

Augusta - Clinical Oncology - Hosted by the CT Commission on Cancer

Santosh Swaminathan MD	Saint Mary's Hospital
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Sue Ting Lim MD	Saint Mary's Hospital
Alexander Frey MD	Yale School of Medicine
Andrew Seto MD	Stamford Hospital
Richard Maduka MD	Yale School of Medicine
Tomasz Kasprzycki MD	Frank H Netter Quinnipiac School of Medicine - WH
Richard Maduka MD	Yale School of Medicine
Sean Ramras MD	Frank H Netter Quinnipiac School of Medicine - WH

Impact of Clinical Vs Laboratory Markers of Malnutrition on Outcomes Following Rigid Prosthesis Reconstruction following Resection of Chest Wall Chondrosarcoma
 Defining the Utility of Combined Positron Emission Tomography – Computed Tomography
 The Incorporation of Palliative Care into a Multidisciplinary Approach to Stage IV Radiation-Induced Osseous Metaplasia of the Breast: A Rare Anomaly Following Indoor Versus Outdoor Occupational Exposure and Cutaneous Melanoma Risk: A
 Does pancreatitis on imaging matter? The Risk of Adenocarcinoma in Situ in Pancreatic
 Sex-based Differences in Age at Diagnosis of Melanoma Among Patients in the V
 Small bowel obstruction from Urothelial carcinoma metastasis: A rare presentation

Montpelier**John MacArthur Trauma/Critical Care - Hosted by the CT Committee on Trauma**

Kathleen O'Neill MD, PhD	Yale New Haven Hospital
Sean Ramras MD	Frank H Netter Quinnipiac School of Medicine - WH
Leah Aakjar MD	University of Connecticut
Nicholas Druar MD, MPH	Saint Mary's Hospital
Suraj Panjwani MD	St. Mary's Hospital
Santosh Swaminathan MD	Saint Mary's Hospital

The Effect of the COVID-19 Pandemic on Community Violence: Minority Communities
 A dangerous meal: an acute perforation after foreign body ingestion
 Does Statin Therapy Reduce the Risk of Stroke in Blunt Cerebrovascular Injury
 Investigation of Shock Index as an Indicator for Level of Trauma Activation: Retrospective
 : Impact of the Affordable Care Act on Management of Ankle Fractures - A National
 Global Deletion of Pellino-1 Triggers Cardiac Dysfunction, Cell Death and Increased

Sultan Ahamed, MD, FACS General Surgery - Hosted by the CTACSPA

Santosh Swaminathan MD	Saint Mary's Hospital
Shayan Ahmed MD	Saint Mary's Hospital
Tian Sheng Ng MD	Saint Mary's Hospital

Implications of Obesity in Patients with Ulcerative Colitis undergoing Ileocolic
 Outcomes of Robotic-Assisted versus Laparoscopic Cholecystectomy – Experience
 Effects of COVID-19 Pandemic on Cholecystectomies Performed in a Community

Hartford**Plastic & Reconstructive Surgery - Hosted by the CTACSPA**

Brittany Davis MD	Stamford Hospital
Tiahna Spencer MD	UConn Health

A Case Series of Reverse-Flow Anterolateral Thigh Perforator Flap for Peri-Patellar
 Reduction of Mammoplasty Performed to Treat Chronic Headaches in a Patient with

Medical Student Research- Hosted by the CTACSPA

Olohirere Ezomo MPH	Frank H. Netter MD School of Medicine at QU
Blake Acquarulo MPH	Frank H. Netter MD School of Medicine at QU
Olohirere Ezomo MPH	Frank H. Netter MD School of Medicine at QU
Ian Whittall BA	University of Connecticut School of Medicine
Shashwat Kala BA	Yale School of Medicine

Global Research Trends on the impact of the COVID 19 pandemic on Orthopedic
 Racial Disparities in Outpatient Versus Inpatient Total Hip Arthroplasty
 Ischemia of the thumb, a rare case of emboli to the princeps pollicis artery
 The BITE Score: a Novel Scoring System to Improve Dog Bite Care in Children
 Ethnoracial Disparities in Surgical Pediatric Cancer Care During the COVID-19 Par

