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or testing. We utilized the chi square test to compare follow-up frequency with an alpha of .05.

Results: We enrolled 170 patients over the course of our study. The sample was 48% female with a median age range from 55-64. The rates of compliance with screening for each cancer were: breast – 52.7%; cervical – 77.7%; colorectal – 63.9%; and lung – 20%. Approximately 41% of patients surveyed were out of screening compliance and were randomized to control vs intervention. In the control group, 20% of patients reported seeing a doctor to discuss screening vs 50% in the intervention group ($p < .001$). At the 30-day follow-up, 50% of the intervention group reported receiving the recommended screening.

Conclusion: Our patient population demonstrated overall poor adherence to recommended cancer screening guidelines, especially with regard to lung cancer. With minimal education and an informational handout, however, we demonstrated a significant increase in cancer screening follow-up and testing.

374 User Characteristics of Six Intraosseous Devices in a High Bone Density Humerus and Sternum Cadaveric Swine (*Sus Scrofa*) Model

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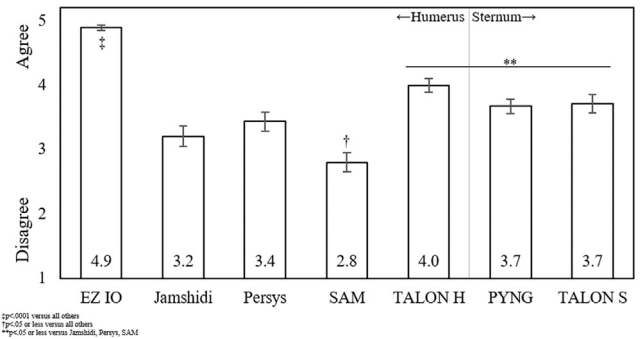
Study Objectives: Intraosseous (IO) infusion, the pressurized injection of fluids into bone through a catheter, is a life-preserving resuscitative technique for treating critical care patients and trauma patients with severe hemorrhage. To be effective as a bridge to central venous access, IO infusion flow rates must be sufficient to sustain life but at pressures low enough to avoid complications. However, little is known regarding end user characteristics of available battery-powered and manual IO devices. User characteristics are important, because to be efficient and effective, an IO device should optimally have a minimal set-up (placement) time and be perceived as easy and comfortable to use, resistant to bending and displacement, effective and trustworthy in meeting the demands of rapid resuscitation, and cause minimal hand fatigue. The present study was specifically designed to fill this important gap in the literature.

Methods: Three experienced emergency medicine residents each inserted a variety of commercially available 15-gauge IO catheters in cadaveric swine (*Sus scrofa*) proximal humeri and sternums with bone density similar to adult humans (1.0-1.1 gm/cm²) in a randomized prospective experimental design, and then infused 500 cc of isotonic crystalloid using push-pull technique with a 60cc syringe. Devices included the battery-powered EZ-IO Rapid Infuser and the manual Jamshidi IO, Persys NIO, SAM Manual IO, Tactical Advanced Lifesaving IO Needle (TALON), and PYNG FASTR devices (30 trials per device, 10 per user). Pressures were measured using an in-line manometer. Subjective user characteristics were assessed across eight Likert-type items, which were analyzed individually and as a composite score. Objective and user ratings data were analyzed using ANOVA and nonparametric statistics at $p < .05$.

Results: Infusion flow rates, mean pressures, and peak pressures were generally similar across devices and locations, save that the TALON in the sternum conferred roughly 50% higher flow rates at 30% lower mean pressures and 15% lower peak pressures than other devices in sternum or humerus (each $p < .0001$). The EZ-IO demonstrated the fastest set-up times and the highest composite user ratings (Figure 1), including highest ratings for each of the eight survey items ($p < .0001$). The TALON conferred intermediate set-up times and next-highest user ratings overall. The Jamshidi had the longest set-up times, the slowest infusion rates, and relatively low user ratings.

Conclusion: IO access devices differ in construction, method of application, effectiveness, and user characteristics. The commonly used battery-powered EZ-IO had the fastest set-up times and the highest user ratings. While the present study was limited by the utilization of a cadaveric swine model rather than an *in vivo* model, findings suggest the possibility that the TALON, which performed well in objective assessments and user ratings, may be worth considering as a manual backup to the battery-operated EZ-IO Rapid Infuser. Combined, these results highlight the importance of studying the end user characteristics of IO infusion devices towards preserving the lives of critically ill or injured patients requiring rapid fluid or blood product resuscitation.

User Ratings Composite



375 Telemedicine and Goals of Care Discussions: A Successful Combination in the Emergency Department

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Study Objectives: There has been a long-standing need for emergency department (ED) clinicians to conduct goals of care (GOC) discussions in the ED despite the perceived barriers of constrained time and discomfort with these conversations. The COVID-19 pandemic led to rapid adoption and wider acceptance of telehealth. We developed a quality improvement project that evaluated having a dedicated clinician lead GOC discussions in the ED with support staffing by a virtual expert.

Methods: A pre-project survey assessing ED resident, mid-level, and attending physician comfort with leading GOC discussions was performed. A senior emergency medicine (EM) resident was trained by a dual board-certified EM and palliative care physician to lead GOC discussions using a validated framework developed by VitalTalk. Over the course of a three-week elective, the resident was dedicated to performing GOC discussions in the ED with patients or surrogates of patients identified as being seriously ill, elderly and frail, having an acute exacerbation of serious chronic illness, or where the ED provider would not be surprised if the patient were to die within the next year. An EM or palliative care attending physician staffed all discussions in real-time using Zoom on an eye-level mounted iPad in each patient's room. GOC discussions were documented as a procedure and participating patients completed a four-question telemedicine survey.

Results: The pre-project survey found that 85.7% of respondents felt there was limited time to lead GOC discussions in the ED. Other perceived barriers included uncertainty in prognosis (60.7%) and preference for other providers to conduct the discussion (67.9%). 39.3% of providers reported leading 0 GOC discussions in the ED in the last month, while 42.9% estimated having led 1-3. Only 25% had consulted palliative care for any reason in the last month. A total of 23 GOC discussions were performed. Six patients' code statuses were identified as DNR/DNI. In one case, the discussion significantly altered the patient's course: initial plans were to admit the patient to the intensive care unit but wishes for home hospice were identified instead. Most patients reported having had no prior GOC discussions. Problematic telemedicine issues included occasional connectivity malfunction, background noise, or the tele-provider missing subtle visual cues from patients. Silver linings included the unforeseen benefit of patients and surrogates virtually seeing each other despite COVID-19 visitor restrictions. Patients responded to the virtual visit with neutral to positive attitudes. 61.5% of patients surveyed had used telemedicine previously, and 61.5% felt talking to a doctor virtually was as satisfying as talking to a doctor in person.

Conclusions: This project created an educational opportunity for residents to master the critical skill of leading GOC discussions and identified educational gaps. GOC discussions in the ED have the potential to dramatically alter the trajectory of patients' future care. The telemedicine platform provided a low cost, uncomplicated format to staff these discussions. Translation of this project into a resident elective may fortify GOC education and stimulate further research.