

Research brief: New workers' exposure to carcinogens on the Job

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Background

In today's labour market, it is common for workers to move from job to job over the course of their working life (1,2). This turnover increases the number of times a worker is new on the job. New Canadians, including immigrants and refugees, are also considered new workers. While there is a substantial body of research demonstrating increased injury rates among new workers (2–5), there is a lack of evidence regarding occupational illness caused by either acute or chronic exposure to harmful substances, including carcinogens.

This research brief summarizes why increased injury rates may be correlated with increased carcinogen exposures in new workers, outlines the additional occupational health and safety risks that new immigrants in particular may encounter, describes the new worker population in Canada, and relates CAREX Canada data on occupational carcinogen exposures to the new worker population.

Is there a correlation between injury rates and carcinogen exposure?

It is well-known that new workers have significantly higher injury rates compared to those who have been in their jobs for longer periods (2–5). One key study that examined the relationship between job tenure and lost-time claims found that compared to workers with over one year in their current job,

workers with less than a month of tenure were four times as likely to have a lost-time claim (5). Newness, and not necessarily age, was a key factor in injury risk, as older-aged new workers had an increased risk compared to younger-aged new workers. As new workers gained experience, young workers' claim rates decreased faster than older workers. The authors hypothesized that older workers may assume they can handle hazardous conditions because of previous work experience. This reasoning may also apply to workplace exposures.

Another study based in Italy found that even if workers had previous experience in their field, those with job tenures of less than six months were at higher risk of injury compared to those with a job tenure of over two years (2). Additionally, previous job experience only provided protective benefits for those older than 30 years of age. If previous work experience does not protect workers from injuries, it is possible that it also does not protect workers from exposure to occupational carcinogens.

Other factors linked to injuries include (3):

- Lack of understanding of the workplace
- Inexperience
- Limited knowledge of workers' and rights and responsibilities (including the right to refuse unsafe work)
- Reluctance to ask questions
- Lack of preparedness

- Exposure to more dangerous jobs (that most experienced workers are more reluctant to take)
- Insufficient training, supervision, or orientation

These factors may also be linked to an increased risk of carcinogen exposures. For example, new workers with inadequate training may not know the hazards associated with a chemical they work with or strategies to mitigate the risk, such as the proper protective equipment they should be wearing while handling the chemical.

Immigrants' unique working environment

A considerable part of the new worker population comprises recent immigrants (6). Nearly 1/4 of workers in Canada are immigrants, and this varies substantially by region; in Toronto, for example, more than 50% of the workforce was born outside of Canada (7). New immigrants are new on the job, but also new to the country and thus face an additional and unique set of barriers. Immigrants encounter more occupational health and safety risks (8) and may lack the social capital to reduce those risks. A national study found that male immigrants in their first five years in Canada reported twice the rate of occupational injuries requiring medical attention compared to Canadian-born male workers (9). The factors that contribute to increased risk of injury may also be linked to jobs with more hazardous exposures, and a poorer understanding of the proper safety procedures required to reduce the risk of exposure to occupational carcinogens.

Newcomers typically find their first jobs to be of poor quality; for example, jobs are often precarious or temporary, and lack proper

training or procedures (e.g. no personal protective equipment, very strenuous tasks). Additionally, these poor quality jobs are typically not in the field they previously worked in, exposing them to an entirely new working environment with new occupational hazards to which they are not accustomed (10).

A unique characteristic of the immigrant workforce is the reliance on their ethnic community to find jobs (10,11). This means immigrants are often employed by small businesses that are owned by people within their community; these owners are often also immigrants and therefore have little knowledge themselves about occupational health and safety, thus creating a vulnerable working environment (10). In general, new immigrants are unlikely to speak up about safety concerns due to fear of being fired, however when employed by someone from their community, they are even less likely to speak up because of the additional fear of breaking social ties.

What we did

CAREX Canada has developed occupational prevalence estimates for 45 known or suspected carcinogens, which can be used to identify priority exposures by occupation or industry (12). These estimates were created for select carcinogens classified by the International Agency for Research on Cancer as Group 1 (*carcinogenic to humans*), Group 2A (*probably carcinogenic to humans*), and Group 2B (*possibly carcinogenic to humans*). CAREX Canada also created an exposures-per-worker metric for each industry and occupation as an indicator of the overall presence of occupational carcinogens and work situations where multiple exposures are

expected to occur. This metric was calculated by dividing the number of exposures in each industry or occupation by the number of workers in the same industry or occupation.

The 2016 Labour Force Survey (LFS) was used to identify the new worker population in Canada. The LFS is a monthly survey that assesses different characteristics of the Canadian labour market (13). The job tenure variable was used to identify workers who have worked for their employer for less than six months. In 2016, 10% of all Canadian workers were new workers.

The LFS categorizes workers by industry (using the two-digit 2012 North American Industry Classification System or NAICS) and by occupation (using the two-digit 2011 National Occupational Classification or NOC). Industries and occupations with proportionally more new workers were identified by comparing the percentage of young workers to the national percentage of new workers in all of Canada.

