Fatigue Management

Sept 1989

- MORRIS, Ill. -- A fire and explosion ripped through the Quantum Chemical Co. early Tuesday, killing one person and injuring at least 17 others in the second explosion at the plant in three months.
- Turnaround
- Many worked 80-100 hours

2009 Colgan Air Flight

- Colgan Air Flight 3407, operated by Colgan Air, crashed into a house near Buffalo, New York, killing all 49 passengers and crew on board and one person in the house.
- The National Transportation Safety Board (NTSB) investigation concluded that pilot fatigue was a contributing factor.
- The pilots had commuted long distances before their flight and were likely experiencing fatigue, which impaired their performance during a critical phase of flight, leading to the crash.
- Icing conditions. Airspeed decay.

2010 Tesoro Refinery

- April 2, 2010, Explosion killed seven workers.
- The U.S. Chemical Safety Board (CSB) investigation found that fatigue contributed to the accident.
- Operators working 12-hour shifts and the lack of adequate staffing for safe operations were among the factors that led to the explosion.
- The report highlighted that the refinery had a high rate of overtime, and workers often faced fatigue, affecting their ability to operate safely.

2013 Lac Magnetic Rail Disaster

- On July 6, 2013, an unattended 74-car freight train carrying crude oil rolled down a grade and derailed in the town of Lac-Mégantic, Quebec, resulting in a massive fire and explosion.
- Forty-seven people were killed in the disaster.
- The Transportation Safety Board of Canada (TSB) investigation mentioned that fatigue management for employees was a contributing factor.
- Weak Safety procedures
- Train left unattended on main line.
- No hand brakes
- The single engineer responsible for the train had worked a long day, had trouble sleeping and fatigue could have impacted his decision-making and adherence to safety protocols.

March 2020

- Worker did Seven 12’s hour shift
- Forgets to Lockout
- Broken Fingers

Worker Deaths

- 5,486 workers were killed on the job in 2022 (highest in years)
- 2066- Transportation
- 1175 – Workers 55-64 Highest
- 1111 – Workers 45-54
- 1056 – Construction
- 1032 Truck Drivers
- 865 - Falls
- 791 – Violence by Individual
- 431 – Maintenance and Repair
- 525 – Drug overdose at work (record)
- 276 - Suicides

Older Worker Issue

- Showing new workers
- Complacency
- Fatigue
- Medical
- Reaction Time
- Slip, trip falls.

