

over 50 than those under 30, but their cost rates were only modestly higher.

**Conclusions** Progress has been made in reducing direct costs associated with FFH in this cohort particularly though 1996, but primary gains reflect the reduction in frequency while FFH that occur remain serious.

**0345 PESTICIDE EXPOSURE DURING RE-ENTRY TASKS AND HARVESTING IN VINEYARDS: RESULTS OF THE PESTEXPO PROGRAM**

<sup>1,2</sup>Isabelle Baldi, <sup>3,4</sup>Pierre Lebailly, <sup>1</sup>Ghislaine Bouvier, <sup>1</sup>Virginie Rondeau, <sup>5</sup>Valérie Bouchart, <sup>1</sup>Mireille Canal-Raffin, <sup>1</sup>Alain Garrigou. <sup>1</sup>Univ. Bordeaux, ISPED, Laboratoire Santé Travail Environnement, Centre INSERM U 897 Epidemiologie-Biostatistique, F-33000 Bordeaux, France; <sup>2</sup>CHU de Bordeaux, Service de Médecine Du Travail, F-33000 Bordeaux, France; <sup>3</sup>INSERM, UMR 1086-Cancers Et Préventions, F-14000 Caen, France; <sup>4</sup>Centre François Baclesse, F-14000 Caen, France; <sup>5</sup>Laboratoire Départemental Frank Duncombe, F-14000 Caen, France

10.1136/oemed-2014-102362.129

**Objectives** Physical contact with treated crops, animals or other surfaces is responsible for the transfer of pesticides to the worker's skin in agricultural tasks and makes their cutaneous absorption possible. In the Bordeaux area (France), the PESTEXPO study described levels of pesticide exposure and identified their determinants during re-entry and harvesting in vineyards.

**Method** Between 2002 and 2007, 46 days of work involving re-entry tasks and 48 harvesting days were observed to analyse exposures to dithiocarbamates or folpet. The potential determinants were generated from the following parameters collected on standardised forms during field observations: i) general conditions of the task, ii) operator characteristics, iii) estate characteristics, iv) task conditions and v) characteristics of the last treatment involving folpet or dithiocarbamates, including delay since treatment. Dermal contamination was assessed using patches placed on the skin and hand-washing at the end of each working phase.

**Results** Daily median contamination was 1 967.7 µl of mixture during re-entry (90e percentile: 5 045.3 µl) and 18.7 µl during harvesting (90e percentile: 911.4 µl). Contamination level was strongly correlated to the type of task. For re-entry, the highest contaminations were observed during raising of wires and cutting of branches. During the harvest, the contamination was maximal for grape-picking. The delay since the last treatment and the rate of active ingredient per hectare played a role, together with meteorological factors, crop and farm characteristics, gloves and clothes.

**Conclusions** Our results underline the necessity to take into account exposures during re-entry and harvest when considering pesticide exposure, both for epidemiological research and preventive action.

**0346 OCCUPATIONAL EXPOSURE TO LEAD AND CANCER IN TWO COHORT STUDIES OF MEN AND WOMEN IN SHANGHAI, CHINA**

<sup>1</sup>Linda M Liao, <sup>1</sup>Melissa C Friesen, <sup>2</sup>Yong-Bing Xiang, <sup>3</sup>Hui Cai, <sup>4</sup>Dong-Hee Koh, <sup>1</sup>Bu-Tian Ji, <sup>3</sup>Gong Yang, <sup>2</sup>Hong-Lan Li, <sup>1</sup>Sarah J Locke, <sup>1</sup>Nathaniel Rothman, <sup>3</sup>Wei Zheng, <sup>2</sup>Yu-Tang Gao, <sup>3</sup>Xiao-Ou Shu, <sup>1</sup>Mark P Purdue. <sup>1</sup>Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, MD, USA; <sup>2</sup>Department of Epidemiology, Shanghai Cancer Institute, Shanghai, China; <sup>3</sup>Department of Medicine, Vanderbilt University, School of Medicine, Nashville, TN, USA; <sup>4</sup>Carcinogenic Hazard Branch, National Cancer Center, Seoul, Republic of Korea

10.1136/oemed-2014-102362.130

**Objectives** Epidemiologic studies of occupational lead exposure have suggested increased risks of cancers of the brain, kidney, lung, meninges, and stomach; however, the totality of the evidence is inconsistent. To clarify whether lead is a carcinogen, we investigated the relationship between occupational lead exposure and risks of these five cancer sites in two prospective cohort studies in Shanghai, China.

