

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering

Washington, DC 20594



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MEDICAL

Specialist's Factual Report

January 21, 2026

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A ACCIDENT

Location: Concord, California

Date: January 30, 2024

B MEDICAL SPECIALIST

Specialist JE Tuttle MD MHA FACS
National Transportation Safety Board
Washington, DC

C DETAILS OF THE INVESTIGATION

1.0 Purpose

This investigation was performed to evaluate the pilot for potentially impairing medical conditions and substances.

2.0 Methods

The final Federal Aviation Administration (FAA) medical case review and the pilot's FAA medical certification file, autopsy, death investigative report, and toxicology reports were reviewed. Selected investigator reports and relevant regulation and medical literature were also reviewed.

D FACTUAL INFORMATION

1.1 FAA Medical Records

According to FAA medical case review, the 75-year-old male pilot's last aviation medical examination was August 14, 2023. At that time, he reported 8,786 total civilian flight hours. He was 68 inches tall and weighed 160 pounds. At that examination, the pilot reported no medical conditions or medication use. The pilot was issued a third-class medical certificate with the limitation that he must wear corrective lenses to meet vision standards at all required distances. Notably, the FAA medical case review after this accident identified that the medical certificate, and all other medical certificates that had been issued to the pilot since a February 2000 accident in which the pilot sustained a severe traumatic brain injury (TBI), may have been invalid.

According to the pilot's FAA medical certification file, the pilot's 2000 TBI was sustained in an airplane accident and resulted in prolonged hospital and

rehabilitation facility admissions. According to medical records contained in the pilot's FAA medical certification file, the TBI adversely affected the pilot's vision, motor function in his left arm, and his neurocognitive skills. Prior to completing his rehabilitation program, the pilot left the care facility against medical advice. The pilot next applied for a medical certificate in May of 2000 and was denied. The pilot received a letter from the FAA advising him to reapply for his medical certificate a year after his TBI, with supporting medical documentation including up-to-date ophthalmological and neuro-psychiatric examination reports. The pilot reapplied for a medical certificate in 2001, submitting an Ophthalmology examination that reported resolution of his vision abnormality, and a general Neurology examination that reported the pilot was fully recovered with the exception of motor function in his left arm. No formal neuro-psychiatric report was submitted. The pilot then underwent a FAA 709 check-ride.¹ According to the examiner's report contained within the FAA medical certification file, the pilot's performance was poor and unacceptable. According to the examiner's report, the pilot had difficulty multi-tasking and was easily distracted. The pilot failed the examination, and he voluntarily surrendered his medical certificate at that time. In 2002, the FAA sent the pilot a letter of general denial due to his TBI and continued neurocognitive deficits.

In 2003, the pilot applied for medical certification using a new spelling of his name and a different social security number. He did not report his previous injury, or the surrender of his medical certificate. He was issued a third-class medical certificate after an aviation medical examination by an aviation medical examiner (AME) he had not previously seen, in a new state. No Letter of Eligibility or Authorization for Special Issuance pertaining to the conditions for which the pilot was previously denied were documented in the pilot's medical certification file. The pilot was issued third-class medical certificates multiple times between 2003 and 2023. On one application in 2007, the pilot reported that he had an unconsciousness event as the result of an airplane accident, and had reported the incident previously. The AME documented that the pilot's unconsciousness event had no permanent effects, and the pilot was issued a third-class medical certificate without limitations. The pilot's TBI history was not addressed at any subsequent aviation medical examination.

The medical certification file reviewed for this investigation contained FAA medical records associated with both social security numbers used by the pilot. According to a telephone conversation with an FAA Office of Aerospace Medicine official, the FAA identified the social security number discrepancy in 2012 and merged the pilot's two medical certification files. However, between that time and the

¹ A FAA "709 check ride," is a mandatory reexamination mandated by the FAA of an airman's competency, often triggered after an accident.

Code of Federal Regulations. 49 U.S.C. § 44709. <https://www.govinfo.gov/content/pkg/USCODE-2023-title49/pdf/USCODE-2023-title49-subtitleVII-partA-subpartIII-chap447-sec44709.pdf>. Updated December 31, 2025. Accessed January 6, 2026.

