3.040)
Hispanic (Yes vs No)	1.241 (0.588, 2.616)
Pre-operative Sepsis (SIRS vs None)	1.221 (0.125, 11.927)
Pre-operative Sepsis (Sepsis vs None)	**0.000 (0.000, 0.000)**
Pre-operative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	0.878 (0.096, 8.042)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.736 (1.098, 2.747)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	2.211 (0.699, 6.995)
Hematocrit (Low vs Normal)	1.294 (0.818, 2.046)
Cohort (3 vs 2)	1.137 (0.669, 1.933)
Cohort (3B vs 2)	0.844 (0.269, 2.653)
Cohort (4 vs 2)	0.413 (0.137, 1.244)
Calendar Months From Cohort Start Month (for time construct)	1.002 (0.965, 1.040)
CPT Linear Risk (a linearized risk score for procedure complexity)	2.380 (0.994, 5.699)
Albumin	0.780 (0.496, 1.226)
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; UTI: Urinary tract infection

Table B20. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: SSI N=18,653 Events=228 Event Rate=0.012

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.742 (0.565, 0.975)**
Age (75–84 vs <65)	0.733 (0.498, 1.078)
Age (>=85 vs <65)	0.439 (0.177, 1.088)
Gender (Male vs Female)	1.129 (0.841, 1.517)
Race_2 (Black or African American vs White)	0.765 (0.493, 1.189)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.756 (0.854, 3.609)
Race_2 (Unknown vs White)	**0.402 (0.200, 0.806)**
Hispanic (Unknown vs No)	**2.555 (1.197, 5.450)**
Hispanic (Yes vs No)	**2.260 (1.500, 3.406)**
Preoperative Sepsis (SIRS vs None)	2.053 (0.637, 6.615)
Preoperative Sepsis (Sepsis vs None)	2.079 (0.530, 8.163)
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	2.606 (0.883, 7.691)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**2.183 (1.546, 3.083)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**4.923 (2.922, 8.297)**
Hematocrit (Low vs Normal)	1.008 (0.666, 1.523)
Transfusion (Yes vs No)	1.531 (0.551, 4.254)
Cohort (3 vs 2)	1.111 (0.839, 1.472)
Cohort (3B vs 2)	**0.290 (0.101, 0.833)**
Cohort (4 vs 2)	1.096 (0.668, 1.799)
Calendar Months From Cohort Start Month (for time construct)	1.018 (0.984, 1.054)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.926 (1.833, 4.670)**
Albumin	0.790 (0.513, 1.214)
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; SSI: Surgical site infection

Table B21. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: VUS N=18,653 Events=452 Event Rate=0.024

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.160 (0.943, 1.427)
Age (75–84 vs <65)	1.220 (0.920, 1.617)
Age (>=85 vs <65)	**2.006 (1.391, 2.892)**
Gender (Male vs Female)	1.112 (0.940, 1.315)
Race_2 (Black or African American vs White)	0.954 (0.706, 1.290)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.813 (0.393, 1.679)
Race_2 (Unknown vs White)	0.756 (0.460, 1.245)
Hispanic (Unknown vs No)	1.567 (0.745, 3.297)
Hispanic (Yes vs No)	**1.784 (1.330, 2.394)**
Preoperative Sepsis (SIRS vs None)	1.990 (0.935, 4.236)
Preoperative Sepsis (Sepsis vs None)	1.638 (0.518, 5.181)
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	**2.792 (1.241, 6.283)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.666 (1.326, 2.093)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.396 (1.434, 4.003)**
Hematocrit (Low vs Normal)	1.266 (0.993, 1.613)
Transfusion (Yes vs No)	1.010 (0.397, 2.569)
Cohort (3 vs 2)	1.007 (0.812, 1.248)
Cohort (3B vs 2)	0.417 (0.130, 1.338)
Cohort (4 vs 2)	0.610 (0.358, 1.041)
Calendar Months From Cohort Start Month (for time construct)	1.012 (0.989, 1.036)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.670 (1.517, 4.698)**
Albumin	0.804 (0.585, 1.103)
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VUS: Composite outcome comprised of venous thromboembolism, urinary tract infection, or surgical site infection

Table B22. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: LOS binary N=18,364 Events=4,040 Event Rate=0.220

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.150 (1.014, 1.305)**
Age (75–84 vs <65)	**1.768 (1.460, 2.140)**
Age (>=85 vs <65)	**3.656 (2.698, 4.954)**
Gender (Male vs Female)	**0.740 (0.655, 0.836)**
Race_2 (Black or African American vs White)	**1.615 (1.308, 1.994)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.343 (0.854, 2.110)
Race_2 (Unknown vs White)	1.028 (0.688, 1.535)
Hispanic (Unknown vs No)	0.745 (0.470, 1.179)
Hispanic (Yes vs No)	1.285 (0.846, 1.952)
Preoperative Sepsis (SIRS vs None)	1.819 (0.968, 3.416)
Preoperative Sepsis (Sepsis vs None)	**7.944 (1.533, 41.178)**
Preoperative Sepsis (Septic shock vs None)	1.087 (0.202, 5.861)
Emergency Surgery (Yes vs No)	1.627 (0.841, 3.146)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.814 (1.590, 2.070)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**3.639 (2.607, 5.081)**
Hematocrit (Low vs Normal)	**1.707 (1.437, 2.027)**
Transfusion (Yes vs No)	**2.533 (1.653, 3.881)**
Cohort (3 vs 2)	0.852 (0.519, 1.397)
Cohort (3B vs 2)	1.221 (0.393, 3.795)
Cohort (4 vs 2)	**0.293 (0.162, 0.528)**
Calendar Months From Cohort Start Month (for time construct)	0.985 (0.968, 1.001)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.463 (2.039, 2.975)**
Albumin	**0.704 (0.538, 0.923)**
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of stay; SIRS: Systemic inflammatory response syndrome

Table B23. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: LOS N=18,364

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.0537 (<.0001)**
Age (75–84 vs <65)	**0.1559 (<.0001)**
Age (>=85 vs <65)	**0.2470 (<.0001)**
Gender (Male vs Female)	**-0.0682 (<.0001)**
Race (Black or African American vs White)	0.0295 (0.1289)
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.0013 (0.9754)
Race (Unknown vs White)	-0.0082 (0.7940)
Hispanic (Unknown vs No)	-0.0683 (0.0816)
Hispanic (Yes vs No)	0.0443 (0.1168)
Preoperative Sepsis (SIRS vs None)	**0.4168 (<.0001)**
Preoperative Sepsis (Sepsis vs None)	**0.8835 (<.0001)**
Preoperative Sepsis (Septic shock vs None)	0.3579 (0.1302)
Emergency Surgery (Yes vs No)	**0.2927 (0.0003)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.1586 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.4586 (<.0001)**
Preoperative Hematocrit (Low vs Normal)	**0.1427 (<.0001)**
Preoperative Transfusion (Yes vs No)	**0.3557 (<.0001)**
Cohort (3 vs 2)	-0.0029 (0.9652)
Cohort (3B vs 2)	-0.1135 (0.3647)
Cohort (4 vs 2)	**-0.4685 (<.0001)**
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.4920 (<.0001)**
Calendar Months From Month 1	**-0.0072 (<.0001)**
Preoperative Albumin	**-0.1436 (<.0001)**
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of stay; SIRS: Systemic inflammatory response syndrome

Table B24. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: Intra Postop Transfusion N=18,653 Events=478 Event Rate=0.026

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.826 (0.609, 1.120)
Age (75–84 vs <65)	1.165 (0.859, 1.580)
Age (>=85 vs <65)	1.484 (0.909, 2.422)
Gender (Male vs Female)	**0.647 (0.504, 0.832)**
Race_2 (Black or African American vs White)	1.381 (0.952, 2.005)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.694 (0.948, 3.026)
Race_2 (Unknown vs White)	1.209 (0.635, 2.299)
Hispanic (Unknown vs No)	0.505 (0.218, 1.171)
Hispanic (Yes vs No)	1.085 (0.632, 1.862)
Preoperative Sepsis (SIRS vs None)	1.398 (0.488, 4.005)
Preoperative Sepsis (Sepsis vs None)	0.992 (0.262, 3.758)
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	1.369 (0.479, 3.916)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**2.535 (1.912, 3.361)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**4.293 (2.629, 7.011)**
Hematocrit (Low vs Normal)	**6.775 (5.148, 8.918)**
Transfusion (Yes vs No)	1.450 (0.552, 3.809)
Cohort (3 vs 2)	1.498 (0.874, 2.566)
Cohort (3B vs 2)	2.404 (0.740, 7.813)
Cohort (4 vs 2)	0.432 (0.166, 1.126)
Calendar Months From Cohort Start Month (for time construct)	**1.037 (1.010, 1.064)**
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.406 (1.962, 2.951)**
Albumin	0.892 (0.653, 1.220)
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome

Table B25. Model Report With Service Line = Orthopedic – Hip/Knee Replacement Surgery
Outcome: Return to Operating Room N=18,653 Events=309 Event Rate=0.017

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.950 (0.764, 1.181)
Age (75–84 vs <65)	1.049 (0.769, 1.429)
Age (>=85 vs <65)	0.541 (0.270, 1.083)
Gender (Male vs Female)	1.141 (0.899, 1.448)
Race_2 (Black or African American vs White)	0.689 (0.467, 1.016)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.243 (0.600, 2.574)
Race_2 (Unknown vs White)	1.050 (0.507, 2.174)
Hispanic (Unknown vs No)	1.231 (0.405, 3.739)
Hispanic (Yes vs No)	0.653 (0.340, 1.254)
Preoperative Sepsis (SIRS vs None)	1.384 (0.600, 3.191)
Preoperative Sepsis (Sepsis vs None)	3.300 (0.986, 11.047)
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	1.855 (0.764, 4.506)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.818 (1.385, 2.387)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.805 (1.622, 4.850)**
Hematocrit (Low vs Normal)	**1.627 (1.091, 2.426)**
Cohort (3 vs 2)	0.974 (0.697, 1.362)
Cohort (3B vs 2)	0.341 (0.109, 1.063)
Cohort (4 vs 2)	0.874 (0.557, 1.372)
Calendar Months From Cohort Start Month (for time construct)	0.996 (0.973, 1.019)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.348 (1.726, 3.193)**
Albumin	0.887 (0.647, 1.216)
Number of Hospitals	60

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome

Table B26. Model Report With Service Line = Gynecologic Surgery
Outcome: VTE N=16,981 Events=74 Event Rate=0.004

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.202 (0.663, 2.181)
Age (75–84 vs <65)	1.011 (0.434, 2.353)
Age (>=85 vs <65)	2.517 (0.654, 9.689)
Gender (Male vs Female)	**0.000 (0.000, 0.000)**
Race_2 (Black or African American vs White)	1.008 (0.549, 1.850)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.411 (0.127, 1.334)
Race_2 (Unknown vs White)	2.182 (0.951, 5.003)
Hispanic (Unknown vs No)	0.939 (0.212, 4.156)
Hispanic (Yes vs No)	0.863 (0.359, 2.073)
Preoperative Sepsis (SIRS vs None)	0.976 (0.247, 3.848)
Preoperative Sepsis (Sepsis vs None)	**7.393 (2.015, 27.122)**
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	**0.000 (0.000, 0.000)**
Major Gynecologic Surgery (Yes vs No)	**2.630 (1.211, 5.713)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.865 (1.044, 3.331)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	1.852 (0.402, 8.537)
Cohort (3B vs 3)	0.712 (0.337, 1.505)
Cohort (4 vs 3)	0.776 (0.274, 2.193)
Calendar Months From Cohort Start Month (for time construct)	0.988 (0.947, 1.032)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.168 (1.320, 3.561)**
Number of Hospitals	45

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VTE: Venous thromboembolism

Table B27. Model Report With Service Line = Gynecologic Surgery
Outcome: UTI N=16,981 Events=389 Event Rate=0.023

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.068 (0.787, 1.450)
Age (75–84 vs <65)	0.738 (0.451, 1.207)
Age (>=85 vs <65)	1.065 (0.388, 2.920)
Gender (Male vs Female)	**0.000 (0.000, 0.000)**
Race_2 (Black or African American vs White)	1.061 (0.763, 1.476)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.864 (0.476, 1.567)
Race_2 (Unknown vs White)	0.753 (0.398, 1.425)
Hispanic (Unknown vs No)	1.046 (0.474, 2.310)
Hispanic (Yes vs No)	0.955 (0.605, 1.507)
Preoperative Sepsis (SIRS vs None)	1.119 (0.314, 3.984)
Preoperative Sepsis (Sepsis vs None)	**0.000 (0.000, 0.000)**
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	0.928 (0.124, 6.918)
Major Gynecologic Surgery (Yes vs No)	1.287 (0.831, 1.992)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.549 (1.173, 2.047)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	1.090 (0.393, 3.023)
Cohort (3B vs 3)	0.901 (0.402, 2.018)
Cohort (4 vs 3)	1.291 (0.670, 2.490)
Calendar Months From Cohort Start Month (for time construct)	1.010 (0.988, 1.034)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.849 (2.112, 3.844)**
Number of Hospitals	45

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; UTI: Urinary tract infection

Table B28. Model Report With Service Line = Gynecologic Surgery
Outcome: SSI N=16,981 Events=529 Event Rate=0.031

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.658 (0.477, 0.908)**
Age (75–84 vs <65)	**0.390 (0.208, 0.730)**
Age (>=85 vs <65)	0.512 (0.241, 1.091)
Gender (Male vs Female)	1.201 (0.310, 4.652)
Race_2 (Black or African American vs White)	1.075 (0.811, 1.425)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.100 (0.681, 1.775)
Race_2 (Unknown vs White)	0.900 (0.555, 1.459)
Hispanic (Unknown vs No)	1.098 (0.609, 1.982)
Hispanic (Yes vs No)	0.947 (0.644, 1.391)
Preoperative Sepsis (SIRS vs None)	1.721 (0.853, 3.472)
Preoperative Sepsis (Sepsis vs None)	2.174 (0.942, 5.018)
Pre-operative Sepsis (Septic shock vs None)	6.471 (0.490, 85.385)
Emergency Surgery (Yes vs No)	1.126 (0.398, 3.183)
Major Gynecologic Surgery (Yes vs No)	1.286 (0.797, 2.077)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.257 (0.991, 1.594)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.521 (1.412, 4.500)**
Cohort (3B vs 3)	0.907 (0.487, 1.687)
Cohort (4 vs 3)	1.139 (0.908, 1.430)
Calendar Months From Cohort Start Month (for time construct)	0.995 (0.971, 1.019)
CPT Linear Risk (a linearized risk score for procedure complexity)	**3.015 (2.059, 4.415)**
Number of Hospitals	45

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; SSI: Surgical site infection

Table B29. Model Report With Service Line = Gynecologic Surgery
Outcome: VUS N=16,981 Events=920 Event Rate=0.054

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.873 (0.667, 1.143)
Age (75–84 vs <65)	**0.556 (0.377, 0.820)**
Age (>=85 vs <65)	0.975 (0.550, 1.730)
Gender (Male vs Female)	0.665 (0.175, 2.533)
Race_2 (Black or African American vs White)	1.083 (0.827, 1.419)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.914 (0.623, 1.341)
Race_2 (Unknown vs White)	0.949 (0.634, 1.420)
Hispanic (Unknown vs No)	1.020 (0.579, 1.797)
Hispanic (Yes vs No)	0.952 (0.709, 1.278)
Preoperative Sepsis (SIRS vs None)	1.690 (0.808, 3.536)
Preoperative Sepsis (Sepsis vs None)	**2.343 (1.195, 4.593)**
Preoperative Sepsis (Septic shock vs None)	5.182 (0.478, 56.145)
Emergency Surgery (Yes vs No)	1.013 (0.435, 2.359)
Major Gynecologic Surgery (Yes vs No)	1.478 (0.998, 2.191)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.450 (1.197, 1.755)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.226 (1.439, 3.444)**
Cohort (3B vs 3)	0.830 (0.432, 1.595)
Cohort (4 vs 3)	1.204 (0.893, 1.622)
Calendar Months From Cohort Start Month (for time construct)	0.999 (0.980, 1.018)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.270 (1.553, 3.316)**
Number of Hospitals	45

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; SIRS: Systemic inflammatory response syndrome; VUS: Composite outcome comprised of venous thromboembolism, urinary tract infection, or surgical site infection

Table B30. Model Report With Service Line = Gynecologic Surgery
Outcome: LOS binary N=16,787 Events=4166 Event Rate=0.248

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.013 (0.874, 1.173)
Age (75–84 vs <65)	**1.666 (1.222, 2.271)**
Age (>=85 vs <65)	**2.751 (1.546, 4.895)**
Gender (Male vs Female)	0.662 (0.246, 1.785)
Race_2 (Black or African American vs White)	**1.979 (1.541, 2.542)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.482 (0.920, 2.388)
Race_2 (Unknown vs White)	1.197 (0.845, 1.696)
Hispanic (Unknown vs No)	0.787 (0.445, 1.393)
Hispanic (Yes vs No)	**1.403 (1.047, 1.881)**
Preoperative Sepsis (SIRS vs None)	1.478 (0.458, 4.775)
Preoperative Sepsis (Sepsis vs None)	**4.211 (1.071, 16.558)**
Preoperative Sepsis (Septic shock vs None)	**10716 (3108.2, 36947)**
Emergency Surgery (Yes vs No)	1.966 (0.870, 4.443)
Major Gynecologic Surgery (Yes vs No)	**2.504 (1.276, 4.913)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.948 (1.636, 2.320)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**3.892 (2.214, 6.843)**
Cohort (3B vs 3)	0.737 (0.400, 1.357)
Cohort (4 vs 3)	0.821 (0.626, 1.077)
Calendar Months From Cohort Start Month (for time construct)	**0.962 (0.948, 0.976)**
CPT Linear Risk (a linearized risk score for procedure complexity)	**3.557 (3.213, 3.938)**
Number of Hospitals	45

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of stay; SIRS: Systemic inflammatory response syndrome

Table B31. Model Report With Service Line = Gynecologic Surgery
Outcome: LOS N=16,787

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.1305 (<.0001)**
Age (75–84 vs <65)	**0.1981 (<.0001)**
Age (>=85 vs <65)	**0.3578 (<.0001)**
Gender (Male vs Female)	**-0.3672 (0.0428)**
Race (Black or African American vs White)	**0.1376 (<.0001)**
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.0750 (0.0726)
Race (Unknown vs White)	**0.0752 (0.0468)**
Hispanic (Unknown vs No)	0.0338 (0.5030)
Hispanic (Yes vs No)	-0.0015 (0.9602)
Preoperative Sepsis (SIRS vs None)	**0.3770 (<.0001)**
Preoperative Sepsis (Sepsis vs None)	**0.6363 (<.0001)**
Preoperative Sepsis (Septic shock vs None)	**1.0456 (<.0001)**
Emergency Surgery (Yes vs No)	**0.2833 (0.0055)**
Major Gynecologic Surgery (Yes vs No)	**0.2951 (<.0001)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.1843 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.5480 (<.0001)**
Cohort (3B vs 3)	-0.2672 (0.0894)
Cohort (4 vs 3)	-0.2259 (0.2527)
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.9273 (<.0001)**
Calendar Months From Month 1	**-0.0122 (<.0001)**
Number of Hospitals	45

