

ASSESSING ASSOCIATION OF READMISSION RATE WITH TIMELINESS AND QUALITY OF DISCHARGE SUMMARIES IN A COMMUNITY HOSPITAL: A RETROSPECTIVE STUDY

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Introduction: Hospital discharge summaries are one of the most important transition of care documents in patient care. It serves to communicate patient's hospital course with all the important findings to the next level ensuring continuity of care. It has been shown in various studies that discharge summaries fail to communicate essential information. In addition to this it has also been observed that discharge summaries are not completed on time. We assessed the quality and timeliness of discharge summaries at our institution, and further analyzed its association with readmission rate.

Methods and Design: At our institution, discharge summaries are dictated in two ways. One way is to follow EMR preset template. Another way is to dictate them as free text narrative, which are then transcribed by a central transcription service. This was a retrospective chart review of a random sample of 120 adult medicine and surgical patients discharged during the month of March 2019 in our community hospital. Quality assessment was based on the checklist described by the National Quality Forum in its Safe Practice 11 as mentioned below.

Results: Out of 120 patients, 5 were discharged within 30 days of data analysis, thus they were excluded from readmission analysis. Data analysis revealed; readmission rate was inversely proportional to timeliness of discharge summary (p-value 0.03). 43 out of 115 patient (37.3%) had discharge summary done within 48hrs of discharge. Only 3 out of 43 patients (6%) were readmitted within 30 days from discharge. Discharge summary of rest 72 patients (62.6%) were done after 48hrs from discharge. Out of these 72 patients, 17 (23%) had 30-day readmissions (p-value 0.022). Residents were more likely to complete discharge summaries on time, as compared to the other medical staff (p-value 0.03). Residents also had more composite mean score of quality of discharge summary but the mean composite score for quality markers were not statistically significantly related to 30-day readmission. Residents were more compliant with the individual quality measures as compared to other medical staff, as described in the table.

Quality Measure in NQF 11	Total (120)	Residents (17)	Non-residents (103)	P-Value
Reason for Hospitalization	105(87.5%)	17(100%)	88(85.4%)	0.4
Significant Findings	91 (75.8%)	16 (94.1%)	75 (72.8%)	0.05
Procedure, services, consults performed	98 (81%)	16 (94%)	82 (79.6%)	0.15
Condition at discharge	72 (60%)	13 (76.4%)	59 (57.28%)	0.13
Education at discharge	55 (45.8%)	13 (76.4%)	42 (40.7%)	0.006
Medication list	7 (5.8%)	5 (29.4%)	2 (1.9%)	<0.05
Pending test results	47 (39%)	10 (58.8%)	37 (35.9%)	0.07

Conclusion: Timely completion of discharge summary ensures adequate continuity of care from hospital to primary care setting thus resulting in reduced readmission rate. In addition to this, it is important to include core quality measures in a discharge summary to make sure adequate information is provided. This can be made possible by following a preset template.

ANDROGEN DEPRIVATION THERAPY GIVEN AFTER RADIATION IS THE MOST EFFECTIVE TIMING IN THE TREATMENT OF PROSTATE CANCER

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To date, randomized clinical trials have tested the ideal *duration* of androgen deprivation therapy (ADT) in conjunction with radiation therapy (RT), but have differed in their *timing* of this treatment with relation to RT (before, during, or after). As such, these trials have had varied success in prostate cancer treatment outcomes. We aimed to clarify if ADT given before (neoadjuvant), during (concurrent), or after (adjuvant) RT had the greatest effect on prostate cancer.

We used a variety of hormone-dependent and hormone-independent prostate cancer cell lines as models for various stages of aggressiveness and progression of prostate cancer. For *in vitro* clonogenic assays, charcoal-stripped serum was used as an ADT analogue varying the timing of ADT to match the most common clinical strategies. In our animal model, we used an aggressive hormone-independent cell line for xenograft studies of ADT timing with the potent antiandrogen enzalutamide. Later studies utilized known DNA repair enzyme inhibitors and standard methods for detecting the cell cycle phase of cancer cells.

We show that across a variety of prostate cancer cell line models, adjuvant ADT + RT is more effective at killing colony forming cells than either neoadjuvant or concurrent ADT with RT. This effect was recapitulated in xenograft studies showing that adjuvant ADT + RT had a more durable response after treatment than neoadjuvant ADT + RT and was the only ADT regimen that had smaller tumors than RT alone. This was found to *not* relate to the previously hypothesized mechanism of action of ADT in inhibiting DNA repair, *nor* to alterations of cellular proliferation or cell cycle shunting, but rather likely was due to an upregulation of androgen receptor induced by RT.

