



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report **September 29, 2022**

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Medical Officer

A. ACCIDENT: CEN21FA209 – Hattiesburg, Mississippi

Date/Time: May 4, 2021; 11:05 p.m. (CDT)
Aircraft: Mitsubishi MU2B, N322TA
Injuries: 4 Fatal, 2 Minor
Flight Conducted under Part 91 personal flight.

B. GROUP IDENTIFICATION

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

C. DETAILS OF INVESTIGATION

Purpose

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

Methods

The Federal Aviation Administration (FAA) medical case review and the pilot's autopsy and Forensic Sciences Laboratory toxicology¹ reports were reviewed. Medical records found in the pilot's airplane were reviewed. Other pertinent scientific and regulatory issues were reviewed.

FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 67-year-old male pilot held a second class medical certificate with interim issuance with the limitation that he must wear corrective lenses. At the time of the most recent exam (6/4/20), the pilot was 70 inches tall and weighed 220 pounds. He reported having 7,834 civil flight hours. He reported taking losartan for hypertension, sitagliptin-metformin combination medicine for diabetes,

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,300 substances including toxins, common prescription and over-the-counter medications, and illicit drugs. <https://jag.cami.jccbi.gov/toxicology/>

tadalafil for erectile dysfunction, and atorvastatin to treat high cholesterol. The pilot provided laboratory results which showed his hemoglobin A1c was 6.9%.²

Autopsy

According to the Office of the State Medical Examiner, Pearl, Mississippi autopsy report, the cause of death of the pilot was blunt force injuries and the manner of death was accident. The examination was limited by injuries; his brain was not available for examination. However, no significant natural disease was identified by the medical examiner.

Toxicology

Toxicology testing performed by the FAA Forensic Sciences laboratory detected the sedative zopiclone in the pilot's cavity blood at 3.4 nanograms per milliliter (ng/mL) and in his liver. Zopiclone's stereoisomer eszopiclone is marketed in the U.S. as Lunesta and is indicated for the treatment of insomnia. The half-life of eszopiclone is about 6 hours, and its therapeutic range is 10 to 90 ng/mL. Patients are advised that next-day impairment can occur, and they should avoid driving and other complex activities requiring complete mental alertness.^{3,4} FAA advises aviation medical examiners to tell applicants that occasional or limited use of sleep aids is acceptable for pilots given they meet the minimum required waiting time after the last dose before resuming pilot duties; the required minimum waiting time for eszopiclone is 30 hours.⁵

Personal Medical Records

Personal medical records were discovered in the airplane. As part of an assessment on physician competency, the pilot, a neurosurgeon, had an independent neuropsychological evaluation performed on 12/21/20. According to the report, in part because there was no baseline testing, no definitive diagnosis was determined and identifying underlying treatable conditions for cognitive decline was encouraged. While multiple areas of preserved function were identified, areas of concern identified were less efficient executive abilities including measures requiring motor and cognitive sequencing and inconsistencies with tasks requiring a higher level of attention. The testing did not suggest concern for a decline in his usual work performance when he was managing overlearned procedures; there was a potential that executive and attention deficiencies may impact less routine parts of the pilot's work duties. He received a fitness for duty evaluation on 10/25/20 and 10/28/20; the report was not available. There were records from the pilot's primary care annual office visit on 3/5/20. The pilot had diabetes and was treated with sitagliptin-metformin; he was also reported as obese with a body mass index of 32.6 kilograms per meter squared. It was noted at his visit for acute bronchitis on 12/5/2019, that additionally, the pilot had diagnoses of high cholesterol treated with rosuvastatin, erectile dysfunction, low

² Hemoglobin A1C is a measure of the percentage of hemoglobin molecules that have a glucose molecule attached to them. The test measures the average blood glucose over the past three months. Above 6.5% indicates diabetes. For diabetic individuals, often the A1C goal is below 7.0%. [National Institutes of Health (NIH). U.S. National Library of Medicine (NLM). MedlinePlus. A1C. <https://medlineplus.gov/a1c.html>. Page last updated 2/8/22.]

³ NIH. NLM. Updated 9/27/19. [DailyMed - ESZOPICLONE tablet, coated \(nih.gov\)](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?id=201994)

⁴ Schulz, M, A Schmoldt, H Andresen-Streichert, and S Iwersen-Bergmann. 2020. Revisited: Therapeutic and toxic blood concentrations of more than 1100 drugs and xenobiotics. Additional File 1. *Critical Care* 24(1):195 doi: 10.1186/s13054-020-02915-5.

⁵ FAA. *Guide for Aviation Medical Examiners*. Pharmaceuticals (Therapeutic Medications) Sleep Aids. https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/pharm/sleepaids/ Accessed 4/7/22.

testosterone, and lumbar spinal stenosis; he also had a prescription for the high blood pressure medication losartan.

D. SUMMARY OF MEDICAL FINDINGS

The 67-year-old male pilot held a second class medical certificate with interim issuance with the limitation that he must wear corrective lenses. At the time of the most recent exam (6/4/20), he reported taking losartan for hypertension, sitagliptin-metformin combination medicine for diabetes, and atorvastatin to treat high cholesterol. According to the autopsy report, the cause of the pilot's death was blunt force injuries and the manner of death was accident. While the examination was limited by injuries, no significant natural disease was identified by the medical examiner. Toxicology testing detected the sedative zopiclone in the pilot's cavity blood at 3.4 nanograms per milliliter (ng/mL) and in his liver.

Personal medical records were discovered in the airplane. The pilot had an independent neuropsychological evaluation performed on 12/21/20. According to the report, no definitive diagnosis was determined. While multiple areas of preserved function were identified, areas of concern identified were less efficient executive abilities including measures requiring motor and cognitive sequencing and inconsistencies with tasks requiring a higher level of attention. Records from his primary care doctor for visits in March 2020 and December 2019 showed that the pilot was being treated for diabetes with sitagliptin-metformin and had diagnoses of obesity, high cholesterol treated with rosuvastatin, erectile dysfunction, low testosterone, and lumbar spinal stenosis; he also had a prescription for the high blood pressure medication losartan.