Abbreviations: ASA: American Society of Anesthesiologists; CPT: Current procedural terminology; LOS: Length of stay; SIRS: Systemic inflammatory response syndrome

Table B32. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy
Outcome: VTE N=15,763 Events=51 Event Rate=0.003

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**3.915 (1.808, 8.476)**
Age (75–84 vs <65)	**6.201 (2.984, 12.884)**
Age (>=85 vs <65)	1.706 (0.218, 13.371)
Gender (Male vs Female)	1.207 (0.669, 2.178)
Race_2 (Black or African American vs White)	1.956 (0.991, 3.858)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.467 (0.132, 1.660)
Race_2 (Unknown vs White)	0.633 (0.191, 2.093)
Hispanic (Unknown vs No)	1.695 (0.442, 6.496)
Hispanic (Yes vs No)	1.601 (0.655, 3.913)
Preoperative Sepsis (SIRS vs None)	0.802 (0.301, 2.136)
Preoperative Sepsis (Sepsis vs None)	**2.121 (1.200, 3.749)**
Preoperative Sepsis (Septic shock vs None)	3.661 (0.864, 15.515)
Emergency Surgery (Yes vs No)	0.928 (0.533, 1.615)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.129 (0.567, 2.249)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**3.961 (1.603, 9.788)**
BMI Classification (Class1Obese vs Normal)	1.099 (0.481, 2.510)
BMI Classification (Class2Obese vs Normal)	1.440 (0.504, 4.109)
BMI Classification (Class3Obese vs Normal)	0.852 (0.227, 3.203)
BMI Classification (Overweight vs Normal)	1.071 (0.502, 2.285)
BMI Classification (Underweight vs Normal)	**0.000 (0.000, 0.000)**
Surgical Approach (MIS) converted to open vs Laparoscopic)	2.830 (0.441, 18.156)
Surgical Approach (Open vs Laparoscopic)	0.569 (0.073, 4.405)
Surgical Approach (Robotic vs Laparoscopic)	2.560 (0.556, 11.780)
Ventilator Dependent (Yes vs No)	1.445 (0.377, 5.538)
Calendar Months From Cohort Start Month (for time construct)	0.983 (0.928, 1.040)
CPT Linear Risk (a linearized risk score for procedure complexity)	1.422 (0.349, 5.797)
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; VTE: Venous thromboembolism

Table B33. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy
Outcome: UTI N=15,763 Events=63 Event Rate=0.004

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**2.384 (1.139, 4.987)**
Age (75–84 vs <65)	**3.016 (1.206, 7.543)**
Age (>=85 vs <65)	**4.535 (1.091, 18.851)**
Gender (Male vs Female)	**0.393 (0.223, 0.692)**
Race_2 (Black or African American vs White)	1.549 (0.744, 3.223)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.835 (0.361, 1.928)
Race_2 (Unknown vs White)	0.979 (0.373, 2.568)
Hispanic (Unknown vs No)	0.946 (0.226, 3.969)
Hispanic (Yes vs No)	0.633 (0.249, 1.613)
Preoperative Sepsis (SIRS vs None)	1.555 (0.869, 2.781)
Preoperative Sepsis (Sepsis vs None)	**2.546 (1.189, 5.454)**
Preoperative Sepsis (Septic shock vs None)	**0.000 (0.000, 0.000)**
Emergency Surgery (Yes vs No)	0.640 (0.364, 1.125)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.896 (1.134, 3.170)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	1.230 (0.291, 5.198)
BMI Classification (Class1Obese vs Normal)	1.238 (0.535, 2.861)
BMI Classification (Class2Obese vs Normal)	0.454 (0.129, 1.596)
BMI Classification (Class3Obese vs Normal)	1.235 (0.486, 3.140)
BMI Classification (Overweight vs Normal)	0.672 (0.287, 1.573)
BMI Classification (Underweight vs Normal)	**0.000 (0.000, 0.000)**
Surgical_approach_2 (Open/MIS converted to open vs MIS (Laparoscopic/Robotic))	0.347 (0.080, 1.511)
Calendar Months From Cohort Start Month (for time construct)	1.037 (0.982, 1.095)
CPT Linear Risk (a linearized risk score for procedure complexity)	2.986 (0.249, 35.784)
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; UTI: Urinary tract infection

Table B34. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy Outcome: SSI N=15,763 Events=507 Event Rate=0.032

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.117 (0.809, 1.543)
Age (75–84 vs <65)	0.836 (0.543, 1.287)
Age (>=85 vs <65)	0.406 (0.122, 1.350)
Gender (Male vs Female)	**1.259 (1.031, 1.538)**
Race_2 (Black or African American vs White)	0.900 (0.618, 1.311)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.711 (0.494, 1.023)
Race_2 (Unknown vs White)	0.879 (0.620, 1.247)
Hispanic (Unknown vs No)	1.015 (0.662, 1.556)
Hispanic (Yes vs No)	0.749 (0.544, 1.033)
Pre-operative Sepsis (SIRS vs None)	**1.391 (1.029, 1.880)**
Pre-operative Sepsis (Sepsis vs None)	**4.935 (3.725, 6.537)**
Pre-operative Sepsis (Septic shock vs None)	**3.064 (1.391, 6.749)**
Emergency Surgery (Yes vs No)	**1.303 (1.036, 1.638)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.245 (0.919, 1.687)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.262 (1.404, 3.645)**
BMI Classification (Class1Obese vs Normal)	1.013 (0.785, 1.306)
BMI Classification (Class2Obese vs Normal)	0.798 (0.575, 1.107)
BMI Classification (Class3Obese vs Normal)	1.043 (0.699, 1.556)
BMI Classification (Overweight vs Normal)	0.979 (0.756, 1.268)
BMI Classification (Underweight vs Normal)	0.632 (0.220, 1.815)
Surgical Approach (MIS converted to open vs Laparoscopic)	0.951 (0.436, 2.076)
Surgical Approach (Open vs Laparoscopic)	0.648 (0.315, 1.330)
Surgical Approach (Robotic vs Laparoscopic)	**3.311 (1.608, 6.818)**
Ventilator Dependent (Yes vs No)	1.087 (0.266, 4.443)
Calendar Months From Cohort Start Month (for time construct)	1.009 (0.991, 1.027)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.456 (1.757, 3.435)**
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; SSI: Surgical site infection

Table B35. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy Outcome: VUS N=15,763 Events=560 Event Rate=0.036

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.217 (0.919, 1.613)
Age (75–84 vs <65)	1.097 (0.735, 1.638)
Age (>=85 vs <65)	0.628 (0.252, 1.564)
Gender (Male vs Female)	**1.252 (1.022, 1.535)**
Race_2 (Black or African American vs White)	0.995 (0.705, 1.404)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	**0.669 (0.464, 0.966)**
Race_2 (Unknown vs White)	0.852 (0.606, 1.199)
Hispanic (Unknown vs No)	1.055 (0.680, 1.637)
Hispanic (Yes vs No)	0.777 (0.581, 1.038)
Preoperative Sepsis (SIRS vs None)	1.308 (0.996, 1.718)
Preoperative Sepsis (Sepsis vs None)	**4.605 (3.536, 5.997)**
Preoperative Sepsis (Septic shock vs None)	**2.899 (1.188, 7.075)**
Emergency Surgery (Yes vs No)	**1.275 (1.031, 1.577)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.244 (0.946, 1.635)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.316 (1.526, 3.517)**
BMI Classification (Class1Obese vs Normal)	0.997 (0.764, 1.300)
BMI Classification (Class2Obese vs Normal)	0.768 (0.552, 1.068)
BMI Classification (Class3Obese vs Normal)	1.049 (0.718, 1.534)
BMI Classification (Overweight vs Normal)	0.974 (0.770, 1.231)
BMI Classification (Underweight vs Normal)	0.569 (0.204, 1.590)
Surgical Approach (MIS converted to open vs Laparoscopic)	1.065 (0.479, 2.369)
Surgical Approach (Open vs Laparoscopic)	0.658 (0.319, 1.356)
Surgical Approach (Robotic vs Laparoscopic)	**2.819 (1.367, 5.815)**
Ventilator Dependent (Yes vs No)	1.297 (0.380, 4.435)
Calendar Months From Cohort Start Month (for time construct)	1.007 (0.991, 1.024)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.538 (1.695, 3.802)**
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; VUS: Composite outcome comprised of venous thromboembolism, urinary tract infection, or surgical site infection

Table B36. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy Outcome: LOS binary N=15,750 Events=3848 Event Rate=0.244

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**2.370 (2.094, 2.683)**
Age (75 – 84 vs <65)	**3.037 (2.546, 3.622)**
Age (>=85 vs <65)	**5.648 (3.834, 8.319)**
Gender (Male vs Female)	1.060 (0.953, 1.179)
Race_2 (Black or African American vs White)	**1.576 (1.370, 1.813)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	**1.262 (1.059, 1.504)**
Race_2 (Unknown vs White)	0.826 (0.682, 1.002)
Hispanic (Unknown vs No)	1.252 (0.953, 1.645)
Hispanic (Yes vs No)	1.122 (0.943, 1.334)
Preoperative Sepsis (SIRS vs None)	1.137 (0.966, 1.338)
Preoperative Sepsis (Sepsis vs None)	**8.207 (6.509, 10.348)**
Preoperative Sepsis (Septic shock vs None)	**10.336 (3.051, 35.014)**
Emergency Surgery (Yes vs No)	0.978 (0.843, 1.135)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**2.260 (2.014, 2.536)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**7.084 (4.859, 10.329)**
BMI Classification (Class1Obese vs Normal)	1.013 (0.899, 1.141)
BMI Classification (Class2Obese vs Normal)	**1.211 (1.008, 1.455)**
BMI Classification (Class3Obese vs Normal)	0.867 (0.707, 1.064)
BMI Classification (Overweight vs Normal)	0.991 (0.882, 1.113)
BMI Classification (Underweight vs Normal)	1.015 (0.687, 1.499)
Surgical Approach (MIS converted to open vs Laparoscopic)	**5.450 (2.299, 12.920)**
Surgical Approach (Open vs Laparoscopic)	1.571 (0.737, 3.348)
Surgical Approach (Robotic vs Laparoscopic)	1.595 (0.955, 2.666)
Ventilator Dependent (Yes vs No)	**2.670 (1.147, 6.216)**
Calendar Months From Cohort Start Month (for time construct)	0.997 (0.986, 1.008)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.744 (2.336, 3.222)**
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; LOS: Length of stay; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B37. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy Outcome: LOS N=15,750

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.4792 (<.0001)**
Age (75–84 vs <65)	**0.5531 (<.0001)**
Age (>=85 vs <65)	**0.6663 (<.0001)**
Gender (Male vs Female)	**0.0519 (0.0084)**
Race (Black or African American vs White)	**0.2582 (<.0001)**
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.0220 (0.5688)
Race (Unknown vs White)	-0.0220 (0.5467)
Hispanic (Unknown vs No)	0.0777 (0.1657)
Hispanic (Yes vs No)	-0.0300 (0.3340)
Pre-operative Sepsis (SIRS vs None)	**0.0796 (0.0027)**
Pre-operative Sepsis (Sepsis vs None)	**0.9140 (<.0001)**
Pre-operative Sepsis (Septic shock vs None)	**0.8695 (<.0001)**
Emergency Surgery (Yes vs No)	**-0.0585 (0.0157)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.4715 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.1116 (<.0001)**
BMI Classification (Class1Obese vs Normal)	-0.0170 (0.5483)
BMI Classification (Class2Obese vs Normal)	0.0138 (0.6848)
BMI Classification (Class3Obese vs Normal)	**-0.1204 (0.0016)**
BMI Classification (Overweight vs Normal)	0.0058 (0.8234)
BMI Classification (Underweight vs Normal)	0.0121 (0.8882)
Surgical approach (MIS converted to open vs Laparoscopic)	**1.0369 (<.0001)**
Surgical approach (Open vs Laparoscopic)	**0.8271 (<.0001)**
Surgical approach (Robotic vs Laparoscopic)	0.1695 (0.0958)
Ventilator Dependent (Yes vs No)	**0.4446 (0.0109)**
CPT Linear Risk (a linearized risk score for procedure complexity)	-0.0102 (0.7622)
Calendar Months From Month 1	-0.0013 (0.4785)
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; LOS: Length of stay; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B38. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy
Outcome: Ileus N=5,952 Events=258 Event Rate=0.043

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.321 (0.884, 1.972)
Age (75–84 vs <65)	**1.864 (1.222, 2.842)**
Age (>=85 vs <65)	1.971 (0.829, 4.685)
Gender (Male vs Female)	1.127 (0.867, 1.464)
Race_2 (Black or African American vs White)	**2.026 (1.272, 3.226)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	**0.349 (0.147, 0.828)**
Race_2 (Unknown vs White)	0.796 (0.392, 1.614)
Hispanic (Unknown vs No)	1.190 (0.548, 2.587)
Hispanic (Yes vs No)	0.726 (0.434, 1.215)
Preoperative Sepsis (SIRS vs None)	0.936 (0.570, 1.536)
Preoperative Sepsis (Sepsis vs None)	**1.734 (1.075, 2.795)**
Preoperative Sepsis (Septic shock vs None)	**3.058 (1.306, 7.156)**
Emergency Surgery (Yes vs No)	1.180 (0.801, 1.740)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.496 (1.039, 2.155)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**3.858 (2.136, 6.969)**
BMI Classification (Class1Obese vs Normal)	1.056 (0.725, 1.537)
BMI Classification (Class2Obese vs Normal)	0.794 (0.441, 1.427)
BMI Classification (Class3Obese vs Normal)	0.830 (0.483, 1.426)
BMI Classification (Overweight vs Normal)	0.922 (0.576, 1.477)
BMI Classification (Underweight vs Normal)	0.921 (0.294, 2.887)
Surgical Approach (MIS converted to open vs Laparoscopic)	1.522 (0.898, 2.578)
Surgical Approach (Open vs Laparoscopic)	**2.530 (1.275, 5.020)**
Surgical Approach (Robotic vs Laparoscopic)	0.866 (0.211, 3.559)
Ventilator Dependent (Yes vs No)	2.097 (0.737, 5.970)
Calendar Months From Cohort Start Month (for time construct)	1.017 (0.987, 1.049)
CPT Linear Risk (a linearized risk score for procedure complexity)	**1.881 (1.421, 2.489)**
Number of Hospitals	61

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B39. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy Outcome: ROBF N=5,952

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.1523 (<.0001)**
Age (75–84 vs <65)	**0.1500 (0.0010)**
Age (>=85 vs <65)	**0.2613 (0.0004)**
Gender (Male vs Female)	-0.0095 (0.7218)
Race (Black or African American vs White)	**0.1174 (0.0118)**
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	-0.0610 (0.2596)
Race (Unknown vs White)	-0.0203 (0.7076)
Hispanic (Unknown vs No)	-0.0175 (0.8216)
Hispanic (Yes vs No)	-0.0720 (0.1228)
Preoperative Sepsis (SIRS vs None)	-0.0175 (0.6536)
Preoperative Sepsis (Sepsis vs None)	**0.2606 (<.0001)**
Preoperative Sepsis (Septic shock vs None)	**0.4309 (0.0002)**
Emergency Surgery (Yes vs No)	0.0626 (0.0705)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.1774 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.3410 (<.0001)**
BMI Classification (Class1Obese vs Normal)	0.0253 (0.5149)
BMI Classification (Class2Obese vs Normal)	-0.0310 (0.5186)
BMI Classification (Class3Obese vs Normal)	-0.0864 (0.1005)
BMI Classification (Overweight vs Normal)	-0.0204 (0.5735)
BMI Classification (Underweight vs Normal)	-0.1030 (0.4074)
Surgical Approach (MIS converted to open vs Laparoscopic)	**0.3005 (0.0001)**
Surgical Approach (Open vs Laparoscopic)	**0.3611 (<.0001)**
Surgical Approach (Robotic vs Laparoscopic)	0.1450 (0.2494)
Ventilator Dependent (Yes vs No)	0.1238 (0.4784)
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.3758 (<.0001)**
Calendar Months From Month 1	0.0021 (0.4126)
Number of Hospitals	61

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; ROBF: Return of bowel function; SIRS: Systemic inflammatory response syndrome

Table B40. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy
Outcome: Intra Postop Transfusion N=15,763 Events=113 Event Rate=0.007

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**1.936 (1.098, 3.414)**
Age (75–84 vs <65)	1.681 (0.819, 3.448)
Age (>=85 vs <65)	1.296 (0.477, 3.522)
Gender (Male vs Female)	**0.610 (0.380, 0.981)**
Race_2 (Black or African American vs White)	**2.238 (1.320, 3.794)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.942 (0.439, 2.019)
Race_2 (Unknown vs White)	0.947 (0.436, 2.055)
Hispanic (Unknown vs No)	1.406 (0.369, 5.365)
Hispanic (Yes vs No)	**2.224 (1.237, 3.996)**
Pre-operative Sepsis (SIRS vs None)	1.018 (0.614, 1.689)
Pre-operative Sepsis (Sepsis vs None)	0.855 (0.499, 1.464)
Pre-operative Sepsis (Septic shock vs None)	0.907 (0.326, 2.529)
Emergency Surgery (Yes vs No)	1.107 (0.747, 1.641)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**4.471 (2.630, 7.601)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**21.277 (9.396, 48.179)**
BMI Classification (Class1Obese vs Normal)	0.772 (0.469, 1.269)
BMI Classification (Class2Obese vs Normal)	**0.349 (0.165, 0.739)**
BMI Classification (Class3Obese vs Normal)	**0.225 (0.091, 0.555)**
BMI Classification (Overweight vs Normal)	0.701 (0.471, 1.044)
BMI Classification (Underweight vs Normal)	1.333 (0.320, 5.556)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	2.996 (0.931, 9.638)
Surgical Approach (Open vs Laparoscopic)	1.770 (0.668, 4.690)
Surgical Approach (Robotic vs Laparoscopic)	**5.526 (1.043, 29.279)**
Ventilator Dependent (Yes vs No)	2.482 (0.905, 6.806)
Calendar Months From Cohort Start Month (for time construct)	0.986 (0.945, 1.028)
CPT Linear Risk (a linearized risk score for procedure complexity)	**1.987 (1.270, 3.110)**
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B41. Model Report With Service Line = Emergency General Surgery – Appendectomy/Cholecystectomy
Outcome: ILOS N=15,758 Events=3,858 Event Rate=0.245