We conclude that adjuvant ADT + RT is a more effective treatment regimen across a variety of prostate cancer cell lines *in vitro* and *in vivo*. It is likely more effective because the antiandrogen effects coincide with a radiation-induced upregulation of the androgen receptor that occurs after radiation treatment. This should be further explored in clinical trials designed to assess prostate cancer treatment outcomes to neoadjuvant, concurrent, or adjuvant ADT plus RT.

PAIN CONTROL AFTER TOTAL HIP ARTHROPLASTY: A RANDOMIZED TRIAL DETERMINING THE EFFICACY OF FASCIA ILIACA COMPARTMENT BLOCKS IN THE POST OPERATIVE PERIOD

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Purpose: The purpose of this randomized trial was to identify if fascia iliaca blockade, when used in conjunction with a multimodal pain control regimen, reduces postoperative pain and narcotic consumption and improves early functional outcomes in primary THA performed through the mini-posterior approach.

Methods: Patients were recruited from September 2017 to April 2019. Eligible patients had to receive a primary THA with epidural anesthesia. All arthroplasties were performed using a mini-posterior approach to the hip. In the recovery room, patients were randomized to either receive a fascia iliaca compartment block or a placebo block. VAS pain scores (0-10) were recorded at regular time intervals after surgery. The total narcotic requirement (milliequivalents of morphine) was calculated for each patient. Functional outcomes including distance walked during therapy, timed-up-and-go testing, and quadriceps strength were recorded for each patient. After discharge, the patients completed PROMIS pain and physical function surveys. The primary outcomes in this study were pain scores and narcotic consumption in the first 48 hours postoperatively. Secondary outcomes were distance walked with therapy during the first session, the timed-up-and-go test score on post-operative day 1, incidence of quadriceps weakness, and pain scores at the first post-operative visit. T-tests, ANOVA, and Chi square tests were used to compare variables between treatment groups ($\alpha = 0.05$).

Results: During the study period 110 patients were recruited and included in this analysis. There was no difference in the average pain scores at any time interval between the placebo and block groups during the first 24 hours ($p = 0.1-0.83$). There was no difference between the pre-block and post-block pain scores in the block group (4.26 vs. 4.23, $p = 0.97$). There was no difference in the cumulative morphine equivalents consumed between the placebo and block group during the first 4 hours, 8 hours, 12 hours, 16 hours, 20 hours, or 24 hours postoperatively ($p = 0.6 - 0.25$). Total morphine equivalents consumed was also the same between the placebo and block groups (86.0 vs. 75.3, $p = 0.31$). Functional testing showed no difference between the two groups in regards to distance walked during the first therapy session (67.1 vs. 68.3 ft, $P = 0.92$) and timed-up-and-go testing (63.7 vs. 66.3 sec, $P = 0.86$). There was an increased incidence of quadriceps weakness in the block group (0% vs. 22%, $p = 0.004$).

Conclusion: This randomized trial shows that fascia iliaca compartment blockade does not improve functional performance and does not decrease pain levels or narcotic usage after mini-posterior THA and can increase the risk of quadriceps weakness post-operatively. Based on these results we do not recommend routine fascia iliaca compartment blocks after THA performed with the posterior approach.

FUSION AND OPIOID-SPARING WITH THE USE OF KETOROLAC IN POSTERIOR THORACOLUMBAR SPINAL FUSIONS: A PROSPECTIVE DOUBLE-BLINDED RANDOMIZED PLACEBO-CONTROLLED TRIAL

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Introduction: Use of ketorolac in spinal fusion is limited due to the risk of pseudoarthrosis. Recent literature suggested that such an effect could be type- and dose-related. We sought to demonstrate that ketorolac use was safe with significant opioid-sparing effect and non-inferior fusion rate.