Providence - Metabolic & Bariatric Surgery - Hosted by CT Chapter ASMBS

Sue Ting Lim MD	Saint Mary's Hospital
Joseph Carbonaro BS	Frank H. Netter MD School of Medicine at QU
Katarina Bade BS	Trinity College
Santosh Swaminathan MD	Saint Mary's Hospital
Santosh Swaminathan MD	Saint Mary's Hospital
Chelsea Paterson MD	Saint Mary's Hospital

Thioredoxin-1 Overexpression Ameliorates the Progression of Diabetic Cardiomyopathy
 Long-Term Outcomes of Revisional Bariatric Surgery
 Effect of COVID 19 Lockdown on Weight Change in Post-Surgical Patients
 Assessment of Blood Transfusion Requirement in Patients on Therapeutic Anticoagulation
 Incidence and Short-Term Outcomes of General Surgeons Performing Elective Major
 Incidence of patients on psychiatric medications and their outcomes following el

Boston - Surgical Quality, NSQIP and ERAS - Hosted by the CtSQC

Alexander Ostapenko Dr	Danbury Hospital
Josh Sznol MD	Yale School of Medicine
Nupur Nagarkatti MD	Yale School of Medicine
Pharis Sasa BS	Spine Institute of CT
Samuel M. Miller MD	Yale School of Medicine
Thomas Tritt MD	Stamford Hospital
Suraj Panjwani MD	St. Mary's Hospital
Tyler Glaspy MD	Danbury Hospital

Synchronous major hepatic resection with primary colorectal cancer increases risk
 Adverse Impact of Ascites on Outcomes of Open Inguinal Hernia Repair in the U.S.
 Is Patient Sex Associated with Surrogate Consent for Surgical Intervention?
 Assessing the Accuracy of the American College of Surgeons' Surgical Risk Calculator
 A Descriptive Analysis of Older Adult Patients who Underwent Surgery Based on
 Effects of Physician Education on the Identification of Moderate and Severe Malnutrition
 Bearing of BMI on Surgical Outcomes After Ostomy Reversal-NSQIP Analysis
 Role of Ablation Therapy in Conjunction with Surgical Resection for Neuroendocrine

Concord - Surgical Subspecialties- Hosted by the CTACSPA

Austin Alecxih BS	Frank H. Netter MD School of Medicine at QU
Brienne Ryan, MD	Connecticut Children's Medical Center
Krist Aplaks MD, MBA	Danbury Hospital
Minha Kim MD	Danbury Hospital
Nicolle Burgwardt MD	Stamford Hospital
Sue Ting Lim MD	Saint Mary's Hospital
Olohirere Ezomo MPH	Frank H. Netter MD School of Medicine at QU

BIOMECHANICS OF THE PROXIMAL TIBIOFIBULAR JOINT: QUANTIFYING NORMAL
 Esophageal Stenosis Secondary to Cavitary Lesions: A Unique Presentation of Dysphagia
 Neoadjuvant radiation therapy prior to a pancreaticoduodenectomy for adenocarcinoma
 Pancreatic Paraganglioma and Hyperparathyroidism in a Patient with RET Gene Mutation
 Patent Urachus in Neonate Requiring Surgical Repair
 Prolyl-4-Hydroxylase 2 (PHD-2) Inhibition Promotes Pro-angiogenic and Anti-apoptotic
 The Association between Quadriceps Weakness and Persistent Knee Pain after Total

Surgical Quality, NSQIP and ERAS - Hosted by the CtSQC

Synchronous Major Hepatic Resection with Primary Colorectal Cancer Increases Risk of Organ Space Infections

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Introduction: One quarter of patients with colorectal cancer present with metastases, most commonly to the liver. Traditionally these patients underwent resection of the primary colorectal lesion followed by chemotherapy and hepatic resection. With improvement of outcomes in hepatic surgery, there has been a shift to simultaneous resection of both the primary colorectal cancer and hepatic metastases in a single operation. Several studies from high volume centers have demonstrated similar outcomes between the two approaches. The goal of this study is to determine if synchronous resection increases risk of surgical site infections (SSIs).

