Fatigue Management and Sleep Dysfunction: Planning for Success

Moderators:
STEVEN GARRISH, MBA, CDS, CTP
SVP, SAFETY & REGULATORY COMPLIANCE

D. ALAN LANKFORD, Ph.D, FAASM
CHIEF SCIENCE OFFICER
Overview

- Why is Fatigue Important?
- NAFMP
- Exploration of:
  - Regulatory Perspective
  - Technology
  - Health & Wellness
  - Testing & Treatment
- Myths & Misconceptions
- Regulations
- Q & A
- Moving Forward
Meet the Panel

Slaven Sjlivar
VP, Analytics at SmartDrive Systems

- 20 years in the automotive and telematics industry
- Led early analytics initiatives at GM
- Degrees from MIT Sloan and Kettering University
Meet the Panel

Angela Moore
VP, Workplace Solutions
Alere eScreen

- Began her career focused on developing compliant drug testing programs for DOT regulated industry
- Served as COO of eScreen
Meet the Panel

Drew Daly
Director, Data & Analytics
Omnitracs

- Logistics industry veteran
- Multiple degrees with advanced training in supply chain optimization, management and statistics
Meet the Panel

Mark Pitcock

EVP of Member Safety & Risk Services
American Trucking and Transportation Insurance Company, a Risk Retention Group (Attic, RRG)

- 13 years in the transportation industry
- Tasked with member safety
- Responsible for updating members on new technologies and loss prevention procedures
Mike Fox

Highway Accident Investigator
National Transportation Safety Board (NTSB)

- 13 years in trucking, air freight and logistics prior to becoming an investigator
- 11 years as a Special Agent with the FMCSA
- 4 years at the Board

Meet the Panel
Who is More Fatigued—Local vs OTR?
Challenges for the Safety Manager

How can I get my hands around the importance of fatigue?

Looking beyond Hours of Service
Challenges for the Safety Manager

What can a company do that goes beyond hours of service?
Regulations

Mike Fox
Highway Accident Investigator
National Transportation Safety Board (NTSB)
Fatigue Management Program (FMP)

Mike Fox
NTSB Highway Accident Investigator
Overview

- Who is the NTSB?
- Highlight crash investigations
- Fatigue management program
  - Importance
  - Key elements
Who is the NTSB?

• Independent Federal Agency
• Aviation, Marine, Rail, and Highway
• Headquartered in Washington, DC
• About 400 staff nationwide
<table>
<thead>
<tr>
<th>Most Wanted List of Transportation Safety Improvements</th>
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</thead>
<tbody>
<tr>
<td><strong>Increase</strong> Implementation of Collision Avoidance Technologies</td>
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<tr>
<td><strong>Prevent</strong> Loss of Control in Flight in General Aviation</td>
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<tr>
<td><strong>End</strong> Alcohol and Other Drug Impairment in Transportation</td>
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<td><strong>Require</strong> Medical Fitness</td>
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<td><strong>Strengthen</strong> Occupant Protection</td>
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<td><strong>Ensure</strong> Safe Shipment of Hazardous Materials</td>
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<td><strong>Improve</strong> Rail Transit Safety Oversight</td>
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<td><strong>Reduce</strong> Fatigue-Related Accidents</td>
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<td><strong>Eliminate</strong> Distractions</td>
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<td><strong>Expand</strong> Recorder Use to Enhance Safety</td>
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</table>
The Final Product

• Report Development
  – Follow-up trips
  – Testing / research
  – Report writing

• Report Types
  – Brief Report
  – Full Report Board Meeting
www.ntsb.gov

- News & current events
- Accident database
- Recommendations
  > 200 fatigue recs
Doswell, Virginia – May 31, 2011

- 4:55 a.m.
- Greensboro, NC, to NYC
- 4 fatal, 14 injured
- Driver fell asleep
- Limited sleep opportunity
Oxnard, CA – February 24, 2015

- 5:44 a.m.
- Ford F450 Truck towing trailer
- SB Metrolink Train
- 1 fatal, 31 injured
- On-duty 24 hours
Chattanooga, TN – June 25, 2015

- 7:10 p.m.
- KY- FL -KY
- Work zone
- 6 fatal, 4 injured
- 40-hour duty period prior
Cranbury, NJ - June 7, 2014

- 1:00 a.m.
- Work zone
- 1 fatal, 4 injured
- DE- GA -DE
- Awake 24 hours
Importance of FMP

- Failure to manage the risk can be deadly
- HOS compliance is not FMP
- People can’t work 24/7
- Fatigue causes poor decision-making, slowed response, risky behavior, and loss of situational awareness
- Drivers are most vulnerable
North American Fatigue Management Program (NAFMP)

- 4-year project (Canada & US)
- Collaboration between Government, carriers, insurers, and researchers
- Fatigue management education for drivers, families, managers, shippers, receivers, and dispatchers
- Website: [www.nafmp.org](http://www.nafmp.org)
Downloads

The following downloads are in English. To download these files in a different language, please select the appropriate website language.