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**2.331 (2.060, 2.639)**
Age (75–84 vs <65)	**2.985 (2.485, 3.584)**
Age (>=85 vs <65)	**5.601 (3.824, 8.202)**
Gender (Male vs Female)	1.066 (0.962, 1.181)
Race_2 (Black or African American vs White)	**1.561 (1.357, 1.795)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	**1.245 (1.044, 1.485)**
Race_2 (Unknown vs White)	0.830 (0.684, 1.006)
Hispanic (Unknown vs No)	1.247 (0.948, 1.641)
Hispanic (Yes vs No)	1.103 (0.928, 1.310)
Preoperative Sepsis (SIRS vs None)	1.145 (0.972, 1.348)
Preoperative Sepsis (Sepsis vs None)	**8.377 (6.636, 10.574)**
Preoperative Sepsis (Septic shock vs None)	**10.537 (3.092, 35.910)**
Emergency Surgery (Yes vs No)	1.001 (0.863, 1.160)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**2.225 (1.979, 2.503)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**6.969 (4.779, 10.163)**
BMI Classification (Class1Obese vs Normal)	0.996 (0.886, 1.120)
BMI Classification (Class2Obese vs Normal)	1.185 (0.986, 1.425)
BMI Classification (Class3Obese vs Normal)	0.854 (0.695, 1.049)
BMI Classification (Overweight vs Normal)	0.980 (0.874, 1.099)
BMI Classification (Underweight vs Normal)	1.014 (0.686, 1.498)
Surgical Approach (MIS converted to open vs Laparoscopic)	**5.455 (2.322, 12.818)**
Surgical Approach (Open vs Laparoscopic)	1.628 (0.748, 3.542)
Surgical Approach (Robotic vs Laparoscopic)	1.548 (0.928, 2.583)
Ventilator Dependent (Yes vs No)	**2.582 (1.120, 5.953)**
Calendar Months From Cohort Start Month (for time construct)	0.996 (0.985, 1.007)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.817 (2.394, 3.316)**
Number of Hospitals	62

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; ILOS: Ileus and length of stay >75th percentile; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B42. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: VTE N=7,421 Events=264 Event Rate=0.036

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.881 (0.669, 1.161)
Age (75–84 vs <65)	0.986 (0.680, 1.431)
Age (>=85 vs <65)	1.149 (0.736, 1.792)
Gender (Male vs Female)	1.009 (0.769, 1.323)
Race_2 (Black or African American vs White)	**1.837 (1.332, 2.535)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	**0.508 (0.262, 0.988)**
Race_2 (Unknown vs White)	0.991 (0.526, 1.866)
Hispanic (Unknown vs No)	0.140 (0.018, 1.079)
Hispanic (Yes vs No)	0.685 (0.384, 1.220)
Preoperative Sepsis (SIRS vs None)	1.540 (0.921, 2.576)
Preoperative Sepsis (Sepsis vs None)	1.313 (0.849, 2.030)
Preoperative Sepsis (Septic shock vs None)	1.472 (0.918, 2.359)
Emergency Surgery (Yes vs No)	1.080 (0.790, 1.476)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.809 (1.113, 2.942)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.055 (1.257, 3.359)**
BMI Classification (Class1Obese vs Normal)	1.064 (0.703, 1.612)
BMI Classification (Class2Obese vs Normal)	1.282 (0.788, 2.085)
BMI Classification (Class3Obese vs Normal)	**1.618 (1.017, 2.574)**
BMI Classification (Overweight vs Normal)	1.029 (0.697, 1.518)
BMI Classification (Underweight vs Normal)	0.846 (0.495, 1.445)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	1.165 (0.528, 2.567)
Surgical Approach (Open vs Laparoscopic)	1.538 (0.896, 2.638)
Surgical Approach (Robotic vs Laparoscopic)	**0.000 (0.000, 0.000)**
Ventilator Dependent (Yes vs No)	1.371 (0.906, 2.074)
Calendar Months From Cohort Start Month (for time construct)	0.980 (0.951, 1.011)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.091 (1.584, 2.759)**
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; VTE: Venous thromboembolism

Table B43. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: UTI N=7,421 Events=131 Event Rate=0.018

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.385 (0.704, 2.723)
Age (75–84 vs <65)	**2.420 (1.216, 4.815)**
Age (>=85 vs <65)	**2.502 (1.014, 6.171)**
Gender (Male vs Female)	**0.681 (0.464, 0.998)**
Race_2 (Black or African American vs White)	1.011 (0.570, 1.792)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.640 (0.249, 1.647)
Race_2 (Unknown vs White)	1.204 (0.604, 2.401)
Hispanic (Unknown vs No)	0.579 (0.154, 2.169)
Hispanic (Yes vs No)	1.441 (0.846, 2.453)
Preoperative Sepsis (SIRS vs None)	1.362 (0.827, 2.242)
Preoperative Sepsis (Sepsis vs None)	0.964 (0.623, 1.491)
Preoperative Sepsis (Septic shock vs None)	0.881 (0.433, 1.792)
Emergency Surgery (Yes vs No)	0.937 (0.550, 1.599)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	1.354 (0.763, 2.404)
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	1.476 (0.828, 2.631)
BMI Classification (Class1Obese vs Normal)	1.035 (0.628, 1.707)
BMI Classification (Class2Obese vs Normal)	1.264 (0.717, 2.226)
BMI Classification (Class3Obese vs Normal)	1.157 (0.630, 2.125)
BMI Classification (Overweight vs Normal)	0.886 (0.582, 1.347)
BMI Classification (Underweight vs Normal)	1.819 (0.865, 3.824)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	1.587 (0.713, 3.535)
Surgical Approach (Open vs Laparoscopic)	1.653 (0.774, 3.530)
Surgical Approach (Robotic vs Laparoscopic)	**0.000 (0.000, 0.000)**
Ventilator Dependent (Yes vs No)	0.834 (0.352, 1.976)
Calendar Months From Cohort Start Month (for time construct)	0.990 (0.957, 1.024)
CPT Linear Risk (a linearized risk score for procedure complexity)	1.448 (0.854, 2.457)
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; UTI: Urinary tract infection

Table B44. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: SSI N=7,421 Events=1,084 Event Rate=0.146

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.788 (0.667, 0.932)**
Age (75–84 vs <65)	**0.569 (0.460, 0.702)**
Age (>=85 vs <65)	**0.473 (0.342, 0.654)**
Gender (Male vs Female)	**0.882 (0.782, 0.996)**
Race_2 (Black or African American vs White)	1.067 (0.866, 1.315)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.754 (0.553, 1.028)
Race_2 (Unknown vs White)	1.004 (0.754, 1.336)
Hispanic (Unknown vs No)	1.003 (0.647, 1.556)
Hispanic (Yes vs No)	1.013 (0.726, 1.416)
Preoperative Sepsis (SIRS vs None)	1.278 (0.998, 1.636)
Preoperative Sepsis (Sepsis vs None)	**1.934 (1.600, 2.338)**
Preoperative Sepsis (Septic shock vs None)	**1.849 (1.467, 2.330)**
Emergency Surgery (Yes vs No)	0.962 (0.821, 1.128)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.348 (1.089, 1.668)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.285 (1.011, 1.635)**
BMI Classification (Class1Obese vs Normal)	1.226 (0.973, 1.544)
BMI Classification (Class2Obese vs Normal)	1.101 (0.857, 1.415)
BMI Classification (Class3Obese vs Normal)	**1.597 (1.344, 1.899)**
BMI Classification (Overweight vs Normal)	0.996 (0.850, 1.166)
BMI Classification (Underweight vs Normal)	0.957 (0.691, 1.326)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	1.213 (0.792, 1.859)
Surgical Approach (Open vs Laparoscopic)	**1.636 (1.173, 2.280)**
Surgical Approach (Robotic vs Laparoscopic)	1.269 (0.661, 2.434)
Ventilator Dependent (Yes vs No)	**0.578 (0.434, 0.769)**
Calendar Months From Cohort Start Month (for time construct)	0.989 (0.976, 1.003)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.022 (1.658, 2.466)**
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; SSI: Surgical site infection

Table B45. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: VUS N=7,421 Events=1,341 Event Rate=0.181

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.826 (0.711, 0.960)**
Age (75–84 vs <65)	**0.705 (0.574, 0.867)**
Age (>=85 vs <65)	**0.658 (0.499, 0.867)**
Gender (Male vs Female)	**0.861 (0.765, 0.968)**
Race_2 (Black or African American vs White)	**1.193 (1.021, 1.394)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.773 (0.592, 1.010)
Race_2 (Unknown vs White)	1.042 (0.823, 1.318)
Hispanic (Unknown vs No)	0.827 (0.553, 1.235)
Hispanic (Yes vs No)	0.995 (0.757, 1.306)
Preoperative Sepsis (SIRS vs None)	1.295 (0.992, 1.691)
Preoperative Sepsis (Sepsis vs None)	**1.759 (1.462, 2.117)**
Preoperative Sepsis (Septic shock vs None)	**1.612 (1.313, 1.979)**
Emergency Surgery (Yes vs No)	0.976 (0.826, 1.154)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.410 (1.167, 1.705)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.441 (1.153, 1.800)**
BMI Classification (Class1Obese vs Normal)	1.208 (0.974, 1.498)
BMI Classification (Class2Obese vs Normal)	1.160 (0.920, 1.464)
BMI Classification (Class3Obese vs Normal)	**1.607 (1.363, 1.896)**
BMI Classification (Overweight vs Normal)	0.997 (0.842, 1.181)
BMI Classification (Underweight vs Normal)	0.996 (0.745, 1.331)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	1.181 (0.752, 1.854)
Surgical Approach (Open vs Laparoscopic)	**1.617 (1.153, 2.267)**
Surgical Approach (Robotic vs Laparoscopic)	0.982 (0.504, 1.915)
Ventilator Dependent (Yes vs No)	**0.743 (0.570, 0.969)**
Calendar months From Cohort Start Month (for time construct)	0.987 (0.973, 1.001)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.151 (1.739, 2.660)**
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome; VUS: Composite outcome comprised of venous thromboembolism, urinary tract infection, or surgical site infection

Table B46. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: LOS binary N=7,382 Events=1,707 Event Rate=0.231

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.050 (0.892, 1.237)
Age (75–84 vs <65)	1.143 (0.924, 1.414)
Age (>=85 vs <65)	1.045 (0.804, 1.357)
Gender (Male vs Female)	1.052 (0.943, 1.174)
Race_2 (Black or African American vs White)	**1.489 (1.264, 1.755)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.907 (0.703, 1.170)
Race_2 (Unknown vs White)	1.273 (0.981, 1.652)
Hispanic (Unknown vs No)	1.310 (0.816, 2.105)
Hispanic (Yes vs No)	0.869 (0.694, 1.090)
Preoperative Sepsis (SIRS vs None)	**1.299 (1.073, 1.573)**
Preoperative Sepsis (Sepsis vs None)	**1.909 (1.606, 2.269)**
Preoperative Sepsis (Septic shock vs None)	**2.751 (2.253, 3.360)**
Emergency Surgery (Yes vs No)	1.029 (0.875, 1.212)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**2.077 (1.624, 2.656)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**3.448 (2.690, 4.419)**
BMI Classification (Class1Obese vs Normal)	0.987 (0.811, 1.200)
BMI Classification (Class2Obese vs Normal)	0.998 (0.758, 1.314)
BMI Classification (Class3Obese vs Normal)	1.127 (0.875, 1.453)
BMI Classification (Overweight vs Normal)	0.889 (0.752, 1.051)
BMI Classification (Underweight vs Normal)	1.084 (0.827, 1.421)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	1.367 (0.944, 1.979)
Surgical Approach (Open vs Laparoscopic)	**1.847 (1.302, 2.620)**
Surgical Approach (Robotic vs Laparoscopic)	0.948 (0.381, 2.359)
Ventilator Dependent (Yes vs No)	0.904 (0.701, 1.166)
Calendar Months From Cohort Start Month (for time construct)	1.002 (0.992, 1.011)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.373 (2.058, 2.736)**
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; LOS: Length of stay; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B47. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures Outcome: LOS N=7,382

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	**0.0591 (0.0048)**
Age (75–84 vs <65)	**0.0788 (0.0012)**
Age (>=85 vs <65)	**0.0813 (0.0171)**
Gender (Male vs Female)	**0.0568 (0.0012)**
Race (Black or African American vs White)	**0.1223 (<.0001)**
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	-0.0439 (0.3050)
Race (Unknown vs White)	0.0645 (0.1157)
Hispanic (Unknown vs No)	0.0512 (0.3627)
Hispanic (Yes vs No)	-0.0209 (0.5443)
Preoperative Sepsis (SIRS vs None)	**0.0891 (0.0008)**
Preoperative Sepsis (Sepsis vs None)	**0.2470 (<.0001)**
Preoperative Sepsis (Septic shock vs None)	**0.3308 (<.0001)**
Emergency Surgery (Yes vs No)	-0.0093 (0.6394)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.2845 (<.0001)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.4615 (<.0001)**
BMI Classification (Class1Obese vs Normal)	-0.0150 (0.5498)
BMI Classification (Class2Obese vs Normal)	-0.0241 (0.4468)
BMI Classification (Class3Obese vs Normal)	0.0116 (0.7056)
BMI Classification (Overweight vs Normal)	-0.0210 (0.3241)
BMI Classification (Underweight vs Normal)	**0.0788 (0.0443)**
Surgical Approach (MIS Converted to Open vs Laparoscopic)	**0.0976 (0.0165)**
Surgical Approach (Open vs Laparoscopic)	**0.1869 (<.0001)**
Surgical Approach (Robotic vs Laparoscopic)	-0.0979 (0.2834)
Ventilator Dependent (Yes vs No)	-0.0358 (0.3707)
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.4366 (<.0001)**
Calendar Months From Month 1	-0.0007 (0.6843)
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; LOS: Length of stay; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B48. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: Ileus N=6,265 Events=1,961 Event Rate=0.313

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.973 (0.836, 1.131)
Age (75–84 vs <65)	1.115 (0.933, 1.332)
Age (>=85 vs <65)	1.187 (0.890, 1.583)
Gender (Male vs Female)	0.913 (0.822, 1.014)
Race_2 (Black or African American vs White)	1.024 (0.765, 1.371)
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.705 (0.471, 1.055)
Race_2 (Unknown vs White)	0.835 (0.599, 1.162)
Hispanic (Unknown vs No)	1.025 (0.704, 1.491)
Hispanic (Yes vs No)	0.985 (0.815, 1.191)
Preoperative Sepsis (SIRS vs None)	0.939 (0.792, 1.113)
Preoperative Sepsis (Sepsis vs None)	**1.298 (1.135, 1.485)**
Preoperative Sepsis (Septic shock vs None)	**1.669 (1.278, 2.180)**
Emergency Surgery (Yes vs No)	1.265 (0.988, 1.619)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.227 (1.050, 1.435)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**1.555 (1.250, 1.935)**
BMI Classification (Class1Obese vs Normal)	1.103 (0.944, 1.289)
BMI Classification (Class2Obese vs Normal)	1.019 (0.807, 1.287)
BMI Classification (Class3Obese vs Normal)	1.053 (0.837, 1.324)
BMI Classification (Overweight vs Normal)	1.104 (0.951, 1.281)
BMI Classification (Underweight vs Normal)	1.306 (0.962, 1.774)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	0.886 (0.589, 1.333)
Surgical Approach (Open vs Laparoscopic)	1.127 (0.849, 1.496)
Surgical Approach (Robotic vs Laparoscopic)	0.987 (0.444, 2.191)
Ventilator Dependent (Yes vs No)	0.954 (0.713, 1.277)
Calendar Months From Cohort Start Month (for time construct)	0.997 (0.986, 1.008)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.672 (2.240, 3.188)**
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B49. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures Outcome: ROBF N=6,265

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	-0.0102 (0.6499)
Age (75–84 vs <65)	0.0282 (0.2733)
Age (>=85 vs <65)	0.0271 (0.4535)
Gender (Male vs Female)	-0.0206 (0.2582)
Race (Black or African American vs White)	0.0135 (0.6240)
Race (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	-0.0122 (0.7962)
Race (Unknown vs White)	-0.0654 (0.1509)
Hispanic (Unknown vs No)	0.0263 (0.6741)
Hispanic (Yes vs No)	0.0038 (0.9191)
Preoperative Sepsis (SIRS vs None)	-0.0047 (0.8684)
Preoperative Sepsis (Sepsis vs None)	**0.1329 (<.0001)**
Preoperative Sepsis (Septic shock vs None)	**0.2678 (<.0001)**
Emergency Surgery (Yes vs No)	**0.0663 (0.0038)**
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**0.0719 (0.0051)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**0.1655 (<.0001)**
BMI Classification (Class1Obese vs Normal)	0.0326 (0.2285)
BMI Classification (Class2Obese vs Normal)	0.0296 (0.3956)
BMI Classification (Class3Obese vs Normal)	0.0437 (0.1927)
BMI Classification (Overweight vs Normal)	0.0142 (0.5333)
BMI Classification (Underweight vs Normal)	**0.1758 (<.0001)**
Surgical Approach (MIS Converted to Open vs Laparoscopic)	0.0120 (0.7839)
Surgical Approach (Open vs Laparoscopic)	**0.0747 (0.0156)**
Surgical Approach (Robotic vs Laparoscopic)	0.0052 (0.9591)
Ventilator Dependent (Yes vs No)	-0.0137 (0.7696)
CPT Linear Risk (a linearized risk score for procedure complexity)	**0.9361 (<.0001)**
Calendar Months From Month 1	-0.0009 (0.6254)
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; ROBF: Return of bowel function; SIRS: Systemic inflammatory response syndrome

Table B50. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: Intra Postop Transfusion N=7,421 Events=1,322 Event Rate=0.178

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	0.926 (0.782, 1.097)
Age (75–84 vs <65)	0.790 (0.623, 1.001)
Age (>=85 vs <65)	**0.675 (0.491, 0.927)**
Gender (Male vs Female)	**0.784 (0.686, 0.895)**
Race_2 (Black or African American vs White)	**1.504 (1.250, 1.809)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	1.420 (0.999, 2.019)
Race_2 (Unknown vs White)	0.813 (0.599, 1.102)
Hispanic (Unknown vs No)	1.054 (0.741, 1.499)
Hispanic (Yes vs No)	**1.665 (1.068, 2.596)**
Preoperative Sepsis (SIRS vs None)	**1.569 (1.214, 2.028)**
Preoperative Sepsis (Sepsis vs None)	**1.493 (1.258, 1.772)**
Preoperative Sepsis (Septic shock vs None)	**2.387 (1.787, 3.189)**
Emergency Surgery (Yes vs No)	0.993 (0.827, 1.191)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**2.400 (1.832, 3.144)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**5.616 (4.152, 7.595)**
BMI Classification (Class1Obese vs Normal)	**0.637 (0.512, 0.794)**
BMI Classification (Class2Obese vs Normal)	**0.597 (0.439, 0.811)**
BMI Classification (Class3Obese vs Normal)	**0.503 (0.387, 0.653)**
BMI Classification (Overweight vs Normal)	**0.811 (0.689, 0.954)**
BMI Classification (Underweight vs Normal)	0.902 (0.639, 1.273)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	0.986 (0.594, 1.636)
Surgical Approach (Open vs Laparoscopic)	1.342 (0.849, 2.124)
Surgical Approach (Robotic vs Laparoscopic)	0.690 (0.124, 3.855)
Ventilator Dependent (Yes vs No)	**2.063 (1.628, 2.614)**
Calendar Months From Cohort Start Month (for time construct)	0.993 (0.976, 1.009)
CPT Linear Risk (a linearized risk score for procedure complexity)	**1.848 (1.603, 2.129)**
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Table B51. Model Report With Service Line = Emergency General Surgery – Major Abdominal Procedures
Outcome: ILOS N=7,411 Events=2,933 Event Rate=0.396