Methods: We conducted a cross-sectional retrospective analysis of the targeted hepatectomy NSQIP database from 2014-2019. The primary outcome was surgical site infections stratified into superficial, deep, organ space, and wound dehiscence. We performed univariate logistic regression to determine if there were higher odds of SSIs in patients undergoing hepatic resection concurrently with primary colorectal resection. Subsequently, we performed multivariable logistic regression to assess the effect of synchronous hepatic resection on the outcome while controlling for potential confounders and including relevant covariates. Additionally, we performed stratified analyses by size of hepatic resection (partial, total left, total right, and trisegmentectomy).

Results: Of the 7,445 patients included in the study, 431(5.8%) underwent synchronous resection and 7,014 metachronous resection. On average, synchronous resections prolonged surgery by 62 minutes. There was no difference in superficial and deep SSIs between the groups; however, there was a significant difference in organ space SSIs. Patients undergoing synchronous resection had 1.51 times the odds of developing an organ space SSI (OR=1.51, 95%CI = 1.10, 2.17, p=0.04) compared to patients with metachronous resection on multivariate analysis. Patients undergoing a lobectomy concurrently with a colorectal resection had 2.30 times the odds of developing an organ space SSI (OR=2.30, 95% CI = 1.20,6.86, p=0.010).

Conclusions: Prior studies demonstrated that synchronous resections are safe in properly selected patients with no difference in long-term outcomes. Few studies have explored immediate perioperative outcomes between the two approaches. After controlling for confounders, we demonstrate that synchronous resection with major hepatic surgery increases the risk of organ space SSIs. This study does not distinguish whether the organ space SSI was a result of the colon or liver resection. Future studies should elucidate the precise source of organ space SSIs in order to decrease the risk of this adverse outcome. Nevertheless, surgeons should be aware of this risk and discuss this with patients pre-operatively.

Adverse Impact of Ascites on Outcomes of Open Inguinal Hernia Repair in the United States

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Introduction: Inguinal hernias with concomitant ascites pose a clinical dilemma. Clinical studies in this patient population are limited and conflicting. In this study, we examined whether preoperative ascites adversely affects postoperative outcomes in elective and non-elective open inguinal hernia repair.

Methods: The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) is a nationally validated database of patient variables, perioperative metrics, and surgical outcomes recorded prospectively by trained clinical reviewers at participating institutions. NSQIP data were queried for patients who underwent elective or non-elective open inguinal hernia repair as their primary operation from 2005-2019. The inclusion criterion for the study group was the presence of preoperative ascites.

Results: A total of 237,478 open inguinal hernia repair patients were included, 733 with ascites and 236,745 without ascites. Mortality at 30 days for the ascites group was higher than the non-ascites group for both elective (2.5% vs. 0.1%, $p < 0.001$) and non-elective (9.7% vs. 2.1%, $p < 0.001$) cases. Serious complications in the ascites group were also higher than in the non-ascites group for elective cases (9.1% vs. 1.6%, $p < 0.001$) and non-elective cases (41.1% vs. 10.2%, $p < 0.001$). Multivariable regression controlling for sex, age, number of comorbidities, functional status, American Society of Anesthesiologists (ASA) physical status class, and preoperative sepsis demonstrated that patients with ascites undergoing elective inguinal hernia repair had increased risk of mortality (Odds Ratio [OR] 6.4; 95% CI 3.6 – 11.4; $p < 0.001$) over those without ascites; there was no difference between groups in odds of mortality after non-elective cases. Patients with ascites experienced increased risk-adjusted rates of serious complication in both the elective (OR 2.6; 1.9 – 3.6; $p < 0.001$) and non-elective (OR 2.3; 1.5 – 3.4; $p < 0.001$) settings. Ascites was additionally found to be an independent predictor of longer hospital length of stay ($p < 0.001$ for both groups) and increased rate of return to the operating room ($p < 0.001$ for elective; $p = 0.011$ for non-elective), as well as longer elective operative time ($p < 0.001$).

