Methods: An electronic screening system for severe sepsis was created in our EHR and implemented in our ED. A best practice advisory (BPA) notifies physicians and nurses of possible severe sepsis and prompts utilization of an order set when three criteria are met. These include: 2 or more modified SIRS criteria positive (Temp>38° C, HR>90, RR>20, SBP<90 or MAP<65, and WBC>12), evidence of end-organ dysfunction (hypotension or organ dysfunction lab values consistent with CMS measure definition) and suspected infection (either temperature > 38° C, antibiotics ordered for the indication of suspected infection, or documented physician suspicion of infection). We performed a retrospective manual chart review of all adult patient encounters with a triggered severe sepsis BPA over a 3-month period to determine whether the patient had potential or suspected severe sepsis at the time the BPA fired. A second reviewer reviewed the cases to determine agreement with a third used as a tiebreaker if disagreement. In addition, we reviewed patients over a 7-week period who received ICD-10 codes for severe sepsis or septic shock to determine if any cases were missed in the ED by our screening criteria.

Results: 301 ED patient encounters (2.01% of all adult ED patient encounters) triggered the severe sepsis BPA alert in the 3-month study period. 295 of the 301 encounters were determined via chart review to have suspected severe sepsis or septic shock at the time that the alert fired. The remaining 6 encounters were determined not to have suspected severe sepsis or septic shock at the time of BPA alert and included: alcohol withdrawal, salicylate toxicity, transfusion reaction, GI bleed, and prophylactic antibiotics ordered without appropriately indicating intent. The observed kappa for interrater reliability was 0.854. The positive predictive value of our BPA alert for suspected severe sepsis is 98% (295/301). Over a 7-week period, 86 patients ultimately received ICD-10 codes for severe sepsis or septic shock. 71 met criteria for severe sepsis during their ED evaluation with 70 caught by our automated screening criteria, resulting in a sensitivity of 98.59% (CI 92.4-99.96%). The single case not caught by our BPA logic was due to antibiotics not administered in the ED.

Conclusions: The development of an automated severe sepsis screen in the ED at our institution was found to have very high positive predictive value as well as high sensitivity for patients ultimately diagnosed with severe sepsis or septic shock.

418 Emergency Medicine Clinicians' Views and Practices for Identifying Opioid Misuse in the Era of Prescription Drug Monitoring Programs

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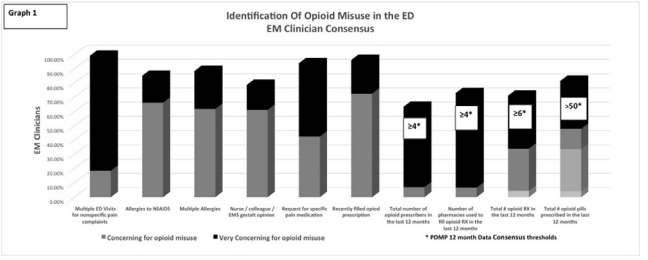
Study Objectives: To describe emergency medicine (EM) clinicians' experience and application with prescription drug monitoring programs (PDMP) and to characterize their opinions on information believed to suggest opioid misuse behavior (OMB).

Methods: An institutional review board-approved 29-item survey instrument was designed, pilot tested, and revised 3 times prior to distribution. Emergency medicine providers of a national EM group and the Nevada chapter of ACEP were invited to anonymously participate voluntarily via email with a link to an online survey platform (Survey Monkey; Palo Alto, CA). Results were received, summarized, and analyzed using Excel (Microsoft Corporation; Redmond, WA). Our primary response outcome was to try and establish objective thresholds to assist in identifying patients at risk for opioid misuse using information from the PDMP report. Our secondary survey aim was to characterize EM clinicians' current practices of OMB identification.

