Asleep at the Wheel:
Fatigue in the Workplace

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Motor Vehicle CRASHES are the #1 cause of workplace death. They don't have to be.

WHAT IS FATIGUE?

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In 2014, a meta-analysis showed…

13% of
work injuries
could be attributed to
sleep problems

What is drowsy driving?

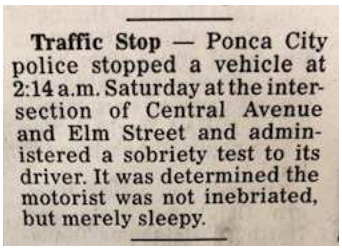
Drowsy driving describes feelings of tiredness, sleepiness, or reduced alertness while driving

THE FACTS:

Drowsy driving is impaired driving

NHTSA: 4 D's of Impaired Driving

Drunk
Drugged
Distracted
Drowsy



Traffic Stop — Ponca City police stopped a vehicle at 2:14 a.m. Saturday at the intersection of Central Avenue and Elm Street and administered a sobriety test to its driver. It was determined the motorist was not inebriated, but merely sleepy.

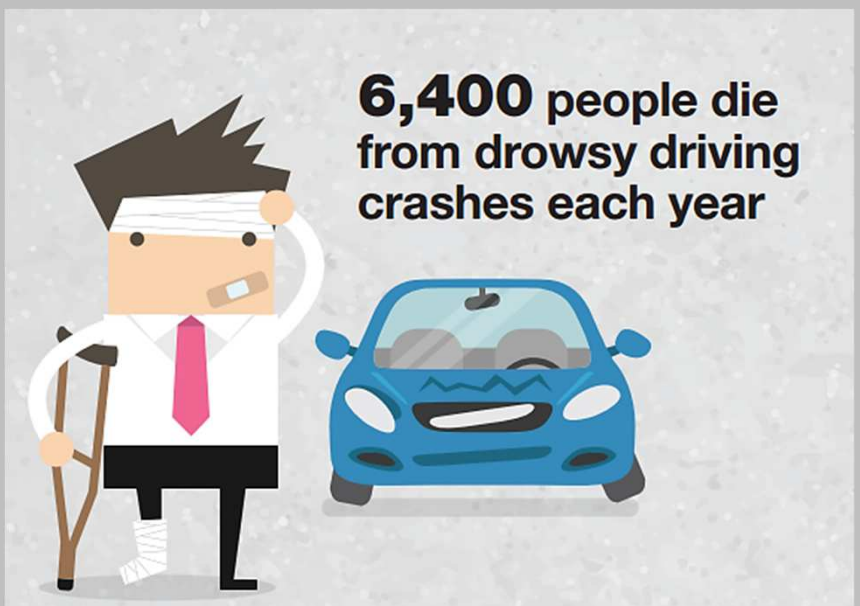
THE FACTS:
Drowsy driving by the numbers

National Transportation Safety Board (NTSB) found drowsy driving was a probable cause in almost 40% of highway crashes they investigated

Marcus, J. H., & Rosekind, M. R. (2017). Fatigue in transportation: NTSB investigations and safety recommendations. *Injury prevention*, *23*(4), 232-238.

Tefft, B. C. (2014). *Prevalence of motor vehicle crashes involving drowsy drivers, United States, 2009-2013*. Washington, DC: AAA Foundation for Traffic Safety.

Driving after sleeping only 4-5 hours has a similar crash risk as driving legally intoxicated at .08



