EMERGENCY MEDICINE

Resident	Sarah Rachel Bor (sarah.bor@adventhealth.com)
Co-Authors	Phylecia Burgess, Lydia Fancher
Practice Site	AdventHealth Orlando
Abstract Title	Comparison of intravenous and intramuscular ketorolac for acute pain management in patients 65 years or older at two dosing strategies: 15mg IV vs 30mg IV and 30mg IM vs 60mg IM
Background	Several studies have shown favor of NSAIDs compared to placebo and opioids mainly looking at onset of pain relief and reduced risk adverse effects. Ketorolac (Toradol) has been a front-line agent commonly prescribed for management of acute abdominal and flank pain as well as migraines among patients. The average dose utilized ranges between 15mg to 30mg intravenous or 30 to 60mg intramuscular every 6 hours. Upon review of current prescribing practices within the AdventHealth system, the most common dose utilized is ketorolac 30mg intravenously with possible dose reduction strategies among elderly patients. The purpose of this study was to assess the clinical impact of various ketorolac dosing strategies in patients older than 65 years of age for acute pain.
Methodology	This was a retrospective chart review of emergency department (ED) patients 65 years or older who received IV or IM ketorolac for acute pain management. Acute pain indications were defined as flank pain, abdominal pain, musculoskeletal pain, headache pain and migraine pain. FIN (Financial Identification Numbers) from AdventHealth CFR ED's were obtained and screened for inclusion and exclusion criteria prior to analysis. Between June 2019 and August 2019, 65,534 patients admitted to the ED were screened and 84 patients were included for statistical analysis. The primary objective was to evaluate the effect of ketorolac 15mg IV for acute pain management in patients aged 65 years or older on pain intensity scores in the emergency department when compared to 30mg IV.
Results	Pending
Conclusions	Pending

Resident	Amber Brammer (amber.brammer@irmc.cc)
Co-Authors	John Comunale, Cecile Kelly
Practice Site	Cleveland Clinic Indian River Hospital
Abstract Title	Medication utilization evaluation of human prothrombin complex (KCentra®) in a community hospital
Background	Human prothrombin complex (PCC) is indicated for the urgent reversal of warfarin (Coumadin, Jantoven) in patients suffering from a major bleed or who need to undergo invasive procedures and/or surgical intervention immediately. PCC contains heparin, human albumin, Proteins C and S, Factors II, VII, IX, X, and antithrombin III. This retrospective medication use evaluation aims to examine the frequency of PCC utilization, verify administration was warranted, and analyze patient outcomes.
Methodology	A report of PCC ordered during admission at Cleveland Clinic Indian River Hospital was generated through the Paragon software system. This report included PCC ordered between September 1, 2018 and September 1, 2019. The search returned 94 records. These patient charts were then reviewed for the following data: indication for use, whether or not the dose was recorded as being administered, patient's home anticoagulant recorded upon admission, international normalized ratio (INR) prior to administration, PCC dose ordered, phytonadione utilization, INR post-administration, and development of deep vein thrombosis (DVT) or pulmonary embolism (PE) prior to discharge. For patients receiving PCC for reversal of INR >2, the dose prepared was compared to the dose recommended per the package insert.
Results	Overall, the majority of PCC administrations appeared to follow current hospital policies. There is room for improvement in this area prior to adapting enterprise policies. We could also improve the accuracy of our dosing as many doses of PCC were less than 80% of the recommended dose.
Conclusions	The pharmacy department is considering how to best provide a short refresher for physicians and pharmacists on indications and dosing for PCC utilization.

