

Abstract Book

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May 21-26, 2016 → AIHce2016.org

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P0116

Non-Routine Industrial Hygiene: Evolving Issues in Emergency Response

Wednesday, May 25, 2016, 10:00 AM - 12:00 PM

CS-116-01

Industrial Hygiene OUTSIDE the Fenceline

R. Jarecha, Paulsboro Refining Company, Paulsboro, NJ

Situation/Problem: Over the last several years, there have been off-site/community impacts & concerns from either industrial facilities, train derailments, concerns over crude by rails, etc. There is a vital role that IHS can fill by establishing proper monitoring equipment, action levels, community evacuation zones, etc. that can protect both communities and industries best interests.

Resolution: Based on lessons learned from a railcar derailment and subsequent release of a hazardous material, our site took the community lead to establish an Air Monitoring Team. The team divided up the neighboring towns into 7 zones, and facilitated communication between State, County, and Municipal agencies to agree upon airborne limits to justify notification only, shelter-in-place or evacuation.

Results: We have an efficient method for performing air monitoring in the community quickly, utilizing pre-established sensitive locations in each community zone, and effective communication to officials via a paging system.

Lessons learned: Offsite impact (i.e. outside the fenceline) is a vital piece of emergency management and the one that public officials & agencies will be most concerned. Having a pre-established plan for the likely impacts will increase the response time, promote timely communication with the appropriate parties, and build trust among industry & public officials.

CS-116-02

A Comparison of Hazardous Materials Flow in Five Kentucky Counties: Urban vs. Rural Gradient

J. Basham, V. Golla, and R. Taylor, Western Kentucky University, Bowling Green, KY

Situation/Problem: The purpose of this study was to comparatively analyze five recent hazardous material commodity flow studies conducted in the state of Kentucky that were focused at the county level. These studies recorded the amounts and types of hazardous materials being transported, time of day, day of the week, and hazardous material incidents that occurred in the last 10 years. The five counties, Jefferson, Madison, Warren, Henderson, and Daviess were ranked on a rural-urban gradient using the National Center for Health Statistics' (NCHS) Urban-Rural Classification Scheme and then a comparison was performed using the data collected from previous studies.

Resolution: Multiple roadways were observed in each county. In order to compare the commodity flow in the counties, the monitored roadway with the highest hourly average of hazmat trucks was chosen from each county and used for analysis. Three of the five counties had interstates with the highest

hourly averages, Warren I-65, Jefferson I-71, and Madison I-75 while Daviess and Henderson counties had local highways with the highest hourly averages, Highway 60 and Highway 41 respectively. SPSS software was utilized for data analysis for this study. Descriptive statistical analysis revealed the frequencies for the placard identification number, the day of the week, and the time of day. A risk assessment analysis was also performed using a one-way ANOVA to determine if the average number of hazmat incidents differed based on county classification.

Results: Results from this study revealed that the most rural county, Madison County (I-75), and the most urban county, Jefferson County (I-71), were more closely related in terms of hazardous material flow compared to the counties in the middle of the rural-urban gradient, Daviess (HWY 60), Henderson (HWY 41), and Warren (I-65). Statistical significance was found using a post-hoc analysis: Tukey Honest Significant Difference (HSD), between the most urban and most rural counties when looking at 31 total incidents that had occurred in the last 10 years in the five counties. Descriptive statistics, including day of the week, time of day, and type of material, for the counties also found this similarity between the most urban and rural counties.

Lessons learned: Based on this study, more resources need to be devoted to counties that are most urban and most rural to ensure that communities in these areas are well equipped for emergency preparedness and response in view of the risk that exists due to the transportation of hazardous materials on our nation's roadways every day.

CS-116-03

Recommendations for Safe Handling of Human Remains Containing Viral Hemorrhagic Fevers (VHFs)

J. Shugart, CDC/NIOSH, Decatur, GA

Situation/Problem: As a result of multiple patients with Ebola virus disease (Ebola) seeking health care in the U.S. during the 2014 Ebola outbreak, the Centers for Diseases Control and Prevention (CDC) received numerous emails and telephone calls asking how to safely handle human remains contaminated with Ebola. Ebola can be transmitted in postmortem care settings by direct handling of human remains without recommended personal protective equipment (PPE), and through splashes of blood or other body fluids such as urine, saliva, feces, or vomit to unprotected mucosa such as eyes, nose, or mouth during postmortem care. Greater than 50% of all Ebola patients, including healthcare workers, have died. Because Ebola has a high case fatality rate, it is very likely that healthcare and mortuary workers will have to handle human remains.

Resolution: A stakeholder workgroup was formed with healthcare and mortuary workers in the private sector, national associations, and federal partners. As a result of a literature review and our combined fatality management experience, it was determined the existing CDC mortuary guidance issued earlier in 2014 needed to be updated. The new guidance provides additional occupational health and safety recommendations for healthcare and mortuary workers when handling human remains and surfaces and equipment used during postmortem care that may be contaminated with Ebola.

