

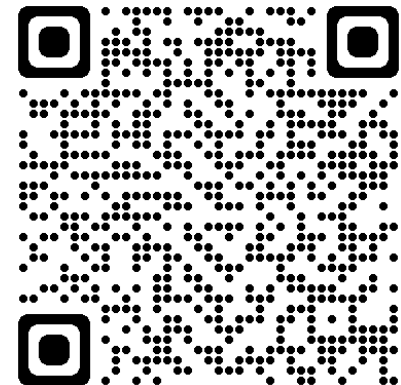


Fatigue Management Program Template for Milk Haulers

International Milk Haulers Association
Annual Convention and Trade Show

Charlotte, North Carolina - April 22, 2024

Get the slides at the bottom of the page of
nafmp.org/webinars



1. Problem and Solution of Driver Fatigue

2. Fatigue Management Program

Safety Culture

- Education and Training
- Partnership Among Carriers, Shippers, Receivers & Brokers

Fatigue Risk Management System

- Sound Scheduling Practices
- Sleep Disorders Management Program
- Fatigue Management Technologies

3. Next Steps

- Complete Template
- eLearning Platform
- Webinars, courses and other sessions

**Alertness and fatigue are like an on/off switch,
you are either awake or asleep**

- True
- False

Vigilance Spectrum



- **Delta brain waves:** Deep sleep. 1 to 4 Hertz
- **Theta brain waves:** Sleeping or daydreaming when awake. 4 to 8 Hertz
- **Alpha brain waves:** Awake and calm. 8 to 12 Hertz
- **Beta brain waves:** Awake, alert, busy, and focused. 12 to 38 Hertz
 - **Low beta waves:** Thinking. 12 to 15 Hertz
 - **Beta waves:** Performing or focusing. 15 to 22 Hertz
 - **High beta waves:** Excited or anxious. 22 to 38 Hertz
- **Gamma brain waves:** Highly alert and conscious. 30 to 80 Hertz

The only cause of fatigue is insufficient sleep

- True
- False

Alertness Has Supply & Demand



- Supply Factors

- Internal individual susceptibility: circadian rhythm, amount of sleep, time of day, time awake, stimulants, other drugs, health, genes, mood

- Demand Factors

- Task related: Time on task, task complexity, task monotony
- Environmental: Road conditions, weather, stress (heat, noise, vibration), vehicle design, social interaction, other stimulation

In truck/bus crash statistics, driver fatigue is...

- The number 1 cause
- Not a significant cause
- Underrepresented

- Factors That Affect Fatigue In CMV Crashes
 - The National Transportation Safety Board believes that the incidence of driver fatigue is underrepresented in FARS in general and in FARS specifically with regard to CMV drivers.
 - Research has suggested that CMV driver fatigue is a contributing factor in **30 to 40 percent** of all CMV crashes.

Crash Causation: 87% Driver Related



- **Non-Performance:** Driver fell asleep, was disabled by heart attack or seizure or physically impaired for another reason
- **Recognition:** The driver was inattentive, distracted by something inside or outside the vehicle or failed to observe the situation adequately for some other reason
- **Decision:** Driver was driving too fast for conditions, misjudged the speed of other vehicles or followed other vehicles too closely
- **Performance:** Driver panicked, overcompensated or exercised poor directional control

Crash Causation Associated Factors



- 14% Inadequate Surveillance
- 13% Fatigue
- 10% Felt Under Work Pressure From Carrier
- 9% Inattention
- 8% External Distraction
- **54% Total: Crashes where diminished vigilance was involved**

[FMCSA Large Truck Crash Causation Study](#)

CMV Driving Worsens Fatigue



- Tight schedule to get enough sleep
- Extended work hours + commuting
- Changing work schedules
- Work/sleep periods conflict with circadian rhythm
- Limited time for rest & naps
- Unfamiliar & uncomfortable sleep locations
- Sleep disruptions
- Difficulty finding nutritious food on the road
- Limited opportunities for exercise
- Personal, work and environmental stressors

Is driver fatigue one of the top ten industry issues?