January 2024 accident, the FAA did not identify the pilot's disqualifying medical history.

1.2 Autopsy

The Contra-Costa County Office of the Sheriff-Coroner performed the pilot's autopsy. According to the pilot's autopsy report, his cause of death was multiple extreme blunt force injuries, and his manner of death was accident. Due to the extent of his injuries, the pilot's brain was not available for examination, and structural evaluation of his heart was limited. Within these limitations, the remainder of the pilot's autopsy did not identify significant natural disease.

1.3 Toxicology

1.3.1 Autopsy Toxicology

At the request of the Office of the Sheriff-Coroner, NMS Labs performed toxicological testing of postmortem specimens from the pilot.² Opiates and cannabinoids were presumptively positive in urine.³ Codeine was detected in cavity blood at 41 ng/mL. Morphine was detected in cavity blood at 23 ng/mL, and hydromorphone was detected in cavity blood at 1.4 ng/mL. Delta-9-tetrahydrocannabinol (delta-9-THC) was detected in cavity blood at more than 50 ng/mL and carboxy-delta-9-THC was detected in cavity blood at more than 500 ng/mL. 11-hydroxy-delta-9-THC testing was not performed due to an interfering substance.

The Forensic Services Division of the Office of the Sheriff-Coroner performed ethanol testing of a postmortem cavity fluid specimen. No ethanol was detected.

1.3.2 FAA Toxicology

The FAA Forensic Sciences Laboratory performed toxicological testing of postmortem specimens from the pilot.⁴ Delta-9-THC was detected in cavity blood at 86.3 ng/mL and detected in liver tissue at 49.7 ng/g. 11-hydroxy-tetrahydrocannabinol (11-hydroxy-THC) was detected in cavity blood at 73.4 ng/mL

² Information about blood and urine testing procedures, including tested-for substances, is available on the NMS Labs website at Test Code [8061B](#), and [8050U](#). Updated 2026. Accessed January 5, 2026.

³ A presumptive positive indicates a positive result on a screening test without a second test to confirm the validity of the result.

⁴ 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.

and detected in liver tissue at 256.6 ng/g. Carboxy-delta-9-THC was detected in cavity blood at 862.1 ng/mL and detected in liver tissue at 2775 ng/g. Gabapentin was detected in cavity blood at 32,215 ng/mL and detected in liver tissue at 251,778 ng/g. Codeine was detected in cavity blood at 39 ng/mL and detected in liver tissue at 109 ng/g. Morphine was detected in cavity blood at 13 ng/mL and in liver tissue at 76 ng/g. Hydrocodone was detected in cavity blood at 5 ng/mL and detected in liver tissue at 22 ng/g. Dihydrocodeine was detected in cavity blood at 1 ng/mL and detected in liver tissue at 4 ng/g. Atomoxetine was detected in cavity blood at 5202 ng/dL and detected in liver tissue at 1854 ng/g. Trazodone was detected in cavity blood at 124 ng/mL and detected in liver tissue at 960 ng/g. Meta-chlorophenylpiperazine (mCPP) was detected in liver tissue; mCPP testing in cavity blood was inconclusive. Memantine, alfuzosin, and guaifenesin were detected in cavity blood and liver tissue.

1.3.3 Descriptions of Detected Substances

Delta-9-THC is the primary psychoactive chemical in cannabis, including marijuana, hashish, and cannabis edibles. Delta-9-THC may be smoked or ingested recreationally by users seeking mind-altering effects. It may also be used medicinally to treat illness-associated nausea, chronic pain, and other symptoms of some chronic diseases.⁵ The specific psychoactive effects of delta-9-THC vary depending on the user, user history of use, dose consumed, and route of consumption. Effects of delta-9-THC use may impair motor coordination, worsen reaction time, impair decision making and problem solving, distort perceptions of reality, and decrease vigilance.⁶ 11-hydroxy-THC is the primary psychoactive metabolite of delta-9-THC. Carboxy-delta-9-THC is a non-psychoactive metabolite of delta-9-THC.

