

Being Awake is Not Enough

Being Awake is Not Enough!



Mike Harnett
President



Two Types of Fatigue

1. Task Related
Depleting our body's resources either physically, or mentally

The more exertion, the more rest and recovery required throughout and after shift

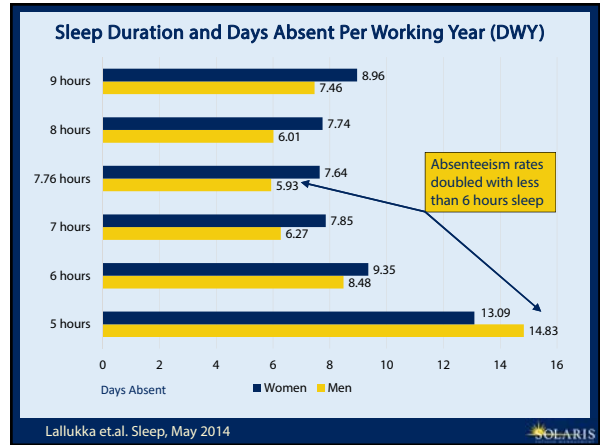




Two Types of Fatigue

2. Sleep Related Fatigue
Inadequate restorative sleep, resulting in ongoing decrements in physical and mental capabilities





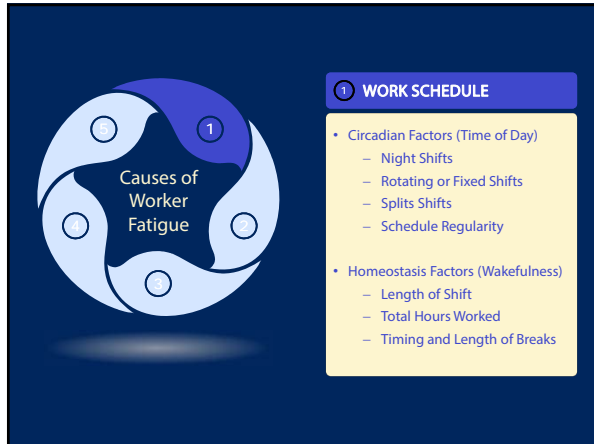
Sleep Loss and Presenteeism



- Productivity loss significantly higher with less than 7-8 hrs of sleep
- Chronic insomnia?
 - 11.3 days of lost work performance
 - 72% higher lost-productivity costs



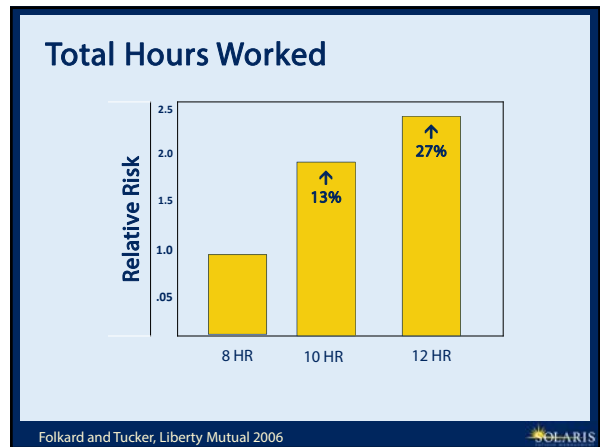
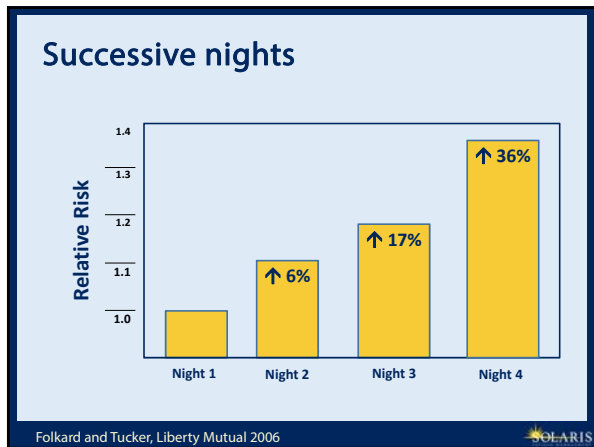
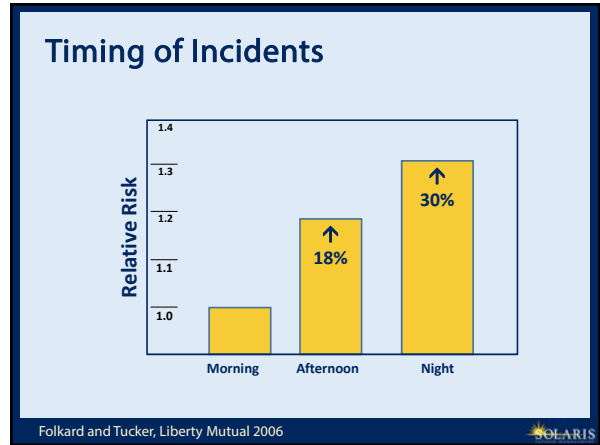
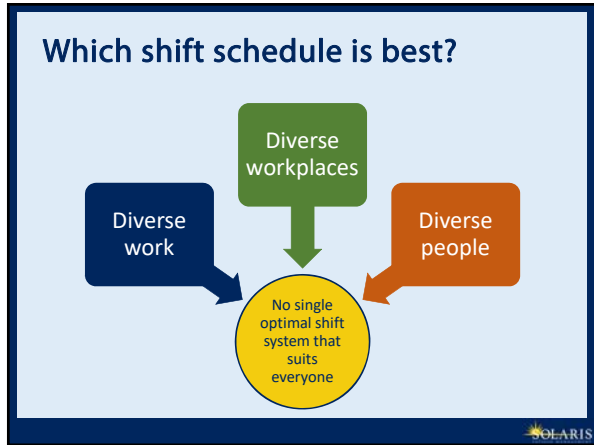

