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 & ANNUAL BUSINESS MEETING



2018 ABSTRACTS

TABLE OF CONTENTS

Click the title below to jump to the abstract:

SELECTED ORAL PRESENTATIONS:

Evaluation of Fluid Resuscitation in Patients with Severe Sepsis and Septic Shock

Hani I. Kuttab, MD, University of Chicago

The CHAMPIONS NETWork: Community Health And eMPowerment through Integration Of Neighborhood-specific Strategies using a Novel Education & Technology-leveraged Workforce

Nasseef Quasim, BS, University of Illinois at Chicago

Implementation of a Novel Audit and Feedback Program on Discharge Opioid Prescribing

Quentin R. Reuter, MD, Northwestern University McGaw Medical Center

The Effect of Patient Education and a Primary Care Connection Model on Non-Urgent Emergency Department Utilization

Karis Tekwani, MD, FACEP, Advocate Christ Medical Center

The Impact of Emergency Department Time to be Seen Compared to Location on Patient Satisfaction Scores

Dylan Douglas, Medical Student, Loyola University Chicago Stritch School of Medicine

Correlating Demographics, Screening Modalities, and Health Literacy in an Urban Emergency Department

Sonali Gandhi, MD, Cook County Health and Hospitals System

Factors Influencing Pediatric Emergency Department Visits for Low-Acuity Conditions

Christina Long, MD, Loyola University Medical Center

Correlating Standardized Video Interviews with In-person Interviews: Can We Replace the Traditional Method?

Sina Memari, MD, Cook County Health and Hospitals System

Ultrasound-guided Peripheral Intravenous Catheter Placement Skill Retention - Does Over Training In Simulation-based Mastery Learning Improve Skill Translation From a Simulator to Humans 6 Months Out?

Rasheed Richards, Medical Student, Loyola University Chicago Stritch School of Medicine

SELECTED POSTER PRESENTATIONS:

Overall Distribution of Rotations Among Emergency Medicine Residency Programs

Kimbia L. Arno, MD, MFA, Rush University Medical Center

Adasuve® Results in Decreased Length of Stay and Restraint Use in the Emergency Department

Maureen Davis, MD & Brianna Miner, MD, Advocate Christ Medical Center

Impact Of An Emergency Department Hospitalist On The Disposition Of Medicare Patients

Matthew DeStefani, MD, Advocate Christ Medical Center

Utility of Fascia Iliaca Femoral Nerve Block Versus Intravenous Opiate Medication for Pain Control in Acute Proximal Femoral Fracture

David Sallen, MD, Presence Resurrection Medical Center

Spring SYMPOSIUM & ANNUAL BUSINESS MEETING

Burnout and Happiness Among Female Emergency Medicine Physicians

Natalia Stasior, MD, Presence Resurrection Medical Center

The Impact of the Affordable Care Act on Primary Care Treatability of Emergency Department Visits

Luther M. Walls, Medical Student, Loyola University Medical Center

Emergency Department Thoracotomy: Development of a Validated Checklist for Procedural Training

Hashim Zaidi, MD, Northwestern University

OTHER SUBMISSIONS:

Lessons from the National Opioid Shortage: No Correlation Between IV Opioids and Patient Satisfaction

Craig Erbach, DO, Advocate Christ Medical Center

Encouraging Agency in Emergency Department Throughput

Maureen M. Canellas, MD, The University of Chicago

Treatment of Benign Vertigo and Length of Stay in the ED

Nicole Schneiderman, MD, FACEP, Presence Resurrection Medical Center

Assessing Ultrasound Curriculum for Critical Care Fellows: A Single Institution Pilot Survey

Rachel Kadar, MD, Northwestern Memorial Hospital

Housing is Health; Results from the UI Health System Better Health through Housing Program

Stephen B. Brown; MSW, LCSW, University of Illinois Hospital and Health Sciences System

EMComm: A Longitudinal Case-based Communication Curriculum for Emergency Medicine Residents

Kathryn L Sulkowski, BS, Rush University

ED Time for Uncomplicated Pediatric Procedural Sedation by Emergency Physicians

Darien Cohen, MD, Presence Resurrection Medical Center

What Resources Do Patients Use Prior to Seeking Emergency Medical Care?

Brian Donahue, MD, FACEP, Presence Resurrection Medical Center

Initial Troponin, Renal Function and Mortality in ED Septic Patients

Steve Christos, DO, MS, FACEP, Presence Resurrection Medical Center

Risk of Asymptomatic Urinary Tract Infections and Increased Post-Void Residuals Associated with Opioid Usage in Emergency Department Patients

David Fine, Medical Student, Loyola University Stritch School of Medicine



Evaluation of Fluid Resuscitation in Patients with Severe Sepsis and Septic Shock

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Background

The Surviving Sepsis Campaign recommends patients with septic shock receive a 30 mL/kg bolus of crystalloid fluid. However, data on weight-based fluid resuscitation is conflicting and does not account for patients' medical comorbidities.

Objective

This study aims to determine predictors of fluid resuscitation and determine clinical outcomes of 30 mL/kg fluid resuscitation on patients with severe sepsis and septic shock. Design/Methods: This was a single-center retrospective cohort study. Using ICD 9/10 codes in combination with Sepsis-2 criteria, 1,144 patients were included between January 1, 2014-May 30, 2017. Baseline demographics, mortality in emergency department scores, and other endpoints were collected. Patients were placed into four groups - 30 mL/kg crystalloid bolus within 3 hours, 3-6 hours, 6-24 hours, or did not reach by 24 hours of sepsis onset. Outcomes included in-hospital mortality, need for vasopressor support, ICU admission, and delayed hypotension. Statistical analyses included multivariate Cox and logistic regression.

Results

Patients received a 30 mL/kg bolus within 3, 6, and 24 hours 49.7%, 65.1%, and 80.0%, respectively. At 3 hours, age >65 (OR 0.59, 95% CI 0.45-0.77), body mass index (BMI) >30 (OR 0.18, CI 0.13-0.25), men (OR 0.68, CI 0.52-0.89), end-stage renal disease (ESRD) (OR 0.20, CI 0.12-0.34), and CHF (OR 0.36, CI 0.26-0.50) were less likely to reach fluid goals. Patients with shock were more likely reach goals (OR 2.12, CI 1.61-2.78). Conclusions were similar using Cox regression. Patients who did not receive 30 mL/kg within 3 hours of sepsis onset were at increased odds for in-hospital mortality (OR 1.80, 95% CI 1.25-2.60) and delayed hypotension (OR 1.39, CI 1.02-1.91), adjusting for age, septic shock, BMI >30, gender, ESRD, and CHF.

Conclusion & Impact

Patients who did not receive the recommended fluid bolus of 30mL/kg have increased odds of in-hospital mortality and delayed hypotension. Additionally, advanced age, obesity, ESRD, CHF, and men were less likely to reach fluid goals. Further analysis is required to determine the effect of fluid resuscitation among the subgroups listed above and to further explore the potential deleterious effects of under resuscitation.



The CHAMPIONS NETWork: Community Health and eMPowerment Through Integration of Neighborhood-Specific Strategies Using a Novel Education & Technology-Leveraged Workforce

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Background

In Chicago, major disparities exist across common chronic conditions and access to care. Concurrently, many of Chicago's youth are unemployed and the number of minorities pursuing health professions is low. The CHAMPIONS NETWork program was implemented in an effort to eliminate this health equity gap.

Objective

The goals of the CHAMPIONS NETWork program were to empower underserved youth, expose them to careers in the health sciences, and improve population health in underserved communities. The purpose of this study was to determine the benefits of the program for participating students.

Design/Methods

Twenty-seven rising juniors and seniors from five Chicago high schools in underserved neighborhoods participated in the program. Students completed a four-week didactic curriculum in interdisciplinary health education, with an emphasis on cardiovascular disease (CVD) and cancer. Students then participated in a two-week internship in the emergency department (ED), where they screened and educated patients on CVD and cancer risk. They also connected at-risk patients to primary care appointments at the federally qualified health center that was affiliated with the ED. Students completed written questionnaires at the start and end of the six-week program.

Results

From program start to end, students' average CVD and cancer knowledge scores increased from 53% to 82% and 43% to 94%, respectively. Students' self-efficacy increased from 33% to 62%. Students' confidence in their ability to make good health decisions increased from 1% to 35%. Their self-reported firsthand experience about what it is like to have a career as a health professional increased from 7% to 50%.

Conclusion

By engaging students to become part of the health care team, our findings show that participating students retained health knowledge, increased self-efficacy, had an increased interest in health careers, and increased their own healthy habits.

Impact

The CHAMPIONS NETWork can incur cost savings for health systems by keeping their patient population healthy, while providing young adults with culturally-competent hands-on health career opportunities. Expansion of the CHAMPIONS NETWork program could be a mutually beneficial collaboration between communities, schools, and health systems and could improve the health in underserved communities while empowering students in a novel way.



Implementation of a Novel Audit and Feedback Program on Discharge Opioid Prescribing

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Background

Opioid prescribing in the United States has nearly tripled from 1999-2014, and with it, opioid-related deaths have increased by 200%. Emergency Departments (EDs) may play a pivotal role in the opioid epidemic as they are often the setting for first-time opioid exposures. Many ED providers are not aware of their relative opioid prescribing rates compared to their peers, as demonstrated by wide variability in prescribing practices.

