dust and endotoxin exposure. Decreased dust exposures were seen when cleaning of milking areas or reparation of buildings was performed. Robotic milking was associated with increased dust levels when compared to parlour milking.

Conclusion These initial findings provide information on working tasks that determine the level of personal exposure to dust and endotoxin during dairy farming. By June 2013, the authors intend to present results from statistical models which will examine the combined effects of farm characteristics and working tasks.

319 OCCUPATIONAL EXPOSURES IN VETERINARIANS: FINDINGS FROM A NATIONAL SURVEILLANCE PROJECT (CAREX CANADA)

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Objectives Veterinarians work in a variety of environments with diverse patient types. Risk of physical injury and zoonoses are common concerns for this group, but other exposures may also produce adverse health outcomes. The objective of this study was to identify Canadian veterinary exposure prevalence and levels for ionising radiation (IR) and antineoplastic agents (AAs), as part of the CAREX Canada project.

Methods For IR, we used 2008 whole-body dose data from a national government exposure registry. Veterinarians with measured levels of exposure were identified. The proportions exposed were combined with 2011 national veterinary statistics to estimate the prevalence range within two exposure categories. For AAs, prevalence and exposure category estimates were formed by combining the 2011 national veterinary statistics with information on practice type and AA usage rates obtained from provincial veterinary associations, peer-reviewed literature, and veterinary field experts.

Results In 2008, 26% of Canadian veterinarians were monitored for IR exposure. Of the 3,155 veterinarians monitored, 282 (8.9%) had a dose >0 mSv. Extrapolating to all veterinarians in Canada, we estimate a maximum of 1070 are exposed to IR doses above zero mSv. The majority (n = 278–1055) fall within a low dose category (>0–1mSv) while n = 4–15 are exposed to levels between 1–5 mSv. None had doses >5 mSv. We estimate that 18% of veterinarians (n = 2,200) are exposed to AAs; these fall into two categories of moderate exposure, defined as “low frequency, low control” (n = 2,180) and “high frequency, high control” (n = 20).

Conclusions CAREX Canada’s exposure estimates could be used to assist in the development of epidemiological studies or risk assessments. Our estimates indicate that exposure to IR and AAs in veterinarians is low, however the accuracy of our findings is limited by data sources of varying quality. We plan to refine our current estimates and assess other exposures in veterinary settings.

320 EXPOSURE ASSESSMENT OF THORACIC AEROSOL IN AN INTERNATIONAL PROSPECTIVE STUDY OF CEMENT PRODUCTION WORKERS

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Background and Objectives Respiratory effects have been linked to aerosol exposure in cement production workers. This presentation aims at estimating annual exposure levels to thoracic aerosol during the study period. The thoracic fraction was chosen because dynamic lung function was the main outcome of the international study.

Methods We collected 7120 personal shift measurements of thoracic aerosol contributed by 2866 persons within 8 job types in 24 plants in 2007, 2009 and 2011. Measurements above 150 mg/m^3 were excluded as light microscope analysis revealed larger particles than expected from the thoracic convention (N = 63). Measurements with absolute Z-scores above 3.29 in models including job type, plant and year were also excluded (N = 44), as well as samples with technical errors (N = 71). Arithmetic mean (AM) exposures were estimated using mixed regression modelling of the ln-transformed exposure. The final model included plant, job type, plant*job type, year, plant*year and season as fixed effects, individuals as random effect, and plant-specific residuals.

Results Of the workers 86% had been measured more than once, on average 2.4 times. All fixed factors contributed significantly to the models. Plant specific residuals also improved the model significantly. A job exposure matrix was constructed for plant-specific job types for each year averaged across seasons. AM exposure levels were estimated by exponentiation of the sum of the regression coefficients of the fixed effects and the half of the plant-specific residual variances. The estimated exposure varied between job types and plants from 0.13 to 14 mg/m^3.

321 OCCUPATIONAL EXPOSURES TO KNOWN AND SUSPECTED CARCINOGENS IN THE CANADIAN CONSTRUCTION INDUSTRY

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Objectives CAREX Canada aims to estimate the number of Canadian workers exposed to various carcinogens in the workplace. The objectives of this work is to determine the number of workers exposed to different carcinogens in the construction industry in Canada and identify high risk occupations within the industry for exposure.

Methods Data from the Canadian Workplace Exposure Database (CWED), published relevant Canadian and US scientific literature, data from previous European CAREX projects, government grey literature and other technical reports were used to develop exposure proportions for each occupation in the construction industry. These proportions are combined with 2006 Canadian census of population data to obtain the prevalence of exposure for 30 carcinogens selected to be relevant in the Canadian context.

Results Canadian construction workers, with a total population of 1.07 million, are estimated to have over 1,188,000 exposures to the 30 selected carcinogens. Some workers are likely exposed to more than one substance at a time. Carcinogens with substantial number of workers exposed include: solar ultraviolet radiation (343,000 workers exposed), crystalline silica (240,000 exposed), wood dust (166,000 exposed), asbestos (134,000 exposed), diesel engine exhaust (84,000 exposed), lead and lead compounds (51,000 exposed) and bitumen (50,000 exposed).

Correction

Hall L, Peters, Davies, Demers. Session: 18. Exposure assessment III. 319 Occupational exposures in veterinarians: findings from a national surveillance project (CAREX Canada). *Occup Environ Med* 2013;70:(Suppl 1):A109. doi:10.1136/oemed-2013-101717.319

The author L Hall is to be corrected to read A Hall.

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