Discussion  Both those taking IHR and MS showed a slight improvement in this aspect of lung function during the course of their careers, generally supporting earlier findings of West Sussex and London firefighters. Declaration of potential conflict of interest: Author was previously Medical Adviser to the Fire and Rescue Service whose data is the subject of this project.

Oral Presentation

Shift Work

Working Around the Clock: An Exposure Response Relationship Between Night Work and Incident Hypertension

Jacqueline Ferguson*, Sadie Costello, Mark Cullen, Ellen Eisen. University of California, Berkeley, Berkeley, California, USA
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Night work, or work outside of 7am to 6pm, causes chronobiologic rhythm disruption which may cause an increase in hypertension risk. To study this question, we assessed the association between night work and incident hypertension using three exposure metrics.

A cohort of 2941 new hires at 9 aluminium smelter and fabrication facilities were followed from 2003 through 2013 for incident hypertension defined by insurance claim’s ICD-9 codes. Night shifts were classified as shifts with ≥3 hours between 12am-5am using time-registry data. Night work exposure in the previous year was defined three ways: two binary metrics adapted from previous studies: 1) Ever/Never, 2) Working ≥ or <36 night shifts; and a quantitative metric 3) Percentage of night shifts.

The association between hypertension and each exposure metric was estimated in separate Cox proportional hazards models, adjusting for age, sex, gender, facility, smoking history, annual BMI, annual health claims based risk score, and duration of past night work.

The rate of incident hypertension among workers with night work in the previous year was 1.88 (95% CI [1.16–3.05]) and 1.40 (1.00–1.96) times the rate among workers with no recent night work using metric 1 and 2 respectively. Compared with workers with no recent night work exposure, the hazard ratio among workers with >0–<5%, 5–<25%, 25–<50%, and ≥50% night shifts in the previous year were 1.62 (93–2.83), 1.83 (1.05–3.20), 2.20 (1.29–3.78) and 2.29 (1.24–4.20) respectively (Ptrend=0.004).

Our results suggest recent degree of night shift exposure may be associated with higher rates of hypertension.