Objective

We sought to evaluate the impact of a quality improvement initiative intended to provide ED prescribers with individual- and departmental-wide opioid prescribing feedback as measured by volume of discharge prescriptions before and after the initiative.

Design/Methods

We conducted a quality improvement initiative at a large urban academic medical center in downtown Chicago, Illinois (annual census > 88,000). We collected discharge opioid prescribing data from all 117 ED providers (48 attending physicians, 60 residents, 9 advanced practice providers) and provided each individual prescriber with their monthly prescribing rate relative to their de-identified peers, excluding providers not discharging at least 20 patients in a month. We compared the aggregate percentage of patients discharged with an opioid prescription before and after the implementation of this initiative using Welch's *t*-test.

Results

All 117 ED providers were included in the study population. Baseline data were captured for all groups, with a mean aggregate opioid prescribing rate of 8.3% (range 4.8 – 16.3%; standard deviation 4.3%). In the first four months following implementation of the feedback program, the mean aggregate opioid prescribing rate fell to 6.2% (range 3.3 – 13.8%; standard deviation 3.0%) representing a 2.1% absolute and 25% relative decline in discharge opioid prescriptions ($p < 0.0001$).

Conclusion

Implementation of a novel audit and feedback program of discharge opioid prescribing data was associated with a significant reduction in opioids prescribed from the ED. As this quality improvement initiative may be limited by unmeasured confounders, future studies should explore the impact of similar programs in a randomized and controlled setting.

Impact

The results of this study suggest that similar audit and feedback interventions might be useful for curbing opioid prescribing in other EDs.



The Effect of Patient Education and a Primary Care Connection Model on Non-Urgent Emergency Department Utilization

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Background

Studies exploring the use of primary-care related interventions to decrease emergency department (ED) utilization have demonstrated variable results. Several have shown that implementing patient care navigators in frequent ED users has decreased the number of ED visits, and increased primary care physician utilization. However, this has not been consistently demonstrated among the non-frequent ED utilizers, and does not clearly differentiate between necessary and unnecessary ED visits. In 2016, our hospital implemented a Primary Care Coordination Initiative (PCCI) with the goal of improving access to care. Community health workers performed a health needs assessment and addressed social barriers to care. They arranged primary care follow up and educated patients on appropriate ED usage.

Objectives

We sought to determine the effect of PCCI on non-urgent ED utilization in low acuity ED patients. We hypothesized that after implementation of the PCCI healthcare navigation and care coordination, there would be a decrease in non-urgent ED utilization.

Methods

We reviewed the first 250 low acuity patients (both adult and pediatric) enrolled in the PCCI. We recorded the total ED visits, as well as the total unnecessary visits as determined by the Minnesota algorithm, one year pre- and one-year post-intervention. A Wilcoxon signed rank sum test was performed in order to identify significant differences in overall median difference of unnecessary visits before and after the intervention.

Results

The 250 patients had 430 total visits pre-intervention of which 303 were unnecessary. There were 237 total visits post-intervention of which 182 were unnecessary. Mean age was 16 (SD \pm 15.8). The most common complaints were orthopedic (26%), respiratory (18%), ear, nose and throat (14%) and skin (14%). An overall significant median difference of 1 unnecessary visit was identified (p -value $<$ 0.0001), with 1 median unnecessary visit pre-intervention (1.00-2.00) and 0 median visits after the intervention (0.00-1.00).

Conclusion/Impact

A significant decrease of 1 median unnecessary visit was seen in the year following implementation of the PCCI. Improved care coordination, education, and health care navigation has the potential to improve appropriate ED utilization.



Overall Distribution of Rotations Among Emergency Medicine Residency Programs

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Background

There are over 200 emergency medicine (EM) residency programs in the United States. While there are basic criteria defined by the Accreditation Council for Graduate Medical Education (ACGME), there can be significant variation between programs with regard to rotation distribution. In addition, while the ACGME requires a set amount of critical care time in each EM residency, there are no requirements specifying the distribution of these rotations. However, there is currently no comprehensive analysis of the structure of EM programs. Such data would be useful for the creation of new programs and the assessment of current programs.

Objective

This study aimed to analyze the mean length of rotations and distribution of critical care rotations among EM residency training programs in the United States.

Design/Methods

A list of all current EM residency programs was obtained using the ACGME website. All program websites were reviewed and data was independently dual extracted by two investigators with any discrepancies resolved by consensus with a third investigator. Programs without curricular data available online were queried via email for the data. Programs were separated into three vs four-year lengths. Mean and standard distribution was calculated for each rotation and percent agreement was determined for extraction.

Results

200/202 programs (99%) had data available and the percent agreement was 99.9%. Among 3year programs, the mean length of EM home rotations was 76.0 weeks, EM away 8.7 weeks, critical care 16.4 weeks, anesthesia 2.7 weeks, orthopedics 2.5 weeks, trauma/burn 6.8 weeks, ultrasound 2.4 weeks, obstetrics 3.1 weeks, pediatric EM 8.1 weeks, toxicology 1.6 weeks, emergency medical services (EMS) 1.8 weeks, administration 1.3 weeks, elective 6.4 weeks, and research 0.8 weeks. Among 4year programs, the mean length of EM home rotations was 92.8 weeks, EM away 13.0 weeks, critical care 18.1 weeks, anesthesia 3.0 weeks, orthopedics 3.0 weeks, trauma/burn 6.7 weeks, ultrasound 2.7 weeks, obstetrics 3.1 weeks, pediatric EM 10.7 weeks, toxicology 2.8 weeks, EMS 2.3 weeks, administration 1.9 weeks, elective 12.2 weeks, and research 1.4 weeks. Additionally, among 3year programs, medical intensive care unit (ICU) represented 45.1%, cardiac ICU 11.0%, surgical ICU 15.0%, neuroscience ICU 4.3%, pediatric ICU 20.7%, and neonatal ICU 3.0%. Among 4year programs, medical ICU represented 47.7%, cardiac ICU 14.6%, surgical ICU 12.9%, neuroscience ICU 3.5%, pediatric ICU 16.9%, and neonatal ICU 4.3%.

Conclusion

This study provides summative data regarding the rotation distribution among EM programs in the United States.

Impact

This will inform current and new EM residency programs when determining rotation selection.



Adasuve® Results in Decreased Length of Stay and Restraint Use in the Emergency Department

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Background

Emergency Department (ED) physicians frequently employ intramuscular (IM) antipsychotics such as haloperidol or ziprasidone in agitated or psychotic patients.² These medications can result in excessive sedation, delayed psychiatric evaluation, and prolonged ED length of stay. If medication alone is insufficient, ACEP supports the careful and appropriate use of restraints but recognizes the need to consider each patient's civil liberties.⁶

Objective

Adasuve® (loxapine), a typical antipsychotic, is delivered via single-use aerosolization device providing prompt onset of action. This study set out to determine the effect of Adasuve® on time to medical clearance and the need for restraints in the ED.

Design/Methods

An IRB approved retrospective study analyzed data from patients over 18 years of age who were treated in the ED for agitation or psychosis between 4/1/2015 and 10/31/2016 at an urban, level 1 trauma ED. Patients in the study received either Adasuve® or alternative medications including ziprasidone or haloperidol. A chi-square test was then performed to analyze for a significant relationship between restraint use and Adasuve® versus other antipsychotic medications. The time of physician assignment, antipsychotic administration, and physician documented medical clearance for disposition were also collected. A t-test was then performed to analyze for statistical differences in mean times. Trauma patients were excluded from this study.

Results

A total of 407 patients met inclusion criteria for this study. Mechanical restraints were required in 19.66% of patients receiving traditional antipsychotic medications compared to 1.85% of patients who received Adasuve® (X2 10.38, $p=0.0013$). Mean time to Adasuve® administration was 2.54 hours after physician assignment compared to 5.08 hours in patients receiving IM antipsychotics ($P<0.0001$). Mean time from medication administration to medical clearance was 5.76 hours in patients who received Adasuve® compared to 8.85 hours in patients receiving IM antipsychotics ($P<0.0001$). Mean time to medical clearance was 8.30 hours in patients receiving Adasuve® compared to 11.42 hours in patients receiving IM antipsychotics ($P<0.0001$).

Conclusion

In conclusion, the use of Adasuve® in acutely agitated or psychotic patients was associated with more rapid medical clearance and a decreased need for restraints in ED patients when compared to traditional antipsychotics.

Impact

Adasuve® or other inhaled antipsychotics may allow for safer and more efficient evaluation of patients with acute psychosis while in the ED compared to traditional methods.



Impact Of An Emergency Department Hospitalist On The Disposition Of Medicare Patients

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Background

The Affordable Care Act has encouraged healthcare organizations to improve the coordination of patient care. At our institution, a novel pilot program was designed to improve patient care and avoid unnecessary admissions for managed-care Medicare patients. A hospitalist was assigned to the Emergency Department (ED) to work with ED physicians to accomplish this goal.

Objectives

To determine the number of ED visits by “Full Risk” Medicare patients (FRMP’s) between 11/1/16 and 4/1/17, and to determine the number of admissions avoided, repeat ED visits, and readmissions within 30 days of that visit.