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What is "Shift Work"?

- Work performed outside a regular 40 hour/5 day work week . Includes,
 - regular evening schedules
 - regular night schedules
 - rotating shifts
 - split shifts
 - on call or casual
 - irregular schedule
 - other, non-day schedules


Rotating shift workers get least sleep of all



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Working hours in Canada

- 44,000 companies
- Cdn OT averages versus the world




8-12 hrs/wk (Canada) vs 2-4 hrs/wk (Global)

- 16% of Cdns put in over 15 hrs/week (vs 14% globally)

Regus 2015

Productivity vs Working Hours

- Increasing working hours does not equate to increased productivity
- Output falls sharply after 50 hrs
- At 70 hours, workers produce no more than someone working only 55 hours





Pencavel, J. 2014

Recovery cannot occur if,

Schedules require workers to work,

- beyond 12 hours in a 24 hour period
- beyond 60 hours in a 7 day period

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Duty Time Thresholds

- Working more than...
 - 7 consecutive mixed shifts
 - 3 consecutive night shifts
 - 5 consecutive early shifts (start prior to 6AM)




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Does your schedule promote fatigue?

Fatigue Thresholds
Are more than three consecutive 12 hour night shifts worked?
Are more than six consecutive 8 hour night shifts worked?
Are more than five consecutive early morning starts (before 0600) worked?
Do night shifts require sustained physical or mental efforts?
Are complex physical or mental tasks undertaken on night shift?
Do one or more shifts exceed 12 hours in a 24 hour period
Do hours of active work (total time spent at work including overtime) exceed 48 hours in any five days, 60 hours in any 7 days?
Are there irregular and unplanned schedules as a result of call outs?
Do any shifts start or finish between the hours of midnight and 6am?
Are split shifts required?
Are there sufficient and regularly scheduled breaks?

Causes of Worker Fatigue



- ② WORK DEMANDS
 - High Physical Demands
 - High Cognitive Demands
 - Low Cognitive Demands

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Physically Demanding Tasks



- Address through ergonomics e.g., reducing lifting requirements; implementing job rotation
- Physical fatigue = shortcuts







Cognitive Demanding Tasks

- More choices or decisions, more taxing
- Fatigue = shortcuts e.g., acting impulsive /reckless

e.g., saving mental energy by doing nothing/ducking decisions



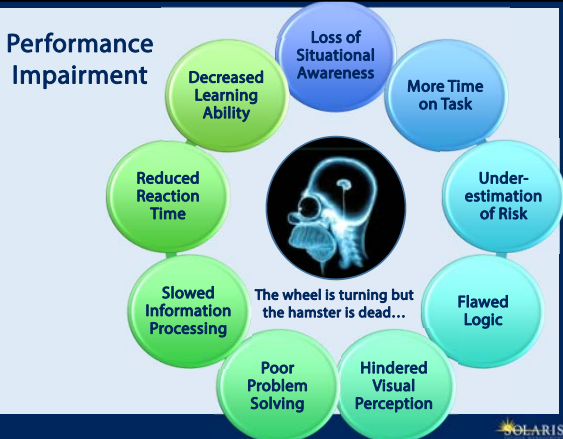

Cognitively Unengaging Tasks

- Deterioration after 20-30 minutes
- Microsleeps!

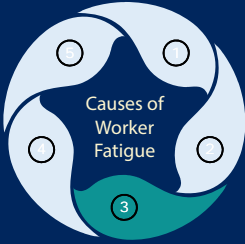




Performance Impairment





Causes of Worker Fatigue




3 WORK ENVIRONMENT

- Lighting
- Noise
- Temperature
- Vibration
- Air quality and ventilation



During Daytime Hours

Traditional white light disrupts rhythms most



Blue enriched white light best at improving,

- alertness
- moods
- work performance
- fatigue in the evening
- irritability
- concentration & focus
- eye strain
- sleep at night



Surrey Sleep Centre at the University of Surrey, UK 2008, 2013



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4 PSYCHOSOCIAL FACTORS

- Situational stressors
 - Emergency response
 - Dealing with public
- High Demand/Low Control
 - Tight timelines or deadlines
 - Excessive responsibilities

5 PERSONAL FACTORS

- Sleep hygiene
- Sleep disorders
- Medical conditions
- Lifestyle factors
 - Family/social responsibilities
 - Second jobs
 - Commute factors
 - Exercise
 - Nutrition
 - Stress

Organizational Leadership

How are YOU managing fatigue?