Resident	Bradley Bright (bradley.bright@mylrh.org)
Co-Authors	Kayla Wilson, Fred Blind, Brad Hall
Practice Site	Lakeland Regional Health
Abstract Title	Evaluation of caffeine sodium benzoate versus caffeine citrate use for post-dural puncture headache in the emergency department
Background	Post-dural puncture headache (PDPH) is reported to occur in up to 40% of patients undergoing lumbar puncture, either planned or through accidental dural puncture during epidural analgesic administration. The International Headache Society (IHS) defines PDPH as "bilateral headaches that develop within 7 days after a lumbar puncture and worsen within 15 minutes of resuming the upright position and disappear within 30 minutes of resuming the recumbent position." These headaches represent a significant and debilitating adverse effect, often requiring prolonged hospital stays and increased usage of analgesic medications, including opioids. Caffeine has been investigated as a potential agent to mitigate PDPH symptoms. Two intravenous (IV) caffeine formulations are currently available: caffeine citrate and sodium benzoate. Literature concerning the use of caffeine as a treatment for PDPH remains sparse; to date, only caffeine sodium benzoate has been evaluated in this population. During periods of medication shortage, caffeine citrate has been utilized in place of sodium benzoate for PDPH at this institution. There are currently no recommendations for interchange between the two agents. The purpose of this study was to evaluate the efficacy and safety of caffeine citrate compared to caffeine sodium benzoate for treating PDPH in the emergency department.
Methodology	This was an IRB-approved retrospective cohort study of patients who received caffeine citrate or sodium benzoate for PDPH in the emergency department (ED) between January 1, 2009 and October 1, 2019. The primary outcome was the incidence of failure of caffeine treatment for PDPH. Failure was identified as a repeat caffeine infusion administered, an analgesic administered within 1 hour of end of caffeine infusion, ED admission for PDPH symptoms within 7 days, or the receipt of an epidural blood patch. Secondary outcomes included change in subjective pain scores, time to rescue analgesic therapy after the end of the caffeine infusion, percentage of patients who received rescue analgesic therapy within 1, 2, and 6 hours of the end of the caffeine infusion, and any adverse effects. Continuous variables were compared using the Mann-Whitney U test and categorical data was compared using either a chi-square test or Fisher's exact test, as appropriate. Baseline characteristics of the two treatment groups were reported using descriptive statistics. A two tailed p-value of <0.05 was considered significant for all analyses. For quality assurance, an inter-rater blinded to the study objectives was assigned a randomly selected 10% study sample to evaluate the primary outcome. An inter-rater reliability goal of at least 90% agreement was considered acceptable.
Results	A total of 122 patients were included in the analyses. Baseline characteristics did not differ significantly between the caffeine sodium benzoate and caffeine citrate groups. Caffeine sodium benzoate demonstrated a failure rate of 23.5% and did not differ significantly from caffeine citrate at 39% (p=0.284) (Table 2). Additionally, secondary outcomes did not differ significantly between groups, except for time to administration of rescue analgesic (Table 2). The median time to rescue analgesic after the end of caffeine infusion was significantly higher in the caffeine sodium benzoate group compared to caffeine citrate (294 vs. 138 minutes, p=0.037). The inter-rater reliability agreement was 100% for the primary outcome.
Conclusions	There was no significant difference in the incidence of treatment failure between caffeine sodium benzoate and caffeine citrate. The results of this study reinforce this institution's policy of interchanging between these two products for use in patients with PDPH in the event of shortage or backorder. Further studies will be required to fully determine therapeutic equivalency, as well as the efficacy of caffeine for PDPH symptoms.

Resident	Alexandra Carlson (alexandra-carlson@smh.com)
Co-Authors	Nick Scaturo, Anit Legare, Jeremy Lund
Practice Site	Sarasota Memorial Hospital
Abstract Title	Development and implementation of a pharmacist toxicology education program and assessment of competency pre- and post-program implementation
Background	In October 2016, an emergency department (ED) pharmacist-driven toxicology consult service was implemented in an 839-bed community teaching hospital. This service was expanded to inpatient units in January 2018 and additional pharmacists were added to the toxicology team. Currently, team members have varying amounts of training and experience in managing poisoned patients, leading to requests for a formalized education program. This study aimed to improve pharmacist competency in managing toxicology consults by implementing a module-based toxicology education program.
Methodology	This Institutional Review Board exempt study was conducted from 09/2019 - 04/2020. An initial questionnaire was sent to team members to determine baseline confidence in consult management, type of resources utilized, and suggestions for module topics. Ten topics were selected based on responses and review of common toxicities. Team members completed a comprehensive exam (before and after all modules were presented) and pre- and post-quizzes (with each module). Additional resources were posted to the toxicology intranet-based website, including a summary handout from each module. A post-implementation questionnaire was sent to team members to assess resource use and confidence in consult management. The primary objective of this study was to evaluate the change in exam scores before and after provision of a pharmacist toxicology education program. Secondary objectives include evaluation of the change in pre- and post-module quiz scores, number of site visits to an intranet-based toxicology website, perceived confidence in toxicology case management, and type of resources used after education.
Results	Pending
Conclusions	Pending