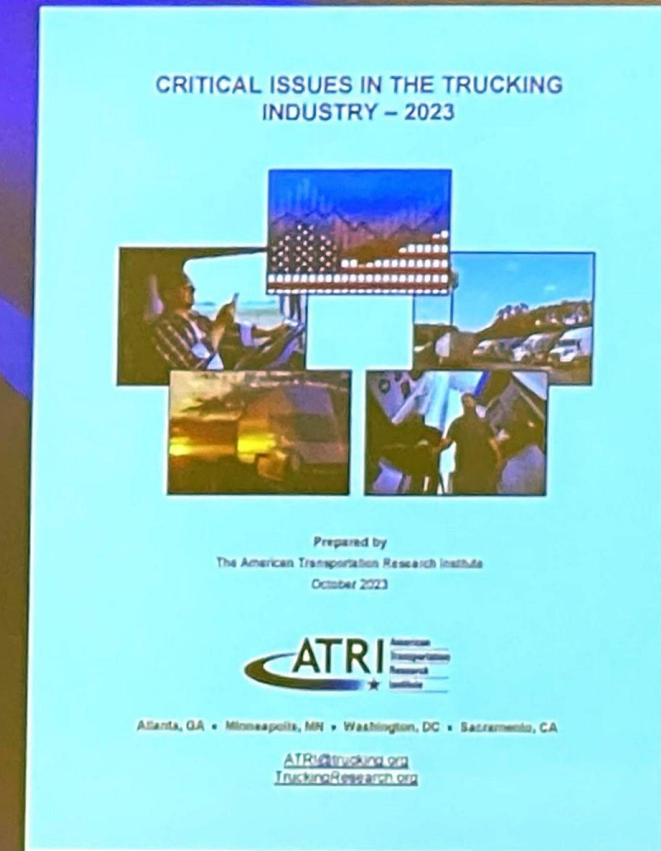
- Yes
- No

ATRI Top Industry Issues



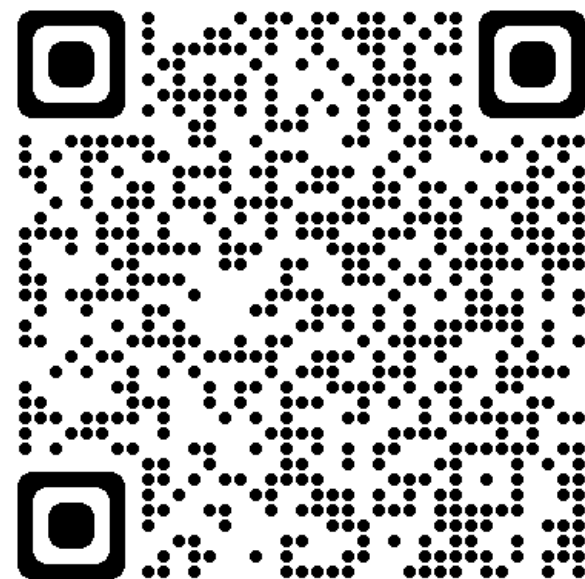
2023 Top Industry Issues

1. **Economy (5)**
2. **Truck Parking (3)**
3. **Fuel Prices (1)**
4. **Driver Shortage (2)**
5. **Driver Compensation (4)**
6. **Lawsuit Abuse Reform (10)**
7. **Driver Distraction (#7 in 2018)**
8. **Driver Retention (7)**
9. **Detention / Delay at Customer Facilities (6)**
10. **Zero-Emission Vehicles**





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Fatigue Management Program (FMP)



1. Safety Culture

- Education & Training
- Partnership Among Carriers, Shippers, Receivers & Brokers

2. Fatigue Risk Management System

- Sound Scheduling Practices
- Sleep Disorder Screening & Treatment Program
- Fatigue Management Technologies

- Why should a motor carrier manage fatigue?

Benefits



- Lower Fatigue Related Crashes
- Lower Legal Liability Exposure
- Cost Reduction
 - Driver retention
 - Fuel efficiency
 - Medical costs
 - Detention
 - Routing/parking
 - Maintenance
- Labor force
 - Safer
 - More productive
 - Healthier & happier

- Report on Schneider National Inc. OSA Implementation Program showed a significant return on investment
 - Significant savings on medical costs for diagnosed and treated drivers
 - Drivers diagnosed and treated with CPAP, **average savings of \$550 per driver/month**
 - 73% reduction in preventable crashes among drivers treated for OSA
 - Retention rate of treated OSA drivers was 2.3 times greater than for all company drivers

[NAFMP ROI Calculator](#)

Safety Culture



- Shared behavior pattern and beliefs related to safety
- Safety is a value
- Safety is a part of company's identity
- Shared responsibility for safety
- Commitment to helping others perform safely
- Top management buy-in
- Empowering staff and generating commitment to FMP
- Build driver trust and instill accountability
- Driver recognition
- Corporate culture change

[Module 2: Safety Culture](#)