Conclusions: The presence of ascites is strongly linked to serious complications, return to the operating room, and longer length of stay after both elective and non-elective open inguinal hernia repair. Moreover, ascites is associated with higher 30-day mortality after elective cases. This study suggests that open inguinal hernia repair with concomitant ascites can be fraught with complications, and optimization of ascites prior to surgery may be critical to improving clinical outcomes.

Table 3. Ascites Status as a Predictor of Perioperative Course and Surgical Outcomes (Multivariable Regression)

Outcome	EMERGENCY			ELECTIVE		
	B [95% CI]	Odds Ratio [95% CI]	P value	B [95% CI]	Odds Ratio [95% CI]	P value
Operative time, min	7.6 [-0.5 – 15.6]		0.065	15.0 [12.2 – 17.9]		< 0.001
Hospital length of stay, days	4.5 [3.5 – 5.4]		< 0.001	1.8 [1.5 – 2.1]		< 0.001
Superficial SSI		1.6 [0.5 – 5.2]	0.434		2.1 [0.99 – 4.5]	0.052
Deep SSI		*	*		2.6 [0.6 – 10.9]	0.180
Organ Space SSI		3.0 [0.9 – 10.2]	0.081		0.8 [0.1 – 5.9]	0.786
Wound dehiscence		1.6 [0.2 – 12.4]	0.665		3.3 [0.99 – 11.1]	0.053
Return to OR		2.3 [1.2 – 4.2]	0.011		2.9 [1.9 – 4.4]	< 0.001
Sepsis after surgery		1.1 [0.3 – 3.7]	0.861		1.7 [0.7 – 4.5]	0.255
Serious Complication		2.3 [1.5 – 3.4]	< 0.001		2.6 [1.9 – 3.6]	< 0.001
Perioperative Death		1.9 [0.9 – 4.1]	0.078		6.4 [3.6 – 11.4]	< 0.001

*analysis unable to be performed as no deep SSIs occurred in the ascites group who underwent emergent surgery

Is Patient Sex Associated with Surrogate Consent for Surgical Intervention?

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Introduction: Differences between female and male patients have been identified in many facets of medicine. We sought to understand whether differences in surrogate consent exist between female and male patients who undergo surgery.

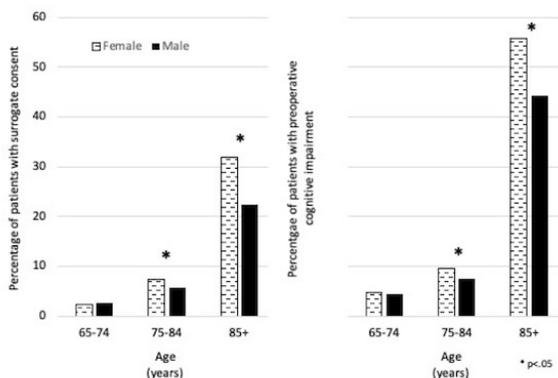
Method(s): A descriptive study was designed using data from the Geriatric Surgery American College of Surgeons NSQIP Collaborative collected from 2014-2018. All patients included were ≥ 65 years old and had surgery. Patients were considered to have had surrogate consent if the signature on the consent form for their index operation was not their own. Chi-square tests were used to identify relationships between surrogate consent and both demographic and baseline characteristics. Patients were classified into distinct age groups for analysis across subgroups. Of note, patients > 89 years old were coded as 90 by NSQIP to avoid identification of individual patients.