**Method** Annual job/industry-specific estimates of lead fume and lead dust exposure were derived from a statistical model that combined expert ratings of lead intensity with inspection measurements collected by the Shanghai Centre for Disease Control and Prevention. The job/industry estimates were applied to the lifetime work histories of subjects from the Shanghai Women's Health Study (73 363 participants) and the Shanghai Men's Health Study (61 379 participants) to estimate cumulative exposure to lead dust and lead fume. Cohort-specific relative hazard rate ratios (RRs) and 95% confidence intervals (CI) were estimated using Cox proportional hazards regression models and then pooled using a random effects meta-analysis model.

**Results** We observed a statistically significant increased risk of meningioma among individuals with estimated occupational exposure to lead dust or fumes (RR=2.4, 95% CI:1.1–5.0), and in particular among those with an above-median cumulative exposure to dust or fumes (RR=3.1, 95% CI:1.3–7.4). We observed suggestive associations with lead exposure for cancers of the kidney (RR=1.4, 95% CI:0.9–2.3) and brain (RR=1.8, 95% CI:0.7–4.8), and null findings for cancers of the lung and stomach.

**Conclusions** Our findings provide additional evidence that occupational lead exposure increases risk of meningioma.

**0347 POSSIBLE PRO-CARCINOGENIC EFFECT OF ENDOTOXIN ON LUNG CANCER IN AN EXTENDED FOLLOW-UP OF SHANGHAI WOMEN TEXTILE WORKERS**

<sup>1</sup>Harvey Checkoway, <sup>2</sup>Jessica Lundin, <sup>3</sup>Sadie Costello, <sup>4</sup>Roberta Ray, <sup>4</sup>Wenjin Li, <sup>3</sup>Ellen Eisen, <sup>5</sup>George Astrakianakis, <sup>2</sup>Noah Seixas, <sup>6</sup>Kate Applebaum, <sup>7</sup>Dao Li Gao, <sup>4</sup>David Thomas. <sup>1</sup>University of California, San Diego, La Jolla, CA, USA; <sup>2</sup>University of Washington, Seattle, WA, USA; <sup>3</sup>University of California, Berkeley, Berkeley, CA, USA; <sup>4</sup>Fred Hutchinson Cancer Research Center, Seattle, WA, USA; <sup>5</sup>University of British Columbia, Vancouver, BC, Canada; <sup>6</sup>George Washington University, Washington, DC, USA; <sup>7</sup>Zhong Shan Hospital, Shanghai, China

10.1136/oemed-2014-102362.131

**Objectives** To examine further the association between endotoxin and risk of lung cancer among Shanghai women textile workers in an extended follow-up of the cohort. The initial follow-up indicated an inverse exposure-response relation.

**Method** We updated a case-cohort study nested within a cohort of 267 400 women. We compared exposure histories of 1456 incident lung cancers cases diagnosed during 1989–2006 with those of a reference subcohort of 3022 workers who were free of lung cancer at the end of follow-up. Endotoxin exposures were based on a quantitative job/exposure matrix. Relative risks (hazard ratios [HR]) associated with cumulative exposure, adjusted for age and smoking history, were estimated by Cox proportional hazards modelling adapted for the case-cohort design. We conducted exposure-response trend analyses for cumulative exposures lagged by 0, 10, and 20 years, and separately for time windows of <15 and >15 years since first exposure.

**Results** Overall, we observed no associations between cumulative exposure and lung cancer. In contrast, analyses by exposure