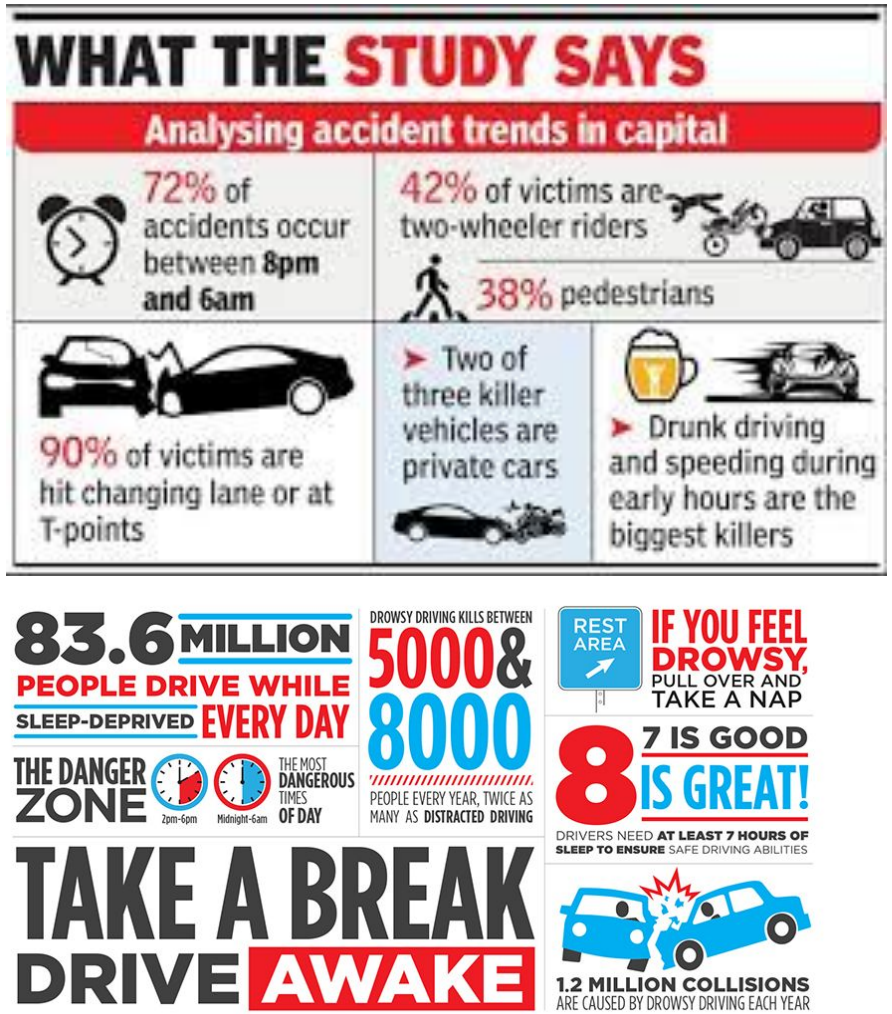
July 2015

- A Santa Fe jury awarded a $165.5 million verdict Friday in connection with a triple-fatal crash west of Las Cruces.
- Fedex driver had been taking medication for sleeping problems related to late-night driving and was driving about 65 mph when she slammed into the rear of the young mother's truck.
- "FedEx Ground had no safety program, no safety manual for danger zone driving nor fatigue,"

Midnight and 6 a.m. — otherwise known in the trucking industry as the "danger zone," when accidents are seven times more likely to occur

Root Causes

- To do so fails to discover the underlying or root causes of the incident, and therefore fails to identify the systemic changes and measures needed to prevent future incidents.
- When a shortcoming is identified, it is important to ask why it existed and why it was not previously addressed