Education & Training Courses

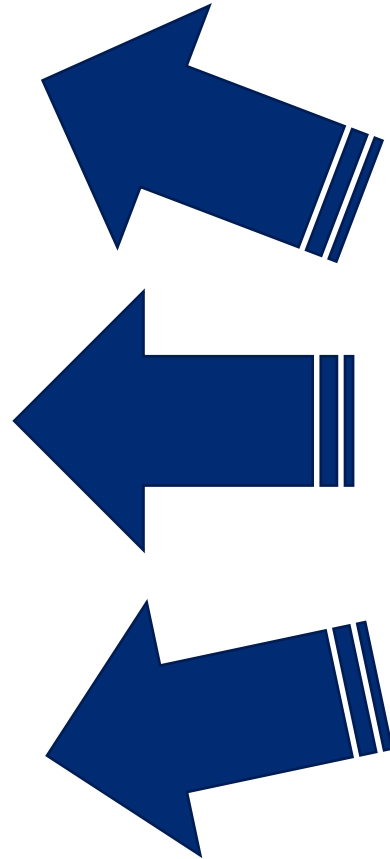


- eLearning Platform & PowerPoint Downloads
 - Motor carrier executives and managers
 - Module 1 (Intro), 2 (Safety Culture), 7 (Sleep Disorders), 10 (Technologies)
 - Motor carrier trainers
 - Module 5 (Train-the-Trainer)
 - Motor carrier dispatchers and driver managers
 - Module 9 (Scheduling)
 - Freight Shippers, Receivers, Brokers
 - Module 6 (Role of shippers & receivers on driver safety)
 - Drivers
 - Module 3 (Driver Ed), 8 (Sleep Disorders) & 9 (Scheduling)
 - Driver Families
 - Module 4 (Family Ed)

Wellness Affects All Body Systems



- Messaging
 - Nervous
 - Endocrine
 - Immune
 - Reproductive
- Plumbing
 - Respiratory
 - Cardiovascular
 - Digestive
 - Urinary
- Support
 - Skeletal
 - Muscular
 - Integumentary



1. Sleep
2. Positive Relationships
3. Positive Behaviors
4. Nutrition
5. Exercise

What will kill you faster?