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Myths that Guide Organizations

- Sleep and wakefulness is controllable by workers
- Worried about perceptions
- Still confuse sleeplessness with vitality and high performance

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Part of the Problem is...

- Employees afraid to admit or talk about it
- Employees never been asked
- Not collecting metrics!

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PERFORMANCE

Drugs & Alcohol Fatigue Physical Health Mental Health

FIT FOR DUTY PILLARS

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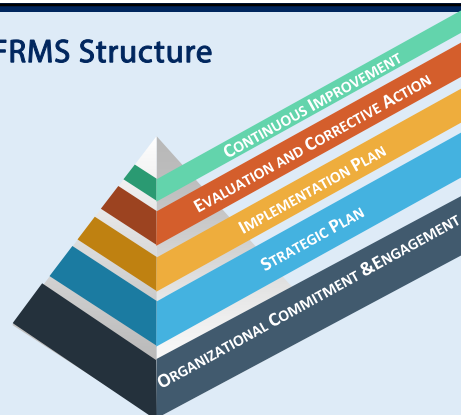
Strategic Approach: FRMS

Fatigue Risk Management System (FRMS)

- Supportive framework for your program
- Clearly identifies the purpose of your program
 - what it will look like
 - how it will be run
 - how it will remain viable
- Looks for flaws in the system!
- Used in
 - larger organizations
 - where safety sensitive work exists



FRMS Structure



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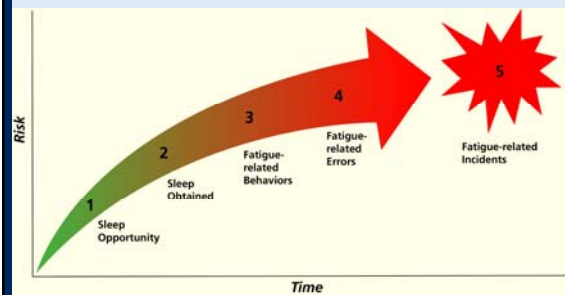
Tactical Approach: FMP

Fatigue Management Program (FMP)

- Specific tactical approaches to manage fatigue
- Short duration initiatives
- Good for smaller employers or where there are no safety sensitive positions (e.g. tech industries)



Fatigue Risk Trajectory



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LEVEL 1 ASSESSMENT

- Sleep Opportunity
 - Review of work hours including extra-work, on-call, and overtime
 - Workload analysis
 - Commuting and travel management plan
 - Fatigue Modeling

LEVEL 2 ASSESSMENT

- Sleep Obtained
 - Worker survey
 - Physiological monitoring Actigraphy, Fitbits
 - Sleep disorder screening
 - Review benefits program
 - Lighting evaluation
 - Employee education



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LEVEL 3 ASSESSMENT

- Fatigue Related Behavior
 - Self-Assessment
 - Supervisor training
 - Procedures for rest/recovery
 - Mechanism for reporting fatigue
 - Detection and monitoring technologies



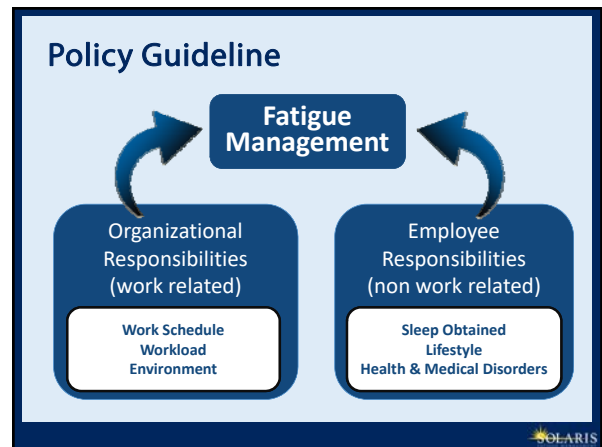

LEVEL 4 ASSESSMENT

- Fatigue Related Errors
 - Shift handover protocols
 - Procedural checklists
 - Error analysis system
 - Assess work tasks during circadian lows



LEVEL 5 ASSESSMENT

- Fatigue Related Incident - Incorporate fatigue related questions into investigative procedures to determine
 1. Was the individual fatigued at the time of the incident?
 2. Did the individual's fatigue contribute to the incident?



Thank you!



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	• Fatigue Risk Assessments
	• Program Guidance and Development

