

OFFICE OF THE MEDICAL EXAMINER  
COUNTY OF COOK, ILLINOIS  
2121 W. Harrison Street  
Chicago, IL 60612  
TOXICOLOGY REPORT

Page 1 of 1

**FINAL**

M.E. Case: ME2023-05553  
Deceased Name: [REDACTED]  
Autopsy Date: 09/15/2023  
Report Date: 10/04/2023  
Pathologist: ECKHARDT, MICHAEL

Tox Case: 23-4633  
Gender: Male  
Race: Black  
Age: 32

**In House Tests**

| <u>Sample #</u> | <u>Analyte</u> | <u>Sample Type</u> | <u>Methodology</u> | <u>Result</u> | <u>Foot<br/>note</u> |
|-----------------|----------------|--------------------|--------------------|---------------|----------------------|
|-----------------|----------------|--------------------|--------------------|---------------|----------------------|

**Screen**

| <u>Sample #</u> | <u>Analyte</u> | <u>Sample Type</u> | <u>Methodology</u> | <u>Result</u> |
|-----------------|----------------|--------------------|--------------------|---------------|
|-----------------|----------------|--------------------|--------------------|---------------|

**Subcontracted Tests**

Test Name

Postmortem Basic, Blood      See NMS Report for Results

**Comments (See NMS and/or LabCorp Reports, if applicable)**

*Kristin Escobar Alvarenga, MD*

ESCOBAR ALVARENGA, KRISTIN

Lab Director

Date: 10/04/2023

**Footnotes**

**Test Panels**



## NMS Labs

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Robert A. Middleberg, PhD, F-ABFT, DABCC-TC, Laboratory Director

### Toxicology Report

Report Issued 10/04/2023 11:12

To: 10075

Cook County Medical Examiner

Attn: Dr. Escobar Alvarenga

2121 West Harrison Street

Chicago, IL 60612

Patient Name

Patient ID

Chain

DOB

Sex

Workorder

ME2023-05553

ME2023-05553

Male

23362891

Page 1 of 4

### Positive Findings:

| Analyte                | Result | Units | Matrix Source                        |
|------------------------|--------|-------|--------------------------------------|
| Amphetamine            | 50     | ng/mL | 001 - IVC (Inferior Vena Cava) Blood |
| Benzoylcegonine        | 100    | ng/mL | 001 - IVC (Inferior Vena Cava) Blood |
| 11-Hydroxy Delta-9 THC | 1.0    | ng/mL | 001 - IVC (Inferior Vena Cava) Blood |
| Delta-9 Carboxy THC    | 11     | ng/mL | 001 - IVC (Inferior Vena Cava) Blood |
| Delta-9 THC            | 8.4    | ng/mL | 001 - IVC (Inferior Vena Cava) Blood |

See Detailed Findings section for additional information

Physician/Pathologist Name: ECKHARDT

### Testing Requested:

| Test   | Test Name                                 |
|--------|-------------------------------------------|
| 90024B | Postmortem, Basic, Blood (Forensic) (CSA) |

### Specimens Received:

| ID  | Tube/Container          | Volume/<br>Mass | Collection<br>Date/Time | Matrix Source                  | Labeled As         |
|-----|-------------------------|-----------------|-------------------------|--------------------------------|--------------------|
| 001 | Gray Stopper Glass Tube | 9.5 mL          | 09/15/2023 07:57        | IVC (Inferior Vena Cava) Blood | ME2023-05553-01-19 |
| 002 | Clear Cap Plastic Tube  | 9 mL            | 09/15/2023 07:57        | Urine                          | ME2023-05553-01-06 |

All sample volumes/weights are approximations.

Specimens received on 09/18/2023.

**Detailed Findings:**

| Analysis and Comments  | Result | Units | Rpt. Limit | Specimen Source                      | Analysis By |
|------------------------|--------|-------|------------|--------------------------------------|-------------|
| Amphetamine            | 50     | ng/mL | 5.0        | 001 - IVC (Inferior Vena Cava) Blood | LC-MS/MS    |
| Benzoylcegonine        | 100    | ng/mL | 50         | 001 - IVC (Inferior Vena Cava) Blood | LC-MS/MS    |
| 11-Hydroxy Delta-9 THC | 1.0    | ng/mL | 1.0        | 001 - IVC (Inferior Vena Cava) Blood | LC-MS/MS    |
| Delta-9 Carboxy THC    | 11     | ng/mL | 5.0        | 001 - IVC (Inferior Vena Cava) Blood | LC-MS/MS    |
| Delta-9 THC            | 8.4    | ng/mL | 0.50       | 001 - IVC (Inferior Vena Cava) Blood | LC-MS/MS    |

Other than the above findings, examination of the specimen(s) submitted did not reveal any positive findings of toxicological significance by procedures outlined in the accompanying Analysis Summary.