Methods

A retrospective query was performed on ED hospitalist logs to identify FRMP visits. The Electronic Medical Record (EMR) was then used to identify repeat ED visits within 30 days of ED hospitalist intervention. The following data points were queried from the hospitalist logs:

- i. Number FRMP ED visits
- ii. Disposition
- iii. Number of admissions avoided
- iv. Interventions made to aid in disposition

The following data points were obtained from the EMR:

- i. Specific patient characteristics: Age, ESI, Chief Complaint, Diagnosis
- ii. The number of FRMP ED visits within 30 days of initial ED presentation
- iii. Repeat diagnosis and disposition

Results

The ED hospitalist identified 749 FRMPs and collaborated with ED providers during their ED visit. Of these patients, ED hospitalists made an intervention on 87. Seventy-five patients were discharged with outpatient arrangements, follow-up appointments, or labs. Six patients were transferred to a skilled nursing facility, nursing home, or rehab facility. Four were admitted and one was placed in observation. Seven FRMPs returned to the ED within 30 days. Of these patients, 4 were discharged, 2 were admitted as full inpatients, and one was observed for 23 hours.

Conclusions

Our study suggests that there is a role for hospitalist collaboration with emergency physicians to help optimize the outpatient care of patients and prevent unnecessary admissions.

Impact

As American healthcare shifts from traditional fee-for-service systems towards managed care systems, EM practice will need to shift along with it using ideas such as our hospitalist pilot.



The Impact of Emergency Department Time to be Seen Compared to Location on Patient Satisfaction Scores

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Background

Currently 90% of US hospitals are reporting Emergency Department (ED) crowding as a major problem. In an attempt to compensate for crowding, many EDs have tried using non-traditional beds or creating space in hallways to see patients. Seeing patients in hallways has been shown to both increase wait times and decrease overall patient satisfaction in previous studies.

Objective

Our study set out to examine whether low-to mid-acuity ED patients can be seen in the hallway with shorter overall length of stay (LOS) than similar acuity roomed patients without compromising patient satisfaction.

Design/Methods

This was a prospective, convenience sample survey study. Likert scales were used and survey questions were content validated. Surveys were administered to two groups of patients: patients seen in a hallway by a physician within two hours of arrival to the ED and patients seen in a private ED room after waiting at least two hours to see a physician. Surveys were only administered to patients who ultimately were discharged from the ED.

Results

A total of 91 patients were surveyed, 60 seen in hallway beds and 31 seen in a room with average acuity levels of 3.76 and 3.35 respectively. On average hallway patients were seen by a physician in 74.5 minutes and had a LOS of 150.5 minutes, while roomed patients were seen by a physician in 179 minutes and had a LOS of 354 minutes ($p < 0.01$). Overall satisfaction scores were highly comparable between the two groups. Hallway patients had an average satisfaction score of 7.87 and room patients had an average satisfaction score of 7.43, however, 35% of the hallway patients felt that privacy impacted their visit negatively.

Conclusion

Our results indicate similar patient satisfaction scores between hallway patients who experienced shortened LOS and roomed patients of similar acuities, and even a slight preference for patients to be seen in a hallway bed if it meant their time in the waiting room was shortened.

Impact

This study supports the idea of seeing patients in hallways without compromising patient satisfaction, while also significantly shortening wait times. Implementation of this strategy must consider patient privacy.



Correlating Demographics, Screening Modalities, and Health Literacy in an Urban Emergency Department

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Background

Patients with low health literacy have worse outcomes when seen in the emergency department (ED). While assessments like the Short Test of Functional Health Literacy in Adults (STOFHLA) have been validated in English-speaking clinic patients, the ability to rapidly and effectively identify low health literacy in the ED setting is limited.

Objective

To identify alternative screening questions from previous studies to replace the lengthier STOFHLA.

Design/Methods

This was a cross-sectional study of English and Spanish-speaking patients in an urban ED. A sample of medically-cleared patients was approached by a trained research associate to complete a survey of demographic data, the STOFHLA, and three screening questions. The STOFHLA grades health literacy via reading comprehension on a scale of 0-36. Scores of 0-22 indicate inadequate to marginal literacy. A two-stage multiple regression was conducted with the STOFHLA score as the dependent variable. After controlling for statistically significant demographic factors, we determined which of three screening questions impacted the STOFHLA score.

Results

From December 2016 to November 2017, 411 patients were approached with 32 unwilling or unable to participate. 379 (318 English, 61 Spanish) were enrolled. Based on STOFHLA scores, 48% of English-speaking patients had low (inadequate or marginal) health literacy (95%CI 42-53), and 64% of Spanish-speaking patients had low literacy (95%CI 51-76). Factors impacting low literacy were: age, Asian/Pacific Islander, and lack of high school education ($R^2=0.329$, $F(5,307)=30.07$, $p<.001$). Among the screening questions, only "How often do you have someone (like a family member, friend, hospital/clinic worker or caregiver) help you read hospital materials?" influenced scores when controlling for demographic factors ($R^2=0.369$, $F(8,304)=22.2$, $p<.001$).

Conclusion

Low health literacy is a serious, under-addressed issue in over half of the patients screened in our study. We found that screening for patients seeking assistance with written materials may be a proxy for recognizing low health literacy. More work is needed to develop screening tools to identify these patients more efficiently.

Impact

Patient's health literacy may be adequately assessed with a single screening question that we have correlated with low STOFHLA scores.



Factors Influencing Pediatric Emergency Department Visits for Low-Acuity Conditions

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Background

Primary care providers (PCP) can manage most non-urgent medical problems, yet an overwhelming number of patients still choose the emergency department (ED) for minor illnesses or injuries. Non-urgent ED visits contribute to overcrowding, increase overall wait times and length of stay, potentially reduces care provided to critically ill patients and can compromise continuity of care with the PCP.

Objective

Determine which factors influence a parent or caregiver to choose the ED over their PCP for non-urgent medical problems.

Design/Methods

A cross-sectional study using a CASI survey was offered to the parent(s) or caregiver(s) of low-acuity pediatric patients in the ED at Loyola University Medical Center (LUMC). Pediatric patients are defined as age less than 18 years, and low-acuity is defined as Level 4 or Level 5 (ESI). The survey consisted of 21 questions, which assessed: establishment and availability of PCP, perception of illness severity, reasons for choosing the ED, and demographics.

Results

A total of 101 surveys were completed, with a 95% completion rate. Most patients had an established PCP (n=91,95%). Over two-thirds did not attempt to contact their PCP prior to their ED visit (n=61, 67%). Almost half of the respondents stated their PCP did not offer after hours or weekend availability (n=43, 47%); half of these were affiliated with our institution (n=22, 51%). Forty-eight percent would have waited to see their PCP if they could be seen within 24 hours (n=46); there was no statistically significant difference between Medicaid vs non-Medicaid.

Conclusion

Nearly half of our respondents would have waited to see their PCP if they could be seen in a timely manner. Despite LUMC offering extended hours and weekend availability, a significant number of our patients were not aware of these services. These results suggest that improving health literacy amongst our patient population by educating them on PCP availability, ancillary services offered by PCP, and appropriate usage of the ED could potentially reduce non-urgent ED visits.

Impact

Promoting PCP availability, as well as improving overall health literacy amongst our patients, could reduce ED overcrowding.



Correlating Standardized Video Interviews with In-person Interviews: Can We Replace the Traditional Method?

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Background

The 2017-2018 ERAS application season incorporated an operational pilot for an audiovisual Standardized Video interview (SVI) for Emergency Medicine residency applicants. The SVI consists of 6 behavioral and situational questions with the applicants' answers and cumulative score by AAMC Subject Matter Experts included into their ERAS application. It was established to assess applicants' interpersonal and communication skills and knowledge of professional behavior. While the AAMC states the SVI was not created to substitute in-person interviews, some may view it as an eventual replacement.

Objective

This study sought to determine whether a correlation exists between interviewees' SVI score and the in-person interview score from one ACGME-accredited Emergency Medicine Residency Program.

Methods

SVI scores from 237 Emergency Medicine applicants interviewed during the 2017-2018 ERAS application cycle at Cook County Health and Hospital System (CCHHS) were reviewed.

SVI scores range from 6 to 30. The CCHHS interview score is an average score from five, 15 minute in-person interviews with faculty and senior residents. Scores range from 0 to 10 based on how successful the interviewer believes the applicant will be throughout residency. This scoring system has been utilized for 30 years.

The SVI scores were then compared to the CCHHS interview scores using Pearson correlation coefficients with Microsoft Excel.

Results

The applicants analyzed consisted of 60% males, 40% females, with ages ranging from 24 to 42 years. The average SVI score was 19.76 (range; 10-27). The average CCHHS interview score was 6.04 (range; 0.4-9.4). The correlation coefficient between the SVI scores compared to in-person scores was determined to be 0.23.

Conclusion

These results demonstrate only a weakly positive correlation between the interviewees' SVI scores and the CCHHS interview scores. This discrepancy may be related to the content of the questions, the substance of the answers, and bias from interviewers. This produces further questions as to how program directors should weigh the SVI compared to in-person interviews.