The North American Fatigue Management Program offers its training in a number of formats, allowing users to select the one that best fits their individual needs. For the most comprehensive training experience, including online testing, you are encouraged to use the NAFMP Online Courses. Once there, you can register as a user of the system, free of charge, and work through the training at your own pace. Commercial truck and bus fleets can encourage their drivers and other personnel to register and complete the appropriate courses.

The PowerPoint versions below are formatted in PowerPoint version 2010. A free PowerPoint reader is available here if you do not currently have PowerPoint version 2010. If you experience problems downloading files, please use our alternate download site.

Powerpoint Versions (with audio narration)

This version of the NAFMP training allows users to view and hear the training but does not allow for knowledge testing and scoring. This option is best suited for users who simply want to scan through the training at their computer without participation in any of the quizzes or other knowledge checks.

- Module 1 (MS Powerpoint)
- Module 2 (MS Powerpoint)
- Module 3 (MS Powerpoint)
- Module 4 (MS Powerpoint)
- Module 5 (MS Powerpoint)
- Module 6 (MS Powerpoint)
- Module 7 (MS Powerpoint)
- Module 8 (MS Powerpoint)
- Module 9 (MS Powerpoint)
- Module 10 (MS Powerpoint)
<table>
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<tr>
<th>Module</th>
<th>Title</th>
<th>Target Audience</th>
<th>Estimated Duration</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>FMP Introduction and Overview</td>
<td>Motor Carrier Executives and Managers</td>
<td>45 minutes</td>
</tr>
<tr>
<td>2</td>
<td>Safety Culture and Management Practices</td>
<td>Motor Carrier Executives and Managers</td>
<td>1.5 hours</td>
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<tr>
<td>3</td>
<td>Driver Education</td>
<td>Commercial Drivers</td>
<td>3 hours</td>
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<tr>
<td>4</td>
<td>Driver Family Education</td>
<td>Driver Spouses and Family</td>
<td>45 minutes</td>
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<tr>
<td>5</td>
<td>Train-the-Trainer for Driver Education and Family Forum</td>
<td>Carrier Safety Managers and other Trainers</td>
<td>3.5 hours</td>
</tr>
<tr>
<td>6</td>
<td>Shippers and Receivers</td>
<td>Freight Shippers and Receivers</td>
<td>30 minutes</td>
</tr>
<tr>
<td>7</td>
<td>Motor Carrier Sleep Disorders Management</td>
<td>Carrier Executives and Managers</td>
<td>1.5 hours</td>
</tr>
<tr>
<td>8</td>
<td>Driver Sleep Disorders Management</td>
<td>Commercial Drivers</td>
<td>1.25 hours</td>
</tr>
<tr>
<td>9</td>
<td>Driver Scheduling and Tools</td>
<td>Dispatchers and Driver Managers</td>
<td>1 hour</td>
</tr>
<tr>
<td>10</td>
<td>Fatigue Monitoring and Management Technologies</td>
<td>Motor Carrier Executives and Managers</td>
<td>1 hour</td>
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Safety Culture

Safety Triad

- Environment
- Person
- Behavior
- Safety Culture

NAFMP | North American Fatigue Management Program
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Policies and Procedures

- Written SOPs
- Fatigue policy
- Distance to terminal

- Driver handbook
  - Adverse driving
  - Sleep apnea
  - Driver wellness
Training & Education

- Initial & recurrent
- Post-accident
- HOS compliance
- Off-duty hours

- Family members
- Vendor-managed
- Web-based
- Documented
Evaluation

- Accident register
- Loss runs
- Insurance
- Technology
  - Critical events
  - Analyze the data
Summary

• Fatigue should be on everyone’s “Most Wanted List”

• North American Fatigue Management Program

• FMP – safety culture, polices / procedures, training, and evaluation
Analytics, e-health and the Bottom Line
1. **Primary Camera**
   - Records video in front of the vehicle
   - GPS for location and speed
   - Large, manual activation button

2. **Driver Camera**
   - Records vehicle cabin
   - Infrared illumination for low-light conditions
   - Mounts separately or connected to the primary camera (as shown)

