

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



Medical Factual Memorandum for Record

November 26, 2024

A. CASE

NTSB ID: CEN23FA144
Location: Oxford, Mississippi
Date: March 29, 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
- FAA Forensic Sciences Laboratory toxicology report

2.0 Summary of Medical Facts

The 67-year-old male pilot's last aviation medical examination was January 29, 2019. At that time, he reported no medication use. He reported a history of high blood pressure controlled without medication. He was issued a third-class medical certificate limited by a requirement to wear corrective lenses for near and distant

vision. That medical certificate subsequently expired; the pilot did not hold active FAA medical certification at the time of the accident.¹

The Mississippi State Medical Examiner's Office performed the pilot's autopsy. According to the pilot's autopsy report, his cause of death was multiple injuries, and his manner of death was accident. His left anterior descending coronary artery was 75% narrowed by calcified plaque. The remainder of his autopsy, including visual examination of his 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 cavity blood; ethanol and n-propanol were not detected in vitreous fluid. Salicylic acid was detected in cavity blood and was not detected in liver tissue.

Ethanol is the intoxicating alcohol in beer, wine, and liquor, and, if consumed, can impair judgment, psychomotor performance, cognition, and vigilance.² 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.³ 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 is generally the specimen type best protected against postmortem microbial ethanol production.⁴⁻⁷ 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.^{4,6}

¹ FAA medical certification is not required for a pilot to exercise sport pilot privileges in a light sport aircraft if other required qualifications and operating restrictions are met ([14 CFR Part 61 Subpart J](#)).

² Cook CCH. Alcohol and aviation. *Addiction*. 1997;92(5):539-555.

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

⁴ 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.

⁵ 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.

⁶ 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.

⁷ 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

Salicylic acid is the primary active metabolite of aspirin, a widely available over-the-counter medication that can be used to control pain and fever and to reduce cardiovascular risk. Salicylic acid is also a metabolite of some other drugs and is used as a topical skin exfoliant in a variety of retail products. Salicylic acid is not generally considered impairing.

Submitted by:

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