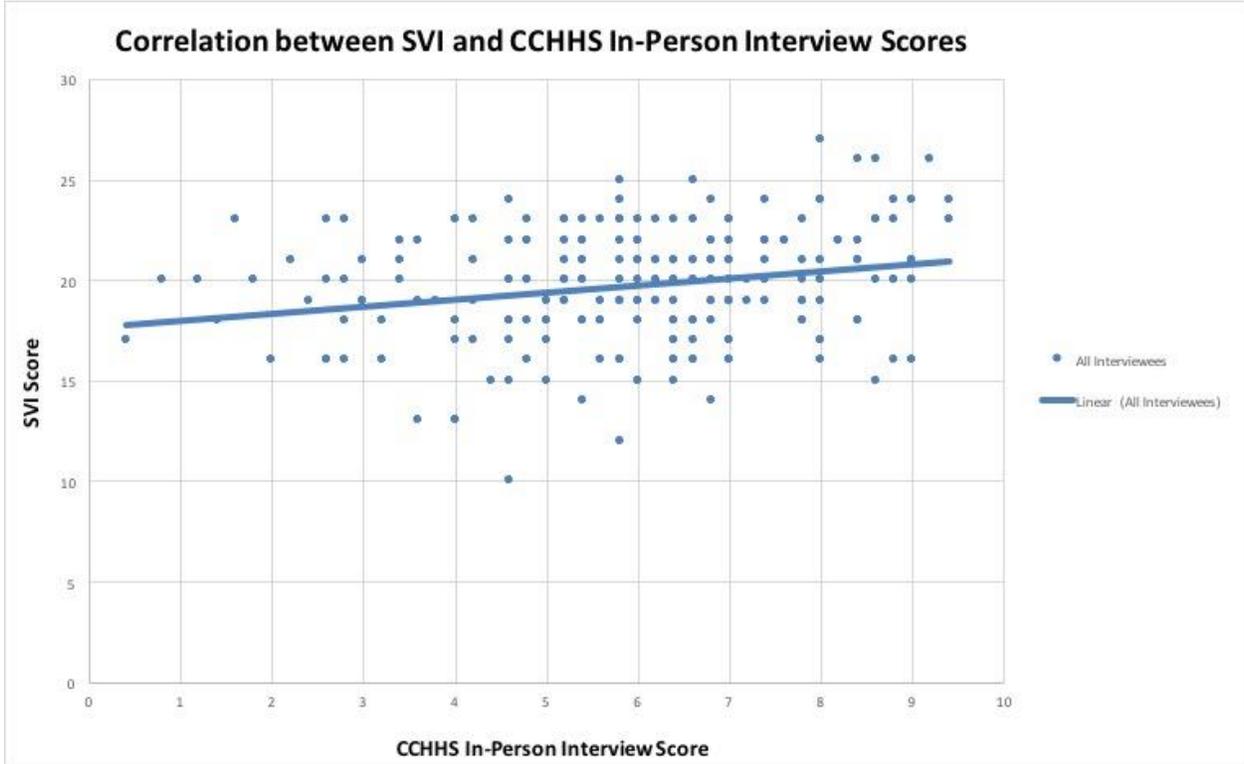
Impact

This study brings into question whether the current SVI could eventually replace in-person applicant interviews. Further studies could correlate scores from multiple programs and analyze SVIs from applicants not granted an interview.

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Thursday, May 3, 2018
Northwestern Memorial Hospital | Chicago, Illinois





Ultrasound-guided Peripheral Intravenous Catheter Placement Skill Retention - Does Over Training in Simulation-based Mastery Learning Improve Skill Translation from a Simulator to Humans 6 Months Out?

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Background

We previously investigated whether additional training on a simulator, beyond meeting competence in a mastery learning model, improves translation of procedural skills to humans. We found no evidence that extra attempts resulted in higher probability of successful ultrasound-guided peripheral intravenous catheter (USGPIV) placement in a human volunteer.

Objective

As a follow-up study, we evaluated skill retention of USGPIV placement on a human and mean checklist performance 6 months after receiving initial training to assess for any difference among three groups.

Design/Methods

This was a convenience sample consisting of 31 of 48 medical students who underwent simulation-based mastery learning (SBML) during phase 1 of the study. During phase 1, after meeting the mastery standard for USGPIV placement on a simulator based on a 19-item checklist, participants were required to perform 0, 4, or 8 additional mastery level performances on the simulator. Six months following this study, participants performed a single attempt at USGPIV placement on a human, which was assessed by a blinded expert using the same 19-item checklist.

Results

Six months following mastery training, there was no meaningful difference among the three groups in students' ability to place a USGPIV ($p = .11$). Similarly, there was no meaningful variability in the difference of total checklist performance between the first and second human attempts among the three groups ($p = .60$).

Conclusion

For novices, additional mastery level performances of USGPIV placement on a simulator following SBML training does not appear to increase performance stability for both USGPIV placement and total checklist performance.

Impact

This suggests little benefit to overtraining USGPIV skills beyond mastery competence and may prove useful in the development of procedural training in Emergency Medicine clerkships and residency programs.



Utility of Fascia Iliaca Femoral Nerve Block Versus Intravenous Opiate Medication for Pain Control in Acute Proximal Femoral Fracture

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Background

Nerve blocks for femoral fracture are a promising means to improve pain control in the emergency department while avoiding systemic effects associated with opiates. The use of ultrasound-guidance ensures safety and direct visualization of anesthetic administration.

Objective

The purpose of this study was to evaluate the ability to achieve adequate and safe pain control in proximal femur fractures through the use of ultrasound guided fascia-iliaca nerve block in the emergency department. It has been previously demonstrated that nerve blocks offer long lasting pain control with minimal side effects and may decrease the use of parenteral narcotics.

Design/Methods

This was a single-site prospective observational trial enrolling patients over the age of 18 who presented to the emergency department with acutely diagnosed proximal femur fracture who then underwent fascia-iliaca nerve block. Patients were excluded for distracting injuries, uncontrolled chronic pain, and if they were severely ill with multiple presenting medical issues. The data obtained included a pain score assessment using the visual-analogue score at times 0, 15, 30, 60, 120, and 240 minutes. In addition, subsequent IV opiates administered and any side-effects observed after nerve block within the first 24 hours were recorded.

Results

There were 14 patients enrolled between March and November 2016. The mean age was 79.1 with a majority female (71%) and a predominance of intertrochanteric fractures. Mean pain scores dropped significantly and reached a minimum score at 60 minutes on average. IV narcotics were given to 64% of patients in the 24 hours after nerve block. The mean morphine dose over 24 hours was 4.0 mg and the mean hydromorphone dose was 2.1 mg. There were no adverse side effects noted.

Conclusions

Fascia-iliaca nerve blocks under ultrasound guidance in the emergency department is an effective and safe means of obtaining adequate pain control for proximal femur fractures. Pain scores appear to drop significantly with minimum adverse effects and with only small doses of narcotics needed in the following 24-hour period.

Impact

Emergency physicians should consider Fascia-iliaca nerve blocks under ultrasound guidance in the emergency department as an alternate to IV narcotics use.



Burnout and Happiness Among Female Emergency Medicine Physicians

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Introduction

Burnout has been described as a triad of emotional exhaustion, depersonalization, and decreased sense of personal accomplishment. Burnout directly impacts our overall wellness in and out of the emergency department. It has also been suggested to affect our clinical decision-making, directly impacting patient care, patient safety, and patient satisfaction. The cause of burnout is multifactorial, and this study seeks to reveal some factors in burnout.

Study Objectives

Using a simple 27 question survey, we identify burnout factors in Emergency Physicians (EP) with an emphasis on gender differences.

Methods

A cross-sectional survey of full time and part time attending EPs from multiple practice settings was used. Excluded are surveys with incomplete responses.

Survey instrument contains 21 questions modified from the Maslach Burnout Inventory, including 8 questions measuring emotional exhaustion (EE), 8 questions measuring personal achievement (PA), and 5 questions measuring depersonalization (DP).

Demographics and outcomes are reported as means and percentages. Comparison between male and female was tested using Student-t or Chi-square as appropriate. A general linear model regression was used to control for confounders. A minimum sample size of 188 was found to give a power of 80% to find small to moderate correlation between burnout and contributing variables. Significance is set at .05 and p-values are two-tailed.

Results

There were 559 respondents to the survey; 374 females (66.9%) and 185 males (33.9%). The mean age for females was 40.05 years (SD: 8.45) versus males at 40.76 (SD: 8.98).

Female EP had 8.4% higher emotional exhaustion (EE) score than males ($p=.084$) while males had 13.3% higher depersonalization (DP) scores ($p=.011$). On linear regression analysis adjusting for other predictors of EE, females had 10.6% more emotional exhaustion than males ($p=.023$). Nightly sleep hours were also significant predictors of EE ($p<.001$).

The adjusted mean depersonalization score for females was 9.6% lower than males ($p=.039$). Excessive alcohol use was also a significant predictor of depersonalization ($P<.001$).



Conclusion

We found differences between male and female physician burnout particularly with emotional exhaustion and depersonalization along with other significant predictor such as nightly sleep and alcohol use. Females had greater emotional exhaustion, though less depersonalization than males.

Impact

Understanding gender differences among the emergency medicine physician community promotes moving toward a more “well” emergency physician. Addressing and understanding gender specific burn out allow physicians to direct guidance and intervention.

Table 1: Regression analysis of Emotional Exhaustion

	B parameter	Lower 95% CI	Upper 95% CI	Wald p-value
Gender (F vs M)	.304	.042	.565	.023
Age	-.010	-.024	.005	.197
Clinical hrs per mo	.002	-.001	.005	.271
Nights per mo	.022	-.011	.054	.194
Children	.135	-.124	.394	.307
Hour sleep per night	-.222	-.344	-.101	<.001
>7 alcohol per week	.319	-.006	.645	.055



The Impact of the Affordable Care Act on Primary Care Treatability of Emergency Department Visits

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Beatrice Probst, MD, FACEP, Michael Cirone, MD
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Background

The Affordable Care Act (ACA) attempted to address rising health care costs by providing better access to primary care providers for non-emergent complaints. Studies measuring emergency department (ED) utilization before and after the enactment of the ACA have yielded mixed results.

