

Fatigue Management as a Component of Safety System Management

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Alertness and Performance Management

Safety System Management

- Safety System Management is the Optimization of all aspects of Safety within the constraints of :
 - * Operational Effectiveness
 - * Time
 - * Cost

What is a System?

- An entity with an objective
- Functions in an environment
- Uses boundaries to define elements
- Has a hierarchy of functions

This is a System :



This is also a System:



What is a Safety System ?

- Identifies hazards
- Assess the risks
- Risks = Probability X Severity
- Implements effective risk controls
- Monitors results

Benefits of Safety System Mgt

- Acquire knowledge and skills
- Reduces Cost
- Target resources
- Manage safety risks
- Communicate effectively on safety
- Builds a positive safety culture

Human Fatigue is an Insidious Threat to Aviation Safety

- Impairments to Alertness and Performance
- Leads to Error Vulnerability

Causes of Human Fatigue

- Sleep Loss
- Circadian Disruption

Sleep Loss

- Sleep: A Physical Need
- On Average: 8 Hours of Sleep
- Need varies per individual (6-10)
- Need Unmet = Sleep Loss = Debt
- Age, Alcohol and Sleep Disorders

Circadian Disruption

- Altered Sleep Patterns
- Circadian Rhythms
- Circadian Pacemaker is located in the Brain
- Takes cues from the environment
- Light-Dark cycle: most prominent
- Circadian Trough: 0300-0500

Error Vulnerability

- Traditional view and solution
- Dr. Petersen defines human error
- Human error results from:
an overload, a decision or traps

Errors are not random events

- Research Study:
- Aviation Maintenance
- Hospital nurses and Patient Safety

Fatigue Management Program

- Human Factors
- Scheduling
- Education
- Commitment from Senior Mgt and operating personnel
- Reduces cost and improves profit

Conclusion

- Fatigue permeates our society
- Can not be eliminated
- Contributes to human error
- Physiological Mechanisms cause
- Fatigue Mgt Program manages risk
- Needs Commitment: Mgt & Labor
- Maintains Positive Safety Culture

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