

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



Medical Factual Memorandum for Record

April 23, 2024

A. CASE

NTSB ID: WPR22FA227
Location: Mendon, Utah
Date: June 24, 2022

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 certificated flight instructor (CFI) and pilot under instruction 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 - CFI
- Toxicology report - CFI
- Autopsy report - pilot under instruction
- Toxicology report - pilot under instruction

2.0 Summary of Medical Facts

2.1 CFI

The 24-year-old male CFI's last aviation medical examination was July 13, 2020. At that time, he reported no medication use and no active medical conditions. He was issued a first-class medical certificate without limitation.

The Office of the Medical Examiner, Utah Department of Health and Human Services, performed the CFI's autopsy. According to the CFI's autopsy report, his cause of death was blunt force injuries, and his manner of death was accident. His autopsy did not identify significant natural disease.

Postmortem toxicology testing of the CFI was performed by NMS Labs at the request of the Office of the Medical Examiner, as well as by the FAA Forensic Sciences Laboratory. Neither laboratory detected any tested-for substances.¹

2.2 Pilot under instruction

The 25-year-old male pilot under instruction's last aviation medical examination was February 14, 2022. At that time, he reported no medication use and no active medical conditions. He was issued a first-class medical certificate without limitation.

The Office of the Medical Examiner, Utah Department of Health and Human Services, performed the pilot under instruction's autopsy. According to the pilot under instruction's autopsy report, his cause of death was blunt force injuries, and his manner of death was accident. His autopsy did not identify significant natural disease.

Postmortem toxicology testing of the pilot under instruction was performed by NMS Labs at the request of the Office of the Medical Examiner, as well as by the FAA Forensic Sciences Laboratory.¹ Caffeine was presumptively detected (detected by screening without a second test to confirm) by NMS Labs in femoral blood. The FAA Forensic Sciences Laboratory detected codeine at 206 ng/mL and the codeine metabolite morphine at 71 ng/mL in urine; codeine and morphine were not detected in subclavian blood.

Codeine is an opioid drug. Medicinal uses of codeine include treating pain, cough, and diarrhea. Codeine is a federally controlled substance with potential for abuse, and usually requires a prescription in the United States, although a few states allow "behind the counter" sales of certain cough-and-cold products containing

¹ Information about NMS Labs testing, included tested-for substances, is available from the NMS Labs website at [Test Code 8052B](#). The FAA Forensic Sciences Laboratory has the capability to test for around a thousand substances including toxins, prescription and over-the-counter medications, and illicit drugs.

codeine without a prescription.² Products containing codeine often carry a warning that the drug may impair mental or physical abilities needed to perform potentially hazardous activities such as driving a car or operating machinery.³ Morphine is a metabolite of codeine; it is also an opioid drug and a federally controlled substance. Additionally, codeine and morphine may sometimes be detected in urine after poppy seed consumption.⁴

The FAA instructs aviation medical examiners not to issue medical certificates to pilots who use opioid drugs regularly, although medical certificates may be issued in cases of occasional opioid use for time-limited conditions that are nonrecurrent or recurrent and resolved (and not otherwise disqualifying). Regardless, the FAA states that a pilot should not fly after using an opioid drug until adequate time has elapsed for the drug to be eliminated from circulation.⁵

Caffeine is a central nervous system stimulant that is commonly ingested, including in coffee, tea, soft drinks, and chocolate; it is also an ingredient in certain anti-drowsiness medications and headache medications. Caffeine is not generally considered impairing.

Submitted by:

Turan Kayagil, MD, FACEP
Medical Officer

² Food and Drug Administration. FDA Drug Safety Communication: FDA restricts use of prescription codeine pain and cough medicines and tramadol pain medicines in children; recommends against use in breastfeeding women. Food and Drug Administration website. <https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-fda-restricts-use-prescription-codeine-pain-and-cough-medicines-and>. Updated October 19, 2023. Accessed April 23, 2024.

³ National Institutes of Health National Library of Medicine. Codeine sulfate. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=5819bdf7-300e-45b8-8f3a-447b53656293>. Updated November 1, 2019. Accessed April 23, 2024.

⁴ Reisfield GM, Teitelbaum SA, Jones JT. Poppy seed consumption may be associated with codeine-only urine drug test results. *J Anal Toxicol.* 2023;47(2):107-113. doi:10.1093/jat/bkac079. Erratum in: *J Anal Toxicol.* 2023 Mar 14.

⁵ Federal Aviation Administration. Guide for aviation medical examiners: pharmaceuticals (therapeutic medications) do not issue - do not fly. Federal Aviation Administration website. https://www.faa.gov/ame_guide/pharm/dni_dnf. Updated July 10, 2023. Accessed April 23, 2024.