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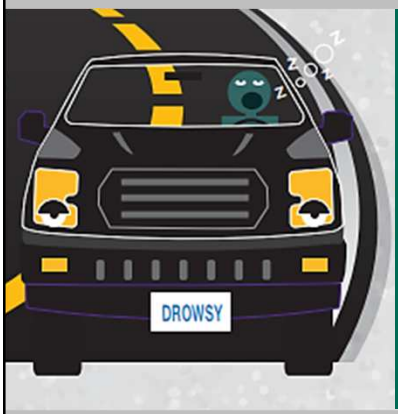
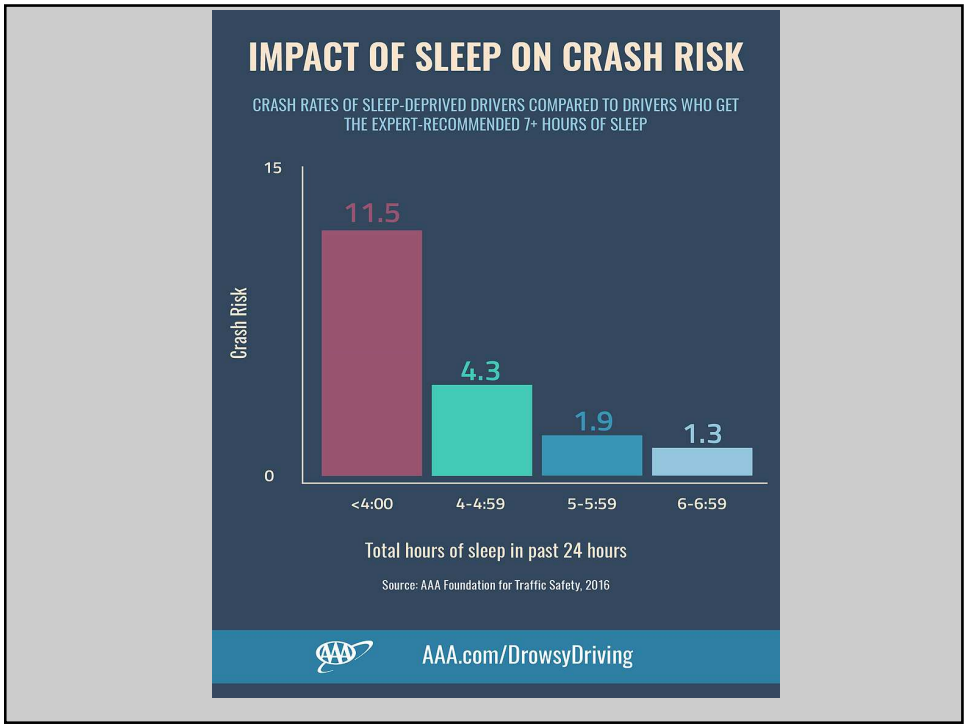


37% of drivers admit to **falling asleep** behind the wheel

National Sleep Foundation (2005). Summary of Findings. 2005 Sleep in America Poll.



Why are we poor drivers when we're tired?

Drowsy driving is impaired driving

Performance effects

- Slower reaction time
- Decreased vigilance
- Decreased attention

Microsleep

- Brain goes “offline”
- Short, unintended sleep episodes

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Drowsy driving is impaired driving

Tired drivers make riskier decisions

Dawson, D., & Reid, K. (1997). Fatigue, alcohol and performance impairment. *Nature*, *388*(6639), 235-235.

Sleep Deprivation

Lack of sleep

Experts recommend
7-9 hours/day

43% of workers are ***sleep deprived***

Up to 90% of **sleep disorders** are undiagnosed and untreated

such as obstructive sleep apnea and insomnia

97%

of employees have risk factors for fatigue

90%

of employers reported being negatively impacted by fatigue

Sleep disorders

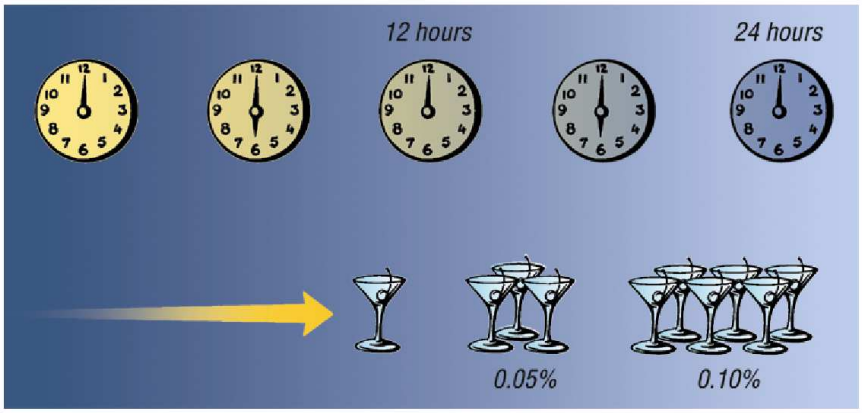
- Obstructive sleep apnea (OSA)
  - (OSA) occurs when a person's airway becomes partially or completely blocked many times during sleep
  - Common symptom: loud snoring
- Insomnia
  - Chronic insomnia is the recurring experience of not being able to fall asleep, waking up frequently after falling asleep or the inability to fall back to sleep

