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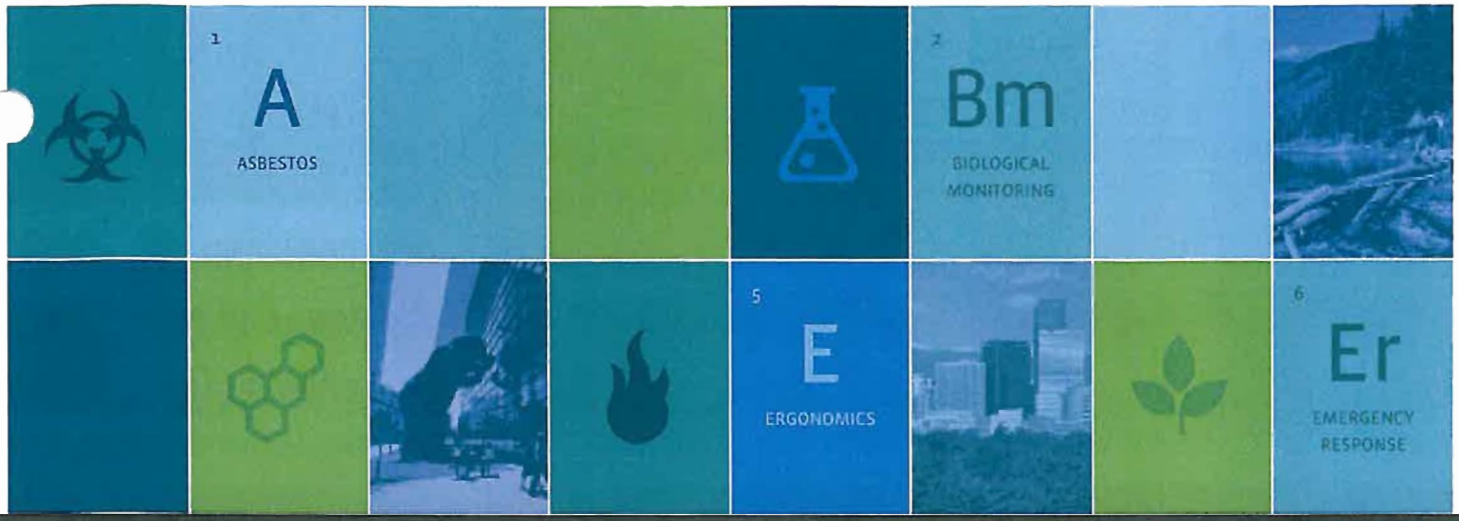

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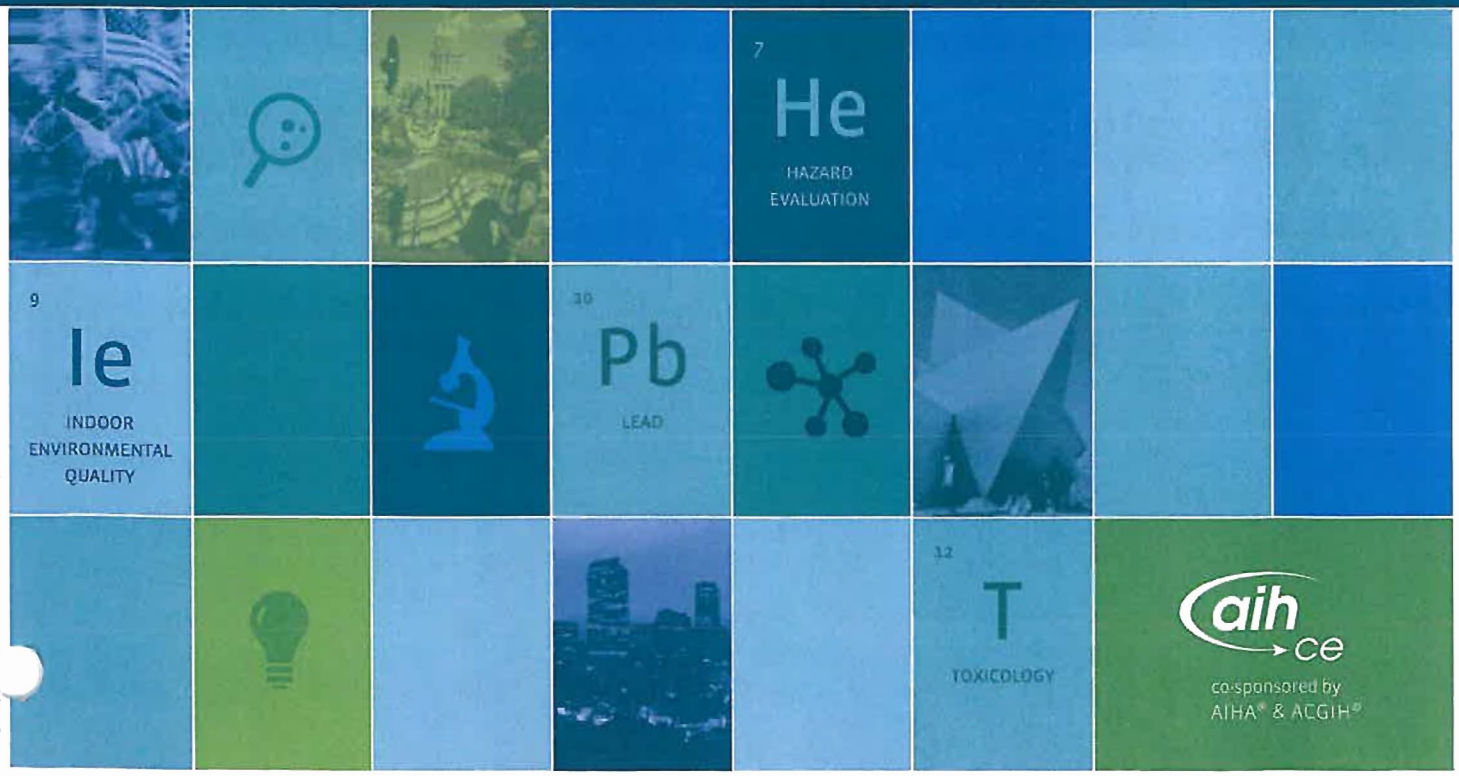