Resident	Megan Ciborowski (megan.ciborowski@orlandohealth.com)
Co-Authors	Deba Rihani, Brandon Huang
Practice Site	Orlando Health
Abstract Title	Safety of sub-dissociative ketamine for acute pain in the emergency department
Background	In an effort to combat the national opioid epidemic, strategies have been developed to optimize management of pain while minimizing detrimental effects of opioids. One strategy is the use of opioid adjuncts and alternatives, including sub-dissociative ketamine (SDK). Sub-dissociative doses of ketamine have been associated with less adverse effects than those observed with dissociative doses; however, previous studies have identified barriers to its use for acute pain. The objective of this study is to evaluate the safety and tolerability of sub-dissociative ketamine for the treatment of acute pain in the emergency department (ED) and assess staff members' perception of its use.
Methodology	A retrospective review of adult patients treated in the ED with SDK for acute pain syndromes and a prospective survey of ED staff was performed. Patients were identified via orders for SDK (doses < 0.5 mg/kg) between January 1, 2017 and October 31, 2019. Patients were excluded from the study if SDK was ordered for another indication, if they were pregnant, or if they had a documented history of schizophrenia. Baseline characteristics included age, weight, acute pain diagnosis, baseline pain score and hemodynamic parameters, pre-hospital medications administered, and scheduled outpatient opioids. The primary endpoint was incidence of adverse effects (gastrointestinal, neurological, psychological) within two hours of SDK administration. Administration of benzodiazepines and anti-emetics were considered surrogate markers for psychological and gastrointestinal adverse effects, respectively, if not otherwise documented. Secondary endpoints included dose of SDK administered, need for additional SDK, and other analgesics administered after SDK administration. Barriers and benefits of SDK for acute pain syndromes were assessed through distribution of a survey to prescribers (ED attending physicians, resident physicians, nurse practitioners) and nurses.
Results	A total of 94 patients met inclusion criteria for the study. The most common pain syndromes reported were abdominal pain (38.3%), generalized pain (15.9%) and migraine (10.6%). Gastrointestinal adverse effects occurred in 22.3% of patients as determined by antiemetic use within 3 hours of SDK. Neurological adverse effects were reported in 6.4% of the study population and psychological adverse effects were reported in 1.1%. The median dose of SDK was 0.3 mg/kg. The median rate of administration of SDK was 15 minutes. Based on orders, 37.2% of patients received SDK as an intravenous push (IVP). After the initial dose, 11.7% of patients received additional doses of SDK. Opioids were the most common analgesic given within 6 hours after SDK (19.1%). A total of 48 prescribers and 17 nurses responded to the survey. Results showed that 88.2% of nurses and 88.3% of prescribers reported further education would increase their comfort using SDK for acute pain syndromes. Concern for emergence reactions, unfamiliarity with SDK for this indication, and increased monitoring requirements were the most common reported barriers to use.
Conclusions	In this study adverse effects were observed in 29.8% of patients treated with SDK for acute pain syndromes. Use of anti-emetics within 3 hours of SDK as a sequela of SDK must be interpreted cautiously as 36 (38.3%) of included patients received SDK for abdominal pain. Overall, low rates of neurological and psychological adverse effects were observed despite approximately half of nurses and prescribers survey respondents reporting concerns for emergence reactions as a barrier to SDK use. There are several limitations to consider when interpreting the results. Due to the retrospective nature of the study, inconsistent charting could under report the true incidence of adverse effects. Additionally, an orderable for SDK for acute pain was instituted at the study site in January 2019, but prior to that, SDK was ordered using various other orderables, resulting in non-standard administration rates. When considering adverse effects observed there is also the possibility that disease states may have contributed and thus the adverse effect could be not directly related to SDK. Finally, there was a low survey response rate from nursing limiting the utility of the survey to describe nursing barriers. The results of this study add to the literature surrounding adverse effects associated with SDK for acute pain syndromes and perceived barriers to use. At the study site, results will be used to provide further education to ED staff on the use of SDK for acute pain, highlighting the side effect profile observed, as over 80% of both nursing and prescriber survey responders reported education would increase their comfort with SDK use.

