Collaborative Wireless Command

Interoperable Communications - Emergency Patient Tracking

Visit us at: www.homelandsecurity.raytheon.com

Program Information:
Charles R. Blaich
Director Preparedness & Response
Raytheon Company
1100 Wilson Boulevard Suite 1600
Arlington, VA 22209
(703)284-4240 phone
(703)243-3074 fax
charles_r_blaich@raytheon.com

Raytheon
Customer Success
Is Our Mission
EDITORIAL BOARD

B. Wayne Blanchard, PhD, CEM
Higher Education Project Manager, Emergency Management Institute, Federal Emergency Management Agency (FEMA), Department of Homeland Security, Emmitsburg, Maryland

Steven J. Charvat, CEM
Emergency Management Director, University of Washington, Office of Emergency Management, Seattle, Washington

Craig DeAtley, PA
Associate Professor of Emergency Medicine, George Washington University School of Medicine & Health Sciences, Washington, DC

Raymond V. DeMichiei, BA, EMT-P
Operations Manager and Supervisor, City of Pittsburgh Department of Public Safety, Bureau of Communications, Pittsburgh, Pennsylvania

Thomas Drabek, PhD
Professor, Department of Sociology and Criminology, University of Denver, Denver, Colorado

Bonnie S. Fisher, PhD
Professor, Division of Criminal Justice, Department of Education, University of Cincinnati, Cincinnati, Ohio

Martin Gill, PhD
Director, Perpetuity Research and Consultancy International, and Professor of Criminology, University of Leicester, United Kingdom

Tee L. Guidotti, MD, MPH
Chair, Department of Environmental and Occupational Health; Director, Division of Occupational Medicine and Toxicology; Professor of Environment and Occupational Medicine, George Washington University School of Medicine, Washington, DC

Peter J. Hotez, MD, FAAP, PhD
Professor of Microbiology, Tropical Medicine, Global Health and International Affairs; Chair, Department of Microbiology and Tropical Medicine, George Washington University Medical Center, Washington, DC

L. M. “Lem” Jackson
Deputy Projects Manager, Domestic Preparedness Programs, Pine Bluff Arsenal, Pine Bluff, Arkansas

Eleanor Lynn Jenkins
Chief, Analysis and Field Evaluations Branch, Division of Safety Research, National Institute for Occupational Safety and Health, Morgantown, West Virginia

Paul D. Kim, MD
Regional Emergency Manager, Stratton Department of Veterans Affairs Medical Center, Albany, New York, and National Disaster Medical System Coordinator, Federal Coordinating Centers, Albany, Buffalo, and Syracuse, New York

Gunnar J. Kuepper
Chief of Operations, Emergency & Disaster Management, Inc., Los Angeles, California

Charles C. Mayo, MA
Chairman, Department of Accreditation, Massachusetts Chiefs of Police Association; Chief of Police, Weston, Massachusetts

Stephen J. McGrail
Director, MA Emergency Management Agency, Framingham, Massachusetts

Robert K. McLellan, MD, MPH
Occupational Medicine, Dartmouth Hitchcock Medical Center, Lebanon, New Hampshire

Edith F. Neumann, PhD
Dean, College of Health Sciences and College of Education, Touro University International, Cypress, California
Call for Manuscripts

Journal of Emergency Management is a professional quarterly journal whose goal is to better equip all those responsible for emergency preparedness and disaster response to deal more effectively with acts of terror, weather emergencies, and catastrophic accidents. We are looking for papers to publish related to research and current issues in emergency management and disaster preparation. We will also consider guest editorials. Authors who’d like to contribute articles should feel free to contact acquisitions editor Chris Rowland (781-899-2702, x115) to discuss their ideas.

Manuscripts as well as letters to the editor can be sent by:

E-mail: jem@pnpcoum.com

Mail to:
Managing Editor
Journal of Emergency Management
470 Boston Post Road
Weston, Massachusetts 02493
Subscription Rates (Rates in US dollars): Individual: US $148; Canada $172; Foreign $224
Libraries/Institution: US $193; Canada $225; Foreign $290
Single issues: US $50; Canada $60; Foreign $75

Subscription Information: Submit your complete name, address and zip code, attention: Journal of Emergency Management, Subscription Department, 470 Boston Post Road, Weston, MA 02493. Please enclose check, purchase order or credit card number and expiration date with authorization signature. Subscribers notifying the publication of an address change must submit an old mailing label and their new address, including zip code. No claims for copies lost in the mail may be allowed unless they are received within 90 days of the date of issue. Claims for issues lost as a result of insufficient notice of change of address will not be honored.

Manuscript Submittal/Author Information (See Call for manuscripts)

Quotations and Reprints: Quotations from Journal of Emergency Management may be used for purposes of review without applying for permission as long as the extract does not exceed 500 words of text, and appropriate credit is given to the Journal. Authorization to photocopy items for internal use of specific clients, is granted by Weston Medical Journals, Inc., provided the appropriate fee is paid directly to: Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA (978) 750-8400. CCC should also be contacted prior to photocopying items for educational classroom use. Multiple reprints of material published in Journal of Emergency Management can be obtained by filling out the reprint order form in the publication or by calling 781-899-2702.

Trademarks and Copyrights: Journal of Emergency Management is a registered trademark of Weston Medical Journals, Inc. All materials are ©2004 by Weston Medical Journals, Inc. All rights reserved.

Postal Information: Standard postage paid at Boston, MA, and additional offices. Postmaster: Send address changes and form 3579 to: Journal of Emergency Management, 470 Boston Post Road, Weston, MA 02493.

Disclaimer: The publisher and editors are not responsible for any opinions expressed by the authors for articles published in Journal of Emergency Management.

Copyright 2004. Quotation is not permitted except as above. Duplicating an entire issue for sharing with others, by any means, is illegal. Photocopying of individual items for internal use is permitted for registrants with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For details, call 978-750-8400 or visit www.copyright.com. For electronic or hard copy reprints visit our website www.emergencymanagementjournal.com or www.emergencyjournal.com.
CONTENTS

- Newbriefs ................................................................. 8
- Calendar ................................................................. 12
- Conference coverage ............................................. 13
- New products ......................................................... 55

LEGAL DESK
- Sources of emergency management law: An overview .................. 14
  William C. Nicholson, JD

PERSPECTIVE ON PEOPLE
- Traumatic events and their impact on the individual ..................... 16
  Neil Simon, MA

FEATURE ARTICLES
- Psychological and social characteristics of a terrorist and their application in society and emergency management ....................... 20
  Kimberly Stambler, BA, EMT

- Tornado damage in context: Lessons learned from the May 5, 2002, storm in Happy, Texas .................................................... 24
  William Monfredo, PhD

- Disaster mortuary operations: A look at the national disaster medical system response ......................................................... 29
  Vincent B. Holman, Sr., LTC, MS

- Emergency management: Consequence management decision making ................................................................. 36
  Lisa A. Gibney
  Scott E. Hansen
  Walter E. Wright, CEM

- Emergency management and disaster response in Hawaii: The role of medical centers and the media ........................................ 43
  Ross Prizzia, PhD

- Chemical and bioterrorism: An integrated emergency management approach at the undergraduate level ......................... 50
  Vaughn E. Wagner, PhD, BCE, ME
  Elichia A. Venso, PhD
A Critical Network will keep this from becoming a bigger crisis.

Phone lines are down. Cellular and cable networks are down. But all responders remain in contact and receive the information and commands they need. A public safety-controlled Motorola Critical Network provides "always available" information, reliably, using secure features. That means they can coordinate their efforts and designate areas to search, rescue, and maintain order.

NEW WHO HEALTH LEADERS TRAINING PROGRAM GETS MAJOR GRANT

The World Health Organization’s (WHO) new program to train the next generation of health leaders is now taking applications from around the world. The Health Leadership Service (HLS) aims to equip dozens of people to lead on improving public health, particularly in developing countries. A grant of $5 million from the Bill & Melinda Gates Foundation provides funding for this program over four years.

“We are delighted that this important work is beginning,” said Dr. Lee Jong-Wook, WHO Director General. “In the face of today’s global challenges of poverty, disease, and epidemics, there is an increasing demand for dynamic health leaders with sound technical skills. This program will help meet this demand.”

“We’re very pleased to support WHO’s efforts to develop a new generation of global health leaders,” said Dr. David Fleming, director of the Gates Foundation’s Global Health Strategies program. “By training some of the world’s brightest young public health professionals, the Health Leadership Service will help build a strong foundation for the future of health in the developing world.”

WHO is now accepting applications for the program for courses beginning early in 2005. The first phase of the program aims to train between eight and 10 young public health professionals over a two-year period. The funds will be used to enroll people who already have public-health-related backgrounds into a program that combines formal training with supervised practical work.

They will initially spend four weeks at WHO headquarters in Geneva and will then travel to one of WHO’s country or regional offices, where they will work on specific technical projects, supervised by WHO staff in countries and at headquarters. Candidates will work on a range of projects: from developing program plans for health interventions to field investigations of potentially serious public health problems including responding to epidemics and other emergencies. After several months in the field, the trainees will return to Geneva for a further two weeks of intensive study, followed by more work in a WHO country or regional office.

The focus of the service is to develop future health leaders who combine strong technical knowledge with management, strategic, and communications skills. Selected candidates will benefit from WHO’s wide access to national leaders and health experts at national and international levels. Graduating candidates will be encouraged to return to work in developing countries in ministries of health, nongovernmental organizations, and international organizations.

The HLS is advertising for the first group of candidates over the coming months. Qualified applicants will be under 38 years of age with an advanced degree in a field related to public health and work experience relevant to public health.

“Graduates from the HLS will acquire a unique combination of hands-on public health and leadership competencies through learning-by-doing. These skills will enable them to make invaluable contributions to overcoming the major health systems challenges in the years to come,” said Dr. Tim Evans, Assistant Director General, Evidence and Information for Policy at the WHO. (Source: WHO press release, August 24, 2004.)

FBI FALLS WAY BEHIND IN AL-QAIDA SURVEILLANCE TRANSLATIONS

Despite increased funding and personnel, the FBI faces a substantial mounting backlog of untranslated surveillance material related to its terrorism and
espionage investigations, according to a new audit by the Justice Department.

The results of the audit were released in late September by Glenn A. Fine, the department’s inspector general. Findings indicate that more than one-third of al-Qaida intercepts were not reviewed within 12 hours of collection, as required by FBI Director Robert Mueller.

More than 123,000 hours of audiotapes associated with terrorist activity since 9/11 still had not been reviewed as of April 2004, according to the audit. In addition, more than 370,000 hours of surveillance tapes associated with counterintelligence had not been reviewed.

The backlog exists despite the fact that funding for the FBI’s language services increased from $21.5 million in fiscal 2001 to roughly $70 million in fiscal 2004. The number of linguists had risen from 883 to 1,214 over that period, the audit found, while electronic surveillance collection in key languages such as Arabic and Pashto has risen by 45 percent.

“It doesn’t do anyone any good for the FBI to have the terrorists’ attack plans in its hands but still not be able to see or hear what the plans are,” said Senator Charles Grassley, R-Iowa, a senior member of the Senate Judiciary Committee.

The FBI also is not meeting Mueller’s requirement that all al-Qaida communications collected under the Foreign Intelligence Surveillance Act (FISA) be reviewed within 12 hours of interception. During an April 2004 surveillance period, the audit found that 36 percent of such communications authorized by the secret FISA court were not even received at FBI headquarters within 12 hours.

They also found the FBI still lacks the language personnel necessary to do all the needed translation work, and that technological problems, including limited computer storage capacity, contributed to the backlog problem.

“Three years after the worst terrorist attack on American soil, the overall effectiveness of a major investigative tool in our antiterrorism arsenal is still in doubt,” said Sen. Patrick Leahy of Vermont, senior Democrat on the Senate Judiciary Committee. “The Justice Department’s translation mess has become a chronic problem that has obvious implications for our national security.”

