

Challenges of Continuing Safety Improvement



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Outline

- NTSB Basics
- Some Specific Challenges
- Two Big Picture Issues



NTSB 101

- Independent federal agency, investigate transportation mishaps, all modes
- Determine probable cause(s) and make recommendations to prevent recurrences
- Primary product: Safety recommendations
 - Favorable response > 80%
- ***SINGLE FOCUS IS SAFETY***
- Independence
 - Political: Findings and recommendations based upon evidence rather than politics
 - Functional: No “dog in the fight”



Some Specific Challenges

- Fatigue
- Personal Electronic Devices
- Increasing automation



Fatigue

- Basic disconnect: Commercial transportation is 24/7, humans are not
- Fatigue is mostly treated as sleep issue; what about other factors?
- Aviation: crossing time zones?
- Increase of (undiagnosed) obstructive sleep apnea (OSA) with increasing body mass index (BMI)
- Need comprehensive fatigue management program, not just rest and duty time rules



Personal Electronic Devices

- Fatal accidents in every mode
- Getting worse: many believe they can multi-task
- Worst transportation accident: Chatsworth, CA



Increasing Automation

- When it *malfunctions*:
 - Increasing complexity increases likelihood that operators will not completely understand the system
 - Increasing reliability increases likelihood that operators have never seen a given malfunction before, even in training
 - Example: Air France 447
- When it's working *properly*:
 - Adverse impact on professionalism?



Big Picture Challenges

- As safety continues to improve, two new challenges are
 - Increasing complacency
 - Increasing difficulty of continuing to improve safety



Complacency

- We've got this safety stuff figured out, no need to worry any more
- Human nature: Put emphasis on worst and/or most frequent problems
- Example: Bedford, MA (2014)



Continuing to Improve Safety

- As existing safety improvement techniques approach their limits, need to “think out of the box” for new techniques
- Previous successes
 - New technologies (jet engines, simulators)
 - Near-miss reporting, ASRS
 - Collaboration, CAST
- Next: No-fault compensation for airline accident victims?



Conclusion

As safety improvement methods approach their limits, ever more innovative and creative solutions will be necessary to continue improving safety



Thank You

Questions?



National Transportation Safety Board