Results: The workgroup developed "Guidance for Safe Handling

of Human Remains of Ebola Patients in U.S. Hospitals and Mortuaries”, including a 21 step job aid specifically on the postmortem preparation in a hospital room. NIOSH staff also developed a companion training video “Recommended Postmortem Preparation of Human Remains Containing Ebola Virus”. Hospitals across the U.S. are already incorporating these recommendations into their domestic preparedness plans.

Lessons learned: The recommendations outlined in our guidance document and training video should be considered for other viral hemorrhagic fevers. For example, our recommendations have been used to safely handle human remains with Lassa fever in the U.S. It is crucial for public health professionals to work closely with their state and local officials and their partners who have agreed to implement these guidelines during the planning, response, and recovery phases.

CS-116-04

Ebola Biosafety and Infectious Disease Response Training Needs Assessment and Gap Analysis for the NIEHS Worker Training Program

J. Rosen, National Clearinghouse for Worker Safety & Health Training, Research Triangle Park, NC; S. Beard, NIEHS, Research Triangle Park, NC

Situation/Problem: In October of 2014, a series of Ebola Virus Disease (EVD) cases in Texas alerted the nation to a number of problems in preparedness and response to infectious diseases within the U.S. These events raised awareness of the threat posed by infectious diseases that can rapidly spread through transportation systems and of the risks they pose to workers within healthcare, transportation, emergency services, environmental cleaning, and other industries. The need to provide effective health and safety training to a broad spectrum of potentially exposed workers became apparent.

Resolution: Congress appropriated supplemental funds to the U.S. Department of Health and Human Services (HHS) to enhance the public health and health care system’s capability to respond to infectious diseases. The National Institute of Environmental Health Sciences in partnership with CDC, NIOSH, OSHA, and ASPR was designated to provide \$10 million dollars in worker safety and health training grants on biosafety and infectious disease response over a three-year period. To assess the gaps and needs in providing Ebola and other infectious disease training to workers who have potential exposure, NIEHS conducted a gap analysis that consisted of a literature review, survey, and focus groups of key stakeholders such as employers, union health and safety professionals, state and county health authorities, and researchers in New York, Washington, DC, California, and Ohio.

Results: Gaps were revealed in the areas of resources, available curricula and trainers, conflicting or vague guidance, and core competencies for worker safety and health training.

Lessons learned: Improvements in federal, state, and local guidance on worker safety and health protection from new or emerging infectious diseases should be clear and be rapidly implemented. Resources for ongoing training in biosafety and infectious disease preparedness and response can help stakeholders better respond to current and future infectious

disease threats.

CS-116-05

A New Tool for Managing Dermal Risks: Dermal Exposure Risk Management and Logic (DERMaL) eToolkit

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Situation/Problem: The focus of risk management strategies traditionally has been inhalation exposures. However, dermal contact with chemicals can present significant direct, indirect, or latent health risks that are often not fully understood or addressed by the emergency management and response (EMR) community.

Resolution: The objective of this project was to develop the Dermal Exposure Risk Management and Logic (DERMaL) eToolkit to aid in preparedness planning and response in events involving potential dermal exposures to chemicals.

Results: The framework for the DERMaL eToolkit relies on three distinct decision making techniques: 1) scenario planning, 2) risk analysis, and 3) decision analysis. Using subject matter experts (SMEs) recruited from various technical fields, the resources included in the tool’s database were ranked on a set of variables (i.e., accessibility, reliability, and familiarity) to generate a value of information (VOI) score unique for each resource. This approach allows for the systematic identification, organization, and prioritization of relevant information resources in a specialized electronic library pertaining to dermal exposures to chemicals that are consistent with EMR needs (i.e. health effects, exposure assessment, exposure control methods, and medical management). By doing this, the DERMaL eToolkit provides a much needed structure based on contemporary decision analysis principles for dermal exposure to chemicals for the EMR community.

Lessons learned: The DERMaL eToolkit will provide access to guidance for emergency response and preparedness plans in addition to workplace procedures where dermal exposures represent a health risk. These resources contribute to public health preparedness and response by filling data gaps and providing rapid access to guidance for dermal risk assessment and risk management for the EMR community.

SR-116-06

Emergency Responder Health Monitoring and Surveillance

R. Funk, National Institute for Occupational Safety and Health, Atlanta, GA

Objective: The Emergency Responder Health Monitoring and Surveillance (ERHMS) system is intended to keep responders, volunteers, and contractors safe during all phases of emergency response (pre-, during, and post-deployment). ERHMS was designed to help determine the effectiveness of protective measures utilized during a response. It can be used to develop and target appropriate workplace interventions. ERHMS builds on lessons learned from the World Trade Center attacks, Hurricane Katrina, and Deepwater Horizon. Data collected pre-, during-, and post-deployment will help identify