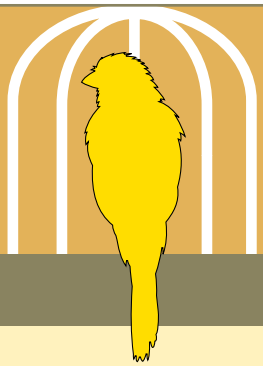
Shift work

HEALTH AND SAFETY FACT SHEET

CUPE Canadian Union of Public Employees



Shift work can be hazardous to workers' health. Many important public services are delivered 24 hours a day, seven days per week, requiring some CUPE members to work in shifts. Frontline CUPE workers are critical to the health and safety of the public. We can do things to lessen the negative health impacts of shift work without compromising services.

Shift work is defined as any arrangement of daily working hours other than the standard daylight hours (7/8 a.m. – 5/6 p.m.) Shift work can include rotational shifts, continuously working the same shift, and extended workday hours that may or may not include weekends. One in four North American workers work shifts. In Canada, 11 per cent of workers work rotating shifts, six per cent work regular evening shifts and two per cent work regular night shifts.[1] Although not commonly thought of as a hazard, shift work can have a significant negative impact on the health and safety of workers.

CUPE members who work shift work include:

- Health and long-term care workers such as hospital and nursing home staff.
- Protective service workers such as police, fire fighters, paramedics and security staff.
- Energy sector workers at power plants and line service workers.
- Transportation service workers such as flight attendants and bus drivers.
- Municipal workers such as snowplough operators and garbage collectors.
- Social service workers, including those who work in shelters and clinics.

Effects of shift work

The effects of shift work were recently reported by the International Agency for Research on Cancer (IARC). The report stated that shift work that disrupts circadian rhythms is probably carcinogenic to humans (Group 2A). The link between cancer and shift work is not fully understood, but is believed to be related to the disruption of the release of human hormones, specifically melatonin.

Circadian rhythms are physical, mental and behavioral changes that follow an approximate 24-hour cycle. Circadian rhythms are prevalent in many living organisms and are enforced primarily by light and darkness cycles in the environment. Melatonin is secreted when it is dark, which normally would align with the time people are sleeping.

The IARC report states, "the production and release of nearly all hormones exhibits a circadian timing patterned on approximately a 24-hour cycle. Agents that disrupt the circadian rhythm may therefore alter hormone levels."[2] The IARC report concludes that shift workers who experience disruption of the circadian system that is caused by exposure to light at night and altered sleep patterns, probably have an elevated risk of breast cancer, and a potentially elevated risk of colorectal cancer.

Other negative effects of shift work include:

- Disorders of the gastrointestinal tract including heartburn, indigestion, stomach aches, and even colitis, gastroduodenitis, and peptic ulcers.
- Disorders of the cardiovascular system (hypertension, ischaemic heart diseases).

- Metabolic disturbances.
- Increased workplace accidents associated with worker fatigue and less support from co-workers and supervisors during non-daytime shifts.
- Sleep disruption, sleep deprivation and chronic fatigue resulting from a lack of both the quality and quantity of sleep. Daytime sleep is seldom as deep or refreshing as night-time sleep.
- Negative impact of fetal growth in pregnant women resulting in low birth weight.
- Anxiety and depression can result from social isolation, sleep disruption and sleep deprivation.
- Disruption in family or personal life result as time available to spend with spouses, children, friends, and on leisure activities is diminished or inconsistent.

Other factors that make shift work hazardous to workers include:

- Low staffing levels or working alone, especially during the night shift.
- Shifts that last too long and unnecessary overtime.
- Morning shifts that start too early (before 6:00 a.m.)
- Low alertness in the early hours of the morning (3:00 a.m. to 5:00 a.m.)
- Split shifts that don't allow for recovery time.
- Improper and mismanaged scheduling.
- Inadequate training by employers on the additional dangers of shiftwork.

Strategies to counter the effects of shift work

Individuals who work shifts encounter a variety of issues resulting from a change in eating, sleeping and working patterns. Strategies that workers can adopt include:

- Recognizing that shift work is a health and safety hazard and getting actively involved in the design and management of the shifts. Designing shift schedules that take both worker and service user needs into consideration with the goal of designing shift schedules that allow workers to suffer fewer negative health effects from shiftwork.[3]
- Employing a rapid shift rotation where workers work two or three days, then two or three nights, then have time off. This rotation both reduces the disruption to the circadian rhythm and allows the workers to maintain some aspects of their regular social interactions.[4]
- Negotiate adequate rest periods for shift workers. Eliminate split shifts and night time work where possible (but also be careful about working alone).
- In the case of rotational shifts, have the shifts rotating forward from day to afternoon to night because circadian rhythms adjust better when moving forward than backward. Avoid having early morning shifts that start before 6 a.m. as they are associated with less sleep and increased fatigue.
- Having 20-30 minute naps while on breaks, especially during night shifts helps to alleviate fatigue and compensate for sleep loss, and decreased blood pressure and heart rate.
- Regular physical activity facilitates sleep and improves its quality. It also decreases the feeling of fatigue while increasing alertness, vigour and energy.
- High quality meals and snacks, while avoiding high fat, high carbohydrate, sugary and processed foods will prevent energy levels from dropping and minimize sleep cycle disruption.

