The Future of Fatigue

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Objectives

- What is Fatigue Management and Fatigue Risk Management System (FRMS)?
- What are other civil aviation regulators doing about this?
- Why have we gathered together today?
Microsleep? One eye at a time? Sleep and Alertness!
Managing Fatigue Risk

* Overview
* World-view
* Our view?
Overview
Annex 6, Part 1, 4.10 (SARPs)
4.10.1
- Regulations for flight time, flight duty period, duty period and rest period limitations
- FRMS regulations
4.10.2
4.10.2.a: Flight time, flight duty period, duty period and rest period limitation that are within the prescriptive fatigue management regulations established by the State of the Operator
4.10.2.b: An FRMS in compliance with 4.10.6 for all operations
4.10.2.c: An FRMS in compliance with 4.10.6 for part of its operations and the requirements of 4.10.2.a for the remainder of its operations
Risk Management

Risk = Probability x Severity

Mitigation = Prevention + Protection

Risk matrix showing:
- Acceptable zone
- Unacceptable zone
- Prevention
- Protection
A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge, that ensures relevant personnel are performing at adequate levels of alertness.

FRMS employs tools and processes that are specifically designed to detect, classify, analyze, prioritize and mitigate and/or control fatigue risk whatever the source of fatigue.
Aims to manage fatigue irrespective of the cause
Based on science and empirical findings
Is data-driven
Requires a systematic organizational approach
A continuous process of planning, monitoring and managing the level of alertness of flight and cabin crew when performing their duties
How FRMS benefits the operator?

- Increased flexibility to crew scheduling
- Reduction in fatigue-related risk
- More efficient operations
World-view
Global Situation Awareness

- EASA
- FAA
- CASA
- CAAS
European Aviation Safety Agency

EASA
Legal Framework

- Regulation 216/2008 (EASA Basic Regulation)
- Article 8(6): risk assessment; proportionate to the scale and scope of the operation
- EASA “Rulemaking Procedure”; Article 5: Drafting of rules shall take into account “risk assessments performed and available data”
The regulations will become applicable on 18 February 2016
FRM should be integrated in Safety Management System
FRM not mandatory, but when required by the Regulation: authority approved; incorporate scientific principles and knowledge; on-going process; ensure remedial actions; correspond to the specific operation
Summary

- Operators responsibilities place specific demonstrable requirements on ensuring crew remain sufficiently free from fatigue under SMS
- FRM required in specific areas or where derogating from the prescriptive rules
- Fatigue management training mandatory
- Approval: National Aviation Authority
1999: Australian House of Representatives Standing Committee on Communication, Transport and the Arts


“We are alarmed at the state of the current system of regulating flight and duty times for air crew. The current system, as provided for by Civil Aviation Order Part 48, is universally regarded as being anachronistic and deeply flawed.”

“The Civil Aviation Safety Authority should implement Fatigue Risk Management Systems to regulate flight and duty times for aircrew as soon as it is feasible to do so.”
CAO 48.1 Instrument 2013- “the new rules.”

* Effective 30 April 2013
* Transition period until 30 April 2016
* Repeal of old legislation 30 April 2016
* New AOC Holders start under the new rules (except Heli-Mustering)
* Three tiers of compliance: FRMS; Fatigue Management; Basic
* (CAO 48.2 in development: Cabin Crew)
FRMS Policy and Guidance Material

- FRMS Handbook and worksheet
- Link to IATA/ICAO/IFALPA FRMS Guidance material
- Process manual and application forms
- Biomathematical model guidance – 2014
- Application forms (842A, 842B)
- Form 817
Fatigue Risk Management Plan (FRMP)

- Mandate for FRMP came from Airline Safety and Federal Aviation Administration Extension Act of 2010
- Public law
- Compliance required by ALL part 121 air carriers (mandatory)
- FRMP to include methodology that continually assesses pilot fatigue and the effectiveness of the program to improve alertness and mitigate performance errors
- §117.7 describes an optional approach and is referred to as a FRMS to safely conduct specific flight operations that are currently limited under the rule
FRMS: Components

- A fatigue risk management policy
- An education and awareness training program
- A fatigue reporting system
- A system for monitoring flight crew fatigue
- An incident reporting process
- A performance evaluation
FRMS: Authorization Process

- Pre-application, planning and assessment
- Formal application
- Documentation and Data Collection Plan
- Demonstration and Validation
- Authorization, Implementation and Monitoring
Civil Aviation Authority of Singapore

CAAS
Regulation by prescription

Singapore Airlines applied for permission to launch new non-stop service to LA in late 1998

This would bust all known prescriptive flight time limits

Task force: CAAS, SIA, ALPA-S

Scientific study (Collaboration): ECASS, Massey
ULR Rules:

**Singapore**

- **At least 3 local nights and 48 hours free of duty**

- **4 Pilots (2 Capts + 2 FOs)**

- **Specified Departure Windows**

**LAX & NYC**

- **At least 48 hours and 2 local nights**

- **2 In-Flight Rest Periods**
Our View
Civil Aviation Authority
New Zealand

CAA NZ
Where are we?

- AC 119-2 Revision 2 (2006)
- Guidance based on nature of operations (Airline/ Helicopter/ Agricultural flying/ ATC...)
- Focused on duty and rest
- Not FRMS
- So here we are with a mandate.....
- More details now from our Policy team.....
Over to the next presentation..