

Aviation Safety Successes That Can Improve Health Care Safety

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Transferable Concepts

- Manage not only errors but also threats that can lead to errors
- Apply Human Factors principles in the design of equipment and procedures
- Increase standardization where practicable
- Learn from errors and near misses

The Context

- The healthcare industry is populated with highly-trained, competent, passionate professionals whose credo is to do no harm
- The industry has made extensive improvement efforts, especially since the 1999 IOM Report, “To Err is Human”
- Healthcare delivery is becoming more complex and more automated
- Despite healthcare safety improvements in various areas, and many amazing healthcare advances and other accomplishments, the number of undesirable outcomes in U.S. hospitals remains unacceptable

Threat and Error Management

- Always crucial to identify and address errors
- Much more effective and proactive also to identify and address upstream threats that can lead to errors, sometimes even to the extent of being “error traps”
- Error is not knowing what mode automation is in; threat is inadequate or ambiguous mode display
- Error is administering the wrong medicine; threat is confusing or misleading names, labels, or containers
- Most safety improvement efforts focus on healthcare errors; more attention is needed on upstream threats

Human Factors Challenges

- Human factors challenges increase as complexity and automation increase
- Complexity and automation are increasing in healthcare
- Optimizing pilot interactions with airplanes involves several steps:
 - Human factors expertise in the original design
 - Identify additional “real world” issues with “actual” use in a simulator
 - Upon introduction into service, train pilots and others (e.g., mechanics) about residual HF idiosyncrasies
 - Use operational error/near-miss feedback from pilots (and mechanics) to inform future design and future training

Importance of Collaboration

- Addressing human factors challenges necessitates collaboration that includes end users
- Operational difficulties with equipment or noncompliance with procedures (e.g., checklists, hand washing) usually reflects lack of end-user friendliness, often resulting from failure to involve end users during the design process
- Exemplary aviation safety record reflects extensive collaborative inclusion of end users during the design process and throughout the equipment or procedure life cycle

Standardization or Specialization?

- Aviation uses standardization for the most dangerous part of the flight – the approach and landing
 - Landing procedures and protocols and airport markings are the same at every international airport in the world
- Aviation uses specialization regarding airplanes
 - Pilots are specifically licensed in each aircraft
- Standardization of equipment and procedures possible in healthcare, which is far more complex and variable than aviation?
 - Collaborative standardization usually generates a better outcome
 - Updating as warranted helps ensure inclusion of innovations
 - Standardization can significantly reduce errors, especially by support staff

Information About Errors and Near Misses

- System is populated with passionate people who are trying to do the right thing
- When things go wrong, likelihood is that systems, procedures, and equipment were not optimal
- Errors and near misses help reveal need for improvement of systems, procedures, and equipment
- Learning from errors and near misses has played a major role in the exemplary aviation safety record
- Information about healthcare errors and near misses is frequently hidden, due to
 - Stigma associated with errors
 - Fear of punishment and/or litigation
- Recommend no-fault compensation for healthcare injuries, to remove fear of litigation

Conclusions

- Healthcare is far more complex and variable than aviation
- As healthcare becomes more complex and more automated, the need increases for more innovative safety improvements
- Healthcare could make significant and sustainable safety increases by learning from procedures that have helped generate an exemplary safety record in aviation

Thank You!!!



Questions?

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