K31 An Assessment Oral Fluids Point-ofCollection Drug-Testing Devices

J. Michael Walsh, PhD, Ron Flegel, MS, The Walsh Group, 6701 Democracy Boulevard, Bethesda, MD 20817; Dennis J. Crouch, MBA, Center for Human Toxicology, University of Utah, 20 South 2030 East, Salt Lake City, UT 84112; Leo Cangianelli, The Walsh Group, 6701 Democracy Boulevard, Bethesda, MD 20817; Jakub Baudys, Center for Human Toxicology, University of Utah, Salt Lake City, UT 84112*

After attending this presentation, attendees will understand the advantages and limitations of currently marketed oral fluids point of collection devices for use in forensic cases.

This presentation will impact the forensic community by demonstrating Toxicology testing has reached cross roads where testing of nontraditional specimens such as hair, sweat and oral fluids may replace testing of traditional specimens such as blood and urine. The data presented here will assist the audience in evaluating the potential use of oral fluids and point of collection oral fluid testing devices in forensic applications.

New technology is currently being marketed to rapidly test oral fluids for drugs of abuse at the point of collection. There are no nationally accepted standards or cutoff concentrations for detecting drugs in oral fluids [either workplace or criminal justice] and, for most analytes there are significant differences in cutoff concentrations across devices [i.e., sensitivity to detect drug]. In this study, we evaluated six devices [Oral Screen-Ansys Technologies, Inc. USA; Oratect - Brannan Medical USA, Rapiscan -Cozart Bioscience Ltd., UK; Uplink - Orasure Technologies USA/Germany, Drugwipe - Securetec, Germany and SalivaScreen -Ulti-Med, Germany] for their ability to meet manufacturers claims, and proposed federal standards for criminal justice and workplace programs.

Human oral fluids fortified with known quantities of drug/metabolite were used to test the products. Oral fluids were fortified with known quantities of drug(s) or metabolite(s) at 0, one-half, two and ten times the cutoffs proposed by SAMHSA and used to challenge the devices. GC or LC/MS verified concentrations of the fortified drugs/metabolites. Overall, the performance of the rapid point-of-collection oral fluid drug-testing devices was quite variable. Some devices performed well in the analysis of some drugs, but poorly for others. No single device consistently performed better than the others. In general, most of the devices detected methamphetamine and opiates well, but none of the devices could reliably detect marijuana [delta-9-THC] at less that 50 ng/mL. The ability to accurately and reliably detect cocaine and amphetamine was dependent on the individual device.

Results indicate that the devices evaluated in this study are not suitable for testing programs where marijuana is the primary drug of interest. Because the devices did perform well in detecting opiates and methamphetamine they may be suitable for programs where one or both of these classes of drugs are of primary interest. For programs where cocaine or amphetamines are of interest, some devices may be suitable while others are not.

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Oral Fluids, Point of Collection Testing, Toxicology

 ** Presenting Author*