Resident	Haden Geiger (haden-geiger@smh.com)
Co-Authors	Antonia Vilella, Andre McMahon, Eileen Shomo
Practice Site	Sarasota Memorial Hospital
Abstract Title	Improving emergency department analgosedation practices through a nurse-driven, pharmacist-assisted practice model
Background	An analgesia-first approach for the management of pain and sedation in mechanically ventilated emergency department (ED) patients is not well described in current literature, and analgosedation practices are often extrapolated from critical care guidelines. Emergency Medicine (EM) pharmacists are skilled in the management of pain and sedation and well situated to optimize analgosedation practices. Updated analgosedation order-sets, transition from the Non-Verbal Pain Scale (NVPS) to the Critical Care Pain Observation Tool (CPOT), and a formal EM pharmacist consult were implemented in January 2020. The pharmacist analgosedation consult emphasized bedside assessment of CPOT/RASS with allied health professionals; recommendations for appropriate pharmacologic interventions; and timely provision of bedside analgosedation education.
Methodology	Single-center, retrospective chart review of pain and sedation practices in patients ≥18 years of age intubated in the Sarasota Memorial Hospital ED and admitted directly to the intensive care unit; patients with a chronic tracheostomy or whom required surgery within two hours of ED arrival were excluded. A pre-/post-test study design was used to compare patient groups before and after implementation of the analgosedation consult. The primary outcome was achievement of two consecutive Richmond Agitation-Sedation Scale (RASS) scores, at least ten minutes apart, within goal range of 0 to -2. Secondary outcomes included time to first analgesic dose (overall and stratified by intubation paralytic agent), and frequency of RASS, NVPS, and CPOT documentation per protocol.
Results	Pending
Conclusions	Pending

Resident	Eduardo A. Guizan Corrales (EduardoAG@baptisthealth.net)
Co-Authors	Heidi Clarke, Jonathan Kline, Radhan Gopalani, Tom Wolfel
Practice Site	Baptist Hospital of Miami
Abstract Title	Quality improvement project evaluating clinical outcomes of 4-Factor prothrombin complex concentrate versus andexanet alfa in the treatment of intracerebral hemorrhage induced by apixaban or rivaroxaban
Background	Oral anticoagulants account for up to 20% of intracerebral hemorrhages (ICH) with one-year mortality estimated to be as high as 54% and only approximately 39% of survivors achieving long-term functional independence. Several studies have examined the use of 4-Factor prothrombin complex concentrate (4F-PCC) and andexanet alfa in the treatment of factor Xa associated ICH. High cost burden, limited site drug availability, lack of clinical outcomes, and risk of thromboembolic events continues to be a major dilemma behind product selection at many healthcare systems across the nation. The purpose of this project is to compare clinical outcomes between 4F-PCC and andexanet alfa in the management of patients who develop life-threatening ICH secondary to apixaban and rivaroxaban at Baptist Hospital of Miami (BHM).
Methodology	This single-center, performance improvement project was a retrospective chart review conducted for all patients admitted to BHM between August 1, 2018 and March 30, 2020. Patients were included if they received either 4F-PCC or andexanet alfa for the management of ICH induced by apixaban and rivaroxaban. The primary outcome of this project compared bleeding reversal rate among these two groups as defined by a stable brain computed tomography scan. Secondary outcomes included dose of reversal agent used, thromboembolic events, hospital length of stay, ICH volume/score, National Institutes of Health Stroke Scale (NIHSS) and Glasgow Coma Scale (GCS) scores, mortality rate, and other hemostatic agents utilized.
Results	During the study time period, a total of 64 patients were screened for inclusion and exclusion criteria. From this sample, 43 patients were excluded due to the administration of 4F-PCC for hemorrhages outside the parameters of the cerebellum or induced by another medication and medical condition. All patients who received andexanet alfa had a diagnosis of ICH and a medication history indicating apixaban or rivaroxaban therapy. A total of 21 patients were included and evaluated for primary and secondary outcomes. Eligible patients were divided in two groups including group I (andexanet alfa, n=7) and group II (4F-PCC, n=14). Several baseline characteristics were noted to be different between the two groups such as average age, percentage of patients receiving apixaban or rivaroxaban as well as proportion of subdural hematomas and ICH at the time of admission. In reference to the primary outcome, resolution of hemorrhage was observed in 7/7 (100%) patients who received andexanet alfa versus 11/14 (79%) patients who received 4F-PCC. In group II, the average dose of 4F-PCC was 30 units/kg while the majority (86%) of the patients in group I received low dose andexanet alfa. The most common type of bleed reversed in both groups was ICH with a median volume of 15 mL (group I) and 11.7 mL (group II) and an average score of 1.25 (group I) and 2.11 (group II). The incidence of thromboembolic events and mortality rate was noted to be 21% and 29% respectively in patients receiving 4F-PCC while there was one death (14%) and no thromboembolic events noted in the andexanet alfa group. The average hospital length of stay was 13 days for both groups. Other secondary outcomes compared in group I and group II included the average NIHSS (9.7 vs 7.7) and GSC sore (13.6 vs 12.6) as well as other hemostatic agents utilized (14% vs 21%) respectively.
Conclusions	On the basis of descriptive analyses, andexanet alfa demonstrated to effectively reverse ICH hemorrhage with lower mortality rate as well as no reported thromboembolic incidents.

