



NTSB National Transportation Safety Board

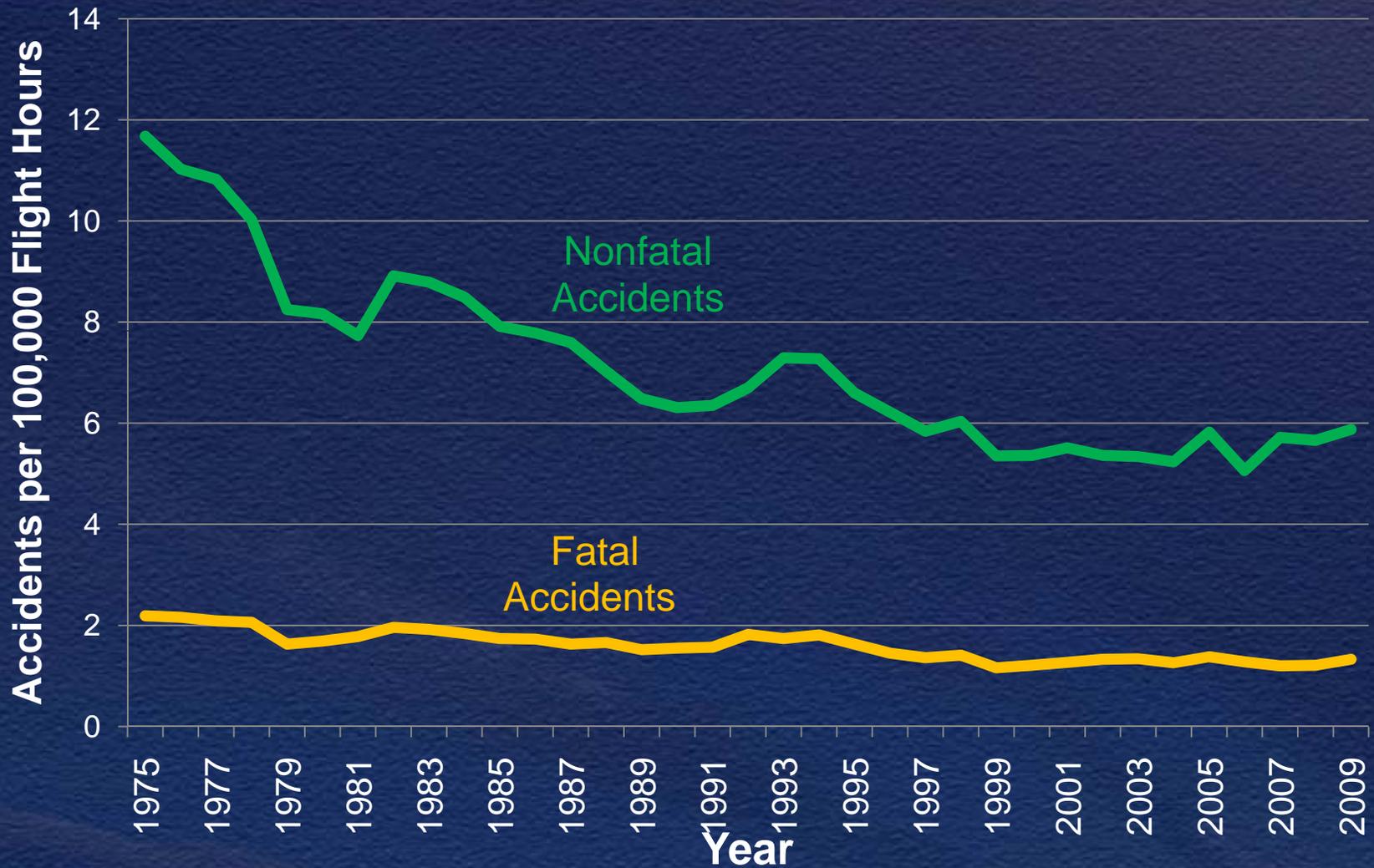
Office of Research and Engineering

Safety Study: Airbag Performance in General Aviation Restraint Systems

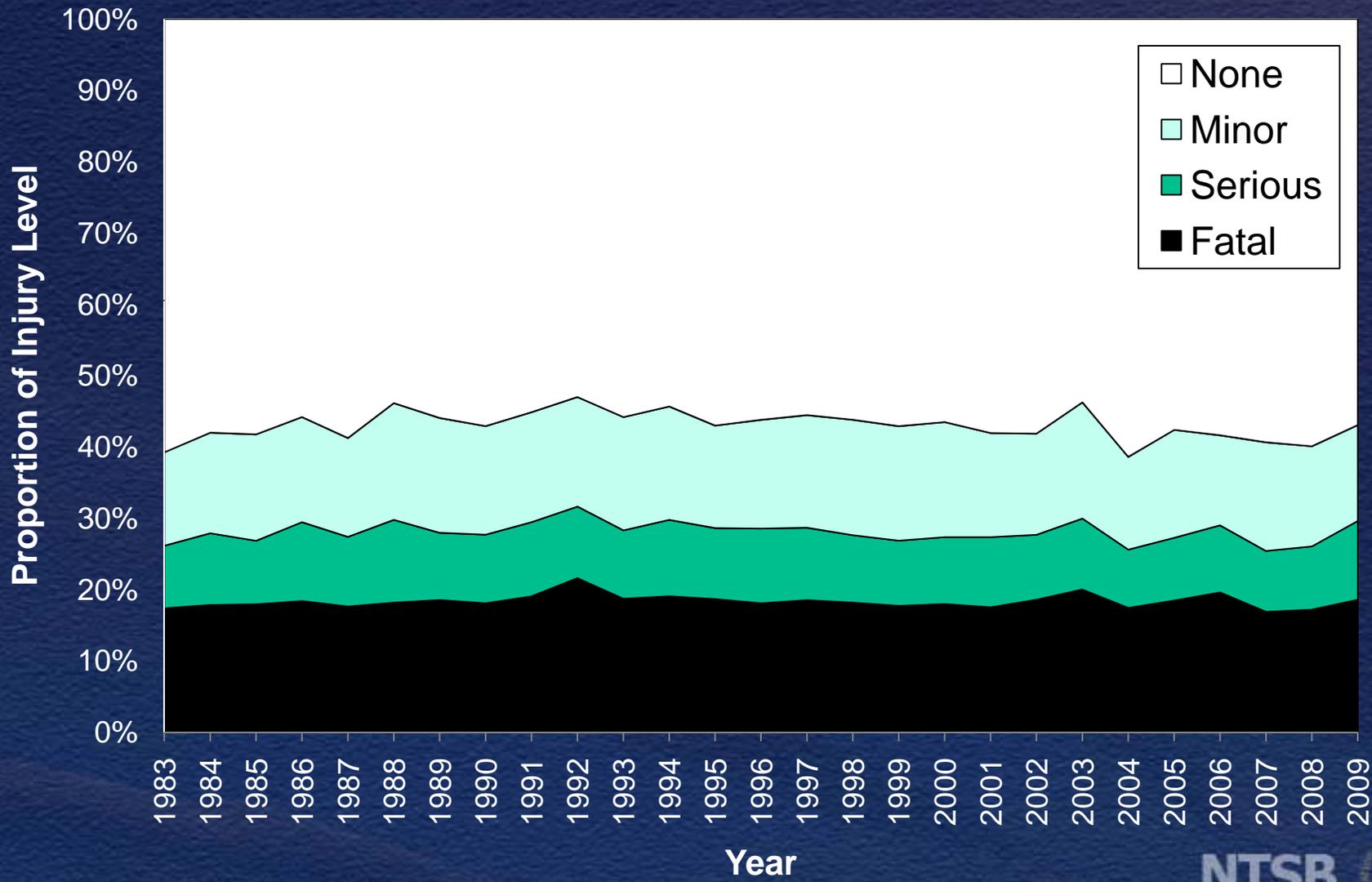
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General Aviation Accident Rates



GA Accident Injury Proportions



NTSB Efforts to Improve Occupant Protection

- 1964 CAB shoulder harnesses recommendation
- 1985 NTSB GA crashworthiness report
- Occupant protection system recommendations
 - FAA revisions to Part 23 and Part 91 regulations

Study Population

- Data collection: Aug 2006 – July 2009
- 7,000 airbag-equipped aircraft
- 4,500+ GA accidents and incidents
 - 138 Events in the US
 - 88 Accidents
 - 10 Study cases

Case Study Methodology

- The “cases” included represent the entire population of accident events of interest
- Case study method best suited to evaluating novel and ill-defined circumstances
- Multidisciplinary team provided great breadth of analysis

Key Findings

- Airbags are effective at mitigating injury
- No negative unintended consequences associated with airbag deployment
- Shoulder harness use is highly effective at preventing injury

Additional Study Benefits

- Checklist and investigation methodology for aviation safety investigators
- Changes to the NTSB's aviation accident database (eADMS)
- Revisions to the Pilot/Operator Report of Accident form (6120.1)

Study Participants

- FAA
- AmSafe Inc. (airbag manufacturer)
- Cessna Aircraft Company
- Cirrus Aircraft Company

NTSB Staff

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Agenda

- Overview of GA airbag systems
- Accident case review
- Restraint issues
- Summary of findings



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