Industry Best Practices for Developing a Fatigue Management Program

June 4, 2018
Florida Statewide Transit Safety & Operations Summit

Clear link between fatigue and transit accidents:

NTSB found each of these major transit accidents was caused by operator fatigue:

August 2000 Maryland Transit Administration light rail collision at BWI Airport (17 injuries)

December 2013 Metro-North derailment (4 fatalities, 61 injuries)

March 2014 CTA O'Hare Airport crash (34 injuries)

September 2016 NJT Hoboken Terminal crash (1 fatal, 100+ injuries)

January 2017 Long Island Rail Road Atlantic Terminal crash (100+ injuries)

Overall, NTSB has found fatigue was probable cause in 20% of major accident investigations

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Federal Requirements

Hours of Service & Medical Certification Requirements

Federal Regulations for Medical Certification: FAA, FMCSA, FRA, International Maritime Org.

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FTA Fatigue-Related Requirements

There are **no federal HOS requirements for transit agency employees** unless the transit system is subject to FRA oversight (e.g., commuter railroads)

Medical Certification requirements: FMCSA CDL regulations apply to bus transit agency employees; FRA medical standards apply to commuter railroads; rail transit employees **do not have a federal medical certification requirement**.

FTA **does have federal Drug & Alcohol testing requirements** for safety-sensitive employees (49 CFR Part 655)

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Role of States

States with Hours of Service regulations for transit bus operators:

- California
- Florida
- Illinois
- Massachusetts
- New Mexico
- New York
- North Dakota

There are clearly gaps in the federal safety regulatory framework for public transportation

Some State governments have stepped in to fill these gaps

SSOAs are required to have adequate authority to investigate and enforce safety on rail transit systems

For bus transit systems, there is a wide variety in bus safety legislation

Some State laws simply incorporate federal regulations; others have their own requirements

Great resource: FTA Report No. 78, June 2014, "State of Bus Safety in the U.S.: Summary of Federal & State Regulations."

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Industry Best Practices

In the absence of federal Fatigue Management requirements, examples of industry best practices:

1. TRACS Fatigue Management Program Recommendations

2. APTA Standards
   - *Developing a Fatigue Management Program*
   - *Hours of Service for Rail Operators*
   - *Fitness for Duty Program Requirements*

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TRACS 14-02 Report

TRACS Report 14-02 (7/30/15) "***Establishing a Fatigue Management Program for the Bus and Rail Transit Industry***" recommends that FTA require transit agencies to develop fatigue risk management systems and Hours of Service policies.

TRACS Report is based on Safety Management Systems framework and covers 7 different fatigue management initiatives.

1. Shift schedule analysis & Hours of Service (HOS) policy
2. Employee fatigue awareness & prevention training
3. Fitness for duty medical evaluations & sleep apnea screening
4. Work & vehicle environment design
5. Fatigue monitoring & mitigation in an informed safety culture
6. Incident investigation
7. Data collection & performance measures

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APTA Standard: Fatigue Management Program Requirements *(APTA RT-OP-S-023-17)*

Recommends that all Rail Transit Agencies develop a formal Fatigue Management Program (FMP) covering operators, controllers, and other safety-critical employees.

Consistent with TRACS Recommendations to FTA, but APTA Standard applies to **RTAs only**, rather than rail and bus transit agencies.

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APTA Standard: Fatigue Management Program Requirements

Process to Establish a FMP	Core FMP Elements
FMP Steering Committee	Fatigue considerations in incident investigations
Study current fatigue risk – biomathematical fatigue modeling, surveys, audit of current policies and procedures	Work schedules that mitigate fatigue
Develop FMP policy	Fatigue management education & training
Develop FMP roles and responsibilities	Evaluate fatigue-related absences
Develop implementation timeframe	Consider and evaluate dedicated rest areas
FMP Communication Plan	Sleep disorder screening for covered employees
Monitor and evaluate FMP	Ongoing data collection and assessment, consider using computer-based system that tracks and analyzes fatigue related metrics

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APTA Standard: Train Operator Hours of Service Requirements *(APTA RT-OP-S-015-09)*

Metrics for HOS Requirements	TRACS 14-02 HOS Policy Recommendations	APTA Standard: Train Operator HOS Requirements
Covered employees	Bus and rail vehicle operators, dispatchers, conductors, and controllers	Rail vehicle operators, including operators of revenue vehicles and nonrevenue vehicles operating in mixed service with revenue trains
Maximum daily hours of service ("duty tour")	14 hours	16 hours
Maximum daily on duty time	12 hours	14 hours
Minimum daily scheduled off-duty period	10 hours	10 hours
Consecutive working service days	No more than 6 consecutive days	Not addressed
Minimum days off after consecutive days worked	Not addressed	Directs rail transit system to set a policy for mandatory full days off to break extended continuous work cycles for train operators
Maximum number of hours worked in a week	Not addressed (though discussed at length)	Not addressed

