Safety Management and Aviation Medicine

Dr Tony Evans
Chief, Aviation Medicine Section
ICAO, Montreal
ICAO

- UN agency
- Montreal-based
- 190 Contracting States
- Sets international safety Standards
- Compliance gives right to enter another State’s airspace
Plan

- Examples of fitness decisions
- Does lack of harmonization of medical requirements make any difference to safety?
- Safety Management principles:
  - Monitoring of incapacitations/impairments
  - Monitoring of findings from routine examinations
  - Setting objective performance standards
- Summary
Example 1 – taking an antidepressant

- 35 years
- Taking an antidepressant
- Fit?
  - As pilot
  - As cabin crew
Example 2 – Insulin treated diabetes

- 27 years
- Using insulin to treat diabetes
- Fit?
  - Pilot
  - Cabin Crew
Example 3 – Two seizures separated by 10 years

- 28 years
- Last seizure 5 years ago
- Taking medication to control seizures
- No relevant side effects apparent
- Fit?
  - Pilot
  - Cabin Crew
It depends....in which State the fitness decision is made

For pilots, and cabin crew
Why different answers?

- Expertise of assessors
- Investigation opportunities
- Aviation Medicine Experience of State
- Variability of guidance from eminent specialists
- National culture
- Lack of evidence/scientific approach
Does it make any difference to flight safety?

- How would we know?
- No obvious differences between States based on medical incapacitation aircraft accident rates
- But which States routinely measure in-flight incapacitation rates?
- Which States publish in-flight incapacitation rates?
- What about data for cabin crew?
Safety Management in ICAO

- Includes measuring and monitoring of safety output:
  - Mandatory for aerodrome operators
  - Mandatory for air traffic service providers
  - Recommended for aircraft operators
    - Mandatory from January 2009
“Hazard identification is a wasted effort if restricted to the aftermath of rare occurrences where there is serious injury, or significant damage.”

(ICAO SMS course)
Safety Management

- Includes measuring and monitoring (including analysis of results) of deficiencies before they result in an accident.
ICAO Safety Management Course

http://www.icao.int/fsix/http://www.icao.int/fsix

System design
Operational deployment

Baseline performance
“Practical drift”

Operational performance
Safety Management in aviation medicine

- Currently under review by ICAO
- In-flight incapacitations/impairments
- Findings at routine medical examination
- Flight crew
Safety Management

- Includes setting performance standards and then monitoring to see if they are achieved
- What performance standards are appropriate to cabin crew health?
  - Same as pilots (professional or private)?
  - Same as air traffic controllers?
  - Same as car drivers (professional or private)?
Are cabin crew safety critical?

- ICAO definition

  “Activities where uncorrected errors have an immediate and negative effect”
What is an acceptable rate of in-flight incapacitation for cabin crew?

- Physical
- Mental
Examples – acceptable maximum risk of incapacitation

- Professional pilots: 1-2% per annum
- Air traffic controllers: ‘flexible’ 1-2% per annum
- Professional vehicle drivers: 2% p.a.
- Private vehicle drivers: 20-40% p.a.
How to set a performance standard for cabin crew?

- Concerned with safety
- Many variables
  - Number of cabin crew
  - Pressurised/unpressurised
  - Fixed wing/rotary
  - Length of flight
Typical 737 with five cabin crew

- Chance of emergency requiring cabin crew action?
  - Decompression
  - Cabin fire
  - Emergency evacuation

- Effect on crew function if one or more were incapacitated at time of emergency
Little data at present to set evidence-based performance standard

- Fitness level of professional pilot 1-2% p.a.
- Fitness level of private driver 20-40% p.a.
- Something between might be reasonable
- Perhaps general occ. health principles will demand greater fitness levels than safety requirements (unlike pilots)
- Individual approach needed
- Need data collection and analysis to consider options – safety management approach
Summary

- Fitness standards for cabin crew are not harmonised
- There is little data currently available to develop an evidence-based acceptable risk
- More data, more analysis and discussion is needed
Advice from the wise in cases of lack of data…?

- “When in doubt, risk it”
  - Holbrook Jackson, English author, 1874-1948

- “When in doubt, do it”
  - Oliver Wendell Holmes, American physician & Harvard professor, 1809 – 1894

- “When in doubt, don’t”
  - Benjamin Franklin, founding father of USA, 1706-1790
“When in doubt, make a fool of yourself. There is a microscopically thin line between being brilliantly creative and acting like the most gigantic idiot on earth. So what the hell, leap.”
Safety Management and Aviation Medicine

Dr Tony Evans
Chief, Aviation Medicine Section
ICAO, Montreal