Gabapentin is a prescription medication that can be used to treat nerve pain, certain types of seizures, restless legs syndrome, and other conditions. Gabapentin generally carries a warning that use may cause drowsiness, dizziness, blurred vision, and general central nervous system (CNS) depression. Precautions are advised when driving a vehicle or operating heavy machinery until the user can assess the impact of dosing on alertness and motor activities.⁸ Gabapentin use in adults over the age of 65 may increase the risk of decline of executive function, information processing, and motor skills.⁷ The use of opioids with gabapentin is not advised due to increased risk

⁵ Shah J, Fermo O. Review of systemic and syndromic complications of cannabis use: A review. *Medicine* (Baltimore). 2022;101(49):e32111. doi:10.1097/MD.00000000000032111, 10.1097/MD.00000000000032111.

⁶ Testai FD, Gorelick PB, Aparicio HJ, et al. Use of Marijuana: Effect on Brain Health: A Scientific Statement from the American Heart Association. *Stroke*. . 2022;53(4):e176-e187. doi:10.1161/STR.0000000000000396, 10.1161/STR.0000000000000396.

⁷ Oh G, Moga DC, Fardo DW, Abner EL. The association of gabapentin initiation and neurocognitive changes in older adults with normal cognition. *Front Pharmacol*. 2022;13:910719. Published 2022 Nov 25. doi:10.3389/fphar.2022.910719.

of CNS side effects, especially in older adults.^{8,9} The FAA considers gabapentin a “do not issue/do not fly” medication.¹⁰

Codeine, morphine, hydrocodone, and dihydrocodeine are opioid drugs. These drugs can be individual prescription medications, or metabolites of other opioid drugs. Because morphine and hydrocodone are metabolites of codeine, (and dihydrocodeine is a metabolite of hydrocodone), use of codeine alone can cause a person to test positive for codeine, morphine, hydrocodone, and dihydrocodeine.¹¹ Codeine commonly is used to treat moderate to severe pain. Codeine is also commonly used in prescription cough medications to relieve shortness of breath, and cough (a few US states also allow “behind the counter” sales of certain cough-and-cold products containing codeine without a prescription).^{11,12} Codeine carries a warning that use may impair the mental or physical ability needed to perform potentially hazardous activities such as driving a car or operating dangerous machinery. Use of opioids with other CNS depressants increases the risk of sedation.^{13,14} Codeine also can be used illicitly. An open prescription for codeine generally is disqualifying for FAA medical certification, although case-by-case certification may be granted by the FAA in certain cases of infrequent use for acceptable medical conditions. Regardless, the FAA states that a pilot should not fly after using an opioid like codeine until adequate time has elapsed for the drug to be eliminated from circulation.¹⁰

⁸ National Institutes of Health National Library of Medicine. Neurontin-gabapentin capsule. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=f2d9c3de-4749-4265-a26e-50026ab46ee4>. Updated August 19, 2023. Accessed April 9, 2025.

⁹ American Geriatrics Society. American geriatrics society 2019 updated AGS beers criteria for potentially inappropriate medication use in older adults. *Journal of the American Geriatrics Society*. 2019;67(4):674-694. doi:<https://doi.org/10.1111/jgs.15767>.

¹⁰ 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/go/dni>. Updated November 23, 2022. Accessed April 11, 2025.

¹¹ Smith HS. Opioid Metabolism. *Mayo Clin Proc*. 2009;84(7):613-624. doi:10.1016/S0025-6196(11)60750-7.

¹² National Institutes of Health National Library of Medicine. Hysingla ER. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=b7d23ac2-e776-9f62-3290-c64c2d6eb353>. Updated December 18, 2023. Accessed April 11, 2025.

¹³ National Institutes of Health National Library of Medicine. CODEINE SULFATE tablet. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=010905f9-3bcb-4b50-9fe8-a3ad0010f14c>. Updated December 15, 2023. Accessed April 11, 2025.

¹⁴ Federal Drug Administration. FDA updates for prescribing information for all opioid pain medicines to provide additional guidance for safe use. <https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-prescribing-information-all-opioid-pain-medicines-provide-additional-guidance-safe-use>. Published online April 26, 2023; Accessed April 11, 2025.

¹⁵ National Institutes of Health. National Library of Medicine. Atomoxetine hydrochloride capsule. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/lookup.cfm?setid=309de576-c318-404a-bc15-660c2b1876fb>.