Predictors	Odds Ratio (Confidence Interval) or Parameter (P-value)
Age (65–74 vs <65)	1.010 (0.898, 1.136)
Age (75–84 vs <65)	1.141 (0.988, 1.316)
Age (>=85 vs <65)	1.200 (0.978, 1.473)
Gender (Male vs Female)	0.963 (0.884, 1.050)
Race_2 (Black or African American vs White)	**1.243 (1.025, 1.507)**
Race_2 (Other (American Indian/Alaska Native/Asian/Native Hawaiian/Other Pacific Islander) vs White)	0.849 (0.631, 1.141)
Race_2 (Unknown vs White)	0.990 (0.809, 1.211)
Hispanic (Unknown vs No)	1.169 (0.840, 1.627)
Hispanic (Yes vs No)	0.989 (0.857, 1.142)
Preoperative Sepsis (SIRS vs None)	1.119 (0.968, 1.295)
Preoperative Sepsis (Sepsis vs None)	**1.581 (1.390, 1.799)**
Preoperative Sepsis (Septic shock vs None)	**1.800 (1.520, 2.131)**
Emergency Surgery (Yes vs No)	1.161 (0.964, 1.400)
ASA Class (ASA 3 – Severe Disturb vs ASA 1/2 – No/Mild Disturb)	**1.483 (1.273, 1.728)**
ASA Class (ASA 4/5 – Life Threat/Moribund vs ASA 1/2 – No/Mild Disturb)	**2.170 (1.798, 2.619)**
BMI Classification (Class1Obese vs Normal)	1.033 (0.893, 1.195)
BMI Classification (Class2Obese vs Normal)	0.916 (0.740, 1.135)
BMI Classification (Class3Obese vs Normal)	1.058 (0.866, 1.293)
BMI Classification (Overweight vs Normal)	0.973 (0.844, 1.122)
BMI Classification (Underweight vs Normal)	1.217 (0.924, 1.603)
Surgical Approach (MIS Converted to Open vs Laparoscopic)	1.068 (0.831, 1.372)
Surgical Approach (Open vs Laparoscopic)	**1.368 (1.161, 1.611)**
Surgical Approach (Robotic vs Laparoscopic)	0.982 (0.467, 2.065)
Ventilator Dependent (Yes vs No)	**0.658 (0.536, 0.808)**
Calendar Months From Cohort Start Month (for time construct)	0.996 (0.987, 1.005)
CPT Linear Risk (a linearized risk score for procedure complexity)	**2.476 (2.186, 2.804)**
Number of Hospitals	63

Abbreviations: ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CPT: Current procedural terminology; ILOS: Ileus and length of stay >75th percentile; MIS: Minimally invasive surgery; SIRS: Systemic inflammatory response syndrome

Appendix C. Patient Experience

Subsections C1, C2, C3, and C4:

All Cohorts Colorectal Surgery, Hip/Knee Replacement Surgery, Hip Fracture Surgery, and Gynecologic Surgery Hospitals

Patient Experience Results by Implementation Status

Appendix C1: Respondent Characteristics by Implementation Status
(Tables C1.1–C1.4)

Appendix C2: Pre-implementation Results
(Tables C2.1–C2.3, C2.4–C2.6, C2.7–C2.9, C2.10–C.2.12)

Appendix C3: Post-implementation Results
(Tables C3.1–C3.3, C3.4–C3.6, C3.7–C3.9, C3.10–C3.12)

Appendix C4: Mailing Schedules
(Tables C4.1–C4.2, C4.3–C.4.4 C4.5–C4.6)

Appendix C5: Patient Experience Survey Materials

Appendix C1. Patient Experience Respondent Characteristics for All Cohorts Colorectal Surgery Hospitals by Implementation Status

Table C1.1. Respondent Characteristics by Implementation Status – All Cohorts Colorectal Surgery Hospitals (Page 1 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Age				
18 to 24	4	<1%	4	<1%
25 to 34	6	1%	11	1%
35 to 44	28	3%	34	4%
45 to 54	99	11%	106	11%
55 to 64	205	23%	220	23%
65 to 74	289	33%	321	33%
75 to 79	111	13%	106	11%
80 to 84	74	8%	104	11%
85 or older	72	8%	61	6%
Total	888	100%	967	100%
Missing	9		19	
Overall total	897		986	
Gender				
Male	368	41%	427	44%
Female	519	59%	544	56%
Total	887	100%	971	100%
Missing	10		15	
Overall total	897		986	
Education				
8th grade or less	25	3%	19	2%
Some high school, but did not graduate	56	6%	53	6%
High school graduate or General Educational Development certificate	249	29%	292	30%
Some college or 2-year degree	278	32%	311	32%
4-year college graduate	129	15%	132	14%
More than 4-year college degree	136	16%	155	16%
Total	873	100%	962	100%
Missing	24		24	
Overall total	897		986	

Note: Percentages may not add to 100 due to rounding.

Table C1.1. Respondent Characteristics by Implementation Status – All Cohorts Colorectal Surgery Hospitals (Page 2 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Hispanic/Latino Origin/Descent				
Yes, Hispanic or Latino	47	6%	29	3%
No, not Hispanic or Latino	796	94%	912	97%
Total	843	100%	941	100%
Missing	54		45	
Overall total	897		986	
Race				
White	740	85%	856	89%
Black or African American	64	7%	59	6%
Asian	23	3%	12	1%
Native Hawaiian or Other Pacific Islander	1	<1%	3	<1%
American Indian or Alaska Native	3	<1%	3	<1%
Other	30	3%	17	2%
Two or more Races	8	1%	8	1%
Total	869	100%	958	100%
Missing	28		28	
Overall total	897		986	
Help in Completion of Survey				
Yes	59	7%	46	5%
No	819	93%	923	95%
Total	878	100%	969	100%
Missing	19		17	
Overall total	897		986	
Actions of the Person Helping the Respondent*				
Read the questions to me	37	64%	28	64%
Wrote down the answers I gave	35	60%	24	55%
Translated the questions into my language	10	17%	8	18%
Helped in some other way	3	5%	3	7%
Missing	839		942	
Answered the questions for me (Coded missing)	20		17	

* Note: 1) Respondents could choose more than one response. Respondents that selected "Answered the questions for me" were removed from analyses; 2) For Race, percentages may not add to 100 due to rounding

Patient Experience Respondent Characteristics for All Cohorts Hip/Knee Replacement Surgery Hospitals by Implementation Status

Table C1.2. Respondent Characteristics by Implementation Status – All Cohorts Hip/Knee Replacement Surgery Hospitals (Page 1 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Age				
18 to 24	2	<1%	1	<1%
25 to 34	2	<1%	0	0%
35 to 44	13	1%	11	1%
45 to 54	80	5%	65	4%
55 to 64	360	24%	367	25%
65 to 74	618	41%	666	45%
75 to 79	231	15%	211	14%
80 to 84	135	9%	101	7%
85 or older	67	4%	56	4%
Total	1,508	100%	1,478	100%
Missing	24		18	
Overall total	1,532		1,496	
Gender				
Male	525	35%	609	41%
Female	983	65%	867	59%
Total	1,508	100%	1,476	100%
Missing	24		20	
Overall total	1,532		1,496	
Education				
8th grade or less	25	2%	18	1%
Some high school, but did not graduate	72	5%	64	4%
High school graduate or General Educational Development certificate	533	36%	450	31%
Some college or 2-year degree	476	32%	485	33%
4-year college graduate	178	12%	193	13%
More than 4-year college degree	211	14%	253	17%
Total	1,495	100%	1,463	100%
Missing	37		33	
Overall total	1,532		1,496	

Note: Percentages may not add to 100 due to rounding.

Table C1.2. Respondent Characteristics by Implementation Status – All Cohorts Hip/Knee Replacement Surgery Hospitals (Page 2 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Hispanic/Latino Origin/Descent				
Yes, Hispanic or Latino	47	3%	65	5%
No, not Hispanic or Latino	1,400	97%	1,363	95%
Total	1,447	100%	1,428	100%
Missing	85		68	
Overall total	1,532		1,496	
Race				
White	1,345	91%	1,295	89%
Black or African American	67	5%	69	5%
Asian	26	2%	32	2%
Native Hawaiian or Other Pacific Islander	4	<1%	5	<1%
American Indian or Alaska Native	3	<1%	6	<1%
Other	20	1%	28	2%
Two or more Races	17	1%	17	1%
Total	1,482	100%	1,452	100%
Missing	50		44	
Overall total	1,532		1,496	
Help in Completion of Survey				
Yes	47	3%	51	3%
No	1,454	97%	1,419	97%
Total	1,501	100%	1,470	100%
Missing	31		26	
Overall total	1,532		1,496	
Actions of the Person Helping the Respondent*				
Read the questions to me	23	49%	22	47%
Wrote down the answers I gave	26	55%	24	51%
Translated the questions into my language	7	15%	4	9%
Helped in some other way	5	11%	5	11%
Missing	1,485		1,449	
Answered the questions for me (Coded missing)	17		13	

* Note: 1) Respondents could choose more than one response. Respondents that selected "Answered the questions for me" were removed from analyses; 2) For Race, percentages may not add to 100 due to rounding

Patient Experience Respondent Characteristics for All Cohorts Hip Fracture Surgery Hospitals by Implementation Status

Table C1.3. Respondent Characteristics by Implementation Status – All Cohorts Hip Fracture Surgery Hospitals (Page 1 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Age				
18 to 24	0	0%	0	0%
25 to 34	2	2%	1	1%
35 to 44	1	1%	2	1%
45 to 54	0	0%	0	0%
55 to 64	5	5%	4	2%
65 to 74	24	26%	31	18%
75 to 79	9	10%	26	15%
80 to 84	26	28%	37	21%
85 or older	25	27%	74	42%
Total	92	100%	175	100%
Missing	5		4	
Overall total	97		179	
Gender				
Male	30	33%	46	26%
Female	62	67%	131	74%
Total	92	100%	177	100%
Missing	5		2	
Overall total	97		179	
Education				
8th grade or less	3	3%	15	9%
Some high school, but did not graduate	8	9%	8	5%
High school graduate or General Educational Development certificate	39	43%	60	34%
Some college or 2-year degree	31	34%	46	26%
4-year college graduate	2	2%	22	13%
More than 4-year college degree	8	9%	25	14%
Total	91	100%	176	100%
Missing	6		3	
Overall total	97		179	

Note: Percentages may not add to 100 due to rounding.

Table C1.3. Respondent Characteristics by Implementation Status – All Cohorts Hip Fracture Surgery Hospitals (Page 2 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Hispanic/Latino Origin/Descent				
Yes, Hispanic or Latino	3	3%	6	4%
No, not Hispanic or Latino	85	97%	165	96%
Total	88	100%	171	100%
Missing	9		8	
Overall total	97		179	
Race				
White	84	94%	154	89%
Black or African American	1	1%	2	1%
Asian	3	3%	10	6%
Native Hawaiian or Other Pacific Islander	0	0%	2	1%
American Indian or Alaska Native	0	0%	2	1%
Other	0	0%	0	0%
Two or more Races	1	1%	3	2%
Total	89	100%	173	100%
Missing	8		6	
Overall total	97		179	
Help in Completion of Survey				
Yes	18	20%	44	25%
No	74	80%	133	75%
Total	92	100%	177	100%
Missing	5		2	
Overall total	97		179	
Actions of the Person Helping the Respondent*				
Read the questions to me	14	78%	19	46%
Wrote down the answers I gave	11	61%	19	46%
Translated the questions into my language	0	0%	2	5%
Helped in some other way	1	6%	0	0%
Missing	79		138	
Answered the questions for me (Coded missing)	11		30	

* Note: 1) Respondents could choose more than one response. Respondents that selected "Answered the questions for me" were removed from analyses; 2) For Race, percentages may not add to 100 due to rounding.

Patient Experience Respondent Characteristics for All Cohorts Gynecologic Surgery Hospitals by Implementation Status

Table C1.4. Respondent Characteristics by Implementation Status – All Cohorts Gynecologic Surgery Hospitals (Page 1 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Age				
18 to 24	1	<1%	3	<1%
25 to 34	20	5%	30	5%
35 to 44	93	21%	96	15%
45 to 54	109	25%	134	21%
55 to 64	88	20%	143	22%
65 to 74	86	20%	162	25%
75 to 79	17	4%	47	7%
80 to 84	17	4%	17	3%
85 or older	2	<1%	5	1%
Total	433	100%	637	100%
Missing	3		4	
Overall total	436		641	
Gender				
Male	1	<1%	1	<1%
Female	430	100%	635	100%
Total	431	100%	636	100%
Missing	5		5	
Overall total	436		641	
Education				
8th grade or less	7	2%	11	2%
Some high school, but did not graduate	12	3%	21	3%
High school graduate or General Educational Development certificate	100	23%	172	27%
Some college or 2-year degree	150	35%	217	34%
4-year college graduate	71	17%	120	19%
More than 4-year college degree	88	21%	93	15%
Total	428	100%	634	100%
Missing	8		7	
Overall total	436		641	

Note: Percentages may not add to 100 due to rounding.

Table C1.4. Respondent Characteristics by Implementation Status – All Cohorts Gynecologic Surgery Hospitals (Page 2 of 2)

Respondent Characteristics	Pre-implementation		Post-implementation	
	Number	Percent	Number	Percent
Hispanic/Latino Origin/Descent				
Yes, Hispanic or Latino	34	8%	47	8%
No, not Hispanic or Latino	387	92%	573	92%
Total	421	100%	620	100%
Missing	15		21	
Overall total	436		641	
Race				
White	302	71%	492	78%
Black or African American	42	10%	49	8%
Asian	46	11%	40	6%
Native Hawaiian or Other Pacific Islander	8	2%	9	1%
American Indian or Alaska Native	1	<1%	3	<1%
Other	14	3%	18	3%
Two or more Races	11	3%	17	3%
Total	424	100%	628	100%
Missing	12		13	
Overall total	436		641	
Help in Completion of Survey				
Yes	16	4%	17	3%
No	415	96%	616	97%
Total	431	100%	633	100%
Missing	5		8	
Overall total	436		641	
Actions of the Person Helping the Respondent*				
Read the questions to me	7	47%	7	44%
Wrote down the answers I gave	4	27%	6	38%
Translated the questions into my language	6	40%	6	38%
Helped in some other way	1	7%	3	19%
Missing	421		625	
Answered the questions for me (Coded missing)	1		4	

* Note: 1) Respondents could choose more than one response. Respondents that selected "Answered the questions for me" were removed from analyses; 2) For Race, percentages may not add to 100 due to rounding.

Appendix C2. Pre-implementation – Average Composite and Item Results for All Cohorts Colorectal Surgery Hospitals

Table C2.1. Average Composite and Item-Level Results – All Cohorts Colorectal Surgery Pre-implementation Hospitals (N=79) (Page 1 of 2)

Composite / Item	Pre-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	6%	14%	80%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	4%	15%	81%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	5%	11%	84%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	4%	13%	84%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	12%	18%	70%
Preparations for Discharge and Recovery Composite Average	8%	16%	76%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	4%	20%	76%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	4%	13%	83%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	15%	17%	69%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	9%	15%	76%

Note: Percentages may not add to 100 due to rounding.

Table C2.1. Average Composite and Item-Level Results – All Cohorts Colorectal Surgery Pre-implementation Hospitals (N=79) (Page 2 of 2)

Composite / Item	Pre-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	6%	22%	72%
1. During your hospital stay, how often was your pain well controlled? (Q9)	6%	26%	67%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	5%	18%	77%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	3%	10%	86%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	5%	22%	72%

Composite / Item	Pre-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	6%	94%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	37%	63%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	90%	10%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	92%	8%

Note: Percentages may not add to 100 due to rounding.

Table C2.2. Average Global Rating Results – All Cohorts Colorectal Surgery Pre-implementation Hospitals (N=79)

Item	Pre-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	5%	20%	74%

Item	Pre-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	4%	22%	74%

Note: Percentages may not add to 100 due to rounding.

Table C2.3. Average Patient Self-Reported Health Outcomes Results – All Cohorts Colorectal Surgery Pre-implementation Hospitals (N=79)

Item	Pre-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	12%	36%	40%	10%	2%
2. In general, how would you rate your overall mental or emotional health? (Q22)	35%	33%	27%	5%	1%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	43%	26%	19%	9%	3%

Note: Percentages may not add to 100 due to rounding.

Pre-implementation – Average Composite and Item Results for All Cohorts Hip/Knee Replacement Surgery Hospitals

Table C2.4. Average Composite and Item-Level Results – All Cohorts Hip/Knee Replacement Surgery Pre-implementation Hospitals (N=53) (Page 1 of 2)

Composite / Item	Pre-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	4%	8%	88%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	2%	6%	92%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	2%	4%	94%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	3%	9%	88%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	9%	14%	77%
Preparations for Discharge and Recovery Composite Average	8%	14%	79%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	2%	16%	83%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	2%	9%	89%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	20%	17%	64%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	7%	13%	80%

Note: Percentages may not add to 100 due to rounding.

Table C2.4. Average Composite and Item-Level Results – All Cohorts Hip/Knee Replacement Surgery Pre-implementation Hospitals (N=53) (Page 2 of 2)

Composite / Item	Pre-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	7%	21%	74%
1. During your hospital stay, how often was your pain well controlled? (Q9)	8%	24%	68%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	5%	17%	79%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	3%	10%	87%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	5%	20%	75%

Composite / Item	Pre-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	5%	95%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	15%	85%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	90%	10%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	17%	9%

Note: Percentages may not add to 100 due to rounding.

Table C2.5. Average Global Rating Results – All Cohort Hip/Knee Replacement Surgery Pre-implementation Hospitals (N=53)

Item	Pre-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	4%	17%	79%

Item	Pre-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	2%	18%	79%

Note: Percentages may not add to 100 due to rounding.

Table C2.6. Average Patient Self-Reported Health Outcomes Results – All Cohort Hip/Knee Replacement Surgery Pre-implementation Hospitals (N=53)

Item	Pre-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	11%	41%	39%	9%	1%
2. In general, how would you rate your overall mental or emotional health? (Q22)	31%	41%	24%	4%	1%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	33%	38%	20%	7%	2%

Note: Percentages may not add to 100 due to rounding.

Pre-implementation – Average Composite and Item Results for All Cohorts Hip Fracture Surgery Hospitals

Table C2.7. Average Composite and Item-Level Results – All Cohorts Hip Fracture Surgery Pre-implementation Hospitals (N=17) (Page 1 of 2)

Composite / Item	Pre-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	20%	22%	59%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	13%	25%	62%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	20%	22%	58%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	19%	18%	63%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	27%	21%	52%
Preparations for Discharge and Recovery Composite Average	20%	26%	54%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	11%	31%	58%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	9%	29%	62%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	36%	17%	47%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	22%	28%	50%

Note: Percentages may not add to 100 due to rounding.

Table C2.7. Average Composite and Item-Level Results – All Cohorts Hip Fracture Surgery Pre-implementation Hospitals (N=17) (Page 2 of 2)

Composite / Item	Pre-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	6%	40%	54%
1. During your hospital stay, how often was your pain well controlled? (Q9)	8%	48%	44%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	4%	32%	64%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	2%	20%	77%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	8%	34%	58%

Composite / Item	Pre-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	9%	91%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	21%	79%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	91%	9%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	99%	1%

Note: Percentages may not add to 100 due to rounding.

