

*AVIATION FATIGUE MANAGEMENT SYMPOSIUM:  
PARTNERSHIPS FOR SOLUTIONS*

**“Domestic Operations: Multi Leg/Short Haul Focus”**



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## **Domestic Short Haul/Multi- leg Operations**

1



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## **Considerations for Short Haul/Multi-leg Operations**

- Domestic, flag, supplemental rules are different
- Multi-leg operations can be more fatiguing
- Weather effect on short-haul, multi-leg ops
- Not as many reserves at smaller bases

2



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## **Challenges, Drivers and Barriers: Categories**

- Economics
- Scheduling
- Layovers
- Coming to work fit to fly
- Regulations
- Environment
- Operator culture and policies
- Data
- Other

3



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Economics challenges and drivers
  - Basis of all airlines is to make money – they will schedule flights when the demand is there
  - Airlines maximize use of the crew members to maximize productivity
  - Lack of education about actual costs of fatigue, etc.
- Economics barrier: Perception of competitive disadvantage for carriers that allow fatigue calls

4



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Scheduling Challenges and Drivers
  - Marketing dictates the schedules without working with ops/considering fatigue
  - Start early, end late - night flyers different
  - Schedule change from early reports to late reports
  - Changing airplanes
  - Reserve scheduling
  - Crew pairing - different individuals in different rest states
  - Unscheduled airline – crew doesn't know what they will be doing so cannot prepare
  - Part 91/121 mixing to extend duty day

5



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Scheduling Barriers
  - Tradeoff between rest time and desire for “time off”
  - Trading trips may undermine scheduling to mitigate fatigue

6



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Layovers Challenges and Drivers
  - Quality and safety of hotel –
    - bad (noise, temperature, other crewmembers, guests, housekeeping, other Interruptions, distance, etc)
    - And good
  - Hotel proximity to airport on short overnights
  - Time behind the door – nine hour layover but only six hours to sleep- sleep & rest different.
  - 12 hours in Detroit is not like 12 hours in Palm Beach

7



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Coming to work fit to fly: Challenges and Drivers
  - Commuting
  - Outside employment
  - Managing time off
  - Military flying

8



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Regulations are inadequate
  - Not based on science
  - Don't consider day or night
  - Interpretation varies, no preamble
  - No FA fatigue policy
  - "Sitting at the airport" time

9



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Operator culture and policies: Challenges and Drivers:
  - Attendance policy versus fatigue policy
  - Main purpose for those who abuse the system
  - Company says “last 10 hrs was your rest”
  - Many don’t have policies and many don’t work. Some treat fatigue as sick leave.
- Operator culture and policies: Barriers
  - Number of crewmembers do not call in when fatigued
  - Fear of retribution re fatigue policy

10



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Challenges, Drivers and Barriers

- Environment: challenges and drivers
  - Complex operating environment
  - Schedule pressure
  - Security demands
  - Equipment issues
  - Weather
  - Flight deck environment – noise, comfort, Crew Resource Management, etc
  - Physiological needs – food, etc

11



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Other Challenges and Drivers

- Cumulative fatigue
- Sleep disorders – Do we need education? Screening?

12



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Other Barriers

- Data and measurement
  - Lack of data on age effects
  - Non-standardization of report categorization
  - Tracking of fatigue reports
    - How many are investigated and analyzed
    - Retribution?
    - Fatigue related to duty
    - Lack of data on incidents, bad decisions, tracking from the fatigue reports
  - Limited ability to measure, self-evaluate or predict fatigue
  - Lots of science but not in operational context
  - Significant individual differences

13



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Other Barriers

- Lack of education

14



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Potential Principles for Fatigue Mitigation

- Scheduling and regulations should consider:
  - Science
  - Time of day/circadian rhythms
  - Length of day
  - Workload
  - Individual differences
  - Operational practicality
  - Social acceptability
- Individual responsibility should manage rest time (time off, layovers) to extent possible

15



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Potential Principles for Fatigue Mitigation (continued)

- Come to work fit to fly
- Operators need to manage their own risk
- Have a level playing field
- One size doesn't fit all
- Recognize that the irregular is regular

16



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Potential Mitigation Concepts

- Education and communication
- Realistic scheduling that considers fatigue risk
- Implement SMS, to include:
  - Just Culture
  - Fatigue risk management
  - Non-punitive reporting
  - Appropriate measurement tools and metrics
- Regulations – update and harmonize

17



Aviation Fatigue  
Management  
Symposium:  
Partnerships  
for Solutions  
June 17-19, 2008

*Presented by  
Federal Aviation  
Administration*

## Potential Mitigation Concepts

- Transition the science to operational context
- Education/screening for sleep disorders
- Controlled rest in the flight deck
- Use part-time personnel
- Address issues with hotels & food
- Use and share lessons learned and best practices

18