Criminal Charges

PAPE & ASSOCIATES

Specializing in Toxicology

TOXICOLOGY REPORTER

Criminal Charges

DRUG-RELATED TOPICS

Drug-related Death

Urine Drug Testing

Drug-related Discovery

Retesting for Drugs

Alcohol/Drugs and Aggression

Foreseeability of Risk

DWI-Drugs

ALCOHOL-RELATED TOPICS

COMPREHENSIVE DISCOVERY

CROSS-EXAMINATION

TOPIC-RELATED CONSULTATION

Brian E. Pape, Ph.D.

While most of Dr. Pape's work involves civil litigation, he does accept some cases that include review, consultation, and testimony in criminal matters.

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Dr. Brian Pape specializes in toxicology and related sciences. His professional appointments have included the following:

Clinical Associate Professor of Pathology, University of Massachusetts School of Medicine.

Senior Associate Consultant for Mayo Clinic and Director of Toxicology at New England Toxicology Services.

Director of Toxicology and Associate Professor in the Department of Pathology at the University of Missouri School of Medicine.

Dr. Pape has published papers, abstracts, and professional articles relating to alcohol and drugs, pesticides and toxic chemicals, analytical chemistry, forensic science, and general toxicology. He currently writes the *Toxicology Reporter.*

He has served as a technical and expert consultant to business, labor, and governmental agencies; and he has been qualified as an expert in toxicology and related sciences in State and Federal Courts.

His expertise has been recognized by American Men and Women of Science, Who's Who in Technology Today, Who's Who in Medicine/Healthcare, Sigma Xi, and American College of Forensic Examiners and the Board of Forensic Medicine.

Dr. Pape has testified in State and Federal Courts on a wide range of issues relating to clinical, analytical, and forensic toxicology. He has also consulted regarding the reliability of laboratory testing and the pre-trial evaluation of an expert's report or anticipated testimony.

While most of Dr. Pape's work involves civil litigation, he does accept some cases that include review, consultation, and testimony in criminal matters. The discussion of topics relating to criminal charges are intended to assist attorneys considering technical and scientific issues.

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Pape & Associates Offices:

P&A offices serve New England and PA – NY – NJ – and Mid-Atlantic States.

Example Drug-related Topics

Case Report of Drug-related Death

Did the deceased's use of heroin he got from John Doe kill him?

The deceased was last seen in the company of John Doe. The M.E. reported the following:

Time of death: 48 hours prior to autopsy

Physical findings: No apparent anatomic or clinical cause of death; moderate pulmonary edema; early stage decomposition. Blood from an unspecified site was collected for alcohol and drug testing.

Toxicology Test Results

Cocaine	250	ng/ml
Benzoylecgonine	900	
Morphine	50	
Monoacetylmorphine	Present	

The medical examiner testified that death was due to opiate and cocaine intoxication and that the consumption of heroin was a substantial contributing factor.

Cross-examination of the M.E. included the following defense positions:

- The lab's records regarding the quantitative tests for drugs in blood were nearly non-existent
- Postmortem decomposition likely caused the redistribution of drugs, leading to higher drug concentrations in blood
- The postmortem concentration of cocaine was reduced due to chemical decomposition to benzoylecgonine
- A proper set of samples including injection sites, nasal swabs, and other physical evidence was not collected
- The test results and trial testimony did not establish how, when, where, how much, by what route, or in what order cocaine and heroin were last used by the deceased
- The only link to heroin (i.e. the reported presence of monoacetylmorphine, MAM) was suspect because of the absence of any laboratory data supporting the detection of MAM
- The autopsy findings were not indicative of one drug class … either drug could have caused death
- The deceased's medical history was not known
- The autopsy was incomplete

- No physical evidence specifically linked the postmortem drug results to John Doe

In this case, the defense attorney was challenged to control the cross-examination of the M.E. and explain to the jury why the actual cause of death was highly speculative.

Cornerstones of cross-examination include **knowledge** of case facts and related sciences, **confidence** in the basis for cross-examination, **anticipation** of the expert's response, and **control** of the witness's responses.

