How High Is Your Airline Pilot?

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In January 1988 a Continental Express plane crashed near Denver, Colorado, killing both pilots and seven passengers. Although the National Transportation Safety Board (NTSB) could not determine which pilot was flying the aircraft, the primary pilot was found to have sufficient cocaine in his body to indicate usage within the previous 24 hours.

Further information came to light in a Washington Post article. It reported that the co-pilot "had been convicted twice of drunken-driving offenses, was considered a problem drinker, and had been ordered to attend two alcohol education and therapy programs." The article further states that the Federal Aviation Administration (FAA) had also documented that the primary pilot had not reported his convictions on eight traffic infractions in the four years before the crash.

"Federal law requires such disclosure," the article went on to report. "The traffic violations would not necessarily result in FAA sanction, but failure to disclose them could result in revocation of a pilot's license."\(^1\)

"According to the Federal Aviation Administration," says physician/author Joseph Pursch, "20 percent of the fatal aircraft accidents in general aviation in 1971 involved alcohol. A study of naval aviators hospitalized at Bethesda Naval Hospital's neuro-psychiatric service between 1960-1970 indicates that 22 percent were diagnosed as having chronic alcoholism and that 54 percent were heavy drinkers."\(^2\)

In 1984 the NTSB published a study that stated: "During the years 1975 to 1981, more than 10 percent of the toxicologic tests on deceased pilots were positive for alcohol. However, no pilot of a U.S. certificated air carrier . . . . was found to have a positive alcohol test since at least 1964."\(^3\)

In 1982 changes in reporting procedures by the FAA and NTSB resulted in incomplete data for alcohol toxicology reports. The years 1983 and 1984 thus reveal a decline to 5.3 percent for the latter year. The year 1985 saw a return to the 10 percent level, but no later data is available.

There have been several problems in attributing alcohol as a causative factor in crashes. From study to study the minimum level accepted as a causative factor has varied. One study used .015 BAC level for legal intoxication while others, including federal regulations, recognize .04 BAC.

A certain number of tests of fatal aviation crashes have been prevented because of contamination of tissues or the destruction of the remains (percentage of testable remains range from 75 percent to 82 percent during the years 1972 through 1985). And a few instances occurred in which religious restrictions prevented testing.

The number of surviving pilots from crashes are, on average, about five times the number of fatally injured pilots. Eighty-two percent of fatally injured pilots in 1982 were tested for alcohol; only 0.5 percent of surviving pilots were tested. FAA statistics conclude that 6 percent of "general aviation pilots killed in aircraft accidents, during the period from 1978 to 1987, had a blood alcohol level above 0.04 percent" (which is the established FAA limit for impairment).\(^4\)
One additional method that could aid determining prevalence was not available to the FAA until 1986. The implied-consent law affecting motor vehicle operators in all 50 states mandates that any individual applying for a driver's license consents to be tested when arrested or when involved in an accident. Effective April 9, 1986, aircraft crew members now must also submit to testing when authorities suspect violations in alcohol use. Undoubtedly this change will provide a valuable prevention tool, but results are not yet known.

Another source of data, not yet available to the FAA, is access to the national Driver Register (NDR). The NDR keeps centralized data on motor vehicle operators who are convicted of felonies. Only state authorities are authorized to share this computer information. However, a major break may be forthcoming in obtaining the required federal legislation to provide the same access to the FAA. One computer survey matched names of people applying for FAA medical certificates with those in the NDR. It turned up about 10,000 violators among the 700,000 pilots, controllers, and others in the aviation field who require medical certificates.

Alarmed by so large a number, the Transportation Department turned to the FBI for records relating to alcohol and other drugs and to the highway department of Florida. This led to the indictment of 27 pilots in that state for making false statements regarding previous convictions for alcohol-related traffic offenses, drug offenses, and other serious charges.

"It is estimated that about 7 percent of U.S. adults are alcoholics," reports an article in Aviation, Space and Environmental Medicine. "Perhaps as many as 10 percent were either alcoholics or victims of problem drinking. The U.S. has about 750,000 licensed airmen. Over 60,000 of these are airline transport pilots, 200,000 are commercial pilots, and the remainder are private pilots. Statistically, this would produce a potential of 75,000 problem drinkers in U.S. airmen."5

Comparing this estimate to those attributed to other professionals, including physicians, the officially recognized rate of problem drinkers within aviation should be higher.

Alcohol and other drugs, singularly or in combination, affect performance when the aviator is intoxicated. According to federal aviation regulations, "No person may act as a crewmember of a civil aircraft . . . . within eight hours after the consumption of any alcoholic beverage."

