Results In total, an estimated 603,000 out of Canada’s 18,268,120 workers are exposed to radon in Canada. An estimated 52% of exposed workers are women, even though they comprise only 48% of the labour force. The majority (68%) are exposed at a level of >100–200 Bq/m3. Workers are primarily exposed in educational services, professional, scientific and technical services, and health care and social assistance, but workers in mining, quarrying, and oil and gas extraction have the largest number of exposed workers at high levels (>800 Bq/m3). Overall, a significant number of workers are exposed to radon, many of whom are not adequately protected by existing guidelines.

Conclusions Radon surveys across multiple industries and occupations are needed to better characterize occupational exposure. These results can be used to identify exposed workers, and to support lung cancer prevention programs within these groups.

Introduction Job exposure matrices (JEM) for physical workload, developed in several European countries, have been utilized to examine associations between physical work demands and ill-health. However, it is unclear whether the exposure measures in these JEMs could be internationally generalizable. The aim was to construct a European JEM (EuroJEM) for physical workload to be used in epidemiological studies based on large European cohorts.

Materials and Methods Literature search identified 14 European physical JEMs. As a starting point, three national gender-specific JEMs from Sweden, Norway and Finland, showing similarities regarding exposures, exposure definitions and assessments, and occupational classification systems, were selected. All were based on self-reported exposures and used national variants of ISCO-88 (COM).

Three exposures were harmonised: fast breathing due to physical workload, forward bent posture, and heavy lifting. In the harmonised EuroJEM, exposure was defined as being exposed at least 1/4 of the time (fast breathing and forward bent posture) or daily (lifting > 20 kg) and expressed in five categories of proportion of exposed workers within each occupation: 0–5%, 6–24%, 25–49%, 50–74% and 75–100%. The harmonisation was conducted by checking for agreement between the national JEMs regarding exposure category for each occupation and gender. If full agreement, this exposure category was assigned to the EuroJEM. For occupations with disagreement or missing information from JEMs, an expert panel, with knowledge of work tasks and conditions within occupations, discussed the exposure level until consensus was reached.

Results A first version of a gender-specific EuroJEM for three physical exposures has been constructed, providing levels of proportion exposed for 375 occupations coded with ISCO-88 (COM).

Conclusions The constructed EuroJEM for assessment of exposures to physical workload can be used to study exposure-disease associations, including interactions with other exposures, in large European cohort studies. JEMs from other countries will be included using similar methodology.

Shift work

Introduction Night work may be organized as permanent night work or as part of shift work, which in turn may affect sleep and health. We aimed to compare timing and duration of sleep in relation to permanent night work and shift work.

Materials and Methods Sleep was assessed by diaries and actigraphy on up to 26 days among 89 male industry workers with permanent night work and 72 male police officers with shift work. Statistical analyses with adjustment for age were performed taking repeated measures into account. The study was approved by the National Ethical Committee.

Results Preliminary results show that after a night shift, permanent night workers fell asleep in the morning (between 7:00–9:00) on 78% of the days, whereas this was the case for 93% of days among shift workers. On recovery days (day off or a day shift), this was only observed on 1.6% of days among permanent night workers and 0.6% of days among shift workers. Instead, on the majority of recovery days (77% for permanent night workers and 92% for shift workers) sleep was initiated between 22:00–2:00, and on some days (21% for permanent night workers and 7% for shift workers) sleep was initiated between 2:00–6:00.

Permanent night workers slept on average 5:49 h:mm (standard error of the mean (sem) 0:05 h:mm) after a night shift and 7:41 h (sem 0:08 h:mm) on a recovery day, whereas shift workers slept 5:39 h:mm (sem 0:06 h:mm) and 7:21 h:mm (sem 0:05 h:mm), respectively. Sleep duration differed between days with night shifts (p<0.01) and recovery day and between permanent night workers and shift workers (p<0.01), but there was no interaction effect (p=0.124).

Conclusions Overall, these preliminary results indicate only minor differences between timing and duration of sleep among night shift workers and permanent night workers.