

# National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



## Medical Factual Memorandum for Record

May 22, 2024

### A. CASE

NTSB ID: CEN22FA232  
Location: Kenedy, Texas  
Date: June 6, 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 pilot 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
- FAA medical certification file - pilot
- Autopsy report - pilot
- Toxicology report - pilot

#### 2.0 Summary of Medical Facts

The 32-year-old female pilot's only aviation medical examination was January 15, 2020. At that time, she reported a history of depression and anxiety. She reported using the prescription antidepressant medication venlafaxine; the aviation medical

examiner (AME) noted that the pilot was doing extremely well on this medication for mild depression/anxiety. The pilot also reported using trazodone (a prescription antidepressant medication, which the AME noted that the pilot reported using only as needed for sleep), solifenacin (a prescription medication for overactive bladder), and ibuprofen (an anti-inflammatory pain- and fever-relief medication widely available over the counter). The AME deferred the medical certification decision to the FAA.

The FAA issued a denial letter in March 2020 due to the pilot's history of anxiety and depression, as well as use of solifenacin. The pilot requested reconsideration, as her doctor had switched her to the antidepressant medication sertraline (which is conditionally acceptable for use by pilots) and discontinued her other medications. Based on detailed evaluation of her underlying condition and response to medication, in August 2021 the FAA granted the pilot an Authorization for Special Issuance of a time-limited third-class medical certificate, for depression and anxiety requiring medication. The pilot met subsequent requirements to maintain her third-class medical certification, and as of the crash date her most recent certificate had not expired. The most recent psychiatric evaluation documentation in the pilot's FAA file was from December 2021 to January 2022, and included reports from a Human Intervention Motivation Study (HIMS) AME, a clinical neuropsychologist (including results of neurocognitive testing), a psychiatrist, and the pilot's prescribing primary care physician. This documentation characterized the pilot's depression and anxiety as mild and well-controlled on a stable dose of sertraline since February 2020 without any adverse side effects or cognitive problems. The pilot was recommended for continued medical certification, and the documentation was reviewed favorably by the FAA; however, the crash occurred before a new medical certificate was issued.

Central Texas Autopsy performed the pilot's autopsy, as authorized by a Karnes County Justice of the Peace. According to the pilot's autopsy report, her cause of death was blunt force injuries and her manner of death was accident. The mid portion of the pilot's left anterior descending coronary artery was found to be 75% narrowed by plaque. Visual examination of the heart was otherwise unremarkable, and the autopsy did not identify other significant natural disease.

At the Request of Central Texas Autopsy, NMS Labs performed toxicological testing of postmortem chest cavity blood from the pilot. According to the autopsy report, sertraline was detected at 380 ng/mL and the sertraline metabolite desmethylsertraline was detected at 1100 ng/mL. Caffeine was detected by a screening test without a second test to confirm this result.

The FAA Forensic Sciences Laboratory also tested postmortem specimens from the pilot. This testing detected sertraline at 93 ng/mL and desmethylsertraline at 234 ng/mL in cavity blood. Both sertraline and desmethylsertraline were also detected in liver tissue.

Sertraline is a prescription antidepressant medication of the selective serotonin reuptake inhibitor class. Desmethylsertraline is a metabolite of sertraline. Sertraline commonly is used to treat depression, and may also be used to treat a variety of other conditions.<sup>1</sup> Major depression can cause cognitive impairment, with potential adverse effects on reaction, memory, attention, problem solving, and task switching.<sup>2</sup> By contrast, sertraline has low potential to cause cognitive or psychomotor impairment, and may improve such impairment in individuals with major depression.<sup>3,4,5</sup> Sertraline's side effects may include dizziness and drowsiness, and the drug typically carries a warning that users should not drive, operate heavy machinery, or do other dangerous activities until they know how the drug affects them.<sup>1</sup> A pilot on sertraline (not in combination with other psychiatric drugs) may be considered for FAA medical certification via Special Issuance, depending on evaluation of the individual pilot's condition and response to treatment.<sup>6</sup>

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:

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Medical Officer

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<sup>1</sup> National Institutes of Health National Library of Medicine. Zoloft. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=fe9e8b7d-61ea-409d-84aa-3ebd79a046b5>. Updated January 15, 2023. Accessed May 21, 2024.

<sup>2</sup> Snyder HR. Major depressive disorder is associated with broad impairments on neuropsychological measures of executive function: a meta-analysis and review. *Psychol Bull.* 2013;139(1):81-132. doi:10.1037/a0028727.

<sup>3</sup> Hindmarch I. The behavioural toxicity of the selective serotonin reuptake inhibitors. *Int Clin Psychopharmacol.* 1995;9 Suppl 4:13-17. doi:10.1097/00004850-199501004-00002.

<sup>4</sup> Paul MA, Gray G, Lange M. The impact of sertraline on psychomotor performance. *Aviat Space Environ Med.* 2002 Oct;73(10):964-70.

<sup>5</sup> Rosenblat JD, Kakar R, McIntyre RS. The cognitive effects of antidepressants in major depressive disorder: a systematic review and meta-analysis of randomized clinical trials. *Int J Neuropsychopharmacol.* 2015;19(2):pyv082. doi:10.1093/ijnp/pyv082.

<sup>6</sup> Federal Aviation Administration. Guide for aviation medical examiners: decision considerations - aerospace medical dispositions, item 47, psychiatric conditions - use of antidepressant medications. Federal Aviation Administration website. [https://www.faa.gov/about/office\\_org/headquarters\\_offices/avs/offices/aam/ame/guide/app\\_process/exam\\_tech/item47/amd/antidepressants](https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/app_process/exam_tech/item47/amd/antidepressants). Updated April 24, 2024. Accessed May 21, 2024.