**Reference Comments:**

1. 11-Hydroxy Delta-9 THC (Active Metabolite) - IVC (Inferior Vena Cava) Blood:

11-hydroxy-THC is a psychoactive THC metabolite. 11-OH-THC was detectable in blood, with a 0.5 ng/mL cutoff, for 1.5 hours (range: 0.25-3.5) when cannabis was smoked by occasional users. 11-OH-THC may be present over 72 hours in chronic, frequent cannabis users.

In occasional cannabis users, median (range) peak blood concentrations after smoking of 6.9% (50 mg) THC were 1.9 (0.5-8.7) ng/mL with median times of maximum concentrations at approximately 11 minutes. In chronic, frequent cannabis users, median (range) peak blood concentrations after smoking 6.9% THC were 7.2 (1.9-30.9) ng/mL, with median times of maximum concentrations at approximately 12 minutes. Usual peak levels are less than 10% of THC levels after smoking.

2. Amphetamine - IVC (Inferior Vena Cava) Blood:

Amphetamine (Adderall, Dexedrine) is a central nervous system stimulant. Amphetamine is also a metabolite of methamphetamine, benzphetamine and selegiline. It is used therapeutically in the treatment of narcolepsy and obesity and also in the treatment of attention-deficit hyperactivity disorder (ADHD). Amphetamine has a high potential for abuse. At low doses, amphetamine causes mild stimulation, offset of fatigue, and increase in alertness. It also causes changes in attitude, judgment and impulsivity. At higher doses, amphetamine causes euphoria, excitation, agitation, hypervigilance, rapid speech, dilated pupils which react slowly to light and increased motor restlessness. Pulse and blood pressure may be elevated. Withdrawal from amphetamine following abuse can result in extreme fatigue and uncontrollable sleepiness, agitation, and depression. In the treatment of narcolepsy, amphetamine is administered in daily divided doses of 5 to 60 mg. In abuse doses of several grams may be used on a daily basis in 'runs' lasting a week or more.

Following a single oral dose of 10 mg amphetamine sulfate, a reported peak blood concentration of 40 ng/mL was reached at 2 hr. Following a single 30 mg dose to adults, an average peak plasma level of 100 ng/mL was reported at 2.5 hr. A steady-state blood level of 2000-3000 ng/mL was reported in an addict who consumed approximately 1000 mg daily.

Overdose with amphetamine can produce restlessness, hyperthermia, convulsions, hallucinations, respiratory and/or cardiac failure. Reported blood concentrations in amphetamine-related fatalities ranged from 500-41000 ng/mL (mean 9000 ng/mL).



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Workorder 23362891  
Chain ME2023-05553  
Patient ID ME2023-05553

Page 3 of 4

**Reference Comments:**

## 3. Benzoylcegonine (Cocaine Degradation Product) - IVC (Inferior Vena Cava) Blood:

Benzoylcegonine is an inactive metabolite and chemical breakdown product of cocaine. Cocaine is a DEA Schedule II controlled central nervous stimulant drug. Effects following cocaine use can include euphoria, excitement, restlessness, risk taking, sleep disturbance, and aggression. A period of mental and physical fatigue and somnolence follow the use of cocaine after the excitant-stimulant effects wear off. Benzoylcegonine has a half-life of 6 to 10 hours. The average blood benzoylcegonine concentration in 906 impaired drivers was 1260 ng/mL (range 5-17600 ng/mL). Benzoylcegonine blood concentrations in patients admitted to an emergency room for cocaine related medical complaints were 1280 ng/mL (SD = 1290 ng/mL). Benzoylcegonine concentrations in plasma following oral administration of 2 g/day of cocaine over 6 days, averaged 4900 ng/mL. The average blood benzoylcegonine concentration in 37 cocaine related fatalities was 7900 ng/mL (range 700-31000 ng/mL).

## 4. Delta-9 Carboxy THC (Inactive Metabolite) - IVC (Inferior Vena Cava) Blood:

Delta-9 THC is the principle psychoactive ingredient of marijuana/hashish. Delta-9 carboxy THC (THCC) is the inactive metabolite of THC. The usual peak concentrations in serum for 1.75% or 3.55% THC marijuana cigarettes are 10-101 ng/mL attained 32 to 240 minutes after beginning smoking, with a slow decline thereafter. The ratio of whole blood concentration to plasma concentration is unknown for this analyte. THCC may be detected for up to one day or more in blood. Both delta-9-THC and THCC may be present substantially longer in chronic users. THCC is usually not detectable after passive inhalation.