Table C2.8. Average Global Rating Results – All Cohorts Hip Fracture Surgery Pre-implementation Hospitals (N=17)

Item	Pre-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	7%	22%	70%

Item	Pre-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	5%	36%	60%

Note: Percentages may not add to 100 due to rounding.

Table C2.9. Average Patient Self-Reported Health Outcomes Results – All Cohort Hip Fracture Surgery Pre-implementation Hospitals (N=17)

Item	Pre-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	3%	22%	47%	20%	8%
2. In general, how would you rate your overall mental or emotional health? (Q22)	21%	26%	34%	18%	1%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	8%	20%	29%	20%	22%

Note: Percentages may not add to 100 due to rounding.

Pre-implementation – Average Composite and Item Results for All Cohorts Gynecologic Surgery Hospitals

Table C2.10. Average Composite and Item-Level Results – All Cohorts Gynecologic Surgery Pre-implementation Hospitals (N=24) (Page 1 of 2)

Composite / Item	Pre-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	4%	8%	88%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	2%	8%	90%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	2%	6%	93%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	1%	5%	94%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	11%	12%	76%
Preparations for Discharge and Recovery Composite Average	7%	10%	83%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	1%	14%	84%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	0%	8%	92%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	17%	10%	74%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	9%	9%	81%

Note: Percentages may not add to 100 due to rounding.

Table C2.10. Average Composite and Item-Level Results – All Cohorts Gynecologic Surgery Pre-implementation Hospitals (N=24) (Page 2 of 2)

Composite / Item	Pre-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	6%	15%	80%
1. During your hospital stay, how often was your pain well controlled? (Q9)	6%	16%	78%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	5%	13%	82%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	2%	11%	87%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	4%	18%	78%

Composite / Item	Pre-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	10%	90%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	29%	71%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	89%	11%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	90%	10%

Note: Percentages may not add to 100 due to rounding.

Table C2.11. Average Global Rating Results – All Cohorts Gynecologic Surgery Pre-implementation Hospitals (N=24)

Item	Pre-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	4%	18%	78%

Item	Pre-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	2%	20%	78%

Note: Percentages may not add to 100 due to rounding.

Table C2.12. Average Patient Self-Reported Health Outcomes Results – All Cohort Gynecologic Surgery Pre-implementation Hospitals (N=24)

Item	Pre-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	20%	50%	20%	8%	1%
2. In general, how would you rate your overall mental or emotional health? (Q22)	35%	43%	16%	5%	1%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	57%	24%	11%	5%	4%

Note: Percentages may not add to 100 due to rounding.

Appendix C3. Post-implementation – Average Composite and Item Results for All Cohorts Colorectal Surgery Hospitals

Table C3.1. Average Composite and Item-Level Results – All Cohorts Colorectal Surgery Post-implementation Hospitals (N=60) (Page 1 of 2)

Composite / Item	Post-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	5%	14%	82%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	3%	12%	85%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	4%	10%	87%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	4%	13%	84%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	10%	19%	71%
Preparations for Discharge and Recovery Composite Average	7%	16%	77%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	3%	20%	77%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	2%	16%	82%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	15%	15%	70%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	9%	14%	78%

Note: Percentages may not add to 100 due to rounding.

Table C3.1. Average Composite and Item-Level Results – All Cohorts Colorectal Surgery Post-implementation Hospitals (N=60) (Page 2 of 2)

Composite / Item	Post-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	5%	22%	75%
1. During your hospital stay, how often was your pain well controlled? (Q9)	6%	27%	68%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	4%	16%	81%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	1%	12%	87%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	5%	22%	73%

Composite / Item	Post-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	7%	93%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	37%	63%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	89%	11%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	89%	12%

Note: Percentages may not add to 100 due to rounding.

Table C3.2. Average Global Rating Results – All Cohorts Colorectal Surgery Post-implementation Hospitals (N=60)

Item	Post-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	6%	20%	74%

Item	Post-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	3%	22%	75%

Note: Percentages may not add to 100 due to rounding.

Table C3.3. Average Patient Self-Reported Health Outcomes Results – All Cohorts Colorectal Surgery Post-implementation Hospitals (N=60)

Item	Post-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	9%	35%	40%	14%	1%
2. In general, how would you rate your overall mental or emotional health? (Q22)	29%	38%	24%	9%	0%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	47%	23%	19%	8%	3%

Note: Percentages may not add to 100 due to rounding.

Post-implementation – Average Composite and Item Results for All Cohorts Hip/Knee Replacement Surgery Hospitals

Table C3.4. Average Composite and Item-Level Results – All Cohorts Hip/Knee Replacement Surgery Post-implementation Hospitals (N=37) (Page 1 of 2)

Composite / Item	Post-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	4%	8%	88%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	1%	7%	92%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	2%	4%	94%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	2%	9%	88%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	9%	13%	78%
Preparations for Discharge and Recovery Composite Average	7%	12%	81%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	2%	15%	83%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	1%	8%	91%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	18%	16%	66%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	8%	10%	83%

Note: Percentages may not add to 100 due to rounding.

Table C3.4. Average Composite and Item-Level Results – All Cohorts Hip/Knee Replacement Surgery Post-implementation Hospitals (N=37) (Page 2 of 2)

Composite / Item	Post-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	4%	18%	79%
1. During your hospital stay, how often was your pain well controlled? (Q9)	5%	23%	73%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	2%	12%	85%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	1%	9%	90%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	3%	16%	82%

Composite / Item	Post-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	3%	97%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	13%	87%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	92%	8%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	94%	6%

Note: Percentages may not add to 100 due to rounding.

Table C3.5. Average Global Rating Results – All Cohorts Hip/Knee Replacement Surgery Post-implementation Hospitals (N=37)

Item	Post-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	4%	14%	82%

Item	Post-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	2%	18%	80%

Note: Percentages may not add to 100 due to rounding.

Table C3.6. Average Patient Self-Reported Health Outcomes Results – All Cohorts Hip/Knee Replacement Surgery Post-implementation Hospitals (N=37)

Item	Post-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	13%	40%	38%	8%	1%
2. In general, how would you rate your overall mental or emotional health? (Q22)	33%	39%	21%	6%	1%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	36%	35%	18%	8%	3%

Note: Percentages may not add to 100 due to rounding.

Post-implementation – Average Composite and Item Results for All Cohorts Hip Fracture Surgery Hospitals

Table C3.7. Average Composite and Item-Level Results – All Cohorts Hip Fracture Surgery Post-implementation Hospitals (N=19) (Page 1 of 2)

Composite / Item	Post-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	13%	20%	67%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	11%	21%	67%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	16%	19%	65%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	10%	19%	71%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	16%	20%	64%
Preparations for Discharge and Recovery Composite Average	20%	22%	58%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	6%	30%	63%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	8%	27%	65%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	37%	15%	48%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	29%	16%	55%

Note: Percentages may not add to 100 due to rounding.

Table C3.7. Average Composite and Item-Level Results – All Cohorts Hip Fracture Surgery Post-implementation Hospitals (N=19) (Page 2 of 2)

Composite / Item	Post-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	7%	31%	64%
1. During your hospital stay, how often was your pain well controlled? (Q9)	7%	37%	57%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	6%	24%	70%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	1%	16%	83%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	5%	27%	68%

Composite / Item	Post-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	9%	91%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	22%	78%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	94%	6%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	93%	7%

Note: Percentages may not add to 100 due to rounding.

Table C3.8. Average Global Rating Results – All Cohorts Hip Fracture Surgery Post-implementation Hospitals (N=19)

Item	Post-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	7%	22%	72%

Item	Post-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	2%	29%	69%

Note: Percentages may not add to 100 due to rounding.

Table C3.9. Average Patient Self-Reported Health Outcomes Results – All Cohorts Hip Fracture Surgery Post-implementation Hospitals (N=19)

Item	Post-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	8%	26%	44%	18%	3%
2. In general, how would you rate your overall mental or emotional health? (Q22)	19%	31%	34%	14%	2%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	4%	20%	39%	26%	11%

Note: Percentages may not add to 100 due to rounding.

Post-implementation – Average Composite and Item Results for All Cohorts Gynecologic Surgery Hospitals

Table C3.10. Average Composite and Item-Level Results – All Cohorts Gynecologic Surgery Post-implementation Hospitals (N=17) (Page 1 of 2)

Composite / Item	Post-implementation		
	No	Yes, somewhat	Yes, definitely
Communications About Your Procedure Composite Average	2%	8%	90%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)	0%	8%	92%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)	0%	6%	93%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)	0%	7%	93%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)	6%	11%	83%
Preparations for Discharge and Recovery Composite Average	6%	11%	83%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)	2%	15%	83%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)	1%	5%	94%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)	12%	13%	74%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)	8%	10%	82%

Note: Percentages may not add to 100 due to rounding.

Table C3.10. Average Composite and Item-Level Results – All Cohorts Gynecologic Surgery Post-implementation Hospitals (N=17) (Page 2 of 2)

Composite / Item	Post-implementation		
	Never/ sometimes	Usually	Always
Pain Management Composite Average	7%	17%	77%
1. During your hospital stay, how often was your pain well controlled? (Q9)	8%	19%	73%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)	5%	15%	81%
Single Items Measures of Care	--	--	--
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)	4%	10%	86%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)	6%	13%	82%

Composite / Item	Post-implementation	
	No	Yes
Single Items Measures of Care (continued)	--	--
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)	7%	93%
Patient Self-Reported Postsurgical Symptoms	--	--
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)	26%	74%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)	85%	15%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)	91%	9%

Note: Percentages may not add to 100 due to rounding.

Table C3.11. Average Global Rating Results – All Cohorts Gynecologic Surgery Post-implementation Hospitals (N=17)

Item	Post-implementation		
Global Ratings	**0-6**	**7-8**	**9-10**
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)	2%	16%	81%

Item	Post-implementation		
Global Ratings (continued)	**Definitely no/ probably no**	**Probably yes**	**Definitely yes**
2. Would you recommend this hospital to your friends and family? (Q20)	1%	16%	82%

Note: Percentages may not add to 100 due to rounding.

Table C3.12. Average Patient Self-Reported Health Outcomes Results – All Cohorts Gynecologic Surgery Post-implementation Hospitals (N=17)

Item	Post-implementation				
Patient Self-Reported Health Outcomes	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**
1. In general, how would you rate your overall health? (Q21)	21%	44%	25%	10%	0%
2. In general, how would you rate your overall mental or emotional health? (Q22)	36%	37%	22%	5%	0%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)	61%	17%	17%	3%	2%

Note: Percentages may not add to 100 due to rounding.

Appendix C4. Mailing Schedules

Table C4.1. Cohort 1 Pre-implementation Mailing Schedule

Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
10/19/2017	11/02/2017	11/16/2017	11/30/2017
11/06/2017	11/21/2017	12/05/2017	12/19/2017
11/20/2017	12/05/2017	12/19/2017	01/02/2018
12/04/2017	12/19/2017	01/02/2018	01/16/2018
12/18/2017	01/02/2018	01/16/2018	01/30/2018
01/03/2018	01/17/2018	01/31/2018	02/14/2018
01/16/2018	01/30/2018	02/13/2018	02/27/2018
01/29/2018	02/13/2018	02/20/2018	03/06/2018
02/05/2018	02/13/2018	02/20/2018	02/27/2018
02/12/2018	02/19/2018	02/26/2018	03/05/2018
02/20/2018	02/27/2018	03/06/2018	03/13/2018
02/26/2018	03/05/2018	03/12/2018	03/19/2018

Table C4.2. Cohort 1 Post-implementation Mailing Schedule

Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
05/15/2018	05/22/2018	05/29/2018	06/05/2018
05/22/2018	05/29/2018	06/05/2018	06/12/2018
05/29/2018	06/05/2018	06/12/2018	06/19/2018
06/12/2018	06/19/2018	06/26/2018	07/03/2018
07/31/2018	08/07/2018	08/14/2018	08/21/2018
08/07/2018	08/14/2018	08/21/2018	08/28/2018
08/14/2018	08/21/2018	08/28/2018	09/04/2018
08/21/2018	08/28/2018	09/04/2018	09/11/2018
08/28/2018	09/04/2018	09/11/2018	09/18/2018
09/05/2018	09/12/2018	09/19/2018	09/26/2018
09/12/2018	09/19/2018	09/26/2018	10/03/2018
09/19/2018	09/26/2018	10/03/2018	10/10/2018
09/25/2018	10/02/2018	10/09/2018	10/16/2018

Table C4.3. Cohort 2 Pre-implementation Mailing Schedule

Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
05/15/2018	05/22/2018	05/29/2018	06/05/2018
05/22/2018	05/29/2018	06/05/2018	06/12/2018
05/29/2018	06/05/2018	06/12/2018	06/19/2018
06/12/2018	06/19/2018	06/26/2018	07/03/2018
07/31/2018	08/07/2018	08/14/2018	08/21/2018
08/07/2018	08/14/2018	08/21/2018	08/28/2018
08/14/2018	08/21/2018	08/28/2018	09/04/2018
08/21/2018	08/28/2018	09/04/2018	09/11/2018
08/28/2018	09/04/2018	09/11/2018	09/18/2018
09/05/2018	09/12/2018	09/19/2018	09/26/2018
09/12/2018	09/19/2018	09/26/2018	10/03/2018
09/19/2018	09/26/2018	10/03/2018	10/10/2018
09/25/2018	10/02/2018	10/09/2018	10/16/2018

Table C4.4. Cohort 2 Post-implementation Mailing Schedule

Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
01/15/2019	01/22/2019	01/29/2019	02/05/2019
01/28/2019	02/04/2019	02/11/2019	02/18/2019
02/04/2019	02/11/2019	02/18/2019	02/25/2019
02/11/2019	02/18/2019	02/25/2019	03/04/2019
02/20/2019	02/27/2019	03/06/2019	03/13/2019
02/26/2019	03/05/2019	03/12/2019	03/19/2019
03/06/2019	03/13/2019	03/20/2019	03/27/2019
03/18/2019	03/25/2019	04/01/2019	04/08/2019
03/25/2019	04/01/2019	04/08/2019	04/15/2019
04/02/2019	04/09/2019	04/16/2019	04/23/2019
04/08/2019	04/15/2019	04/22/2019	04/29/2019
04/16/2019	04/23/2019	04/30/2019	05/07/2019
04/23/2019	04/30/2019	05/07/2019	05/14/2019
05/06/2019	05/13/2019	05/20/2019	05/27/2019
05/27/2019	06/03/2019	06/10/2019	06/17/2019
06/03/2019	06/10/2019	06/17/2019	06/24/2019
06/10/2019	06/17/2019	06/24/2019	07/01/2019
06/18/2019	06/25/2019	07/02/2019	07/09/2019
07/01/2019	No eligibles	No eligibles	No eligibles

Table C4.5. All Cohort 3A Pre-implementation Mailing Schedule

Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
04/14/2019	04/21/2019	04/28/2019	05/05/2019
04/21/2019	04/28/2019	05/05/2019	05/12/2019
04/28/2019	05/05/2019	05/12/2019	05/19/2019
05/05/2019	05/12/2019	05/19/2019	05/26/2019
05/12/2019	05/19/2019	05/26/2019	06/02/2019
05/19/2019	05/26/2019	06/02/2019	06/09/2019
05/26/2019	06/02/2019	06/09/2019	06/16/2019
06/02/2019	06/09/2019	06/16/2019	06/23/2019
06/09/2019	06/16/2019	06/23/2019	06/30/2019
06/16/2019	06/23/2019	06/30/2019	07/07/2019
06/23/2019	06/30/2019	07/07/2019	07/14/2019
06/30/2019	07/07/2019	07/14/2019	07/21/2019
07/07/2019	07/14/2019	07/21/2019	07/28/2019
07/14/2019	07/21/2019	07/28/2019	08/04/2019
07/21/2019	07/28/2019	08/04/2019	08/11/2019
07/28/2019	08/04/2019	08/11/2019	08/18/2019
08/04/2019	08/11/2019	08/18/2019	08/25/2019
08/11/2019	08/18/2019	08/25/2019	09/01/2019
08/18/2019	08/25/2019	09/01/2019	09/08/2019
08/25/2019	09/01/2019	09/08/2019	09/15/2019
09/01/2019	09/08/2019	09/15/2019	09/22/2019
09/08/2019	09/15/2019	09/22/2019	09/29/2019
09/15/2019	09/22/2019	09/29/2019	10/06/2019

Table C4.6. Cohort 3A Post-implementation Mailing Schedule

Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
02/11/2020	02/18/2020	02/25/2020	03/03/2020
02/18/2020	02/25/2020	03/03/2020	03/10/2020
02/25/2020	03/03/2020	03/10/2020	03/17/2020
03/03/2020	03/10/2020	03/17/2020	03/24/2020
03/10/2020	03/17/2020	03/24/2020	03/31/2020
03/17/2020	03/24/2020	03/31/2020	04/07/2020
03/24/2020	03/31/2020	04/07/2020	04/14/2020
03/31/2020	04/07/2020	04/14/2020	04/21/2020
04/07/2020	04/14/2020	04/21/2020	04/28/2020
04/14/2020	04/21/2020	04/28/2020	05/05/2020
04/21/2020	04/28/2020	05/05/2020	05/12/2020
04/28/2020	05/05/2020	05/12/2020	05/19/2020
05/05/2020	05/12/2020	05/19/2020	05/26/2020
05/12/2020	05/19/2020	05/26/2020	06/02/2020
05/19/2020	05/26/2020	06/02/2020	06/09/2020
05/26/2020	06/02/2020	06/09/2020	06/16/2020
06/02/2020	06/09/2020	06/16/2020	06/23/2020
06/09/2020	06/16/2020	06/23/2020	06/30/2020
06/16/2020	06/23/2020	06/30/2020	07/07/2020
06/23/2020	06/30/2020	07/07/2020	07/14/2020
06/30/2020	07/07/2020	07/14/2020	07/21/2020
07/07/2020	07/14/2020	07/21/2020	07/28/2020
07/14/2020	07/21/2020	07/28/2020	08/04/2020

