t is illegal to post this copyrighted PDF on any website Have Never Used Methamphetamine, screening and confirmatory testing are not stereoselective for

But My Urinalysis Says I Do

To the Editor: Urine drug screens are routinely performed by psychiatrists, internists, and family medicine physicians. Most of these drug tests are for screening and are followed by confirmatory gas chromatography/mass spectrometry (GC/MS) tests. Periodically, GC/MS tests can have false-positive results. Such results could have clinical implications for physicians.

Case report. Mr A is a 51-year-old white man with a past psychiatric history of bipolar disorder and opioid use disorder who presented to the clinic on buprenorphine/naloxone (8-2 mg film, 3 films sublingually daily) maintenance therapy. Other medications included gabapentin, lamotrigine, lithium, and olanzapine. The patient had been doing fairly well clinically and was compliant with his visits. Mr A would provide a urine drug screen (antigen and antibody test) specimen, which would then be sent out for a confirmatory GC/MS test.

Over the past few months, both his urine drug screens and confirmatory GC/MS tests were positive for methamphetamine. Throughout this time, the patient denied history of amphetamine use, remained compliant with follow-up appointments and medications, and showed no clinical signs of amphetamine use. After extensive questioning, Mr A revealed he was using over-thecounter Vicks VapoInhaler for ongoing respiratory discomfort. He reported that he used the medication as needed daily and that he started it shortly before his consecutive urine drug screens. Soon after stopping the Vicks treatment, his urinalysis was no longer positive for methamphetamine.

Urine drug screen immunoassays are a quick and inexpensive method for determining the presence of many drugs of abuse.¹ Amphetamines and methamphetamines are commonly included on routine urine drug screens.¹ A positive amphetamine or methamphetamine urine drug screen should be followed by a confirmatory GC/MS laboratory test for better characterization of the offending compound.

There are many well-demonstrated causes of amphetamine false positives on both urine drug screens and the confirmatory GC/MS.¹⁻⁴ Common medications that may produce a false-positive result include pseudoephedrine, labetalol, bupropion, trazodone, and chlorpromazine.^{1,5} Whether or not the false-positive result affects the initial urine drug screen or the confirmatory GC/MS depends on the compound. The GC/MS test is generally capable of ruling out false positives from the initial urine drug screen.¹ In 1 specific instance, *l*-methamphetamine, the stereoisomer to the psychoactive *d*-methamphetamine is the active ingredient in the nasal decongestant Vicks VapoInhaler.² It is also a product of the metabolism of selegiline.⁶ Current routinely available urine

screening and confirmatory testing are not stereoselective for the isomers of methamphetamine and amphetamine. Thus, to distinguish between the *l*- and *d*- isomers, chiral chromatography must be employed.⁵ Chiral chromatography is not a modality readily available to many laboratories performing the urinalysis, although there have been developments in affordable assays capable of stereoselectivity.⁷ Stereoselectivity is of particular importance in instances in which the presence of *l*-methamphetamine yields a positive drug screen result. As was the case with Mr A, it can be difficult to determine the causes of false-positive results. The multitude of compounds causing false positives in common drug screening reiterates the need for careful history taking. Comprehensive medication and supplement lists must be obtained, as seemingly innocuous compounds and routine medications can adversely affect the treatment of compliant patients.

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