- No Sleep
- No breathing
- Starvation
- Dehydration

Importance of Sleep: Biology



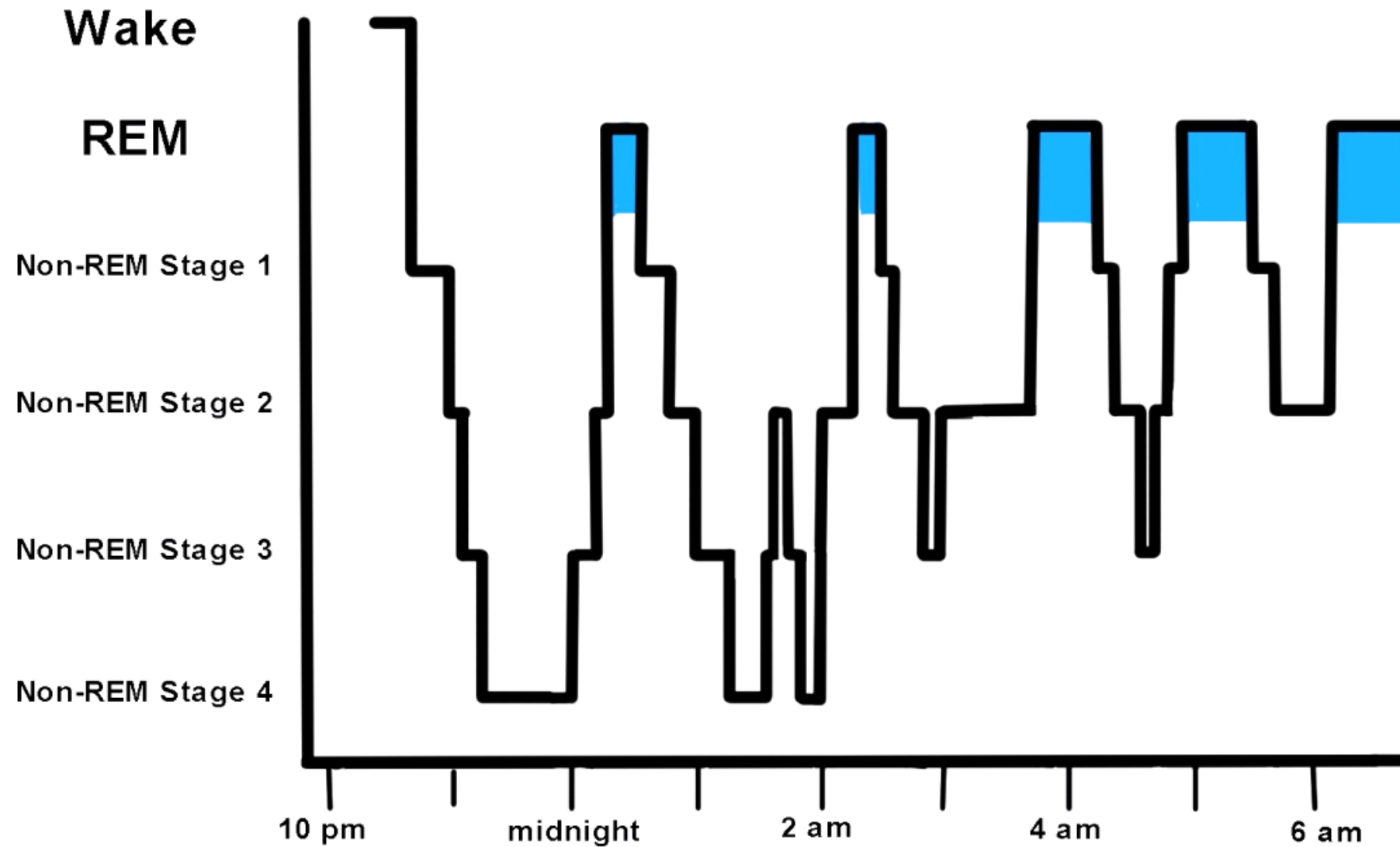
Sleep Functions

- Energy recharge
- Cellular restoration
- Brain function
- Emotional wellbeing
- Metabolism maintenance
- Immunity enhancement
- Heart health
- [Webinar: Sleep Hygiene](#)

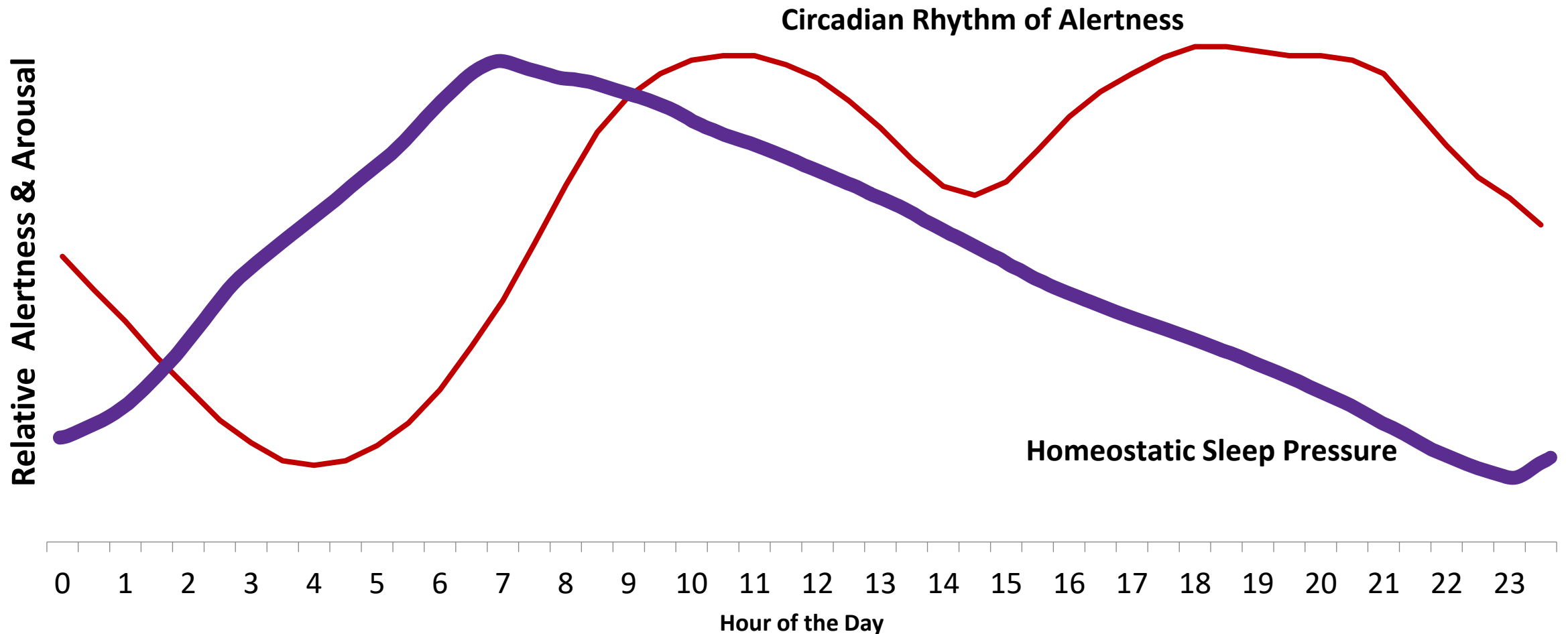
Sleep Deprivation Effects

- Metabolic Syndrome
- Reduced immune system functioning
- Gastrointestinal problems
- Disrupts relationships
- Worsens psychiatric conditions
- Decreased quality of life
- Increased sick days

Sleep Architecture



Sleep Drivers: The Clock & the Timer



What is the single most important predictor of wellbeing and longevity?

