Kentucky Poison Control Center

Issue 2, Second Quarter 2025

TOX-N-KY

Provider Update

Urine Drug Screening in the Poison Center: A Balancing Act

Urine drug screening (UDS) is a frequent consideration in the evaluation of patients presenting to the emergency department, and poison centers are often consulted to help interpret results and guide management. While UDS can offer valuable information, it's crucial for poison center nurses, pharmacists, and physicians to weigh benefits against limitations to ensure optimal patient care.

The Pros of Urine Drug Screening

- **Identification of Common Toxins**: UDS can confirm or identify the presence of common substances of abuse, aiding in the diagnosis of unknown ingestions or exposures. This can be particularly helpful in altered mental status cases where the patient's history is unreliable or unavailable.
- **Guidance of Treatment for Common Overdoses**: In some common overdoses, UDS results can influence treatment strategies. For example, confirming the presence of opioids may prompt the administration of naloxone.
- **Detection of Common Co-ingestions**: UDS can reveal the presence of multiple common substances of abuse, which is frequent in overdose situations. It is critical to recognize co-ingestions, as they can significantly alter the clinical course and require specific interventions.
- **Forensic or Legal Purposes (for common substances)**: In certain situations, UDS may be necessary for legal or forensic reasons, such as in cases involving common drugs of abuse.

The Cons of Urine Drug Screening

- **Limited Clinical Utility**: UDS often has limited impact on the immediate management of poisoned patients. Treatment is primarily based on the patient's clinical presentation, and UDS results rarely change the initial approach.
- **Potential for False Positives and Negatives**: UDSs are susceptible to false positives due to cross-reactivity with other substances and false negatives due to factors such as timing of collection, dilution, and limitations of the assay.
- **Detection Window Variability**: The detection window for drugs in urine varies widely, and a negative result does not necessarily rule out recent exposure. This can lead to misinterpretations and inappropriate conclusions.

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- **Lack of Correlation with Clinical Effects:** UDS only indicates the presence of a substance, not the degree of impairment or toxicity. The concentration of a drug in urine does not always correlate with the patient's clinical condition.
- **Resource Utilization:** UDSs can be expensive and time-consuming, adding to the cost of care and potentially delaying other necessary interventions.
- **Ethical Considerations:** UDS raises ethical concerns regarding patient privacy, consent, and the potential for stigmatization, particularly in cases of substance use disorders.
- **Failure to Detect Many Important Agents:** Routine UDS panels often do not detect many substances relevant to toxicology, including:
    - **Synthetic Fentanyls:** These potent opioids, such as fentanyl analogs (e.g., carfentanil), are often not included in standard UDS and require specific assays.
    - **Synthetic Cannabinoids:** These substances ("Spice," "K2") have diverse chemical structures and are typically not detected by standard THC assays.
    - **Hallucinogenic Drugs:** Substances like LSD, psilocybin, and mescaline are generally not part of routine UDS.
    - **Many Prescription Drugs:** While some prescription opioids and benzodiazepines may be included, many others, such as gabapentin, pregabalin, quetiapine, and various antidepressants, are not routinely screened for.

Poison Center Perspective

Poison centers play a crucial role in advising on the appropriate use and interpretation of UDS. When consulting on a case, poison center professionals:

- **Emphasize clinical correlation**: Advise that UDS results should always be interpreted in the context of the patient's clinical presentation.
- **Discuss limitations**: Educate healthcare providers about the limitations of UDS, including the potential for false positives and negatives, the lack of correlation with clinical effects, and the many substances it does not detect.
- **Promote judicious use**: Encourage the selective use of UDS, reserving it for situations where it is likely to provide clinically useful information regarding commonly abused substances.
- **Guide interpretation**: Assist in the interpretation of UDS results, considering factors such as the timing of ingestion, the patient's medical history, and potential interferences.
- **Advocate for targeted testing when indicated**: When specific substances are suspected that are not on routine panels (e.g., synthetic fentanyls), advise on the availability and utility of more targeted testing methods.
- **Remind providers of clinical suspicion**: Emphasize that a negative UDS does not rule out exposure to a wide range of toxic substances. Clinical suspicion should guide management.
- **Advocate for patient-centered care**: Remind healthcare providers to prioritize patient well-being and to avoid using UDS results in a punitive or judgmental manner.

Conclusion

UDS can be a useful tool for detecting common substances of abuse in the assessment of poisoned patients, but it has significant limitations. Poison center professionals will advocate for its judicious use and provide crucial guidance on the interpretation of results, emphasizing the importance of clinical correlation, awareness of its limitations (especially regarding the many substances it does not detect), and patient-centered care. By understanding both the pros and cons of UDS, we can optimize its use and improve the care of patients with toxic exposures.