It should be noted that although the FAA prohibits flying within eight hours of ingesting alcohol or flying under the influence of alcohol, some air carriers have set more restrictive time limits, which vary between 12 and 24 hours. In addition some impose "dry layovers," regardless of the length of time.

But the eight-hour rule does not take into account the possible effects long after metabolization. Hangover has indeed been shown to cause performance impairment in aviation tasks. A 1979 NTSB article reported that hangovers produced significant performance impairment for pilots: "... . Common but serious procedural errors were preset into a flight simulator. Pilots were then asked to perform standard checklists, an instrument takeoff, enroute flight, and approach and landing. Each pilot conducted three such flights: the first before any alcohol ingestion, the second after reaching BAC of 0.10 and third 14 hours later. The study found that 10 percent of the pilots failed to detect and correct at least one of the errors during the first flight. At BAC levels of .10, 89 percent of the pilots were unable to detect and correct all of the errors. In the 'hangover' condition, 68 percent of the pilots failed to make the appropriate correction. This study concluded that, even in ground-based simulators, the effects of hangover produced significant performance deterioration."6

A Swedish study reported that hangover produced negative effects on automobile driving even after the BAC had dropped to zero. Most subjects in the study were able to estimate their blood levels. And there was no correlation between how the subject felt and his compromised driving ability.7

Yet denial of the problem of alcohol's effect on aviation safety has been a continuous problem for those seeking to remedy the problem. By the mid-seventies a Navy Safety Center staff psychologist had requested support for evaluating the hangover syndrome as it related to pilots. It was his hypothesis that pilots might be legally sober by virtue of BAC, but that the residual physical effects of the hangover could seriously impair motor reflexes and peripheral vision.
At about the same time, Navy Safety Center data was documenting alcohol as part of aviation accidents but rarely referring to alcohol as a causative factor. "Pilot error" seemed to be a conclusion that covered a multitude of problems, especially in the case of pilot fatalities. In those rare cases in which alcohol was found to be a contributing factor, military disciplinary action was often the only result.

Anecdotal information, given by hundreds of pilots, especially those in recovery from alcoholism, clearly established alcohol use to be much more a part of aviation than the Navy wanted the world to know. From the earliest days of the Navy's alcoholism treatment efforts, 45 percent of the patients came from the aviation community.

Research representatives discussed the possibility of developing formal studies into the relationship of alcohol to aviation. But senior Navy Safety Center leadership ordered them never to bring up the issue again. Political, legal, and financial vulnerabilities were the stated rationale for this organizational denial.

FAA flight rules proscribe "using any drug that affects the person's faculties in any way contrary to safety." However, as uncomfortable as aviation management may be in discussing alcohol, they are even more so when it comes to that of other drugs. Even in the case of prescribed or over-the-counter (OTC) drugs, information and education are lacking.

A fatal crash occurred at night aboard the U.S.S. Nimitz in 1981 in which 14 people died and 42 were injured. Autopsies revealed that cannabis was found in nine of the flight-deck crew members. And officials reported that to keep a cold from interfering with his flying the pilot had been taking several times the recommended dosage of licit antihistamine prescription (brompheniramine) without the knowledge of either his commanding officer or his flight surgeon, to keep a cold from interfering with his flying.8

It appears that fear of being grounded during the pilot's one yearly opportunity to achieve professionally important qualifications may have affected his judgment. The use of licit drugs can obviously be as impactful as that of illicit ones, especially if not administered and/or monitored by proper medical authority. Yet U.S. Air Force pilots in West Germany are reportedly allowed to take Dexedrine, a stimulant, to fight fatigue on long flight, and the sedative Seconal afterward to help them sleep.9

Effects of alcohol or other drugs on the human system are generally discussed with the supposition that the user is in satisfactory condition. Fatigue, mental strain, emotional upset, and other factors, however, can greatly influence the impact. U.S.A Today reported in 1988 that in 600 incidents over the previous five years fatigue had caused mistakes in navigation, communications, or piloting.

According to reports, fatigue had a role in the 1985 Newfoundland crash that killed 256 U.S. soldiers. After flying a grueling schedule for two weeks prior to the crash, the crew was too tired to notice ice on the wings and an incorrectly set takeoff speed.10

And aviation safety is not the exclusive domain of pilots. Others in the aviation community contribute, but little research has been done relative to controllers, other flight-deck members, cabin crew, and mechanics.

No one disputes that alcohol (or other drugs) and flying do not mix. What is disputed is how does one encourage alcoholics and problem drinkers to seek help voluntarily. Much is to be done in the area of identification.