Probationary Drug Testing

The reliability of urine drug tests and the interpretation of test results

Immunoassay tests are the frequently used by probationary agencies or offices to test for drugs in urine. These tests are frequently referred to as screening tests. **Confirmation tests** employing a different and more specific method are rarely performed to verify a positive screening test. The most widely accepted confirmation method is gas chromatography-mass spectrometry.

Test reliability is best assessed by a review of factors that include specimen collection and security, test methods, quality assurance, and results review. For example …

A false positive result *refers to a specimen that tested positive when it should have tested as a negative.*

A false negative result *refers to a specimen that tested negative when it should have tested as a positive.*

While a positive screening test is sometimes considered sufficient to establish probable cause for a finding of prohibited drug use, other inferences would usually be considered much more speculative. A true positive urine drug test result means that the person consumed sufficient drug to account for the presence of drug or drug-metabolite in urine. However, in the absence of case-specific assumptions or reliable evidence, a positive test usually does not establish . . .

- when the drug was last taken
- how the drug was last taken
- how much drug was last taken
- the drug concentration in urine
- the drug concentration in blood
- the effect(s) on a person

When immunoassay screening tests are used, a numerical test value reflecting the instrumental response to a test specimen is not a reliable measure of the concentration of the drug or drug metabolite. And, a series of positive urine drug tests does not necessarily establish the continued use of a drug.

Points of comparison: Workplace drug testing programs usually rely on a more rigorous set of procedures, test methods, and documentation. For example, most workplace programs rely on adherence to and documentation of . . .

- specimen collection procedures
- security and chain of possession
- screening tests with pre-defined cut-offs
- confirmation by GC-MS
- medical/drug/results review by an MRO
- split-specimen retesting options
- laboratory quality assurance

FYI, federally mandated urine drug testing guidelines administered by SAMHSA have long-recognized that positive urine morphine and codeine drug test results could be due to the consumption of poppy seed food products.

Example Test-related Discovery

An evaluation of the reliability of a positive or negative drug test result should include a consideration of the test methods, laboratory documentation, and quality assurance. An example approach to discovery is outlined below.

1) All written records, notes, and documentation relating to all biological specimens, pills, powders, residues, and drug paraphernalia obtained in connection with this matter including those specimens that were not submitted for testing.

2) All written materials relating to technical or scientific or methods or outlines of test methods or procedures, administrative-and-laboratory practices and procedures, and actual test procedures as well as notes relating to all specimens submitted for testing and the tests conducted on these specimen(s) including but not limited to tests used to determine specimen suitability, initial screening tests, qualitative and quantitative analyses, and the sensitivity of the tests performed.

The description of these test procedures should include copies of all notes and outlines and technical procedures utilized in the testing of these specimen(s) including descriptions of scientific equipment, the preparation and verification of chemical or test reagents, the step-by-step description or instruction of the testing process, and examples of test data produced or obtained by test analysis as well as criteria for the review of standards, specimen test results, and quality assurance relating to test analysis.

The copy of the actual test records should include all relevant test data including instrument tracings and computer output obtained as a result of testing all of the

case-related standards, controls, blank or chemical-free samples, and specimens.

Test-related information should also include the identification of all of the drugs in the analytical or test universe that represents the capabilities of each test conducted including the sensitivity or detection limit expressed as drug or drug-metabolite concentration.

3) Identification of all internal and external quality assurance programs and procedures relating specifically or directly to an assessment of the laboratory's ability to test and report reliable results regarding the presence and concentration of alcohol and drugs including case-specific drugs; and all survey reports and reviews within at least 12 months of the date of testing and the participant code used to identify the survey results submitted by the performing laboratory.

4) Identification of the dates when the laboratory disposed of the specimens. For all specimens remaining in the possession of any laboratory, state the nature and amounts of these specimens and prior storage conditions.

Before requesting discovery materials or the retesting of specimens, you should consult with an experienced forensic toxicologist.

Retesting for Drugs

Confirming positive drug test results

Guidelines include the following:

(A) Choose a laboratory that will retest the specimen using a selective or specific method at a level of sensitivity (detection limit) that is lower than that used by the first laboratory.

(B) Based on (A), submit sufficient sample to achieve the detection limit while retaining the residual specimen for other potential tests.

(C) Insist that the laboratories involved in specimen transfer identify and coordinate their SOPs and that they ensure a chain-of-possession.

