



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

March 24, 2021

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Medical Officer

A. ACCIDENT INFORMATION

Identification: ERA20LA313

Location: Jackson, Tennessee

Date: September 11, 2020 (0252 local time)

B. GROUP IDENTIFICATION

No group was formed for the medical evaluation in this accident.

C. DETAILS OF INVESTIGATION

1. Purpose

This investigation was performed to evaluate the pilot for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

2. Methods

The pilot's autopsy and toxicology reports were reviewed, as was the Federal Aviation Administration (FAA) medical case review. Investigator reports and relevant regulation and medical literature were also reviewed.

3. Findings

a. FAA Medical Case Review

According to the FAA medical case review, the 47-year-old male pilot had his last aviation medical examination on April 21, 2020. At that time, he reported 320 total civilian flight hours. He was 70 inches tall and weighed 196 pounds. He reported no active medical conditions. He reported taking low-dose aspirin, which is an anti-inflammatory medication commonly used for cardiovascular risk reduction. Aspirin is not generally considered impairing. No significant issues were identified, and the pilot was issued a third-class medical certificate limited by a requirement he wear corrective lenses.

According to the FAA medical case review, at a 2017 aviation medical examination, the pilot had reported a 2014 episode of atrial fibrillation (a type of irregular heartbeat) that had been successfully treated/converted back to normal, with normal follow-up heart workup. The medical case review stated that this report should have resulted in the pilot's application for medical certification being deferred to the FAA for further review. Instead, the aviation medical examiner had issued a medical certificate.

b. Autopsy

The Office of the Medical Examiner, Center for Forensic Medicine, Nashville, Tennessee, performed the pilot's autopsy. According to the autopsy report, the cause of death was multiple blunt force injuries, and the manner of death was accident. The autopsy did not identify any significant natural disease.

c. Toxicology

Toxicological testing performed by NMS Labs at the request of the Medical Examiner's office identified ethanol at 0.119 grams per deciliter (g/dL) in femoral blood and 0.149 g/dL in vitreous.¹

Toxicological testing performed by the FAA Forensic Sciences Laboratory identified ethanol at 0.103 g/dL in cavity blood and 0.156 g/dL in vitreous.²

d. Description of Detected Substance

Ethanol is the intoxicating alcohol in beer, wine, and liquor. It can impair judgment, psychomotor performance, cognition, perception, and vigilance.^{3,4,5} FAA regulation prohibits any person from acting as a crewmember of a civil aircraft within 8 hours of consuming an alcoholic beverage or while having a blood ethanol level of 0.04 g/dL or greater.⁶ In general, the number and seriousness of pilot errors increase with blood ethanol level.⁵ Ethanol can also be produced by microbes in a person's body after death.⁴

¹ Femoral blood was tested for the substances listed at <https://www.nmslabs.com/tests/8041B#analytes> (accessed March 18, 2021). Positive ethanol results were confirmed in femoral blood and vitreous.

² The FAA Forensic Sciences Laboratory tests specimens for over 1300 substances including toxins, prescription and over-the-counter medications, and illicit drugs; information about these substances can be found at the Civil Aerospace Medical Institute WebDrugs website (<https://jag.cami.jccbi.gov/toxicology>).

³ Cohen JP, Quan D. Alcohols. In: Tintinalli JE, Ma OJ, Yealy DM, et al., eds. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide*. 9th ed. New York, NY: McGraw-Hill Education; 2020:1222-1232.

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

⁶ Office of the Federal Register. 14 CFR 91.17. Electronic Code of Federal Regulations. https://www.ecfr.gov/cgi-bin/text-idx?node=se14.2.91_117. Updated March 16, 2021. Accessed March 18, 2021.

D. SUMMARY OF MEDICAL FINDINGS

At his last aviation medical examination on April 21, 2020, the 47-year-old male pilot reported 320 total civilian flight hours. He reported no active medical conditions. He reported taking aspirin, which is not generally considered impairing. He was issued a third-class medical certificate limited by a requirement he wear corrective lenses.

At a 2017 aviation medical examination, the pilot had reported a resolved 2014 episode of atrial fibrillation, with normal follow-up workup. The Federal Aviation Administration (FAA) medical case review stated that this report should have resulted in deferral to the FAA for a medical certification decision.

The Office of the Medical Examiner, Center for Forensic Medicine, Nashville, Tennessee, performed the pilot's autopsy. According to the autopsy report, the cause of death was multiple blunt force injuries. The autopsy did not identify any significant natural disease.

Two laboratories performed toxicological testing on specimens from the pilot. One laboratory identified ethanol at 0.119 grams per deciliter (g/dL) in femoral blood and 0.149 g/dL in vitreous. The other laboratory identified ethanol at 0.103 g/dL in cavity blood and 0.156 g/dL in vitreous.