

**Background** Cardiovascular disease (CVD) accounts for 31% of all global deaths. Some CVD mortalities can be attributed to environmental factors such as particulate matters (PMs). Coal fired power plant is one of the major contributors of PM. However, the short-term effect of coal fired power plant on cardiovascular disease is not well studied. In this study, we investigate an association between coal capacity and CVD mortality from a global perspective.

**Method** Age and Sex-adjusted CVD mortalities of 111 countries were followed from 1998 to 2012. Coal capacity was defined as total capacity of coal fired power plants in a given country in a given year, from Utility Data Institute World Electric Power Plants (UDI WEPP) Database while CVD mortality were obtained from WHO mortality data. We applied mix model and adjusted other risk factors for analysis.

**Results** The average coal capacity around the world is increasing globally, but coal percentage used has been fairly constant (8555.18 MW (15.99%) in 1998–2002, 12071.11 MW (16.71%) in 2003–2007 and 16394.05 MW (16.58%) in 2008–2012. One log coal capacity (unit: log MW) was associated with an increase in CVD mortality by 22.98 ( $p=0.076$ ) to 55.74 ( $p<0.0001$ ) per million males and 4.83 ( $p=0.373$ ) to 28.71 ( $p<0.0001$ ) per million females, during 1998–2002 in different regions.

**Conclusion** The result of the current study indicated that after adjusting for commonly known risk factors of cardiovascular disease, coal fired power plants emission is correlated with country specific short term cardiovascular mortality.

## Oral Presentation

### Cancer

#### 0473 SINONASAL CANCERS AND OCCUPATIONAL EXPOSURES, A POPULATION-BASED CASE-CONTROL STUDY

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Carcinogenic agents for nasal cavity and paranasal sinuses cancers (hereafter sinonasal cancers, SNC) with sufficient evidence in humans include nickel compounds and wood and leather dusts. Still limited evidence is available for carpentry and joinery, hexavalent chromium compounds, formaldehyde, and textile manufacturing. We studied occupational risk factors for SNC in a population-based case-control study nested in the SNC Registry of the Lombardy Region (10 million people), North-West Italy. SNC cases (or their next-of-kin) were interviewed using a standardised questionnaire. Controls (141 men, 64 women), taken from a recent population-based case-control study on mesothelioma, had been sampled among Lombardy residents (2014) and interviewed with the same questionnaire. We calculated odds ratios (OR) adjusted for the matching factors, smoking, and history of nasal polyps. We identified 386 SNC cases (2008–2014) with interview (256 men, 130 women). Among 105 adenocarcinoma cases we found ORs >30 for wood and leather dusts. Among 108 cases with mixed morphologies, we

found elevated risks for wood (OR=2.2) and leather (OR=6.0) dusts. For both morphologies ORs for nickel, chromium, and formaldehyde were high but based on a few cases. Relative risks of adenocarcinoma and mixed morphologies were high in several sectors, including textile, construction, metal-mechanics, motor vehicle production, and agriculture and livestock. ORs for squamous cell carcinoma were elevated in agriculture and livestock only. In conclusion, we confirmed the strong associations between adenocarcinoma and wood and leather dusts, found elevated risk for mixed morphologies, and identified risk excesses in several sectors.

## Oral Presentation

### Other

#### 0474 RISK ASSESSMENT FOR NON-CANCER OUTCOMES

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**Objective** Risk assessment for non-cancer outcomes is often based on a synthesis of epidemiological and toxicological data. As with carcinogens a decision has to be made if these effects occur via a stochastic mechanism of action or if a 'safe' occupational exposure limit can be derived based on observed lower of no effect levels within the experimental or observational data. If a stochastic mechanism is assumed (e.g. allergens) than it is assumed that every level of exposure to such substances, no matter how low, entails a certain risk of developing an adverse outcome and risk-based limits could be calculated.

**Results** Within the Dutch Expert Committee on Occupational Standards (DECOS), and other similar bodies in the EU, more and more evaluations are based on epidemiological data indicating the importance of the field of occupational epidemiology. While in 1995 0% of the evaluations of the Dutch DECOS were based on epidemiological evidence, currently this is more than 30%.

**Discussion** In this presentation, we will discuss recent evaluations on benzene (based on a non-cancer outcome), and wheat and other cereal flour dusts as to explore how occupational epidemiologic studies provide important information about the risks associated with exposures encountered by workers and the public at large.

## Oral Presentation

### Other

#### 0475 OCCUPATIONAL EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA AND LUNG CANCER RISK IN THE SYNERGY PROJECT

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**Objective** Within the SYNERGY project, we evaluated the exposure-response relation between occupational exposure to