Atomoxetine is a prescription medication commonly used to treat attention-deficit/hyperactivity (ADHD) disorders in adults.¹⁵ The FAA considers atomoxetine a “do not issue/do not fly medication.”¹⁰

Trazodone is a prescription antidepressant medication that may be used to treat major depression and is also commonly used to treat insomnia. Trazodone typically carries a warning that use can slow thinking, impair motor skills, and that users should not drive, operate heavy machinery, or perform other dangerous activities until they know how the drug affects them.¹⁶ The FAA considers trazodone a “do not issue/do not fly medication”.¹⁰ Meta-chlorophenylpiperazine (mCPP) is the primary active metabolite of trazodone.

Memantine is a prescription medication used to treat moderate to severe dementia of the Alzheimer’s type. Memantine use may cause dizziness, headache, and worsen confusion.^{17,18} A pilot taking memantine seeking FAA medical certification requires a deferral to the FAA for review of the medication effects and the underlying condition for which the drug is used.¹⁹

Alfuzosin is a prescription medication commonly used to treat symptoms of an enlarged prostate. Guaifenesin is an over-the-counter medication commonly used in combination cold medications to loosen mucous to make coughs more productive. Alfuzosin and guaifenesin are not generally considered impairing.

E SUMMARY OF MEDICAL FACTS

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¹⁵ National Institutes of Health. National Library of Medicine. Atomoxetine hydrochloride capsule. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/lookup.cfm?setid=309de576-c318-404a-bc15-660c2b1876fb>.

¹⁶ National Institutes of Health National Library of Medicine. Trazodone tablet. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/lookup.cfm?setid=1510cf89-a2ec-4ed5-80cb-bae84f9ec0a7>. Updated December 15, 2025. Accessed January 7, 2026.

¹⁷ National Institutes of Health National Library of Medicine. .Memantine extended-release capsules. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/druginfo.cfm?setid=f2b7538d-8ca1-4ac7-a172-d268e2fa9a52##>. Updated April 29, 2025. Accessed January 7, 2026.

¹⁸ National Institutes of Health National Library of Medicine. Medline Plus. Memantine. <https://medlineplus.gov/druginfo/meds/a604006.html>. Updated April 15, 2016. Accessed January 8, 2026.

¹⁹ Federal Aviation Administration. Aviation Medical Examiners Guide: Alzheimer’s Disease or Mild Cognitive Impairment, or Dementia. https://www.faa.gov/ame_guide/media/Alzheimers_MCI_Dementia.pdf

vision standards at all required distances. Notably, the FAA medical case review after this accident identified that the medical certificate, and all other medical certificates that had been issued to the pilot since a February 2000 accident in which the pilot sustained a severe traumatic brain injury (TBI), may have been invalid.

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The FAA Forensic Sciences Laboratory performed toxicological testing of postmortem specimens from the pilot. Delta-9-THC was detected in cavity blood at 86.3 ng/mL and detected in liver tissue at 49.7 ng/g. 11-hydroxy-tetrahydrocannabinol (11-hydroxy-THC) was detected in cavity blood at 73.4 ng/mL and detected in liver tissue at 256.6 ng/g. Carboxy-delta-9-THC was detected in cavity blood at 862.1 ng/mL and detected in liver tissue at 2775 ng/g. Gabapentin was detected in cavity blood at 32,215 ng/mL and detected in liver tissue at 251,778 ng/g. Codeine was detected in cavity blood at 39 ng/mL and detected in liver tissue at 109 ng/g. Morphine was detected in cavity blood at 13 ng/mL and in liver tissue at 76 ng/g. Hydrocodone was detected in cavity blood at 5 ng/mL and detected in liver tissue at 22 ng/g. Dihydrocodeine was detected in cavity blood at 1 ng/mL and detected in liver tissue at 4 ng/g. Atomoxetine was detected in cavity blood at 5202 ng/dL and detected in liver tissue at 1854 ng/g. Trazodone was detected in cavity blood at 124 ng/mL and detected in liver tissue at 960 ng/g. Meta-chlorophenylpiperazine (mCPP) was detected in liver tissue; mCPP testing in cavity blood was inconclusive. Memantine, alfuzosin, and guaifenesin were detected in cavity blood and liver tissue.

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