The audit made 18 recommendations for the FBI, many of which are already underway, according to Fine. The FBI is reportedly hiring linguists as quickly as possible who are versed in such languages as Arabic, Farsi, Pashto, Urdu, Chinese, Turkish, and Kurdish. One difficulty is that the Bureau has trouble finding qualified linguists who can pass required security clearances for sensitive terrorism and intelligence investigations, according to Mueller. But he also said FBI linguists are now connected worldwide so that someone in one office can work on information collected by another office far away.

“We agree with [the audit] that more remains to be done in our language services program, and we are giving this effort the highest priority,” Mueller concluded. (Source: AP news service, September 28, 2004.)

World Prep® offers a diverse and unique group of emergency resource products.

Our Safety Kits are designed to provide emergency preparedness to persons who are affected by any type of disaster.

When an emergency strikes, time is a luxury you cannot afford -- be prepared with World Prep®’s Automotive, Classroom, Home, Military, Office, Recreational and Travel Safety Kits.

* Call about our Personal Commuter Kits.
WCDM 2005 OPENS CALL FOR PAPERS

The Canadian Centre for Emergency Preparedness (CCEP) is calling for presentations for the 15th World Conference on Disaster Management (WCDM). The conference will be held at the Metro Toronto Convention Centre, Toronto, Canada, from July 10-13, 2005.

WCDM is the premier annual event addressing issues common to all aspects of disaster and emergency management. The conference program includes speakers from many parts of the world and provides excellent opportunities for training and networking among those in emergency planning/management, emergency response, disaster management research, emergency communications, business continuity, risk management, security, human resources, and community planning, as well as for the organizations that supply and service these professions to showcase their products and talents. The 2005 conference is expected to attract over 1,500 delegates from Canada, the United States, and around the world.

The conference theme will be “The Changing Face of Disaster Management: Defining the New Normal.”

A major goal of the 15th WCDM is to challenge traditional concepts and methods and provide new ideas and approaches to problem solving as well as to provide opportunities for key individuals across the disaster management spectrum to connect and brainstorm those problems.

Presentations should fall into one or more of the following categories: 1) Real events/lessons learned; 2) Emerging trends in disaster management; 3) The human element in disaster management; 4) Technical issues/threats; 5) Disaster management principles and practices; and 6) Research and development.

A more detailed description of the conference and the call for papers is available on the WCDM Web site at www.wcdm.org. Presentation abstracts must be submitted by December 4, 2004. If you have any additional questions, contact Adrian Gordon at 905-331-2552 or email agordon@ccep.ca.

SENATE PASSES VOINOVIICH AMENDMENT: $56 MILLION IN GRANTS AVAILABLE FOR EMERGENCY MANAGEMENT

State and local emergency managers across the nation benefited today when the Senate passed amendments introduced by George Voinovich (R-Ohio) adding a total of $56 million for Emergency Management Performance Grants (EMPG) to S. 2537, the Department of Homeland Security Appropriations Bill for 2005. This funding will help state and local emergency managers to prepare for, respond to, and recover from all hazards.

“On behalf of the nation’s counties, we would like to thank Senator Voinovich for his efforts to secure additional funding for EMPG,” said National Association of Counties (NACo) President Angelo Kyle. “EMPG is truly the most critical federal assistance available for state and local emergency managers.”

EMPG is the only program that supports state and local emergency all-hazards preparedness activities and provides a portion of costs to fund emergency management personnel at the state and local level. This flexible program was originally intended to reimburse up to 50 percent of the cost of operation of local emergency management and was chronically underfunded. The $56 million increase will bring the total for this program to $236 million and begin to address the $264 million shortfall.

State and local emergency management programs have been stretched thin by the demands for increased preparedness overall, and the increased call for preparedness against terrorism. While all disasters are local, recent disasters vividly show the need for national preparedness and personnel to support the mutual aid systems in place to assist states that are impacted by a disaster. The increases in EMPG funding will assist in these efforts.

“We are very grateful for the leadership of Senator Voinovich and appreciate Majority Leader Bill Frist (R-TN), Appropriations Subcommittee on Homeland Security Chairman, Thad Cochran (R-MS), and Ranking Member Robert C. Byrd (D-WV) for accepting the amendments,” said Daryl Spiewak, President of the International Association of Emergency Managers. (Source: National Emergency Management Association press release, September 25, 2004.)

RED CROSS STUDY SUGGESTS KIDS COULD USE MORE DISASTER TRAINING

Preliminary results from an American Red Cross
study suggest that students show no increase in disaster knowledge after the fifth grade. Researchers found that while kindergartners through fifth graders showed an increase in disaster knowledge every year until the fifth grade, disaster knowledge actually decreased as did the students’ overall ability to react to disaster situations after the fifth grade.

The findings come from The School Safety Initiative (SSI), a pilot study evaluating and measuring program delivery, components, and learning outcomes in the areas of prevention, preparedness, and response in the school environment. SSI serves as the prototype for the Red Cross’s “Together We Prepare” school program, which helps schools prevent, prepare for, and respond to violent incidents, natural disasters, and other emergencies.

Launched in October 2002, the Red Cross SSI study analyzes data from elementary, middle, and high school sites in eight cities. More than 10,000 students in kindergarten through grade 12, their teachers, and other school staff participated in the first phase of the multiyear study. Their knowledge, behavior, and attitudes around first aid, safety, disaster preparedness, and leadership ability were surveyed. Data collection in this phase included written surveys, focus groups, and one-on-one interviews. Participants were from rural, suburban, and urban areas and of various ethnic and socioeconomic groups.

“Creating an evaluation tool like the School Safety Initiative is a real coup for the American Red Cross. It helps develop new ways and refine current practices in the area of school preparedness,” said Scott Conner, Vice President of Preparedness.

In addition to showing that disaster knowledge significantly declined after fifth grade, results also showed:

- Kindergarten through second grade students in urban schools had a significantly higher recall of the number to dial in an emergency (911). There was a significant leap in call 911 knowledge between kindergarten and first grade, indicating that this is probably the time when most students learn how to call 911.
- Age-appropriate awareness of first aid, disaster response, and general safety information was high among third through fifth graders.
- Knowledge of first aid and disaster response decreased slightly over time.
- First aid scores were consistently higher than disaster scores, indicating that first-aid training seems to still be taught in middle school and high school.

While the first phase of SSI looked at knowledge, behavior, and attitudes, Phase II will evaluate the effect of Red Cross resources.

For more information, visit the Web site at www.redcross.org/services/disaster. (Source: American Red Cross press release, September 29, 2004.)
Environmental Protection Agency
2004 Emergency Preparedness & Prevention Conference
December 5-8, 2004
Wyndham Franklin Plaza
Philadelphia, Pennsylvania

For registration information, contact:
Conference c/o General Physics Corporation
500 Edgewood Road, Suite 110
Edgewood, MD 21040
Tel: 800-364-7974
Fax: 410-676-2320
E-mail: ConferenceAdministrator@2004conference.org
Web site: http://2004conference.org

Institute for Catastrophic Loss Reduction
Water and Disasters International Workshop
December 13-14, 2004
Spencer Conference Centre
London, Ontario, Canada

For registration information, contact:
ICLR
1389 Western Road
London, Ontario, Canada N6A 5B9
Tel: 519-661-3234
Fax: 519-661-4273
E-mail: info@iclrl.org
Web site: www.iclr.org

National Association of EMS Physicians
2005 Annual Meeting
January 13-15, 2005
Registry Resort & Club
Naples, Florida

For registration information, contact:
National Association of EMS Physicians
P.O. Box 15945-281
Lenexa, KS 66285-5945
Tel: 913-492-5858, ext. 4448
Fax: 913-599-5340
E-mail: info-naemsp@goAMP.com

United Nations/International Strategy for Disaster Reduction
2005 World Conference on Disaster Reduction
January 18-22, 2005
Kobe Portopia Hotel
Kobe, Hyogo, Japan

For registration information, contact:
WCDR Secretariat, UN/ISDR
Palais des Nations, CH-1211
Geneva 10, Switzerland
Tel: +41-22-917-2759
Fax: +41-22-917-0169
E-mail: isdr-wcdr@un.org
Web site: www.unisdr.org

25th Annual International Disaster Management Conference
February 3-6, 2005
Orlando, Florida

For registration information, contact:
Jerry Cutchens
Florida College of Emergency Physicians
3717 South Conway Rd.
Orlando, FL 32812
Tel: 800-766-6335
Fax: 407-281-4407
E-mail: jcutchens@femf.org
Web site: www.femf.org
Over 1,300 members of the world’s emergency management community met in Toronto this June for one of the largest annual conferences in the field. Attendees came from 43 countries to hear over 100 presenters offer the latest thinking in emergency management, response, recovery, planning, security, risk management, and infrastructure protection, among a number of other topics and issues of interest across the full disaster management spectrum.

The World Conference on Disaster Management (WCDM) has always attracted large contingents from Canada, the United States, Great Britain, Australia, and New Zealand. This year, however, there were some interesting newcomers—from China, South Korea, Slovenia, Afghanistan, and dozens of other countries.

“Government officials from Canada and the United States are often surprised at the number and diversity of WCDM attendees,” said Adrian Gordon, Executive Director of the Canadian Centre for Emergency Preparedness (CCEP), which hosts the event. “When people enter the opening plenary session and sense the scope of the event, they often ask what government ministry we’re part of.”

The purpose of the WCDM is to provide topical, up-to-date information on advances in the emergency management field from a wide number of perspectives. “We’re fortunate in having hundreds of presentation submissions each year to choose from,” said Gordon. “That means we not only have first rate workshop and break-out sessions, but we also have superb presentations as back-ups.”

The conference also provides a unique opportunity for networking across disciplines. Throughout the four-day event, small and large groups can be seen huddled in quiet, focused conversations or spilling out of a workshop engaged in a long, loud, free-wheeling debate that continues into the evening.

The WCDM offers presentations, workshops, pre-conference courses, demonstrations, and numerous networking opportunities from across the disaster management spectrum. The conference returns to Toronto July 10-13, 2005, with a new theme: “Defining the New Normal.” Full details about the 15th WCDM can be found on the Web at www.wcdm.org.

ABOUT CCEP

The CCEP is an Ontario-based, not-for-profit organization devoted to the promotion of disaster management to individuals, communities, and organizations in both government and the private sector with the aim of reducing the risk, impact, and cost of natural, human-induced, and technological disasters. Their aim is to raise awareness of the increasing risks of disasters, promote the need for sound disaster management practices, and disseminate information on the availability of professional expertise and resources, including technology. For more information, visit CCEP on the Web at http://www.ccep.ca, or contact them directly at 905-331-2552.

David Auger, Communications Director, Canadian Centre for Emergency Preparedness, Burlington, Ontario, Canada.
Sources of emergency management law: An overview

William C. Nicholson, JD

ABSTRACT
This article is the first in a series dealing with legal issues in emergency management. It provides an overview of the sources of emergency management law, and, more specifically, addresses the topic of negligence. The upcoming issue of the Journal of Emergency Management will tackle the legal issues associated with immunities.

INTRODUCTION
Local authorities face many decisions in connection with emergency management activities. Unfortunately, the essential nature of emergencies is that something is going wrong or is about to go wrong. Whether the event springs from an occurrence or imminent threat of widespread or severe damage, injury, or loss of life or property resulting from any natural or manmade cause, the choices that must be made by local officials frequently are not easy. Often, all the options are unpleasant. Sometimes, different plaintiffs will see the same action as wrong for the opposite reasons.

For example, a flood threatens a city and limited resources mean that one of two residential areas may be preserved through sandbagging and building dikes. One region has many low-income residents and low property values. The other area is a wealthy enclave with extremely high property values. Assuming all residents can be safely evacuated, the choice that must be made is still not a happy one. Whether the selection is to preserve the higher property values or the greater number of residences, many citizens will be dissatisfied that their neighborhood was not saved. In this case, as with many emergency management decisions, either group may have the basis for a lawsuit. The legal challenge for leaders of local government, as for emergency management as a whole, lies in taking proactive steps to avoid bad choices. Of course, not every bad choice can be prevented. Still, with close involvement of legal counsel in all phases of emergency management, the situation may be vastly improved. This approach is known as “litigation mitigation.”