Table 1 below shows the proportion of new workers, the top three exposures, and the exposures-per-worker metric for industries the highest proportion of new workers. The construction industry is particularly concerning as 12% of the industry is made of new workers and has the highest exposures-per-worker metric compared to all other industries assessed by CAREX Canada.

Table 2 shows the ten occupations with the greatest proportion of new workers. Since the occupation codes used by CAREX Canada (2006 NOC-S) are not directly comparable to those used in the LFS (2011 NOC), CAREX Canada data for occupation is not presented.

Key considerations of our methods

While those that have been working for their current employer for less than six months have been identified, this does not mean that an individual is entirely new to the industry or occupation. The employee could be working for a new employer but within the same field as their previous job, meaning they would already have knowledge about common hazards within their job or jobsite.

Additionally, the LFS uses a sampling frame to illustrate labour market trends. Each month, approximately 56,000 households are included in the survey and every individual over the age of 15 in each household is required to respond (13). This results in the collection of labour market information for approximately 100,000 individuals each month. While this data does give a fairly accurate representation of the Canadian population, it is not as accurate as a national census, where data is collected from all households.

What we found

Table 1: Proportion of new workers by industry and CAREX Canada exposure data, 2016

Industry	Proportion of industry made up of new workers	Most prevalent known or suspected carcinogen exposures	Exposures-per-worker metric
Accommodation and food services	20%	Night shift work Polycyclic aromatic hydrocarbons (PAHs) Solar radiation	0.35
Business, building, and other support services	15%	Solar radiation Night shift work Diesel engine exhaust	0.39
Retail trade	13%	Night shift work PAHs Benzene	0.29
Information, culture, and recreation	13%	Night shift work Solar radiation Radon	0.27
Construction	12%	Solar radiation Silica Wood dust	1.11

Table 2: Proportion of new workers by occupation, 2016

Occupation	Proportion of occupation made up of new workers
Harvesting, landscaping and natural resources labourers	28%
Trades helpers, construction labourers and related occupations	24%
Sales support occupations	19%
Labourers in processing, manufacturing and utilities	18%
Service support and other service occupations, n.e.c.	18%
Workers in natural resources, agriculture and related production	17%
Service representatives and other customer and personal services occupations	16%
Sales representatives and salespersons - wholesale and retail trade	15%
Other installers, repairers and servicers and material handlers	15%
Technical occupations in art, culture, recreation and sport	14.0%
National average, all industries	9.7%

Key takeaways

New workers may be at an increased risk of exposure to carcinogens and other chemical and dust-related hazards at work, but the evidence is lacking. There are many occupational health and safety challenges faced by new workers, including inexperience, limited knowledge of workers' rights, and poor training. These challenges contribute to the higher risk of occupational injury among new workers, and may also increase their risk of exposures.



New workers comprise up to 20% of the workforce in specific industries. Focusing efforts on the occupations and industries with higher proportions of new workers provides some guidance on where research and programs to reduce exposures could be most effective. This includes accommodation and food services, construction, and retail trade.

There are many factors that influence a worker's attitude and behavior towards safe work practices, including culture and education.

The immigrant population accounts for a large number of new workers, which brings unique challenges and requires innovative community-engaged solutions. It is important to understand these factors in order to develop relevant policies and programs. Research capacity should be enhanced to explore the knowledge, attitudes, and behaviours of new workers and safe work practices.

The main finding of our research is that there is a distinct lack of evidence demonstrating that new workers are at an increased risk of hazardous exposures, though it seems reasonably likely based on injury data and the factors that lead to increased risk of injury in this vulnerable population. Enhancing research capacity, fostering discussion and collaborations among stakeholders, and improving workplace safety training for new workers may help to understand and ultimately reduce carcinogen exposures in the new worker population.



Recommendations

- Focus initial efforts on jobs and industries with higher proportions of new workers, including accommodation and food services, construction, and retail.
- Enhance research capacity to explore the potential increased risk of exposure to carcinogens and other hazards among new workers.
- Enhance research capacity to better understand the knowledge, attitudes, and behaviors of new workers and safe work practices to develop relevant policies and programs.
- Foster discussions on new workers' occupational health and safety among the Ministries of Labour and create a national repository of resources.
- Incentivize employers to conduct hazard risk assessments and create training materials that are tailored or specific tasks or worksites for new workers.
- Create a policy/program that encourages employers, recruitment firms, and employment preparation services to provide occupational health and safety training tailored to new workers, since they often lack this type of training. The training should include information on hazards specific to the job/job site, safety regulations, and workers' rights and responsibilities.
- Foster discussions on new workers' occupational health and safety among ethnic community organizations to address challenges around voicing workplace safety concerns with employers of the same community. The discussions should include a variety of stakeholders including small business owners, health and safety practitioners, community leaders, and new workers.



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