

NATIONAL TRANSPORTATION SAFETY BOARD
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(Information subject to editing)

Safety Study
Drug Use Trends in Aviation: Assessing the Risk of Pilot Impairment
NTSB SS-14/01

This is a synopsis from the NTSB's Safety Study and does not include the Board's rationale for the conclusions and safety recommendations. NTSB staff is currently making final revisions to the report from which the attached conclusions and safety recommendations have been extracted. The attached information is subject to further review and editing.

EXECUTIVE SUMMARY

The use of over-the-counter (OTC), prescription, and illicit drugs is increasing in the US population. The National Transportation Safety Board (NTSB) is concerned about the possible safety implications of increased drug use in all modes of transportation. Yet, in most modes of transportation, data about drug use by vehicle operators is limited to a small proportion of operators and a short list of drugs. Aviation is the one mode in which the regulatory authority, the Federal Aviation Administration (FAA), routinely conducts extensive postaccident toxicology testing on fatally injured pilots. This study used the results from this testing to assess drug use in aviation. By assessing evidence of fatally injured pilots' drug use prior to flying and the associated potential for impairment, this study addressed a serious aviation safety issue and a growing transportation safety concern.

This study examined trends in the prevalence of OTC, prescription, and illicit drugs identified by toxicology testing of fatally injured pilots between 1990 and 2012. The goals of this study were to describe the prevalence of OTC, prescription, and illicit drug usage among fatally injured pilots over time and evaluate the need for safety improvements related to pilots' use of drugs.

The study data were from the FAA Civil Aerospace Medical Institute toxicology database and the NTSB aviation accident database. Toxicology tests were used to identify recent use of a wide variety of drugs. Test results were categorized by drug type and potential for causing impairment. This study assessed the prevalence and trends in accident pilots with evidence of recent drug use; it did not reassess the likelihood of pilot impairment in any of these accidents. Due to the complexities of interpreting the source of ethanol identified in the body after death, toxicology results for ethanol and other alcohols were not analyzed in this study.

The majority of pilots in this study were flying in general aviation operations when their fatal accident occurred because relatively fewer fatal accidents involve air carrier operations. Study results showed increasing trends in pilots' use of all drugs, potentially impairing drugs, drugs used to treat potentially impairing conditions, drugs designated as controlled substances, and illicit drugs. The most common potentially impairing drug pilots had used was diphenhydramine, a sedating antihistamine and an active ingredient in many OTC allergy formulations, cold medicines, and sleep aids. Although evidence of illicit drug use was found only in a small

number of cases, the percentage of pilots testing positive for marijuana use increased during the study period, mostly in the last 10 years.

Pilots who did not have a medical certificate or whose certificate had expired were more likely than those with a medical certificate to have used potentially impairing drugs, drugs used to treat potentially impairing conditions, and drugs designated as controlled substances. The number of pilots without a current medical certificate has been increasing since 2005, and the trend is likely to continue. However, there has not been an increasing trend in the proportion of accidents for which the NTSB cited impairment from drugs or medical conditions over the study period.

Further research is needed to understand the complex relationships among positive toxicology findings, impairment, and accidents. Also, because the FAA does not collect information about the number of pilots flying without a medical certificate, the accident rate of these pilots cannot currently be determined.

Safety issue areas identified during the study include (1) enhancing the precautionary information about potentially impairing drugs and conditions provided to pilots, (2) improving information about active pilots without medical certificates, (3) enhancing communication among prescribers, pharmacists, and patients about the transportation safety risks associated with some drugs and medical conditions, (4) developing and publicizing additional FAA policy regarding marijuana use, and (5) researching the relationship between drug use and accident risk.

This study used the most accurate and comprehensive data available to describe and assess what we currently do and do not know about drug use in aviation, to identify potential safety risks, and to communicate the risks to those who can actively prevent them. However, it represents an early step toward understanding the specific relationships among a drug's effects, the effects of the underlying medical condition, and the risk of a transportation accident over time.

CONCLUSIONS

1. Findings of increasing drug use and increasing use of multiple drugs by fatally injured study pilots are indicative of similar trends in drug use by the US pilot population in general.
2. The overall risk of drug-related pilot impairment is increasing due to the growing use of potentially impairing drugs.
3. An increasing number of pilots are flying without a medical certificate and will likely make decisions about their medical fitness to fly, including use of drugs while flying, without periodic interaction with an Aviation Medical Examiner.
4. The Federal Aviation Administration does not provide pilots with adequate information to make informed decisions about which drugs are safe or unsafe to use while flying.
5. Federal Aviation Administration medical certification requirements and US Department of Transportation mandatory drug and alcohol testing requirements for safety-sensitive aviation

personnel have been associated with fewer toxicological findings of impairing drugs and conditions among accident pilots subject to those requirements.

6. Although this study found an association between fatally injured pilots flying without a medical certificate and increased evidence of such pilots using drugs with impairing effects, there has not been a corresponding increase in the proportion of accidents in which the National Transportation Safety Board determined that impairment contributed to the accident.
7. The accident risk for pilots flying without a medical certificate cannot be accurately determined because the Federal Aviation Administration does not collect information about the number of these pilots or their flight activity.
8. States' guidelines for health care providers regarding prescribing controlled substances for pain provide an opportunity to highlight the importance of discussing risks in all transportation modes when prescribing these medications.
9. Current written and oral communications are not effectively informing patients about the risks their medical conditions and drug use may pose when operating a vehicle in any mode of transportation.
10. There is a gap in the Federal Aviation Administration's policies regarding marijuana that may lead to confusion about the agency's position on marijuana use by pilots not subject to mandatory US Department of Transportation drug and alcohol testing requirements.
11. Additional research is required to assess the complex relationship between pilots' use of drugs and associated accident risk.

Recommendations

As a result of this safety study, the NTSB makes recommendations to the FAA and the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico:

To the Federal Aviation Administration:

1. Develop, publicize, and periodically update information to educate pilots about the potentially impairing drugs identified in your toxicology test results of fatally injured pilots, and make pilots aware of less impairing alternative drugs if they are available.
2. Require pilots who are exempt from medical certification requirements to periodically report to you their status as an active pilot and to provide a summary of recent flight hours.
3. Develop and distribute a clear policy regarding any marijuana use by airmen regardless of the type of flight operation.

4. Conduct a study to assess the prevalence of over-the-counter, prescription, and illicit drug use among flying pilots not involved in accidents, and compare those results with findings from pilots who have died from aviation accidents to assess the safety risks of using those drugs while flying.

To the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico:

5. Include in all state guidelines regarding prescribing controlled substances for pain a recommendation that health care providers discuss with patients the effect their medical condition and medication use may have on their ability to safely operate a vehicle in any mode of transportation.
6. Use existing newsletters or other routine forms of communication with licensed health care providers and pharmacists to highlight the importance of routinely discussing with patients the effect their diagnosed medical conditions or recommended drugs may have on their ability to safely operate a vehicle in any mode of transportation.