Resident	Jolly Kuriakose (jolly.kuriakose@adventhealth.com)
Co-Authors	Lydia Fancher
Practice Site	AdventHealth Orlando
Abstract Title	Accuracy of emergency department sepsis alert screening tool in comparison to other validated sepsis screening tools
Background	In 2017, a multi-center retrospective cohort analysis was conducted in 182 Australian and New Zealand intestive care units (ICUs) from 2000 - 2015 in which the three most prominent sepsis scoring tools (SOFA, qSOFA, and SIRS) were compared for validitaty and accuracy. The study showed that among over 184,000 patients admitted to the ICU, SOFA scoring tool showed a greater prognositc accuracy for in-hospital mortality than either qSOFA score or SIRS criteria. In addition, another screening tool known as the National Early Earning Score (NEWS) was also developed in recent years to predict the severity of sepsis. The NEWS tool has demonstrated the ability to predict suspected infection for those with poorer outcomes than qSOFA in multiple studies. This study will evaluate the multiple validated sepsis screening tools and compare them to the current protocol of AdventHealth Orlando's Emergency Departments (ED) to determine the rate of missed sepsis alerts.
Methodology	Patients were gathered using ClickView software for patients that entered through an AdventHealth ED and triggered the sepsis bundle powerplan. Patients were included if they had a confirmed diagnosis of sepsis and 18 years of age or older. Exclusion criteria included 1) comfort measure patients, b) transfer from outside institution/hospital not within AdventHealth Orlando. Demographic data (e.g. age, gender, etc.), vital signs, significant lab markers (e.g. WBC, SCr BUN, micro, etc.), length of stay, time to antibiotic initiation, and patient outcome will be recorded.
Results	Pending
Conclusions	Pending

