

## Session: D2.0

### Title: Preventing Occupational Injuries in Alaska through Surveillance and Collaboration

Moderator: George Conway

#### D2.1

##### **Title: Human Error as a Leading Cause of Occupant Mortality in Air Taxi and Commuter Crashes in Alaska 1990-1999**

Authors: Moran KA, Conway GA, Bensyl D

**Introduction:** Commuter and air taxi crashes are the leading cause of occupational fatalities in Alaska, and pose a significant economic and social impact to passengers and communities. National studies have indicated that “human error” forms the leading probable cause in 70-80 percent of all aircraft crashes. The purpose of this study was to examine Alaska crash data, including probable cause and human performance to identify appropriate risk-reduction strategies to improve occupant survivability.

**Method:** Using 1990-1999 National Transportation Safety Board (NTSB) records, applying a retrospective case control approach, the authors compared fatal (n=120) and nonfatal (n=577) air taxi and commuter crashes occurring in Alaska for *probable cause* (the leading factor that caused the event) and *pilot performance*.

**Results:** Preliminary evidence demonstrates that of all crashes with known causes (n=679) 78 percent were attributed to “human error” (87.7% of fatal crashes and 81% of nonfatal). Significant associations were found between fatality and phase of flight (odds ratio (OR)=8.35, 95% confidence interval (CI): 5.36, 13.00); weather (OR=6.44, 95% CI: 3.94, 10.52); and pilot error (OR=2.29, 95% CI: 1.27, 4.13). Those crashes attributable to mechanical defect were significantly associated with a nonfatal outcome (OR=0.35, 95% CI: 0.17, 0.72). A significant association was found between pilot error and FAR operation (OR=1.52, 95% CI: 1.04, 2.22).

**Conclusion:** Pilot performance in inclement weather, during cruise and maneuver phases of flight appear to contribute disproportionately to the frequency of serious crashes. Possible interventions could include better training and application for pilots in aeronautical decision-making, weather recognition, risk management and emergency procedures. Possible interventions might also include standardized enforcement of operational control and Federal Aviation Regulations. Better initial training in how to fly, training in local conditions/regions, supervision of new pilots, and systematic progression in flight difficulty might also reduce the number of human performance error crashes.

## D2.2

### **Title: Progress in Partnerships for Surveillance and Prevention of Occupational Aircraft Crashes in Alaska**

Authors: Manwaring J, Conway GE, Moran K

**Background/Introduction:** Although pilots of small commuter and air taxi operators in Alaska have one of the highest occupational fatality rates in the nation (410/100,000/year), progress is being made in the prevention of occupational aircraft crashes and fatalities. The effort involves a partnership alliance between the NIOSH, Alaska Field Station, and other agencies and organizations focusing on surveillance and prevention in order to attain the goal of a 50% reduction in crashes/fatalities by 2009.

**Methods:** A partnership alliance was formed between the Alaska Field Station of NIOSH, the Federal Aviation Administration (FAA), National Transportation Safety Board (NTSB), National Weather Service (NWS), the University of Alaska, Anchorage (UAA), Alaska Air Carriers Association (AAC), and the Alaska Airmen’s Association. Aircraft accident data on occupational crashes occurring in Alaska during 1990-2002 were obtained from NTSB and FAA accident reports and entered into a database maintained by the NIOSH, Alaska Field Station – the Alaska Occupational Injury Surveillance System (AOISS) for analysis.

**Results:** Although occupational aviation fatalities continue to be a problem – with Alaska commercial pilots having the highest occupational fatality rate during 1990-1999 (410/100,000, compared to 150/100,000 for loggers and 125/100,000 for fishermen), there is an overall downward decline in occupational aircraft crashes/fatalities over the 12-year period of 1991-2002 (comparing the two six-year periods of 1991-1996 and 1997-2002, a 39% reduction in aircraft crash fatalities, and a 29% reduction in fatal crashes). Efforts in a previous similar partnership resulted in a drastic reduction of helicopter logging crash/fatalities.

**Conclusions:** As demonstrated by the downward trend in occupational crash/fatalities and the drastic reduction in helicopter logging crash fatalities in Alaska, partnerships with agencies and organizations can be highly effective in conducting surveillance and preventing aircraft fatalities.

# NOIRS 2003 ABSTRACTS

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