Where onsite cafeteria services exist, ensure that meal options are reflective of the needs of shift workers.

- Limit the use of stimulants such as caffeine, nicotine and alcohol – especially before bed time.
- Request that your employer have a dedicated rest area that is as dark and as quiet as possible. Rest at work may require the use of a sleeping eye mask or additional window coverings.

Actions

Since many important public services are delivered 24 hours a day, seven days per week, it may not be possible to eliminate shift work from your workplace. There are however steps that can be taken to reduce the impacts. Shift work hazards largely centre on issues of control over work. The following actions can help combat shift work hazards:

- Refuse unsafe working conditions and unnecessary overtime.
- Put shift work hazards on the health and safety committee agenda.
- Demand that employers take action to improve work organization, working conditions, scheduling and equipment that cause shift work hazards.
- Stipulate adequate rest periods and meal breaks at work.
- Use the best scheduling cycle, which is usually a forward rotation starting with morning to evening to night shifts with no shift longer than eight hours.
- Eliminate split shifts, which are comprised of two or more separate working periods during a workday, and enforce standard and predictable shift patterns.
- Reduce night work as much as possible.
- Increase staffing levels and worker input into scheduling with union involvement.
- Negotiate flexible child care for shift workers.
- Request access to nutritious food in the workplace.
- Consider family and transportation needs of workers.
- Ensure that night shifts never exceed eight hours.

Shift work hazards should be eliminated wherever possible. Where elimination is not possible, shift work hazards should be controlled. Work organization and well-planned scheduling should take priority to control shift work hazards.

Blue light and melatonin suppression

Disruption of melatonin is a potential factor that may lead to cancer. However, much research has shown that a disruption in the production of melatonin may also affect sleep patterns. Many artificial light sources (lights, electronic devices etc.) produce light that is shorter in wavelength (the blue side of the light spectrum). Recent research has suggested that this blue light has an effect on the production of melatonin.[5]

Blocking blue light though the use of glasses with amber-tinted lenses has been shown in several studies to be extremely effective in reducing the melatonin-suppressing effects of intense or blue light.[6] Amber tinted lenses may help night and evening shift workers have a more restful sleep, especially if used in the hours before workers finish their shift and go to sleep.

Strategies for change

The strategies outlined below complement the actions listed above. Shift work hazards can be eliminated through the following:

- Keep shift work issues on the health and safety committee agenda until they are resolved.
- Demand that employers obey health and safety, and labour standard laws and regulations around proper shift work scheduling.

- **Lobby government for shift work regulations that ensure workers are able to achieve proper work/rest cycles.**
- **Where legislation does not provide for specific controls, monitoring, or access to information about shift work hazards, the union can negotiate collective agreement language that reflects the protection of members.**
- **Put the issue of shift work hazards, rest and break periods, and increased vacation time for shift workers on the bargaining table.**
- **Create a shift work policy for CUPE workplaces starting with the premise that shift work is a health and safety hazard, and that all steps should be taken to prevent the hazard.**
- **Collective job action around the issue of shift work.**

Conclusion

Employers have a responsibility to provide a healthy and safe workplace. Removing and managing hazards associated with shift work requires the participation of workers and health and safety committee members. Through education and activism, shift work hazards can be mitigated.

1. http://www.iwh.on.ca
2. http://monographs.iarc.fr/ENG/Monographs/vol98/mono98-8.pdf
3. Dr. Robert Whiting, from the Canadian Centre for Occupational Health and Safety Podcast, Preventing Health Risks Associated with Shiftwork, Aug. 19, 2014.
4. Brainard G, Hanifin J, Greeson ., Byrnel B, Glickman G, Gerner E, Rollag M; "Action Spectrum for Melatonin Regulation in Humans: Evidence for a Novel Circadian Photoreceptor," *The Journal of Neuroscience* (2001) 21 (16):6405–6412
5. Sasseville A, Paquet N, Sévigny J, Hébert M., J.; "Blue blocker glasses impede the capacity of bright light to suppress melatonin production." *Pineal Research.* 2006 Aug; 41(1):73-8.
6. Wood B, Rea MS, Plitnick B, Figueiro MG; "Light level and duration of exposure determine the impact of self-luminous tablets on melatonin suppression." *Applied Ergonomics.* 2013 Mar; 44(2):237-40.

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