Litigation mitigation has three goals: 1) reduced exposure to legal claims, 2) improved life safety, and 3) enhanced property protection.

Lawyers are trained to look at the first of these three factors as their main concern. A leader of local government must regard all three as fundamentally important. Reduction of legal exposure naturally results in higher life safety and property protection.

Unfortunately, the array of laws that regulate the conduct of local government may be bewildering. Emergency managers sometimes disregard legal issues and vociferously declare that they are “too busy saving lives and protecting property to bother with all that legal nonsense.” Such a line of attack is specious, given the “all hazards” nature of emergency management. Unfortunately, educational materials are generally deficient when it comes to treatment of legal issues. Liability issues have, in fact, been called the “great unplanned for hazard faced by emergency management.”
SOURCES OF EMERGENCY MANAGEMENT LAW

Emergency management law in the United States is rooted in all three levels of government—federal, state, and local. While all three types of legal responsibility may result in liability, the most likely source is state law, specifically the tort concept known as negligence. Immunities allow protection for emergency managers under certain circumstances. The National Fire Protection Association and post-9/11 federal law have created new standards that apply to all emergency managers. The availability of federal funds for emergency management results in setting criteria for state and local emergency management performance.

Many other laws affect emergency management’s daily activities. Some of these laws spring from duties peculiar to the discipline, such as obligations to plan, train, and exercise. Emergency managers who are government employees have obligations that arise from their service, such as complying with government ethics rules and special requirements for procurement. Other important legal considerations arise from general managerial responsibilities and affect managers in both the private and public sectors. These include issues such as personnel law and contract law.

Negligence

Negligence is a common law doctrine that has evolved over the years. Its basic principle is this: every person has a general obligation to act in a reasonable manner at all times, considering the circumstances. When one acts (or fails to act) unreasonably and that act (or failure to act) is the legal cause of an injury to a person or property, liability ensues.

The elements of negligence are: breach of duty—the unreasonable action or failure to act; legal causation—frequently referred to as “proximate cause,” which means that the harm happened as a reasonably close result of the act or failure to act; and personal injury or property damage brought about by the failure to act. The result is liability.

In the emergency management context, negligence usually arises from the failure to perform (or unreasonably bad performance of) specific governmental duties. The unit of government may incur liability from failure to properly train or supervise emergency management workers. Other frequent sources of liability include failure to perform the duties that are generally accepted as being part of emergency management’s responsibilities.

Types of activity that may give rise to negligence liability vary. They include failure to adhere to a plan, executive level decision making—poor choices, poor planning, bad emergency response—or an incident commander’s lack of wisdom. (For a detailed discussion of liabilities for failure to plan properly, see Lerner K).4

Another frequent cause of liability is the failure to comply with a legal duty, such as OSHA law. Also, a violation of law may be used as proof in a civil suit requesting damages for personal injury or wrongful death. When the elements of the violation are the same as the elements required for civil liability, and the burden of proof is the same for both, the only issue in a civil trial may be the measure of damages. For example, in Meridian Ins. Co v. Zepeda, "a criminal conviction may be admitted in evidence in a civil action and may be conclusive proof in a civil trial of the factual issues determined by the criminal judgment.”5

ACKNOWLEDGMENT

This paper was produced under a grant from the FEMA Emergency Management Higher Education Project.

William C. Nicholson, JD, Adjunct Professor, Widener University of Law; Adjunct Professor, University of Delaware, Newark, Delaware. William.C.Nicholson@law.widener.edu. Note: This article is informational only, and does not constitute legal advice. For legal advice, consult your own attorney.

REFERENCES

INTRODUCTION

Traumatic events are situations where one feels intense helplessness, horror, and fear. In experiencing or witnessing any events that seriously threaten one’s well-being, this angst is natural. Emergency management professionals must not only deal with the situation at hand but identify who is affected by the traumatic event. Victims may include not only the people who are directly affected but those who witnessed the event or perceive a continued threat. Moreover, emotional trauma caused by the event can persist long after the immediate threat has been resolved.

CASE STUDY

On Wednesday, August 11, 2004, a letter containing a white powder arrived in the mayor’s office in Pontiac, Michigan accompanied by a threatening letter stating that the white powder was anthrax. The letter came via the United States Postal Service and went through regular channels to get to the target—the mayor.

The unsuspecting mayoral staff followed the standard letter-opening procedures.

Five people were directly exposed to the powder when the letters were opened and during the events that immediately followed. An emergency procedure was invoked, the facility evacuated, and the victims were moved to the local emergency room. The emergency room then was quarantined after the personnel were exposed to the victims. The FBI was contacted.

The following is an abbreviated list of events and victims (both primary and secondary) at the mayor’s office.

Initial event

The unexpected happens—the letter with the powder inside is opened. The direct victims seek help as soon as they recognize the peril. The emergency services are activated through a 911 call, and the emergency response system is activated.

Emergency medical service and fire response

Upon arrival, the emergency medical service and fire response teams initiate the incident command procedures:

1. HAZMAT procedures are invoked.
2. Victims are quarantined and assessed.
3. Victims are transported to emergency facilities.
4. Primary and secondary victims are assessed by emergency room personnel at facilities away from the scene.
5. Victims are decontaminated and observed by hospital staff.
6. At the scene of the incident, the remaining staff is assessed for contamination. Those who have not been contaminated are sent home.

7. The building is secured pending evaluation of the white powder.

**Police response**

When police arrive on the scene:

1. The scene is assessed and secured.

2. The investigation initiates.

3. The scene is preserved and secured.

4. Because of the type of incident, the FBI is contacted.

5. Witnesses are identified and interviews are initiated.

6. The FBI enters and takes control of the scene.

**Administrative response**

The city leadership plans its reaction for the general public while continuing to gather additional information. They contact public relations and prepare media announcements to help mediate the situation. The city leadership makes necessary decisions to protect the community. It closes the administrative offices for a minimum of five days so that health and safety can be ensured and that the investigators will have complete access to the scene. The administration sets up a hotline to take calls from families inquiring after relatives, now that they have heard about it on the news. They present the facts of the incident to the media for immediate publication and set up an incident room for all media inquiries. The administration takes advice from the emergency response leadership with regard to public safety, which allows the community to react and express their further concerns.

**Dealing with the emotional ramifications**

Each component of the response team manages their part of the response successfully. The medical services team has examined the victims and treated them appropriately; the police have controlled the scene and have begun an investigation, in this case, calling in federal assistance; the administration has taken responsibility for disseminating information to victims, their families, and the community. The incident has been controlled and everyone is sent home.

But what about managing the personal aspects for each of the victims (or, in some cases, the individuals from the emergency services)? Whose responsibility is it? Who will respond to the emotional aspects of this experience?

In our current thinking, emergency managers are trained to respond to the physical component of an incident on behalf of the individual. We study First Aid, CPR, ACLS, and decontamination procedures to tend to the bodily safety of victims. Beyond asking a person if they are OK, what do we do to monitor the emotional factors?

Let us take, for example, the opening of a letter filled with a white odorless powder that created a small plume that bursts into the face of the letter opener. What do we do for that victim? We assure them that they will be OK. What else can we do? What do we do for the four other office workers, two of whom witnessed the plume? What do we do for the other office workers in the area? What do we do for the mayor who was the intended target as well as other city officials? All these victims have an emotional reaction to this event.

**The cost of post traumatic stress**

Worker compensation statistics, absenteeism, and employee assistance reports reveal that many workers have adverse reactions to traumatic events that affect their future performance and well-being. What the mental health scientists who specialize in Post Traumatic Stress Disorder (PTSD) have found, is:

- Depression and alcohol misuse (effects of PTSD) increase up to thirty percent.

- A significant number of individuals do not return to work.
Absenteeism among the workers who do keep their jobs increases.

The number of worker compensation claims increases.

Although emergency services deal with the immediate problems of an incident, what do we do afterward to monitor the behavior of the victims (both primary and secondary)? What do we do to assist them in their recovery? What do we do to create a perception of a safe environment to ensure worker effectiveness? It is easy to say that the employer is responsible for solving the problem or that the individual is responsible. But are the safe letter procedures enough? Is the purchase of an anthrax-sniffing machine, creation of policies and procedures, and other administrative creations adequate to alleviate the fears of workers who have been victimized by the event? Did emergency services do enough for the victims who show immediate PTSD or who may manifest disorders later on? Has the local government met the expectations of the community?

What do managers, supervisors, family members, and friends observe in the behavior of individuals who have been through a traumatic experience? Are workers responding in the same way after the experience as they did before?

How are workers behaving during work? What about after work—at home? How are the families coping? What are they saying about work? What sort of pressures are they putting on their family?

**WHAT CAN WE DO?**

The community needs to decide where responsibility ends for the response to a victim’s needs. Wherever the boundaries are set, sadly, litigation follows in our society and, in turn, contributes to stress. Communities need to ensure that proper training is available to assist the individual in resolving PTSD and returning to a somewhat normal life.

Programs need to be established that offer assistance to individuals to gain knowledge about this subject. Regardless of who is ultimately responsible for dealing with PTSD, this information needs to be dispersed to help minimize the impact of a traumatic event. We need to educate everyone concerning the personal aspects of emergency incidents and how they affect a person’s ability to cope with the stress of a future that carries the burden of preparing for the unthinkable.

Neil Greenberg, MD, who is a Surgeon and Lieutenant Commander in the Royal Navy, has established a simple initial risk assessment checklist. He specializes as an Occupational Psychiatrist. The purpose of this checklist is to help identify people who may be more prone to suffering PTSD, whether they are primary or secondary victims, or they could be people close to the identified victims.

**Initial risk assessment checklist**

Do you, or have you (or the person you are observing):

- feel that you were out of control during the event;
- feel that the event was life threatening;
- blame others for what happened;
- feel ashamed about your behavior during the event;
- perceive the event as being serious;
- experienced acute stress following the event;
- experienced problems with day-to-day activities;
- been involved in previous traumatic events;
- have a poor social support network (family, friends, church, clubs, coworkers); or
- drink or use drugs excessively to cope with the stress which has come as a result of the incident?
If you are experiencing any of these symptoms, it would be best to contact a mental health specialist who can assist you in resolving the effects from such an event.

CONCLUSION

We have outlined how emergency services reacted to the individuals in a particular incident. We have then asked whether the emergency services have dealt adequately with the less immediate aspects of the incident. Long-term stress that results from an incident is not immediately obvious when ambulance crews, firefighters, and police are doing their individual jobs at the scene of an emergency. Distress may, in fact, stem from all the frantic activity.

While the administration of the emergency services does have immediate work to do, its work is not complete once new procedures have been implemented. Identifying the possibility of stress must be seen as a part of emergency services.

INVITATION TO READERS

This column introduces the people-related aspects of emergency response. The next column will focus on the collective response. Based on your feedback, the column will be developed to meet your needs. In fact, we could revisit the personal aspect we have touched on here in the future, given your input.

Please contact me at NJSimon@incidentmitigation.com with your comments.

Neil Simon, MA, Managing Partner, Incident Mitigation LLC, Southfield, Michigan.
INTRODUCTION
When there is a great tragedy or act of violence, one of the first questions asked is, “Why?” How can a person or a group plan and commit an act that involves killing hundreds, or even thousands of innocent people? Most logical people would say, “There must be something very wrong with them.” Surprisingly, this is not the case. Most terrorists are neither mentally ill, nor do they demonstrate any overt psychopathology. They do, however, demonstrate some similar personality traits and fall victim to multiple aspects of group dynamics.

Since September 11, 2001, this country has been fixated on preventing future egregious acts of terrorism. Through the knowledge of the psychological forces and social mechanisms behind terrorism, it is possible to apply this knowledge to the practice of mitigation in emergency management.