Results: Of 51,832 patients identified, 3,416 (6.6%) had surrogate consent. Overall, 7.7% of females had surrogate consent compared to 5.3% of males ($p < 0.001$). Subgroup analysis based on age categories showed: no difference in surrogate consent between female and male patients 65-74 years old (2.3% vs 2.6%, $p = .17$); higher rates of surrogate consent in females than males for patients 75-84 years old (7.3% vs 5.6%, $p < 0.001$) and ≥ 85 years (31.2% vs 22.4%, $p < .001$) (Figure). A similar relationship was seen between sex and preoperative cognitive status: no difference in preoperative cognitive impairment in female and male patients 65-74 years old (4.4% vs 4.7%, $p = .34$); higher rates of preoperative cognitive impairment in females than males for those 75-84 (9.5% vs 7.4%, $p < 0.001$) and ≥ 85 (31.2% vs 22.6%, $p < .001$) (Figure).

Conclusion(s): Sex-based differences in surrogate consent varied with age. There was no difference in the proportion of female vs. male patients between 65-74 years old who had surrogate consent, but females were more likely than males to have had surrogate consent in both 75-84 and ≥ 85 -year-old age groups. A similar pattern was observed in sex-based differences in preoperative cognitive impairment. Taken together, these findings suggest the possibility of age-related collinearity between sex and surrogate consent as well as sex and preoperative cognitive impairment. Thus, it is possible that female patients were more likely to have surrogate consent than their male counterparts because they were older and more likely to be cognitively impaired. The inability to use a quantified measure of age in patients > 89 years old prevents the quantification and assessment of relationships between age- and sex-related differences in surrogate consent among older patients older than 89 years of age.

Figure: Sex-based differences in surrogate consent and preoperative cognitive impairment by age group

Figure: Sex-based differences in surrogate consent and preoperative cognitive impairment by age group



Assessing the Accuracy of the American College of Surgeons' Surgical Risk Calculator for Lumbar Surgeries

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Introduction: The American College of Surgeons (ACS) has an online risk calculator that estimates a patient's risk of postsurgical complications based on pre-surgical variables. There are few studies that determine the calculator's efficacy in spine surgeries. It is possible this tool could be used to better express surgical risk to a patient during informed consent. The aim of this study is to determine the ability of the ACS surgical risk calculator to accurately estimate the risk outcomes on average and on an individual basis for patients undergoing lumbar fusions, laminectomies, and discectomies.

Methods: A retrospective chart review was performed of 228 lumbar fusions and 212 lumbar laminectomies and discectomies between January 2018 and December 2018. Preoperative data was entered into the calculator, risk assessments were recorded, and compared to the patient's true outcomes of pneumonia, cardiac complications, surgical site infections, urinary tract infections (UTI), venous thrombosis, renal failure, readmission, return to OR, death, length of stay, and discharge to a rehabilitation facility.

Predicted risk was compared to complication occurrence using two-sample t-test for average rates and receiver-operating characteristic (ROC) for individual cases.

Results: For laminectomy and discectomy patients, the calculator was able to predict the average risk of all postsurgical complications except death and length of stay. The ROC showed the calculator was only able to predict UTIs ($c=.745$, $p=0.04$) and discharge to a rehabilitation facility ($c=.755$, $p=0.01$) at an individual level. For fusion patients, the calculator was able to predict the average risk of all postsurgical complications except death and discharge to a rehabilitation facility. The ROC showed the calculator was only able to predict readmission ($c=.763$, $p<0.05$) and discharge to a rehabilitation facility ($c=.729$, $p<0.05$).

Conclusions: While the risk calculator shows promise with its ability to predict the risk among an average pool of patients undergoing lumbar surgery, it lacks accuracy to be useful to an individual patient for their specific circumstance.

A Descriptive Analysis of Older Adult Patients Who Underwent Surgery Based on Surrogate Consent.

