Opportunities for Prevention and Intervention of Opioid Overdose in the Emergency Department

Debra E. Houry, MD, MPH*; Tamara M. Haegerich, PhD; Alana Vivolo-Kantor, PhD, MPH

*Corresponding Author. E-mail: dhoury@cdc.gov, Twitter: @DebHouryCDC.

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Consider "Jane," a 30-year-old female patient brought in by emergency medical services (EMS) to the emergency department (ED), reflecting just one of more than 100,000 opioid overdose patients treated in EDs each year. Naloxone, an opioid antagonist and overdose reversal drug, was administered in the field by EMS; however, additional rounds of naloxone were required in the ED because of high opioid potency. Once she was stabilized, a quick review of her chart revealed several recent visits for opioid-related overdoses. A review of her history revealed that she was prescribed opioids initially in the ED 5 years earlier after sustaining minor injuries in a motor vehicle crash. She began misusing prescription opioids during the following year, receiving prescriptions from multiple providers in primary care clinics and EDs. Yet, because a check of the state's prescription drug monitoring program was not completed before any prescription, her use of multiple providers and high dosages was not identified, and opioids continued to be prescribed in different clinical settings for pain management. Soon thereafter, Jane initiated heroin use and presented to the ED several times with cellulitis from injection drug use, as well as after an overdose of prescription and illicit opioids. Each time, she was discharged without a referral to substance use treatment or without a naloxone kit.

Jane's hypothetical story, although based on actual cases treated in the ED, reflects just one of many cases that continue to be on the increase. Emergency physicians, as front-line providers, without question save lives by reversing opioid overdoses, but they also have a unique opportunity to engage in prevention of a future overdose, particularly for patients who may not have other contact with the health care system. A Centers for Disease Control and Prevention (CDC) Vital Signs report has revealed that from July 2016 to September 2017, across 52 jurisdictions in 45 states, there were more than 140,000 suspected opioid-involved overdose ED visits, with a nearly 30% increase during the period.[1] Increases were observed across both sexes (30% in men and 24% in women) and all age groups, with those aged 35 to 54 years representing the largest increase (36%). All regions across the United States experienced increases, but the largest increases were observed in the Midwest (70%), West (40%), and the Northeast (21%). Across 16 states with more geographically specific data available, there was a 35% increase, with continued worsening of overdose morbidity through 2017. All urbanization levels experienced increases over the time period, with significant increases in the largest cities (54%). The report relied on syndromic surveillance; that is, an approach in which near real-time data from EDs were shared and analyzed. Syndromic surveillance offers rapid data that can be used to facilitate public health action more quickly. The CDC Vital Signs report highlighted the need to better detect and respond to spikes in overdoses and to coordinate a systems-level response in communities, such as health alerts and advisories to address the ongoing opioid overdose epidemic.

The CDC Vital Signs report signaled that the ED is a critical entry point for primary and secondary prevention of opioid overdose. Although primary care physicians account for more than half of opioid prescriptions in the United States, prescribing practices in the ED can result in patients transitioning from use for acute pain to long-term use. In a recent report, Jeffery et al[2] estimated that approximately 11% to 17% of opioid prescriptions for opioid-naive patients outside of hospice and cancer treatment originated from EDs. Between 1% and 6% of opioid-naive patients (those not receiving an opioid prescription in the previous 6 months) progressed to long-term use after newly receiving an opioid prescription in the ED for acute pain. Patients who were prescribed opioids in ways inconsistent with evidence-based recommendations (eg, prescription for more than a 7-day supply, high dosage, long-acting opioid) were more likely to progress to long-term use. The American College of Emergency Physicians (ACEP) recommends that physicians ascertain whether nonopioid therapies are adequate; if opioids are prescribed, physicians

should use the lowest dose of short-acting opioids for a limited duration (eg, <1 week). Physicians should also avoid routine prescribing of opioids for patients with acute exacerbation of chronic noncancer pain treated in the ED.[3] More recently, states have updated ED guidelines to emphasize and extend these principles (eg, by avoiding initiating treatment with extended-release opioids, avoiding coprescription of opioids and benzodiazepines).[4] Following evidence-based guidelines such as these has the potential to improve prescribing and, in turn, decrease the number of patients who develop opioid use disorder or overdose.

