



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

those BI performed exclusively for marijuana use or those who triggered positive at ED triage but did not have a specific substance identified, to evaluate the proportion of high-risk BI that were provided referral to treatment. A research assistant collected demographic and clinical information from the electronic medical record including modality of PRC interaction-in-person, tele-video, and telephone-referral to treatment, and confirmation of linkage to substance use treatment post-referral. Patients under the age of 18, prisoners, pregnant women, and patients who had received a referral without ED BI were excluded. BI provided and referral versus linkage to treatment for in-person versus telehealth PRC interactions were compared using a test of proportions and non-inferiority was defined by a fixed margin of less than -0.1.

Results: In the 8-month enrollment period, 1,144 patients had a positive ED triage screening and received a BI. In-person BI received had a proportion of 0.70 (± 0.46) compared to telehealth BI with a proportion of 0.64 (± 0.48), with an absolute risk difference of 0.06 (95% CI -0.03-0.08 $p < 0.05$). Of the 331 patients who received a high-risk BI, 57 patients were referred to treatment, with a proportion of 0.61 (± 0.08) of patients who received in-person and 0.52 (± 0.11) received a telehealth high-risk BI that linked to treatment, with an absolute risk difference of 0.09 (95% CI 0.18-0.35 $p = 0.52$).

Conclusion: Our study demonstrated non-inferiority for patients with at risk behavior/problematic substance use to receive PRC BI via in-person versus telehealth. Non-inferiority was not demonstrated for linkage to treatment amongst the high-risk BI referral group, though non-inferiority would have been achieved for this cohort for a fixed margin of less than -0.2. Additional research with a larger sample is needed to corroborate these observations; however, this study suggests some EDs could consider implementing SBIRT with a hybrid PRC model or isolated telehealth staffing to assist in the care of patients with substance use disorder.

220 An Exploratory Study of Medical Students' Knowledge, Attitudes, and Perceptions of Treating Patients With Addiction

Gamez S, Njike V, Bethune D, Brown P, Button D, Gondy K, Ho jati R, Karagiannis C, Onyejiaka C, Steyer H, Hawk K/Yale School of Medicine, New Haven, CT

Study Objective: Most physicians regularly encounter patients with addiction, yet research suggests that healthcare clinicians feel inadequately trained to care for this population. Addiction education in medical school is imperative for training physicians to provide high-quality care. Our objective was to characterize medical student knowledge and attitudes towards patients with addiction to facilitate curriculum improvements and the current state of medical school addiction curriculum.

Methods: A 39-question anonymous, voluntary, Web-based, cross-sectional survey was administered via school-specific communication channels to 3rd/4th year students at 29 medical schools through Qualtrics. Previously validated and novel questions assessed medical student knowledge, attitudes, and perceptions about patients with substance use disorders; student-reported data on medical school curriculum was collected from collaborating schools. Respondents were entered into a raffle to win a \$30 gift card to incentive participation.

Results: The survey had 848 responses a response rate=9.5% (848/8890) and completion rate=82% (696/848). Seventy-four percent (599/809) of students desired more education on substance use disorders (SUD); only 55% (421/759) reported feeling that they know enough about the causes of addiction. A minority demonstrated comprehensive knowledge about opioid use disorder (OUD): 27% (213/773) recognized that clinicians outside of an opioid treatment program require an X-waiver to prescribe buprenorphine; only 40% (315/773) identified buprenorphine as a preferred treatment to manage OUD. While 75% (619/809) reported being on a clinical team that initiated medication for treatment of SUD, only 50% (439/808) reported seeing/participating in harm reduction, and only 33% (251/762) reported feeling comfortable administering/teaching patients to administer naloxone. Only 41% (316/761) reported feeling comfortable counseling patients with SUD and 65% (499/762) reported finding working with this population rewarding. The student-reported curriculum review indicates that most

schools do not emphasize teachings on addiction medicine: median number of hours of addiction-related teaching was 7 hours, mean=10.6, 95% CI [6.7, 14.2]; only 57% (17/30) of medical schools offered addiction electives; few schools, 17% (5/30), require students to have clinical exposure to addiction medicine on clerkships.

