

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



Medical Factual Memorandum for Record

December 11, 2024

A. CASE

NTSB ID: CEN23FA142
Location: Port Allen, Louisiana
Date: March 26, 2023

B. MEDICAL SPECIALIST

Specialist Turan Kayagil, MD, FACEP
National Transportation Safety Board
Washington, DC

C. DETAILS

1.0 Description of Review

For purposes of evaluating the pilot for potentially impairing substances and potentially impairing medical conditions, the above Medical Specialist reviewed the following sources of medical information, along with selected relevant regulation, medical literature, and investigator reports.

- Final Federal Aviation Administration (FAA) medical case review
- Autopsy report - pilot
- FAA Forensic Sciences Laboratory toxicology report - pilot

2.0 Summary of Medical Facts

The 38-year-old male pilot's only aviation medical examination was January 27, 2021. At that time, he reported using testosterone injections to treat low testosterone. He was issued a second-class medical certificate without limitation.

The Parish of West Baton Rouge Office of the Coroner performed the pilot's autopsy. According to the pilot's autopsy report, his cause of death was multiple blunt force traumatic injuries, and his manner of death was accident. Atherosclerotic coronary artery disease was present, including moderate narrowing of the proximal portion of the left anterior descending coronary artery and mild focal narrowing of the right coronary artery and left circumflex coronary artery. The remainder of the autopsy, including visual examination of the heart, did not identify other significant natural disease.

Postmortem toxicological testing by the FAA Forensic Sciences Laboratory detected ethanol at 0.012 g/dL along with n-propanol in blood; ethanol and n-propanol were not detected in vitreous fluid. Pramoxine was detected in cavity blood and liver tissue.

Ethanol is the intoxicating alcohol in beer, wine, and liquor, and, if consumed, can impair judgment, psychomotor performance, cognition, and vigilance.¹ FAA regulation imposes strict limits on flying after consuming ethanol, including a prohibition on piloting a civil aircraft while having a blood ethanol level of 0.04 g/dL or greater.² Alcohol consumption is not the only possible source of ethanol in postmortem specimens. Ethanol may sometimes be produced by microbes in a person's body after death, potentially elevating ethanol levels in some postmortem specimens but not others. Vitreous fluid generally is the specimen type best protected against postmortem microbial ethanol production.³⁻⁶ N-propanol is another alcohol that can be produced by microbes in a person's body after death. Detection of n-propanol in a postmortem specimen is potentially indicative of postmortem microbial activity in the specimen, with or without associated ethanol production.^{3,5}

¹ Cook CCH. Alcohol and aviation. *Addiction*. 1997;92(5):539-555.

² [14 Code of Federal Regulations § 91.17](#).

³ Spitz WU. Forensic aspects of alcohol. In: Spitz WU, Spitz DJ, eds. *Spitz and Fisher's Medicolegal Investigation of Death: Guidelines for the Application of Pathology to Crime Investigation*. 4th ed. Springfield, IL: Charles C Thomas; 2006:1218-1229.

⁴ Kugelberg FC, Jones AW. Interpreting results of ethanol analysis in postmortem specimens: a review of the literature. *Forensic Sci Int*. 2007;165(1):10-29. doi:10.1016/j.forsciint.2006.05.004.

⁵ Boumba VA, Exadactylou P, Velivasi G, Ziavrou KS, Fragkouli K, Kovatsi L. The frequency of ethanol, higher alcohols and other low molecular weight volatiles in postmortem blood samples from unnatural deaths. *Forensic Sci Int*. 2022;341:111503. doi:10.1016/j.forsciint.2022.111503.

⁶ Oshaug K, Kronstrand R, Kugelberg FC, Kristoffersen L, Mørland J, Høiseth G. Frequency of postmortem ethanol formation in blood, urine and vitreous humor - improving diagnostic accuracy with the use of ethylsulphate and putrefactive alcohols. *Forensic Sci Int*. 2022;331:111152. doi:10.1016/j.forsciint.2021.111152

Pramoxine is a topical anesthetic medication available over the counter in a variety of products for temporary relief of skin pain and itching. Pramoxine is not generally considered impairing.

Submitted by:

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Medical Officer