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Noise Survey in Patient Rooms of a Hospital

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Objective: Noise is a problem in hospitals that can affect patients and staff alike. Patients are more susceptible and complain about the loud noise and, usually, industrial hygienists are called in to evaluate the complaint and recommend measures to overcome the problem. **Methods:** This study was performed in a hospital unit that had reported the lowest patient satisfaction on room quietness. The instruments used to determine the noise levels included a noise dosimeter (model 500) and a sound level meter (model 2400) both made by Quest Technologies Inc. The dosimeter was strategically placed in a patient's room, near the ear of the patient. The dosimeter recorded data continuously for 32 hours. The sound level meter was used hourly in order to provide randomized direct-reading data for the first 8 hours of sampling. Continuous observations were made by the researchers throughout the data collection. Any sudden loud noise was logged in an observation logbook along with the time of its occurrence. **Results:** The peak noise levels ranged up to 150.8 dBC and the average noise levels ranged up to 108 dBA as compared to recommended noise level of 35 dBA. The sources of noise were overhead paging, phones ringing, loud talking, doors slamming, carts and beds rolling through the hallway, and pagers beeping. Front desk nurses, doctors, visitors, and sometimes patients were observed huddled around the desk, engaged in loud conversation. The front desk was also the origin of noise from the overhead pages. **Conclusions:** In addition to engineered noise control options, the following actions can be taken to reduce the patients' exposure to noise: require staff to have their pagers on vibrating mode, remind staff to keep noise levels down, post signs at the main entrance to the floor reminding visitors and staff to keep their voices down and prevent door slamming.

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Comprehensive Noise Assessment in the Coast Guard Small Boat Community

S. Griffin, US Coast Guard, Cleveland, OH.

Situation/problem: US Coast Guard (USCG) small boat stations are staffed by over 5100 active duty personnel and carry out missions including search and rescue and law enforcement. Current occupational noise exposure monitoring data, primarily based on direct-reading sound level surveys, is inadequate to describe exposure for task-based similar exposure groups (SEG) and to make informed decisions about occupational medical monitoring for this population. **Resolution:** The Health Risk Assessment Integrated Product Team (HRA-IPT) developed the sampling strategy and data collection instruments necessary to systematically assess noise exposure at 35 stations throughout the Coast Guard. This representative sample includes the seven station types operated by the USCG and the nine vessel platforms operated principally by station personnel. Data collected consists of full-shift noise dosimetry, accompanied by an activity card that workers use to record their tasks throughout the dosimetry period, and sound level data on fixed equipment. Data collection began in July 2009 and will terminate June 2010. **Results:** Between July and October 2009, the HRA-IPT collected dosimetry data on 48 personnel at five units in Virginia, Massachusetts, and Minnesota. Initial results indicate small boat station personnel is overexposed to noise (mean L_{eq} = 86.3 dBA, std dev = 9.6; range 69–109 dBA). Tasks monitored during these 48 shifts included boat patrols and maintenance, facilities maintenance, office work, and firing range training. The HRA-IPT will complete further data collection and analysis over the next 9 months, primarily focused on defining and describing task-based SEGs. **Lessons learned:** The data collected as part of this study will be used to improve engineering and administrative controls and PPE selection in the small boat community. The HRA-IPT also hopes to use this data to drive much-needed changes to the USCG hearing conservation program and safety and environmental health policy.

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A Comparison of Whole Body Vibration Exposures between a Cab-over and Conventional Flat Bed Truck

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Objective: The goal of this study was to compare whole-body vibration (WBV) exposures between a cab-over and conventional flatbed truck. Research has indicated there is a relationship between working as a truck driver and the development of low back pain. **Methods:** Using a repeated measures design and a standardized test route, whole body vibration exposures were compared when 13 experienced flatbed truck drivers drove two vehicles: 1) a European-style flatbed truck where the drivers are situated directly over the front wheels (cab-over design), and 2) a North American-style flatbed truck where the cab is situated behind rather than over the front wheels. Both vehicles were analyzed with the stock seats that came with the vehicles and the standardized test route consisted of a section of freeway and two sections of city streets. A tri-axial seat pad accelerometer was mounted on the driver's seat, and a second tri-axial accelerometer was securely mounted on the floor of the vehicle. A WBV data acquisition system was used to collect raw (raw (+) peak, raw (-) peak, D_k, S_{ed}) and time weighted average (A_w, VDV, TWA peak) tri-axial WBV measurements at the seat and floor. **Results:** When compared to the vibration measurements at the floor, the seats in both vehicles were shown to significantly attenuate WBV exposures. When comparing vehicle types, there were significant differences in WBV exposures with the cab-over design flatbed having higher WBV exposures. **Conclusions:** Long-term WBV exposure has been linked to occupationally related low back pain. When selecting vehicles for professional drivers it is important that employers consider the associated WBV exposure differences between different types/classes of vehicles. The results of this study indicated that, relative to vehicles where the cab was situated behind the front wheels, vehicles with a cab-over design may increase occupational WBV exposures.