Resident	Amanda Lewis (amanda.lewis@baycare.org)
Co-Authors	Amanda Harmon, Ashley Walker
Practice Site	St. Joseph's Hospital – BayCare
Abstract Title	Evaluation of emergency department opioid use after implementation of alternatives to opioid protocol
Background	Since 1999, the number of overdoses has quadrupled, with prescription opioids contributing to almost half of the opioid overdose deaths. This large increase in opioid related deaths has led to changes in legislation and approach to treatment. With pain being one of the most common reasons for patients to visit the emergency department (ED), there has been a growing need to address the use of using opioids as first-line therapy for pain. Many institutions have implemented a multi-modal approach utilizing an alternative to opioid protocol with an effort to decrease the use of opioids in the ED. The purpose of this study is to evaluate the use of opioids pre-and post-implementation of an alternative to opioids order set.
Methodology	This IRB-approved retrospective chart review compares opioid use in the emergency department pre and post implementation of an alternatives to opioid protocol for renal colic. Patients who were greater than 19 years of age and were admitted to the emergency department due to suspected renal colic were included. All pregnant patients were excluded. The primary objective was to evaluate the implementation of a pharmacist created alternatives to opioids order set by comparing the percent of patients who received an opioid while in the emergency department pre- and post-implementation. The secondary objective was to evaluate opioid use in milligram morphine equivalents and the rate of adverse effects before and after the order set implementation.
Results	A total of 655 patients were enrolled; 379 were in the pre-implementation group and 276 were in the post-implementation group. The percent of patients who were suspected of renal colic and received an opioid were 52.1% in the pre-implementation group compared to 36.2% in the post implementation group (0.16 difference; 95% CI 0.05 to 0.268; p = 0.004). The median milligram morphine equivalents for the pre-implementation group was 4 (range 1.5 to 20) and 4 (1.67 to 13.33) for post-implementation (95% CI 0.00 to 0.83; p = 0.637), with no reports of adverse effects in either group.
Conclusions	Among patients who visited a community hospital emergency department for suspected renal colic, the implementation of an opioid reducing protocol for this chief complaint resulted in a statistically significant decrease in opioid use. Further research should be conducted reviewing multiple opioid reducing protocols to assess the additional impact these may have on opioid prescribing in the emergency department.

Resident	Meena Manepalli (meena.manepalli@hcahealthcare.com)
Co-Authors	Carmen Russell, Mark Stavros, Mathew Valdez, Melissa Holloway, Sonia Lott
Practice Site	West Florida Healthcare
Abstract Title	Recognizing and Treating Opioid Use Disorders in the Emergency Department
Background	Opioid use disorder has become an increasingly prevalent consequence of the opioid epidemic affecting emergency departments throughout the Pensacola area. Although management of withdrawal symptoms is common, treatment of the addiction itself is not as standard. Buprenorphine is a semi-synthetic opioid with unique pharmacological properties that is FDA-indicated for the treatment of opioid dependence. Many studies have shown the benefits of administering buprenorphine in the emergency department (ED) to assist patients overcome their addiction. The purpose of this study is to evaluate the effect of an opiate withdrawal treatment order set and protocol for sublingual buprenorphine use in the ED of West Florida Hospital (WFH). The protocol contains the following algorithm: administration of sublingual buprenorphine every 1-2 hours, referral to a Medication Assisted Treatment (MAT) clinic, and an optional prescription for outpatient buprenorphine.
Methodology	This prospective study will assess the following endpoints: establishment of care with a MAT clinic, outpatient opioid use, and opioid overdose requiring admission to the ED. The research team will follow-up with clinics to assess for the overall improvement of each patient. The Electronic Florida Online Reporting of Controlled Substance Evaluation Program (E-FORCSE) will also be utilized to review opioid usage for each patient post-intervention. Providers will receive education regarding the significance of sublingual buprenorphine along with guidance on obtaining the Drug Addiction Treatment Act (DATA) waiver required to prescribe buprenorphine.
Results	Pending
Conclusions	Pending

Resident	Natalia A. Manzano Garcia (natalia.manzanogarcia@hcahealthcare.com)
Co-Authors	Ryan Ummel
Practice Site	Largo Medical Center
Abstract Title	Eosinophil count guided systemic steroid therapy for acute exacerbations of chronic obstructive pulmonary disease: Retrospective Study
Background	Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) have shown to be one of the leading causes of death worldwide. According to the World Health Organization 5.6% of all deaths globally in 2015 were due to AECOPD, this percentage is projected to increase up to 7.8% by 2030. A previous clinical study demonstrated that an eosinophil count greater than 0.34×10^9 cells/L (~3%) was associated with a 1.76-fold increased risk of severe exacerbations. This study assessed the use of eosinophil count as a biomarker in order to guide the appropriate use of systemic steroids in patients admitted to Largo Medical Center (LMC) for an AECOPD.
Methodology	This is a retrospective, single center, patient chart review including individuals admitted to LMC from January 1, 2018 to December 31, 2018. This study evaluates whether patients hospitalized for AECOPD may have reduced length of stay (LOS) with systemic steroids when eosinophils are more than 3% as compared to non-eosinophilic patients. The primary outcome evaluates LOS, and the secondary outcome the occurrence of adverse events related to the use of systemic steroids, i.e. hyperglycemia and leukocytosis.
Results	Pending
Conclusions	Pending