Performance and Time Awake

Time awake

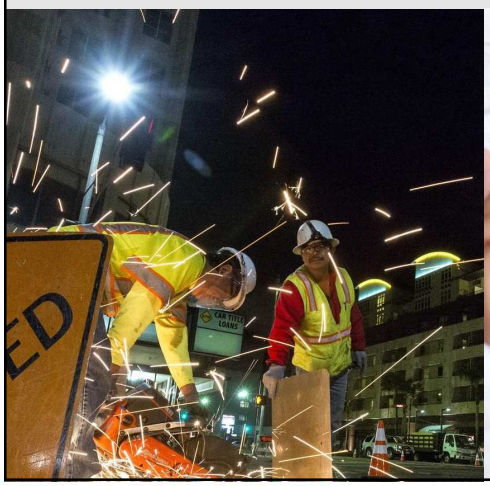
16+ hours reduces performance

Performance and Time Awake



Lamond, N., & Dawson, D. (1999). Quantifying the performance impairment associated with fatigue. *Journal of sleep research*, *8*(4), 255-262.

Circadian Rhythm Misalignment



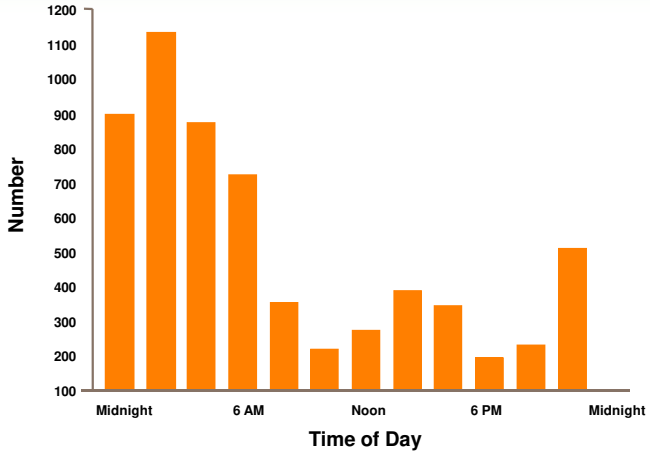
Circadian Rhythm Misalignment

Circadian low:

Increased risk of car crashes between **Midnight and 6 a.m.**

Williamson, A., Lombardi, D. A., Folkard, S., Stutts, J., Courtney, T. K., & Connor, J. L. (2011). The link between fatigue and safety. *Accident Analysis & Prevention, 43*(2), 498-515.

Fatigue Risks and Time of Day



Mitler et al., Sleep, 1988

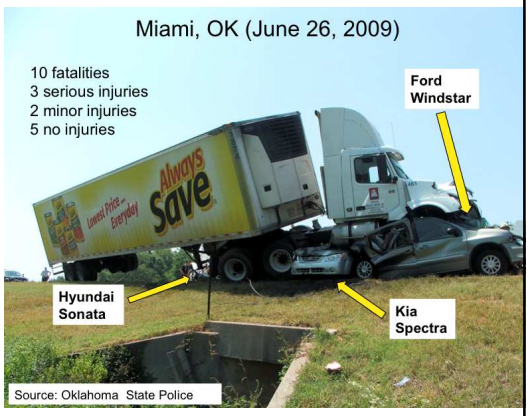
Eliminating Preventable Deaths

31

Drowsy driving is impaired driving

Probable cause:

"…driver's fatigue, caused by the combined effects of acute sleep loss, circadian disruption, and mild sleep apnea, which resulted in the driver's failure to react to slowing and stopped traffic…"



Who's at risk?

