



# **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Research and Engineering  
Washington, DC

## **Medical Factual Report**

**July 11, 2017**

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Chief Medical Officer

### **A. ACCIDENT: ERA16FA064; Farmington, PA**

On December 11, 2015, at approximately 1420 eastern daylight time, a Beech A36; N72054, was destroyed when it impacted trees and terrain after a loss of control during a return to the airport, after takeoff from Nemaocolin Airport (PA88), Farmington, Pennsylvania. The certificated private pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan was filed for the Title 14 Code of Federal Regulations Part 91 personal flight, destined for Montgomery County Airport (GAI), Gaithersburg, Maryland.

### **B. GROUP IDENTIFICATION**

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

### **C. DETAILS OF INVESTIGATION**

#### **1. Purpose**

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

#### **2. Methods**

The FAA medical case review, toxicology results, autopsy report, and the investigator's reports were reviewed.

##### FAA Medical Case Review

According to the FAA files, the 68 year old male pilot reported 2,100 total flight hours as of his last medical exam, dated 2/22/2014. At that time, he was 70 inches tall and weighed 220 pounds. He had reported childhood hay fever but no other chronic medical conditions and no medications to the FAA. He was issued a third class medical certificate limited by a requirement that he wear corrective lenses.

### Autopsy

According to the report of the autopsy performed by Cyril H. Wecht and Pathology Associates, Inc., the cause of death was multiple blunt force injuries and the manner of death was accident.

The autopsy identified minimal coronary artery disease with about 10-15% stenoses. The heart weight was not provided but the right ventricular wall was described as 0.4 cm thick, the left ventricular wall as 1.5 cm thick and the septum as 1.3 cm thick. Average for these thicknesses is 0.3cm, 1.23 cm, and 1.23 cm thick respectively.<sup>1</sup> The remainder of the examination was unremarkable.

### Toxicology

Toxicology testing performed at the request of the medical examiner by NMS Labs identified caffeine and 0.310 ug/ml of amphetamine in the pilot's blood.

Toxicology testing performed by the FAA's Bioaeronautical Research Laboratory identified amphetamine at 0.347 ug/ml in blood and 1.828 ug/ml in urine as well as phenylpropanolamine in urine but not in blood.

Amphetamine is a Schedule II controlled substance that stimulates the central nervous system available by prescription for the treatment of attention deficit disorder and narcolepsy. It carries a boxed warning about its potential for abuse and has warnings about an increased risk of sudden death and the potential for mental health and behavioral changes.<sup>2</sup> In some preparations, the prescription drug is metabolized to amphetamine; commonly marketed names include Adderall, Dexedrine, and Vyvanse. After a single 30 mg oral dose, early blood levels averaged 0.111 ug/ml and average blood levels in adults using the long acting prescription orally for a week were about 0.065 ug/ml.<sup>3</sup>

However, amphetamine is also prepared and used as a street drug, often by snorting, inhaling, or injecting. Street preparations may begin with phenylpropanolamine, which may then contaminate the final product.

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<sup>1</sup> Kitzman DW, Scholz DG, Hagen PT, Ilstrup DM, Edwards WD. Age-related changes in normal human hearts during the first 10 decades of life. Part II (Maturity): A quantitative anatomic study of 765 specimens from subjects 20 to 99 years old. *Mayo Clinic Proc.*, 1988. 63(2):137-46.

<sup>2</sup> National Institutes of Health. US National Library of Medicine. Amphetamine salts. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=72ddd1c9-dbd-4c95-acd9-003189a353a3> Accessed 4/20/2017.

<sup>3</sup> Amphetamine. In: *Disposition of Toxic Drugs and Chemicals in Man*. Ed: Randall C. Baselt. 9<sup>th</sup> edition. (2011) Biomedical Publications, Seal Beach, CA.

Generally, levels above 0.2 are the result of mis-using amphetamine to maximize its psychoactive effects.<sup>4</sup>

In the early phase, amphetamine mis-users may experience a combination of euphoria, excitation, exhilaration, rapid flight of ideas, increased libido, rapid speech, motor restlessness, hallucinations, delusions, psychosis, insomnia, reduced fatigue or drowsiness, increased alertness, a heightened sense of well-being, stereotypes behavior, feelings of increased physical strength, and poor impulse control. Heart rate, blood pressure, and respiratory rate increase and they may have palpitations, dry mouth, abdominal cramps, twitching, dilated pupils, faster reaction times, and increased strength. As the initial effects wear off, users commonly experience dysphoria, restlessness, agitation, and nervousness; they may experience paranoia, violence, aggression, a lack of coordination, delusions, psychosis, and drug craving.<sup>3</sup>

Phenylpropanolamine is a sympathomimetic also in the amphetamine class that was once available in over the counter preparations for treating colds. However, it also increases heart rate and blood pressure; its availability in the US was discontinued in 2000 after a relationship for young women between using the drug and having a stroke was identified. It remains available as a veterinary medicine.

#### **D. SUMMARY OF MEDICAL FINDINGS**

According to the medical investigation, the 68 year old male pilot had reported no chronic medical conditions and no routine medication use to the FAA. Toxicology testing in two labs identified amphetamine at 0.310 ug/ml and 0.347 ug/ml in blood and 1.828 ug/ml in urine as well as phenylpropanolamine in urine but not in blood. At autopsy, thickening of the heart walls and minimal coronary artery disease were identified.

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<sup>4</sup> National Highway Traffic Safety Administration. Drugs and Human Performance Fact Sheets. Methamphetamine/Amphetamine. <http://www.nhtsa.gov/people/injury/research/job185drugs/methamphetamine.htm>. Accessed 3/29/2017.