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'WEED' out false-positive urine drug screens

Numerous medications and other substances can appear in a urine drug screen (UDS) as an illicit narcotic (*Table, page 108*). These false positives can:

- lead to incorrect diagnosis and inappropriate intervention, particularly if the result determines treatment
- endanger the therapeutic alliance by making the patient uncomfortable and defensive.

WHY DRUG SCREENS ARE SOMETIMES WRONG

A UDS for recreational drug use is commonly performed when the patient presents to the ER with acute changes in mental or behavioral status.

Ms. A, age 57, presents to the ER with fluctuating consciousness. The cause is unknown.

Surgical removal of a pituitary tumor 39 years earlier caused hormone deficiencies, seizures, and excessive sleepiness. Symptoms of panhypopituitarism have been managed with medication, and her current regimen includes thyroxine, phenytoin, the proton pump inhibitor pantoprazole, and prednisone. Recently, comorbid depression caused her to skip doses.

ER physicians order a UDS because of Ms. A's mental status changes. The enzyme-linked immunosorbent (ELISA) toxicology test for alcohol, amphetamines, barbiturates, benzodiazepines, cocaine, opiates, marijuana, and phencyclidine (PCP) is positive for marijuana. When the attending psychiatrist informs

Ms. A of the result, she is shocked. She tells the psychiatrist she is active in church and opposes recreational use of narcotics. She adamantly denies using marijuana or other street drugs, alcohol, nicotine, or caffeine.

Eventually, physicians attributed Ms. A's mental status changes to several underlying medical issues, including Addison's disease. A thorough review of the case revealed that the proton pump inhibitor pantoprazole caused the false-positive UDS.

UDS tests are sensitive but not highly specific. A medication or other substance with a chemical structure similar to that of the suspected drug can cause a false positive.¹⁻³

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Table

Substances that may trigger a false urinary drug screen result

Prescription drugs	Nonprescription drugs	Could appear in urinary drug screen as
Amphetamines Methamphetamines Bupropion Fluoxetine Ranitidine Trazodone Nefazodone	Nasal decongestants MDMA Pseudoephedrine	Amphetamines
Diazepam	None	Alcohol
Sertraline Oxaprozin	None	Benzodiazepines
Amoxicillin Most antibiotics	NSAIDs	Cocaine
MS Contin (false negative) Quinolones Rifampin Codeine Oxycodone (false negative)	Poppy seeds	Heroin (morphine) (6-Acetylmorphine)
Dronabinol Pantoprazole	Visine eye drops (false negative) Hemp seeds (false negative)	Marijuana
Diazepam (false negative)	Nyquil Dextromethorphan	Methadone PCP

Source: References 1,4-6

The “WEED” mnemonic spells out steps for critically evaluating UDS test results to ensure appropriate care:

- **Write** out a list of the patient’s medications. This list may explain the symptoms or help interpret UDS results. If a narcotic dose was recently increased, for example, a

UDS might not be needed to confirm what caused the change in mental status.

- **Examine** the patient carefully. Evaluate physical signs, take a thorough medical history, and consider the potential for drug use. Although not impossible, for example, PCP intoxication is not a likely

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cause of psychosis in nursing home patients.

- Equate UDS results with presenting complaints and symptoms. For example, if a patient with sudden syncope tests positive for marijuana, the syncopal symptoms demand further investigation because marijuana is not the likely cause.
- Duplicate the UDS screen with confirmatory tests if the result will determine treatment. When UDS results are ambiguous, use highly specific tests such as gas chromatography with mass spectrometry and high-performance liquid chromatography. Although expensive and time consuming, these tests confirm the presence or absence of substances with few false results.

If you're still unsure about the UDS results, ask a medical review officer or addiction psychiatrist to evaluate the results. A specialist can determine if the patient is in denial about his or her drug use and provide appropriate counseling.

References

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