

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



RRD22LR012

MEDICAL

Specialist's Factual Report

March 22, 2023

A. ACCIDENT

Location: Chicago, IL
Date: July 16, 2022
Time: 1:52 a.m. (Local)
Train: Chicago Transit Authority (CTA) brown line passenger train 3285

B. MEDICAL SPECIALIST

Specialist Michelle Watters, MD, PhD, MPH
National Transportation Safety Board, RE-1
Washington, DC

C. DETAILS OF THE INVESTIGATION

Purpose

This investigation was performed to evaluate the customer service assistant (CSA) for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

Methods

The following records were reviewed: the CSA's autopsy report and his Federal Aviation Administration (FAA) Forensic Sciences Laboratory toxicology report.¹ Other relevant medical and regulatory issues were reviewed.

D. FACTUAL INFORMATION -CUSTOMER SERVICE ASSISTANT

1.0 Autopsy

According to the autopsy report from the Office of the Medical Examiner, Cook County, Illinois, the cause of death of the 70-year-old male CSA was electrocution due to contact with third rail, and the manner of death was accident. The body weighed 281 pounds and was 73 inches in length with a body mass index (BMI) of 37.1 kilograms per square meter.² The examination was limited by extensive trauma; the brain was not available for examination. The medical examiner reported that the

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,000 substances including toxins, common prescription and over-the-counter medications, and illicit drugs. <https://jag.cami.jccbi.gov/toxicology/>

² BMI is calculated from body weight and height. BMI of 18.5 to less than 25 is considered normal weight. BMI of 25 to less than 30 is considered overweight. BMI of 30 and above is considered obese. Obesity is sometimes further classified: class 1 = BMI of 30 to less than 35, class 2 = BMI of 35 to less than 40, class 3 = BMI of 40 or higher. [Centers for Disease Control and Prevention. Defining Adult Overweight and Obesity. Centers for Disease Control and Prevention website. <https://www.cdc.gov/obesity/adult/defining.html>. Last reviewed 6/3/22.]

CSA had an enlarged heart (569 grams) with left ventricular wall hypertrophy (1.5 centimeters).

2.0 Toxicology

According to the toxicology testing performed for the medical examiner, no tested-for drugs of abuse or ethanol were detected in the CSA's inferior vena cava blood. Toxicology testing performed by the FAA Forensic Sciences Laboratory on the CSA's cavity blood was positive for ethanol at 0.021 grams per deciliter (gm/dL); ethanol was not detected in his vitreous fluid. While generally non-impairing, donepezil, which is indicated for the treatment of Alzheimer's dementia, was detected in the CSA's cavity blood and liver tissue.³ The overactive bladder medication oxybutynin was also detected in his cavity blood and liver tissue; this medication can cause drowsiness, dizziness, and blurred vision.⁴ The high blood pressure medications amlodipine, metoprolol, and chlorthalidone and the high cholesterol medication rosuvastatin were detected in the CSA's cavity blood and liver tissue; these four prescription medications are generally considered non-impairing.⁵

Ethanol is a social drug commonly consumed by drinking beer, wine, or liquor. It acts as a central nervous system depressant; it impairs judgment, psychomotor functioning, and vigilance. Ethanol is water soluble, and after absorption it quickly and uniformly distributes throughout the body's tissues and fluids. The distribution pattern parallels water content and blood supply of the tissue. Ethanol can be produced after death by microbial activity, sometimes in conjunction with other alcohols; vitreous fluid does not suffer from postmortem production to any significant extent. Extensive trauma increases the spread of bacteria and raises the risk of ethanol production after death.⁶

E. SUMMARY OF MEDICAL FACTS

The 70-year-old male customer service agent's (CSA) cause of death was electrocution due to contact with third rail, and his manner of death was accident. An enlarged heart with left ventricular wall hypertrophy was identified on autopsy. Toxicology testing detected ethanol at 0.021 grams per deciliter (gm/dL) in the CSA's

³ National Institutes of Health (NIH). U.S. National Library of Medicine (NLM). Updated 12/17/19. [DailyMed - DONEPEZIL- donepezil hydrochloride tablet \(nih.gov\)](https://pubmed.ncbi.nlm.nih.gov/35484441/)

⁴ NIH. NLM. Updated 4/8/21. [DailyMed - OXYBUTYNIN CHLORIDE EXTENDED RELEASE- oxybutynin chloride tablet, extended release \(nih.gov\)](https://pubmed.ncbi.nlm.nih.gov/35484441/)

⁵ FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs.

Metoprolol. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=171>

Amlodipine. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=128>

Chlorthalidone. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=342>

Rosuvastatin. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=318>

⁶ Kugelberg, FC and AW Jones. 2007. Interpreting results of ethanol analysis in postmortem specimens: a review of the literature. *Forensic Science International* 165(1):10-29.

cavity blood; no ethanol was detected in his inferior vena cava blood and his vitreous fluid. Donepezil, oxybutynin, amlodipine, metoprolol, chlorthalidone, and rosuvastatin were detected in the CSA's cavity blood and liver tissue.

Submitted by:

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