## 5. Delta-9 THC (Active Ingredient of Marijuana) - IVC (Inferior Vena Cava) Blood:

Delta-9 THC is the principle psychoactive ingredient of marijuana (cannabis, hashish). It is also the active component of the prescription medication Marinol®. Marijuana use causes relaxation, distorted perception, euphoria and feelings of well being, along with confusion, dizziness, somnolence, ataxia, speech difficulties, lethargy and muscular weakness.

After smoking a user-preferred 300 mcg/kg dose average plasma THC concentrations at 35 minutes were reported at 16.1 (range 4.7-30.9) ng/mL, and had declined to 1.5 (range 0.4-3.2) ng/mL after 190 minutes. Usual peak levels in serum for 1.75% or 3.55% THC marijuana cigarettes: 50-270 ng/mL at 6 to 9 minutes after beginning smoking, decreasing to less than 5 ng/mL by 2 hrs. Whole blood THC concentrations are typically half those in a corresponding plasma sample.

Unless alternate arrangements are made by you, the remainder of the submitted specimens will be discarded one (1) year from the date of this report; and generated data will be discarded five (5) years from the date the analyses were performed.

Workorder 23362891 was electronically  
signed on 10/04/2023 10:01 by:

Emily M. Fenton, MBA, MSFS  
Forensic Toxicologist

**Analysis Summary and Reporting Limits:**

All of the following tests were performed for this case. For each test, the compounds listed were included in the scope. The Reporting Limit listed for each compound represents the lowest concentration of the compound that will be reported as being positive. If the compound is listed as None Detected, it is not present above the Reporting Limit. Please refer to the Positive Findings section of the report for those compounds that were identified as being present.

Test 50002B - Amphetamines Confirmation, Blood - IVC (Inferior Vena Cava) Blood

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

| Analyte     | Rpt. Limit | Analyte         | Rpt. Limit |
|-------------|------------|-----------------|------------|
| Amphetamine | 5.0 ng/mL  | MDMA            | 5.0 ng/mL  |
| MDA         | 5.0 ng/mL  | Methamphetamine | 5.0 ng/mL  |



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Workorder 23362891  
Chain ME2023-05553  
Patient ID ME2023-05553

Page 4 of 4

**Analysis Summary and Reporting Limits:**

Test 50014B - Cocaine and Metabolites Confirmation, Blood - IVC (Inferior Vena Cava) Blood

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

| <u>Analyte</u>  | <u>Rpt. Limit</u> | <u>Analyte</u> | <u>Rpt. Limit</u> |
|-----------------|-------------------|----------------|-------------------|
| Benzoylcegonine | 50 ng/mL          | Cocaine        | 10 ng/mL          |
| Cocacethylene   | 10 ng/mL          |                |                   |

Test 52198B - Cannabinoids Confirmation, Blood - IVC (Inferior Vena Cava) Blood

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

| <u>Analyte</u>         | <u>Rpt. Limit</u> | <u>Analyte</u> | <u>Rpt. Limit</u> |
|------------------------|-------------------|----------------|-------------------|
| 11-Hydroxy Delta-9 THC | 1.0 ng/mL         | Delta-9 THC    | 0.50 ng/mL        |
| Delta-9 Carboxy THC    | 5.0 ng/mL         |                |                   |

Test 90024B - Postmortem, Basic, Blood (Forensic) (CSA) - IVC (Inferior Vena Cava) Blood

-Analysis by Enzyme-Linked Immunosorbent Assay (ELISA) for:

| <u>Analyte</u>             | <u>Rpt. Limit</u> | <u>Analyte</u>             | <u>Rpt. Limit</u> |
|----------------------------|-------------------|----------------------------|-------------------|
| Amphetamines               | 20 ng/mL          | Fentanyl / Acetyl Fentanyl | 0.50 ng/mL        |
| Barbiturates               | 0.040 mcg/mL      | Methadone / Metabolite     | 25 ng/mL          |
| Benzodiazepines            | 100 ng/mL         | Methamphetamine / MDMA     | 20 ng/mL          |
| Buprenorphine / Metabolite | 0.50 ng/mL        | Opiates                    | 20 ng/mL          |
| Cannabinoids               | 10 ng/mL          | Oxycodone / Oxymorphone    | 10 ng/mL          |
| Cocaine / Metabolites      | 20 ng/mL          | Phencyclidine              | 10 ng/mL          |

-Analysis by Headspace Gas Chromatography (GC) for:

| <u>Analyte</u> | <u>Rpt. Limit</u> | <u>Analyte</u> | <u>Rpt. Limit</u> |
|----------------|-------------------|----------------|-------------------|
| Acetone        | 5.0 mg/dL         | Isopropanol    | 5.0 mg/dL         |
| Ethanol        | 10 mg/dL          | Methanol       | 10 mg/dL          |