

Chapter 19

Shift work, fatigue and hours of work



The hazard

The need for sleep is the body's second most powerful urge - breathing is the most powerful, luckily. As sleep is essential to the proper functioning of our bodies, the timing of our waking hours has a big effect on our health and wellbeing. Night shift, afternoon shift and rotating shifts all interfere with the body's urge to sleep.

The body has an "internal alarm clock" - called the circadian rhythm - which tells the body when to sleep, when to wake up and when to eat.

Work related fatigue can result from long daily hours of work, lack of rest days and shortened or poor-quality sleep. Shift work can be a significant contributor to fatigue. Keeping busy or socially active may keep a person awake but it does not remove the fatigue. Sleep is the only remedy for fatigue.

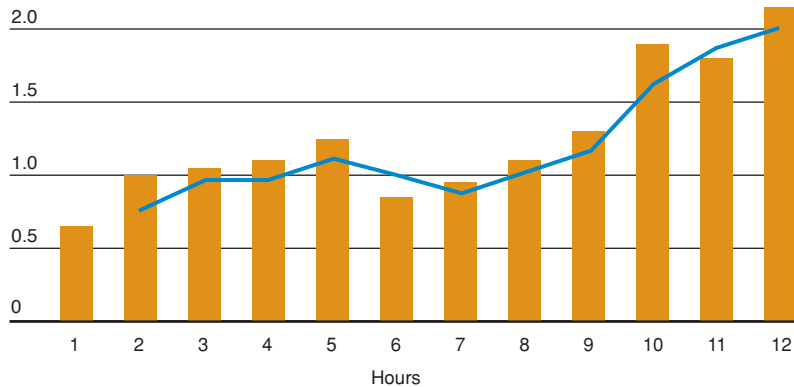
Managing to get enough good quality sleep is often difficult, especially for night and Fly in Fly out (FIFO) workers. Most night workers do not sleep before the first night shift. Our body is designed for night sleep; sleeping during the day is not very restful and disturbances such as noise and light are more common during the day.

Hours of work are a health hazard:

- After 17 hours of continuous wakefulness, alertness is similar to 0.05% blood alcohol reading and for 24 hours of wakefulness, alertness is similar to 0.1% blood alcohol. This means hours of work and shifts schedules are as important for safety as not being under the influence of alcohol at work.
- Overtime schedules have the greatest risk of injury or illness, followed by extended (more than 12) hours per day and extended (more than 60) hours per week.
- The risk of injury increases with the length of the work schedule.

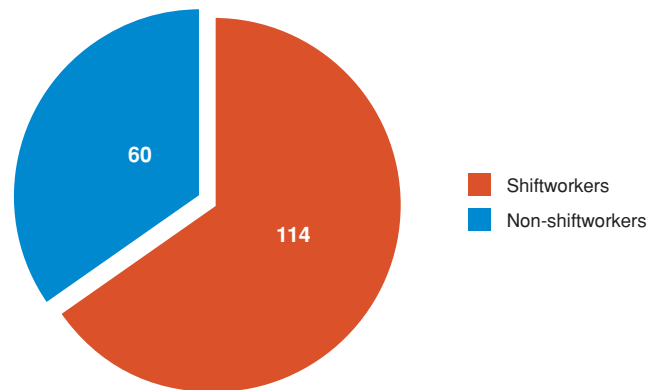
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Risk of injury and shift length



Time of day worked: Shift work disrupts sleep and increases the likelihood of fatigue. Australian surveys show that shift workers have more injuries than non-shift-workers.¹

Injuries per 1000 workers

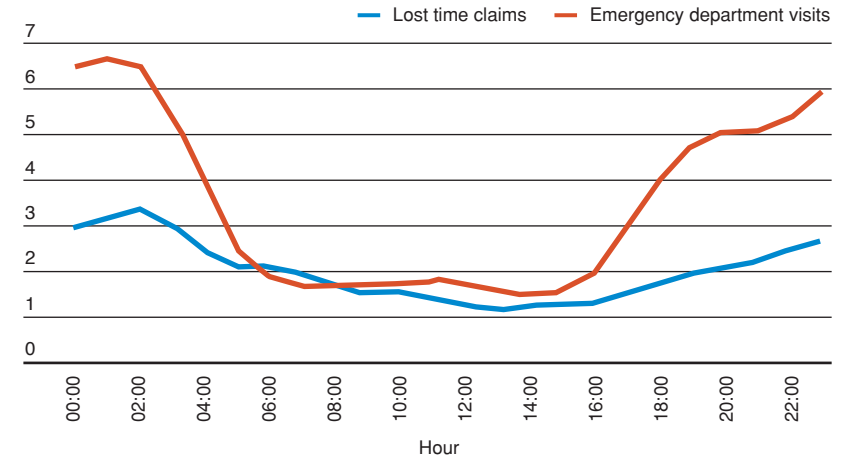


¹ Safe Work Australia: *The Impact of shiftwork on work-related injuries in Australia*, August 2009