Resident	Joshua Newell (joshua.newell@jax.ufl.edu)
Co-Authors	Patrick Aaronson, Joe Spillane, Andrew Schmidt, Benton Stamper
Practice Site	UF Health Jacksonville
Abstract Title	Evaluation of the safety of haloperidol plus benzodiazepines versus ketamine for the treatment of agitation in the emergency department
Background	A wide variety of chemical restraints are utilized to control agitation in the emergency department (ED). Chemical sedation with agents such as haloperidol, benzodiazepines (BZD), and ketamine may prevent injuries to the patient and the healthcare team. However, the ideal agent to help control agitation has yet to be discovered. Benzodiazepines and antipsychotics have limitations such as slow onset of action (15-30 minutes), respiratory depression, and variability in clinical response. Therefore, ketamine has been proposed as an alternative first-line agent for the treatment of agitation in the ED, however there remains a paucity of literature surrounding the safety of ketamine. The purpose of this study is to compare the safety of haloperidol plus BZDs versus ketamine for the treatment of agitation in the ED.
Methodology	This is a single center retrospective chart review of agitated patients in the ED receiving either haloperidol plus BZDs or ketamine for chemical restraint. Primary outcome is a composite of ICU disposition and mechanical ventilation. Secondary outcomes include length of stay, rescue medication, and adverse events.
Results	A preliminary analysis of 96 total patients (42 ketamine, 54 haloperidol + BZDs) was completed. There is a significant difference in the combined primary endpoint of ICU admission and mechanical ventilation in the ketamine arm vs. haloperidol + BZDs (23.8% vs. 0%, $p<0.0001$).
Conclusions	In a preliminary analysis, ketamine was associated with an increase in composite of ICU admissions and mechanical ventilation in comparison to haloperidol and benzodiazepines. Data collection is ongoing.

Resident	Quynh-Nhu Truong (quynh-nhu.truong@va.gov)
Co-Authors	Joseph Hong, Mary Hall, Amanda Atherton, Shannon Dukes, Trista Wagoner, Daniel Leiding
Practice Site	Bay Pines VA Healthcare System - Bay Pines
Abstract Title	Impact of peer comparison feedback after initiation of an order menu on outpatient antibiotic prescribing rates of emergency department providers
Background	Acute respiratory infections (ARIs) are often the cause of emergency department (ED) and primary care visits. Even though ARIs are typically caused by viral pathogens, antibiotics are often prescribed inappropriately, thereby increasing the prevalence of antibiotic-resistant organisms and increasing the incidence of adverse effects. One strategy to optimize antibiotic prescribing is providing audit and feedback with peer comparisons to clinicians. Audit and feedback tracks antibiotic prescribing practices and reports them back to clinicians with comparison of the clinician's prescribing practices with his or her peers. Although there is strong evidence that peer comparison feedback may reduce inappropriate antibiotic prescribing, there is little data to support its efficacy in the ED setting. Furthermore, there is minimal evidence that this behavioral intervention would reduce prescribing rates in the setting of a VA facility.
Methodology	This is a single-center prospective study conducted at C.W. Bill Young VA Medical Center's Emergency Department. Participants were divided into a peer comparison intervention arm and usual practice after implementation of an ARI order menu. The pre-intervention period is an aggregate of ARI prescribing data from October 2017 to March 2018 and October 2018 to March 2019. The post-intervention period is between October 2019 to March 2020. The primary outcome is to evaluate overall ARI antibiotic prescribing rates. Secondary outcomes include prescribing rates for specific ARIs including bronchitis, pharyngitis, and rhinosinusitis.
Results	Pending
Conclusions	Pending