Conclusion: This exploratory study demonstrates that students may lack core knowledge regarding OUD and harm reduction strategies; our review of medical school curriculum suggests that addiction medicine may not be emphasized sufficiently. To improve student readiness to treat patients with SUD, trainees may benefit from curriculum development that stresses the importance of understanding and treating addiction during medical school and residency training.

221 Changes in Emergency Department Visits for Opioid-Related Diagnosis, Opioid Overdose and Buprenorphine Use Across 14 US Emergency Departments During the SARS-CoV-2 Pandemic

ED INNOVATION Research Group; Hawk K, Taylor A, Phadke M, Li F, Dziura J, Perrone J, McCormack R, Herring A, Cowan E, Fiellin D, D'Onofrio G/Yale University, New Haven, CT

Study Objectives: To identify changes in emergency department (ED) visits for opioid-related diagnoses, opioid overdose, and the use of buprenorphine in EDs during the SARS-CoV-2 pandemic.

Methods: Electronic health data was collected from 14 geographically distinct emergency departments for ED visits between August 31, 2019 and August 30, 2020. Variables collected include age, sex, race, ICD-10 discharge codes, buprenorphine administrations, buprenorphine prescriptions and SARS-CoV-2 hospital admission rate. The category of opioid-related diagnoses included ED visits with ICD-10 codes for opioid use disorder, opioid dependence, opioid withdrawal, opioid overdose and/or opioid-related infection. Opioid-related infection visits were tabulated as ED visits with ICD-10 code for abscess, cellulitis, endocarditis or osteomyelitis and concurrent ICD-10 code of opioid-related diagnosis for the current ED visit or in the medical history. We used descriptive statistics and paired t-test to evaluate for differences in ED visits for opioid-related diagnoses, opioid overdose and rate of buprenorphine administrations and/or prescriptions between in visit with opioid-related diagnosis between August 31, 2019-February 29, 2020 and March 1, 2020-August 30, 2020. Spearman correlation was used to assess the association of outcomes with hospital SARS-CoV-2 burden from January 1, 2020 through August 30, 2020.

Results: We collected information on a total of 911,738 ED visits between August 31, 2019- August 30, 2020 from 14 EDs Total ED visits with opioid-related diagnoses by ICD-10 code were 9,788, including 3,198 for opioid overdose, 1,745 for opioid withdrawal, and 431 for opioid-related infection (Figure 1). Between August 31, 2019-February 29, 2020 and March 1, 2020-August 30, 2020 (N = 13 sites), there was an increase in ED visits for OUD-related visits per 10,000 visits (130.8 (SE: 24.2) vs 101.8 (SE: 21.8); $p = 0.002$) and an increase in ED visits for opioid overdose per 10,000 ED visits (40.8 (SE: 10.3) vs 27.4 (SE: 6.1); $p = 0.02$). No change was detected in the rate of buprenorphine administration and/or prescriptions: 25.8 (SE: 5.3) vs 25.1 (5.5); $p = 0.80$. From January to August 2020, significant correlations were observed between inpatient hospital SARS-CoV-2 rates and ED visits with a positive correlation between opioid-related diagnoses per 10,000 (Spearman $r = 0.92$, $p < 0.0001$) and opioid overdose per 10,000 visits ($r = 0.90$, $p < 0.0001$); a negative correlation was found for the rate of ED administration and/or prescription of buprenorphine ($r = -0.37$, $p = 0.03$).

Conclusions: ED visits for opioid-related diagnoses and opioid overdose per 10,000 ED visits increased in EDs between March 1, 2020 – August 30, 2020 compared to the preceding 6 months and correlated with inpatient SARS-CoV-2 burden. Although the overall rate of buprenorphine administered and/or prescribed from the ED highlights a significant practice change in EDs over recent years, buprenorphine provision in EDs did not increase despite likely treatment service disruptions during this period of SARS-CoV-2.

