

Abstract Book

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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

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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

N. Hudson and S. Dotson, CDC/NIOSH, Cincinnati, OH; A. Maier, Environmental Health, University of Cincinnati, Cincinnati, OH

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

those responders who would benefit from medical referral and long-term surveillance.

Methods: The National Institute for Occupational Safety and Health (NIOSH) developed the Emergency Responder Health Monitoring and Surveillance (ERHMS) system collaboratively with a National Response Team workgroup of federal, state, and local government agencies and responder groups.

Results: NIOSH has been engaged in implementation and field-testing of the ERHMS system during both real-world and simulated events. This includes responses such as the Ebola response, the Deepwater Horizon response in the Gulf, as well as a multi-agency federal exercise. The implementation phase of ERHMS seeks to determine how individual response organizations can optimally put the ERHMS system into practice themselves, as well as how an incident command structure (ICS) during an emergency response can best utilize ERHMS. Other implementation activities include classroom training, online training, and ERHMS Info Manager software. This database could streamline and standardize the use and sharing of ERHMS data among various responder groups.

Conclusions: ERHMS creates a new paradigm that protects responders pre-, during, and post-deployment. All responder agencies should implement the ERHMS system to better protect their responders. Incident commanders should request that an ERHMS unit be included in the Incident Command Structure to perform these important functions.

P0117 Regulatory and Communication Issues in Hazard Assessments

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

SR-117-01 Experimental Measurements of the Interzonal Air Flow Parameter (β) for Two- Zone Concentration Modeling

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Objective: Historic, contemporary, and potential exposures to airborne chemicals can be modeled using a variety of approaches. For scenarios where a worker is close to a source, a two-zone model can be used to describe the higher concentrations near the point of pollutant release. The interzonal airflow rate (β) is important in describing the mass flow between near and far zones.

Methods: β was measured in 74 experiments conducted in 13 indoor airspaces. The airspace ranged in volume from 79 to 1,000 m³. The air change rates ranged from 0.20 to 21 ACH. Tracer vapors were released at known rates and the resulting concentration were measured by 4 photoionization detectors in the near zone around the point of release. A robot arm was used to simulate worker motion in the near field. The tracer mass release rate and the measured vapor concentrations were used to solve mass balance equations for β .

Results: The mean value of β for all air spaces was 5.2 m³/min [95% CI 3.4 - 7.0] and the geometric mean was 3.4 m³/min [95%

CI 2.5 - 4.5].

Conclusions: These values will be useful in applying the two-zone model for estimation of workers' exposures near sources of air pollutants.

CS-117-02 Managing Compliance to New N-Methyl Pyrrolidone (NMP) PEL: A Challenge for the IH Professional

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Situation/Problem: N-Methylpyrrolidone (NMP) is a highly effective solvent cleaner for various materials, making it a widely used chemical in many industries, including aerospace. NMP is currently listed as a California Proposition 65 chemical due to its reproductive/developmental toxicity and exposure may result in both short and long term adverse health effects to workers. In 2014, CalOSHA published a NMP PEL of 1.0 ppm. This new PEL poses challenges for some industries because many different chemicals and products contain NMP. The California Department of Public Health has developed regulations for material handling and use of NMP, as well as a list of alternative chemicals to substitute NMP. Despite all this, industries have continued to use NMP due to its high performance and effectiveness. Furthermore, any modifications altering the process could cause complications and potential extensive requalification procedures that could lead to additional losses such as time and other resources. In addition to the challenge of enforcement from a safety perspective, is the challenge of shifting the work culture. Due to this recent change in CalOSHA exposure regulations, Industrial Hygienist/ Safety Professionals are tasked to assist in managing industry compliance to the new standard without disrupting daily operations.

Resolution: Industrial Hygienist/Safety Professionals developed strategies to address the challenges associated with complying with the new NMP standard with existing processes. Addressing the task includes effectively identifying NMP usage, assessing exposure potential for each process, determining how to mitigate/minimize exposure to NMP through engineering controls/PPE, and educating affected personnel.

Results: Process activities which utilized NMP, successfully met the new compliance standards through collaborative efforts between Industrial Hygienists/Safety Professionals, employees, management, facilities and vendors.

Lessons learned: To achieve success in meeting the new compliance standards, it is essential that employees, management and facilities are fully engaged in their efforts. Although FedOSHA has not adopted this new standard, industries should take a pro-active approach in identifying NMP in their processes and deploy measures to mitigate exposure risks. This will help minimize potential production interruption if compliance standards become adopted.

CS-117-03 Justification for an Occupational Exposure Limit for Shale Gas Mixture

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Situation/Problem: There is the potential for significant worker