Drug Use Trends in Aviation: Assessing the Risk of Pilot Impairment

Joseph Kolly, PhD
Director, Office of Research and Engineering
Impairment in Transportation

• Occurs from a variety of factors
• Medical and psychiatric conditions
• Alcohol
• Drugs
  • Over-the-counter
  • Prescription
  • Illicit
NTSB Interest in Impairment

• Over 50 recommendations regarding operator impairment in all modes


• 2012 public forum on substance impaired driving

• NTSB Most Wanted List
Determining Impairment

- Alcohol is most studied impairing substance in transportation safety
  - Agreement among the medical, legal, and public health communities
- Most drugs not similarly studied
- Limited ability to conclude impairment from toxicology testing
Postmortem Alcohol Analysis

- Toxicology is difficult to interpret
- Produced in postmortem tissues
- Most toxicology findings of alcohol (ethanol) were due to postmortem production
- Excluded from this study
Study Objectives

• Initial step

• Examine among fatally injured pilots
  • Prevalence of positive toxicology tests
  • Trends in positive toxicology tests
  • Comparison to the general population
  • Differences between categories of pilots
Why the Focus on Pilots?

- Fatally injured pilots
  - More than 1,300 drugs and metabolites
- DOT mandatory testing requirements
  - Urine specimen
  - 11 drugs
- Best opportunity to study trends in drug use by transportation operators
Data Sources: 1990-2012

- Bioaeronautical Research Laboratory at Federal Aviation Administration (FAA) Civil Aerospace Medical Institute (CAMI)
  - Toxicology test results database
- NTSB’s Aviation Accident Database
Safety Issues

• Enhance drug information for pilots
• Collect information to evaluate safety of pilots without medical certification
• Close a gap in FAA policy on marijuana use
Safety Issues (Cont.)

• Enhance communication between health care providers and patients about transportation safety risks

• Further research on relationship between drug use and accident risk
NTSB Staff

Loren Groff
Mary Pat McKay
Elisa Braver
Kathleen Curry
Robert Dodd
Evan Byrne
Jeffrey Marcus

Organization Assisting

Federal Aviation Administration
Civil Aerospace Medical Institute (CAMI)
Presentation Agenda

• Impairment, drug categories, and study methodology

• Study results

• Safety issues