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Insight Into Drug Use Trends Based on Emergency Department Urine Drug Screen Results From an Acute Care Hospital in Tennessee

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Background

The prevalence of substance use disorder among patients seeking acute care in an emergency department (ED) is increasing.[1,2] Information regarding drug utilization patterns in these patients offers an important window into understanding drug use trends. Detailed data from the National Survey on Drug Use and Health offers a national look at these trends, however substance use trends can vary greatly among local communities.[3] To better understand our patient population in middle Tennessee, we partnered with the Center for Substance Use and Health Research (CESAR) at the University of Maryland as part of the Emergency Department Drug Surveillance program.

Objective

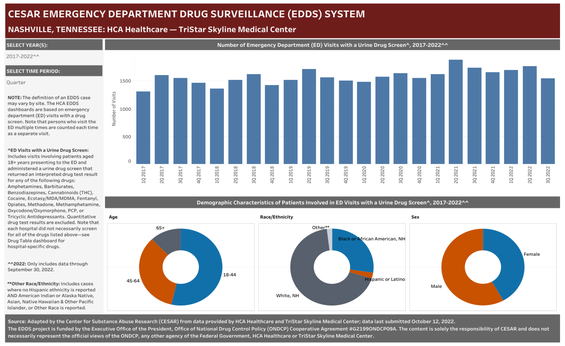
The purpose of this study was to identify and describe the trends of drugs detected in ED immunoassay urine drug screens (UDS) from January 2017 to June 2022 at an acute care hospital in middle Tennessee.

Methods

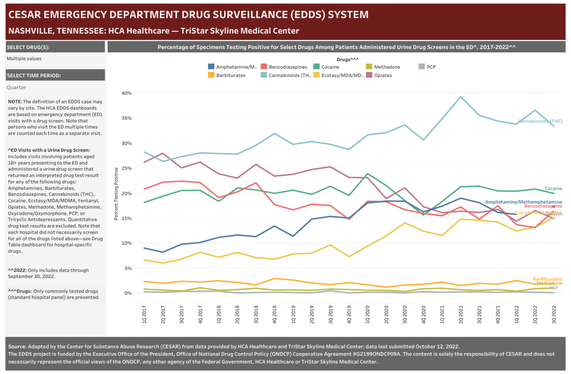
Emergency department (ED) visits at TriStar Skyline Medical Center from January 2017 to June 2022 were evaluated. Review of the hospital electronic records database identified all ED encounters for adult patients who had a UDS that detected any of the following drugs: meth/amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, ecstasy/MDA/MDMA, opiates, methadone, or phencyclidine (PCP). Results from the UDS and basic non-identifying patient demographics were abstracted. Each ED visit was counted as a separate encounter in the registry. Data was analyzed and summarized, focusing on trends including the total number of ED visits, age, race, gender, and drugs identified in each sample.

Results

The number of ED encounters in which a substance was identified in a UDS ranged from 1,304 – 1,878 per quarter. Demographically, the majority of patients represented in these visits were 18 – 44 years old (53.6%), Caucasian (68.4%), and male (57.9%).



Cannabinoids (26.3 – 39.2%), cocaine (15.6 – 23.9%), and opiates (14.4 – 27.9%) demonstrated the highest percentages of specimens testing positive, while PCP (0 – 0.4%), methadone 0.3 – 1.0%), and barbiturates (1.1 – 2.9%) showed the lowest percentages. Ecstasy/MDA/MDMA (6 – 14.7%), Amphetamine/Methamphetamine (8.2 – 19.0%), and benzodiazepines (13.1 – 22.4%) presented mid-range percentages compared to the other drugs screened. Longitudinally, amphetamine/methamphetamine, ecstasy/MDA/MDMA, and cannabinoids demonstrated upward trajectories. Cocaine presented a fairly steady trend. In contrast, benzodiazepines and opiates showed an overall downward movement.



Discussion

This was the first analysis to explore the trends of drugs detected in ED UDS from our acute care hospital. Results require careful evaluation and interpretation given the significant limitations. The retrospective demographic data is limited in its interpretation due to the inability to compare this data to the ED population as a whole.

Most EDs use screening immunoassays due to their relatively lower cost and higher throughput. Unfortunately, these tests are fraught with false positives and negatives. It is notable that the opiate screen utilized in our facility fails to detect any opioid synthetics.

Though simple interpretation of the data would suggest declining usage of opioids, data from the CDC WONDER database would suggest that opioid-related deaths are actually increasing. We suspect that our relative decrease in opiates detected is due to increases in the numbers of more semi-synthetic and synthetics opioids such a fentanyl. We recognize our data is likely significantly underestimating opioid prevalence in our community.

In the future, prospective collection of information could allow us to compare the clinical toxidrome suspected by the physician to the outcomes of the urine drug screen results. Additionally, we could assess how often the results from these tests change clinical management to gauge their utility and cost effectiveness.

Conclusion

This descriptive analysis provides clinicians, researchers, and public health stakeholders with meaningful data on substance abuse trends in our local community. Longitudinal and observational data are necessary for awareness and can help guide the development of resources for education, prevention, treatment of substance use disorder. Continual longitudinal data collection and detailed analysis of this data will increase understanding of our local patient populations and will serve as a beacon for hypotheses generation and the design of further research studies

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