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ARTERIAL STIFFNESS AND OCCUPATIONAL EXPOSURE TO FINE PARTICULATE MATTER. *S Fang, E Eisen, J Cavallari, M Mittleman, D Christiani (Harvard School of Public Health, Boston, MA 02115)

Exposure to particulate matter is associated with adverse cardiovascular events, but the mechanisms remain unclear. We investigated the association between short-term exposure to occupational fine particulate matter ($PM_{2.5}$) and arterial stiffness, a component of vascular function. A short-term prospective study of 26 male boilermaker construction workers was conducted. The augmentation index (AIx, %), a measure of arterial stiffness, was obtained pre-shift (baseline), post-shift, and the morning after a welding day and a non-exposed control day. Exposure was measured as binary (weld) and as continuous (work-shift $PM_{2.5}$, mg/m^3). Smoking-adjusted linear regression models evaluated the effects of welding and $PM_{2.5}$ on change in AIx. On a control day, AIx decreased baseline to post-shift (p < 0.001) and increased post-shift to next morning (p < 0.001). Both changes were blunted after welding exposure. Welding during the work-shift and the day prior to baseline was associated with a significantly blunted cross-shift change (p = 0.03). A similar association was found for welding in relation to AIx change from post-shift to next morning. Using log $PM_{2.5}$, we observed a positive linear relationship with baseline to post-shift change (β = 1.12; 95% CI: −0.33, 2.57) and an inverse linear relationship with post-shift to next morning change (β = −2.75; 95% CI: −4.61, −0.89). The data suggest that subsequent to exposure there is attenuation of the circadian afternoon decrease in AIx and delayed recovery back to baseline AIx the following morning. In compromised individuals, these acute vascular changes may be involved in particulate-related cardiovascular events. Health consequences in young healthy males require further research.

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MASKING AND MISCLASSIFICATION: CANCERS OF THE RENAL PELVIS AND URETER. *J E Hauser and G K LeMasters (University of Cincinnati College of Medicine, Department of Environmental Health, Cincinnati, OH, 45267)

In 2007, the American Cancer Society estimates over 120,000 incident cases of urinary system cancers will be diagnosed in the U.S. The high rate of urothelial cancers in developed nations coupled with excessive cases among males suggests that an occupational exposure may be involved in urinary tract carcinogenesis. An extensive literature review generated hundreds of references from a detailed search of three databases (PubMed, Scopus, and ToxNet), yielding results from 1965 through October 2006. Key words used in the search included coal tar and bladder/kidney/renal cancer. Selected articles were epidemiological occupational health studies. The trend of coal tar exposure having significant risk estimates (n = 12) or notably elevated (relative risk >1.5) risk estimates (n = 11) for bladder cancer is fairly consistent across study designs. Of the 15 studies specifically evaluating kidney or renal pelvis cancer, only four showed a significant exposure-effect relationship. Potential limitations included a lack of detailed exposure data and inadequate adjustment for confounders, such as cigarette smoking. Since cancers of the renal pelvis and ureters arise from the urothelium, these transitional cell carcinomas differ histologically from the most common kidney cancer, clear cell carcinoma. Kidney cancers were designated using International Classification of Disease (ICD) code 180, without any useful subclassification of tumors. In conclusion, cancers of the renal pelvis and ureter may be underestimated in occupational studies due to their misclassification as common kidney cancer. Future studies should classify urothelial cancers relative to tissue origin for accurate assessment of risk factors.

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FIREFIGHTER RISK FOR TRAUMA EXPOSURE & DSM-IV PTSD. *P L Reed, and N Breslau (Michigan State University, East Lansing, MI 48824)

This study reports the lifetime history of trauma exposure and DSM-IV PTSD in a sample of 310 professional firefighters (95.5% male), from urban Michigan fire departments. PTSD was assessed using a survey adaptation of version 2.1 (PTSD section) of the World Health Organization Composite International Diagnostic Interview, as part of the baseline assessment for a longitudinal study of work trauma and health. Eligibility criteria included current assignment to fire suppression duty, and being on duty during a regularly scheduled training session where the baseline assessment took place. Participation rate for the baseline assessment was 96.9% of eligible firefighters. In addition to DSM-IV qualifying trauma, specific work-related trauma categories were included in the assessment of worst lifetime trauma and PTSD. Work-related trauma accounted for 36% of worst traumas (111/303), and 22% of cases of PTSD (11/50). The type of work-related trauma most frequently cited as a firefighter's worst trauma consisted of events involving the death or injury of a child. Comparisons were made to a representative sample of Metropolitan Detroit males age, 18–45 (see Breslau et al, Archives of General Psychiatry, 1998: 55, 226–32). The conditional probability of PTSD with respect to worst trauma was 0.165 for firefighters compared to 0.095 for the male metro sample (odds ratio, OR = 1.8, 95% confidence interval, CI = 1.2, 2.7). Work-related worst trauma represented 49% of worst traumas and 24% of cases of PTSD occurring after the age of 25. Adjusted for years of exposure, the age range with the highest conditional probability (0.16) for work related PTSD was 35–44 years. A detailed discussion of the nature of excess risk for trauma exposure and PTSD experienced by firefighters is presented.

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SURVEILLANCE OF WORKPLACE VIOLENCE AGAINST HEALTHCARE WORKERS: WORKER CHARACTERISTICS. *R Kling, A Yassi, and M Koehoorn (University of British Columbia, Vancouver, BC Canada)

Approximately 40% of all violence related workers' compensation claims in British Columbia come from health care workers, although these workers make up less than 5% of the workforce. The purpose of this study was to assess which segments of the healthcare population in British Columbia are at a higher risk for workplace violence. All employee occupational incident reports for patient violence in British Columbia between 2003–2005 were identified through the use of the Workplace Health Indicator Tracking and Evaluation (WHITE™) database. A multivariate Poisson regression model was used to calculate the relative risk of worker characteristics associated with workplace violence. Female workers were found to be at higher risk for violence compared to male workers (RR = 1.37). Occupations found to be at higher risk for violence, compared to Registered Nurses, were Licensed Practical Nurses (RR = 1.14), Care Aides (RR = 1.12), facility support workers (RR = 1.25), and health services workers (RR = 1.14); Health Science workers were found to be at lower risk (RR = 0.68). Compared to full time workers, part time and casual workers were at an increased risk with an RR of 1.15 and 1.27 respectively. Healthcare workers working in the community or in Public health had a decreased risk for violence (RR = 0.92 and RR = 0.54) compared to acute care worker. Staff with increasing seniority in their job had a decreasing risk for a violent event. If high-risk segments of the healthcare population can be accurately identified, prevention efforts can be specifically targeted at these workers. This study indicates that workers not commonly perceived to be at risk for workplace violence, including facility support workers and health service workers, are indeed at risk.

* = Presenter; S = The work was completed while the presenter was a student