

Hazardous Materials Information System (WHMIS). While the criteria for classifying products under the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) are different, neither system requires suppliers to test their products to classify them. This could lead to inaccuracies in the information reported on the MSDS or in the classification of the product.

Resolution: To resolve this, a project was conducted where samples of products classified as flammable or combustible, representing a variety of industry sectors and product types were collected to evaluate the potential for error. Flash points were measured and compared to the reported values on the MSDSs. The products' classifications were then compared using the WHMIS and GHS criteria.

Results: The results indicated that there were significant variations between the disclosed and measured flash point values which could potentially result in an underestimation regarding the flammability of the product. While similar numbers of the products were misclassified under both systems as combustible when the measured flash point indicated that they should be classified as flammable, the tendency appeared to be to "over-classify" (provide a hazard class that was more conservative) under the GHS criteria.

Lessons Learned: The lessons learned are that it is important for employers to understand the limitations in the information provided on MSDSs when developing safe work procedures and training programs in the workplace. However the transition to GHS may potentially decrease the possibility of "under-classifying" flammable and combustible products where no test data on the product are available.

SR-101-03

Outsourcing Labour and Occupational Health: A Study Among Cleaners and Food Service Workers in the Healthcare Sector

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Objective: Outsourcing of labor has been linked to negative occupational health and safety (OH&S) outcomes. In British Columbia (BC), Canada, four of the six provincial healthcare employers outsourced cleaning and food services to external contractors. This mixed-methods study investigated the effects of outsourcing on injury rates among hospital cleaners and food service workers (CFSWs).

Methods: The hospital-level injury rates per bed, average days lost and average costs per injury among CFSWs at acute care hospitals in BC from 2001 to 2008 were calculated. Time-loss injury claims were obtained from the provincial workers' compensation system and annual total bed counts from the Ministry of Health. Incidence rate ratios (IRR) for injuries and average days lost per injury for outsourced and non-outsourced CFSWs were compared between pre (2001-2003) and post (2005-2008) outsourcing periods for food services and cleaners separately. Average costs per injury were also calculated and compared using multiple linear regressions. Twenty CFSWs from five of the six employers also participated in semi-structured telephone interviews. Interview data was analyzed using iterative thematic analysis methods to identify emerging themes on health and safety at work.

Results: Injury rates (IRR) for outsourced CFSW (Cleaners IRR =0.79, CI=0.57, 1.09; FSW IRR = 0.65, CI=0.57, 1.10) decreased in the post outsourcing periods, though non-significantly. IRRs for average days lost per injury decreased in the post outsourcing periods (Cleaners IRR=0.81, CI=0.66, 0.99; FSW IRR=0.80, CI=0.50, 1.28), non-significantly. Significant decreases were observed ($p<0.05$) in the average cost per injury for outsourced cleaners post outsourcing. No distinct differences emerged in the interview data between outsourced and non-outsourced workers regarding injury experience, workplace training, OH&S awareness, employer support and work overload. However, outsourced workers implied instances of under reporting workplace injuries in the interviews.

Conclusions: This study provides preliminary evidence on the association between OH&S and outsourcing, with observed decrease in compensated injury outcomes among outsourced workers. Interview results suggest that changes in injury outcomes for outsourced workers may be related to injury under reporting. Further research should include in-depth interviews with a larger sample size and quantitative data to elaborate some of the differences observed in both parts of this study.

CS-101-04

Project Management Principles for Industrial Hygienists

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Situation/Problem: While effective project management skills are essential for success as an industrial hygienist, most IHs “learn by doing”, hopefully with a well-qualified mentor to provide guidance. Unfortunately, this type of on-the-job, informal training does not always prepare IH’s to independently plan and execute large complex projects.

Resolution: Learning and applying a framework of “best practice” principles for project management can help IHs avoid common pitfalls and deliver superior results within budget and on schedule. Several professional organizations now provide comprehensive training and certification programs for project management. The methods and principles taught in these programs are directly applicable to industrial hygiene projects, and can help IHs establish a high degree of credibility with upper management, clients, and other stakeholders.

Results: This discussion will provide examples of how these project management methods and principles address key considerations in IH projects, and provide practical tools and techniques to improve project outcomes. The presentation discusses key activities for project initiating, planning, executing, monitoring and controlling, and closing, from the perspective of typical IH projects. The presentation also highlights the utility of specific methods and tools to describe project budget status and quantify project risks.

Lessons Learned: Many of the project management “best practices” are not applicable for every IH project in every situation. Project managers must scale and adapt their management processes to the size and type of project under consideration, the organizations and stakeholders involved, and the environmental factors and risks that might impact project completion. It was also apparent that even experienced project managers can gain valuable insights and new techniques by studying these formal project management guidelines, and younger professionals can gain a significant