Objective

To analyze how changes in coverage status from 2011-2016 as a result of the ACA impacted ED utilization, and determine which populations were more or less likely to use the ED for non-emergent purposes.

Methods

We compared changes in the severity of ED visits and sociodemographic factors at an academic and community hospital to analyze longitudinal trends pre- and post-ACA. We used poverty level of the zip code of residence as a proxy for patient level socioeconomic status (SES). Patients were categorized as high ($\leq 9.9\%$ of households below poverty), intermediate (10.0-19.9%), or low ($\geq 20.0\%$) SES. We measured ED severity according to the validated Ballard algorithm. Multi-level logistic regression was employed to determine whether the probability of having a non-emergent ED Visit changed after the ACA. We defined the pre-ACA period as January 1, 2011-December 31, 2013, and the post-ACA period as April 1, 2014-December 31, 2016. We excluded ED visits that occurred from January 1, 2014-March 31, 2014 due to uncertainties about coverage status as insurers adjusted to the new ACA regulations.

Results

Our results showed that a lower proportion of ED visits were non-emergent post-ACA compared to pre-ACA ($p < 0.001$, 95% CI 0.72-0.75). Compared to insured patients, uninsured patients showed a 1.12 fold increase in odds of having a non-emergent visit to the ED ($p < 0.001$, 95% CI 1.08-1.16). Compared to white patients, black patients had a 1.39 fold increase in odds ($p < 0.001$, 95% CI 1.34-1.44) and Asian patients had a 1.14 fold increase in odds of having a non-emergent ED visit ($p < 0.02$, 95% CI 1.03-1.27). Compared to non-Hispanic patients, Hispanic patients showed a 1.77 fold increase in odds ($p < 0.001$, 95% CI 1.71-1.84). Compared to patients in the high SES category, patients with an intermediate SES had a 1.16 fold increase in odds of visiting the ED for a non-emergent reason ($p < 0.001$, 95% CI 1.12-1.19).

Conclusion

Our results suggest a lower proportion of ED visits were non-emergent after implementation of the ACA. However, some patient populations remain at risk for ED overutilization for non-emergent needs.



Emergency Department Thoracotomy: Development of a Validated Checklist for Procedural Training

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Background/Objective

Emergency Department (ED) thoracotomies are rare yet vital procedures for Emergency Medicine (EM) physicians. Due to the infrequency of real-life exposure, studies of EM residents suggest a lack of opportunities to develop procedural competency. There is a paucity of literature which describes an ideal teaching approach. A validated checklist, while central to teaching this procedure, does not exist. Our objective was to develop and validate a checklist for performing an ED thoracotomy.

Design/Methods

The authors conducted a review of PubMed literature using related search terms for a resuscitative or ED thoracotomy. Following a comprehensive literature review, a preliminary 23-item checklist was developed and disseminated to experts in Emergency Medicine and trauma surgery. Subsequently, a modified Delphi method was used to revise the checklist and after three reviews, the checklist achieved consensus. Additional experts' performances were rated via the checklist to assess usability, and Cohen's kappa was used to calculate interrater reliability. A student's T test was used to compare the performance of participants who had or had not done a thoracotomy in clinical practice.

Results

A final 23-item checklist was developed for ED thoracotomy, achieving consensus after three reviews using the modified Delphi method. The overall interrater reliability was strong (kappa 0.84) with individual item agreement ranging from moderate to strong (kappa 0.61-1.00) with the exception of items 8 and 10 which had minimal agreement (kappa 0.00) and item 9 which had minimal disagreement (kappa -0.29). Experts (attending physicians and senior residents) performed well on the checklist, achieving an average score of 75% items complete. Additionally, participants who had done a thoracotomy in clinical practice performed significantly better than those that had not, achieving an average of 78.26% items completed vs 47.83% ($p < 0.05$).

Conclusion/Impact

A final 23-item checklist was developed for ED thoracotomy using the modified Delphi method. Overall interrater reliability was strong. This checklist can be used to assess performance of an ED Thoracotomy. This checklist will play a key role in the development and implementation of a mastery learning curriculum regarding performing an ED thoracotomy.



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TABLE 1

<u>Checklist Item</u>	<u>Kappa Coefficient</u>
<p>1. Don full PPE Correct: Must wear gown, gloves, mask, and eye protection.</p>	1.00
<p>2. Gather equipment Correct: Must include thoracotomy tray, scalpel, sterile towels or drape, betadine or chlorhexidine.</p>	1.00
<p>3. Ensure all required instruments are in the thoracotomy tray Correct: Must verbalize the supplies of scalpel, scissors (Metzenbaums/ Mayo), rib spreaders (Tuffier), forceps (Pickups), vascular clamps (Debakey/Satinsky), needleholder, sternal or bone saw/cutters (Bone mallet/Lebsche knife/Gigli saw).</p> <p><i>Evaluator prompt if candidate does not verbalize items: "What items do you require to perform this procedure?"</i></p>	0.77
<p>4. Assemble the rib spreader prior to incision Correct: Places the ratchet apparatus between the two arms of the spreader and ensures that the spreader will open and close. When finished assembling, leaves in the fully closed position. Performs this step prior to incision.</p>	1.00
<p>5. Position the patient Correct: Raises and abducts the arm above the patient's head to expose the left chest.</p>	1.00
<p>6. Prepare chest prior to incision Correct: Uses betadine or chlorhexidine and performs the action prior to incision.</p>	1.00
<p>7. Incision Correct: Makes an incision at the level of the 4th or 5th intercostal space starting at the sternum extending posteriorly to nearly the level of the bed just under nipple for male, under the breast fold for female.</p> <p><i>Evaluator prompt: "Describe your approach. Please be specific." (Must include specific intercostal space, and length of incision e.g. sternum all the way lateral to mid/posterior axillary line nearly to the level of the bed).</i></p>	1.00



Lessons from the National Opioid Shortage: No Correlation Between IV Opioids and Patient Satisfaction

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Background

There was a 287% increase in intravenous (IV) hydromorphone use in American Emergency Departments (EDs) between 2005 and 2011. In August of 2017, Advocate Healthcare implemented restrictions on the use of IV opioids in response to a system-wide shortage.

Objective

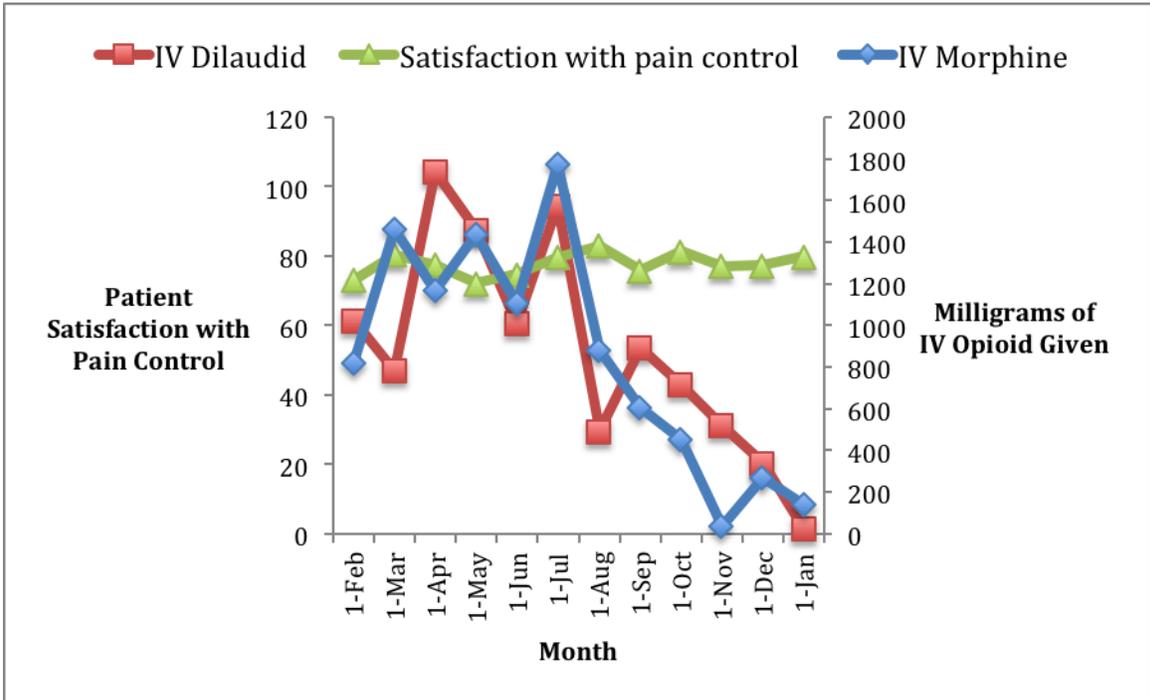
The goal of this study was to quantify the decrease in ED IV opioid use as the result of a medication shortage and to observe whether changes in pain management had a measurable effect on patient satisfaction scores. Changes in practice patterns were observed by evaluating the use of enteral (PO) alternatives instead of IV opioids.

