

Benzodiazepines and Amphetamines Reach 5-Year High at Denver Health Medical Center; EDDS Re-testing found About Half Positive for Marijuana

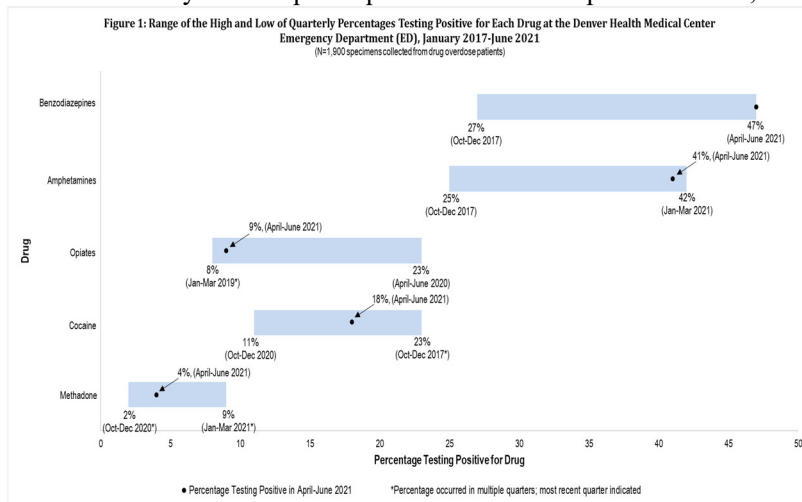
Method

Denver Health Medical Center, located in Denver, CO, submitted electronic health records (EHRs) containing urinalysis results for 1,900 specimens tested between January 2017 and June 2021 that met the study eligibility criteria. The hospital routinely screens specimens for five drugs: amphetamines, benzodiazepines, cocaine, methadone, and opiates. De-identified EHRs were obtained for patients 18 years or older presenting to the ED with a complaint of “overdose” or “naloxone” and/or any ICD 10-CM T36-T50 initial encounter diagnosis code of overdose with accidental (unintentional), intentional self-harm, or undetermined intent that had urine drug test results available. EHRs were also obtained from untested patients meeting the study eligibility criteria but these patients are not included in the analyses presented in this bulletin.

See the EDDS website for additional information about EDDS methods.

EHR Quarterly Results¹

Figure 1 shows that in April-June 2021, benzodiazepines (47%) and amphetamines (41%) tested positive near/at their highest levels since January 2017. Opiates peaked at 23% in April-June 2020, and



have been decreasing since then, with 9% positive in April-June 2021, approaching their lowest levels. Combined analyses of all results from January 2017-June 2021 showed that patients testing positive for methadone or cocaine were older (median ages of 42 and 39, respectively) and those positive for amphetamines (35) or opiates (34) were the youngest. Specimens positive for methadone contained the greatest number of drugs (mean=2.53), while specimens positive for benzodiazepines contained the least number of drugs (mean=1.88). Over the 5-year period, persons positive for opiates were most likely to also be found positive for amphetamines (54%) and/or benzodiazepines (42%). The opiate screens used by hospitals do not detect fentanyl. EDDS expanded retesting of a sample of specimens indicates that fentanyl was found among this hospital’s recent ED patients (see box to the right).

Implications

As EDDS found in the EHRs in hospitals in Baltimore, a welcome declining trend in opiate positives can mask the presence of fentanyl, which cannot be detected by an opiate screen. The expanded EDDS re-testing provides evidence that exposure to fentanyl is common in these patients. Poly-substance positives were found in the EHRs, and the EDDS re-testing highlights the need to understand all of the drugs to which patients are being exposed. Many patients tested positive for marijuana and it was associated with increased positives for fentanyl and/or amphetamines. Some of the marijuana positive specimens contained no other

EDDS Expanded Re-testing Results

The EDDS lab received from the hospital 100 specimens that had tested positive for any drug in their 5-drug screen (hospital positives) and 50 specimens that had tested negative for all drugs (hospital negatives). EDDS re-tested them for approximately 500 drugs. The specimens were sampled from consecutive patients seen in July-August 2021.* Notable results from the expanded re-testing include:

- Marijuana was detected in 59% of the hospital’s positive specimens and 48% of the hospital’s negative specimens.
- Fentanyl/norfentanyl, also not in the hospital’s screen, was detected only in the hospital positive specimens (29%), and was three times non-fentanyl opioids (9%).
- 65% of the hospital positive specimens contained amphetamines and/or cocaine (34%).
- Other than marijuana, drugs detected in 10% or more of the hospital’s negative specimens included gabapentin, methamphetamine, clonazepam, and diphenhydramine.** It is not known whether any of the legal drugs detected were taken under medical supervision.
- Hospital positive specimens that EDDS found positive for marijuana were significantly more likely to test positive for amphetamines (78% vs. 46%) and/or fentanyl (39% vs. 15%) than specimens negative for marijuana.

*These specimens were not selected according to the eligibility criteria for selecting the EHRs and represent a smaller time period. These results are therefore not directly comparable to those from the hospital’s EHRs.

**The EDDS cutoff levels were more sensitive than those used by the hospital’s laboratory and may have contributed to EDDS detecting more drugs.

¹All tables and figures available at: <https://cesar.umd.edu/landingtopic/edds-hospitals-data>

substances, raising the question as to whether exposure to marijuana was involved in some patients' adverse health events. This is clearly an area for future research. This hospital should consider the value of adding fentanyl and/or marijuana to their routine testing panel. It is not possible to determine from the EDDS results whether the presence of any prescribed drugs were due to illicit use, unintentional exposure, or administration by a physician.

EDDS Overview

EDDS provides the nation with a new tool to display near real-time trends in a hospital's urine drug test results and to discover emerging drugs that may not be included in a hospital's routine urinalysis screens. This information is vital to ensuring that hospitals and localities are better prepared to understand the local drug problems they and their patients face. EDDS obtains quarterly exports of de-identified test results from emergency department patients' electronic health records (EHRs) and annually re-tests 150 de-identified urine specimens for almost 500 drugs. This model was pilot tested in seven Maryland hospitals and is now being launched in other states. An *EDDS Bulletin* will be published to announce the release of each hospital's detailed findings.

Go here for all EDDS publications and current data: <https://cesar.umd.edu/landing/EDDS>.