Methods: This is a prospective, double-blinded, randomized, placebo-controlled trial designed according to the 2013 SPIRIT Guidelines. It is a two-arm parallel design with a 1:1 randomization. Over a two-year period under 6 surgeons at two sites, consecutive patients who underwent elective 1-3 level minimally invasive thoracolumbar fusion were screened for inclusion/exclusion. Patients with fusion confounders were excluded. A centralized treatment allocation mechanism and Excel-generated block randomization were used. Patients received a 48-hour scheduled treatment of intravenous ketorolac (15 mg every 6 hours) or saline. We implemented a standardized analgesia regimen using a standardized order set. The primary outcome was fusion rate as evaluated by radiograph/computed tomography using the Suk criteria at 6/12 months by a study-blinded neuroradiologist. The secondary outcomes were morphine milligram equivalents (MMEs) in the first 48 hours postoperative and during the hospital stay, nonsteroidal anti-inflammatory drug-specific perioperative complications, visual analogue scale for pain, length of stay (LOS), and quality-of-life outcomes at 6/12 months. Univariate analysis was used with $p < 0.05$ considered significant. The sample size was estimated to be 600. This is an interim analysis to evaluate the safety and MME reduction.

Results: Sixty-nine patients were analyzed. Patient characteristics and operative data were comparable between the groups except estimated blood loss. No significant difference in fusion rate was found at 6 months. There was a significant reduction in total/48-hour MMEs and LOS for the ketorolac group. The only complication was a superficial hematoma in a ketorolac-assigned patient requiring evacuation.

Conclusions: Ketorolac demonstrated safety, a significant reduction in postoperative opioid use and LOS when used as part of a multi-modal analgesic regimen after thoracolumbar fusion.

Total radiation exposure in pediatric patients undergoing closed or open reduction and spica casting for hip dysplasia

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Introduction:

In children with developmental dysplasia of the hip (DDH), concentric reduction of the femoral head is required to allow acetabular remodeling and prevent further degenerative changes. Children greater than 6 months of age or those that fail Pavlik harness treatment require closed or open reduction and spica casting. Postoperative confirmation of reduction using either magnetic resonance imaging (MRI) or computed tomography (CT) is required. While MRI requires no radiation exposure, same day MRI access is not available at all institutions and post-operative CT scan is still widely used. As total radiation exposure for these patients is not known, the aim of this study was to quantify radiation exposure from all sources during a course of treatment at our hospital.

Methods and Design: A retrospective review was performed to identify all patients that underwent closed or open reduction of a congenital hip dislocation followed by application of a plaster hip spica cast during a 5-year period. Patients were transported to a local imaging facility for same day post-reduction CT scanning. Total number of pelvic x-rays, CT scan(s), and fluoroscopy was recorded. Additionally, phantom infant models were created using fiberglass and ballistic gel. The models were spica casted and a microdot dosimeter was placed at the level of the umbilicus to simulate the position of the ovaries. Each model underwent CT scanning using standardized low dose parameters and radiation exposure was recorded.

Results: 60 patients underwent closed or open reduction followed by a postoperative CT scan. 8 patients (13%) required repeat reduction for continued dislocation or subluxation. The total average radiation dose per patient was 12.56 mSv with 63% (7.9 mSv) attributed to CT scan and 36.0% (4.5 mSv) to plain radiographs. When a low dose protocol was implemented, the average radiation dose per patient was reduced to 5.06 mSv with 52.3% (2.6 mSv) attributed to CT scan and 45.9% (2.3 mSv) from plain radiographs. The addition of a spica cast to the phantom models reduced radiation exposure between 21-28% depending on the type of cast applied when compared to uncasted controls. Plaster casts absorbed more radiation than fiberglass. The amount of radiation from the low dose scan was equivalent to 3-4 AP pelvic radiographs.

Discussion/Conclusion: To our knowledge, this study represents the first attempt to quantify total radiation exposure from all sources for patients undergoing operative intervention for DDH. While much of the focus is on radiation exposure from CT scan, we demonstrate that plain films remain a significant contributor to total radiation exposure and should be used judiciously. As low dose imaging protocols significantly reduce mean effective dose, it is vital surgeons collaborate with radiologists to ensure appropriate low-dose parameters are in place for all pediatric patients.

Evolution of lobar abnormalities of cerebral glucose metabolism in 41 children with drug-resistant epilepsy

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Objective. We analyzed long-term changes of lobar glucose metabolic abnormalities in relation to clinical seizure variables and development in a large group of children with medically refractory epilepsy.

Methods. Forty-one children (25 males) with drug-resistant epilepsy had a baseline PET scan at a median age of 4.7 years; the scans were repeated after a median of 4.6 years. Children with progressive neurological disorders, space occupying lesion-related epilepsy, and those who had undergone epilepsy surgery were excluded. The number of affected lobes on FDG-PET at baseline and follow-up were correlated with epilepsy variables and developmental outcome.

