



Preparedness & Security

Counter Terrorism Planning and Response Efforts: Training for University Hospital Medical Staff

Updated January 2007

Summary: Vanderbilt Environmental Health & Safety (VEHS) provides a full spectrum of safety services and information to support the teaching, research, and patient care missions for Vanderbilt University and Vanderbilt University Medical Center. Their mission is to partner with the Vanderbilt community to facilitate and promote safety, health, and environmental management.



Collaborative community disaster planning in Nashville/Davidson County began with the implementation of EPA's Emergency Planning and Community Right-to-Know Act (SARA Title III). Vanderbilt University Medical Center (VUMC), along with nine other hospitals in Nashville, participated in the Local Emergency Management Planning Committee. The Committee is comprised of representatives from Nashville/Metropolitan government and related volunteer, civic, healthcare, business, and industry representatives. Over the years, the Committee has provided advice and assistance to the Nashville/Davidson County Office of Emergency Management for endeavors such as mass casualty exercises and incidents, Y-2-K planning, and the national Metropolitan Medical Response System (MMRS). So when the Country was provided a MMRS grants to purchase decontamination equipment and personal protective equipment, they included the healthcare facilities. This case study examines some of the training programs implemented at VU Medical Center on using this type of equipment during an incident.

Campus Profile

Vanderbilt University
Nashville, TN
UG Students: 6,319
Grad Students: 4566
Resident Students: 5,000
Faculty and Staff: 3,500/14,200
Campus Area: 330 acres
No. of Buildings: 207
Operating Budget: \$1.5 billion
Sponsored Research: \$285.7 million
Medical Centers: VU Hospital, Vanderbilt Children's Hospital, VU School of Nursing and VU School of Medicine
Hospital Beds: >1,000
Emergency Dept. Visits annually: >70,000
Annual Clinic Visits: >800,000

Project Goals

- Provide hospital and university personnel with training programs to prepare for and handle in-coming contaminated patients and first responders.
- Train hospital and university personnel in methods to protect themselves from exposure and curb the spread of contamination.
- Comply with existing regulations from the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Nuclear Regulatory Commission (NRC).

U.S. EPA New England Best Management Practices Catalog for Colleges and Universities.

For more information about the catalog and other case studies visit

<http://www.epa.gov/region1/assistance/univ/bmpcatalog.html>

The provision of the case studies contained within the catalog does not constitute any form of endorsement or approval by the US EPA of particular institutions or technologies. The US EPA does not exercise editorial control over the information contained in non-EPA web sites, nor is the US EPA associated with or responsible for the content of these sites. The links to these web sites are provided for the convenience of the viewer.

Created by Campus Consortium for Environmental Excellence through EPA funding

- Comply with accreditation standards for hospitals developed by agencies such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
- Coordinate response activities with other local area hospitals and municipal, state, and federal resource agencies.
- Fulfill regulatory requirements that ask communities to designate local hospitals that will accept and treat victims of emergency incidents.

Description of Issue/Problem

The City of Nashville, Tennessee is within the Metropolitan Medical Response System (MMRS). The Nashville/Davidson County Office of Emergency Management coordinated the citywide MMRS effort and received affiliated grant funds, some of which were designated for hospitals in the area. The primary focus of the MMRS program was to develop or enhance existing emergency preparedness systems to effectively respond to a public health crisis, especially a weapon of mass destruction event. While Vanderbilt received introductory training material from the Department of Justice under this program, the initial training lacked the practical component that employees and administrators would need to best apply the program to the University Hospital. VUMC also received decontamination equipment and Personal Protective Equipment (PPE) through distribution of the grant funds; however, to apply the training and to use the equipment properly a new hands-on program would need to be developed.

EMERGENCY OPERATIONS CENTERS

The ten healthcare facilities have an inter-hospital mutual aid agreement and have designated emergency operations centers (EOC) in each facility. These centers maintain direct contact with each other during community disasters.

Pre-Project Considerations

- The support of VUMC executive leadership.
- Risks in the community should be evaluated.
- Determination of PPE needs to coordinate with identified risks and liabilities.
- A location for decontamination activities.
- Current capabilities in treating mass casualties at the hospital/clinic.
- Level of communication between EH&S staff and patient care providers.
- Funding sources for the program.
- Available resources in the community.