Results: 633 practicing emergency clinicians (67% physicians and 33% advanced practice professionals) representing 23 states completed the survey for a response rate of 26%. 94% of respondents practice in a hospital-based ED and 6% practice in freestanding ED or urgent care. Regarding respondents experience with the PDMP: 590 (93.5%; [95% CI 91.3, 95.2]) are registered, 553 (87.5%; [95% CI 84.7, 89.9]) access the PDMP at least 1 time per shift, 520 (83.5%; [95% CI 79.4, 85.3]) indicate the PDMP data is accurate, 576 (91.4%; [95% CI 89.0, 93.4]) indicate it assists in identifying OMB, and changed their opioid prescribing decision. 211 (33.4%; [95% CI 29.9, 37.2]) surveyed have state laws requiring PDMP prescriber utilization. The majority, 379 (60.1%; [95% CI 56.0,63.6]), indicated that the data obtained from the PDMP was "very important" for assessing for OMB. Graph 1 Illustrates respondents' opinions and level of consensus regarding patient characteristics, presentation, and PDMP report 12-month data points suggesting potential OMB. Although analysis of specific PDMP report 12-month data points varied between those surveyed, the majority, 398 (63.4%; [95% CI 59.5, 67.1]), indicated the following 12-month data point minimum thresholds suggest OMB: ≥ 4 prescribers, ≥ 4 pharmacies, ≥ 6 prescriptions, ≥ 50 pills. 577 (91.1%; [95% CI 88.7, 93.1]) respondents indicated the combination of patient characteristics, presentation, and PDMP report as being the factors most helpful in identifying patients with OMB. Once they had all this information, 564 (83.4%; [95% CI 86.7,91.6]) survey participants said they refused to prescribe patients opioids if they suspected opioid misuse, while 436 (69.1%; [95% CI 65.4, 72.6]) tried to provide substance abuse treatment resources. Limitations included inability to target non-responders, limitations of survey methodology, and no agreed-upon definition of OMB leading to variability in responses.

Conclusions: EM clinicians frequently use a combination of subjective patient information and objective PDMP report data to identify opioid misuse behavior.

Although analysis of PDMP data report varies, consensus for combined minimum thresholds suggesting aberrant opioid use behavior were identified.



419 Extended Length Peripheral Catheters Placed Under Ultrasound Guidance Are Associated With Increased Risk of Computed Tomography Contrast Extravasation

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Study Objectives: Ultrasound guided intravenous catheter (USGIV) placement is a safe and effective alternative for traditional vascular access in patients with known difficult intravenous (IV) access. However, multiple studies have shown increased risk of computed tomography (CT) contrast extravasation. These studies are retrospective and did not control for the USGIV catheter length. This study assesses the risk of CT contrast extravasation through 2.5-inch 18-gauge USGIV versus standard 1.16-inch catheters placed by traditional landmark technique.

Methods: This prospective non-inferiority study included all patients in an academic ED who received an IV contrast-enhanced CT over a 12-month period. Before injecting contrast, CT technicians confirmed the type of IV and method of placement. After contrast injection, the patient and IV site were evaluated by the technician for evidence of extravasation. Reported extravasations on the data sheet were confirmed by reviewing the institutional quality assurance database.

Results: A total of 1406 patients were included in this study (1213 landmark IV; 193 USGIV). Power analysis revealed a minimum sample size of 155 USGIVs and 200 traditional IVs. The frequency of extravasation through 2.5-inch 18-gauge USGIVs and 1.16-inch IVs placed by landmark technique were 0.031% and 0.008% respectively (relative risk: 3.77; 95% CI: 1.38, 10.26). A Fisher's Exact Test ($p<0.05$) evaluating rate of contrast extravasation showed a significant difference ($p=0.012$) between 2.5 inch 18-guage USGIV and 1.16-inch catheters placed by landmark technique.

Conclusions: Our results indicate 2.5-inch 18-gauge USGIVs are associated with higher risk of CT contrast extravasation when compared to 1.16-inch catheters placed by traditional landmark technique. Further studies investigating the mechanism of increased risk is required to provide preventative measures.

420 Standard of Care for Cleaning Stethoscopes Before Patient Evaluations

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Study Objectives: Various studies have shown that stethoscopes are vectors for infection. Nearly 85% of stethoscopes have been found to be sources of infection, the majority of which were non-pathogenic, viz. coagulase negative staphylococci.