Results. On the initial PET scan, 24 children had unilateral and 13 had bilateral glucose hypometabolism, whereas 4 children had normal scans. On the follow-up scan, 63% of the children showed an interval expansion of the hypometabolic region, and this progression was associated with persistent seizures. In contrast, 27% showed less extensive glucose hypometabolism at follow-up; most of these subjects manifested a major interval decrease in seizure frequency. Delayed development was observed in 21 children (51%) at baseline and 28 (68%) at follow-up. The extent of glucose hypometabolism at baseline correlated with developmental levels at the time of both baseline ($r=0.31$, $P=0.05$) and follow-up scans ($r=0.27$, $P=0.09$).

Significance. In this largest longitudinal PET study of unoperated children with focal epilepsy, the lobar pattern of glucose hypometabolism changed over time in 90% of the cases. The results support the notion of an expansion of metabolic dysfunction in children with persistent frequent seizures and its association with developmental delay and support an aggressive medical and/or surgical approach to control seizures and optimize neuro-cognitive outcome.

Key words: PET, FDG, epilepsy, children, longitudinal

Title: Suicidal ideation and sobriety: How definitive is the determination of suicidal ideation in the inebriated emergency department patient? A pilot study.

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Introduction: According to data from the National Violent Death Reporting System, alcohol was detected in 36% of male and 29% of female suicide decedents (Kaplan et. al 2012). However, little empiric research has examined the role acute alcohol intoxication can play in increasing the proximal risk of suicidal behavior (Hufford 2001). No prior literature evaluates the impact of sobriety on suicidal ideation (SI). We are not aware of any study that establishes the diagnostic reliability of the clinical suicidal ideation evaluation as a function of alcohol intoxication.

Methods and Design: This study is a retrospective review of medical records for patients evaluated in the ED. Cases were generated for review based on criteria of having a psychiatric consult and blood alcohol level drawn while in the ED which produced 1084 cases for review. Cases were excluded from data analysis if the patient was a minor, if they were not being evaluated for suicidal ideation, or if they were not able to be seen before disposition. Chi-square analysis was used for comparison of variables of suicidal ideation with or without alcohol intoxication as defined by blood alcohol level (BAL) ≥ 80 mg/dL.

Results: Of the 1084 charts reviewed, 344 total cases were identified with positive suicidal ideation at triage. Of these, 61 were found to have a BAL ≥ 80 mg/dL, 19/61 continued to have suicidal ideation at sobriety whereas 42/61 no longer expressed suicidal thoughts. In contrast, of the 283 cases without BAC ≥ 80 mg/dL, 175/283 remained with suicidal ideation at re-assessment and 108/283 no longer expressed suicidal thoughts (Table 1 and Figure 1). Patients presenting with suicidal ideation and concurrent alcohol intoxication were no longer reporting suicidal ideation at sobriety in 69% of cases, compared to 38% for patients without alcohol levels on presentation. Chi-square analysis demonstrated $p=0.000012$.

Conclusion: Data suggests that patients presenting to the ED with complaints related to suicidal behavior who are found to have concurrent alcohol intoxication are more likely to deny suicidal ideation than patient's with similar presenting complaints and no alcohol intoxication. The results obtained in the present study help to further define alcohol intoxication and how it impacts suicidal ideation as a function of sobriety. The results of the current study also place additional emphasis on the importance of sobriety when performing a behavioral health assessment.

Names: Stephen J. Neville, Charles Ellis, Mohamed Sayyoub, James T Elder, Tianwen Ma, Rajan Nair, Mel Rubenfire, Ella A Kazerooni, Gudjonsson J, Prachi P Agarwal

Program: Transitional Year

Title: *Characterization of Epicardial Fat Volumes in Patients with Psoriasis*

INTRODUCTION AND BACKGROUND:

Epicardial fat is considered proatherogenic and has been linked to coronary artery disease (CAD) and poor cardiovascular outcomes. Recent literature suggests psoriasis patients to be at a higher risk for CAD.

QUESTION AND SIGNIFICANCE:

The objective of our study was to determine if patients with severe psoriasis have greater epicardial fat volume (EFV) on CT compared to healthy controls (HC). EFV estimation has the potential to help in decision making and for initiating cardiovascular preventative measures.