Design/Methods

A retrospective query was performed using Pyxis™ pharmaceutical dispensary software. All recorded doses of IV morphine and hydromorphone dispensed in the ED between 2/1/2017 and 1/31/2018 were obtained and totaled by month. Distributions of PO morphine, PO hydromorphone, and acetaminophen-hydrocodone tablets were also quantified. Press Ganey scores concerning pain control in the ED were analyzed for changes after the restriction.

Results

Following implementation of pharmacy restriction in August of 2017, ED use of IV morphine fell from a monthly average of 1,296mg to 398mg while IV hydromorphone use fell from a monthly average of 75.8mg to 30mg. Use of PO morphine increased from a monthly average of 373mg to 10,265mg while PO hydromorphone increased from a monthly average of 17mg to 31mg. Acetaminophen-hydrocodone administration increased by 37%. During the same time period, Press Ganey scores for pain control increased from a monthly average of 76.2 to 79%. These results are depicted in the figure below.



Conclusion

In response to a system-wide and national medication shortage earlier this year, providers at Advocate Christ decreased their use of IV opioids in favor of PO options. Patient satisfaction scores increased during this period of change.

Impact

This data suggests that acute pain in the ED can often be adequately controlled with PO analgesics. After medication stores are replenished, a lasting decrease in IV opioid use may help to curtail the current opioid crisis in the United States.



Encouraging Agency in Emergency Department Throughput

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Background

Historically, ED physician productivity has been measured in relative value units and patients per hour. However, these data are aggregate in nature, a compilation of all of phases of ED care from arrival to discharge. Thus, they fail to both describe in detail the bottlenecks in the ED production system as well as fail to highlight areas of individual provider potential improvement. Granular data, on the other hand, has the potential accomplish both of these tasks.

Objective

The objective of this study was to increase ED throughput via decreases in ED length-of-stay and resident Post-Workup Time.

Design/Methods

Using EMR records and specific, process related time stamps, we were able to isolate the following times: Room to Doctor, Diagnostic Work-up Turnaround Times (specific to labs and radiologic studies), and Post-Workup Time. Post-Workup Time was defined as the amount of time that passed between all lab and radiographic studies returning and a disposition of "Discharge" being selected. We used this data during the 2017 and 2018 academic years to visually model patient stays and identify time segments within the ED provider's locus of control, i.e. Post-Workup Time. Each resident's weekly Post-Workup Time was averaged and shared as an anonymous comparison of all resident's times. Residents were encouraged to critically evaluate their own variability from the mean. The changes in throughput times were compared to the 2016 academic year, acting as a control group.

Results

Since the post-workup time initiative, resident post-workup time has decreased from 80 minutes to 53 minutes (33% decrease), with a stable downward trend over the same time period. This has contributed to an overall decrease of 45 minutes (15% decrease) from the ED length-of-stay for discharged patients.

Conclusion

Granular and individually attributable ED data delineates operations and patient LOS in a way that helped our residents find accountability and agency to improve throughput.

Impact

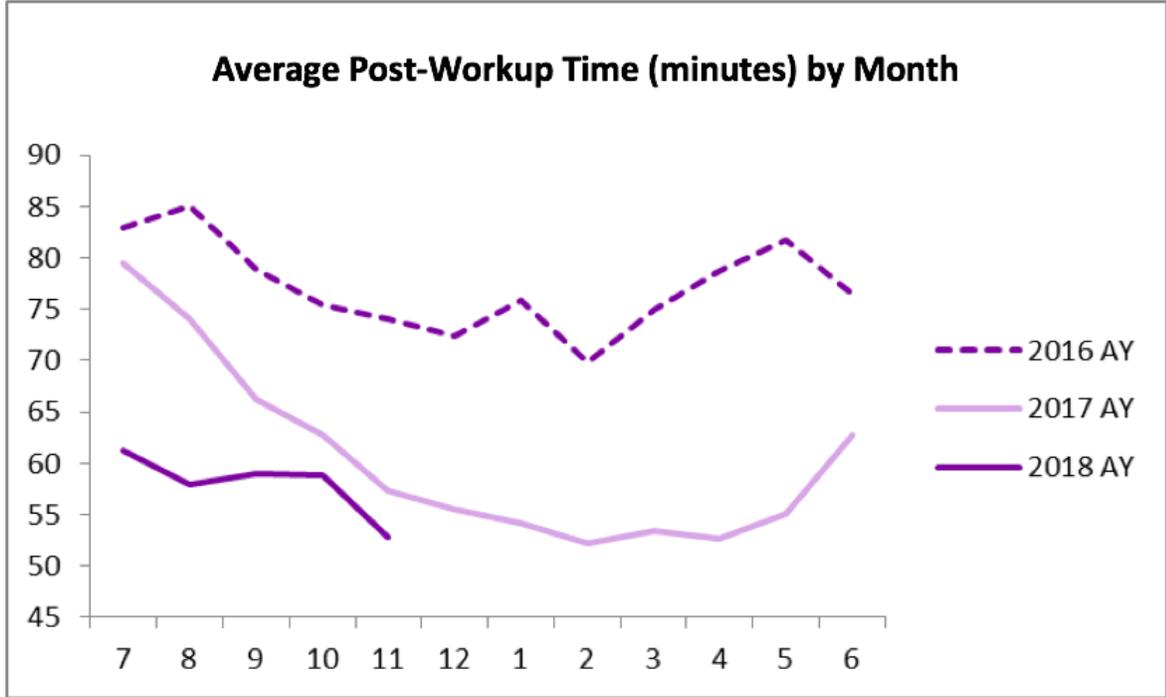
Granular data highlights areas of individual provider improvement and is useful in improving ED throughput.

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Average Post-Workup Time (minutes) by Month





Treatment of Benign Vertigo and Length of Stay in the ED

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Background

Benign vertigo is a commonly treated condition in emergency departments. It can be challenging for providers as the symptoms are usually sudden onset and can be debilitating.

Objective

Our purpose was to compare various medications commonly used in the ED for treatment of benign vertigo and their effects on length of stay (LOS).

Design/Methods

This was a retrospective chart review of 199 patients treated for benign vertigo between January and June 2014 at 2 emergency departments in Chicago, IL. Inclusion criteria were patients 18 or older with a diagnosis of benign vertigo. Data collected included treatment (IV fluids, ondansetron, diazepam, and meclizine), LOS, and disposition. Patients were excluded if given other antihistamine, anxiolytic, or antiemetic in addition to or replacement of the three studied. Other exclusion criteria included trauma, leaving against medical advice, headache, or missing medical records.

Student t or Chi-squared tests were performed as appropriate. Regression analysis of LOS was performed using a general linear model. Statistical significance was set at p-value of 0.006 to correct for the Bonferroni effect.

Results

199 patients met inclusion criteria. 12 patients were excluded, giving a sample size of 187. Of those, 146 were discharged. The LOS for these patients averaged 194 minutes (SD: 79.2).

None of the four treatments reviewed (IV bolus, meclizine, diazepam, or ondansetron) significantly decreased ED length of stay. However, the administration of IV fluids and/or diazepam significantly increased the ED length of stay by 35 minutes ($p=.003$) and 52 minutes ($p<.001$) respectively.

Conclusions

Meclizine and Zofran may have a small beneficial impact on LOS, although findings were not significant. IV fluids lengthened LOS but the meaning of this is unclear as it may have taken more time to infuse IV fluids. Diazepam also lengthened LOS, however its use could have indicated more severe cases of vertigo which required more time and reassessment.

Impact

More studies will need to be done to determine whether the use of IV and diazepam are beneficial for ED patients with benign vertigo given the increased LOS.



Assessing Ultrasound Curriculums for Critical Care Fellows: A Single Institution Pilot Survey

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Background

Point-of-care ultrasound (POCUS) use is rapidly increasing in the intensive care unit (ICU), due to its availability and impact on patient management. EM is a leading field in POCUS and an increasingly popular pathway to critical care (CC) training. Although EM ultrasound curriculums are well-defined, surveys show that CC programs lack appropriate ultrasound training. Surveys targeting CC program directors demonstrate the need for POCUS curriculums, but neither define characteristics of an ideal curriculum nor directly assess fellows' perspectives.

Objective

This needs assessment survey was designed to assess the current state of POCUS training for CC fellows and guide formation of an ideal U/S curriculum.

Design/Methods

An electronic survey was distributed to CC fellows and faculty of varying subspecialties, including surgery, neurology, anesthesia, and pulmonary CC at a major academic health center. The 13-item questionnaire included professional demographics, POCUS training, interest in learning ultrasound, structure of ideal POCUS curriculums, and barriers in training.

Results

Our return rate was 79% (23/29), and included fellows (39%), faculty (57%), and program directors (4%). 100% (23/23) indicated they lacked a formal ultrasound curriculum. 70% (16/23) rated their desire to learn critical care ultrasound as "extremely interested" (5 on a Likert scale of 1-5). 0% (0/23) rated it "slightly" or "not at all" interested (1 or 2 on a Likert scale of 1-5). Transthoracic echo (TTE) and pulmonary ultrasound were the most desirable categories. The number of hours that respondents felt should be dedicated to an ultrasound curriculum over a 6 month period varied significantly, from 4 to 120 hours (mean 30.6, standard deviation 28.8, mode 20, median 24). 83% (19/23) listed lack of training as a barrier to using POCUS.

