

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



Medical Factual Memorandum for Record

March 5, 2025

A. CASE

NTSB ID: WPR23FA172
Location: Los Angeles, California
Date: April 29, 2023
Time: 7: 50 PM Pacific daylight time (PDT)

B. MEDICAL SPECIALIST

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

C. DETAILS

1.0 Description of Review

For purposes of evaluating the pilot for potentially impairing medical conditions and substances, the above Medical Specialist reviewed the following sources of medical information, along with selected relevant regulation, medical literature, and investigator reports.

- Federal Aviation Administration (FAA) final medical case review
- FAA Medical Certification File - pilot
- Continuous glucose monitor (CGM) data - pilot
- Autopsy report - pilot
- Toxicology report - pilot

2.0 Summary of Medical Facts

According to the FAA medical case review, the 38 -year-old male pilot's last aviation medical examination was September 27, 2019. At that time, he reported having type I diabetes mellitus treated using insulin lispro (often marketed as Humalog) and insulin glargine (often marketed as Lantus). He was issued a third-class medical certificate by Special Issuance with the limitation that the pilot's medical certificate was not valid after September 30, 2023.

According to the pilot's FAA medical certification file, the Authorization for Special Issuance for type I diabetes and insulin use was issued on August 15, 2022. Prior to the issuance, on July 26, 2022, the pilot had an ophthalmology exam performed and had documented 20/20 vision in both eyes, with no evidence of ocular diabetic complications. Based on an examination from July 17, 2022, the pilot obtained a detailed report from his endocrinologist regarding his diabetes management. In the report, the physician stated that with the use of a CGM and an insulin pump, the pilot's fluctuations in glucose levels had improved and his overall glucose levels were stable.¹ The pilot was transitioned to an insulin pump in February 2022. The pilot's Hemoglobin A1c (HbA1c) from July 22, 2022 was 7.1%.²

The family provided the pilot's CGM data for the 90 days prior to the accident. According to the CGM data, the week prior to the accident, the pilot's blood glucose levels ranged from 55 mg/dL to 300 mg/dL. No recorded alarms for low blood sugar levels were noted. On the day of the accident, according to the data, the pilot's blood sugars ranged from 60 mg/dL to 215 mg/dL. The last CGM reading was 110 mg/dL, around 5:38 PM PDT.

The County of Los Angeles Department of Medical Examiner-Coroner performed the pilot's autopsy. According to the pilot's autopsy report, his cause of death was multiple blunt force trauma, and his manner of death was accident. Due to

¹ Continuous glucose monitoring (CGM) is a wearable technology that automatically estimates the wearer's blood glucose level throughout the day and night. The CGM has three parts: a tiny sensor that is inserted into the skin, a transmitter that sends information to the software program that is stored on a smartphone and/or the internet. CGM systems also possess an alarm that notifies the wearer when their glucose level is too high or too low.

National Institutes of Health. National Institute of Diabetes and Digestive and Kidney Diseases. Managing Diabetes. <https://www.niddk.nih.gov/health-information/diabetes/overview/managing-diabetes/continuous-glucose-monitoring>. Updated June 2023. Accessed February 26, 2025.

² HbA1c is an indirect measure of a person's average blood sugar over approximately the preceding 3 months. For a person with diabetes, HbA1c of less than 7% generally indicates good diabetes control.

Centers for Disease Control. A1C Test for Diabetes and Prediabetes. <https://www.cdc.gov/diabetes/diabetes-testing/prediabetes-a1c-test.html>. Updated January 2025. Accessed February 26, 2025.

the extent of his injuries, the examination of the pilot's brain was limited. Within this limitation, no significant natural disease was identified.³

The Department of Medical Examiner, Los Angeles County Forensic Sciences Laboratories performed postmortem toxicological testing of the pilot's cavity blood.⁴ No tested-for substances were detected.

The FAA Forensic Sciences Laboratory performed toxicology testing of postmortem specimens from the pilot.⁵ Minoxidil was detected in cavity blood and urine. No other tested-for substances were detected. No urine or vitreous glucose was detected.

Minoxidil can be used as a prescription oral medication for treatment-resistant high blood pressure, or (at low doses) for hair loss. There are some potential safety concerns with oral minoxidil use, and the drug carries a warning that its use in high blood pressure should be reserved for certain cases where multiple other medications have been ineffective. However, minoxidil also is commonly used in topical products available over the counter to promote hair growth. When used as directed topically, minoxidil is absorbed into circulation to a low extent only, and is not typically impairing.^{6,7} According to the FAA medical case review for this accident, minoxidil is acceptable for pilots if the underlying condition is acceptable.

Submitted by:

JE Tuttle MD MHA FACS
Medical Officer

³ The Los Angeles County Medical Examiner's Office confirmed that the pilot had his CGM monitor and insulin pump at the time of the autopsy.

⁴ According to the autopsy report, the Los Angeles County Forensic Sciences Laboratories screened the pilot's cavity blood for ethanol, benzodiazepines, cocaine and metabolites, fentanyl, marijuana, 11-hydroxy-tetrahydrocannabinol, methamphetamine, 3,4-methylenedioxymethamphetamine (MDMA), opiates, (codeine, morphine, hydrocodone, hydromorphone) and phencyclidine.

⁵ 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.

⁶ National Library of Medicine National Institutes of Health. Minoxidil tablets.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=0dada91c-fa1c-4da4-ac0d-e68b017c8604&audience=professional>. Updated September 6, 2017. Accessed February 26, 2025.

⁷ National Library of Medicine National Institutes of Health. Minoxidil Solution 5%.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=97d4d3ce-316c-4d58-b4dc-28d662b0fb4a>. Updated October 11, 2023. Accessed February 26, 2025.