

(OR 2.55; 95% CI 0.84 - 7.72); welders (OR 2.98; 95% CI 0.78 - 11.40); and drivers of heavy equipment (OR 1.95; 95% CI 0.66 - 5.81). Reduced risks were found for management and administration jobs (OR 0.70; 95% CI 0.49 - 0.99); other health care jobs (OR 0.44; 95% CI 0.20 - 0.99); repairers (OR 0.49; 95% CI 0.22 - 1.09); and electricians (OR 0.46; 95% CI 0.17 - 1.26).

**Conclusions** Increased risks for social science jobs could be related to numbers of people contacted in a day and risk of infections. Severe influenza was associated with increased risk of PD but number of people contacted was not. Elevated risks for farmers are typically attributed to pesticide exposure, however our pesticide analyses did not support this attribution. Other exposures of interest for farmers could include animal contact, influenza, head injuries, and vibration from heavy equipment, all associated with PD in our study.

### 282 OCCUPATIONAL EXPOSURE TO PESTICIDES AND PARKINSON DISEASE

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**Objectives** The objective of this study was to assess the risk of occupational exposure to pesticides on the development of Parkinson Disease.

**Methods** We conducted a multi-centre hospital-based case-control study in the Netherlands. All patients, diagnosed with Parkinson Disease in one of the five participating hospitals between January 2006 and December 2011 were invited to participate. Two age and sex matched controls per patient were recruited from individuals who were seen at the same department of neurology for non-neurodegenerative disorders. The participants were interviewed in a standardised telephone-interview. The questionnaire contained a complete occupational and residential history, and specific questions about potential risk and protective factors for Parkinson Disease. Among those were detailed questions about use of pesticide at work.

**Results** In total 444 Parkinson Disease patients and 876 controls were included in the analyses. We applied the ALOHA Job-Exposure-Matrix to assess exposure to pesticides in general and specifically to insecticides, to herbicides and to fungicides. Self-reported information allowed for a more detailed categorization of application and re-entry exposure. Preliminary analyses of the data show a slightly increased risk for Parkinson Disease for active application of herbicides and insecticides.

**Conclusions** Our results confirm earlier studies showing an elevated risk for Parkinson Disease after exposure to herbicides and insecticides. The final analyses will show the results of different levels of cumulative exposure resulting from application and re-entry exposure.

### 283 OCCUPATIONAL EXPOSURE TO MAGNETIC FIELDS AND ELECTRIC SHOCKS AND RISK OF ALS - ANALYSIS OF THE SWISS NATIONAL COHORT

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**Background** Previous studies have identified increased risks of amyotrophic lateral sclerosis (ALS) in electrical workers, but

studies assessing risk in workers exposed to magnetic fields were ambiguous. Electric shocks have been hypothesised to be the relevant exposure, but potential risks from electric shocks have not been previously disentangled from those of magnetic fields. We aimed at analysing the association of ALS with both magnetic field exposure as well as risk of electric shocks at work.

**Methods** We used the Swiss National Cohort study, which is based on census information from 1990 and 2000 linked with mortality records from 2000–2008. High or medium versus low exposure to magnetic fields and risk of electric shocks was assigned to occupations using two job exposure matrices. Data of 4.7 million persons were analysed using Cox proportional hazard models and adjusted for age, sex, educational level, civil status, nationality, language region, degree of urbanity of the municipality and an area-based proxy for socioeconomic position.

**Results** During 2000–2008, 1313 persons with information on occupation died from ALS. Hazard ratios were around unity for persons exposed to magnetic fields or risk of electric shocks in either 1990 or 2000. In persons classified as medium or high exposed in both 1990 and 2000, a slight increase in mortality from ALS was observed for magnetic field exposures (HR 1.39, 95% CI 1.03–1.87), but less so for electric shocks (HR 1.20, 95% CI 0.88–1.65). When accounting for both exposures in the same model, magnetic fields had a similar HR (1.36, 95% CI 0.99–1.89) as before, but the HR for electric shocks was attenuated to 1.07 (95% CI 0.76–1.5).

**Conclusions** We observed an association of long-term exposure to extremely low frequency magnetic fields and mortality from ALS, but not of risk of electric shocks and ALS.

## Session: 12. Late breaking abstracts

### 284 CANCER RISK AMONG TETRAFLUOROETHYLENE (TFE) SYNTHESIS AND POLYMERISATION WORKERS

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**Objectives** Tetrafluoroethylene (TFE), a compound used for the production of fluorinated polymers including polytetrafluoroethylene (PTFE), increases liver and kidney cancer and leukaemia incidence in rats and mice. This is the first time the cancer risk in humans is comprehensively explored in a cohort mortality study.

**Methods** The study included all current PTFE production sites in Europe (Germany, Italy, The Netherlands and UK) and USA (New Jersey and West Virginia). The study cohort included workers ever employed in the period 1950–2002. A job-exposure matrix (1950–2002) was developed for TFE and ammonium perfluoro-octanoate (APFO), a chemical used in the polymerisation process. For each worker we calculated cumulative exposure to TFE and APFO. The mortality ascertainment covered the period 1950–2008. Standardised mortality ratios (SMR) and 95% confidence intervals (CI) were calculated using national mortality rates as reference.