Applicable OSHA Regulations

-Hazardous Waste Operations and Emergency Response;
-Hazard Communication;
-Personal Protective Equipment (PPE); and
-Respiratory Standard

Steps Taken

1. Determined applicable regulations/standards that applied to hospital/Emergency Department personnel providing care for patients involved in a hazmat incident or terrorist event.
2. Developed a training matrix that specified the training requirements and applicable staff who should participate.
3. Drafted a training curriculum using a broad spectrum of available resources.
4. Presented the information collected to the Medical Center Safety Committee and the Emergency Department management. This established a partnership and 'ensured' project support.



The provision of the case studies contained within the catalog does not constitute any form of endorsement or approval by the US EPA of particular institutions or technologies. The US EPA does not exercise editorial control over the information contained in non-EPA web sites, nor is the US EPA associated with or responsible for the content of these sites. The links to these web sites are provided for the convenience of the viewer.

Created by Campus Consortium for Environmental Excellence through EPA funding

5. Collaborated with local resources, other hospitals, and national groups who put forth standard practices to ensure training was consistent and compliant.
6. Developed specific training programs that addressed the culture of the VU medical community and the University. Training was developed with the collaboration of Emergency Department management, to provide both didactic and practical hands-on Hazmat Responder/Decon training.
7. Coordinated documentation, procedures, equipment, etc. from the training program to include class schedules, participants, training supplies, etc.
8. Provided training to clinical staff in the Pediatric and Adult Emergency Departments. Each staff member participated in two training sessions lasting approximately 3-4 hours per session. The first session was predominantly didactic with written exercises and post-tests. The second session included written practice exercises, a demonstration regarding the use of personal protective equipment, and an actual decon exercise. During the exercise, as many as seven Emergency Department staff members donned full personal protective equipment and “deconned” a mannequin in the non-ambulatory decontamination unit adjacent to the Emergency Department.
9. Evaluated training for effectiveness during emergency preparedness drills.

System Description and Tools Used

Equipment

- Personal Protective Equipment such as air purifying respirators, powered air purifying respirators, gloves, foot protection, and full body suits.
- Decontamination Equipment for the built-in decon unit for ambulatory and non-ambulatory patients.
- Training supplies
 - Power point presentations prepared by Vanderbilt EH&S that review hazmat response, PPE, and decontamination procedures. Presentations describe planning, communications, detection, triage, handling evidence, toxicology, routes of exposure, hazard classifications, dose – response relationships, differences between a hazmat incident and a terrorist incident, and the health effects of various agents
 - Computer equipment to support the presentations
 - Mannequin for practicing patient decontamination
 - Decontamination supplies
 - Stretchers
 - Geiger-Mueller Counter



Resources used and/or Provided to Employees

- DOT Guidebook <http://hazmat.dot.gov/pubs/erg/gydebook.htm>
- NIOSH HazMat Guide <http://www.cdc.gov/niosh/npg/npgname-a.html>
- Material Safety Data Sheets
- Chemwatch <http://www.chemwatch.net>
- TOXNET <http://toxnet.nlm.nih.gov/>
- Poison Control <http://www.aapcc.org/>
- Recognition and Management of Pesticide Poisoning <http://ace.orst.edu/info/npic/rmpp.htm>
- Chemical Hazards Information and Response System (Chris) <http://www.chrismanual.com/>
- Medical Management of Biologic Casualties Handbook. <http://www.bt.usf.edu/Reports/USAMRIID-2001-Bluebook.pdf>
- Defense Against Toxin Weapons. <http://www.usamriid.army.mil/education/defensetox/toxdefbook.pdf>
- Medical Management of Chemical Casualties Handbook. http://ccc.apgea.army.mil/reference_materials/handbooks/RedHandbook/001TitlePage.htm
- Medical Management of Radiological Casualties. <http://www.afrii.usuhs.mil/www/outreach/pdf/radiologicalhandbooksp99-2.pdf>

The provision of the case studies contained within the catalog does not constitute any form of endorsement or approval by the US EPA of particular institutions or technologies. The US EPA does not exercise editorial control over the information contained in non-EPA web sites, nor is the US EPA associated with or responsible for the content of these sites. The links to these web sites are provided for the convenience of the viewer.