- People under 26, especially males
- Shift workers
  - First responders
  - Health care workers
- People who work 60 or more hours a week
- Commercial motor vehicle operators

What are
common signs
of **drowsy driving**?

Signs of drowsy driving

- Drooping, heavy eyelids or frequent blinking
- Yawning repeatedly or rubbing eyes
- Nodding or head bobs

Signs of drowsy driving

- Drifting from lane
- Hitting the rumble strip
- Tailgating

Crash characteristics

- A single vehicle leaves the roadway
- Typically occurs on a high-speed road
- There is no visible attempt to avoid crashing
- Likely no other occupants in vehicle
- Typically during late night hours

How to prevent drowsy driving

Caution:

If you're noticing signs of drowsy driving, you're already impaired – and may have been for awhile

Suggestions for a drowsy driver

If the driver is drowsy…

- Coffee + nap
  - Drink a cup of coffee and take a 20-minute nap
- Long trip? Overnight trip? Stop somewhere to sleep.

Suggestions for a drowsy driver

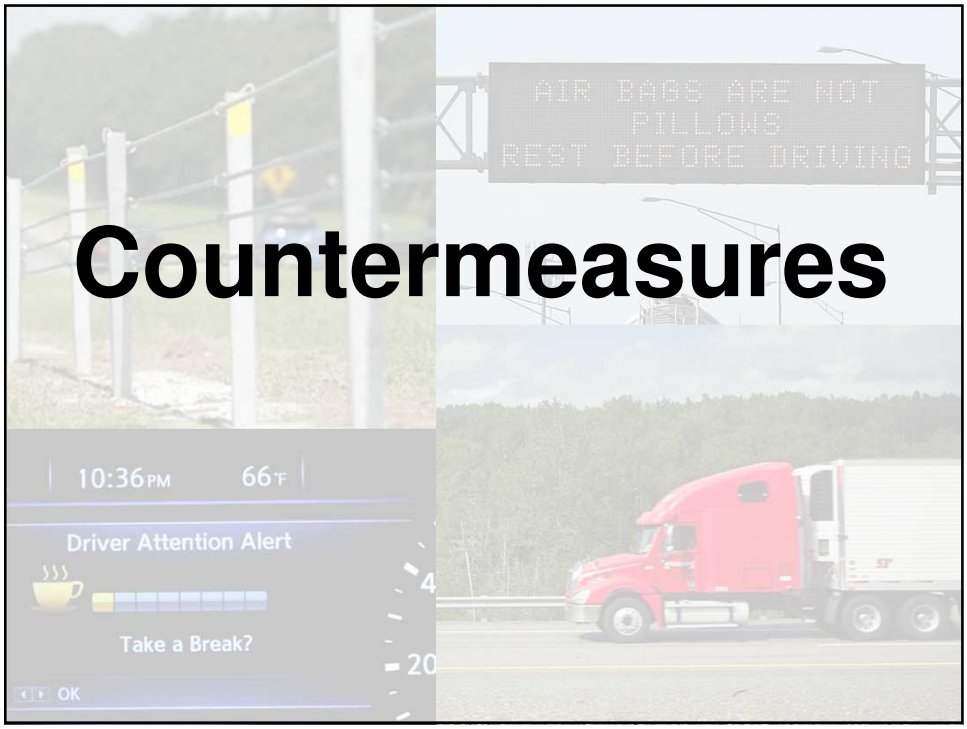
Preventing drowsy driving

- Take a break every 1.5 – 2 hours of driving
- Avoid alcohol or sedating medications
- Limit driving after being awake more than 16 hours, or during night time
- **Get 7-9 hours of sleep every day**

