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ABSTRACTS

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Objective: Toxicity from an inhalational exposure is an important cause of occupational fatalities. Characteristics associated with inhalational occupational deaths are not well-described. Our objective is to compare the characteristics of occupational fatalities from inhalation injury in confined versus non-confined spaces.
Methods: We analyzed the 2003 to 2010 restricted data from the U.S. Bureau of Labor Statistics Census of Fatal Occupational Injuries (CFOI) database. The CFOI database records workplace deaths by collecting data from state and federal administrative sources. Chi-square analysis was performed to determine if significant associations exist between the location of injury and specific variables of interest.
Results: Over the 8-year study period, 510 inhalation-related deaths were identified. In total 482 cases were analyzed following exclusion of cases that were not classified by space and deaths deemed to be not work-related due to acute reaction to illicit drug use while working. Of the remaining 482, 211 (43.8%) occurred in confined spaces and 271 (56.2%) occurred in non-confined spaces. The majority of fatalities due to inhalation injury in confined and non-confined spaces were found to be in Caucasian males. Table 1 compares characteristics for inhalational deaths in confined and non-confined spaces. Carbon monoxide was responsible for

Table 1. Characteristics of occupational fatalities by occupation and toxicant.

Occupation	Confined	Non-Confined
Professional (managers)	31 (44%)	40 (56%)
Protective Service & Military (security guards, first-responders)	8 (36%)	14 (64%)
Service (cleaners, food preparation)	*	33 (92%)
Agriculture (farmworker)	22 (92%)	*
Industry (construction, automotive service, painters)	111 (43%)	145 (57%)
Transportation (tractor-trailer or truck driver, movers)	36 (49%)	37 (51%)
Toxicant		
Carbon monoxide	32 (19%)	134 (81%)
Halogens and halogen compounds	*	28 (90%)
Chemical products, including cleaning agents, paint, lacquer and varnishes	9 (28%)	23 (72%)
Coal, natural gas, and petroleum fuels	8 (57%)	6 (43%)

Fatal injury data were calculated by Drexel Division of Medical Toxicology with restricted access to BLS CFOI microdata. *No data or data that do not meet BLS publication criteria.

258. Evaluation of clinical effects after high pressure injection injuries of the hand using 20 years' experience of Pavia Poison Centre: A toxicological and surgical emergency

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Objective: To describe clinical manifestations of cases of high-pressure injection (HPI) injuries referred to the Pavia Poison Centre (PPC), in order to identify toxic effects and treatments. HPI injury of the hand represents one of the most serious surgical emergencies of the upper extremities.
Methods: A 20-year retrospective analysis (1995-2014) assessed all cases for sex, age, nature of the injected fluid, site of HPI, clinical manifestations, treatment and outcome. The factors influencing the seriousness, the extensiveness of subcutaneous damage and the functional outcomes of patients were assessed.[1]
Results: Forty-two cases were studied (37 M; mean aged 40.9 ± 10.5 years). The mechanism of injury was described in 24 (57%) cases with 20 injections by pressure guns and 4 due to blast pipe pressure. The most common injury was to the non-dominant hand. More than 36% of injections occurred to the index finger. The second most affected region was the palm (19%) whereas the thumb was only involved in 17% of cases. The fluids involved were oily substances (38%), solvent-based paints (17%), water-based paints (14%), organic solvents (12%), fats (10%), solid materials (5%), gas (2%) and unknown (2%). The most serious injuries occurred with solvent paints and oils. The clinical course was characterized by edema (69%), pain (63%), punctiform skin lesions (44%), necrosis (16%), local hyperemia (12.5%) and reduced function (9.5%). Digit ischemia (9%) and necrosis (6%) were also involved. Fifty-one per cent of patients were admitted to the emergency department (ED) within 6 hours of the incident. Outcomes are available for 10 cases that underwent urgent immediate surgical exploration/decompression; 4 had a finger amputation (3 solvent-based, 1 water-based paint), 2 reported permanent sensory deficits (1 paint solvent, 1 hydraulic oil), 1 developed decreased function of the hand and 3 patients recovered without sequelae. The amputation rate of these injuries is up to 10% without adequate treatment and on average, the time between injection and presentation in ED was 24 hours.
Conclusion: The real gravity of HPI injuries is often missed by the emergency room physician who, due to the apparent lack of initial injury, ignores the potential morbidity of the injury itself.

All patients with HPI injuries should be considered at risk for amputation and be referred for immediate surgical assessment.

3. Jennissen C, Wallace J, Donham K, et al. Unintentional needlestick injuries in livestock production: a case series and review. J Agromedicine 2011; 16:58–71.