PSYCHOSOCIAL DYNAMICS OF TERRORISM
There is no one terrorist mind-set or thought process, although, according to Post, they do tend to demonstrate similar personality traits and psychological mechanisms. Some common personality traits seen in terrorists are tendencies toward adventure/action seeking, aggressive behavior, and stimulus hunger. They tend to be dissatisfied with life for numerous reasons. Damage in early childhood is frequently a factor, linked to the defense mechanisms of splitting and externalization. These two traits are commonly found in individuals with narcissistic and borderline personality disturbances. Splitting occurs when the self is split into the “me” and the “not me.” According to Post, “this personality constellation idealizes his grandiose self and splits out and projects onto others all the hated and devalued weakness and inadequacies within.” The motivation becomes, “it’s not my fault; they are the cause of my/our problems, and they need to be stopped or destroyed.”

Most terrorists operate in some sort of group. Numerous studies have found that individuals within a group do not always act as they would when on their own. This is exemplified in an extreme way in terrorist organizations. First, there is the appeal of a sense of belonging. For some, a terrorist group may be the first time they have felt as if they truly belonged or as if what they do matters to others—even if it means hurting others to achieve this acceptance. In order to not be rejected by the group, they must not go against the group decisions or goals.

In addition, the group has an effect on the individual’s thought processes. As stated by Post, “When individuals function in a group setting, their individual judgment and behavior are strongly influenced by the powerful forces of group dynamics.” The moral code of the group becomes the moral code of the individual because group situations inherently foster regression to more archaic psychological states where individuation, judgment, rational thinking, and ethical feelings mimic that of the group.

The survival of the group depends on a few factors. The group must act, or do something, in order to keep its members interested and involved and to achieve a sense of accomplishment. At the same time, to succeed in achieving its espoused cause would threaten the goal of survival. In other words, “[a group] must be successful enough in its terrorist acts” to recruit new members and keep the current ones enticed but not too successful as to succeed in accomplishing their goal 100 percent.
As originally stated, most individuals who join terrorist organizations were previously average, psychologically healthy, law-abiding citizens. How, then, does a person change and stray from accepted moral standards? Albert Bandura explores the idea of moral disengagement in *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind.* In his chapter, he examines the psychological processes by which moral reactions can be disengaged from inhumane conduct. Every day, people make decisions based on internal controls that can be manipulated under certain circumstances. Three main mechanisms of moral disengagement can lead an ordinary person to commit acts of terrorism. These are: moral justification, displacement (diffusion of responsibility), and dehumanization.

Since most people do not take the lives of others on a daily basis, it is something they need to justify doing. For example, if someone threatens you, you have the right to defend yourself; this is morally justified. Terrorists use the same kind of moral justification. Their culture, well-being, or other important aspect of their life is perceived as threatened. The terrorists seek to change or remove that threat. Therefore, they cognitively reconstruct their morals to justify their acts. According to this logic, they are “fighting the ruthless oppressors” rather than innocent bystanders.

Another aspect of moral disengagement, according to Bandura, is displacement, or diffusion of responsibility. Basically, it works under the premise, “when everyone is responsible, no one is really responsible.” The members of the group see their actions as a request from authority instead of an act of free will. It has been shown that people behave in injurious ways they would normally repudiate if a legitimate authority accepts responsibility for the consequences of their conduct. Take, for example, a study by Milgram in which people caused egregious acts of pain on the basis that they were instructed to by an authority figure. “Average” people were willing to induce fatal doses of electrical shocks to subjects on the rationale that it was a requirement of the experiment. This can be seen as “evidence that good people can be talked into performing cruel deeds.”

The third aspect of moral disengagement is dehumanization. When a person sees the human side of their targets or can identify with them, it is difficult to cause them harm or view them as an enemy. Dehumanization removes these qualities so that the terrorist views them as an adversary, target, or obstacle to the fulfillment of their objectives rather than equals. According to Bandura, “once dehumanized, the potential victims are no longer viewed as persons with feelings, hopes, and concerns, but as subhuman objects.” A historical example of this is seen in Nazi prison commandants who committed unprecedented horrific acts. The prisoners were seen as evil adversaries, not mothers, fathers, and children.

With our increased knowledge of the social and psychological mechanisms that drive terrorism, a logical step would be to apply that knowledge in the realm of emergency management. The application of this knowledge is mainly in the mitigation arena in hopes of preventing future terrorist acts, but it is also to aid in preparedness and response. These applications can be in numerous forms such as policy change, education, and technology.

With regard to mitigation, one possible use for this knowledge is to divert potential future members, especially youths, from joining terrorist organizations. As suggested by Post, with no new recruits coming in, it would be hard to sustain an organization in the long run. There are several facets to this approach. The first is to make the group seem unappealing. A good example of this is the reaction of the public and politicians to September 11th. The acts were deemed cowardly, heinous, and other scornful and derogatory terms. To a youth, this may bring to light the immorality of the terrorist group. Another is humanization of the victims. The world was flooded with images of families gathered at Ground Zero holding pictures of their loved ones and asking, “Have you seen my mommy?” This put a real human face on the victims.

A third is understanding the mechanisms by which youths become attracted to and involved in terrorist networks. Terrorist organizations are adept at identifying potential members. Parents, teachers, and others need to be able to identify high-risk traits as well. For example, these youths tend to feel alienated
from established groups and are easily influenced by others. Positive authority figures need to reach out to these youths to shield them from the dangerous ones.

OTHER MITIGATION TECHNIQUES

With regard to terrorism, effective policy is the backbone to mitigation. According to Post, “policies should be tailored to the specific group, which must be understood in its historical, cultural, and political context.” While this is good in theory, it may not be realistic in practice. A policy that allows law enforcement and other agencies to gather more useful data and to use informants and undercover agents to gather intelligence more effectively may be more feasible.

The creation and implementation of the Patriot Act of 2001 (more formally known as the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act) is a step in this direction. For example, the Federal Bureau of Investigation now has the authority to monitor the actions of extremists more closely.

Technology can be a key player in intelligence gathering. A good example of up-and-coming technology is high-definition thermal imaging, which can detect attempted deceit by recording and observing infrared thermal patterns in a person’s face. This works in a similar manner as the polygraph, operating under the assumption that psychological feelings are linked to specific physiological responses. The advantage with thermal imaging is that it can easily be used as a screening mechanism compared with the polygraph where a person must be hooked up and questioned at length. While the implementation of this technology may be far away, it has some great possibilities as a screening tool if used properly and systematically.

The media plays an integral role in the life of most people. They can be a great resource but can also be detrimental. Some view the media as helping to underscore the terrorists’ cause by showing the event, sometimes in real time. However, the media can also be used to the advantage of the general public. For example, it has a role in educating and informing people after catastrophic events. The role of the media can also be expanded during response periods to help the government uphold the perception that it has control of a situation. One of the main purposes of terrorism is to show that a government is weak and unable to protect its citizens. The media can help portray an image of security and safety so as not to induce fear and panic in the public—responses that are hoped for by terrorist groups.

While the press has a right to report what they want to and are not completely restricted by the government, they need to cooperate and work toward the common goal of eliminating the threat of terrorism and have care not to propagate the damage and panic caused by the incident on which they are reporting.

Another aspect of psychology that can aid in mitigating terrorism, with regard to news sources, is educating memorials like this one placed near Ground Zero after 9/11 puts a human face on victims, making it difficult for terrorists to maintain emotional distance from their targets. (FEMA News Photo by Lauren Hobart.)
the public to differentiate between a real threat and the popular media stereotype of a “terrorist.” Every day, both in the media and on the Department of Homeland Security homepage, the public is asked to be on high alert for terrorist attacks. What, as citizens, should they be looking for? Whom should they notify? What and where is the specific risk? Inducing anxiety without providing details or guidelines for self-protection can lead to irrational and inappropriate responses.

THE ROLE OF LAW ENFORCEMENT

Law enforcement as a whole is not very educated on the “why’s” of terrorism. This issue needs to become a focus of law enforcement planning, preparedness, and training. An understanding of group dynamics is necessary (this has been improving over time in response to gang-related activity) if law enforcement is to gather intelligence more effectively and eventually dismantle high-risk groups. Law enforcement can demonstrate the inaccuracy of the idea, “if everyone is responsible, then no one is responsible.” If an entire group is reprimanded for the actions of some, this may turn off other members of that group as well as similar groups. This was done to a certain extent after September 11th, where the entire al-Qaida network was targeted across the globe. If law enforcement agencies understand how terrorists and terrorist groups think, they will be better equipped to monitor them, plan on how to target them, and also to plan their response.

CONCLUSION

It is always easier to analyze events in hindsight rather than to anticipate them, regardless of psychological and technological advances. However, research, when properly applied, can play a significant preventive role. Unfortunately, the psychology behind terrorism is barely addressed when compared with the plethora of research published on other aspects of emergency management. With more study and better understanding, psychology can be applied more extensively and more effectively.

The question of why an individual does something has been studied for years. Some would say it is the very basis of psychology. Terrorism is no exception to this. It has been studied, and will continue to be studied, by psychologists for a long time to come. What is interesting from their findings is that, on the surface, a terrorist is no different than you or me. They have jobs, families, and, to the untrained eye, do not stand out in society. They are not psychologically ill, as one would want to assume. There is no carbon copy terrorist mind. However, they do share recurring similarities in personality, group function, and psychological dissociative mechanisms. Knowledge of these similarities and the application of this knowledge in emergency management can add even more to society’s arsenal in the fight against terrorism.

Kimberly Stambler, BA (Psychology), EMT, Emergency Medical Response Group (EMeRG) Coordinator, The George Washington University, Washington, DC.

REFERENCES

Tornado damage in context: Lessons learned from the May 5, 2002, storm in Happy, Texas

William Monfredo, PhD

ABSTRACT

After a slow start to the 2002 tornado season, a tornado impacted the western and extreme southern sections of Happy, Texas. A damage survey was conducted within 24 hours. This article explores how the context in which a tornado occurs influences how the media portrays the event. Broadcasters covering the Happy, Texas storm included images of what appeared to be total destruction. However, most of the structures performed remarkably well during this fundamentally weak tornado. On the other hand, the complete destruction of a few mobile homes resulted in two deaths and an F2 rating on the Fujita scale. This raises issues concerning tornado intensity forecasts as well as the use of automobiles as shelters for residents of mobile homes located in the path of weak tornadoes.

INTRODUCTION

This article deals with the damage survey and analysis of the May 5, 2002, tornado that struck Happy, Texas, a small town located approximately 30 miles south of Amarillo in the panhandle region. It shows how tornado damage occurs within a storm damage context, which includes the frequency, magnitude, and damage of recent storms. In this case, the storm damage context contributed to how the media exaggerated the event’s severity. Additionally, this research emphasizes the danger of mobile homes, considers the viability of tornado intensity forecasts, and explores the use of automobiles as a possible refuge during weak tornadoes.

Storm damage context

Windstorms are not reported merely as isolated, physical events. Rather, the perception of such storms is colored by current events. For example, if a tornado occurs within a larger tornado outbreak, one storm might overshadow another in the media due to the storm’s severity. Storm damage context also depends on whether a storm occurs after a prolonged “tornado drought.” In this case, the tornado garners much attention, regardless of storm strength. Storm damage context helps explain how the media portrays individual storm events, which, in turn, influences public perception.

Examples of damage in context

The May 1953 tornadoes in San Angelo and Waco, and the April 1979 tornadoes at Vernon and Wichita Falls are examples of tornadoes that were overshadowed by storms occurring on the same day. During the mid-afternoon of May 11, 1953, a tornado moved east-southeast across the San Angelo Fairgrounds east of the OC Fisher Dam and into the northwest area of San Angelo. Although the tornado primarily affected an area of less than a square mile, the damage to the residential area was extreme. However, the near-F5 tornado (Table 1) in San Angelo that killed 13 people was overshadowed in the media by another violent and destructive tornado in Waco later that same day, which killed almost nine times as many people.

