

**Department of Health and Human Services (HHS)  
Substance Abuse and Mental Health Services Administration (SAMHSA)  
Center for Substance Abuse Prevention (CSAP)**

**Drug Testing Advisory Board**

**September 11, 2013  
Minutes – Open Session**

The CSAP Drug Testing Advisory Board (DTAB) meeting was convened at 10:00 a.m. on September 10, 2013 via web conference in the SAMHSA Building (VTC Room), 1 Choke Cherry Road, Rockville, Maryland 20857.

In accordance with the provisions of Public Law 92-463, the meeting was open to the public on September 10, 2013 from 10:00 a.m. to 11:30 a.m. The meeting was closed to the public on September 10 from 11:30 a.m. to 2:00 p.m. and September 11, 2013 from 10:00 a.m. to 2:00 p.m.

**Table of Contents**

Board Members in Attendance .....	1
Call to order.....	1
Welcome, Introductions, and Opening Remarks.....	1
Public Comments .....	2
Hair color .....	2
Contamination .....	2

**Board Members in Attendance**

Dr. Janine Denis Cook  
Mr. Robert Bonds  
Dr. Lawrence Brown  
Ms. Phyllis Chandler  
Dr. Anthony Costantino  
Ms. Laurel Farrell  
Dr. Greg Grinstead  
Dr. Marilyn Huestis  
Dr. Courtney Harper Lias  
Ms. Susan Mills  
Dr. Jasbir Singh  
Dr. Donna Smith  
Mr. Jim Swart  
Dr. Steve Wong

**Call to order**

Dr. Janine Denis Cook, the Designated Federal Official of the DTAB, called the meeting to order at 10:00 a.m. Dr. Cook provided announcements to the remote attendees.

**Welcome, Introductions, and Opening Remarks**

Dr. Cook, Acting Chair of the DTAB, introduced the members of DTAB and the staff of the Division of Workplace Programs (DWP) and welcomed federal partners and the public. She announced the tentative dates for the fiscal year 2014 DTAB meetings: December 11, 2013 and March 17-18, June 10-11, and September 3-4, 2014. She provided a warm welcome on behalf of Ron Flegel, Director of DWP.

## **Public Comments**

None.

### **Hair color**

Dr. Jim Bourland, who is the Laboratory Director at Alere Toxicology, provided a literature review presentation on hair color bias and external contamination of hair. He summarized 76 articles from Dr. Ed Cone's bibliography, 41 having to do with hair color bias and 35 with external contamination. These two issues are the main roadblocks to the consensus acceptance of hair testing in the scientific community.

He divided these articles into six categories: the morphology of hair, the chemical makeup of hair, and racial and ethnic differences described between hair types; animal studies on hair color bias; human studies with in vitro hair fortification and drug incorporation rates; general human studies based on hair color types; human controlled drug administration studies and hair drug analysis; and retrospective statistical studies utilizing authentic hair data to examine the impact of hair color bias.

In summary, basic drugs and metabolites bind to melanin. Some authors suggest measuring melanin in hair to normalize drug concentrations to melanin concentrations, similar to normalizing urine drug concentrations to urine creatinine. Others suggest laboratory procedures to remove melanin from hair to compensate for the hair color bias due to melanin. Equivalent basic drug doses resulted in significantly greater concentrations in the hair of dark-haired versus white-haired animals. Differences in binding, and ultimately concentrations, are based not only on hair color but also hair type.

The laboratory cut-off influences whether hair color bias is observed. As the cutoff is increased, the chance of bias increases. The pattern of drug use also influences whether hair color bias is seen. In a heavy drug use population, little to no bias is seen because the higher drug concentrations detected are above the cutoff. In the lighter use population, bias would be more likely, depending on the selected cutoff. The ratios of African American to Caucasian positive drug test results in urine and hair were similar. Using the proposed hair color model of darker hair being associated with higher drug concentrations, retrospective studies demonstrated that cocaine fit this model, amphetamines were contrary to it, while marijuana was neither contrary nor supportive of the proposed model since it did not demonstrate hair color bias.

### **Contamination**

External drug contamination is an evidentiary false positive that is the result of exogenous exposure to drugs in the environment versus drug use. References in the literature are contradictory on this topic.

Dr. Bourland divided the reviewed external contamination articles into the following categories: child exposure incidents, narcotic officer exposure, tetrahydrocannabinol (THC) exposure, laboratory procedures or approaches to external contamination issues, and in vitro contamination studies.

In summary, hair may be an ideal matrix to test for any type of exposure to drugs in children. Studies performed on hair from narcotics officers have demonstrated the ability of the forensic laboratory to distinguish external contamination from drug use. For THC exposure in hair, there is little argument among the scientific community. It is well accepted that carboxy-THC is a marker for drug ingestion versus drug exposure. Based on the reviewed articles, distinguishing exposure and ingestion proved difficult. Laboratories feel that their wash procedures and wash criteria can distinguish contamination from use, but the scientific data are unclear. In vivo studies appear contradictory to laboratory in vitro studies in distinguishing cocaine exposure from use. Proposed unique biomarkers for cocaine are not unique to drug use, so the search continues. There are other potential biomarkers for cocaine being investigated, but those have not been published in the literature yet.

The open session adjourned at 11:30 a.m.

I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.

/SIGNED/

Janine Denis Cook, Ph.D., DABCC, FACB  
Designated Federal Official and Acting Chair, DTAB

These minutes were formally considered, amended, and approved by the DTAB via email.