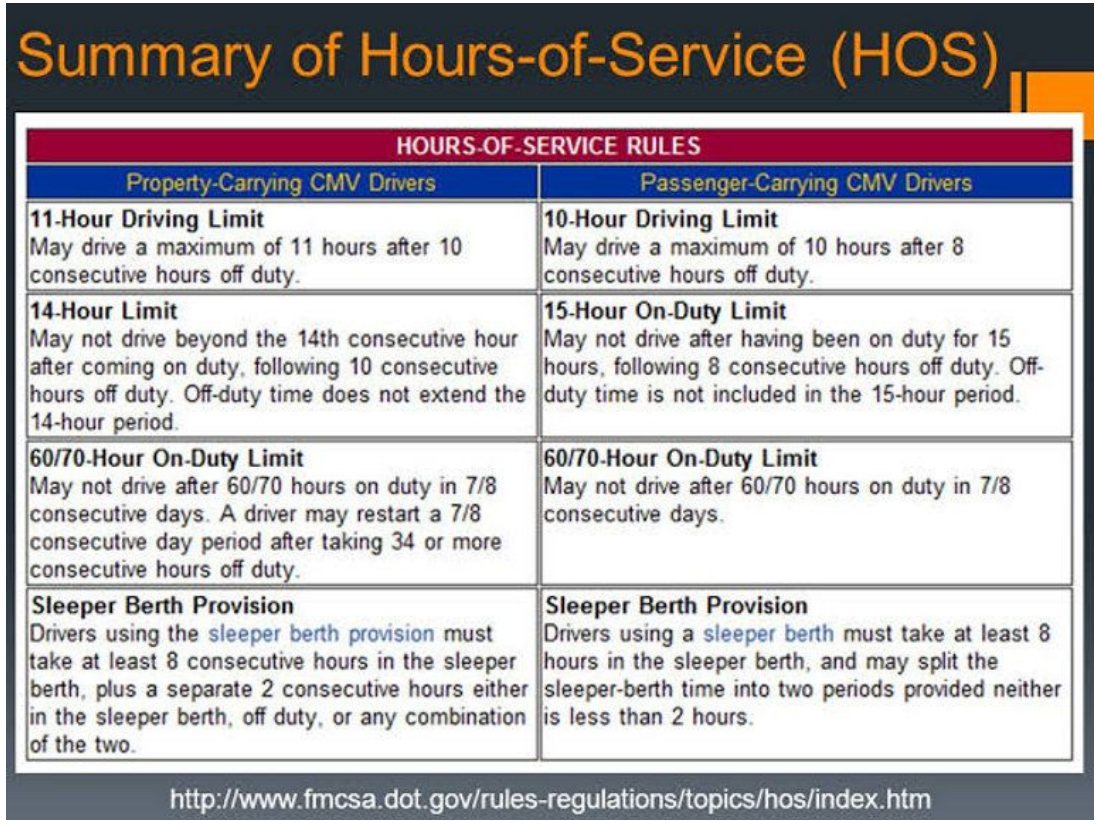


Fatigue Management Program

- Risk Identification and Assessment:
- identifying the factors that contribute to it, such as long working hours, shift work, physically demanding tasks, and inadequate rest periods.
- Assessing these risks involves analyzing work schedules, job demands, and individual worker vulnerabilities to understand where fatigue is most likely to occur.

Fatigue Management Program

- Policy Development and Implementation:
- Developing a clear policy on fatigue management is essential.
- This policy should outline the organization's commitment to managing fatigue, define roles and responsibilities, and establish procedures for reporting and addressing fatigue-related issues.
- It should also include guidelines for work hours, shift patterns, breaks, and rest periods to minimize the risk of fatigue.



Summary of Hours-of-Service (HOS)

HOURS-OF-SERVICE RULES	
Property-Carrying CMV Drivers	Passenger-Carrying CMV Drivers
11-Hour Driving Limit May drive a maximum of 11 hours after 10 consecutive hours off duty.	**10-Hour Driving Limit** May drive a maximum of 10 hours after 8 consecutive hours off duty.
14-Hour Limit May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period.	**15-Hour On-Duty Limit** May not drive after having been on duty for 15 hours, following 8 consecutive hours off duty. Off-duty time is not included in the 15-hour period.
60/70-Hour On-Duty Limit May not drive after 60/70 hours on duty in 7/8 consecutive days. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty.	**60/70-Hour On-Duty Limit** May not drive after 60/70 hours on duty in 7/8 consecutive days.
Sleeper Berth Provision Drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus a separate 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.	**Sleeper Berth Provision** Drivers using a sleeper berth must take at least 8 hours in the sleeper berth, and may split the sleeper-berth time into two periods provided neither is less than 2 hours.

http://www.fmcsa.dot.gov/rules-regulations/topics/hos/index.htm

Fatigue Management Program

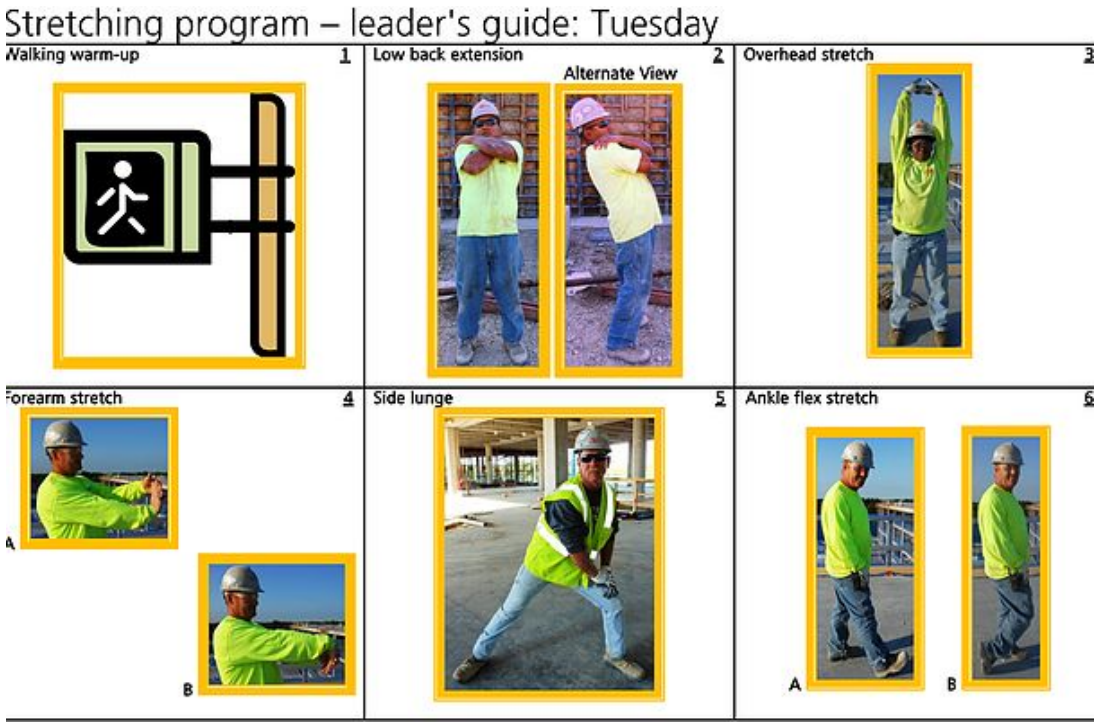
- Education and Training:
- Workers and managers should be educated on the causes and consequences of fatigue, how to recognize the signs of fatigue, and the importance of fatigue management strategies.
- (Weariness, Irritability, Memory Lapses, Headaches, Loss of appetite, More Illness, Less alert)
- Training programs can equip them with the knowledge and skills needed to identify fatigue risks and implement effective countermeasures.