What is a Certified Specialist in Poison Information?

A Specialist in Poison Information (SPI) is a specially trained nurse, pharmacist, physician, or physician assistant. These SPIs are the people who answer the phones at poison centers. These specialists have the knowledge and experience to assess, triage, manage, and monitor toxic exposures after undergoing an intensive training in the field of toxicology. The specialists who answer the phones at the Kentucky Poison Center are nurses with experience in critical care or emergency medicine or PharmDs. Each specialist must successfully pass a national certification exam after working 2,000 hours in a poison center and handling 2,000 exposures. After the exam they become a Certified Specialist in Poison Information or CSPI. CSPIs must recertify by taking the CSPI exam every seven years.

The exam cycle for 2025 just concluded and we added four new CSPIs to our ranks – Jordan Blantan, BSN, Chris Boroomand, PharmD, Kaila Holkamp, PharmD, and Bryan Murphy, PharmD, BSN. We also had two CSPIs who successfully recertified – Jessica Purser, BSN and Sara Reinke, BSN.

Have you talked with the poison control center recently?

Please take a few minutes to complete our healthcare provider survey
and help us improve the service we provide

https://www.surveymonkey.com/r/J7B82K5

What's With All the Questions?

"I hate calling the poison center, they ask too many questions"

While we never want to create a burden and deter you from reaching out, we ask many questions to better understand the patient and circumstance you are trying to manage. Our poison center specialists are trained and certified in poison information and our toxicologists are board certified. We always want to ensure the best possible patient outcome. But we are at a significant disadvantage being unable to personally examine the patient and witness firsthand the patient's clinical status. Furthermore, often you have been able to ask questions of EMS from the scene, friends and family that may be witnesses to the event, or even the patient themselves who may be an accurate historian of events. We don't have the lab results we need and we don't have a past medical history, which could significantly impact the patient's diagnosis or clinical course. We are dependent on you at the bedside to paint the most accurate clinical picture possible so that the recommendations we provide are tailored specific to that patient at that time.

It is very rare that a specific test alone will tell us everything we need to know about the exposure and the best course of treatment. Take for example an elderly patient who is brought to the emergency department after family members notice the patient is significantly confused. An ordered digoxin level comes back elevated at 4.6 ng/ml. Does the patient take digoxin? Is this an acute exposure or chronic toxicity? What is the patient's normal baseline mental status? When was the last dose? This level could be elevated because the dose was taken less than 6 hours from the blood draw for concentration. What is the patient's potassium? What is the patient's renal function? If the potassium is elevated this could be the result of recent worsening renal function. What does the ECG show? Is there a previous ECG to compare to? What other medications does the patient take? Could this be the result of a drug interaction?

Answers to these questions help us quickly determine if we need to reverse the toxic level or monitor and draw another level. They also tell us if we need to give a large empiric dose of digoxin fab-fragments or dose the antidote based on this level. They tell us if we need to recommend changing the patient's medications long term to avoid a similar occurrence.

While digoxin exposures require a more nuanced treatment approach, every exposure should be looked at independently in each individual patient. For our recommendations to be accurate and high quality, we need the most appropriate clinical information. We train our specialists not to ask for results or history that have no impact on the patient's clinical status or treatment so we can be as efficient on the phone as possible. For every minute they are on the phone, another call is waiting to be answered. We are always willing to call back at a more convenient time but we are not comfortable providing recommendations when the clinical parameters that may determine treatment are unknown – at the end of the day, if the inputs are bad, the output will be wrong.

Want to receive real time poison alerts for unusual poisoning cases that may affect your practice?

Sign up for our ready-op alert list. Use the link below to provide us with your information to receive a text alert for significant events that may impact volume or needs in your healthcare facility.

https://ky.readyop.com/fs/4m38/0086

How Does Poison Center Surveillance Work?

Currently, there are 54 nationally accredited poison centers designated to the cover the entire US and all US territories. Each center uploads its de-identified data about every 8 minutes to a national database (the National Poison Data System, or NPDS).This system is monitored in real time for temporal and geographical anomalies in case volume, as well as for unusual clusters of symptoms or specific defined public health threats including all category A, B, and C bioterrorism agents. When an anomaly is detected, the surveillance team reaches out to the impacted poison center for more case information and makes a determination if the local/state health department should be alerted or a national response is required. This database utilizes product codes, check boxes, and drop-down menus rather than relying on free text, making poison center data unique in the ability to quickly highlight unusual trends. However, this system is dependent on healthcare providers in the state to reach out to the center with exposure cases. Even if you don't think you need recommendations for patient management, by notifying the center you have an exposure case, it improves our statewide and national real time surveillance.

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