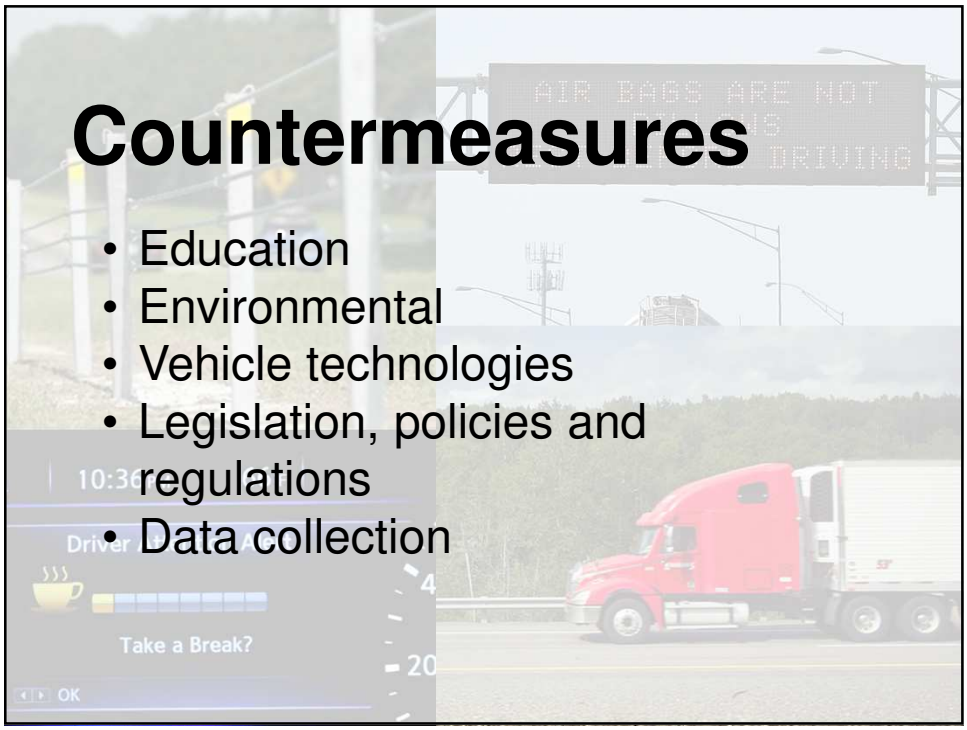
Drowsy driving myths

Drowsy driving myths

- Rolling down the windows
- Turning up the music
- Turning up the AC



Countermeasures



Countermeasures

- Education
- Environmental
- Vehicle technologies
- Legislation, policies and regulations
- Data collection

Education

Education

- Communication and outreach campaigns
- Workplace education
- College and teen education
- New driver training
- Sleep disorder education and screening

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Environmental countermeasures

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- Rumble strips
- Median cable barriers
- Rest areas

Vehicle technologies

Vehicle technologies

Driver assistance technologies include:

- Drowsiness alert
- Lane departure warning
- Forward collision warning
- Crash-imminent braking

The prevalence of drowsy or fatigued driving crashes remains an estimate because the **data is not being accurately or uniformly collected**

It is estimated the prevalence of drowsy driving fatalities is **350% greater than reported**

Barrier to accurate drowsy driving data:

Drowsy status isn't a required field on a crash form

Barrier to accurate drowsy driving data:

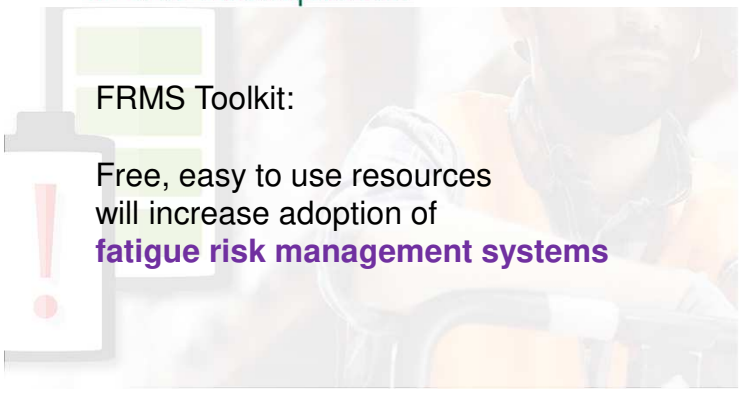
Drowsiness is difficult to determine

Data collection as a countermeasure

- Look for trends in crashes
- Evaluate for contribution of fatigue
- Location
- Tools to evaluate

FATIGUE in the Workplace:

Education for employers



FRMS Toolkit:

Free, easy to use resources will increase adoption of **fatigue risk management systems**

Questions?
Feel free to reach out…

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