3. **SmartRecorder 3 Controller**
   - Intelligent safety monitoring and recording functions
   - Real time mobile/cellular communication
   - Vehicle CAN (J1939, J1708, OBD-II)
   - Over the air firmware upgrades
Health-eScreen®

Angela Moore
VP, Workplace Solutions
Alere eScreen
Drew Daly
Director, Data & Analytics
Omnitracs

Custom Models
- Accident Frequency
- Driver Retention

Industry Models
- Accident Severity
- ELD Driver Retention

Recruiting
- Driver Fatigue

2017 Solutions
- Active Driver Coaching
- Expanded Text Analytics
- CE Video Predictive Analytics
- Fleet Promoter Score
Mark Pitcock
EVP of Member Safety & Risk Services
American Trucking and Transportation Insurance Company, a Risk Retention Group (Attic, RRG)
Myths and Misinformation

BMI not a valid measure

False positives

Sleep apnea does not exist

Its just to make money

Study data is not objective

Its just to make money

I’m just tired

Referred by Med Examiner for no reason

Its just to make money

Snoring is no big deal

No correlation between fatigue and crashes

Sleep apnea does not increase crash risk
Regulations
Thank You
Key Studies & Citations

- We are sometimes asked if there are direct links between untreated OSA and crashes. **The answer is yes.**
- There are **several studies that can be cited.**
- Here’s a sample of **10 studies** to give you an idea of the overwhelming conclusion that crash frequency, injuries, lost time at work, turnover, healthcare costs, etc. are **ALL** adversely affected by untreated sleep apnea.
- Advanced Brain Monitoring. Sleep Diagnosis and Therapy. Vol 2, No.2. *Assessment of Obstructive Sleep Apnea Risk and Severity in Truck Drivers: Commentary on the Legal Implications for Ignoring a National Safety Concern.* April 2007. Carper and Levendowski. “Accident avoidance or reduction can occur through diagnosis and treatment of OSA, which can be done in a cost effective way that reduces overall costs to the company, including liability for accidents and the costs of employee healthcare.”


- Journal of Clinical Sleep Medicine. *Systematic Review of Motor Vehicle Crash Risk in Persons with Sleep Apnea.* Ellen, Marshall, Palayew. 2006. [A review of multiple studies on crash risk and OSA] “…using state or insurance driving records found a statistically significant association between sleep apnea and crashes...[in another study] cases were drivers who presented to the emergency room because of a motor vehicle crash and were compared with age and sex matched controls who presented to the emergency room for other reasons. The results showed that persons involved in crashes were 7.2 times more likely to have sleep apnea...”www.aasmnet.org/jcsm/Articles/020214.pdf

- Journal of Clinical Sleep Medicine. *Commercial Motor Vehicle Driver Obstructive Sleep Apnea Screening and Treatment in the United States: An Update and Recommendation Overview.* Colvin and Collop. 2015. “When considering clinical assessment of OSA risk based on criteria that do not rely primarily on the CMV driver report, we focus on the physical examination and measurements obtained as part of this assessment”
Key Studies & Citations

- National Safety Council. *Fatigue and worker safety*. February 26, 2017. “Several studies state that workers who have a sleeping disorder are more likely to be involved in a workplace safety incident.”


- NCBI. US National Library of Medicine National Institutes of Health. *The joint contribution of insomnia and obstructive sleep apnea on sickness absence*. Sivertsen. 2013. “Accumulated evidence has demonstrated that sleep problems are associated with subsequent sick leave and work disability...OSA has been shown to almost double the risk for subsequent sick leave and work disability.”

- SLEEP. Vol. 35, No. 4, 2012. *Assessing Sleepiness and Sleep Disorders in Truck Drivers*. Sharwood. “…CMV drivers have an elevated risk of OSA [lifestyle challenges]...OSA increases the crash risk of motor vehicle drivers by 2 to 7 fold.”
Key Studies & Citations


- Virginia Tech. Virginia Tech Transportation Institute. *Truckers with sleep apnea who do not follow treatment have greater crash risk.* March 2016 “Truck drivers who have obstructive sleep apnea and who do not adhere to a mandated treatment program have a 5x increase in the risk of a severe crash...Drivers who did not follow [treatment] were retained only 1/3 as long as drivers who did adhere...as long as specific rigorous screening standards for obstructive sleep apnea are not in place, these drivers, if they remain untreated, are likely to remain a risk on the roadways.” **Key finding:** “What we found is that, if we look at 1,000 truck drivers each working for a year, the drivers with obstructive sleep apnea who refuse treatment would have 70 preventable serious truck crashes, compared to 14 crashes experienced by both a control group and by drivers with sleep apnea who adhered to treatment.”