ACEP also recommends that providers use prescription drug monitoring program data to identify patients at high risk for harm.[3] Prescription drug monitoring program characteristics recommended by experts to have the greatest potential for increased utility in the ED include aspects such as requiring use by providers prescribing controlled substances, allowing nurse and physician assistant access, providing standard information for all patients, accessing through the electronic health record, and including information from other states.[5] For example, in Washington State, integration of the prescription drug monitoring program within the electronic health record through automatic data retrieval from the health information exchange improved use in the ED by providing easy access to the data within the clinical work flow, resulting in more than 2.2 million automated prescription drug monitoring program queries.[6] Several other states have added prescription drug monitoring program prompts for prescriptions with high morphine milligram equivalents, overlapping benzodiazepine prescriptions, and multiple provider prescriptions for opioids to flag patients at risk for opioid misuse or overdose. Applied to Jane's case, any of these prescription drug monitoring program interventions could have helped identify her opioid misuse, and early intervention could have been offered to prevent development of opioid use disorder.

EDs typically do not have consistent protocols or guidelines for what to do after the acute event, overdose, is resolved. Innovative systems-based protocols can promote overdose education and naloxone distribution. For example, the Rhode Island HEALTH's Overdose Prevention and Rescue Coalition program includes collaboration among state public health agencies, treatment providers, community-based service organizations, and health care, including EDs. The program provides naloxone kits to patients, paired with overdose prevention education, addiction counseling, and referral to treatment from the ED, with recovery coaches offering patient support and follow-up.[7]

In addition to providing overdose prevention, education, and naloxone kits at discharge to patients after an overdose or at risk for an overdose (eg, opioid use disorder, prescriptions with high morphine milligram equivalents), another promising practice includes motivational interviewing, which is a goal-directed technique that guides patients with questions, affirmations, and reflections to engage patients, understand discrepancies, resolve ambivalence, explore motivation for change, and plan for change in a neutral, nonjudgmental manner. Bohnert et al[8] illustrated that patients reporting prescription opioid misuse who were engaged in motivational interviewing in the ED by a trained therapist reported significantly lower levels of overdose risk behaviors and nonmedical opioid use compared with those receiving enhanced usual care at follow-up.

For patients presenting with opioid use disorder, initiating medication-assisted treatment with buprenorphine in the ED with continuation in primary care increased treatment retention and reduced self-reported illicit opioid use compared with brief intervention and referral.[9] Given that the majority of states reported that at least 75% of their opioid treatment facilities were operating at 80% capacity or more,[10] initiating medication-assisted treatment in the ED and referring to primary care for follow-up can help fill some of this need.

Finally, EDs are a key component of sentinel surveillance. In 2017 in Georgia, emergency physicians identified overdoses from counterfeit Percocet pills, and through coordination with the health department, poison center, and law enforcement, community alerts went out and the overdose outbreak was contained.[11] Customization of drug-testing panels for ED settings and expanded confirmatory toxicology testing with support from public health and forensic laboratories could assist in identifying emerging threats and new toxidromes. Health departments can then use this rapid ED syndromic data or medical claims data to identify changes in overdose burden quickly to disperse naloxone and alerts to communities at risk.

Emergency physicians, EMS providers, and EDs have leveraging power for both surveillance and prevention, and are key players within CDC's opioid overdose prevention framework. CDC's comprehensive approach to addressing the opioid overdose epidemic includes improving data quality and timeliness to better track trends, identifying factors that increase risk for overdose, evaluating effectiveness of prevention strategies, supporting states and localities in their efforts to implement effective and innovative solutions, and supporting health care providers and systems with data and tools needed to improve patient safety.[12] Public health institutions can facilitate convening of partners from multiple sectors that have a role to play in addressing the epidemic, including health care, law enforcement, social services, and community-based

organizations. EDs are a critical entry point for prevention of overdose, with opportunities to improve opioid prescribing, respond to overdoses with overdose education and naloxone distribution, engage in motivational interviewing of patients, initiate treatment for opioid use disorder, and improve surveillance efforts in collaboration with health departments. EDs and physicians who engage in these efforts can save patient lives and reduce health care costs.

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Author affiliations: From the Centers for Disease Control and Prevention, Atlanta, GA.

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