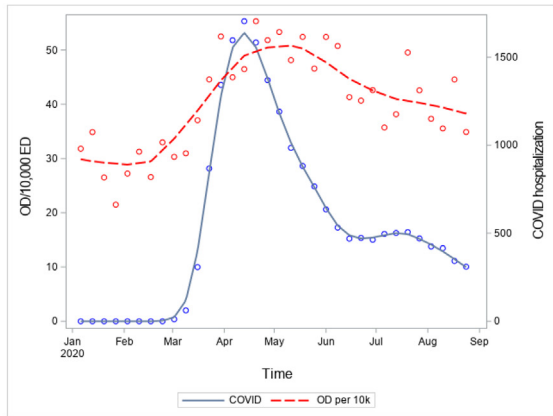


Figure 1a. Proportion of OD per 10,000 ED encounters

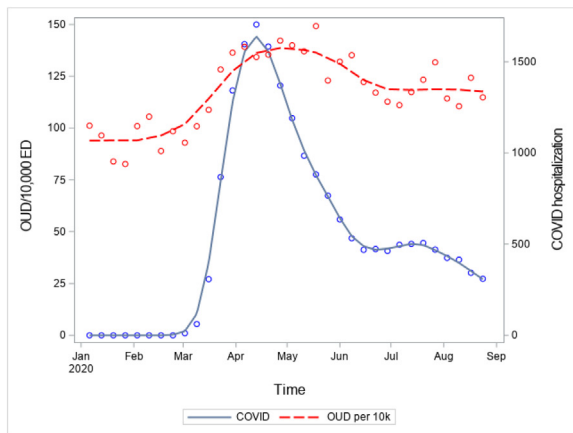


Figure 1b. Proportion of opioid-related diagnoses per 10,000 ED encounters

222 Preliminary Results of PAMI-ED ALT: An Emergency Department Opioid-Alternatives Program

The PAMI ED-ALT Group, Sheikh S, Schmitzberger M, Liao R, Brailsford J, Fishe J, Norse A, Webb K, Spindle N, Suffield D, Hendry P/University of Florida College of Medicine- Jacksonville, Jacksonville, FL

Study Objectives: Determine the PAMI-ED-ALT program’s impact on administration and prescription of opioids and opioid alternatives in renal colic, headache, and musculoskeletal pain patients. The PAMI ED-ALT program was implemented at two emergency departments (EDs) of an urban academic institution to increase opioid-alternatives and decrease opioid medications in ED patients. Prior to implementation, we built order panels in the electronic health record (EHR) for renal colic, headache, low back, and non-low back musculoskeletal pain. Panels included pharmacologic and non-pharmacologic options (aromatherapy, hot/cold packs, acupuncture devices, and virtual reality). Links to a pain dosing guide and instructional videos for procedures were embedded within the panels. Additionally, a Pain Education Coach, an Addiction Recovery Specialist, and a patient non-pharmacologic pain management toolkit was also available.

Methods: ED patient demographics, pain scores, 30-day ED returns, opioids administered/prescribed, opioid-alternatives administered/prescribed, and patients with ICD codes for renal colic, headache, low back, and non-low back musculoskeletal pain were collected from 01/01- 04/30/20 (pre-program implementation) and 01/01- 04/30/21 (post-program implementation). Order counts for panel utilization, Pain Coach, Medication Assisted Treatment (MAT), and peer recovery support were collected during the post-implementation period. EHR data were extracted from a central data warehouse using Python and analyzed using descriptive statistics in Excel 2016.

