

Editorial

From “shift work that involves circadian disruption” to “night shift work”

The year 2007 was recognized in the shift work field as an epoch-making period in which the International Agency for Research on Cancer (IARC) categorized “shift work involving circadian disruption” as probably carcinogenic to humans (Group 2A)¹. Twelve years later, 2019 has also become an important year, as the IARC changed the terminology of this type of exposure to “night shift work”, following which it then decided to classify it again as Group 2A². Night shift work is defined as working either at night, or as working in a job that involves rapidly crossing many time zones (such as that performed by airplane pilots or cabin crews).

Exposure assessment studies are vital in characterizing the health risks associated with exposure to carcinogenic agents. Most of the Group 2A agents are able to be measured objectively, however in contrast, the “toxicity” of night shift work is harder to determine. No criteria are defined to understand how a given shift schedule can influence health in terms of carcinogenicity. A variety of exposure metrics studied in the past result in large inconsistencies in previously reported findings, and these limitations should be addressed more carefully in the near future. A standard set of guidelines for an exposure assessment to night shift work would therefore be expected to promote research and management in this area, and a prototype of this has been produced in the IARC Working Group Report³.

Every country has a large number of individuals who engage in night shift work as part of their duties (20–25% of the workforce)⁴. This type of shift is known to affect the physical, mental, and social functioning of individuals, and to elevate the likelihood of detriment to health, safety, and well-being^{5, 6}. The current classification by the IARC draws additional, serious attention to the danger of night shift work, implicating it as a probable cause of cancer.

Usually, it appears to take 20 to 30 years from the start of night shift work for the onset of cancer development in the breast, prostate gland, or colorectal segments. During the preceding years, several preventative actions are recommended for both implementation by occupational

health and safety professionals as well as for night shift workers themselves^{7, 8}. At the organizational level, the potential list of measures includes training and education for shift work, adequate design of shift schedules, avoidance of long-term exposure to night shift work, health and safety monitoring, and sleep and nap management. At the individual level, people required to perform shift work are encouraged to maintain a healthy lifestyle, as well as to get sufficient sleep during both shift intervals and on days off. In any event, measures to reduce cancer occurrence among night shift workers need to be implemented, in addition to steps towards the prevention of cancers due to well-known occupational exposure factors; these include the more well-known cancer caused by asbestos⁹ as well as more recently identified types of occupational cancers caused by exposure to chlorinated organic compounds (1,2-dichloropropane, dichloromethane)¹⁰ and aromatic amines (*ortho*-toluidine)¹¹.

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