MODULE 3:

Urine Drug Test Considerations

Urine drug tests (UDT) differ in their availability, accuracy, and usefulness. Understanding the limits and clinical value of these tests is essential for ordering and interpreting them correctly.

Drug testing is possible using samples from urine, serum, breath, sweat, or saliva.[1] Urine testing is often the preferred method for routine toxicology testing due to its convenience, extended detection window, and cost-effectiveness.[2] In the *CDC Clinical Practice Guideline for Prescribing Opioids for Chronic Pain – United States, 2022*, the 10th recommendation states that "When prescribing opioids for chronic pain, clinicians should use urine drug testing before starting opioid therapy and consider urine drug testing at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit drugs."[3] Medical experts agree that an annual UDT for all patients should be standard practice. Subsequent UDTs should be determined on an individual patient basis, at the discretion of the clinician.[4]

This overview emphasizes the multifaceted role of drug testing in clinical decision-making and patient safety, while highlighting the importance of confirmatory testing and clinical context in interpretation.

Purpose and Importance of Toxicology Testing

- Essential for monitoring long-term opioid therapy and recommended for benzodiazepine and stimulant therapy
- Aims to ensure safe and effective use of prescribed medications and detect unsafe drug use
- Critical for the purposes of identifying use of non-prescribed substances and providing overdose prevention and safety education to patients, when warranted

Initial Screening

- It is used for qualitative detection of drug classes like opioids, cannabinoids, cocaine, amphetamines, and phencyclidine. Limitations include[2]:
  - Potential false positives due to cross-reactivity with certain medications or foods
  - Potential false negatives due to low concentrations or substances not detectable by the assay
  - Positive or unconfirmed results may require additional confirmation testing
- It may not be covered by insurance. Go over potential costs with the patient prior to conducting a UDT.[4]

Confirmatory Testing[2]

- It is performed using gas chromatography, radioimmunoassay, mass spectrometry, enzyme-linked sorbent immunoassay (ELISA) and cloned enzyme donor immunoassay (CEDIA) for accurate drug identification. Confirmatory testing:
  - Distinguishes between substances with overlapping metabolic pathways
  - Detects drugs not identified in initial screens (e.g., alprazolam, synthetic cannabinoids)
  - Clarifies unexpected results (e.g., absent metabolites or tampering)

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Focus on Patient Context[4]

- Interpret UDT results in conjunction with:
  - Clinical History: Validate results against reported medication adherence.
  - Behavioral Tools: Utilize instruments like the Opioid Risk Tool[5] for comprehensive monitoring.
- Always keep the focus on the patient's well-being and safety.
- Ask the patient what UDT results they expect to elicit information on other drugs (prescribed or non-prescribed) the patient has taken.[4]
- Before ordering a UDT, have a plan for responding to unexpected results.[4]
- Do not jump to conclusions about unexpected results and have a candid conversation with the patient about possible explanations.

Take time to discuss unexpected results with the patient and refer to the pre-UDT information the patient may have shared. Do not dismiss patients from care based on UDT results.

- Review the treatment agreement and focus conversations on patient safety.
- Determine if frequency and intensity of monitoring should be increased and keep the patient informed.

UDT Result Interpretation[2]

- Nonprescribed substance present:
  - Differentiate between prescribed use and illicit substance use (e.g., heroin detected via specific metabolites like 6-monoacetylmorphine).
  - Assess impacts to treatment plans; may require specialist consultation.
  - Assess for possible false positive due to cross reactivity with certain medications or foods (e.g., sertraline, NSAIDs, hemp products).
- Prescribed drug absent may indicate the patient is not taking medication within detection window, rapid metabolism, false negatives (e.g., diluted or contaminated samples), or potential drug diversion.
- Prescribed drug present in high concentration or metabolites absent could be caused by high urine concentration (high creatine level), adding a drug directly to the sample, recent or increased dosing, or using prescribed and illicit drugs together.
- A low creatinine level may result from low body mass and a low specific gravity may result from renal dysfunction.
- Investigate potential cross-reactivity, contamination, or tampering (e.g., adulterants like bleach or synthetic urine).

Additional UDT Considerations

- Specimen collection should occur within 4 minutes of providing a sample.[1]
- Urine volume should be >30 mL with a temperature between 32.2° C (90° F) and 37.7° C (100° F) and a pH of 4.5 to 8.5.[1]
- Ensure proper chain-of-custody protocols to prevent tampering or adulteration.
- Poppy seeds and passive marijuana exposure rarely cause positive results.
- Most UDTs detect only whether a substance is present without quantitative reporting.[1]
- Standard urine tests may not detect prevalent substances such as synthetic cannabinoid, synthetic or semisynthetic opioids, MDMA (ecstasy), ketamine, chloral hydrate, gamma-hydroxybutyrate (GHB), psilocybin, bath salts (cathinones), and PCP.[1]
- Specialized lab tests may be needed to detect other emerging substances.

1 Mukherji, P., Azhar, Y., & Sharma, S. (2023). Toxicology Screening. In StatPearls. StatPearls Publishing. Accessed November 20, 2024. https://www.ncbi.nlm.nih.gov/books/NBK499901/

2 Kale, N. (2019). Urine Drug Tests: Ordering and Interpreting Results. American Family Physician, 99(1), 33–39.

3 Dowell, D., Ragan, K. R., Jones, C. M., Baldwin, G. T., & Chou, R. (2022). CDC Clinical Practice Guideline for Prescribing Opioids for Pain—United States, 2022. MMWR Recommendations and Reports, 71(3), 1–95. https://doi.org/10.15585/mmwr.rr7103a1

4 Drug testing | National Institute on Drug Abuse. (2024, March 20). National Institute on Drug Abuse. https://nida.nih.gov/research-topics/drug-testing#difference

5 Cheatle, M., Compton, P., Dhingra, L., Wasser, T., & O'Brien. (2019). Development of the revised opioid risk tool to predict opioid use disorder in patients with chronic non-malignant pain. Journal of Pain, 20(7), 842–851. https://nida.nih.gov/nidamed-medical-health-professionals/screening-tools-resources/opioid-risk-tool-oud-ort-oud