There is a widely held myth that the aviation world is self-regulating. Much of the denial associated with aviation involved attitudes of uniqueness and exclusivity that sets aviators apart from others. Outsiders, especially nonflyers, and not welcomed.

Pilots do believe that even when they themselves do not recognize their own unfitness to fly, their colleagues will intervene. This is more ideal than real. Once a drug-abusing pilot is identified and treated, the FAA effectiveness rate is one of the most clearly and scientifically solid examples of success known in the field of addiction today. Yet no greater anxiety exists to a pilot than the loss of flying status, and aviators think that having a drinking or drug problem spells doom to careers.
Administrators of various transportation programs are looking at drug testing both random and regular as a process to aid in detection. Much of the controversy centers on random testing.

"What can the Aviation Medical Examiner (AME) do to recognize, prevent, or alleviate potential alcohol problems among pilots? The greatest positive single factor in the examiner's awareness of early problem drinking is the continuity of examination through an established physician-patient relationship between the pilot and the AME. Excessive use of alcohol can present in a myriad of physical signs. A discreet suspicion of alcohol abuse should be maintained when telangiectasia, hepatomegaly, cardiac arrhythmias, hypertension, or hemorrhoids are found of examination.

"The medical examiner may strongly suggest, if there is an impending problem, that the airman discuss this with his personal physician. In the U.S., the AME issues the student license and it is entirely proper that the AME present the hazards of alcohol intake to the new pilot."\textsuperscript{11}

Many medical experts maintain that the disease of alcoholism is present up to three years before it displays physical signs that can be identified medically. Signs and symptoms first appear in the patient's legal, social, and economic life. Significant information can be gained by taking a simple history of drinking or drug use, including prescription drug use in conjunction with alcohol. In a 1987 study James F. Graves maintains that selection of professional pilots should include "attention to greater risk factors that accompanied the years of personality formation which may help predict their inadequacies in psychic adaptation to the flying profession."\textsuperscript{12}

These factors are not absolutes in predicting either failure as a flight student or as predictors of alcoholism in someone who has achieved flying status. However, when combined with a thorough history of use of alcohol and other drugs, they should provide the AME with valuable insight. Any sign of alcohol problems where there is a family history of alcoholism is certainly significant when considering the mounting research that suggests a 50-percent risk factor.

"In the United States, current estimates indicate that parental alcoholism affects 27 million children. Only about 5 percent of these children are receiving any evaluation, supportive care, or treatment. As a treatment entity, recognition of the adult children of alcoholics syndrome will hopefully have a positive effect upon aviation safety and will help save a valuable national asset, our trained aviation personnel."\textsuperscript{13}

Considerations must be given to approaches other than treatment after the fact. This presenting issues should never be considered as a factor on its own merits when taking the complete medical history. Procedures can be included that encourage family, friends, or colleagues to communicate concerns to medical authorities in a manner that protects both the source as well as the flying professional, who may be the victim of false or malicious accusations. Several AEP programs employ toll-free, 24-hour telephone numbers.

Alcoholism has been officially recognized as a disease since 1965. It is a disease with signs, symptoms, and a prognosis. Drug dependency has received similar recognition by the AMA. Education at all levels of the aviation community is important, but none more so than with Aviation Medical Examiner.

Many changes have been made. Medical schools are introducing curricula to resolve documented deficiencies. The American Medical Society of Alcoholism and Other Drug Dependencies has developed criteria for certifying professionals in addictionology. However, a significant number of physicians, along with other medical professionals are still refusing to recognize alcoholism as a disease. Without this acceptance, diagnosis will not be made and consequently proper referral is impossible. Frequently because of this dilemma, cases of alcoholism have undergone years of neglect or inappropriate treatment. Many times the abuse of prescription medications is involved.

Notwithstanding the obvious problems regarding reasonable knowledge of prevalence and the need for more training on detection at all levels of the aviation community, successful recovery is the rule rather than the exception, once treatment is effected.

Recovering people in consort with enlightened physicians, along with several unions, were great influences on both the airline industry and the FAA in bringing into reality the current formal effort.

The FAA's conflicting responsibilities of allaying public fears while disclosing the facts surrounding
alcohol and other drugs complicates the task of thorough examination of the issue of alcohol and aviation. Only when total exposure of all the issues is made can adequate remedies be implemented. If the same commitment and interaction which occurred while developing the successful rehabilitation effort are applied to prevalence and detection, much more can be achieved.

As our skies become more crowded with growing numbers and mixtures of aircraft, problems associated with alcohol and other drugs grow. Just as the alcoholic must understand and accept his disease before recovery can be effected, so must the aviation community.

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References


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