# Oral Presentation

## Burden of Disease

### 0470 COMPARISON OF OCCUPATIONAL CANCER BURDEN ESTIMATES

[1,2]Joanne Kim*, [3,4]France Labrèche, [5,6]Cheryl E Peters, [6,7]Hugh Davies, [7]Chris McLeod, [4,8]Jérôme Lavoué, [2,9]Victoria H Arrandale, [2]Manisha Pahwa, [2,9]Paul A Demers. *[1]Department of Epidemiology and Biostatistics, McGill University, Montréal, Canada; [2]Occupational Cancer Research Centre, Toronto, Canada; [3]Institut de recherche Robert-Sauvé en santé et en sécurité du travail, Montréal, Canada; [4]School of Public Health, Université de Montréal, Montréal, Canada; [5]Department of Health Sciences, Carleton University, Ottawa, Canada; [6]CAREX Canada, Simon Fraser University, Vancouver, Canada; [7]School of Population and Public Health, University of British Columbia, Vancouver, Canada; [8]Centre de recherche du Centre hospitalier de l'Université de Montréal, Montréal, Canada; [9]Dalla Lana School of Public Health, University of Toronto, Toronto, Canada*

10.1136/oemed-2017-104636.388

The lung is the most common target for workplace carcinogens and burden of cancer projects have produced a range of attributable fraction (AF) estimates (6%–14.5%). Various approaches, available data, and contexts of these different studies contribute to sometimes incongruent final estimates.

We recently completed a Canadian burden project (CBD) and compared its results to burden studies from UK (UKBD), US (USBD), Finland (FinBD), and the Global Burden of Disease (GBD) to illustrate the impact of new epidemiologic data, availability of exposure data, differences in industry composition, inclusion of a broader set of carcinogens and/or cancer sites, and differences in the overall methodological approach on AF estimates.

The number of lung carcinogens considered by the different studies ranged from 8 in the GBD to 21 in the CBD and UKBD. More well-established carcinogens such as silica, which are driven by similar patterns of exposure (especially in construction) across countries, have more consistent estimates (2.4% in both the CBD and UKBD). Others such as asbestos have significant challenges in historical exposure assessment, as well as differences in exposure context between countries, leading to variability between estimates (5.9%–8.0%). Differing methods and assumptions regarding radon also led to variable estimates (0.6%–1.3%). Relatively recent epidemiologic evidence for diesel exhaust and lung cancer incorporated into the Canadian estimates led to higher AFs than previous estimates.

Changing evidence, differences in context, and variability in methods mean that burden estimates are not strictly comparable across projects, and continuing to assess the burden for different countries remains relevant.

# Poster Presentation

## Exposure Assessment

### 0471 EVALUATION OF AIRBORNE CHEMICAL EXPOSURES TO ALUMINIUM WORKERS

[1]Elizabeth M Noth*, [1]Sa Liu, [1]Daniel M. Brown, [1]Andreas M Neophytou, [1]Sadie Costello, [1]Ellen A Eisen, [2]Mark R Cullen, [1]S Katharine Hammond. *[1]University of California, Berkeley, Berkeley, CA, USA; [2]Stanford University, Palo Alto, CA, USA*

10.1136/oemed-2017-104636.389

Aluminium workers are exposed to a complex mixture of airborne chemicals. Workers in different stages of aluminium manufacturing are exposed to different mixtures of chemicals. At twelve US aluminium facilities, we used information from an industrial hygiene database containing 30 years of sampling results for 227 separate chemical agents to build job exposure matrices (JEMs). We selected chemicals that represented major exposures in the workplace (e.g., oil mist and fluorides) and those that have been associated with heart disease [e.g., polycyclic aromatic hydrocarbons (PAHs) and welding-related metals]. We used cluster analysis to empirically group the chemical agents and establish exposure profiles by job. For PAHs and welding-related metal exposures, we also built quantitative JEMs. There were 21 PAH chemical agents, including individual PAHs (e.g. benzo[a]pyrene) and groups of PAHs (e.g. coal tar pitch volatiles). For metals, there were 54 different chemical agents associated with welding tasks. The categorical JEMs have three categories of exposure: unmeasured, very low exposure, and moderate or higher exposure. The stage of the manufacturing process made a large impact on the distribution of exposures. While 62% of jobs in smelters involved PAH exposures, only 2% of jobs in fabrication facilities did. Conversely, oil mist exposure is more common in fabrication facilities, compared with smelters (24% and 7% of jobs exposed, respectively). We observed that the exposure profiles in smelters was very different to those observed in fabrication facilities or refineries. These chemical exposure JEMs will help clarify the role chemicals play in heart disease.

# Poster Presentation

## Cardiovascular Disease

### 0472 A GLOBAL PERSPECTIVE ON COAL-FIRED POWER PLANTS AND CARDIOVASCULAR DISEASES

Bibhaw Pokharel*, David C Christiani, Chen-Kuan Lin. *Harvard TH Chan School of Public Health, Boston, MA, USA*

10.1136/oemed-2017-104636.390