Approximately two hours after the San Angelo tornado, an F5 tornado moved through Waco, located approximately halfway between Austin and Dallas on Interstate Highway 35, killing at least 114 people. The 23-mile-long Waco tornado captured headlines around the country. The storm destroyed second and third stories of buildings but often left the lower portion of structures less damaged. While most impacts
to downtown businesses were scattered, the very old buildings surrounding the city square suffered major damage. An area of concentrated deaths occurred when the multistory R.T. Dennis Furniture store completely collapsed. It can be argued that the Waco storm continues to overshadow the San Angelo tornado. Memorial markers and a historical plaque are located in downtown Waco but not in San Angelo.5

Almost 26 years later, a similar pair of tornadoes ripped through small towns in the Texas panhandle. During the mid-afternoon of April 10, 1979, an F4 tornado devastated extreme southeast Vernon, Texas, located along the intersection of US Highway 183 and US Highway 287, less than 10 miles from the Oklahoma border. It was one of a deadly outbreak of 13 tornadoes that affected the Red River Valley, including Wichita Falls. Of the 11 people who were killed, seven died in automobiles swept from the road.6 For approximately two-and-one-half hours, Vernon was the top weather story of the day.

But, a new and unusually destructive funnel entered the southwest section of Wichita Falls near the Memorial Stadium that same day. The tornado moved east-northeast and grew to approximately one mile wide upon entering the Faith Village subdivision. The storm contained an unusually wide swath of violent (F4) damage. It flipped cars at the Sikes Mall and became the model for advising the public to stay out of automobiles during tornadoes. Fully 25 of the 42 deaths were automobile-related, with approximately half of all the serious injuries occurring in cars. The tornado continued its eight-mile trail of

Table 1. The Fujita tornado damage scale

<table>
<thead>
<tr>
<th>F-scale number</th>
<th>Intensity phrase</th>
<th>Wind speed (mph)</th>
<th>Types of damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>F0</td>
<td>Gale tornado</td>
<td>40 – 72</td>
<td>Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.</td>
</tr>
<tr>
<td>F1</td>
<td>Moderate tornado</td>
<td>73 – 112</td>
<td>The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.</td>
</tr>
<tr>
<td>F2</td>
<td>Significant tornado</td>
<td>113 – 157</td>
<td>Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.</td>
</tr>
<tr>
<td>F3</td>
<td>Severe tornado</td>
<td>158 – 206</td>
<td>Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.</td>
</tr>
<tr>
<td>F4</td>
<td>Devastating tornado</td>
<td>207 – 260</td>
<td>Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown; and large missiles generated.</td>
</tr>
<tr>
<td>F5</td>
<td>Incredible tornado</td>
<td>261 – 318</td>
<td>Strong frame houses lifted off foundations and carried considerable distances; automobile-sized missiles fly through the air in excess of 100 meters; bark removed from trees; steel-reinforced concrete structures badly damaged.</td>
</tr>
<tr>
<td>F6</td>
<td>Inconceivable tornado</td>
<td>319 – 379</td>
<td>These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 winds that would surround the F6 winds. Missiles, such as cars and refrigerators, would do serious secondary damage that could not be directly identified as F6 damage. If this level ever occurs, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies.</td>
</tr>
</tbody>
</table>
devastation northeast through Wichita Falls to the Sun Valley residential area, leaving approximately 20,000 people homeless. After crossing the Red River, the tornado dissipated north-northeast of Waurika, Oklahoma, 47 miles from where it first began. The storm became the most expensive tornado of its time with 400 million dollars in damage, a dubious honor retained for more than two decades.6

So, what was the context of the May 5, 2002, Happy, Texas tornado? Unlike San Angelo in 1953 and Vernon in 1979, Happy Texas was not in the shadow of any tornado. The case was quite the opposite. There had been a lack of tornadoes in the United States. Only 467 tornadoes were logged for the first half of 2002, which was only one-half of the normal expected tornado count. Additionally, 2002 was heading for the lowest mid-year tally of tornadoes since 1988, a year known for few significant tornadoes on the Southern Low Plains.7 The media was not getting the kind of spring tornado action that makes good news stories. In fact, 2002 featured the latest recorded date for the year’s first tornado-related death. The fatality in a mobile home in Illinois on April 21 began the tornado-death count.8

METHODS

After hearing that a tornado had destroyed Happy, Texas on a national cable news channel, a group from Texas State University entered Happy, Texas during the afternoon following the evening tornado to conduct a ground-based damage survey. Officials at the temporary emergency center granted the team permission to cross the yellow tape into otherwise cordoned-off areas. The primary goals included delineating the damaged area and examining structures to determine the length, width, and maximum F-scale rating of the tornado as it crossed the town.9 The survey group traversed the affected streets documenting damage, discussing the tornado with local residents, and noting the locations where people died.

RESULTS

Media and satellite trucks were not allowed into the main damage area and had to stay behind the yellow tape placed there by law enforcement officials. From this vantage point, media personnel had views with telephoto lenses of a large pile of debris on the southeast side of town that included the remnants of several destroyed mobile homes. Television crews captured close-up video of a collapsed, shack-like structure nearby. These images broadcast around the country gave the impression that Happy, Texas was totally destroyed. In fact, the tornado had affected approximately a five-block area on the southwest side of town and approximately an eight-block area on the southeast side, with damage ranging between F0 and low F2 on the Fujita scale.10 Arguably, the tornado had immediately affected only one-sixth of the town.

Some of the first tornado damage occurred to the church facility on the west side of town near South Western Avenue. A majority of the roof was torn from its middle. Downwind, aluminum siding was wrapped around telephone poles and tangled in the wires, and boards and other wooden planks were scattered around the western side of town. Some telephone poles were snapped, and a Quonset-style bus barn made of wood and sheet metal was also damaged.

The tornado also impacted an attached residential garage, collapsing it inward from the side wall and downward through broken rafters. On West Main Street, the roofs were ripped off of a couple of residences, and at least one wall covered with brick facing fell over, losing some bricks. The storm continued across the extreme south-central portion of town and into a junkyard, where debris became airborne. The tornado continued to the east-southeast, and a


Journal of Emergency Management
Vol. 2, No. 4, Fall 2004
motor home, trucks of varying sizes, and cars were knocked over on their sides. Windshields in that area were blown in, cracked, and smashed by debris.

On the southeast side of town, the tornado tore off a roof from a home and destroyed mobile homes. Near the intersection of South Buntin and Southeast 4th Street, two mobile homes were blown off of their cinder-block foundations and obliterated. This damage earned the storm an F2 rating on the Fujita scale. Unfortunately, an elderly couple died when they opted to stay in their mobile home. Ironically, the storm did not flip an automobile several yards away, and the vehicle showed little missile penetration. (It would have afforded them better shelter than the mobile home.) The roof and walls of a mobile home near Dreier Avenue and Southeast 4th Street were also torn away from an anchored base (the walls had been held in place by straight nailing from below). Debris from these destroyed mobile homes became concentrated in an area just to the west of Highway 27 on the southeast fringe of town.

DISCUSSION

A storm chaser recorded a 137 mile-per-hour wind gust during the Happy, Texas tornado. Wood-frame residences can be vulnerable during such a windstorm in very specific ways, and homes in Happy were no exception. Roofs are typically held in place by gravity and make easy targets. Roof trusses that did not hold up well during upward force during the storm could have benefited from metal brackets to provide lateral bracing. Also, loss of brick veneer occurs even during a weak tornado when the masonry is improperly attached to the wood-framed wall (i.e., when the brick ties are not engaged into the mortar joints). Such free-standing or unanchored walls then fall outwards with little application of force. Studs straight-nailed to bottom plates can pull out. Perhaps more importantly, manufactured houses that rest on cinder blocks blow away even in a relatively weak storm.

There has been discussion over the last couple of years about safety of mobile homes and the use of cars for shelter and travel during a tornado. Where should people take shelter if they live in a mobile home and a tornado is bearing down on them? There are no laws in Texas requiring such parks to have tornado shelters. Choices include staying put, finding a ditch if possible, and laying low, or going to a car for shelter or to travel to a safer location. History has shown a very real danger associated with staying in a mobile home during a tornado due to the light weight, poor anchoring, and poor construction. Furthermore, ditches become filled with debris during tornadoes and can be prone to flooding when rainfall rates are high. Contrary to current warning recommendations, cars might provide potential shelter for weak tornadoes, essentially the majority of tornadoes, or offer the opportunity to flee to a safer location. In the case of the Happy, Texas storm, the couple might have lived had they crouched under the dashboard of the nearby vehicle instead of staying in their mobile home.

Taking shelter in a car instead of a mobile home may be appropriate for storms rated up to high F1 or low F2 on the Fujita scale. The problem remains that people do not have prior knowledge of a tornado’s strength. Logically, there appears to be some utility for tornado intensity forecasts to help guide decision making, if people are willing to listen and stay informed. Although tornado warnings are not fully or officially disseminated by government forecasters at all times, severe-storm forecasts try to predict the potential for weak, strong, or violent tornadoes. But, if there were official tornado intensity forecasts, how accurate would they be, and would the public trust them? What would be public backlash of a strong tornado on a day when the forecast was for weak storms? Such a scenario would likely be worse than the reverse: strong and violent storms forecasted with only weak ones verified. However, people might also disregard tornado warnings when they believe there has been too much “crying wolf.”

CONCLUSION

The visit to the Happy, Texas damage site was spurred by the implication that the town had been blown away. The words “blown away,” relevant for specific locations in San Angelo and Waco in 1953, Wichita Falls and Vernon in 1979, and to Spencer, South Dakota in 1998, were not applicable to Happy, Texas.
The media often do an excellent job but misrepresented this tornado based upon a slow start to the storm season and a record late incidence of tornado deaths. Inappropriate publicity can be associated with decreases in residential property values. Locations such as Wichita Falls, which survived two truly violent tornadoes over a period of 15 years, may still face personal and economic implications of living in what can be perceived as a dangerous place that far outlast the initial cleanup.

The F2 storm in Happy, Texas damaged approximately 20 structures and killed two people in a mobile home. Not surprisingly, 58 percent of all 2002 tornado deaths, fully 32 out of 55, were due to storm interactions with manufactured housing. But, people can survive these severe storms if they maintain situational awareness. This means paying attention to the weather when warm southerly winds bring increased humidity during tornado seasons. They should also heed warnings from media outlets, such as staying out of mobile homes during tornadoes. Future research on the dangers and advantages of using automobiles for shelter or travel to safer places during storms of varying intensities appears warranted. Additionally, working to improve intensity forecasts appears justifiable, as does the public dissemination of information.

William Monfredo, PhD, University of New Orleans, New Orleans, Louisiana.

REFERENCES
Show me the manner in which a nation or community cares for its dead, and I will measure with mathematical exactness the tender sympathies of its people, their respect for the law of the land, and their loyalty to high ideals. —William Gladstone

INTRODUCTION

When disasters such as a flood, an earthquake, or hurricane hit, local responders, government agencies, and private organizations take action. Their primary goal is to save lives and help people cope with the chaos. Usually, with the help of the state, skills and equipment are available to accomplish this goal. Unfortunately, disasters occasionally go beyond the capabilities of the local and state authorities. This is when the federal government steps in upon request from the state.

Most federal assistance is financial; however, during catastrophic disasters, resources may be mobilized from federal departments and agencies to support response functions. The Federal Response Plan (FRP) provides the system for the overall delivery of federal assistance in a disaster. Essential resources are grouped into 12 emergency support functions (ESFs) (Table 1), each headed by a primary agency with other agencies providing support as necessary. Mortuary operations during a time of disasters or emergencies falls under ESF #8, Health and Medical Services. The responsibility is to provide assistance for public health and medical care needs. The primary agency is the United States Public Health Service (PHS), Department of Health and Human Services (DHHS). Office of Emergency Preparedness (OEP) is the specific office coordinating the national response to disaster mortuary operations.

Organized under the DHHS are Disaster Medical Assistance Teams (DMATs), Veterinary Medical Assistance Teams (VMATs), National Medical Response Teams (NMRTs), Weapons of Mass Destruction Teams (WMDTs), and Disaster Mortuary Response Teams (DMORTs).

