Letter to the Editor

Performance of AdultaCheck 4 Test Strips for the Detection of Adulteration at the Point of Collection of Urine Specimens Used for Drugs-of-Abuse Testing

To the Editor:

A common problem in drugs-of-abuse testing is the use of commercial adulterants, dilution of the specimen with water, or the addition of common household products in an attempt to cause false-negative results in screening and confirmation tests. AdultaCheck 4 test strips and AdultaCheck Level 1 and 2 controls were obtained from Chimera Research and Chemical, Inc. (Tampa, FL). The test strips were evaluated for their ability to visually detect various common adulterants. The strips consist of four individual tests. Creatinine determines if a specimen has been diluted. A nitrite pad checks for the presence of commercial adulterants such as Klear and Whizzies. Concentrations detected are well above the nitrite levels found in urinary tract infections. The glutaraldehyde pad detects the presence of adulterants containing glutaraldehyde, Amber-13, Urine Luck, or THC Free, for example (1). A pH over 10 indicates that a basic adulterant such as bleach or Drano has been used. Forty random urines were collected and tested with AdultaCheck strips before and after adulteration. Prespiked specimens had normal creatinine and pH. All were negative for nitrites and glutaraldehyde.

Ten urines were diluted to under 10 mg/dL creatinine. The values were confirmed on the Hitachi 911 analyzer (Roche Diagnostics, Indianapolis, IN). All ten tested low by the AdultaCheck creatinine pad, indicating urine dilution (2). Twenty urines adulterated with glutaraldehyde or nitrites gave positive reactions on AdultaCheck strips, indicating an abnormal pH of less than 3. Ten specimens spiked with Drano showed abnormal pH values over 10.

Rapid THC point-of-care test cassettes were obtained from Syva (Cupertino, CA) and PBM (Princeton, NJ). Four THC-positive urines were tested after the addition of nitrites (Whizzies), glutaraldehyde (Instant Clean ADD-IT-ive), and muratic acid (Amber-13). The nitrite and glutaraldehyde tainted urines remained positive for THC. Muratic acid addition caused the control line on the test cassettes to disappear, indicating adulteration (3).

Two levels of AdultaCheck quality control material efficiently demonstrated visual results typically seen with both adulterated and nonadulterated urine samples.

AdultaCheck 4 proved to be an accurate, cost-effective, and efficient test for the detection of adulterated samples at the point of collection.

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References


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