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Interference by Drugs Contained in Over-the-counter Cold Syrups on Methamphetamine Immunoassay Test Kits Used in Drug Abuse Assessment

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ABSTRACT

Eight commercial methamphetamine test kits : AbuSign, accuPINCH, AccuSign, I.D. BLOCK, Medi-Mate, QuikPac II, SureStep and Visualine II were evaluated for their interferences by twelve drugs commonly found in over-the-counter cold syrups: aspirin, brompheniramine, chlorpheniramine, ephedrine, ethenzamide, guaifenesin, l-phenylephrine, methylephedrine, pheniramine, phentermine, phenylpropanolamine, and pseudoephedrine; and by clobenzorex, ranitidine which have been found to interfere in some amphetamine immunoassays. These fourteen drugs were evaluated by using measured concentrations ranging from 1 mg/L to 1000 mg/L. Results indicate that ephedrine and pseudoephedrine demonstrate a significant interference in most of test kits, while most analgesics, antihistamines and antitussives show no interference with the exception of brompheniramine. Furthermore, phenylpropanolamine, phentermine, phenylephrine, ranitidine and methylephedrine all show some degree of interference in Quikpac II, SureStep and Visualline II. While accuPINCH was shown to be the most specific test kit, SureStep and QuikPac II, which produced false positive results when tested at concentrations of 1 mg/L of ephedrine or pseudoephedrine, and thus demonstrate less specificity than all the other test kits.

Key words: Methamphetamine, test kit, interference, cold syrup.