Conclusion

While POCUS utilization expands in CC, lack of formal curriculum remains a significant barrier, despite high levels of interest. However, the ideal time dedicated to ultrasound varies greatly. This suggests a tiered curriculum, composed of core CC ultrasound training, with the ability to customize based on specialty, might be favored.

Impact

A revised survey based on this pilot will be sent to a larger audience to further define and create the ideal POCUS curriculum for CC.



Housing is Health: Results from the UI Health System Better Health through Housing Program

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Background

Homelessness is an underreported social condition that is prevalent in Emergency Departments. UI Health's Better Health through Housing program identified 26 chronically homeless individuals that frequent our Emergency Department and transitioned them into permanent supportive housing using the nationally-validated Housing First model that significantly reduces ED recidivism.

Objective

Create and test a healthcare-to-housing model where chronically homeless individuals are identified, screened and transitioned into permanent supportive housing, using the Housing First philosophy and process.

Methods

Patients were identified by self-report or staff observation, and a listing distributed to social workers of the highest utilizers of ED services. Patients were interviewed to determine typology of homeless status (transitional, episodic or chronic). A five-member review panel of ED and psychiatry physicians, social workers and nursing staff heard case presentations from social workers and physicians, and patients meeting criteria (chronically homeless, complex medical condition) were referred to the program.

Results

- 1.) Homelessness is a dangerous health condition: 5/26 (18.5%) died during the program. 17/26 (65.3%) had a mental illness, 12/26 (47%) had a substance abuse disorder, 5/26 (19.2%) had a head or neck cancer, 10/26 (38.4%) had a cardiovascular disease, 8/26 (30.7%) had a respiratory disease and 6/26 (23%) had diabetes. National data suggests that up to half will suffer a traumatic brain injury.
- 2.) Homelessness is invisible in healthcare. Starting from an initial sample of 48, gathered from patient report and staff observation, UI Health has now used data mining that has revealed more than 2,700 homeless individuals since 2010, with a current registry of 616.
- 3.) Homeless patients have exorbitant healthcare cost and utilization. The initial sample of 48 patients had healthcare costs that were 4.8 times as expensive as UI Health's average patient costs. (6,997/33,585). 32.3% of 616 current homeless patients are in the 10th decile of most expensive UI Health patients.

Conclusions

Homelessness is a significantly underreported social condition that has a profound impact on health.

Impact

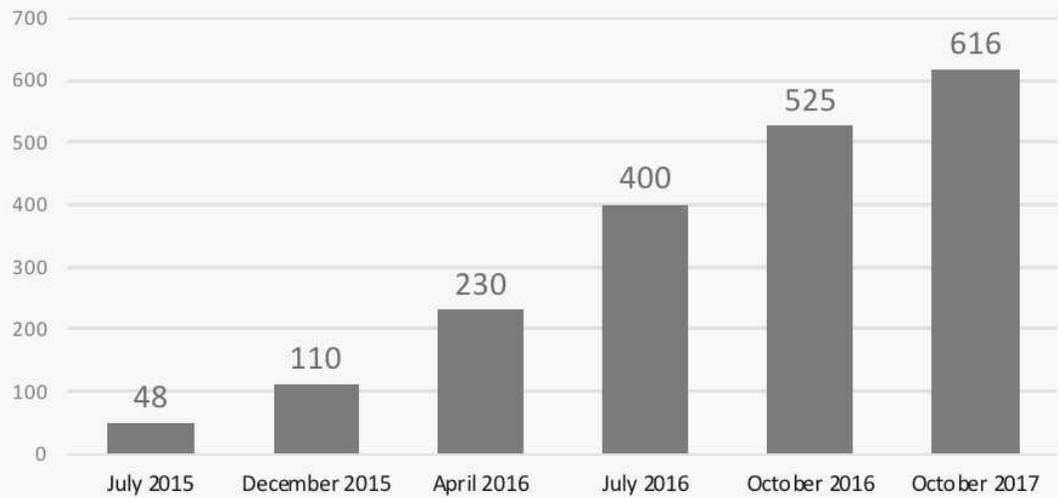
The 'Better Health through Housing Program' can be disseminated and translated for implementation in a city-wide, state-wide, and eventually a national model portable for use in other EDs.



Figure 1:

Underreporting of a dangerous condition

In 2015, only 48 homeless patients had been identified by ED & Psych staff interviews.





EMComm: A Longitudinal Case-based Communication Curriculum for Emergency Medicine Residents

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Background

The ability to effectively communicate in difficult situations is an important skill in Emergency Medicine. However, the high stakes communication challenges residents face in real-life scenarios are often not amenable to formative feedback and are usually unobservable for evaluation purposes. Improved communication skills have been shown to be related to increased patient compliance, decreased malpractice rates, and an improved patient experience. A simulated communication curriculum offers an opportunity for immediate feedback as well as assessment of the milestone of "Patient Centered Communication."

Objective

The objectives are to reinforce effective approaches to diverse communication challenges, to provide a safe learning environment for critical communication skill development, and to improve the patient experience through clear and empathic communication.

Design/Methods

This case series is designed to allow junior and senior resident learners to practice a broad range of communication skills including obtaining consent, delivering bad news, difficult discussions, and clinical uncertainty. These eight cases (four each for each level) are designed to include one standardized patient or faculty actor per scenario following the provided scripts. Standardized door charts for each patient help orient resident learners to the objectives of the encounter. Following each scenario, a debriefing session with reflection and feedback is provided. Residents were surveyed at least six months after the curriculum administration and asked about their experience as well as how often they use the skills practiced.

Results

Preliminary survey results from two residency programs (n=11) show that 45.5% of residents reported a "very positive" experience and 38.6% reported "often (>5 times)" employing skills reviewed in this simulation in the post-curriculum period.

Conclusion

This project demonstrated the usefulness of simulation for improving resident communication. Residents enjoyed this curriculum and reported frequently applying the skills they learned. This has been shown in prior research to correlate to improved patient outcomes. By allowing residents the chance to practice with simulated experiences focused on difficult communication scenarios they will be more capable of undertaking these conversations in the Emergency Department.

Impact

This curricular design is generalizable to other GME specialties and can be tailored to specific needs with variations in cases that are more realistic for other specialties.



ED Time for Uncomplicated Pediatric Procedural Sedation by Emergency Physicians

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Background

Conscious sedation is commonly performed in the ED, especially among pediatric patients. Among the sedation agents, some common ones used include ketamine, midazolam, etomidate, and fentanyl. Aside from safety and efficacy, another important thing to consider when sedating a patient is whether this would add to their length of stay, which would then affect overall ED flow, throughput, and productivity.

Objective

The study objective is to determine if there is a significant difference in ED length of stay depending on the number of agents used in pediatric sedation.

Design/Methods

This is a 3-year retrospective study of procedural sedations performed by Emergency Physicians on pediatric patients (≤ 18) at two community-based ED. Excluded are patients admitted to the hospital or transferred to another hospital. Patients were stratified into groups based on the number of sedative(s) and or narcotic(s) used during the procedure. Statistical analysis was done using ANOVA with significance set at 0.05.

Results

72 pediatric patients had recorded procedural sedation by EP. Three patients had complications during procedural sedation (one dizziness and two emesis) and were excluded. Of the 72 cases, 64 cases met all inclusion and exclusion criteria. The mean age was 9.9 year (SD: 4.5) with 47% female. Closed fractures or dislocations of the upper extremities accounted for 94% of the cases. The mean LOS was 232 minutes (SD: 62). There were 27 patients given one sedative/one narcotic, 21 given one sedative/no narcotics, 6 given one sedative/two narcotics, 6 given two sedative/one narcotic, and 4 given two sedative/no narcotics. The most common drugs used were IV ketamine (mean 1.3 mg/kg) in 77% of patients and IV morphine (mean 0.07 mg/kg) in 53%. There was a significant difference ($p=.044$) for patients given two sedatives to have a longer length of stay than patients given only one sedative.

Conclusions

In this limited study, there was a significant increase in length of ED stay for pediatric patients given two sedative agents for orthopedic injuries versus one sedative.

Impact

Consideration should be given for fewer sedative agents for pediatric ED procedural sedation.



Table 1: LOS by number of sedatives and narcotics given (ANOVA p=0.044)

Drugs	n	LOS (minutes)	Std Dev
Single sedative, no narcotics	21	238	58
Single sedative, one narcotic	27	216	58
Single sedative, two narcotics	6	208	60
Two sedatives, no narcotics	4	245	50
Two sedatives, one narcotic	6	296	75

Consideration should be given for fewer sedative agents for pediatric ED procedural sedation.



What Resources Do Patients Use Prior to Seeking Emergency Medical Care?

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Background

Emergency physicians draw from extensive training and knowledge to guide medical-decision-making (MDM) in the care of emergency department (ED) patients. Patients, however, use a varied approach to assist their MDM by employing modern, hi-tech or even basic colloquial resources to determine whether to seek emergency care.

Objective

This study hopes to elucidate various medical-decision-making (MDM) resources patients use prior to ED presentation, and determine whether a link exists between re-sources used and final ED disposition.

Design/Methods

Following IRB approval, patients from a medium-sized community ED were voluntarily enrolled into the study. After signing an informed consent and HIPAA release patients answered a brief questionnaire, and had their ED disposition and diagnoses recorded. Group comparisons were performed using Chi-square tests and significance was set at p-value of 0.05.