METHODS AND DESIGN:

Patients with severe psoriasis and HCs were recruited from an outpatient dermatology clinic. Subjects were assessed for cardiovascular risk factors (CVRF) and had no known CAD or diabetes. All subjects underwent CT for calcium scoring and coronary angiography, and psoriasis patients had assessment of their psoriasis severity. EFV (defined as fat volume between visceral pericardium and myocardium) was obtained by manually tracing 2 mm axial reconstructions of coronary calcium CT by a fellowship trained cardiothoracic radiologist blinded to subjects' data. EFV was remeasured by a medical student to assess interobserver variability.

Results:

There was no significant difference between psoriasis patients (n=25, mean age 46±6 years, 56% male, mean BMI 30.7±7.8 kg/m²) and HCs (n=16, mean age 47±7 years, 31% male, mean BMI 27.4±5.4 kg/m²) regarding prevalence of CVRF. Psoriasis patients had larger EFVs compared to HCs (91.4±30.5 ml versus 69.7±33.2 ml, p= 0.043, t-test). Interobserver agreement of the EFV measurements was excellent (intraclass correlation coefficient of 0.96, 95% CI [0.93,0.98]). There was no significant difference in the prevalence of subclinical CAD on CT angiography between the two groups (7/25 versus 4/16, p=1.0).

Discussion:

Though we did not find a significant difference in the prevalence of CAD, patients with psoriasis had larger EFVs than healthy controls. EFV estimation can help in decision making and for initiating cardiovascular preventative measures.

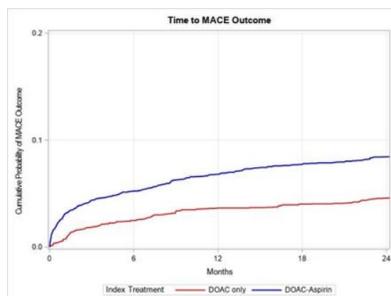
CONCOMITANT USE OF DIRECT ORAL ANTICOAGULANTS AND ASPIRIN FOR CARDIOVASCULAR EVENTS PREVENTION IN ATRIAL FIBRILLATION AND FLUTTER

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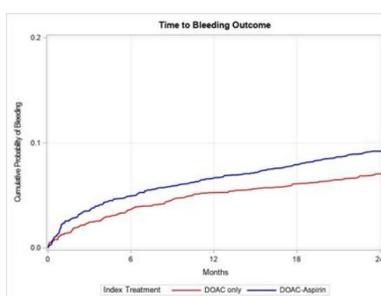
Introduction: Atrial fibrillation (AF) leads to two-fold increase in mortality. Direct oral anticoagulants (DOACs) are increasingly used in AF and atrial flutter (AFL) for thromboembolic prevention. We hypothesize that concurrent use of DOACs and aspirin in those subjects will result in less cardiovascular events compared to DOAC alone.

Methods & Design: Retrospective cohort study of adults with nonvalvular AF and AFL on a DOAC between 2010 and 2015 in Beaumont Health. The population was classified into two groups based on the presence or absence of concurrent aspirin use. The primary outcome was MACE, defined as acute coronary syndromes, ischemic stroke, and systemic embolism. Secondary outcomes were bleeding and death. A minimum of two years of follow up was used to identify outcomes.

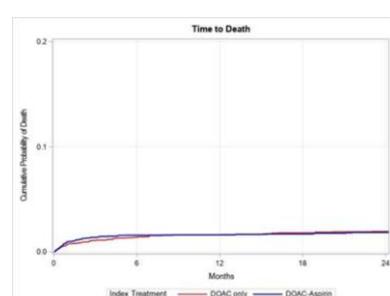
Results: 3,817 subjects were on a DOAC only and 3,636 were taking a DOAC with aspirin (exposed group). 56% were males, and 80% Caucasians. Both groups had similar prevalence of heart failure, diabetes, stroke, coronary disease, COPD, GI bleed, kidney disease, and peptic ulcers. Propensity scores were used to weigh rates of smoking, hypertension, CHADS2-VASc, and certain medications. After at least two years, more MACE and bleeding events occurred in the exposed group. Death rates were similar between the two groups.