(D) If the drug was likely subject to chemical decomposition, consider testing for both the drug and the products of decomposition.

Confirming negative drug test results

See confirming positive test results (above).

Expanding the drug test universe

Drug testing is rarely comprehensive enough to include all reasonable explanations for a person's appearance-behavior-demeanor or state of mind or to identify all cases of a drug-related accident or incident or injury or death. When considering additional testing in order to expand the universe of drugs that would be detected, you should consult with a toxicologist.

When considering expanded drug testing …

What are the reported drug test results?

What features of the case suggest other drug use?

What are the prior drug test results?

What does a person's appearance-behavior-demeanor-or-performance suggest regarding the use of a specific drug or class of drugs?

What does that person's prior medical history or drug use or other history indicate regarding drug use? What do pharmacy records indicate?

What specimens are available? Given this, what are the qualitative and quantitative test options? Given this, how can a process of sequential testing be tailored to address case-specific drug-related questions?

See *confirming positive test results* (above).

Determining drug concentration

See *confirming positive test results* (above).

Pay special attention to the laboratory's approach to standardization, the use of control or check specimens, data review, and other aspects of internal and external quality assurance.

Drug Use and Aggressive Behavior

Common Theory: Alcohol and Drugs

Alcohol-related theories of aggressive behavior are probably applicable to a consideration of the relationship between the use of some drugs and aggressive behavior.

The findings indicate that early aggressive behavior leads to an increase in alcohol use and alcohol-related aggression, but that levels of alcohol use are not significantly related to later aggressive behavior. Thus, the study data suggest that alcohol-related aggression is engaged in by aggressive people who drink. These data lend support to other research indicating that early aggressive and antisocial behavior is predictive of later alcohol-related problems. Other studies suggest that the environmental and situational variables are important.

> "Systematic observation of Vancouver barrooms showed that **aggression was highly predictable on the basis of situational variables** and [the results of these studies] identified a drinking environment highly associated with aggression." Aggression and Barroom

Environment, K. G. Graham et al., J. Studies on Alcohol, 41(3), 277-92 (1980).

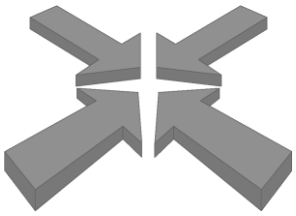
Alcohol and Aggression: What do most people believe?

From Paglia, A and Room, R; J Subst Abuse 10(2): 199-216 (1998): **Over 75 percent of the respondents obtained in a survey of Canadian adults believed that alcohol is associated with aggression** … 92% believed that an intoxicated person is responsible for any behavior and that alcohol is not an acceptable excuse.

Alcohol or Drugs and Behavior: Case Factors

Personal History

BAC / Drugs



Situational and Circumstantial Factors

Inter-personal Relationships

Alcohol-related behavioral theories include the following:

Physiological disinhibition theory: Alcohol increases aggression directly by depressing the brain center that normally inhibits aggressive behavior.

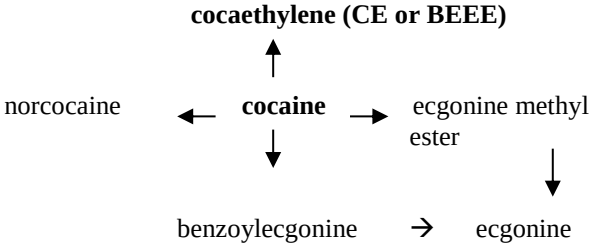
Expectancy theory: Alcohol increases aggressive behavior because people expect it to.

Indirect cause theory: Alcohol increases aggression by causing changes within the person that increase the probability of aggression (e.g. by reducing intellectual functioning).

It is prudent to consider all reasonable theories and relevant factors.

Cocaine and Behavior

The fate of cocaine includes a series of enzyme-catalyzed and chemical reactions:



Cocaethylene (CE or BEEE) is the product of a chemical reaction between cocaine and ethanol. The consumption of cocaine and alcohol results in the formation of CE.

Cocaine + Ethanol → Cocaethylene

The individual and/or additive effects of cocaine, CE, and ethanol are associated with adverse behavioral effects including deviant or violent behavior.