1. Low cholesterol
2. Not smoking
3. Warm relationships
4. Exercising
5. Meditation
6. Normal blood pressure

Relationships Affect Wellness



- Stress with isolation from family & friends
- Finding and sustaining network of family, friends & coworkers
- Keep in touch, communicate
- Value and foster each relationship
- Do fun things together
- Be positive
- Show support

[Webinar: Nurturing Positive Relationships](#)

Positive Behaviors



- Positive outlook and behaviors
- Balance between work and personal life
- Pursue personal interests
- Support network
- Try to improve job environment
- Get serious about relaxing
 - Relaxation breathing
 - Short walks
 - Meditation
 - Reading
 - Find method that works best for you

[Webinar: Mindfulness](#)

The purpose of diets is to lose weight

- True
- False

Weight Loss Is the Wrong Goal



Where Does Body Weight Come From

- Liquids, Muscles, Bones, Subcutaneous Fat, Visceral Fat
- Weight loss is regained in 1-5 years
- May lack essential nutrients and may be harmful
- May take pleasure out of eating
- May lead to eating disorders
- Snake oil is medical quackery
- Goal is to stay healthy, enjoy food and share it with others

Obesity vs Metabolic Syndrome



- U.S. Adults (240 million)
 - 70% Non-Obese (168 million)
 - 60% Healthy (101 million)
 - 40% Metabolic Syndrome (TOFI) (67 million)
 - 30% Obese (72 million)
 - 20% Healthy (14 million)
 - 80% Metabolic Syndrome (58 million)
 - Total healthy: 115 million
 - Total Metabolic Syndrome: 125 million
- Metabolic Syndrome
 - Non-alcoholic fatty liver disease
 - Diabetes
 - Cardiovascular disease
 - Hypertension
 - Lipid abnormalities
 - Polycystic ovarian cancer
 - Dementia

- Essential Macronutrients
 - Carbs with Fiber (veggies, fruits, whole grains)
 - Fats except artificial trans fats (fatty fish, dairy, nuts, seeds, avocado)
 - Proteins (fish, seafood, chicken, beef, pork, dairy)
 - Water

- Essential Micronutrients
 - Vitamins
 - Minerals

[Webinar: Nutrition](#)

- Ultra processed food
 - Lack of fiber
 - Excess sugar, salt, oils, fats and many additives
 - Engineered to taste good
 - Cheap & convenient
 - Aggressively marketed
 - Addictive
- Liquid candy
 - Soda
 - Juice
 - Any sweetened/alcoholic drinks
- Toxic to the liver and brain
 - Excess sugar
 - Excess protein
 - Drugs

Exercising right before going to sleep is not recommended...

- Always true
- Depends on exercise type
- Always false

1. Cardiopulmonary
2. Strength bearing
3. Stretching & balancing

- Enhances alertness
- Promotes better sleep
- Lowers stress
- 10-minute walks twice or more per day
- Work out more vigorously on weekends
- Take exercise equipment with you on trips
- Keep a record of your exercise
- Set daily and weekly goals
- Find out what you like and do it

Drivers can tell when they are fatigued...

1. Always, based on their perception
2. When trained to recognize it
3. Rarely; that's why it's a problem

Objective Signs of Fatigue



- Eyelid drop or loss of focus
- Yawning
- Wandering, scattered or disjointed thoughts, dreamlike visions
- Head movements, gentle swaying, jerking
- Reduced field-of-view (AKA: tunnel vision, highway hypnosis, white line fever)
- Fidgeting, shifting positions, adjusting windows & HVAC
- Progressive weaving, crossing rumble strip, drift and jerk steering
- Delayed or incorrect responses
- Microsleeps

Fatigue Management Strategies



- General
- At home
- On the road
- Night driving
- Dealing with shift/time zones
- Team driving

[Module 3: Driver Education](#)

Shipper and Receiver Best Practices



1. Realistic Trip Schedules
2. Reduce Loading/Unloading Delays
3. “Driver-Friendly” Queuing Practices
4. Off-Hour Parking Access

[Module 6: Shippers & Receivers](#)

TCA/NITL Code of Ethics



- Established by the National Industrial Transportation League (NITL) and Truckload Carriers Association (TCA)
- [Voluntary Guide to Good Business Relations](#)
 - 25 shipper/receiver and 22 carrier/driver guidelines
- Often incorporated by reference into carrier-shipper contracts
- Has not solved all problems but has increased mutual understanding and cooperation

Selected Shippers & Receivers Guidelines

- Maintain reasonable hours for loading and unloading according to volume of shipments with appropriate consideration for offering evening and weekend hours. Provide carriers/drivers 24-hour access to facility contacts to facilitate resolution of loading/unloading issues
- Promptly load/unload trucks that arrive within the scheduled time. Accommodate or reschedule pickups deliveries when unforeseeable events intervene. Make reasonable effort to be flexible in loading/unloading trucks that arrive early or late or without an appointment
- Establish reasonable transit times based on compliance with government regulations
- If available, provide a safe harbor (parking) for drivers who cannot legally drive to another location or for early arrivals
- Treat drivers with courtesy and respect. Provide drivers access to safe, clean, and well-lit restrooms, water and other comfort facilities where available

