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OCCUPATIONAL SOLAR ULTRAVIOLET RADIATION AND BREAST CANCER RISK IN CANADA¹Sareena McDonald, Cheryl Peters, Dylan O'Sullivan, Will King, Darren Brenner. ¹Queen's University, Canada

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Introduction Solar ultraviolet radiation (UVR) has potential protective, and confirmed detrimental effects on cancer risk. Several studies have examined recreational sun exposure in relation to breast cancer risk, and a recent meta-analysis found that moderate sun exposure (1–2 hrs/day) was associated with a decreased risk of breast cancer. Only one previous study in Canada has investigated UVR and breast cancer risk in an occupational setting.

Objectives The primary objective is to investigate the relationship between occupational solar UVR and breast cancer risk in Canada to inform on the dose-response relationship at the high end of the solar UVR spectrum.

Methods Questionnaire data from the Canadian Partnership for Tomorrow's Health (CanPath) will be utilized for participants in Ontario, Quebec, and Alberta. Information on sun exposure, longest job held, and breast cancer risk factors were obtained at baseline. Cancer outcomes have been ascertained via linkage with provincial cancer registries. A case-cohort approach was employed to facilitate job coding. Jobs codes were linked to a job exposure matrix (SUNJEM) to assign exposure. Breast cancer risk estimates (hazard ratios [HR]) and 95% confidence intervals (CI) will be estimated using a weighted Cox proportional hazard's regression with Prentice weights, controlling for potential confounders.

Results Preliminary results are available from the Ontario cohort, the analyses of additional cohorts are currently underway. From the underlying Ontario cohort 1,213 breast cancer cases met eligibility criteria. In the random sample of 2,500 women selected for the sub-cohort, the prevalence of occupational exposure (>2 hrs/day) to solar UVR was less than 2%. Preliminary HRs [0.995 (95%CI 0.684, 1.448)] suggest that occupational UVR does not have a protective or detrimental effect on the risk of breast cancer for Canadian women.

Conclusion This will be the second study to examine the relationship between occupational sun exposure and breast cancer risk in Canada, and the first to examine the dose-response relationship.

Cancer

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COLORECTAL CANCER AMONG FARMERS IN THE AGRICAN COHORT STUDY¹Madar Talibov, Fabrice Morlais, Matthieu Menyet-Figuère, Mathilde Boulanger, Séverine Tual, Véronique Bouvier, Stephanie Perrier, Bénédicte Clin, Isabelle Baldi, Pierre Lebaillly. ¹INSERM U1086, France

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Objective Specific farming types and tasks have never been studied in relation to colorectal cancer (CRC). We evaluated associations between 5 types of livestock and 13 types of crops in relation to CRC and its subsites within the Agriculture and Cancer (AGRICAN) study.

Methods AGRICAN cohort includes 181 842 agricultural workers living in 11 French geographical areas. Data on farming types and tasks was collected by self-administered questionnaires. We identified 2 609 CRC, 972 right colon, 689 left colon and 898 rectal incident cancer cases during follow-up from 2005 to 2015. Cox proportional hazards models were used to estimate hazard ratios (HR) and 95% confidence intervals (95% CI).

Results Significantly increased CRC risk was observed for farmers producing horses (HR=1.18, 95% CI 1.06–1.31), sunflower (HR=1.23, 95% CI 1.03–1.45) and field vegetables (HR=1.18, 95% CI 1.02–1.36). Positive associations were also observed for pig, poultry and wheat/barley. Some associations were observed only for specific subsites: left colon cancer was associated with fruit growing (HR=1.36, 95% CI 1.09–1.70) and potato (HR=1.28, 95% CI 1.05–1.57). Tasks related to livestock (animal care, insecticide treatment, disinfection of milking equipment and building) or to crop (haymaking, sowing, pesticide treatment, seed treatment, harvesting) were also associated with CRC. Duration and size of farming types/tasks increased the risk for some of the associations. Analysis stratified by gender suggested an interaction with several farming types/tasks.

Conclusion The current study showed original and positive findings for several farming types and tasks and CRC risk, overall and by subsites.

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CANCER SURVEILLANCE AMONG PLASTICS AND RUBBER MANUFACTURING WORKERS IN ONTARIO, CANADA¹Nathan DeBono, Paul Demers, Chloë Logar-Henderson, Jill MacLeod, Mamadou Dakouo, Hunter Warden, Sharara Shakik. ¹International Agency for Research on Cancer, France

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Objective Occupational exposure to agents used in plastics and rubber manufacturing have been associated with elevated risk of certain cancers. We sought to estimate cancer risk among workers with a history of employment in plastics and rubber manufacturing as part of an ongoing surveillance program in Ontario, Canada.

Methods The Occupational Disease Surveillance System (ODSS) cohort was established using workers' compensation claims data and includes 2.18 million workers employed between 1983–2014. Workers were followed for site-specific cancer diagnoses in the Ontario Cancer Registry through 2016. Cox-proportional hazard models were used to estimate adjusted hazard ratios (HR) and 95% confidence intervals (CI).

Results We identified 81,127 workers (69% male) ever-employed in plastics and rubber manufacturing industries or materials processing and product fabricating occupations. Compared to all other workers in the ODSS, workers in materials processing occupations had an elevated rate of lung cancer (HR 1.11, 95% CI: 1.02–1.20), which occurred exclusively among females (HR 1.38, 95% CI 1.20–1.58) in sex-stratified analyses. An elevated rate of breast cancer was observed among female labourers (HR 1.36, 95% CI: 1.01–1.82) and moulders (HR 1.47, 95% CI: 0.91–2.37) in plastics and rubber product fabricating occupations. Rates were elevated for esophageal, liver, stomach, prostate, and