The FRP tasks the National Disaster Medical System (NDMS) to provide victim identification and mortuary services. These responsibilities include:

- temporary morgue facilities;
- victim identification using latent fingerprint, forensic dental, pathology, and forensic anthropology methods;
- processing;
- preparation; and
- disposition of remains.

To accomplish this mission, NDMS entered into an agreement with the National Association for Search and Rescue (NASAR), a nonprofit organization, to develop DMORTs, which are composed of private citizens, each with a particular field of expertise. They are mainly personnel who are active members in the death industry and are activated in the event of a disaster requiring their services. Teams are composed of funeral directors, medical examiners, coroners, pathologists, forensic anthropologists, medical records technicians and transcribers, fingerprint specialists, forensic odontologists, dental assistants, X-ray technicians, mental
Table 1. Twelve emergency support functions (ESFs)

<table>
<thead>
<tr>
<th>ESF 1</th>
<th>Transportation. Providing civilian and military transportation. (Lead agency: Department of Transportation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESF 2</td>
<td>Communications. Providing telecommunications support. (Lead agency: National Communications System)</td>
</tr>
<tr>
<td>ESF 3</td>
<td>Public works and engineering. Restoring essential public services and facilities. (Lead agency: US Army Corps of Engineers, Department of Defense)</td>
</tr>
<tr>
<td>ESF 4</td>
<td>Firefighting. Detecting and supressing wild land, rural, and urban fires. (Lead agency: US Forest Service, Department of Agriculture)</td>
</tr>
<tr>
<td>ESF 5</td>
<td>Information and planning. Collecting, analyzing, and disseminating critical information to facilitate the overall federal response and recovery operations. (Lead agency: Federal Emergency Management Agency)</td>
</tr>
<tr>
<td>ESF 6</td>
<td>Mass care. Managing and coordinating food, shelter, and first aid for victims; providing bulk distribution of relief supplies; operating a system to assist family reunification. (Lead agency: American Red Cross)</td>
</tr>
<tr>
<td>ESF 7</td>
<td>Resource support. Providing equipment, materials, supplies, and personnel to federal entities during response operations. (Lead agency: General Services Administration)</td>
</tr>
<tr>
<td>ESF 8</td>
<td>Health and medical services. Providing assistance for public health and medical care needs. (Lead agency: US Public Health Service, Department of Health and Human Services)</td>
</tr>
<tr>
<td>ESF 9</td>
<td>Urban search and rescue. Locating, extricating, and providing initial medical treatment to victims trapped in collapsed structures. (Lead agency: Federal Emergency Management Agency)</td>
</tr>
<tr>
<td>ESF 10</td>
<td>Hazardous materials. Supporting federal response to actual or potential releases of oil and hazardous materials. (Lead agency: Environmental Protection Agency)</td>
</tr>
<tr>
<td>ESF 11</td>
<td>Food. Identifying food needs; ensuring that food gets to areas affected by disaster. (Lead agency: Food and Nutrition Service, Department of Agriculture)</td>
</tr>
<tr>
<td>ESF 12</td>
<td>Energy. Restoring power systems and fuel supplies. (Lead agency: Department of Energy)</td>
</tr>
</tbody>
</table>

health specialists, computer professionals, administrative support staff, and security and investigative support. DMORT members are required to maintain appropriate certification and licensure within their discipline. When members are activated, licensure and certification are recognized by all states, and the team members are compensated for their duty time by the federal government as temporary federal employees. The DMORTs are directed by the NDMS in conjunction with a regional coordinator in each of 10 Federal regions.

The NDMS provides support to the DMORT team by maintaining a mobile mortuary container at the OEP warehouse located in Gaithersburg, Maryland. The mobile mortuary container is a depository of equipment and supplies for deployment to a disaster site. It contains a complete morgue with designated workstations for each processing element and prepackaged equipment and supplies.

Cemetery Flooding:
Overview of a Nontypical Disaster

Hurricane Floyd, the sixth storm of the 1999 season, reached the shores of Eastern North Carolina on September 13, 1999. It came and left in the usual devastating fashion. A buildup of wind, rain, and pressure left a wake of tangled debris and victims left wading through puddles of memories and water. This time, the aftermath from the winds was less destructive than other consequences, described by one citizen as “the worst flooding in 500 years.”

Even after the storm, the water continued to rise. By normal flood standards, the loss of life and property resulting from this storm was unusually high; on average, communities were 50 percent flooded throughout Eastern North Carolina. The hardest hit was Princeville, which was 100 percent flooded. (To put it in perspective, imagine your community disappearing from the face of the earth with no visible sign...
of it ever having existed. Although this example is a bit dramatic, Princeville suffered one of the largest devastations in North Carolina history.) To add to the mental anguish, caskets and vaults of loved ones were disinterred from their supposed final resting places and catapulted into the raging waters of the Tar River, the streets and woods surrounding Princeville, and eventually, into the headlines.

The normal response to such a disaster is recovery. But how do you begin to deal with hundreds of disinterred caskets and vaults? Who is trained, equipped, staffed, and capable of handling a disaster of this magnitude?

The first thought might be call on the Army, and rightfully so, since Army National Guard units are trained as first responders in state and national disasters. However, their primary concern is to save lives rather than cope with the displacement of those who are already dead. The DMORT, on the other hand, is well suited to handle this type of nontypical disaster, which would more than likely overwhelm local mortuary officials. The DMORT is the conduit to maintain a continuous mortuary operation without degradation of service to the family. Unlike a typical disaster, this situation does not involve the process of embalming fatalities; however, the processing of remains from unknown graves requires delicate and meticulous processing from seasoned veterans.

BACKGROUND

The DMORT has proven experience in this type of disaster. It has been deployed to the floods of Albany, Georgia in 1996, those in Missouri in 1992, Korean Airlines Flight #801, and the Amtrak wreck in March of 1999. This team of volunteer professionals is on the frontline of disaster with no notice necessary.

MISSION ASSIGNMENT #USPHS-05: HURRICANE FLOYD

On September 13, 1999, the federal government issued the following declaration through the Federal Emergency Management Agency (FEMA):

FEMA intends to coordinate all disaster relief efforts which have the purpose of alleviating the hardship and suffering caused by the emergency on the local population and to provide appropriate assistance for required emergency measures authorized under Title V of the Stafford Act to save lives, protect property, public health, and safety, or to lessen or avert the threat of a catastrophe in the designated areas.

The specific mission for the deployment of the DMORT in this case was to provide direct services to local officials in identification of displaced human remains from cemeteries in Eastern North Carolina. Services include identification, reburial, and record keeping. The management support team was charged with providing command, control, and logistics for DMORT.

TASK ORGANIZATION

A team of over 200 personnel formed the nucleus of the DMORT. The supporting agencies were:

- North Carolina Army National Guard;
- North Carolina Forestry Service;
- North Carolina State Police;
- North Carolina Department of Motor Vehicles, Police;
- American Red Cross, Food Service;
- Salvation Army, Food Service;
- Environmental Protection Agency;
- Pamlico Search and Rescue Team; and
- US Coast Guard, Pollution Incident Command National Strike Team.

OPERATIONS

Recovery

USA Today and CNN showed the aftermath of the severe flooding that hit Eastern North Carolina.
One quickly noted problem was the disinterment of caskets and vaults. Caskets from several cemeteries were literally just floating around. The largest concentration of caskets seemed to be generated from the town of Princeville and surrounding Edgecombe County.

The first task in the recovery process was to assess where all the caskets and vaults were. An aerial reconnaissance was made over Edgecombe County and the Tar River. “Ground zero” of the problem was pinpointed to the town of Princeville, which, to further complicate the issue, was 100 percent underwater without any indication of the number and location of affected cemeteries.

The next task was to go in by boat with the assistance of the Coast Guard to make an assessment of what was not visible from the air. The mission was twofold—the Coast Guard searched and secured propane tanks, while the recovery team searched and secured caskets and vaults to stem further movement and made a more detailed assessment of the devastation. Little more could be done until the water receded and a ground crew could get in to physically count and remove all visible caskets and vaults.

Two days later, the water went down enough to get vehicles and personnel into the city. This initial response was headed up by seasoned veteran Cotton Howell, a forensic nurse from South Carolina and a member of the Disaster Portable Morgue Team deployed to the Albany, Georgia floods in 1996. The lessons learned from that deployment and the 1992 Missouri floods developed a framework of action for this situation. The North Carolina National Guard provided the initial response force, which contained the personnel and equipment necessary to begin working in what was referred to as “ground zero” or “the hole.” A detail of over 20 volunteers and guardsmen, forklifts, high mobility military vehicles (HUMMVs), and a palletized loading system (PLS) vehicle were dispatched to the site and quickly began locating and removing all visible caskets and vaults.

The North Carolina Forestry Service, experts in working through heavily wooded areas, provided additional assistance. Several law enforcement agencies, sheriffs, and police also assisted in the recovery phase by providing perimeter security at the entry and exit points of the town of Princeville as well as several teams of recovery personnel.

**PERSONNEL**

The initial team heading up recovery efforts consisted of personnel from a variety of backgrounds, including:

- Cotton Howell, Emergency Management Official, York County, SC (Vietnam veteran, mortuary affairs experience, Albany floods casket recovery experience, certified forensic nurse, York County coroner, and mortuary officer, deployable morgue unit);
- Ronald Boone, Funeral Home Director/Mortician, SC (Vietnam veteran, Albany floods experience, Korean Airlines Flight #801 crash experience, Bosnian mass grave recovery operations experience);
- Doug McKown, Coroner, York County, SC (Desert Shield/Storm veteran, Albany floods experience, Korean Airlines Flight #801 crash experience), expert on small boat operations and water recovery);
- Robert Cornish, Special Operations Officer, SC Office of Emergency Preparedness
(Retired Army chemical NCO, extensive knowledge of recovery operations, extensive knowledge of special recovery equipment);

- Bert Brooks, Funeral Home Director/Mortician, NC (expert on Eastern North Carolina Cemetery policies and laws, expert on Eastern North Carolina communities and cities, extensive knowledge of all-terrain vehicles and trucks, extensive knowledge of caskets and vaults);

- Jamie Stewart, Funeral Home Owner/Mortician, OK (extensive knowledge of caskets and vaults, extensive knowledge of small boat operations); and

- Paul Slesik, Anthropologist, Armed Forces Research Center Identification Lab, Los Alamitos, CA (extensive knowledge of remains recovery).

**EQUIPMENT**

Each piece of equipment used wrote a new chapter on flexibility and contributions to disaster management. The equipment employed were:

- HUMMV: Provided access to rugged areas denied to other vehicles. (Supplied by the North Carolina National Guard.)

- PLS vehicle: Provided access to rugged areas denied to other vehicles; provided significant lift and transport capability. (Supplied by North Carolina National Truck.)

- GO Track (tracked vehicle): Provided access to heavily wooded and swampy areas; transported personnel, equipment, and caskets; winch used to move vault debris. (Supplied by the North Carolina Forestry Service.)

- Gator (John Deere six-wheel all-terrain vehicle): Provided access to areas in which the HUMMV could not operate; transported personnel, equipment, and caskets too fragile or small for the GO Track; provided winch used to move vault debris. (Rented by the North Carolina OEP.)

- Johnboat (flat-bottom boat): Provided immediate access to locations denied to land vehicles and foot travel, or too shallow for an outboard motorboat; used to tow caskets and vaults to a secure site until retrieval was possible. (Supplied by the Pamlico County Search and Rescue and the regional Environmental Protection Agency.)

- Motorboat: Provided initial search, recovery, and securing of floating caskets and vaults. (Supplied by the US Coast Guard.)

- Helicopter (OH58, UH1, UH60): Provided assistance in aerial reconnaissance; provided assistance in the movement of recovery teams throughout region, from Princeville to the Pamlico Sound—a distance of over 500 miles. (Supplied by the North Carolina National Guard.)