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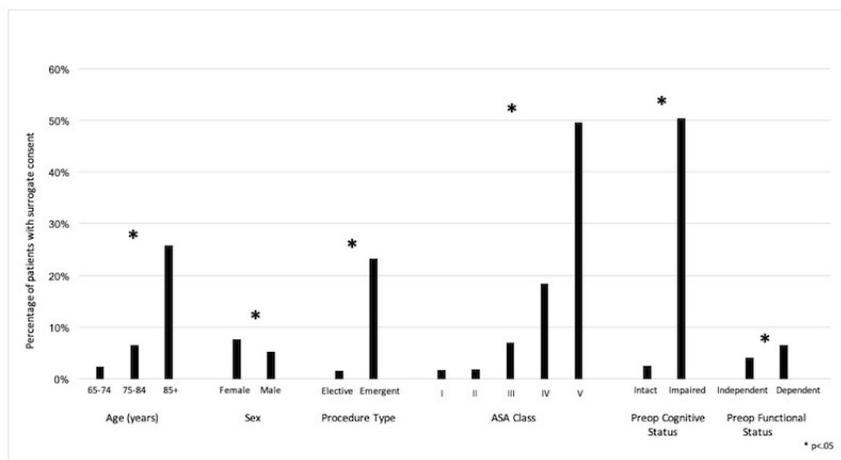
Introduction: Surrogate consent for operation is sought when a patient is considered unable to consent for themselves. Among older adults, inability to consent can result from a chronic disability or from acute pathology. Determining a patient's capacity to consent is required as part of the surgeon's preoperative assessment. However, there is no universal standardized process to ensure consistency in the way that this capacity assessment is performed. The purpose of this study is to describe older adults who underwent surgical intervention with surrogate consent.

Methods: A descriptive analysis was performed using data from the Geriatric Surgery American College of Surgeons NSQIP Collaborative collected from 2014-2018. All patients included were ≥ 65 years old and underwent a surgical procedure. Patients were considered to have had a surrogate decision-maker if the signature on the consent form for their index operation was not their own. Demographic and preoperative health metrics were evaluated to examine differences between those for whom surrogate consent was and was not provided.

Results: 51,832 patients ≥ 65 years old whose consent forms had been analyzed were identified. 3,416 (6.6%) of these patients had a surrogate decision-maker. Surrogate consent was more frequent among older patients, with 2.4% of patients between 65 and 74 having a surrogate increasing to 25.9% for those ≥ 85 . (Figure). Among patients for whom surrogate consent was provided, 43% were over 85 while 21% were 65-74. On average, female patients were more likely than males to have had surrogate consent (7.7% vs 5.3%, $p<.001$), as were patients undergoing emergent vs. elective procedures (23.3% vs. 1.6%, $p<.001$) (Figure). Patients with higher ASA classification, who were cognitively impaired or functionally dependent prior to surgery were also more likely to have had surrogate consent. Of note, 4.5% of people who signed their own consent carried a diagnosis of cognitive impairment at the time they consented to surgery.

Conclusions: Older patients and female patients were more likely to have surrogate consent than their younger and male counterparts. In addition, those with preoperative disability and greater comorbidity burden were proportionally more likely to have had surrogate consent. Importantly, nearly 1 in 20 patients who signed their own consent form carried a diagnosis of cognitive impairment. The variability observed in these initial findings suggests the need for development and standardization of an evidence-based process for the assessment of surgical decision-making capacity in older adults.

Figure: Descriptive statistics of patients with surrogate consent



Effects of Physician Education on the Identification of Moderate and Severe Malnutrition at a Single Center Suburban Community Hospital

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Introduction: Malnutrition is a major contributor to increased morbidity and mortality, decreased function and quality of life, increased frequency and length of hospital stay. The American Society for Parenteral Nutrition and Dietetics defines severe malnutrition as a patient with two or more of the following six characteristics: insufficient energy intake, unintentional weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation, diminished functional status as measured by hand grip strength. According to data published in 2009, only 3% of patients admitted in an acute care setting in the United States are diagnosed with malnutrition according to ICD-9 coding. This represents a gross underestimation of the 15-60% of patients, in certain populations, that suffer from severe malnutrition. Current practices at Stamford Hospital identify patients at high risk for severe malnutrition through objective measures which allow dietitians to consult on these patients. However, unless severe malnutrition is documented by a physician, it cannot be coded and further acted upon. We posit this results in significantly increased morbidity and mortality, as well as monetary hospital losses.