Selected Carrier & Drivers Guidelines



- Quote transit times that can clearly be achieved within driver hours-of-service regulations and prevailing speed limits
- Communicate in a timely manner to shipping and receiving personnel all significant delays or problems with performing to pickup or delivery specifications prior to failure
- Strive to meet all service commitments to deliver shipments on a timely basis (when loaded on time and allowing for a reasonable transit time)
- Provide shipper/receiver with timely advance notice of possible service failures based on contract and/or tender expectations
- Be forthcoming and provide honest and proactive information to shippers regarding safety status changes and potential companywide status

Fatigue Risk Management System



- 1. Applicability:** Operations at risk
- 2. Identification & Data Collection:** Risk determination
 - **Predictive:** Previous experience, evidence-based scheduling, math models
 - **Proactive:** Self-reported, questionnaires, performance reviews, scientific literature review, planned vs actual time worked
 - **Reactive:** Determine if fatigue was a factor in crash, near crash or violation
- 3. Assessment:** Classify hazards
Probability + Severity = Tolerability
- 4. Development:** Measures/countermeasures to reduce/eliminate risks
- 5. Evaluation:** Continuously monitor effectiveness of FRMS

[Implementation Manual](#): Chapter 4, Pages 57-74

3.c Fatigue Risk Assessment Matrix



Risk Probability		Risk Severity				
		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely Improbable	1	1A	1B	1C	1D	1E

Adapted from the International Civil Aviation Organization

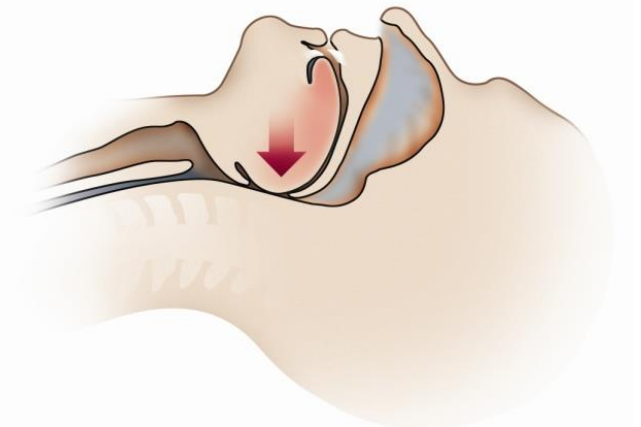
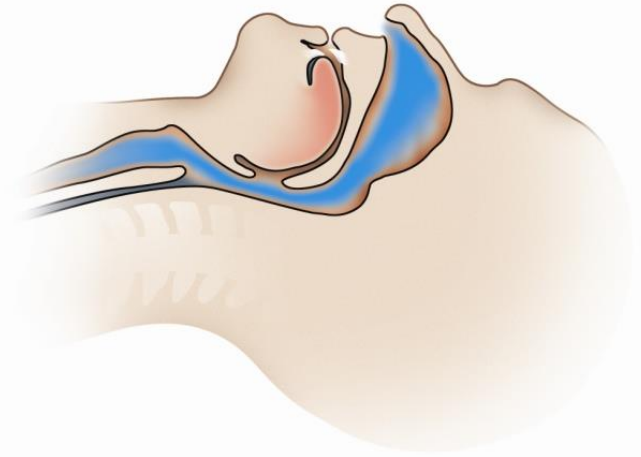
Fatigue Susceptibility



- Sleep Deprivation
 - Sleep-related behaviors
 - Sleep hygiene
- Individual Differences
 - Genetic variations
 - Health & fitness
- Medical conditions
 - Medications
 - Sleep disorders
 - Insomnia, narcolepsy, restless leg syndrome, sleepwalking, abnormal circadian rhythms, obstructive sleep apnea (OSA)

Obstructive Sleep Apnea

- **Apnea** = stoppage of breathing lasting 10+ seconds
- OSA = breathing stops repeatedly during sleep due to closures of the upper airway
- Apnea rate per hour:
 - <5 = normal
 - ≥ 5 = OSA
- OSA severity (mild, moderate, severe) based on rate
- Some people with severe OSA can have 100 per hour



OSA diagnosed and treated drivers are medically disqualified from operating a CMV

- True
- False

Sleep Disorders Management Program



1. Education
2. Screening
3. Testing
4. Treatment
5. Monitoring

[Module 7: Sleep Disorders Management \(Motor Carriers\)](#)

[Module 8: Sleep Disorders Management \(Drivers\)](#)