HR 2.11 (95% CI, 1.84 - 2.42); p<0.001



HR 1.32 (95% CI, 1.18 - 1.48); p<0.001



HR 1.00 (95% CI, 0.69 - 1.14); p=0.339

Discussion & Conclusion: Using a large sample, we found increased MACE and bleeding when combining DOAC with aspirin. These results align with a 2016 meta-analysis that compared MACE and bleeding between oral anticoagulants with and without antiplatelets. Therefore, we recommend against combining DOACs with aspirin in AF or AFL; however, this is a retrospective study that did not adjudicate medical histories and outcomes; hence, randomized controlled trials are necessary to eliminate confounding and establish concrete guidelines.

Lactic Acid/Albumin Ratio as a Prognostic Marker for Multiple Organ Dysfunction Syndrome and Mortality in Patients with Sepsis Admitted to the Intensive Care Unit

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Introduction: Sepsis is a major cause of intensive care unit (ICU) admission and is associated with high morbidity and mortality rates. Severe sepsis/septic shock are frequently complicated by multiple organ dysfunction syndrome (MODS), which has a high mortality rate. Sepsis leads to increased lactate production and hypoalbuminemia; thus, lactate and albumin levels should diverge in sepsis. Can this information be helpful in predicting outcomes in patients with sepsis?

Objectives: 1) To determine the association between the lactic acid/albumin ratio (LAR) with the development of MODS and mortality in patients with sepsis and septic shock admitted to the medical ICU (MICU) at Ascension St. John Hospital.

Materials and Methods: We conducted a retrospective chart review of patients admitted to the MICU from 12/1/2013-12/1/2018, with a diagnosis of sepsis or septic shock. Data were collected on demographic factors, laboratory values during the first 24 hours, comorbidities, vital signs, sources of infection, use of vasopressors, mechanical ventilation, ICU admission, development of MODS and death. Data were analyzed using Student's t-test, the chi-squared test, the Mann-Whitney U test, receiver operating characteristics curves and logistic regression.

Results: We reviewed 49 patients, mean age 65.6 ± 18.5 years, 55.1% male and 55.1% black. The mean LAR in patients who died was 4.9 ± 4.1 versus 0.93 ± 0.53 in survivors ($p < 0.0001$). From ROC analysis, a cut-off LAR value of 1.10 yielded 92% sensitivity and 71% specificity for death. From logistic regression, after controlling for SOFA score, Apache II score, coagulopathy, liver dysfunction, CO₂, calcium and anion gap, LAR was a significant predictor of death (OR=8.9, $p=0.002$). LAR was also significantly associated with the development of MODS.

Conclusions: The LAR is a simple-to-compute measure that was highly predictive of mortality in patients with sepsis. It was more strongly associated with death than either the SOFA or Apache II score. Further research on the utility of the LAR is planned.

DECREASING POSTOPERATIVE OPIOID PRESCRIBING FOLLOWING ELECTIVE COLON SURGERY

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Introduction: We sought to evaluate if a hospital intervention (including review of prior prescription practices, evidence-based prescribing recommendations from the Michigan Opioid Prescribing Engagement Network (MI-OPEN), and multimodal pain management) would alter postoperative opioid prescribing following elective colon resection.

Methods & Design: We performed a retrospective review of opioid-naïve subjects undergoing elective partial colon resection from January 1, 2016 to December 31, 2017 (pre-intervention) and then after June 1, 2018 (post-intervention). Exclusion criteria included those with chronic opioid use, intra- or postoperative complications, or incomplete electronic medical records.

Results: There were 302 subjects (193 pre-intervention and 109 post-intervention). The average oral morphine equivalent (OME) prescribed decreased from 229.4 (± 171.4) pre-intervention to 113.3 (± 75.1) post-intervention, regardless of surgery performed or surgeon $p < 0.0005$. Factors associated with increased OME prescribed included male gender, obesity, and alcohol abuse ($p = 0.04$, 0.001 , and 0.008 respectively). There was a negative correlation between age and OME ($r = -0.224$, $p < 0.0005$), but no correlation between race, mood disorder, tobacco use, other substance abuse, or indication for surgery and OME prescribed. There was also a significant increase in the proportion of subjects discharged with non-opioid pain medications after intervention ($p > 0.0005$).

Conclusion: We were successful in decreasing average postoperative OME prescription after colon resection and identifying risk factors (male gender, obesity and alcohol abuse) which may be associated with increased OME prescription postoperatively. Significant variation in prescribing between surgeons suggests that further standardization of prescribing may benefit this population. Further efforts continue, including the designing and implementing of a hospital-wide enhanced recovery protocol.