Method(s): Quality improvement project using Electronic Medical Record (EMR) data. Data will be collected prospectively and retrospectively on patients meeting inclusion criteria. Inclusion criteria: All patients admitted to inpatient or observational setting to the medical and surgical services at Stamford Hospital from January 2021-present who are identified as meeting the American Society for Parenteral and Enteral Nutrition (ASPEN) criteria for moderate or severe malnutrition. Exclusion criteria: Patients admitted to psychiatric inpatient service and same day surgery patients. We will analyze the changes in identification and knowledge on patients presenting with moderate and severe malnutrition according to the ASPEN criteria before and after the implementation of the quality improvement project.

EMR Alerts: A mandatory question will arise on all physician progress notes in Meditech (Stamford EMR) stating “Does the patient meet criteria for moderate or severe malnutrition?”

Physician Education: Presentations will be given to residents, attending physicians, and physician’s assistants during medical and surgical grand rounds, to educate on newly implemented Meditech alerts and where ASPEN criteria can be documented in patients who are at high risk for protein calorie malnutrition. Anonymous pre- and post-presentation surveys will be conducted electronically to verify level of understanding of ASPEN criteria and comfort level of documenting clinically significant malnutrition.

Results: We will analyze physician understanding of ASPEN criteria and ability to document objective metrics according to survey results. Data will be collected from Meditech, the Stamford Hospital EMR, in order to assess the improvement in documentation of clinical malnutrition by healthcare providers. Clinical dietitian records of patients who have been flagged due to meeting ASPEN criteria will be cross-referenced with filed Current Procedural Terminology (CPT) codes for clinical malnutrition, which signifies that the hospital coders billed insurance for the services. This will allow us to evaluate the degree to which our intervention has facilitated the billing process and to quantify its monetary impact.

Conclusion(s): We hope to increase awareness of protein calorie malnutrition among physicians and improve EMR documentation of ASPEN criteria in the EMR at Stamford Hospital.

Bearing of BMI on Surgical Outcomes After Ostomy Reversal-NSQIP Analysis

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Introduction: Ostomy reversal is often considered minor in comparison to its index procedure. However, there still exists a 11-33% post-operative complication rate. We sought to investigate the impact of BMI on surgical outcomes among patients undergoing ostomy reversal.

Method(s): The National Surgical Quality Improvement Program (NSQIP) database was queried between 2009 and 2018 to identify all adult patients that underwent laparoscopic or open small or large bowel ostomy reversal. Patient cohort was divided based on BMI cut off of 35. Preoperative and operative data were compared between the two groups. Postoperative 30 day outcomes such as length of stay (LOS), complications, reoperation, readmission and death were analyzed. Clinically relevant factors identified to be different on univariate analysis were included in multivariable regression analyses.

Result(s): We analyzed 53,104 patients that underwent ostomy reversal. Patients with BMI ≥ 35 comprised 11% of total patients. Table.1 displays the comparison between groups based on BMI. Patients with BMI ≥ 35 had longer operative time (171 vs. 130 mins, $p < 0.0001$) and LOS (6.2 vs. 5.9 days, $p < 0.0001$). Thirty-day mortality, readmission or reoperation rates did not differ based on BMI. Patients with BMI ≥ 35 had a 21% complication rate (vs. 15% BMI ≤ 35 , $p < 0.0001$). BMI ≥ 35 was an independent predictor for prolonged operative time (β -39.4, $p < 0.0001$) and post-operative complications (OR 1.46, $p < 0.0001$)

Conclusion(s): BMI is a crucial factor that may negatively impact surgical outcomes following an ostomy reversal. Potential risks and measures to optimize body weight must be discussed with patient preoperatively.