Benzodiazepines and Behavior

The reading of the introduction to one reference text would suggest that reports of rage attacks in humans occurred early on and were labeled paradoxical reactions as they tended to occur in isolated instances and usually at high dosages … [but] … reports have continued with the newer benzodiazepines … [and] … studies have suggested that chlordiazepoxide (Librium) and diazepam (Valium) increase hostility. Other studies suggest an additive effect associated with alcohol plus benzodiazepines.

Sale or Distribution of Ecstasy and Foreseeability of Drug-related Injury

- A Case Vignette -

A 19 y.o. female consumed what was believed to be Ecstasy (MDMA) and a relatively small amount of alcohol at a *rave*. She became seriously ill … exhibiting CNS effects and fever. She consumed approximately four quarts of water over a period of about five hours. When her condition did not improve, friends took her to a local hospital.

Her admission blood serum sodium level was well below the normal range; and her urine drug screen was positive for amphetamines. Her conditions were attributed to MDMA.

The individual who sold her the drug was arrested and charged under federal law relating to the sale of illicit drugs carrying with it a foreseeable risk of substantial risk of injury.

Defense counsel retained a toxicologist.

The toxicologist reviewed the following:

The positive test for amphetamines

The positive urine drug test was based on a non-specific screening test for chemicals related to amphetamine including but not limited to amphetamine, methamphetamine, MDMA and analogs of MDMA, and some prescription or non-prescription medications. The presence of MDMA was not confirmed.

Forseeability of substantial risk

Estimates of the absolute and relative risk of substantial injury defined by the following features: (1) ER reference, (2) MICU admission, and (3) death attributed to the drug. These features were compared with selected illicit drugs, prescription medications, and non-prescription medications. The following types of relationships were compared:

Number of users compared to (1-3)

Number of doses sold compared to (1-3)

These comparisons indicated that the foreseeable risk associated with the use of MDMA was less than the risk associated with the use of several prescription medications.

DWI-Drugs

MV operation - field sobriety testing - drug recognition expert interview and report - urine drug testing - use of prescription medications or illicit drugs - and medical history

- FSTs have not been developed or validated for the identification of DWI-drugs
- DRE police usually rely on operator interviews to guide the interpretation of physical findings
- Positive urine drug tests do not establish the time of last use, the amount of drug used, the route of drug administration, or the effects at the time of operation
- Prescription medications that can affect a person's ability to operate a MV are often prescribed after a consideration of risk vs. benefit and without instruction to avoid the operation a MV

A DWI-drugs case vignette

Following a MV stop for "rolling thru the stop sign", the police officer detected a strong odor of marijuana coming from the vehicle. A search of the MV disclosed some "burnt joints" in the ashtray. The operator admitted smoking marijuana with a friend earlier in the day. After performing the HGN test, the operator told the officer to "f___-off". The MV operator was persuaded to provide a urine specimen for drug testing. The urine was positive for marijuana metabolites.

The MV operator was charged with DWI drugs. **Defense counsel consulted with an experienced toxicologist**; and a decision was made to attempt to cross-examine the police officer with leading questions. **The cross-examination of the police officer emphasized the following:**

- The positive urine drug test only established the prior use of marijuana, and that last use could have been hours or days prior to the MV stop.
- The operator's statements did not establish how much marijuana was use, the strength of that marijuana, the way in which the marijuana was shared, and the fate of marijuana. *It was argued that, unlike similar statements that are sometimes made regarding the prior use of alcohol, no reasonable inference could be drawn regarding the effects of marijuana at the time of operation.*
- There are no generally accepted "driving indicators" for drug-related impairment.
- The HGN test was not developed for and has not been validated for the detection of a marijuana-impaired person.
- MV "rolling stops" are very common at the intersection.
- The operator provided an explanation and apology for his use of inappropriate language … and, this was not noted in the police report.

Additionally,

- The operator's treating physician provided a letter and medical records that could have been used by the defendant's toxicologist to establish some aspects of the foundation relating to his anticipated testimony

The toxicologist was not asked to testify … pre-trial consultation and assistance with the controlled cross-examination of the police officer were believed to be sufficient. ***Refer to a discussion regarding some of the principles of cross-examination.***

Cross-examination of an Expert

Throwing things rarely works!

Elements Key to an Effective Cross-examination

Preparation - Anticipation - Knowledge – Control

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