Table C4.7. Cohort 3B Pre-implementation Mailing Schedule

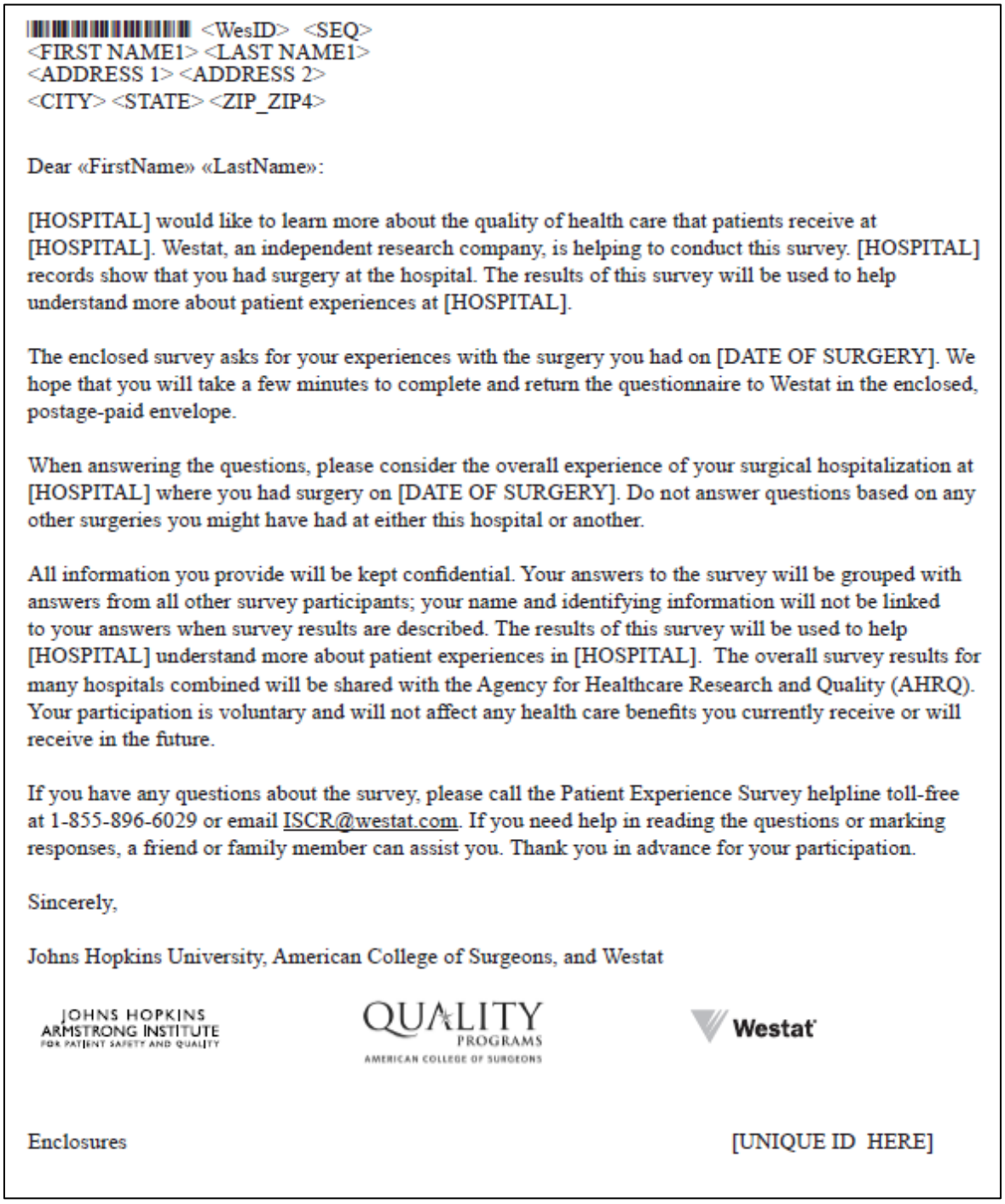
Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
10/15/2019	10/22/2019	10/29/2019	11/05/2019
10/22/2019	10/29/2019	11/05/2019	11/12/2019
10/29/2019	11/05/2019	11/12/2019	11/19/2019
11/05/2019	11/12/2019	11/19/2019	11/26/2019
11/12/2019	11/19/2019	11/26/2019	12/03/2019
11/19/2019	11/26/2019	12/03/2019	12/10/2019
11/26/2019	12/03/2019	12/10/2019	12/17/2019
12/03/2019	12/10/2019	12/17/2019	12/24/2019
12/10/2019	12/17/2019	12/24/2019	12/31/2019
12/17/2019	12/24/2019	12/31/2019	01/07/2020
12/24/2019	12/31/2019	01/07/2020	01/14/2020
12/31/2019	01/07/2020	01/14/2020	01/21/2020
01/07/2020	01/14/2020	01/21/2020	01/28/2020
01/14/2020	01/21/2020	01/28/2020	02/04/2020
01/21/2020	01/28/2020	02/04/2020	02/11/2020
01/28/2020	02/04/2020	02/11/2020	02/18/2020
02/04/2020	02/11/2020	02/18/2020	02/25/2020
02/11/2020	02/18/2020	02/25/2020	03/03/2020
02/18/2020	02/25/2020	03/03/2020	03/10/2020
02/25/2020	03/03/2020	03/10/2020	03/17/2020
03/03/2020	03/10/2020	03/17/2020	03/24/2020
03/10/2020	03/17/2020	03/24/2020	03/31/2020
03/17/2020	03/24/2020	03/31/2020	04/07/2020

Table C4.8. Cohort 3B Post-implementation Mailing Schedule

Patient File Received	First Survey Mailed	Thank You Reminder Postcard Mailed	Second Survey Mailed
07/15/2020	07/22/2020	07/29/2020	08/05/2020
07/22/2020	07/29/2020	08/05/2020	08/12/2020
07/29/2020	08/05/2020	08/12/2020	08/19/2020
08/05/2020	08/12/2020	08/19/2020	08/26/2020
08/12/2020	08/19/2020	08/26/2020	09/02/2020
08/19/2020	08/26/2020	09/02/2020	09/09/2020
08/26/2020	09/02/2020	09/09/2020	09/16/2020
09/02/2020	09/09/2020	09/16/2020	09/23/2020
09/09/2020	09/16/2020	09/23/2020	09/30/2020
09/16/2020	09/23/2020	09/30/2020	10/07/2020
09/23/2020	09/30/2020	10/07/2020	10/14/2020
09/30/2020	10/07/2020	10/14/2020	10/21/2020
10/07/2020	10/14/2020	10/21/2020	10/28/2020
10/14/2020	10/21/2020	10/28/2020	11/04/2020
10/21/2020	10/28/2020	11/04/2020	11/11/2020
10/28/2020	11/04/2020	11/11/2020	11/18/2020
11/04/2020	11/11/2020	11/18/2020	11/25/2020
11/11/2020	11/18/2020	11/25/2020	12/02/2020
11/18/2020	11/25/2020	12/02/2020	12/09/2020
11/25/2020	12/02/2020	12/09/2020	12/16/2020
12/02/2020	12/09/2020	12/16/2020	12/23/2020
12/09/2020	12/16/2020	12/23/2020	12/30/2020

Appendix C5. Patient Experience Survey Materials

Figure C1. Initial Survey Cover Letter



<WesID> <SEQ>
<FIRST NAME1> <LAST NAME1>
<ADDRESS 1> <ADDRESS 2>
<CITY> <STATE> <ZIP_ZIP4>

Dear «FirstName» «LastName»:

[HOSPITAL] would like to learn more about the quality of health care that patients receive at [HOSPITAL]. Westat, an independent research company, is helping to conduct this survey. [HOSPITAL] records show that you had surgery at the hospital. The results of this survey will be used to help understand more about patient experiences at [HOSPITAL].

The enclosed survey asks for your experiences with the surgery you had on [DATE OF SURGERY]. We hope that you will take a few minutes to complete and return the questionnaire to Westat in the enclosed, postage-paid envelope.

When answering the questions, please consider the overall experience of your surgical hospitalization at [HOSPITAL] where you had surgery on [DATE OF SURGERY]. Do not answer questions based on any other surgeries you might have had at either this hospital or another.

All information you provide will be kept confidential. Your answers to the survey will be grouped with answers from all other survey participants; your name and identifying information will not be linked to your answers when survey results are described. The results of this survey will be used to help [HOSPITAL] understand more about patient experiences in [HOSPITAL]. The overall survey results for many hospitals combined will be shared with the Agency for Healthcare Research and Quality (AHRQ). Your participation is voluntary and will not affect any health care benefits you currently receive or will receive in the future.

If you have any questions about the survey, please call the Patient Experience Survey helpline toll-free at 1-855-896-6029 or email ISCR@westat.com. If you need help in reading the questions or marking responses, a friend or family member can assist you. Thank you in advance for your participation.

Sincerely,

Johns Hopkins University, American College of Surgeons, and Westat

JOHNS HOPKINS ARMSTRONG INSTITUTE FOR PATIENT SAFETY AND QUALITY

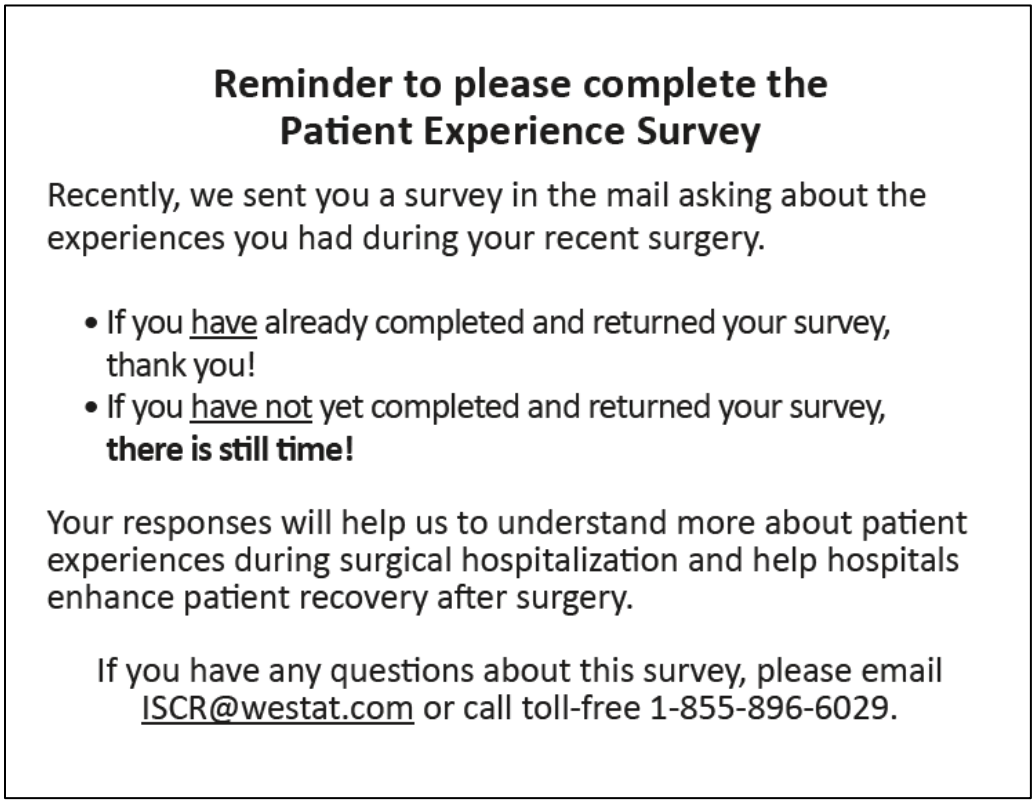
QUALITY PROGRAMS AMERICAN COLLEGE OF SURGEONS

Westat

Enclosures

[UNIQUE ID HERE]

Figure C2. Thank You Reminder Postcard (back)



Reminder to please complete the Patient Experience Survey

Recently, we sent you a survey in the mail asking about the experiences you had during your recent surgery.

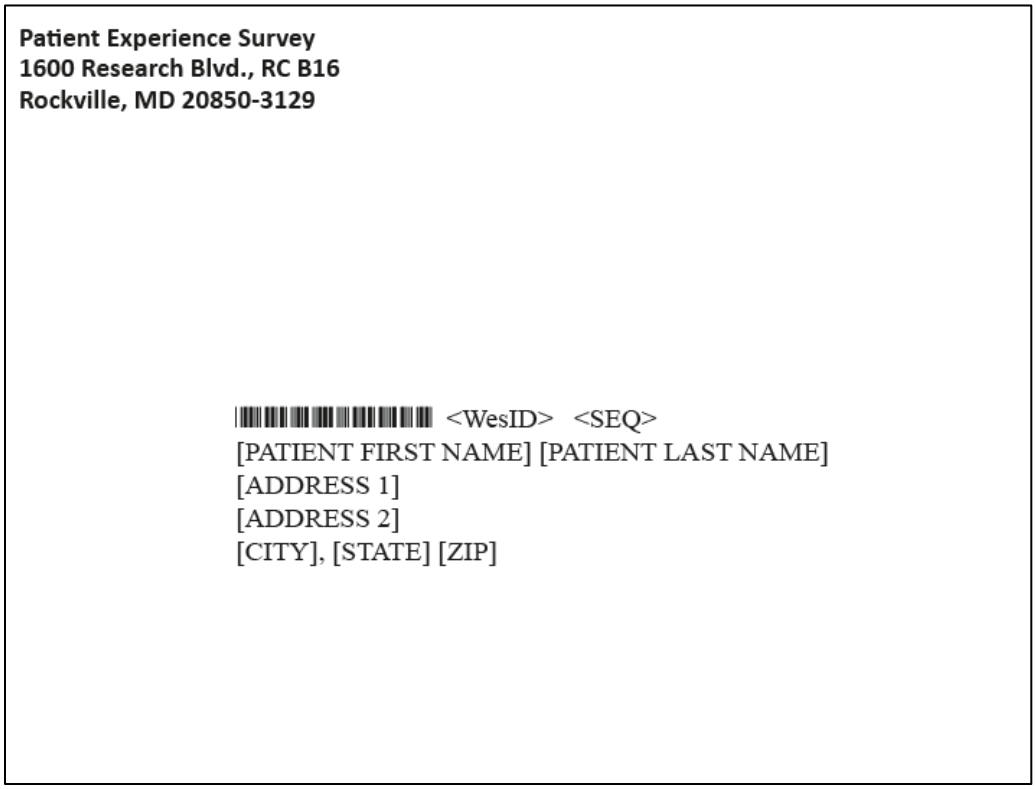
- If you have already completed and returned your survey, thank you!
- If you have not yet completed and returned your survey, **there is still time!**

Your responses will help us to understand more about patient experiences during surgical hospitalization and help hospitals enhance patient recovery after surgery.

If you have any questions about this survey, please email ISCR@westat.com or call toll-free 1-855-896-6029.

Appendix C5. Survey Materials (continued)

Figure C3. Thank You Reminder Postcard (front)



Appendix C5. Survey Materials (continued)

Figure C4. Second Survey Cover Letter

<WesID> <SEQ>
<FIRST NAME1> <LAST NAME1>
<ADDRESS 1> <ADDRESS 2>
<CITY> <STATE> <ZIP_ZIP4>

Dear «FirstName» «LastName»:

Recently, we sent you a letter asking for your help on a survey to provide [HOSPITAL] with information about the quality of health care provided to patients who receive surgery at [HOSPITAL]. As of today, we have not yet received your completed questionnaire. **If you have already completed and returned the questionnaire, please accept our thanks. If you have not completed it, please take a few minutes to do so now**. Then return the questionnaire in the enclosed, postage-paid envelope.

When answering the questions, please consider the overall experience of your surgical hospitalization at [HOSPITAL] where you had surgery on [DATE OF SURGERY]. Do not answer questions based on any other surgeries you might have had at either this hospital or another.

The results of this survey will be used to help understand more about patient experiences in [HOSPITAL]. All information you provide will be kept confidential. Your participation is voluntary and will not affect any health care benefits you currently receive or will receive in the future.

If you have any questions about the survey, please call the Patient Experience Survey helpline toll-free at 1-855-896-6029 or email ISCR@westat.com. If you need help in reading the questions or marking responses, a friend or family member can assist you. Thank you in advance for your participation.

Sincerely,

Johns Hopkins University, American College of Surgeons, and Westat

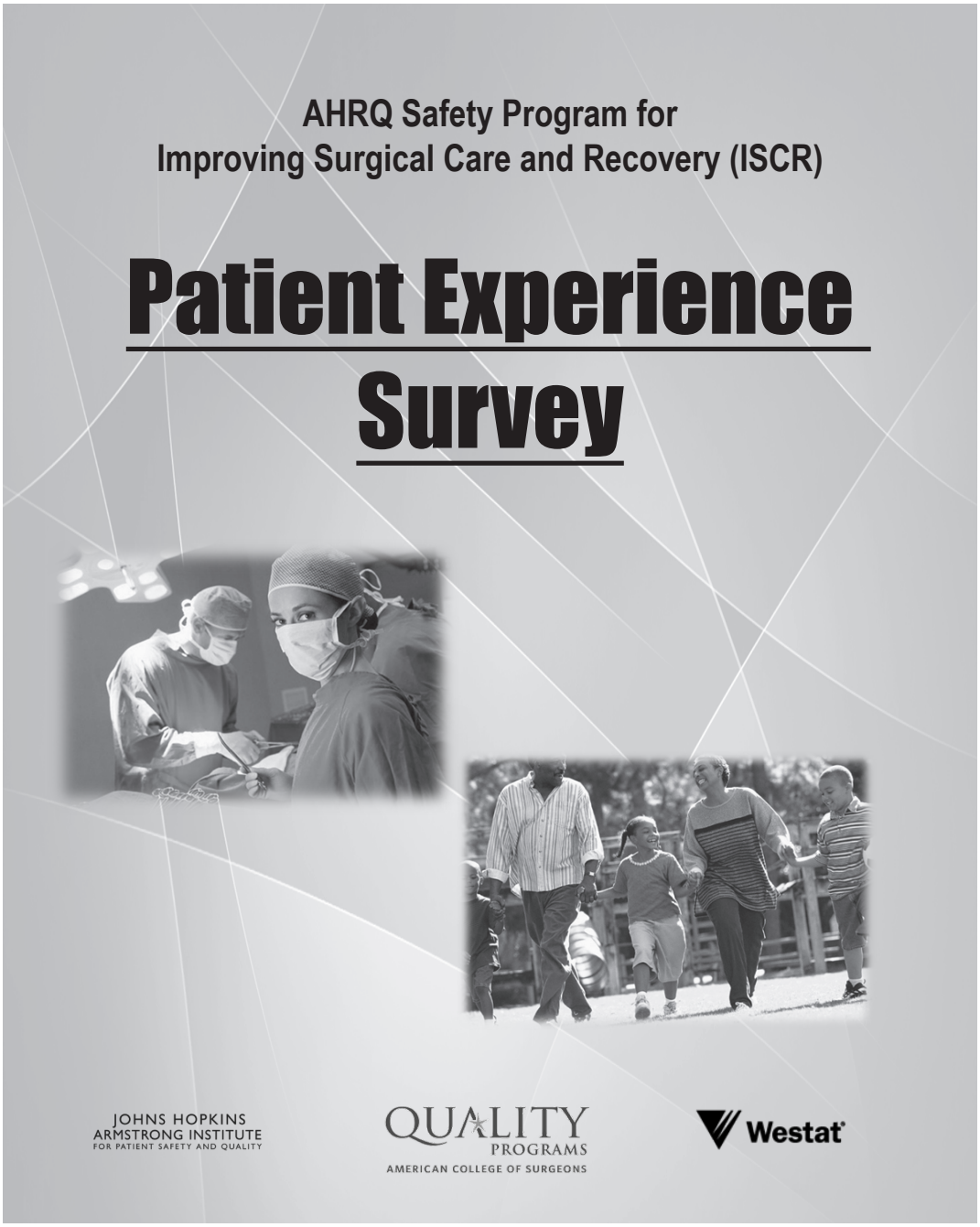
JOHNS HOPKINS ARMSTRONG INSTITUTE FOR PATIENT SAFETY AND QUALITY

QUALITY PROGRAMS AMERICAN COLLEGE OF SURGEONS

Westat

Appendix C5. Survey Materials (continued)

Figure C5. Patient Experience Survey



OMB No. 0935-0239. Expiration Date: 09/30/2020. This study has been approved by the Office of Management and Budget (OMB). Your response is voluntary. We estimate that this survey will take 10 minutes to complete. If you have any comments about this survey, send them to: Reports Clearance Officer, Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857

About This Study

We are conducting a research study for the Agency for Healthcare Research and Quality (AHRQ) to help improve health care for patients after surgery. We are surveying patients to ask about their experiences of surgery and their recovery.

