compounds that can interfere with sex hormone signalling and cause adverse health effects, including cancer. Exposure to EDCs is ubiquitous, but exposure in some workplaces occurs at much higher levels than in the general population.

**Objective** To determine whether occupational exposure to EDCs is associated with colorectal cancer risk.

**Material and Methods** A case-cohort study was nested in the Alberta’s Tomorrow Project (ATP) and in the Ontario Health Study (OHS). Incident cases of colorectal cancer were identified (NATP=202, NOHS=605); a sub-cohort of 3,464 participants was selected at baseline (NATP=565, NOHS=2,899).

Occupational exposure to 17 EDCs was estimated via linkage to CANJEM, a job-exposure matrix, for participants’ longest-held job. Specifically, CANJEM provides a frequency-weighted intensity metric of exposure and it was used to categorize participants into never exposed, exposed and substantially exposed to each individual EDC. Multivariable logistic regression models were used to estimate odds ratios (OR) and 95% confidence intervals (CI) for colorectal cancer associated with occupational exposure to EDCs while controlling for confounders identified using a directed acyclic graph.

**Results** In ATP, exposure to arsenic (OR=2.86, 95%CI: 1.06–7.63), copper (OR=0.53, 95%CI: 0.29–0.92), lead (OR=0.58, 95%CI: 0.34–0.97) and substantial exposure to arsenic (OR=2.87, 95%CI: 1.01–8.55), phenol (OR=0.25, 95%CI: 0.08–0.61), and trichloroethylene (OR=0.45, 95%CI: 0.21–0.90) were associated with colorectal cancer. In OHS, exposure to polychlorinated biphenyls (OR=3.95, 95%CI: 1.82–8.55), styrene (OR=0.47, 95%CI: 0.26–0.79), and substantial exposure to aluminum (OR=1.32, 95%CI: 1.03–1.68), cadmium (OR=0.59, 95%CI: 0.38–0.87), lead (OR=1.29, 95%CI: 1.03–1.60), phthalates (OR=0.52, 95%CI: 0.25–0.96), and trichloroethylene (OR=1.43, 95%CI: 1.08–1.88) were associated with colorectal cancer.

**Conclusion** Of the 17 EDCs, five were associated with an increased risk, and seven with a decreased colorectal cancer risk; however, none of the associations were consistent between the two cohorts.

**Risk assessment**

**0-58** LESSONS LEARNED FROM EVALUATING EPIDEMIOLOGICAL STUDIES FOR CANCER HAZARD IDENTIFICATION THE UPDATED REPORT ON CARCINOGENS (ROC HANDBOOK)

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**Introduction** Although systematic reviews aim to increase transparency and rigor in health evaluations for public health decision-making, some methodologies have been criticized for being algorithmic, maladapted to the complexity and diversity of environmental and occupational epidemiology studies, or misused by reviewers without adequate expertise. Need for continual methods refinement has prompted both the development and updated RoC handbook.

**Methods** The RoC handbook provides guidance to conduct systematic reviews and integrate evidence to identify cancer hazards. Evaluating the informativeness of epidemiological studies focuses on the direction, magnitude, and impact of biases and study sensitivity. Updates to the RoC handbook, which will be peer reviewed and published as a living document, are based on its application to 7 RoC and 3 OEHHA cancer hazard evaluations and methodological advancements in epidemiology and systematic review.

**Results** New features of the updated handbook are interactive evidence maps to inform the review approach for each exposure-outcome pair and enhanced guidance to evaluate exposure misclassification and integrate evidence across studies. Assessing exposure misclassification considers (1) how well the exposure proxy approximates the exposure of interest, (2) how accurately and precisely the exposure (or proxy) is measured, and (3) differential recall bias or observational bias. Because cancer epidemiology studies employ a wide range of methods to assess exposure, the handbook provides direction to evaluate specific methods (e.g., environmental measurement, job exposure matrices). Evidence integration includes triangulation and systematic approaches to explore the impact of biases and confounding, effect modifiers, exposure metrics, and other sources of heterogeneity.

**Conclusions** The revised RoC handbook strives to balance the advantages of systematic and narrative reviews and focus on key issues in environmental and occupational epidemiology. In addition to providing transparency for our evaluations, we hope it can serve as a resource to scientists who appraise the epidemiologic literature.

**Carcinogens/Cancer**

**0-59** INCREASED LUNG CANCER RISK AND OCCUPATIONAL BENZENE EXPOSURE: RESULTS FROM A POOLED CASE-CONTROL STUDY

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**Introduction** Benzene is widely present in various industries and ubiquitously in the general environment. Benzene has been classified as a known human carcinogen, but there is limited evidence linking benzene exposure with lung cancer. However, if such an association exists, this could have large implications for occupational and environmental risk assessment. We aimed to systematically investigate the association between occupational benzene exposure and lung cancer.

**Material and Methods** Subjects from 14 case-control studies across Europe and Canada were pooled. We used a quantitative job-exposure matrix (BEN-JEM) to estimate benzene exposure based on occupation records. Logistic regression models were used to estimate lung cancer risk and various benzene exposure indices. We stratified analyses by smoking status and lung cancer subtypes, and rigorously adjusted for age, sex, smoking and other known occupational lung carcinogens.