Canadian data shows the risk of injury increases with the number of hours worked. Using visits to a hospital and workers' compensation claims show an increased risk of injury was for all types of work - manual, mixed and non-manual occupations.²

Distribution of work injuries in Ontario across the 24-hour clock

Rate per 200,000 hours worked



Important facts about sleep:

- Between seven and eight hours sleep per night
- Less than six hours sleep over a few nights generally results in impairment
- More than 16 hours of being awake can result in impairment
- Loss of one night's sleep needs more than one, nine-hour sleep to recover
- The length of being awake in any 24 hours, should not exceed the total amount of sleep in the last 48 hours.

The health and safety effects of fatigue and shift work are:

- An increased likelihood of sleep disturbances: particularly for night workers and those starting before 6 am. The impairment in alertness and performance after 17 hours of sustained wakefulness is similar to a blood alcohol level of 0.05%: for 24 hours, impairment is similar to 0.1%
- An increased likelihood of accidents due to poor concentration, slower reaction times, impaired judgement of performance, increased lethargy etc.

² Mustard C et al. 'Work injury risk by time of day in two population-based data sources', *Occup Environ Med* 2012, published online September 26 2012.

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The risk of accidents:

- Increases with the number of consecutive nights - compared with the first night shift, the risk of accident is increased by 36% on the fourth night.
- Increases with the number of hours worked on a shift: the risk of accident in the 12th hour is nearly double that of the average risk over eight hours.
- Increases across the shifts e.g. from morning to afternoon to night shift.
- Some studies show an increased risk of heart attack e.g. working more than 60 hours, having less than two days off work per month or having less than five hours sleep on two or more days in a week.
- Other studies have shown that night workers are more likely than day workers to be exposed to working conditions linked with heart disease e.g. noise, heat, passive smoking, monotonous work and work where the worker has little say in how the work is done. Australian research has shown that men who work long hours are more likely to be smokers - a well-known risk for heart disease.
- Studies have also shown a link between gastrointestinal disorders, poor mental health and increased risk of premature births in shift workers. Recently, the International Agency on Cancer listed night work as possibly causing breast cancer.

The Regulations

Although sleep is “essential” to health, there are no health and safety laws or regulations that cover the length or timing of shifts or work hours. As the length of hours at work and certain shift patterns increase the risk of accidents, PCBU/employers have a clear obligation to consider and control the risks of fatigue and shift work.

Shift arrangements need to allow time for sleep. The time taken to commute to and from work limits the amount of sleep time available.

There are guides on the prevention of fatigue but no Codes. HSRs and delegates need to work together to get the best shifts for everyone as **shifts, fatigue and hours of work have both industrial and health and safety implications.**

The best shifts

When designing a shift roster the health and safety risks must be considered; just like with any other workplace hazard:

- Limit the number of consecutive evening or nights shifts to three (3): this improves sleep and reduces fatigue
- **Avoid permanent night work** as our body clock never adjusts and day sleep is of both poorer quality and shortened duration
- Ensure at least two consecutive days off, twice a month
- Limit weekend work
- Limit the number of hours worked per shift

- **Overtime on 12-hour shifts is dangerous** - limit the number of consecutive 12-hour shifts
- Rotate in a forward direction: morning, afternoon, night
- Avoid starts before 6.00 am
- Ensure adequate breaks are taken during the shift e.g. two half hour breaks on 12-hour shifts.

Remember

Shift work and longer hours of work increase the risks from heat, manual handling, hazardous chemicals, noise etc.

Workers on 12 hour shifts and FIFO workers are often tempted to add extra shifts at the end and start of their rostered shifts. These practices greatly add to fatigue. The general principles about shifts particularly apply to these types of roster systems.

Workers on shifts need representation through HSR and delegates. Often, it's out of sight, out of mind for management. Health and safety risks often get ignored when they occur out of office hours.

Hours of work – consultation

As shift work affects the health and safety of workers, PCBUs/employers have an obligation under health and safety laws to consult with Health and Safety Representatives and workers about the shift design – this includes any change in, e.g. length of shift or addition of overtime requirements.

Workers having a say about the type of shifts, start times and days off, does decrease fatigue and work absences, and improve productivity and work life balance.

See the **AMWU Health and Safety Guidelines for Shift work and Extended Working Hours:** www.amwu.org.au/content/upload/files/campaigns/OHS/Workplace_Alerts/AMWU_Guide_to_Shiftwork_2009.pdf