Results: ED patient demographics and average change in pain scores did not differ pre- and post-program implementation. The proportion of patients with

target pain conditions who had multiple ED visits increased from 36% (3018) to 40% (12,154). There was an increase in the proportion of patients presenting with a target pain condition from 39% (11,926) to 42% (12,556). Order panel use increased 743% and the number of patients given an opioid-alternative treatment increased 673% since program start. The average monthly proportion of patients with a target pain condition administered opioid-alternatives in the ED increased from 48% (10,099) to 52% (9805) pre- and post-program implementation, respectively. The average monthly proportion of patients with a target pain condition prescribed opioid-alternatives at ED discharge increased from 18% (3357) to 21% (3322) pre- and post-program implementation, respectively. The average monthly proportion of patients with a target pain condition administered an opioid in the ED decreased from 50% (5988) to 42% (5697) pre- and post-program implementation, respectively. The average monthly proportion of patients with a target pain condition prescribed an opioid at discharge decreased from 6.5% (1251) to 6.3% (1138) pre- and post-program implementation, respectively. The ED Pain Coach provided 248 sessions with 2200 toolkit materials distributed. A total of 127 patients received MAT/peer recovery support since program start.

Conclusions: Preliminary results indicate the PAMI ED-ALT program decreased ED opioid administration and increased use of opioid-alternatives.

223 The Impact of a Community Tour on Incoming Residents During Orientation at an Inner-City Hospital

Lupicki K, Parish A, Caldwell C, Josephson E, Rosario D, Waseem M/ Lincoln Medical Center, Bronx, NY

Study Objective: Healthcare providers at inner-city hospitals face the unique challenge of learning how to care for disproportionately impoverished patient populations. We investigate the impact of an institution-wide community tour on incoming residents’ sense of preparedness to provide care to impoverished patients and their knowledge of social determinants of health.

Methods: A two-hour voluntary bus tour of an inner-city hospital’s catchment area was offered to incoming residents during orientations in June 2016 and 2017. Residents visited a local school, healthcare clinic, needle-exchange program, police precinct, homeless shelter, and community park, among other locations. Pre-tour surveys were collected from individuals present at orientation, and post-tour surveys were collected from those who attended. A 5-point Likert scale questionnaire was used to gauge preparedness to work with impoverished patients and subjective knowledge of social determinants of health. Numerical values of 1 to 5 were designated as strongly disagree, disagree, neutral, agree, and strongly agree, respectively. Numerical values of 4 and 5 were deemed as “high.” A 9-option multiple choice question assessed objective knowledge of the hospital’s catchment area poverty rate. Fisher’s exact test was used to determine statistical significance.

Results: 219 incoming residents completed the pre-tour survey, 91 demonstrated interest in attending the tour (41.6%), and 76 completed the post-tour survey. Of the 219 residents who completed the pre-tour survey, majority specialized in internal medicine (89, 40.6%), pediatrics (32, 14.6%), OMFS (25, 11.4%), transitional year (25, 11.4%), and emergency medicine (19, 8.7%); the remainder were psychiatry, OB-GYN, and general surgery. The majority of participants endorsed previous experience working with underserved populations (196 of 219, 89.5%). A significantly larger percentage of participants rated their preparedness to work with impoverished patients as “high” after the tour (63/76, 82.9%) than before (157/219, 71.7%) (Fisher’s exact test $p = 0.0021$). Similarly, a large fraction rated their knowledge of social determinants of health as “high” after the tour (64/76, 84.2%) than before (85/219, 38.8%) (Fisher’s exact test $p < 0.0001$). The percent of participants reporting the correct poverty rate significantly increased from 13/219 (5.9%) to 19/76 (25%) (Fisher’s exact test $p < 0.0001$).

Conclusion: This study demonstrates that a community bus-tour of an inner-city hospital’s catchment area augmented incoming residents’ preparedness to work with an impoverished population and their knowledge of social determinants of health. As most participants demonstrated similar levels of preparedness and knowledge prior to the tour, it is likely that new physicians would benefit from direct exposure to their hospitals’ surrounding communities at the start of residency. As COVID-19 health measures are mitigated, residency programs should strongly consider tours or other community immersion experiences to assist with new residents’ knowledge and preparedness to care for their respective patient communities.