- There are no direct benefits to you for participating in this study. Your responses will help us understand what services help you take better care of yourself at home, prevent you from going back into the hospital, and are most effective in helping you get better.
- Your participation in this survey is voluntary. You can skip any question you choose not to answer, and can discontinue the survey at any time.
- There are no foreseeable risks to participating in this study. If you decide not to participate, it will not affect your health care or your health care benefits.
- The survey should take about 10 minutes, depending on your answers. The information you provide will be kept confidential and will be used by Westat, Johns Hopkins University School of Medicine, and the American College of Surgeons for health services research.

If you have any questions about completing the survey, you may call Westat toll-free at 1-855-896-6029 or email ISCR@westat.com.

If you have any questions about your rights as a research study volunteer, you can contact Westat's Human Subjects Protections office at 1-888-920-7631, and ask about the Improving Surgical Care and Recovery (ISCR) study.

SURVEY INSTRUCTIONS

Please use a black or blue pen to complete this form.
Mark ☒ to indicate your answer.

If you want to change your answer, mark ☒ on the wrong answer.

You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

☐ Yes
☒ No ➔ **If No, go to Question 1.**

This survey asks about your experience at <<HOSPITAL>>.

Please answer these questions only for the surgery you had on <<DATE>>. Do not include any other surgeries in your answers.

I. BEFORE YOUR SURGERY

1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery?

☐ Yes, definitely
☐ Yes, somewhat
☐ No

2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery?

☐ Yes, definitely
☐ Yes, somewhat
☐ No

II. ABOUT YOUR SURGERY

3. Anesthesia is something that would make you feel sleepy or go to sleep during your surgery. Were you given anesthesia?

☐ Yes
☐ No ➔ **If No, go to Question 6.**

4. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand?

☐ Yes, definitely
☐ Yes, somewhat
☐ No

5. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand?

☐ Yes, definitely
☐ Yes, somewhat
☐ No

III. During Your Hospital Stay

6. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect?

   ☐ Never
   ☐ Sometimes
   ☐ Usually
   ☐ Always

7. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible?

   ☐ Never
   ☐ Sometimes
   ☐ Usually
   ☐ Always

8. During your hospital stay, did you need medicine for pain?

   ☐ Yes
   ☐ No➔ **If No, go to Question 11.**

9. During your hospital stay, how often was your pain well controlled?

   ☐ Never
   ☐ Sometimes
   ☐ Usually
   ☐ Always

10. During your hospital stay, how often did the hospital staff do everything they could to help you with your pain?

    ☐ Never
    ☐ Sometimes
    ☐ Usually
    ☐ Always

IV. Your Recovery

11. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery?

    ☐ Yes, definitely
    ☐ Yes, somewhat
    ☐ No

12. Some ways to control pain include prescription medicine, over-the-counter pain relievers or ice packs. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery?

    ☐ Yes, definitely
    ☐ Yes, somewhat
    ☐ No

48339

13. At any time after leaving the hospital, did you have pain as a result of your surgery?

☐ Yes
☐ No

14. Before you left the hospital, did you get information about what to do if you had nausea or vomiting?

☐ Yes, definitely
☐ Yes, somewhat
☐ No

15. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia?

☐ Yes
☐ No

16. Possible signs of infection include fever, swelling, heat, drainage or redness. Before you left the hospital, did you get information about what to do if you had possible signs of infection?

☐ Yes, definitely
☐ Yes, somewhat
☐ No

17. At any time after leaving the hospital, did you have any signs of infection?

☐ Yes
☐ No

18. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?

☐ Yes
☐ No

48339

V. Your Overall Experience

19. Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital?

- ☐ 0 Worst hospital possible
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 Best hospital possible

20. Would you recommend this hospital to your friends and family?

- ☐ Definitely no
- ☐ Probably no
- ☐ Probably yes
- ☐ Definitely yes

VI. About You

21. In general, how would you rate your overall health?

- ☐ Excellent
- ☐ Very Good
- ☐ Good
- ☐ Fair
- ☐ Poor

22. In general, how would you rate your overall mental or emotional health?

- ☐ Excellent
- ☐ Very Good
- ☐ Good
- ☐ Fair
- ☐ Poor

23. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?

- ☐ Completely
- ☐ Mostly
- ☐ Moderately
- ☐ A little
- ☐ Not at all

24. What is your age?

- ☐ 18 to 24
- ☐ 25 to 34
- ☐ 35 to 44
- ☐ 45 to 54
- ☐ 55 to 64
- ☐ 65 to 74
- ☐ 75 to 79
- ☐ 80 to 84
- ☐ 85 or older

25. Are you male or female?

- ☐ Male
- ☐ Female

26. What is the highest grade or level of school that you have completed?

- ☐ 8th grade or less
- ☐ Some high school, but did not graduate
- ☐ High school graduate or GED
- ☐ Some college or 2-year degree
- ☐ 4-year college graduate
- ☐ More than 4-year college degree

27. Are you of Hispanic or Latino origin or descent?

- ☐ Yes, Hispanic or Latino
- ☐ No, not Hispanic or Latino

28. What is your race? Mark one or more.

- ☐ White
- ☐ Black or African American
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ American Indian or Alaska Native
- ☐ Other

29. Did someone help you complete this survey?

- ☐ Yes
- ☐ No ➔ **Thank you. Please return the completed survey in the postage-paid envelope.**

30. How did that person help you? Mark one or more.

- ☐ Read the questions to me
- ☐ Wrote down the answers I gave
- ☐ Answered the questions for me
- ☐ Translated the questions into my language
- ☐ Helped in some other way:

END OF SURVEY
Thank you.

Please return the completed survey in the postage-paid envelope.

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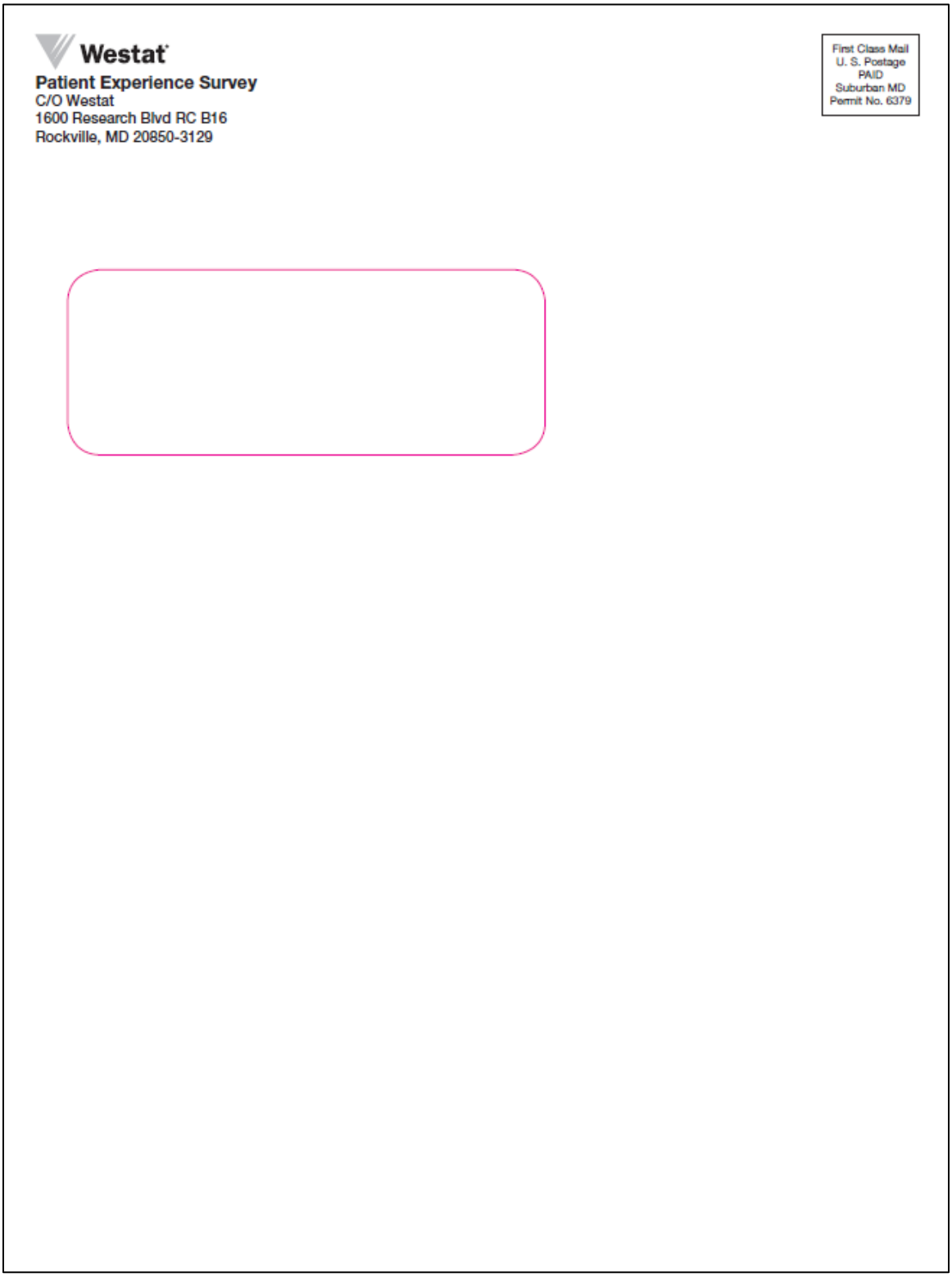
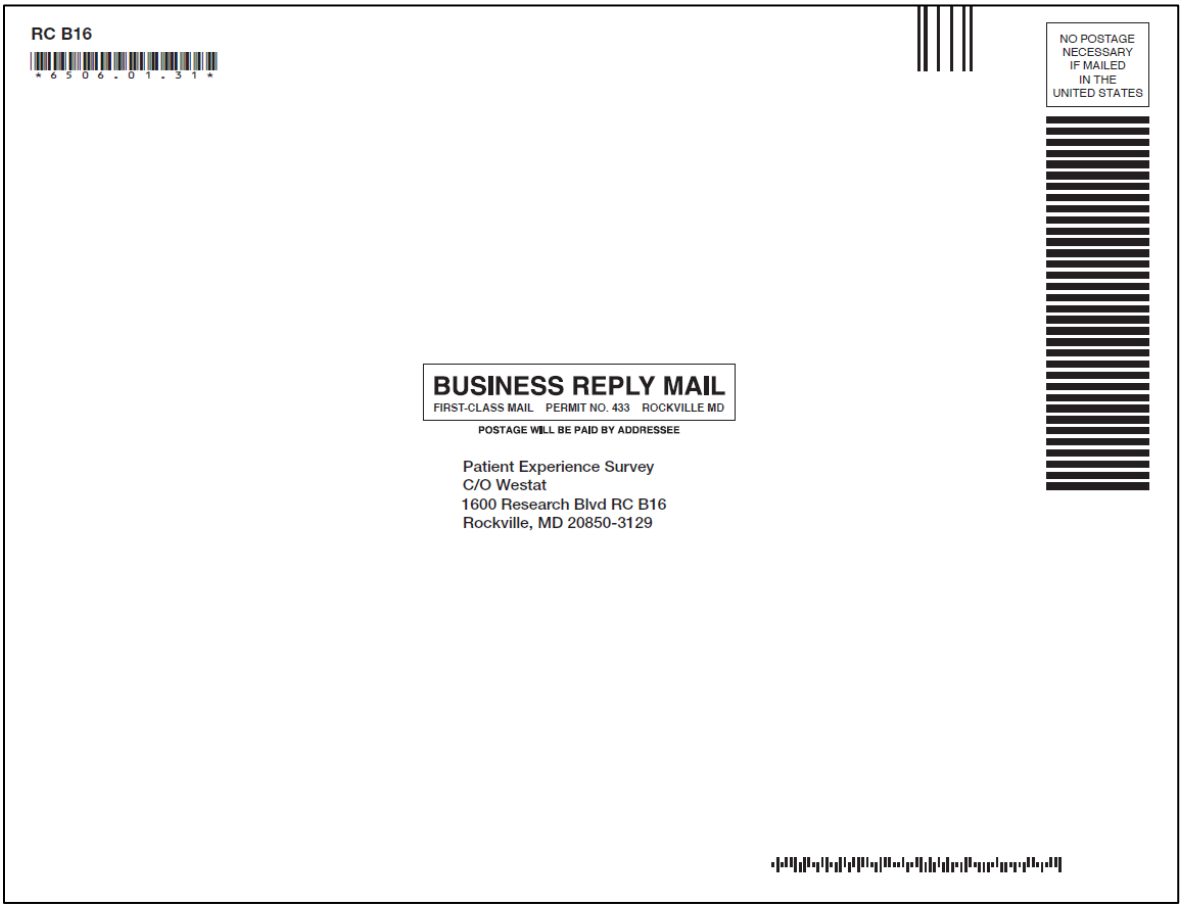
Appendix C5. Survey Materials (continued)

Figure C6. Carrier Envelope



Appendix C5. Survey Materials (continued)

Figure C7. Postage-Paid Return Envelope



Appendix D. Memo on ISCR Patient Experience Results by Age, Gender, and Education

Westat | An Employee-Owned Research Corporation®

Memo

Date: September 13, 2021

To: AHRQ and JHU

From: Westat

Subject: ISCR Patient Experience Results by Age, Gender, and Education

Background

The Improving Surgical Care and Recovery (ISCR) Patient Experience Survey was administered to patients that have undergone colorectal surgery, total hip or knee joint replacement surgery, hip fracture surgery, or gynecologic surgery at a participating hospital.

After reviewing the overall results and results by service line or pathway, AHRQ requested subgroup analysis by several demographic questions to identify if there are subgroups where the ISCR intervention may have improved patient experience scores. The pathway that had the longest data collection period and has the most participating hospitals over time is the colorectal service line (n = 47). Therefore, we explored the analyses in the colorectal service line only. However, not all demographic subgroups had enough respondents in each response category to examine differences across groups. For example, most of the ISCR colorectal surgery respondents were "White" (89% pre and 90% post), and so reviewing results by Race would not display meaningful results. The demographic questions that had the most variability in survey responses are age "Q24. What is your age?", gender "Q25. Are you male or female?", and education "Q26. What is the highest grade or level of school that you have completed?". This memo describes the methods used to examine these subgroup scores and presents results by age, gender, and education for the colorectal surgery line.

Methods

As shown in Table D1, the colorectal surgery line had the most participating hospitals that had at least three survey responses after data cleaning for pre-and post- implementation. We examined subgroup results using the ISCR Patient Experience colorectal surgery data. We further subset the results to include only hospitals that had at least three respondents per demographic category to be included in the subgroup results.

Table D1. Number of ISCR Patient Experience Participating Hospitals by Service Line That Have Pre and Post Implementation Data

Service Line	Number of Hospitals
Colorectal	47
Hip/knee	34
Hip Fracture	7
Gynecologic	15

Table D2 presents the number of hospitals and respondents that met the minimum of three respondents in a specific demographic category for trending colorectal surgery hospitals (i.e., hospitals with pre and post implementation data). The number of hospitals included in each category ranges from a low of 13 to 44 hospitals.

Table D2. Number of Colorectal Surgery Hospitals and Average, Minimum, and Maximum number of respondents by implementation status for select background characteristics – Minimum N category = 3

Background Characteristic	Pre-implementation					Post-implementation				
		Respondent N					Respondent N			
	Hospital N	Total	Mean	Min	Max	Hospital N	Total	Mean	Min	Max
AGE GROUP										
54 or less	13	69	5	3	13	18	106	6	3	13
55 to 64	28	137	5	3	10	27	171	6	3	22
65 to 74	29	181	6	3	12	33	258	8	3	22
75 or older	29	162	6	3	12	30	213	7	3	23
GENDER										
male	37	256	7	3	15	39	368	9	3	34
female	43	371	9	3	23	44	460	10	3	46
EDUCATION GROUP										
high school or less	35	216	6	3	13	38	308	8	3	30
some college	29	192	7	3	15	31	241	8	3	33
college or higher	24	161	7	3	14	27	225	8	3	21

Average Score Calculation

The average percent score for each of the three patient experience composite measures were calculated by averaging the composite measure scores across all colorectal surgery trending hospitals (pre vs. post) for each demographic category within age, gender, and education. Similarly, the average percent score for the 23 survey items were calculated by averaging the item-level percent scores across colorectal surgery trending hospitals for each demographic category within age, gender, and education. Scores from each hospital were weighted equally in their contribution to the calculation of the average.

Data Limitations

The survey results are based on hospitals that participated in both the pre-implementation and post-implementation phases for colorectal surgery and are not representative of all hospitals that serve this given population. Furthermore, the number of respondents in each subgroup within hospitals are small (ranging from 3 to 46) and any differences in scores could be due to the small number of respondents within participating hospitals.

Results

Below are the ISCR Patient Experience scores broken out by age, gender, and education (Tables D3 to D5). The greatest differences between the pre and post-implementation scores on the most positive response on the three composite measures are highlighted.

Highlights from Colorectal Trending Hospitals

- We examined the average difference composite measure scores of colorectal surgery trending hospitals (Post minus Pre-implementation) by age, gender, and education.

