

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



WPR21FA210

MEDICAL

Specialist's Factual Report

May 2, 2023

A. ACCIDENT

Location: Stoneville, North Carolina
Date: 5/27/2021
Time: 18:35 Local
Airplane: Mark Coby Early Bird Jenny; N831HC

B. MEDICAL SPECIALIST

Specialist Michelle Watters, MD, PhD, MPH
National Transportation Safety Board, RE-1
Washington, DC

C. DETAILS OF THE 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, the pilot's autopsy report, and FAA Forensic Sciences Laboratory toxicology report¹ were reviewed. Other relevant medical and regulatory issues were reviewed.

D. FACTUAL INFORMATION–PILOT

1.0 FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 63-year-old male pilot was on BasicMed (3/15/20). His most recent FAA medical certification exam was on 1/7/16 and at that he was 72 inches tall, weighed 293 pounds, and reported taking amlodipine, metoprolol, and valsartan to treat high blood pressure. At that exam, he had been issued a third class FAA medical certificate without limitation.

2.0 Autopsy

According to the autopsy report by the North Carolina Office of the Chief Medical Examiner, Raleigh, North Carolina, the pilot's cause of death was blunt force

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,000 substances including toxins, common prescription and over-the-counter medications, and illicit drugs.
<https://jag.cami.jccbi.gov/toxicology/>

injury, and his manner of death was accident. The pilot had an enlarged heart (660 grams) with a left ventricular wall of 1.5 centimeters. His lungs were noted to have anthracosis (black pigment often seen with heavy cigarette smoking) and he had minimal soot deposits in his trachea.

3.0 Toxicology

Toxicology testing performed for the medical examiner's office was negative for ethanol and tested-for drugs of abuse in the pilot's vena cava blood. His carboxyhemoglobin level was 13% saturation. Toxicology testing performed by the FAA Forensic Sciences Laboratory reported the pilot's carboxyhemoglobin saturation at 11%. Salicylic acid (commonly known as aspirin) and the high blood pressure medications amlodipine, metoprolol, and valsartan were detected in the pilot's blood and urine; these medications are generally considered non-impairing.²

Carbon monoxide (CO) is an odorless, colorless gas that is a byproduct of combustion, such as from an exhaust system or fire. Carboxyhemoglobin is formed when CO binds to hemoglobin, the protein in red blood cells that carries oxygen. The degree of carboxyhemoglobin formation is related to the concentration of CO and the duration of exposure. The binding of CO impairs oxygen transport and use, and results in symptoms of exposure that can be mild and vague, such as headache and fatigue, to impairing and incapacitating. While poisoning is considered to have occurred at carboxyhemoglobin levels above 10%, non-smokers living in urban areas may have levels of 5% and heavy smokers can have levels as high as 15%. Severe poisoning is usually associated with levels over 20%.³

E. SUMMARY OF MEDICAL FACTS

The 63-year-old male pilot was on BasicMed (3/15/20). At his most recent FAA medical certification exam on 1/7/16, he had been issued a third class FAA medical certificate without limitation and reported medications to treat high blood pressure. According to the autopsy report, the pilot's cause of death was blunt force injury, and his manner of death was accident. The pilot had an enlarged heart (660 grams) with a left ventricular wall of 1.5 centimeters, anthracosis in his lungs, and minimal soot deposits in his trachea.

² FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs.

Salicylic Acid. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=381>.

Amlodipine. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=128>

Metoprolol. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=171>.

Valsartan. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=286>

³ Smollin, C and K Olson. 2010. Carbon monoxide poisoning (acute). *British Medical Journal Clinical Evidence*. 2010:2013.

Toxicology testing reported the pilot's carboxyhemoglobin saturation at 11% and 13%. The generally non-impairing medications salicylic acid, amlodipine, metoprolol, and valsartan were detected in the pilot's blood and urine.

Submitted by:

Michelle Watters, MD, PhD, MPH
Medical Officer, RE-1