[Webinar: A Motor Carrier's Guide to Establishing a Sleep Disorders Management Program](#)

Scheduling Practices



- Sound scheduling and routing
- Time of day, recent sleep, continuous hours awake, cumulative sleep debt
- Shared responsibility mitigating driver fatigue in work schedules
- Regular schedules
- Forward vs backward scheduling
- Consider travel time to employment location
- Consider rests and naps during work shift
- Maximum of 16 hrs. per day or less
- Maximize benefits of scheduling tools
- Develop customized strategies for managing fatigue

[Module 9: Driver Scheduling and Tools](#)

Fatigue Management Technologies Types

1. Scheduling & Trip Planning
2. Fitness for Duty Testing
3. Performance Monitoring
4. Driver Monitoring

[Module 10: Fatigue Technologies](#)

[Webinars: The Alertness Toolkit and NAFMP Solutions Series](#)

Technology Catalog Sources



- 2020 Review of Commercially Available Devices to Detect Fatigue and Distraction in Drivers
 - [By Institute for Road Safety Research in the Hague, Netherlands](#)
- 2019 Commercial Motor Vehicle Operator Fatigue Detection Technology Catalog and Review
 - [By National Surface Transportation Safety Center for Excellence](#)
- 2019 Research Report - Fatigue/distraction detection technology use in the Australian road freight transport sector
 - [By Australia's National Heavy Vehicle Regulator \(NHVR\)](#)

A safety culture is nice to have but not necessary for an effective fatigue risk management system

- True
- False

Effectiveness of FRMS



“While FRMS are likely to be effective, in organizations where safety cultures are insufficiently mature and resources are less available, these systems may be challenging to implement successfully”

[How Effective are Fatigue Risk Management Systems \(FRMS\)? A Review](#)

NTSB Crash Investigation



[NTSB Crash Investigation Page](#)

Crash Investigation Results: Driver



- Expired CDL/Medical?
- Prior violations, convictions, crashes?
- Tested positive for alcohol or drugs?
- Speeding?
- New driver / New truck?
- Pre-existing medical conditions?
- Prescription drug use?
- Calling, texting, not facing the road?
- Not holding steering wheel?
- Kept a regular schedule?
- How long were prior workdays?
- How long prior sleep opportunity?
- What was the time of day?
- How many signs of upcoming stopped traffic were before crash?
- Responded to brake lights?
- Pressed the brakes?
- Died?

Milk Tanker Crash Cause Determination



- NTSB determined that the probable cause of 2021 multivehicle crash in Arizona was the truck driver's failure to respond to the fully conspicuous traffic queue, likely **as the result of fatigue**
- Contributing to the crash was the carrier's
 - **Poor oversight of its drivers**
 - **Lack of fatigue management program**
 - **Failure to enforce its own policies, such as those regarding on-duty hours**
- All a consequence of the carrier's inadequate **safety culture**

[Read NTSB press release](#)

"A program to manage driver fatigue in agricultural transportation and collision avoidance technology would have prevented a fatal 2021 multivehicle collision in Phoenix where a tractor-trailer carrying milk crashed into stopped traffic"

Next Steps



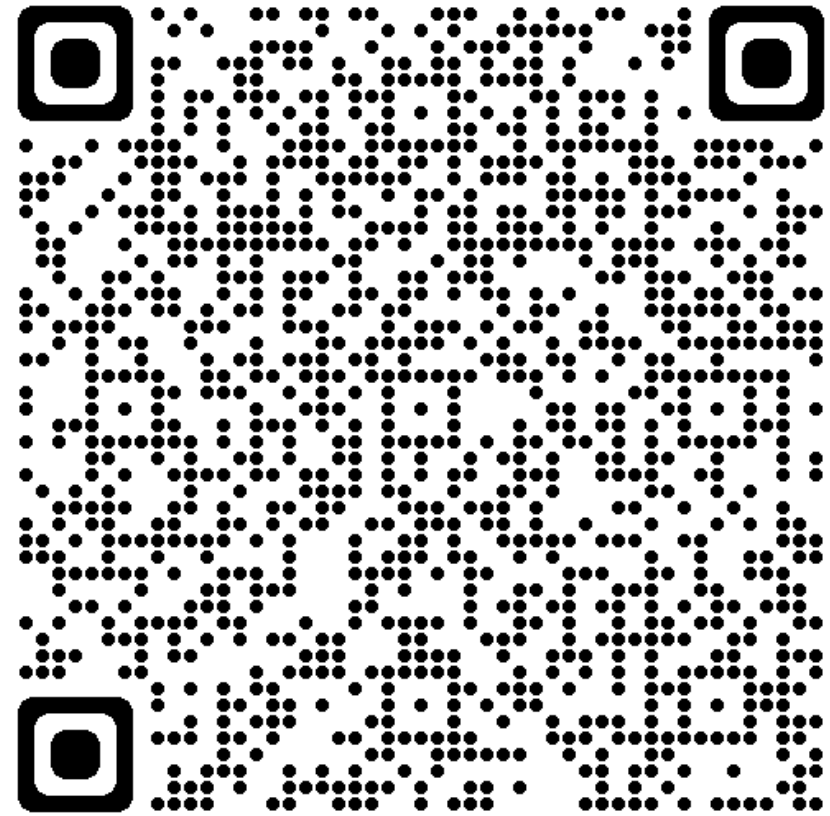
1. [Complete FMP Template](#)
2. [Have drivers take Module 3: Driver Education & Training](#)
3. [Register for live courses and webinars and watch recordings](#)

