

Abstracts

primary health care visits of asthma sufferers in an area with air pollution levels well within the standard air quality guidelines.

Methods Hourly readings of ambient particulate matter (PM₁₀, PM_{2.5}), nitrogen dioxide (NO₂), nitrogen oxide (NO), ozone (O₃) and sulphur dioxide (SO₂) from the Swedish Meteorological and Hydrological Institute (SMHI) from 2005 to 2010 were used. Six different metrics were created from these hourly readings: (1) daily 1-h maximum; (2) 24-h average; (3) commuting-period; (4) daytime average; (5) night-time average; and (6) the daily 8-h maximum. Outcome data were obtained from a regional health care database, covering approximately half a million people living in Malmö and neighbouring municipalities. Poisson generalised linear models were used to examine the relations between daily primary health care (PHC) visits due to asthma and air pollution metrics with different time lags.

Results Air pollutant levels throughout the study period remained well within the WHO air quality guidelines (PM₁₀ daily mean of 16.4 µg/m³). A consistent relation between daily PM levels and PHC visits due to asthma was observed for all metrics. An increased risk of 11% was found with every 10-unit increase in daily mean levels of PM₁₀. Commuting-period and daytime concentrations of PM₁₀ were also associated with increased risks, of 10% and 9%, respectively. The increased risk was moderate for the 8-hour (8%) and night-time (7%) metrics. The lowest risk was observed for the 1-hour maximum value (3%).

Conclusions The results suggest that air pollution has adverse effects on respiratory health, even at very low concentrations. A significant variation in risk was observed during the day depending on the metric used. The results of this study highlight the need to re-assess air quality guidelines.

77 RELEVANCE OF EXPOSURE TO CLEANING AGENTS BEYOND CLEANING PROFESSIONALS: PRIVATE HOMES AND HEALTHCARE WORKERS

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Workplace and home exposures to cleaning products constitute an emerging health issue. The aim is to address the potential adverse role of exposure to cleaning agents on asthma in private homes and healthcare workers. Regarding healthcare workers, recent publications showed that they may be exposed to high level of cleaning products. As a cause of concern, they underestimated their exposures and appeared as a high risk group for asthma. Regarding home cleaning, two studies have published on this topic and suggested a deleterious role of the frequent use of cleaning sprays on asthma activity and incidence. One of them suggested a possible avoidance of spray use by women with asthma.

More recently, in a nested case-control survey on asthma of French women from the 'Etude Epidémiologique auprès des femmes de la MGEN' (E3N study), we investigated the association between self-reported weekly use of cleaning products (evaluated as previously) and current asthma among 570 women (235 with current asthma and 335 without asthma; 68 years, 59% never smokers). A positive association was suggested between weekly use of at least one spray and current asthma (odds ratio [95% confidence interval] adjusted for age, diploma, body mass index and smoking status: 1.45 [0.94–2.24], *p* = 0.09), with a significant association in women without cleaning help (1.86 [1.04–3.33]). Avoidance of polluted places was

significantly more frequent in women with current asthma who had at least two symptoms.

Domestic exposure to cleaning sprays may represent an important public health issue especially in women and it may be important to limit their use. Female hospital workers are exposed to numerous cleaning products at high risk for asthma. Selection bias may be important for both domestic and workplace exposures. More work is needed to identify the underlying mechanism (allergic or non-allergic) and to have accurate estimates of cleaning agents.

78 THE CHANGING EPIDEMIOLOGY OF SILICOSIS IN SOUTH AFRICAN GOLD MINING - AN INDUSTRY WIDE STUDY

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Objectives Against the background of an epidemic of silicosis and related tuberculosis revealed by field and autopsy studies in recent decades, the South African gold mining industry has committed itself to the elimination of silicosis.

Methods Annual chest radiographs of active miners were taken by mine occupational health services. These were collected in a representative sample of miners enrolled into a baseline survey between 2004 and 2009 as part of a cluster randomised trial of community-wide isoniazid preventive therapy. All radiographs were read for silicosis by an experienced lay reader. All images classified as abnormal and a random sample of normals was re-read by a 'B' reader for validation.

Results A total of 14 322 radiographs from 15 goldmining shafts from three companies were read by the lay reader for an overall silicosis prevalence of 3.7% (> ILO 1/1), reaching 6.6% for workers with > 20 years since first employment. Silicosis prevalences adjusted for the readings of the B-reader were much lower: 1.7% and 3.2% respectively. On either reading, these industry-wide radiological prevalences are lower than single workforce surveys dating from 2000/2001. They are also at considerable variance with statutory autopsy data from in-service black miners.

Conclusions In the absence of evidence of lower dust levels in gold mines in the decades prior to this study, one explanation for these findings is that goldminers with silicosis are increasingly being selected out of the industry by ill-health, particularly HIV and tuberculosis, and/or by stricter hiring practices in a declining industry. High silicosis prevalence is thus likely still to be found among former goldminers. Autopsy data from active miners further suggest a shift towards sub-radiological silicosis, which has been shown to confer a substantially increased risk of tuberculosis even in the absence or radiological disease.

79 UK BIOBANK: USE AND EXTENSION OF OCCUPATIONAL INFORMATION TO INVESTIGATE OCCUPATIONALLY-RELATED CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IN THE UK

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