Table.1 - Patient Characteristics based on BMI

Variable	BMI<35 (89%)	BMI>=35 (11%)	P value * - $p < 0.05$
Age (years) Mean \pm Std. dev	57 \pm 15	54 \pm 13	<0.0001*
Female	46%	56%	<0.0001*
Hispanic	7%	9%	<0.0001*
Nonwhite race	12%	14%	<0.0001*
ASA 3/4	45%	65%	<0.0001*
Smoker	22%	19%	<0.0001*
Chronic Obstructive Pulmonary Disease	4%	5%	0.001*
Congestive Heart failure	0.3%	0.6%	0.004*
Steroids	6%	4%	<0.0001*
Diabetes Mellitus	10%	23%	<0.0001*

Role of Ablation Therapy in Conjunction with Surgical Resection for Neuroendocrine Tumors (NETs): Risks and Benefits of Multimodality Surgical Treatment for NETs Involving the Liver

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Introduction: Neuroendocrine tumors (NETs) are epithelial tumors that can arise from most organs. They are indolent, slow growing neoplasms that are frequently discovered at a late stage when they become symptomatic from hormonal excretion by metastasizing to the liver. It is estimated that 80-90% of these tumors are inoperable at the time of presentation. However, several publications demonstrate that resection of hepatic metastases from NETs improves both quality of life and prolongs 5-year survival. Therefore, adjunct modalities such as thermal ablation are frequently utilized in conjunction with resection. Although studies report long-term outcomes for patients undergoing ablation with surgery, no prior studies have explored the effects of ablation on peri-operative outcomes in patients undergoing hepatic resection for NETs. We aim to evaluate whether undergoing ablation in conjunction with hepatic resection for NETs increases the risk for peri-operative complications such as surgical site infections (SSIs), bile leak, and significant bleeding.

Method(s): The NSQIP Procedure Targeted Participant Use Data file for hepatectomy from the years 2015-2019 was utilized. A retrospective cohort analysis was conducted. All patients in the database undergoing hepatic resection for NETs aged 18 years or older were included. Patients older than 90 years at time of surgery, patients with 'unknown' ablation status, and patients with an infection at the time of surgery were excluded from this analysis. Primary outcomes were SSIs, bile leak, and significant bleeding. Univariate logistic regression was utilized to assess whether there were higher odds of SSIs, bile leak or significant bleeding in patients undergoing ablation concurrently with hepatic resection than with resection alone. Multivariable logistic regression was utilized to determine whether the risk of developing our selected outcomes was higher among patients undergoing ablation while controlling for potential confounders. P values <0.05 were considered statistically significant.

Results: A total of 966 patients were identified in the database after utilizing exclusion criteria, with 298 undergoing intra-operative ablation (30.85%) and 668 with no ablation (69.15%). The mean age at time of surgery was 59.7 years. There were 475 males (49.2%) and 491 females (50.8%). A total of 150 patients (15.5%) experienced significant bleeding during their procedure. There was no statistically significant difference in the odds of significant bleeding after controlling for relevant confounders between the two groups (OR 0.66; 95% CI 0.36, 1.05). To better assess this model, a Hosmer-Lemeshow goodness-of-fit test was performed, which showed $X^2=820.3$; $P=0.75$; this again shows no significant difference between the two groups. A total of 117 patients (12.1%) experienced a surgical site infection following their procedure. There was no statistically significant difference in the odds of any surgical site infection (OR 0.89; 95% CI 0.54, 1.45) or organ space infection (OR 1.10; 95% CI 0.62, 1.98) between the two groups after controlling for relevant confounders. A total of 55 patients (5.7%) experienced a bile leak. The odds of a bile leak among patients who had concurrent intra-operative ablation was statistically significantly more likely than the odds of developing one without ablation (OR 0.70; 95% CI 0.33, 1.47) after controlling for confounding variables.

Conclusion(s): In prior studies, intraoperative ablation in conjunction with surgery has emerged as a tool to prolong survival and decrease morbidity in patients with neuroendocrine tumors with metastases to the liver. Our study shows that intraoperative ablation in conjunction with surgery does not significantly increase peri-operative adverse outcomes when compared to surgery alone for neuroendocrine tumors with metastases to the liver. Surgeons should be mindful of this tool available to help achieve complete resection of liver metastases when they are not amenable to resection with surgery alone. Surgeons should not be concerned that intraoperative ablation increases perioperative risk when compared to surgery alone.