All resources available from nafmp.org

FMP Template



- Microsoft Form
- Navigate with form controls
- Don't use browser controls
- Save PDF at the end
- Edit form with MS Account
- Select **YES or NO** for grading
- Complete it during breaks



FMP Template Rubric



1. Steering Committee Terms of Reference	10%
a. Policy	
b. Responsibilities	
c. Documentation process	
<hr/>	
2. Safety Culture	40%
a. Education - 10%	
b. Training - 10%	
c. Ongoing communication - 20%	
<hr/>	
3. Fatigue Risk Management System	40%
a. Operation - 2%	
b. Predictive, Proactive, & Reactive Controls - 20%	
c. Risk Assessment - 5%	
d. Measures and countermeasures - 5%	
e. Evaluation - 8%	
<hr/>	
4. Timeline	10%
a. Introduction	
b. Training	
c. Evaluation	
<hr/>	
5. Total	100%



A Comprehensive Approach for Managing Commercial Driver Fatigue

The North American Fatigue Management Program enhances a carrier and driver's ability to effectively deal with the challenges of fatigue in a highly competitive, widely dispersed and rapidly changing industry.

[Program Overview](#)[Explore Our Courses](#)

Implementation Manual



**Guidelines and Materials to Enable
Motor Carriers to Implement
a Fatigue Management Program**

IMPLEMENTATION MANUAL

Sponsored by the North American Fatigue Management Program



eLearning Platform: lms.nafmp.org



NAFMP

English (en) ▾

You are not logged in. (Log in)



Fatigue Management Community Forum

No matter your role in managing fatigue, you are welcome to join in the conversation. Questions, comments, and feedback are encouraged. Thank you for your participation. Please select here to [log in](#) or create a new free account.



Available courses

🔄 Module 01



FMP Introduction and Overview

Target Audience: Carrier executives and other managers

Estimated Duration: 45 min

🔄 Module 02



Safety Culture and Management Practices

Target Audience: Carrier executives and other managers

Estimated Duration: 1.5 hours

PowerPoint Presentations



Français English



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Improve Driver Safety

Training ▾

ROI Calculator

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Training

Training Overview

Motor Carrier Executives & Managers

Safety Managers & Other Trainers

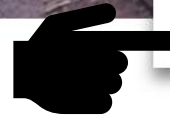
Dispatchers & Driver Managers

Commercial Vehicle Drivers

Driver Spouses & Families

Freight Shippers & Receivers

PowerPoint Training (Downloads)



PowerPoint Training (Downloads)

NAFMP online training is a comprehensive, interactive experience. We encourage you to participate in the program via our free and [self-paced e-learning system](#). Through the system, you'll have access to periodic check-ins, quizzes and scores. Motor carriers can also encourage their drivers and other personnel to register and complete the appropriate modules through the online system.

PowerPoints with Audio Narration

Access the Complete Training Program Online →

[How to get started \(PDF\)](#)

Improve Driver Safety

Reduce fatigue-related risks, reduce crashes, improve alertness and

ROI Calculator



Français English



About NAFMP ▾

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Training ▾

ROI Calculator

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ROI Calculator

Return on Investment (ROI) Calculator

Estimate the monetary benefits of implementing the North American Fatigue Management Program either in its entirety or in select components in a customized program, i.e., fatigue management training, sleep disorder screening and treatment, technology deployment, and scheduling tools.

Click on the links below to download the ROI Calculator and User Guide:

Calculator User Guide (PDF)

Calculator Download (Excel)

Access the Complete Training Program Online →

How to get started (PDF)

Improve Driver Safety

Reduce fatigue-related risks, reduce crashes, improve alertness and promote job satisfaction.

Webinars



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Webinars

Webinars and Courses

Register for upcoming live NAFMP sessions and check out previous recordings and slides below.

Upcoming

Access the Complete
Training Program Online →

? How to get started (PDF)

Improve Driver Safety

Questions & Other NAFMP Sessions



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Thank You



Please keep safe, well & alert



CVSA®