**MORGUE OPERATION**

The morgue operation was established in an old warehouse undergoing renovation in the town of Tarboro, NC. It was suitable for housing the American Red Cross Assistance Center, the Management Support Team command post, and the Disaster Portable Morgue Unit. The issues faced by the operators of the temporary morgue were the same issues faced by all military mortuary affairs units: to maintain the dignity and respect of the remains at all times, to keep the morgue operations away from public view and spectacle, to dispose of biological waste, and to control access into the morgue operational areas.
Unlike military mortuary operations, the disaster mortuary team did not deal with the fatalities caused by Hurricane Floyd. The sole remains processed were those buried prior to the hurricane and disinterred as a result of the destruction. This posed what would soon become an enormous task. While the morgue was being established, a recovery team was hard at work, knee-deep in snakes, mud, and water. Additionally, the team was canvassing all affected cemeteries and counties for information. Legwork was needed in the field to aid the morticians.

Information required to make a positive identification of remains consisted of the cemetery plat (a document similar to a blueprint or diagram of the cemetery which details the who, what, when, and where for each gravesite). If properly constructed and updated, this document would have solved 80 percent of the unidentified remains. The reality was that Edgecombe County had over 200 map-documented cemeteries. A significant number were not documented and were not of public knowledge. Several universities in the area had conducted cemetery surveys during the last decade, which were helpful in identifying unofficial cemeteries; however, not all of them had been surveyed. The only solution was to go into all affected cemeteries and begin the laborious task of documenting gravesites.

We first began by identifying all caskets and vaults recovered with a five-digit code consisting of a two-letter/three-number combination. This code was transferred to the morgue, the mortuary-service team command post, and the Cemetery Information Center/Family Assistance Center. It provided a quick and ready reference to how severe the problem was for a particular cemetery and aided in forecasting of workload.

The next step was to prepare a hasty plat of grave locations for each cemetery, identifying the disturbed graves and adjacent, intact graves. Additionally, we turned vault lids right side up when the names were not visible and recorded the name of the deceased on the lid. We did not assume that the lid adjacent to or in a grave belonged to the same individual who had been buried in that location. The caskets and vaults floated to a height of over 30 feet, with some moving over a distance of four blocks from the cemetery prior to settling. On occasion, we found several vaults which had simply floated up and returned to the same hole with little disruption. Several vaults turned over on their sides or tops, while many flowed with the water in all directions, becoming embedded in brush, fallen trees, woods, yards, streets, sidewalks, driveways, and even rooftops. The force and power of water soon had our respect for its awesome and ominous capability.

The plat aided the team and family members in identifying the loved ones who were disinterred and whose remains were hopefully located in the morgue. I say hopefully, because a significant problem exists once the search is exhausted and the number of empty graves is disproportionate to the number of remains recovered. The question of “where is the casket or vault that belongs in this gravesite?” may not be answered until a later time.

**Morgue Processing**

Once the mortuary team was up to operational speed, an average of 20 remains were processed per day. The meticulous process of confirming the identity of the remains was needed to assure the local population that all loved ones were accounted for and laid back to rest.

The team of experts described earlier used several methods to get a positive identification. With the onset of decomposition, not all the remains could be positively identified through the use of modern and scientific technology. The rule that two negative identifications could make a positive identification was used. This means that something unique about the burial, such as clothes worn or artifacts put into the casket prior to burial, could identify unknown remains.

**Cemetery Information Center/Family Assistance Center**

Compassion and support for the family is an operation in and of itself. A team of counselors and funeral directors formed a Family Assistance Center at a local hotel near the morgue. The name was later changed to the Cemetery Information Center to alleviate confusion. (Many other agencies arrived to provide assistance and all used the same name.) The goal
was to get the information out to the family, who could help solve many of the questions regarding identification. A media blitz was initiated through the local newspaper, television, radio, shelters, church groups, post offices, and funeral homes. Additionally, signs and leaflets were posted at the entrance to all disturbed cemeteries.

**REBURIAL**

The final phase of the disaster mortuary operations in this particular instance was the reburial versus the burial. A reburial would appear to be a simple operation; however, the reality is this may be much more difficult under certain circumstances than burial.

Several factors complicate this phase. If the plot or cemetery in which the casket comes from is destroyed and becomes unsuitable for a grave, another location must be identified, surveyed, and prepared. For the operation within Princeville, a plan was executed to survey the cemetery to identify all disturbed graves, mark all grave sites with engineering tape for aerial visibility, and conduct an aerial survey with aerial photography in addition to a ground survey.

Complicating matters further was the fact that in many cases, a plat was not available to identify where each casket should return. Without that document, it was a wild guess as to where a casket was supposed to be. The information the family made available to the Cemetery Information Center regarding the original gravesite locations played a big role. Since it was believed to do more harm than good to return a casket to the wrong location, a public cemetery was established to rebury all remains not positively identified or claimed. This cemetery was prepared to all appropriate policies and regulations with supporting documentation including plat and a videotape of when and where everyone was buried.

**LESSONS LEARNED**

Hurricane season ends within the first week of November; however, the effects of its devastation last much longer. Hurricane Floyd and the floods following its path left an equally lasting impression on the responders. Prevention methods can hopefully mitigate the impact of or our vulnerability to disasters that disinter caskets. To that end, the following stipulations should be complied with prior to any burial:

- The family and funeral home director should jointly ensure that all information required on the data form for the memorial tube is properly filled out and placed appropriately in the memorial tube.

- The family and funeral home director should ensure that the casket’s warranty card is filled out and submitted. Many families never dreamed that once buried, the casket would resurface. They also believed the casket manufacturer provided a product that would stand the test of time and environment. Many families were deeply surprised and disappointed to learn a warranty could have settled the issue of recasketing.

- A plat needs to be made of an entire cemetery listing the who, what, when, where, and how for each gravesite.

- Cemeteries that require families to maintain their own plots should provide the family with an updated plat after burial.

- All clothing worn or artifacts enclosed in the casket should be recorded, as this may ultimately be the only means of identification.

---

Vincent B. Holman, Sr., LTC, MS, Deputy Command Surgeon/Senior Medical Planner, US European Command Headquarters, Stuttgart-Vaihingen, Germany.
ABSTRACT

Emergency managers have a dilemma in deciding what to do when there is an emergency that affects their community. Those who have habitual hazards in their community are basically prepared. When a tornado is sighted in “tornado alley,” everyone knows what to do. When a hurricane is coming to shore along the Florida and Texas Gulf Coast, there are basic emergency steps to follow. But in this time of new and more challenging risks, we need a better system to coordinate community emergency decision making, no matter what the hazard. A simple solution is to adopt the four-level emergency event classification system that is already in use with communities with commercial nuclear power plants.

INTRODUCTION

During the year after September 11, 2001, the nation went from Homeland Security code yellow to code orange. The first problem with this action is that local emergency management agencies received word from CNN before getting it from normal channels. Second, there was nothing associated with the threat announcement that meant anything to anyone at the local level. There was no who, what, where, when, how, or why—only the message to “be prepared.” Be prepared for what? In a follow-up survey by several news organizations, it was found that outside of New York City, Washington DC, and other large jurisdictions, most communities did absolutely nothing. The comments collected in the survey were that most local jurisdictions had received nothing about any credible threat to their community through any official channels, emergency management, or law enforcement.

The question must be asked—is there a better way to communicate that is simple and applicable for any emergency? There is a viable solution that is already in place. The Radiological Emergency Preparedness (REP) program for local response to emergencies at nuclear power plants employs a simple emergency alert classification system based on four levels of severity. This program has been in place for many years, but unless emergency managers are located in the Emergency Planning Zone (EPZ) of one of the 100+ nuclear facilities, they probably are unaware of the program. According to the REP alert classification system, if something happens at the nuclear power plant, the control room has an exhaustive set of protocols to follow. If pre-established trigger points are reached during the event, the local Emergency Management Agency (EMA) is notified. The first stage is an unusual event, followed by an alert, then site area emergency, and finally a general emergency declaration.

At each stage, as the threat to the public safety increases, the EMA performs specific actions. The unusual event is a “heads up” notice with little or no action necessary. At an alert, key officials are notified and the Emergency Operations Center (EOC) is activated. At a site area emergency, the public is warned of a pending problem, and the first protective actions are taken such as moving children from schools and day care facilities, and marshaling additional resources. The final category, a general emergency, involves a direct threat to the health and safety of the public and requires either community-wide evacuation or sheltering.
Within each of these classifications, there are well-defined protocols, check lists, and predetermined protective actions that dictate what steps need to be taken and in what sequence. A contributing factor to the success of this program is that those participating in the REP program understand the classifications. If a facility is at an alert or site area emergency, everyone knows what that means and what the facility and the EMA is doing. This program has been highly successful in its 20+ year history. Why not expand the REP classifications to our other multihazard operations?

GENERAL APPLICATION OF REP CLASSIFICATIONS

During the 2002 National Radiological Emergency Preparedness Program conference in Milwaukee, Wisconsin, Tab Trexlar from the St. Charles Parish, Department of Emergency Preparedness in Hahnville, Louisiana, presented a workshop on how his community used the same alert classification system as was used by the nuclear power plant in his jurisdiction for other emergencies such as hazardous material spills and hurricanes. There was a great deal of discussion on how simple this concept is and how it could be readily applied for any emergency. From this workshop, the Benton and Linn County Iowa EMAs along with the county liaisons from the emergency planning staff at the Duane Arnold Energy Center took the basics addressed in the workshop and prepared a more comprehensive list within the alert classification system. The program was coordinated and shared with local emergency managers in Iowa to see if they could make it work. EMAs from large and small counties with both rural and urban populations reviewed the program. All agreed that the system was simple and could be applied to any size jurisdiction, for any risk. Each jurisdiction would need to determine how it would respond to these emergency levels, develop their respective local protocols and procedures, train and exercise the program, and then implement the program during an emergency. It was determined that if a condition was declared in one community, the other emergency managers would understand what was occurring, and mutual aid could be coordinated more effectively. This system could be applied nationally: the event classification for local conditions could be addressed as a tornado or flood in Iowa, a hurricane in Florida, and an earthquake in California, and be understood by all.

The universality of the classification system is a very strong point for emergency managers. If a community has an emergency, it often needs help from outside sources. Some communities have existing mutual aid or other support agreements already in place. But it would be beneficial, using this classification system, for an emergency manager in one community to know what type of emergency is occurring in another just by knowing the classification and the event (for example, alert caused by flooding). Emergency managers can respond to an event in another community without waiting for a call, and the emergency manager in the affected area can focus exclusively on the event at hand.

EMERGENCY CLASSIFICATION

Unusual event

An unusual event, which is the lowest or least serious classification, is defined as an incident that is out of the community routine but does not present a major threat to people or property in the immediate vicinity. The incident may have the potential to escalate to a more serious emergency but is not expected to do so. No community protective actions would be implemented, and no extraordinary emergency assistance should be needed. Generally, an unusual event would be handled with the community’s routine response capabilities. Examples of unusual events:

- impending severe weather (no damage, no injuries);
- traffic disruption;
- unconfirmed terrorism threat;
- power disruption less than six hours in duration—use discretion: a power outage in September may not be as severe as one in January for the same period of time;
- small HAZMAT spill or release;
- school event;
- multialarm fire;
- minor flooding;
- alert 2 at an airport (report of an aircraft with an in-flight emergency);
- Homeland Security advisory level change—blue through yellow;
- minor earthquake;
- unusual event classification at nuclear power plant; and
- public health emergency in the United States outside of the local community or state.

EMA actions for unusual events:
- receive notification of emergency event;
- notify EMA staff;
- gather information on situation: determine affected area, determine affected population, determine weather conditions;
- notify key executive leaders;
- develop public information material; and
- monitor situation.

Alert

An alert is defined as an incident that does not imminently affect the local or general population but has the potential to escalate to a more serious emergency. The situation is unresolved and should be monitored closely. Response agencies would be placed in a watch or stand-by mode. Some limited protective actions may be implemented and additional assistance requested from the county emergency management agency or mutual aid agencies. Generally, an alert requires additional community resources. Examples of alert events:
- severe weather with minor damage;
- utility emergency (6-24 hour duration);
- alert 3 on the airport property (plane crash);
- disorderly labor strike or civil unrest;
- small HAZMAT release from a Tier 2 facility (a facility required to report its chemical quantity and type);
- confirmed terrorism threat;
- mass casualty event (25-50 persons);
- public health emergency in the local community or within the state;
- flooding that affects both the public and infrastructure;
- Homeland Security advisory condition orange or red;
- minor earthquake with damage; and
- alert event classification at nuclear power plant.

