©2023, CPWR-The Center for Construction Research and Training. All rights reserved. CPWR is the research and training arm of NABTU. Production of this document was supported by cooperative agreement OH 009762 from the National Institute for Occupational Safety and Health (NIOSH). The contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH.

recruited in 2018-2019 through collaboration with non-profits and worker unions with expertise working with low-income or immigrant workers. Construction workers that performed renovations, bridge constructions, welding, metal work, and demolitions were prioritized during recruitment. During a visit to their residences, a worker questionnaire was administered, and observations and a dust vacuumed sample of the home were collected. Factors predicting lead in home dust were explored by a bivariate analysis and a multivariable regression model. We found lead in homes' dust in the range of 20-8,310 ppm. Homes of construction workers generally had higher and more variable lead dust concentrations (mean 775, max 8,300 ppm) than autobody and janitor worker homes combined (mean 296, max 579 ppm). Five of the construction workers' home lead dust concentrations exceeded US guidelines for yard soil in children's play areas of 400 ppm, and were similar to other studies of homes near lead smelters, superfund sites, or in the Boston area in the early 1990s, pointing to disparities relating to work. Results from the multivariable regression model suggest that lead dust in homes of workers was associated with sociodemographic-, home-, and work-related factors, and pointed to overlapping vulnerabilities; however, a larger sample size is needed to verify findings. Results provide evidence that work-related factors are important to consider when assessing home exposures, and that take-home exposures for workers in lead high-risk jobs such as construction may be an important source of exposure in the home prime for public health intervention at work, home, and community levels.

Fiedler, N., et al. (2003). "Cognitive effects of chronic exposure to lead and solvents." Am J Ind Med 44(4): 413-423.

Background: Occupational exposure to lead and solvents has declined steadily over the past 20 years, however, construction workers continue to be exposed to these neurotoxicants. The purpose of this study was to investigate the cognitive effects of chronic occupational exposure to lead and solvents. Method: Based on K-XRF of tibial bone lead and occupational history of solvent exposure, subjects were classified into four exposure groups: lead (N = 40), solvent (N = 39), lead/ solvent (N = 45), and control (N = 33). All subjects completed tests to assess concentration, motor skills, memory, and mood. Results: Relative to controls, the lead, solvent, and lead/solvent groups performed significantly more poorly on a test of verbal memory, while the lead and lead/solvent groups were slower than the solvent and control groups on a task of processing speed. Bone lead was a significant predictor of information processing speed and latency of response while solvent exposure was a significant predictor of verbal learning and memory. Conclusions: Bone lead was associated with slower speed of processing while exposure to lead and/or solvents reduced efficiency of verbal learning. © 2003 Wiley-Liss, Inc.

Flynn, M. R. and P. Susi (2004). "A review of engineering control technology for exposures generated during abrasive blasting operations." H(ol)-22 (ng op(i)-2) (ne)4 (r)3 (e)4 (d dur-2 (t)-2)-2 g0 (f)3n

additional metal exposure hazards. In addition, several new and improved technologies offer prom

the atmospheric plume; inhalation studies of WTC dust in mice; and clinical examinations, community surveys, and prospective epidemiologic studies of exposed populations. WTC dust was found to consist predominantly (95%) of coarse particles and contained pulverized cement, glass fibers, asbestos, lead, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and polychlorinated furans and dioxins. Airborne particulate levels were highest immediately after the attack and declined thereafter. Particulate levels decreased sharply with distance from the WTC. Dust pH was highly alkaline (pH 9.0-11.0). Mice exposed to WTC dust showed only moderate pulmonary inflammation but marked bronchial hyperreactivity. Evaluation of 10,116 firefighters showed exposure-related increases in cough

Topics in Construction Safety and Health:

lead exposure that exceeds the OSHA action level. This study estimates the proportion of workers with BLLs that trigger the medical removal provision by industry sector, and examines whether workers received appropriate follow-up blood lead testing. METHODS: Three years (2003-2005) of data from the Adult Blood Lead Epidemiology and Surveillance program were analyzed to identify those industries with a high percentage of workers with BLLs that

surface and skin wipe samples were collected and qualitative information was obtained on personal hygiene practices, decontamination and hand wash facilities, and respiratory protection programs. Results showed lead contamination on workers' skin, respirators, personal automobiles, and the decontamination unit, indicating a significant potential for take-home lead exposure. Overall, the geometric mean (GM) skin lead levels ranged from 373 microg on workers' faces at end of shift to 814 microg on hands at break time. The overall GM lead level inside respirators was 143 microg before work and 286 microg after work. Lead contamination was also present inside workers' personal vehicles as well as on surfaces inside the clean side of the dec hygiene practkercles[(w)-2 (ant)-2 (pot(a)4 (l)- r)-7 d[(t)-2 (he (r)- (r)3 (og 0)- r2 (l)-3.37Td(-)Tj(hygi)

BACKGROUND: In 1990, Yale University, the Connecticut Departments of Health Services and of Transportation, the Connecticut Construction Industries Association, and the state's construction trade unions created the Connecticut Road Industry Surveillance Project (CRISP). METHODS: Data from 90 bridge projects from 1991 to 1995 and approximately 2,000 workers were evaluated. The distribution of peak lead concentrations in the blood for CRISP workers classified into five groups were compared to that from workers outside of Connecticut. RESULTS: This demonstration project was instrumental in lowering bridge worker blood lead levels. After 1992, only the painting contract employees experienced peak blood lead levels with < or = 2% exceeding 50 microg/dl. Compared to similar workers in other states, Connecticut workers had significantly lower peak blood lead levels. CONCLUSIONS: Two thousand workers and over 120 contractors benefited directly from CRISP. Two key features of the CRISP model differed from the 1993 OSHA standard: a contract-specified lead health protection program and a centralized system of medical monitoring. These differences may account for the improved protection observed between the CRISP and non-Connecticut cohorts.

Weisskopf, M. G., et al. (2004). "Cognitive deficits and magnetic resonance spectroscopy in adult monozygotic twins with lead poisoning." Environ Health Perspect 112(5): 620-625.

Seventy-one-year-