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APTA Standard: Fitness for Duty Program Requirements *(APTA RT-OP-S-018-12)*

Recommends that all rail transit agencies create a formal Fitness for Duty Program for rail operators that includes:

- ✓Identification of applicable positions
- ✓Physical and medical qualifications
- ✓Pre-selection and on-the-job Fitness for Duty requirements
- ✓Routine medical examinations
- ✓Regular Fitness for Duty checks
- ✓Employee responsibility for reporting unsafe conditions
- ✓Employee self-reporting requirements
- ✓Policy for triggering events that require additional fitness assessments
- ✓Training and awareness programs

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Hours of Service - overview

- In absence of federal regulation, agencies have instituted various hours of service policies
- Some are responding to State laws, others to SSOA audit findings, others to meet APTA Standard

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Peer Agency HOS Survey

Informal survey on Hours of Service (HOS) policies was transmitted to members of the APTA Rail Safety Committee in June 2017

Survey questions:

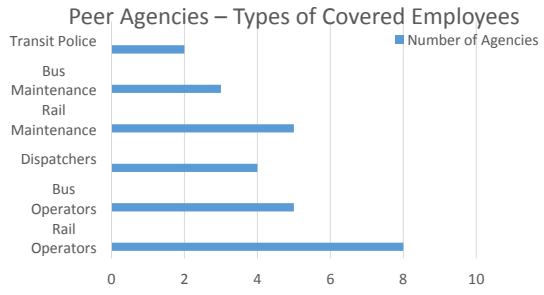
- Does your transit agency have an HOS Policy?
- What are the requirements of your agency's HOS policy?
- Who are the Covered Employees?
- How long has your HOS policy been in place, and is the policy included in your union's collective bargaining agreement?

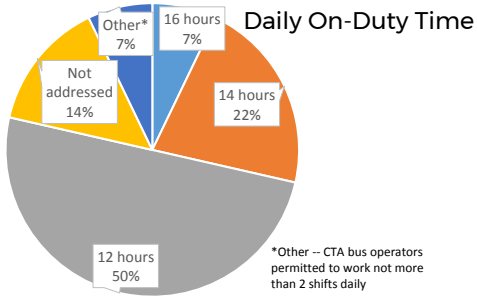
To capture bus transit agency policies, researched State laws requiring HOS limitations for transit bus operators

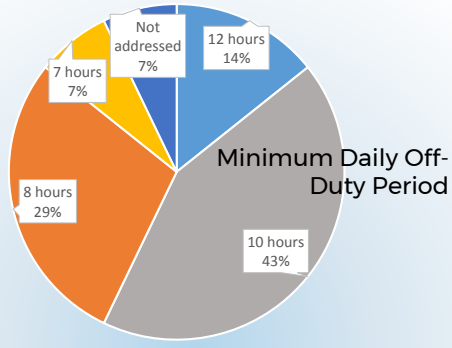
Hours of Service Metrics

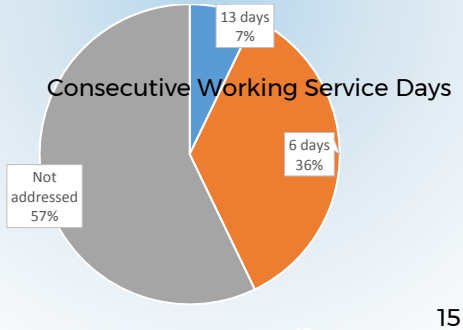
1. Covered employees
2. Maximum daily hours of service ("duty tour")
3. Maximum daily on duty time
4. Minimum daily off duty period
5. Consecutive working service days
6. Minimum days off after consecutive days worked
7. Maximum number of on duty hours in a week

HOS Peer Survey Results (Partial)









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HOS: Policies and Labor Agreements

- HOS Policies should be reflected in Collective Bargaining Agreement
- Highest degree of success if HOS Policy and CBA are amended at the same time
  - *Avoid HOS policy provisions that conflict with existing CBA provisions*
- Groundwork for HOS policies:
  - *Develop policies based on real data, such as biomathematical analysis of as-worked shift schedules*
  - *Have clear recordkeeping and compliance requirements*
  - *Include provisions for temporary suspension of HOS policy under defined "extreme circumstances"*

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Defining "Fitness for Duty"

Fitness for Duty is a broad concept that can incorporate:

- Medical certification
- Drug and Alcohol policy compliance
- Fatigue management

FAA defines Fit for Duty as:

"Being physiologically and mentally prepared and capable of performing assigned duties at the highest degree of safety."