Results

166 patients responded to the survey. 35.5% (59/166) of patients contacted their PMD office prior to ED presentation. Of these, 32.2% spoke to their own MD, while 35.6% spoke with office staff. Of interest, patients who contacted their primary medical physician (PMD) office before ED presentation were significantly more likely to be admitted to the hospital (27.1% versus 14.0%; $p=0.038$) (Table 1). Additionally, 40.4% of patients (67/166) personally researched their symptoms prior to ED arrival. 19.3% (32/166) did research online, while 25.3% (42/166) consulted family, friends, or work colleagues.

Conclusions

Our study showed that over one third of ED patients consulted their PMD office prior to ED presentation. Interestingly, when patients contacted their PMD office prior to ED presentation they were significantly more likely to be admitted to the hospital. We also noted that another 40% of patients independently researched their symptoms prior to ED presentation.

Impact

How patients research their symptoms and the myriad of resources available present an interesting opportunity to enhance patients' MDM prior to seeking acute medical care. Improving our patient resources to aid in these decisions will only benefit acute health care utilization, and consequently, benefit the patient and healthcare system overall.



Table 1: Admission rates

Pre-ED resources	Yes	No	p-value
Contacted PMD or office	27.1% (16/59)	14% (15/107)	0.038
Online research	6.3% (2/32)	21.6% (29/134)	0.045
Consulted family, friends, or colleague	21.4% (9/42)	17.7% (22/124)	0.596



Initial Troponin, Renal Function and Mortality in ED Septic Patients

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Background

Elevated troponins in sepsis has mixed results as an independent risk factor for mortality. It is unclear if septic patients with elevated troponin should undergo further testing for ischemic heart disease.

Objective

The results of this study will hopefully further delineate whether troponin elevation correlates with increased mortality in septic patients and which patients are at highest risk. Additionally, this study will provide evidence that will guide subsequent cardiac work up in septic patients with elevated troponins.

Design/Methods

Retrospective chart review of all adult patients admitted from the ED with any sepsis related diagnoses. Excluded are patients who did not have both troponin and creatinine levels drawn in the ED. Patients were stratified by both troponin and creatinine elevation. Mortality rates between the different groups were tested by Chi-square with two-tailed significance set at .05.

Results

There were 315 cases of sepsis related illnesses from the ED meeting inclusion and exclusion criteria. There was troponin elevation with elevated creatinine in 43.5% (137) while 21.6% (68) had elevated troponin with normal creatinine, 15.2% (48) had normal troponin with elevated creatinine and 19.7% (62) had normal troponin with normal creatinine. The overall in-hospital mortality rates was 13.0%. Patients with both elevated troponin and elevated creatinine had significantly higher mortality than the other three groups combined (17.5% versus 9.6%; $p=.037$). There was no significant mortality difference between patients within the other three groups (8.8% versus 12.5% versus 8.1%; $p=.710$). Reviewing the 68 septic patients with elevated troponin and normal creatinine, 67.6% (46) received a diagnosis of NSTEMI or new ischemic heart disease. Only six of the 68 patients had coronary artery catheterization with four having severe CAD.

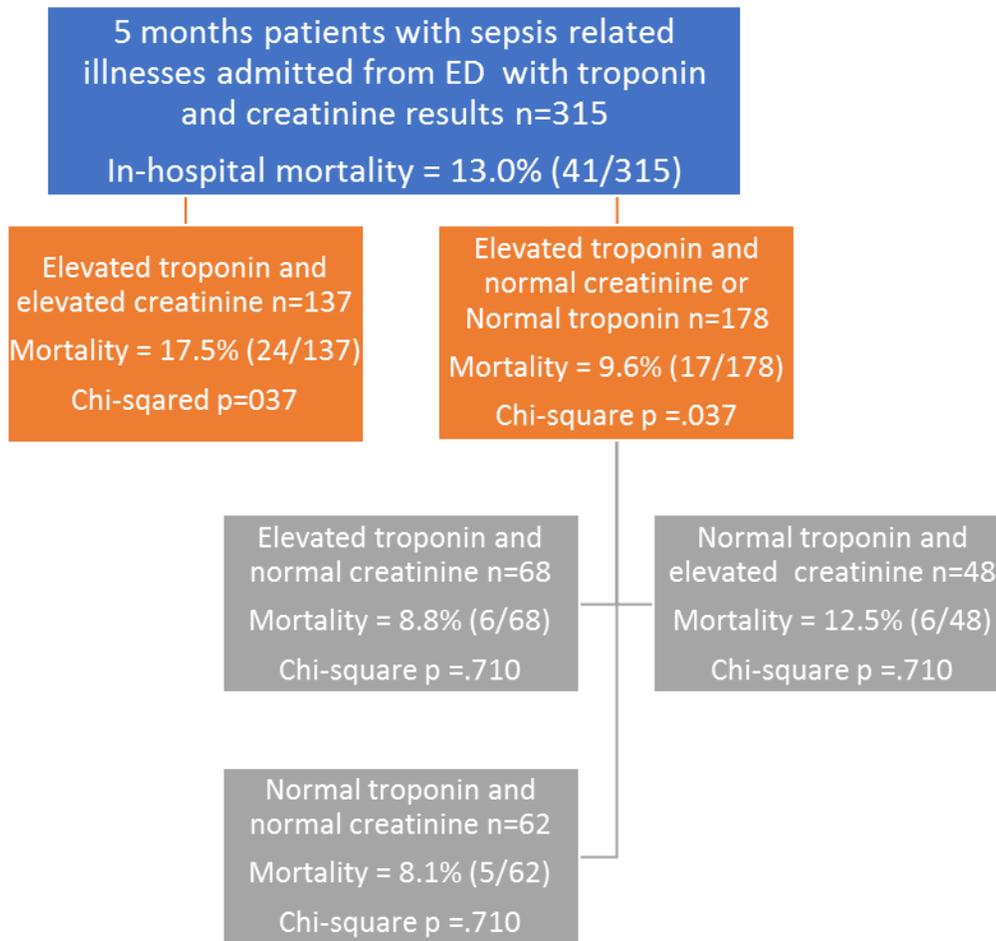
Conclusions

In conclusion, our results suggest troponin elevation alone does not predict mortality in septic patients. Septic patients with elevated troponin should have creatinine levels evaluated and may require additional screening for underlying ischemic heart disease.

Impact

When evaluating mortality risks for septic patients, troponin levels should be considered along with creatinine levels and not in isolation.

Figure 1: In-Hospital Mortality Rates





Risk of Asymptomatic Urinary Tract Infections and Increased Post-Void Residuals Associated with Opioid Usage in Emergency Department Patients

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Background

Urinary retention (UR) has previously been demonstrated to be a risk factor for Urinary tract infections (UTIs). Patients taking opioid medications are at a higher risk for UR due to decreased bladder sensation. UR can be quantified by a patient's post void residual (PVR) volume, which can be quickly and easily be measured in the ED via ultrasonography with a portable bladder scanner.

Objective

The goal of this study is to ascertain whether patients with no urinary complaints, who have consumed narcotics within 48 hours prior to presenting to the ED should have PVR measured routinely in order to assess for asymptomatic UTIs.

Design/Methods

Patients who have taken opioids within 48 hours prior to presenting to the ED were asked to provide a clean catch urine sample. A urine dipstick tested the sample for leukocytes and nitrites. A brief verbal questionnaire screened for dysuria, hematuria, and hesitancy. PVR measurements were obtained by a non-invasive ultrasound bladder scan. If any positive results were found, the urine sample was sent for culture.

Results

Of the 49 subjects, only one was found to have a UTI. With this data sample, there were no differences in the distribution of PVR between any of our measures (all $p > .05$). The median PVR was 28mL. Furthermore, there was no association between age and PVR with this sample of data ($r=-0.02$, $p=0.87$). This study has not yet achieved adequate power to reach any decisive conclusions.

Conclusion

The lack of connection with opioids, PVR, and UTIs currently shows that PVR screening may be unnecessary for this population; however, more patients must be enrolled for this study to reach statistical power. It is also notable that many of the patients arriving with a history of opioid use often have conditions or are taking medications that could concomitantly increase the risk of contracting a UTI.

Impact

Confirmation of this hypothesis could help prevent patients with asymptomatic UTIs from going untreated until the infection progresses a condition more harmful to the patient. Ideally, this screening method would help patient outcomes and lower hospital costs for preventable UTI-associated treatments.

		PVR (ml)						p
		N	Minimum	25%	Median	75%	Maximum	
Gender	Male	27	0	0	43	96	212	.28
	Female	22	0	0	27	42	232	
Dysuria	Yes	7	0	0	26	67	69	.50
	No	42	0	0	28	68	232	
Gross hematuria	Yes	2	11	11	27	43	43	.91
	No	47	0	0	28	68	232	
Hesitancy	Yes	19	0	11	33	67	182	.52
	No	30	0	0	25	68	232	
Dip Nitrites	Yes	0	--	--	--	--	--	.27
	No	42	0	0	34	68	232	
	Unknown	7	0	0	11	26	85	
Dip Leuks	Yes	8	0	9	27	37	232	.55
	No	34	0	0	43	69	212	
	Unknown	7	0	0	11	26	85	
Overall		49	0	0	28	67	232	--

Note: N = The valid number of cases used to compute the estimate. 25% to 75% = The Interquartile Range (IQR).