Created by Campus Consortium for Environmental Excellence through EPA funding

- Public Health Emergency Preparedness and Response - CDC information on various WMD agents: <http://www.bt.cdc.gov/>
- Hazmat for Healthcare [<http://www.hazmatforhealthcare.org>]
- Agency for Toxic Substances and Disease Registry (ATSDR) [<http://www.atsdr.cdc.gov/atsdrhome.html>]
- Domestic Preparedness Training Program: Hospital Provider Course. Version 8.1 [www.nbc-prepared.org]

Participants

- Vanderbilt Environmental Health and Safety department developed the training materials, organized the drills and conducted the training.
- Vanderbilt Adult and Pediatric Emergency Departments participated in the training and exercises.
- Vanderbilt Occupational Health Clinic performed the physical exams in compliance with OSHA's Respiratory Protection Standard.
- VUMC Safety Committee, Infection Control Committee, and Disaster Committee approved policies and procedures relative to hazardous materials management and emergency response.
- VUMC Emergency Preparedness Coordinator worked collaboratively with the Medical Center Safety Officer.
- VUMC Plant Services assisted with facilities support for the exercises and installed the decontamination shower unit.

This project was done with the full support of top administrators at the University.

Performance and Benefits

- Better prepared physicians and nurses for managing potentially contaminated patients.
- Fulfilled requirements for the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO).
- Increased communication and collaboration among emergency management partners.
- Emergency Department staff has improved competency using PPE and a higher level of confidence in treating potentially contaminated patients.
- Increased faculty/staff/administration awareness regarding WMD threats.

Financial Information

Funding for the initial decon and personal protective equipment (about \$27,000 per hospital) was provided through a federal grant. The Nashville/Davidson County Office of Emergency Management received the funding from the Metropolitan Medical Response System, under the purview of the Department of Health and Human Service. This program has now moved under the Department of Homeland Security's Emergency Preparedness and Response Directorate. Vanderbilt University Hospital funded the labor costs associated with the training and exercises.

Lessons Learned

- Collaboration of many professional disciplines is necessary to accomplish this type of training.
- A physician to champion the effort is crucial to facilitate physician participation.
- An interdisciplinary approach is needed to resolve technical issues associated with response to WMD threats.
- This endeavor involves a major time commitment, on-going efforts, and a change in culture for ED operations.

The provision of the case studies contained within the catalog does not constitute any form of endorsement or approval by the US EPA of particular institutions or technologies. The US EPA does not exercise editorial control over the information contained in non-EPA web sites, nor is the US EPA associated with or responsible for the content of these sites. The links to these web sites are provided for the convenience of the viewer.

Created by Campus Consortium for Environmental Excellence through EPA funding

Next Steps

- The continued coordination and collaboration with Local Emergency Management Planning Committee and the County.
- Periodic training and exercises to emergency room staff to ensure competence.
- Updating training programs as necessary to ensure compliance and the fulfillment of necessary requirements.
- Maintenance of partnerships and relationships with all participants.

For Further Information

Robert F. Wheaton, MPH, CIH
Vanderbilt University
Director, Environmental Health and Safety
Robert.Wheaton@vanderbilt.edu

Susan N. Johnson, MT (ASCP), OHST
Vanderbilt University
Program Manager, Medical Center Safety and Training
<mailto:s.johnson@vanderbilt.edu>

Vanderbilt University Environmental Health and Safety
<http://www.safety.vanderbilt.edu>
Emergency Preparedness Quick Reference Guide
http://www.safety.vanderbilt.edu/resources/hcs_quickref.htm

Vanderbilt University Police Department – Emergency Preparedness
<http://police.vanderbilt.edu/EP/index.htm>

Vanderbilt University News Service for Emergencies
<http://sitemason.vanderbilt.edu/news/crisis>

EPA's Emergency Planning and Community Right-to-Know Act Fact Sheet
<http://www.epa.gov/ceppo/factsheets/epcra.pdf>

Emergency Management Partners in Nashville/Davidson County

- VUMC Disaster Committee
- Emergency Operations Center for VUMC and VU
- VUMC Emergency Preparedness Management
- Vanderbilt University Police
- Vanderbilt Environmental Health and Safety
- VUMC Infection Control Committee/Practitioners
- VUMC Plant Services
- National Center for Emergency Preparedness
- Nashville/Davidson County Office of Emergency Management
- Nashville/Davidson County Emergency Management Council
- Poison Control Center
- Nashville/Davidson County Fire Department/Haz Mat

The provision of the case studies contained within the catalog does not constitute any form of endorsement or approval by the US EPA of particular institutions or technologies. The US EPA does not exercise editorial control over the information contained in non-EPA web sites, nor is the US EPA associated with or responsible for the content of these sites. The links to these web sites are provided for the convenience of the viewer.

Created by Campus Consortium for Environmental Excellence through EPA funding