Fatigue Management Program

- Work Schedule Design:
- Designing work schedules that consider human sleep needs and circadian rhythms is crucial.
- Strategies may include limiting night work, rotating shifts forward, ensuring adequate rest between shifts, and avoiding excessive overtime.
- Schedules should allow workers sufficient time for rest and recovery to prevent the accumulation of sleep debt.

Fatigue Management Program

- **Health and Wellness Programs**:
- Supporting worker health and wellness can significantly reduce fatigue.
- Programs that promote healthy sleep habits, physical activity, nutrition, stress management, and overall well-being can help workers maintain their energy levels and improve sleep quality.
- Employers may also provide resources or access to sleep disorder screening and treatment for those struggling with chronic fatigue or sleep-related issues.



Sleep

- 7% of all crashes
- Driver fatigue is believed to cause 100,000 police-reported crashes annually with 1,550 deaths, 71,000 injuries, and $12.5 billion in monetary losses
- Individuals who sleep fewer than six hours a night on average have a 13 per cent higher mortality risk than people who sleep at least seven hours.
- U.S. sustains by far the highest economic losses up to $411 billion a year or 2.26% GDP
- U.S. loses an equivalent of around 1.2 million working days due to insufficient sleep.

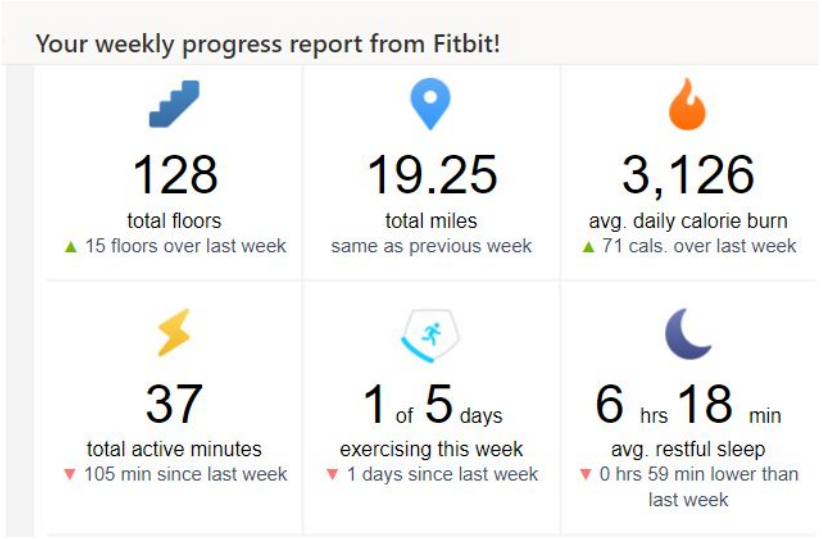
Est. Incidence Rate per Chronobiology

Less than 5 hours – 7.89
5-6 hours – 5.21
6-7 hours – 3.62
7-8 hours - 2.27
8-9 hours - 2.50

Sleep

Individuals could:

- Set consistent wake-up times;
- Limit the use of electronic items before bedtime;
- Eat 2-3 hours before bedtime
- Exercise Regular
- Sleep medication



Sleep Medications

Questions