Age

- Respondents ages *75 or older* had the highest average difference scores for the following composite measure:
  - *Pain Management*
    - Average difference score = +13 percentage points
- Respondents *ages 54 or less* had the highest difference scores for the following composite measures.
  - *Preparation for Discharge and Recovery*
    - Average difference score = +9 percentage points
  - *Communication About Your Procedure*
    - Average difference score = +8 percentage points

Gender

- *Male* respondents had the highest average difference scores for the following composite measures. There were no differences for the female respondents on the composite measures greater than 5 percentage points.
  - *Communication About Your Procedure*
    - Average difference score = +6 percentage points
  - *Pain Management*
    - Average difference score = +6 percentage points

Education

- Respondents *with a college degree or more* had the highest average difference scores for the following composite measure. No other education groupings had differences on the composite measures greater than 5 percentage points.
  - *Pain Management*
    - Average difference score = +10 percentage point

Table D3. Patient Experience Composite Measure and Item Results by Age, (page 1 of 6)

Composite Measures and Items	Age							
	54 or less		55 to 64		65 to 74		75 or older	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	13	18	28	27	29	33	29	30
# of Respondents	69	106	137	171	181	258	162	213
Communications About Your Procedure Composite Average								
No	6%	2%	5%	2%	5%	5%	8%	9%
Yes	11%	7%	13%	11%	13%	10%	12%	13%
Yes Definitely	83%	91%	82%	87%	82%	86%	81%	78%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)								
No	7%	1%	3%	1%	4%	4%	3%	5%
Yes	8%	8%	16%	8%	13%	8%	12%	11%
Yes Definitely	85%	91%	81%	92%	83%	89%	85%	84%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)								
No	6%	1%	6%	1%	3%	4%	5%	5%
Yes	6%	5%	8%	6%	8%	6%	8%	12%
Yes Definitely	88%	94%	86%	94%	89%	90%	87%	83%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)								
No	3%	2%	4%	1%	3%	4%	8%	8%
Yes	15%	3%	10%	10%	9%	11%	12%	10%
Yes Definitely	83%	95%	86%	88%	88%	84%	80%	82%

Table D3. Patient Experience Composite Measure and Item Results by Age, (page 2 of 6)

Composite Measures and Items	Age							
	54 or less		55 to 64		65 to 74		75 or older	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	13	18	28	27	29	33	29	30
# of Respondents	69	106	137	171	181	258	162	213
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)								
No	5%	6%	9%	6%	9%	7%	18%	16%
Yes	13%	11%	18%	22%	22%	14%	15%	20%
Yes Definitely	82%	83%	73%	73%	69%	79%	67%	64%
Preparations for Discharge and Recovery Composite Average								
No	6%	4%	6%	5%	4%	7%	10%	9%
Yes	21%	14%	15%	16%	13%	13%	16%	17%
Yes Definitely	74%	83%	78%	79%	83%	80%	73%	74%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)								
No	4%	1%	5%	1%	3%	4%	3%	5%
Yes	27%	18%	15%	25%	20%	15%	20%	20%
Yes Definitely	69%	81%	80%	74%	77%	81%	77%	75%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)								
No	4%	0%	4%	3%	3%	2%	7%	3%
Yes	15%	12%	11%	9%	9%	13%	12%	17%
Yes Definitely	81%	88%	85%	88%	88%	85%	81%	81%

Table D3. Patient Experience Composite Measure and Item Results by Age, (page 3 of 6)

Composite Measures and Items	Age							
	54 or less		55 to 64		65 to 74		75 or older	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	13	18	28	27	29	33	29	30
# of Respondents	69	106	137	171	181	258	162	213
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)								
No	8%	9%	11%	8%	7%	13%	18%	19%
Yes	20%	10%	21%	19%	10%	15%	17%	15%
Yes Definitely	72%	81%	67%	73%	84%	72%	65%	66%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)								
No	6%	5%	5%	9%	5%	9%	13%	8%
Yes	20%	10%	14%	10%	12%	10%	16%	17%
Yes Definitely	74%	85%	80%	81%	83%	81%	71%	75%
Pain Management Composite Average								
Never/sometimes	16%	6%	5%	3%	5%	1%	5%	4%
Usually	22%	24%	19%	24%	17%	17%	28%	15%
Always	62%	70%	76%	73%	77%	82%	67%	82%
1. During your hospital stay, how often was your pain well controlled? (Q9)								
Never/sometimes	17%	7%	4%	3%	6%	2%	5%	4%
Usually	27%	34%	23%	31%	24%	21%	35%	20%
Always	56%	59%	74%	66%	70%	77%	60%	76%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)								
Never/sometimes	15%	5%	6%	2%	5%	1%	5%	3%
Usually	17%	15%	15%	17%	11%	12%	22%	10%
Always	69%	80%	79%	81%	85%	87%	73%	87%

Table D3. Patient Experience Composite Measure and Item Results by Age, (page 4 of 6)

Composite Measures and Items	Age							
	54 or less		55 to 64		65 to 74		75 or older	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	13	18	28	27	29	33	29	30
# of Respondents	69	106	137	171	181	258	162	213
Single Items Measures of Care								
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)								
Never/sometimes	10%	0%	3%	2%	3%	1%	3%	0%
Usually	19%	13%	12%	5%	7%	9%	12%	10%
Always	71%	87%	85%	93%	90%	90%	85%	90%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)								
Never/sometimes	20%	3%	4%	3%	2%	2%	7%	4%
Usually	21%	23%	29%	21%	18%	16%	22%	22%
Always	58%	74%	67%	75%	80%	82%	72%	74%
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)								
No	5%	8%	8%	11%	5%	5%	9%	5%
Yes	95%	92%	92%	89%	95%	95%	91%	95%

Table D3. Patient Experience Composite Measure and Item Results by Age, (page 5 of 6)

Composite Measures and Items	Age							
	54 or less		55 to 64		65 to 74		75 or older	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	13	18	28	27	29	33	29	30
# of Respondents	69	106	137	171	181	258	162	213
Patient Self-Reported Postsurgical Symptoms								
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)								
No	14%	12%	21%	24%	34%	36%	47%	59%
Yes	86%	88%	79%	76%	66%	64%	53%	41%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)								
No	84%	81%	89%	87%	87%	91%	92%	96%
Yes	16%	19%	11%	13%	13%	9%	8%	4%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)								
No	80%	83%	91%	90%	90%	92%	91%	94%
Yes	20%	17%	9%	10%	10%	8%	9%	6%
Global Ratings								
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)								
0-6	19%	3%	5%	3%	4%	3%	7%	5%
7-8	27%	22%	22%	20%	15%	16%	19%	18%
9-10	54%	74%	72%	76%	81%	82%	75%	77%
2. Would you recommend this hospital to your friends and family? (Q20)								
Definitely no/probably no	15%	2%	5%	2%	3%	1%	6%	3%
Probably yes	29%	15%	20%	21%	21%	19%	20%	23%
Definitely yes	56%	82%	75%	77%	75%	80%	75%	74%

Table D3. Patient Experience Composite Measure and Item Results by Age, (page 6 of 6)

Composite Measures and Items	Age							
	54 or less		55 to 64		65 to 74		75 or older	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	13	18	28	27	29	33	29	30
# of Respondents	69	106	137	171	181	258	162	213
Patient Self-Reported Health Outcomes								
1. In general, how would you rate your overall health? (Q21)								
Excellent	15%	12%	14%	11%	9%	7%	13%	8%
Very Good	42%	40%	38%	38%	36%	40%	31%	32%
Good	33%	28%	38%	37%	44%	39%	44%	44%
Fair	10%	19%	8%	14%	9%	14%	10%	14%
Poor	0%	1%	3%	0%	1%	1%	2%	2%
2. In general, how would you rate your overall mental or emotional health? (Q22)								
Excellent	35%	27%	33%	28%	40%	28%	31%	32%
Very Good	45%	34%	36%	36%	34%	38%	38%	38%
Good	12%	24%	26%	24%	22%	26%	25%	24%
Fair	7%	13%	4%	11%	4%	7%	6%	6%
Poor	0%	2%	1%	1%	1%	0%	0%	0%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)								
Excellent	36%	41%	51%	46%	52%	51%	43%	44%
Very Good	25%	25%	26%	28%	24%	22%	28%	23%
Good	25%	21%	10%	18%	17%	14%	15%	18%
Fair	10%	11%	11%	8%	4%	11%	13%	10%
Poor	5%	1%	2%	1%	3%	2%	1%	5%

Table D4. Patient Experience Composite Measure and Item Results by Gender, (page 1 of 5)

Composite Measures and Items	Gender			
	Male		Female	
	Pre	Post	Pre	Post
# of Hospitals	37	39	43	44
# of Respondents	256	368	371	460
Communications About Your Procedure Composite Average				
No	8%	4%	5%	6%
Yes	14%	11%	11%	12%
Yes Definitely	78%	84%	84%	81%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)				
No	6%	3%	2%	4%
Yes	17%	9%	12%	11%
Yes Definitely	78%	88%	86%	85%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)				
No	7%	2%	3%	5%
Yes	8%	10%	7%	8%
Yes Definitely	85%	88%	90%	87%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)				
No	5%	4%	4%	4%
Yes	12%	9%	10%	11%
Yes Definitely	84%	88%	86%	85%
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)				
No	13%	8%	10%	13%
Yes	19%	18%	16%	19%
Yes Definitely	67%	74%	74%	68%

Table D4. Patient Experience Composite Measure and Item Results by Gender, (page 2 of 5)

Composite Measures and Items	Gender			
	Male		Female	
	Pre	Post	Pre	Post
# of Hospitals	37	39	43	44
# of Respondents	256	368	371	460
Preparations for Discharge and Recovery Composite Average				
No	5%	6%	8%	7%
Yes	18%	16%	13%	16%
Yes Definitely	77%	78%	79%	77%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)				
No	5%	2%	3%	4%
Yes	19%	18%	18%	19%
Yes Definitely	75%	79%	80%	77%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)				
No	2%	3%	5%	1%
Yes	16%	17%	9%	15%
Yes Definitely	82%	80%	87%	83%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)				
No	8%	12%	14%	15%
Yes	18%	16%	14%	15%
Yes Definitely	74%	72%	72%	70%
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)				
No	5%	8%	9%	8%
Yes	16%	12%	13%	15%
Yes Definitely	79%	80%	78%	76%

Table D4. Patient Experience Composite Measure and Item Results by Gender, (page 3 of 5)

Composite Measures and Items	Gender			
	Male		Female	
	Pre	Post	Pre	Post
# of Hospitals	37	39	43	44
# of Respondents	256	368	371	460
Pain Management Composite Average				
Never/sometimes	7%	4%	7%	4%
Usually	23%	20%	19%	20%
Always	70%	76%	74%	76%
1. During your hospital stay, how often was your pain well controlled? (Q9)				
Never/sometimes	7%	3%	7%	5%
Usually	30%	27%	23%	26%
Always	63%	70%	70%	70%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)				
Never/sometimes	7%	4%	6%	2%
Usually	16%	13%	15%	15%
Always	77%	83%	79%	82%
Single Items Measures of Care				
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)				
Never/sometimes	4%	1%	4%	1%
Usually	12%	9%	9%	10%
Always	84%	90%	87%	88%
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)				
Never/sometimes	6%	3%	6%	5%
Usually	23%	24%	23%	20%
Always	71%	73%	71%	75%
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)				
No	7%	7%	8%	9%
Yes	93%	93%	92%	91%

Table D4. Patient Experience Composite Measure and Item Results by Gender, (page 4 of 5)

Composite Measures and Items	Gender			
	Male		Female	
	Pre	Post	Pre	Post
# of Hospitals	37	39	43	44
# of Respondents	256	368	371	460
Patient Self-Reported Postsurgical Symptoms				
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)				
No	36%	36%	30%	37%
Yes	64%	64%	70%	63%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)				
No	93%	90%	88%	87%
Yes	7%	10%	12%	13%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)				
No	89%	88%	91%	88%
Yes	11%	12%	9%	12%
Global Ratings				
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)				
0-6	8%	6%	6%	4%
7-8	17%	20%	20%	21%
9-10	76%	74%	74%	75%
2. Would you recommend this hospital to your friends and family? (Q20)				
Definitely no/probably no	7%	4%	4%	3%
Probably yes	20%	24%	21%	22%
Definitely yes	73%	73%	75%	75%

Table D4. Patient Experience Composite Measure and Item Results by Gender, (page 5 of 5)

Composite Measures and Items	Gender			
	Male		Female	
	Pre	Post	Pre	Post
# of Hospitals	37	39	43	44
# of Respondents	256	368	371	460
Patient Self-Reported Health Outcomes				
1. In general, how would you rate your overall health? (Q21)				
Excellent	11%	10%	11%	8%
Very Good	42%	37%	32%	37%
Good	32%	40%	45%	35%
Fair	10%	13%	10%	16%
Poor	4%	1%	2%	3%
2. In general, how would you rate your overall mental or emotional health? (Q22)				
Excellent	40%	35%	32%	27%
Very Good	33%	37%	34%	34%
Good	22%	22%	27%	28%
Fair	5%	6%	5%	11%
Poor	1%	1%	1%	1%
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)				
Excellent	51%	45%	41%	50%
Very Good	21%	26%	31%	21%
Good	15%	14%	15%	18%
Fair	9%	12%	10%	8%
Poor	3%	3%	3%	3%

Table D5. Patient Experience Composite Measure and Item Results by Education, (page 1 of 6)

Composite Measures and Items	Education					
	High School or Less		Some College		College Degree or Higher	
	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	35	38	29	31	24	27
# of Respondents	216	308	192	241	161	225
Communications About Your Procedure Composite Average						
No	8%	5%	5%	6%	8%	6%
Yes	12%	12%	12%	11%	13%	11%
Yes Definitely	81%	83%	83%	83%	79%	83%
1. Before your surgery, did your surgeon's office or the hospital give you all the information you needed about your surgery? (Q1)						
No	5%	3%	2%	4%	4%	3%
Yes	14%	8%	16%	12%	13%	11%
Yes Definitely	81%	89%	82%	84%	83%	86%
2. Before your surgery, did your surgeon's office or the hospital give you easy to understand instructions about getting ready for your surgery? (Q2)						
No	6%	4%	3%	4%	7%	3%
Yes	9%	9%	4%	6%	8%	9%
Yes Definitely	85%	87%	93%	90%	85%	88%
3. Did your surgeon or anyone from the hospital explain the process of giving anesthesia in a way that was easy to understand? (Q4)						
No	5%	2%	3%	5%	8%	5%
Yes	10%	11%	12%	11%	11%	8%
Yes Definitely	84%	86%	85%	84%	81%	87%

Table D5. Patient Experience Composite Measure and Item Results by Education, (page 2 of 6)

Composite Measures and Items	Education					
	High School or Less		Some College		College Degree or Higher	
	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	35	38	29	31	24	27
# of Respondents	216	308	192	241	161	225
4. Did your surgeon or anyone from the hospital explain the possible side effects of the anesthesia in a way that was easy to understand? (Q5)						
No	13%	8%	11%	11%	12%	13%
Yes	13%	20%	18%	16%	20%	17%
Yes Definitely	74%	72%	71%	73%	68%	71%
Preparations for Discharge and Recovery Composite Average						
No	8%	8%	7%	7%	7%	5%
Yes	16%	17%	17%	14%	15%	17%
Yes Definitely	76%	75%	76%	79%	78%	78%
1. Did your surgeon or anyone from the hospital prepare you for what to expect during your recovery? (Q11)						
No	4%	2%	5%	4%	3%	4%
Yes	19%	22%	20%	18%	21%	19%
Yes Definitely	77%	77%	75%	79%	76%	78%
2. Before you left the hospital, did you get information about what to do if you had pain as a result of your surgery? (Q12)						
No	5%	3%	2%	3%	5%	1%
Yes	13%	18%	13%	12%	9%	14%
Yes Definitely	82%	80%	84%	85%	86%	85%
3. Before you left the hospital, did you get information about what to do if you had nausea or vomiting? (Q14)						
No	12%	15%	13%	12%	12%	11%
Yes	16%	16%	18%	13%	16%	18%
Yes Definitely	72%	68%	69%	75%	72%	72%

Table D5. Patient Experience Composite Measure and Item Results by Education, (page 3 of 6)

Composite Measures and Items	Education					
	High School or Less		Some College		College Degree or Higher	
	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	35	38	29	31	24	27
# of Respondents	216	308	192	241	161	225
4. Before you left the hospital, did you get information about what to do if you had possible signs of infection? (Q16)						
No	10%	11%	8%	9%	8%	4%
Yes	16%	13%	18%	13%	15%	16%
Yes Definitely	74%	75%	74%	78%	77%	80%
Pain Management Composite Average						
Never/sometimes	7%	6%	5%	2%	8%	3%
Usually	20%	20%	19%	19%	26%	22%
Always	73%	74%	76%	79%	66%	76%
1. During your hospital stay, how often was your pain well controlled? (Q9)						
Never/sometimes	7%	5%	5%	3%	8%	3%
Usually	27%	28%	24%	25%	32%	28%
Always	66%	67%	71%	73%	60%	69%
2. During your hospital stay, how often did the staff do everything they could to help you with your pain? (Q10)						
Never/sometimes	6%	6%	4%	1%	9%	2%
Usually	14%	13%	14%	13%	21%	16%
Always	80%	81%	81%	86%	71%	82%
Single Items Measures of Care						
1. During your hospital stay, how often did the doctors and nurses treat you with courtesy and respect? (Q6)						
Never/sometimes	4%	2%	3%	0%	4%	2%
Usually	12%	12%	11%	10%	14%	13%
Always	84%	86%	86%	90%	82%	86%

Table D5. Patient Experience Composite Measure and Item Results by Education, (page 4 of 6)

Composite Measures and Items	Education					
	High School or Less		Some College		College Degree or Higher	
	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	35	38	29	31	24	27
# of Respondents	216	308	192	241	161	225
2. During your hospital stay, how often did the doctors and nurses make sure you were as comfortable as possible? (Q7)						
Never/sometimes	5%	6%	7%	1%	9%	4%
Usually	25%	19%	20%	24%	24%	28%
Always	70%	76%	74%	75%	67%	68%
3. Before you left the hospital, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q18)						
No	6%	10%	9%	4%	7%	9%
Yes	94%	90%	91%	96%	93%	91%
Patient Self-Reported Postsurgical Symptoms						
1. At any time after leaving the hospital, did you have pain as a result of your surgery? (Q13)						
No	38%	43%	24%	32%	29%	31%
Yes	62%	57%	76%	68%	71%	69%
2. At any time after leaving the hospital, did you have nausea or vomiting as a result of either your surgery or the anesthesia? (Q15)						
No	88%	87%	88%	90%	89%	88%
Yes	12%	13%	12%	10%	11%	12%
3. At any time after leaving the hospital, did you have any signs of infection? (Q17)						
No	91%	88%	89%	90%	92%	91%
Yes	9%	12%	11%	10%	8%	9%

Table D5. ISCR Patient Experience Composite Measure and Item Results by Education, (page 5 of 6)

Composite Measures and Items	Education					
	High School or Less		Some College		College Degree or Higher	
	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	35	38	29	31	24	27
# of Respondents	216	308	192	241	161	225
Global Ratings						
1. Using any number from 0-10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? (Q19)						
0-6	7%	7%	6%	5%	7%	3%
7-8	19%	20%	21%	18%	19%	24%
9-10	74%	73%	73%	77%	73%	72%
2. Would you recommend this hospital to your friends and family? (Q20)						
Definitely no/probably no	6%	5%	3%	3%	6%	3%
Probably yes	23%	27%	22%	17%	20%	20%
Definitely yes	71%	68%	75%	80%	74%	77%
Patient Self-Reported Health Outcomes						
1. In general, how would you rate your overall health? (Q21)						
Excellent	10%	7%	14%	8%	13%	13%
Very Good	30%	29%	33%	37%	48%	47%
Good	44%	40%	41%	42%	29%	30%
Fair	13%	23%	10%	8%	10%	10%
Poor	3%	1%	2%	4%	2%	0%
2. In general, how would you rate your overall mental or emotional health? (Q22)						
Excellent	28%	25%	37%	28%	40%	43%
Very Good	34%	30%	33%	40%	40%	36%
Good	32%	32%	20%	28%	14%	15%
Fair	5%	11%	10%	4%	4%	6%
Poor	1%	2%	0%	0%	1%	0%

Table D5. ISCR Patient Experience Composite Measure and Item Results by Education, (page 6 of 6)

Composite Measures and Items	Education					
	High School or Less		Some College		College Degree or Higher	
	Pre	Post	Pre	Post	Pre	Post
# of Hospitals	35	38	29	31	24	27
# of Respondents	216	308	192	241	161	225
3. In the past 7 days, to what extent have you been able to return to your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair? (Q23)						
Excellent	40%	34%	47%	53%	56%	58%
Very Good	26%	25%	31%	21%	25%	25%
Good	20%	22%	12%	19%	9%	8%
Fair	12%	16%	7%	6%	7%	7%
Poor	1%	3%	3%	1%	4%	2%