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Medical Certification – Federal Requirements

RAIL TRANSIT

- No Federal requirement for FTA oversight rail transit systems
- Commuter Railroads subject to FRA Reg 49 CFR Part 240
- Applies to locomotive engineers
- Requires eyesight and hearing exams

BUS TRANSIT

- FMCSA Reg 49 CFR Part 391, Subpart E: Physical Qualifications and Examinations
- Applies to CDL Holders
- Requires medical exam and Medical Examiner's Certificate be issued and updated every 2 years

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Medical Certification – APTA Peer Survey

Question: Does your rail transit agency require medical examinations on a recurring basis?

YES

- Miami Metrorail
- New Jersey Transit
- TriMet
- North County Transit District
- Utah Transit Authority
- Boston MBTA
- Houston Metro
- Seattle Sound Transit
- Los Angeles County MTA

NO, OR LIMITED

- Toronto Transit Commission
- Charlotte Area Transit System (upon hiring/return from FMLA)
- Maryland Transit Administration (changes to "Yes" in July 2018)
- Capital Metro, Austin (Not required but has lower-cost insurance program)
- SEPTA (upon hiring or promotion to safety sensitive position)

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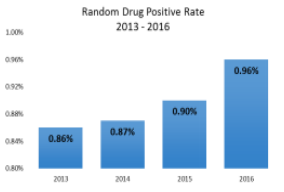
Drug and Alcohol Testing



- Drug and alcohol abuse is both a public safety and personal health concern
- Since 1995, FTA regulations (49 CFR Part 655) require drug and alcohol testing
- The D&A testing program helps transit agencies have drug- and alcohol-free operators driving transit vehicles
- FTA's Office of Transit Safety & Oversight reports that in recent years, the drug positive rate has increased
- The 2016 random drug positive rate was 0.96%, the highest level since 2004

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Sleep Apnea: A Major Cause of Fatigue

- Sleep Apnea affects 12% of U.S. population – more than 20 million
- Obstructive Sleep Apnea (OSA) blocks airways for seconds/minutes at a time, disrupting sleep
- American Academy of Sleep Medicine estimates 90% of OSA patients are undiagnosed
- AASM has found that people with sleep apnea are 2.5 times more likely to be the driver in a motor vehicle accident
- Untreated Sleep Apnea can cause or worsen high blood pressure and pose a risk for heart attack, stroke, hypertension

Sleep Apnea Indicators:

- Morning Headaches
- High Blood Pressure
- Daytime Sleepiness
- Fatigue
- Snoring
- BMI over 30
- Large Neck Size (> 17")

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Best Practice: Screen Employees for Sleep Apnea

- Both TRACS Report 14-02 and APTA Fatigue Management Program Standard recommend screening safety-sensitive employees for Sleep Apnea
- FAA's medical certification process includes OSA screening
- FRA and FMCSA issued a joint draft regulation with OSA screening procedures but rule was withdrawn August 2014
- Some transit agencies have instituted OSA screening:
  - *NY MTA (LIRR and Metro North)*
  - *NJ Transit*
  - *UTA*

Sleep apnea treatment may include using a Continuous Positive Airway Pressure (CPAP) machine

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OSA Screening Tools

Two possible ways to approach OSA Screening:

1. Include OSA Screening in all medical evaluations
2. Focus Screenings on At-Risk Employees for OSA
   - Body Mass Index >35
   - Neck Size >17.5 Inches

Fatigue Risk Survey Tools

- Berlin Questionnaire
- Epworth Survey
- STOP-BANG Survey

STOP-BANG Sleep Apnea Questionnaire

Chung F et al Anesthesiology 2008 and BJA 2012

STOP		
Do you SNORE loudly (louder than talking or loud enough to be heard through closed doors)?	Yes	No
Do you often feel TIRED, fatigued, or sleepy during daytime?	Yes	No
Has anyone OBSERVED you stop breathing during your sleep?	Yes	No
Do you have or are you being treated for high blood PRESSURE?	Yes	No

BANG		
BMI more than 35kg/m2?	Yes	No
AGE over 50 years old?	Yes	No
NECK circumference > 16 inches (40cm)?	Yes	No
GENDER: Male?	Yes	No

TOTAL SCORE		

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How Does My Agency Stack Up?

Some Fatigue Management Considerations:

Medical Certification

Multi-modal and bus-only transit agencies require bus operators to have CDLs, which requires medical certification

Should rail transit operators also be required to undergo regular medical certification?

Hours of Service

Although bus transit operations are subject CDL requirements, they are not automatically subject to FMCSA's HOS regulations

Unless required by State law or agency policy, there is no transit HOS requirement

Does your agency have a HOS policy? Which safety sensitive positions are included?

OSA Screening

Most transit agencies do not have fitness for duty policies that include medical screening and treatment for OSA

A federal requirement for OSA screening is unlikely in near term – will agencies move to implement screening without regulations?

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Thank you!

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