EMA actions for alert events:
- notify EMA staff;
- gather information on situation: determine affected area, determine affected population, determine weather conditions;
- notify key executive leaders;
- alert volunteer agencies (e.g., Red Cross, Salvation Army, Amateur Radio);
open EOC;

alert state emergency management agency;

consider the need for making a local emergency declaration and requesting a governor's emergency proclamation;

notify EOC staff to report to EOC for briefing: brief EOC staff and elected officials, provide EOC with limited staff;

get guidance from the executive group;

notify Emergency Alert System (EAS) for standby; and

establish a joint public information center (JPIC).

Possible protective actions:

identify and support special needs population;

alert persons in affected areas (including schools, day care centers, congregate care facilities, and industries); and

post an EAS message and public information releases.

Site area emergency

A site area emergency is defined as an emergency that has already had some effect on a limited site population or is anticipated to do so. This classification would be used in situations where a limited number of people have been affected, or a large number could possibly be affected. Protective actions would be implemented and emergency preparedness assistance requested as necessary. Generally, a site area emergency requires outside assistance or mutual aid within a community. Examples of site area emergency:

severe weather with damage or injuries (e.g., flood that requires local evacuation);

school emergency requiring evacuation;

mass casualty event (50-100 persons);

utility emergency (24-72 hour duration);

mass fatality event (25-50 persons);

minor industrial accident;

HAZMAT release from extremely hazardous substance (EHS) facility;

violent labor strike or civil unrest;

uncontrolled HAZMAT spill from rail or road incident;

activation of the National Disaster Medical System (NDMS);

major public health emergency (e.g., contagious disease);

activation of the Strategic National Stockpile (SNS);

Homeland Security code red with confirmed act of terrorism within the state;

threat to the local food supply;

alert 3 outside of the airport property;

earthquake with major damage and casualties; and

site area emergency event classification at nuclear power plant.

EMA actions for a site area emergency:

notify EMA staff;

gather information on situation: determine
affected area, determine affected population, determine weather conditions;

- notify key executive leaders;
- alert volunteer agencies;
- open EOC, fully staff EOC, 24-hour operation;
- alert state EMA, periodically update;
- notify EOC staff to report to EOC for briefing;
- brief EOC staff and elected officials;
- consider local emergency declaration;
- consider requesting state emergency declaration;
- get guidance from executive group;
- coordinate community response and support to the incident commander;
- coordinate emergency or disaster declaration, if needed;
- coordinate damage assessment, if needed; and
- use JPIC to coordinate media releases.

Possible protective actions:

- activate outdoor siren warning system;
- activate EAS system;
- activate indoor warning system;
- establish limited isolation/quarantine;
- establish traffic and access control plan;
- establish limited restriction of commerce;
- alert special needs population in affected areas;
- establish limited restriction of travel: alert schools and care facilities in affected areas; alert all response agencies, law enforcement, fire, EMS, hospitals;
- implement limited evacuation of affected areas;
- implement limited shelter in place of affected areas;
- implement limited evacuation of schools and care facilities to alternate locations;
- implement movement of special needs population;
- activate emergency facilities as needed;
- staff processing center;
- family assistance center;
- temporary morgue; and
- lodging for responders and evacuees.

General emergency

A general emergency, which is the highest emergency classification, is defined as an emergency that has affected or will affect large portions of the county population. This emergency classification indicates that protective action for large numbers of people would be necessary. All local emergency resources would be activated, and assistance would be requested from the federal, state, and mutual aid emergency response agencies as necessary. A general emergency often requires state and federal response and support. Examples of general emergency events:

- severe weather with major damage and loss of life;
utility emergency (72+ hours duration);

mass casualty event (100+ persons);

mass fatality event (50+ persons);

major flooding that requires evacuation;

HAZMAT release from RMP facility—RMP facilities are required by the EPA to perform additional risk planning due to the amount and toxicity of chemicals;

major industrial accident;

major labor strike or civil unrest;

actual terrorist event;

catastrophic health emergency;

confirmed threat to food chain;

multijurisdiction earthquake with major damage and loss of life; and

general emergency event classification at nuclear power plant.

EMA actions in a general emergency:

notify EMA staff;

gather information on situation;

determine affected area;

determine affected population;

determine weather conditions

notify key executive leaders;

alert volunteer agencies;

open EOC, fully staff EOC, 24-hour operation;

alert state EMA, periodically update;

notify EOC staff to report to EOC for briefing;

brief EOC staff and elected officials, periodically update;

get guidance from the executive group;

process local emergency declaration;

request governor’s disaster declaration;

coordinate community response and support to the incident commander; and

coordinate damages assessment.

Possible protective actions:

activate outdoor warning siren;

post EAS messages;

activate indoor warning messages;

coordinate emergency or disaster declaration;

evacuate the general community;

provide general shelter in place of the community;

establish traffic and access control plan;

alert special needs population in affected areas;

alert schools and care facilities in affected areas;

alert all response agencies, law enforcement, fire, EMS, hospitals;
- evacuate schools and care facilities to alternate locations;
- move special needs population;
- isolate/quarantine population;
- restrict commerce and travel; and
- close schools and other education facilities.

CONCLUSION
The alert classification system and the supporting emergency management action guidelines are designed to provide a starting point for discussions within the emergency management and community emergency response profession. The outline can be adjusted for any size community and type of hazard. It is hoped that the emergency management profession can help design and coordinate a simple program that meets the needs of the community and is recognized and understood nationwide. Each state or local jurisdiction would make more definitive descriptions of each level based on their respective hazards. This system is simple and concise. Everyone can follow the protocols and improve the overall consequence management by the local EMA.

Lisa A. Gibney, Emergency Preparedness Coordinator, Duane Arnold Energy Center, Palo, Iowa.
Walter E. Wright, CEM, Director of Emergency Management, Linn County Emergency Management Agency, Cedar Rapids, Iowa.

Call for NEW PRODUCTS

The *Journal of Emergency Management* is looking for announcements of new products that will be of interest to our readers: emergency preparedness directors and first responders fire and police chiefs, government and school officials, heads of public work departments and hospitals—any professional who deals with disasters on a day-to-day basis.

You can send your announcements in one of three ways. For US mail, send them to:

Managing Editor  
Journal of Emergency Management  
470 Boston Post Road  
Weston, MA 02493

You can also fax them to the managing editor at 781-899-4900. Or you can email them to jem@pnpco.com. News and product announcements for our winter ’05 issue should be received by Jan. 15, 2005.

For information on display advertising, please call 800-272-3227, x 107.
ABSTRACT
The research is an administrative case study based on an extensive review of Hawaii government documents and interviews with key personnel of the Hawaii Emergency Preparedness Committee (EPC), civil defense, and other relevant government officials. Interviews with key personnel at the major medical centers were also conducted as well as a survey of 80 percent of the local Hawaii-based TV news reporters. The study describes the interagency coordination at the federal, state, county, and community level to improve capability. Recommendations from the study included increased funding for family emergency preparedness and local community response teams and continuous training by emergency response coordinators to improve state and county disaster preparedness. The study also recommends collaboration with disaster-trained media reporters. The study concluded that, overall, Hawaii is adequately prepared in emergency response capability, particularly in the areas of medical services and interagency coordination, but coordination with the media reporting on disasters could be improved.

INTRODUCTION
The Oahu Civil Defense Agency (OCDA) is a department in the city and county of Honolulu and functions as the primary government agency for disaster response. The mayor acts as the CEO of OCDA. The mayor also has the power to declare a disaster. Disasters are county specific. Each county (i.e., Honolulu, Maui, Kauai, and Hawaii) individually determines what constitutes a disaster. For example, the island of Hawaii, may have volcano eruptions listed as a natural disaster, while Honolulu would not. Disaster descriptions can also be localized to certain areas within a county and designated to the Local Emergency Planning Committee (LEPC). The LEPC is part of the city and county of Honolulu, as opposed to the state’s Emergency Response Commission, which oversees the Hawaii State Civil Defense System. The state’s primary responsibility is to provide leadership in rapid assistance during disasters with a full range of resources and effective partnerships. To advance this responsibility, the state of Hawaii hosted leaders from the public and private sectors to meet and develop innovative response strategies at the Inaugural Asia-Pacific Homeland Security Summit in Honolulu in November 2003.1

THE EMERGENCY OPERATIONS PLAN
There are also federal requirements for each state to establish a community emergency response plan. The primary responsibility for compliance for the city of Honolulu is through the OCDA and their Emergency Operations Plan (EOP). The mayor must regularly report on the progress of various aspects of respective agencies such as the Environmental Protection Agency (EPA) and Occupational Safety and Health (OSHA). Both OSHA and the EPA have regulations to help protect workers with hazardous waste and emergency operations. The LEPC must develop a community emergency response plan (contingency plan) that contains emergency response methods and procedures to be followed by facility owners, police, hospitals, local emergency responders, and emergency medical personnel. The EPA generates the requirements and ensures that states implement emergency response planning programs. The state of Hawaii’s Department of Labor and Industrial
Relations is one of only 25 state agencies to have an emergency response plan approved by OSHA.

All city departments follow the plans outlined in the city and county of Honolulu’s EOP. For example, the OCDA has revised the plans for the Hazardous Materials/Weapons of Mass Destruction section in their EOP since the May 1999 emergency preparedness drill at Aloha Stadium. Once the EOP draft is approved by the mayor and city council, all county departments and coordinating county agencies follow suit. More recently, in May 2002, the Federal Emergency Management Agency (FEMA) conducted a full-scale HAZMAT field exercise at Campbell Industrial Park to test Honolulu’s Hazardous Materials Response Plan. This exercise, named Operation Kalaeloa, involved over 2,000 participants including 13 of 18 of Oahu’s hospitals and was a successful test of Hawaii’s emergency response procedures and system.²

The OCDA facilitates communication, training, procedures, information, and responsibilities within the city and county of Honolulu and various private organizations. It also educates the public about emergency preparedness. Interviews with OCDA reveal that they are continuously reviewing, revising, and testing procedures outlined in the EOP. The administrator of the OCDA works closely with and advises the mayor. The OCDA also has hundreds of volunteers.

### THE EMERGENCY OPERATING CENTER

The Emergency Operating Center (EOC) is designed to coordinate emergency response including establishing operational policy, providing logistical and resource support, and enabling communications. Specifically, the EOC houses the communications system for the emergency broadcast system and a meeting area for the city and county of Honolulu’s disaster committee to meet. During a real disaster or training exercise, the city and county’s disaster committee gathers around a table equipped with a telephone at each seat. The mayor sits at one end of the table and the OCDA administrator at the other. Other representatives from various city and county of Honolulu departments occupy the rest of the table (e.g., fire, police, public works). The EOC also houses the communications and radio devices for Emergency Medical Services (EMS): hospitals, police, fire, utility companies; and federal, state, and other county agencies.

### COMMUNITY EMERGENCY RESPONSE TEAM

FEMA, recognizing the importance of preparing citizens for a wide range of potential disasters,
expanded the Community Emergency Response Team (CERT) from primarily fire to medical and eventually all hazards, natural and man-made. The disaster categories and types are shown in Table 1.

FEMA supports CERT by conducting or sponsoring Train-the-Trainer sessions (TTT) for members of the fire, medical, and emergency management community. These trained members of the community can provide immediate assistance to victims in their area, organize spontaneous volunteers who have not had the training, and collect disaster intelligence that will assist professional responders with prioritization and allocation of resources following a disaster. According to the OCDA operations and planning director, many teams of Hawaii residents have participated in the various CERT training sessions since 1997. More importantly, neighborhoods that have CERT-trained teams have not only been made more aware of how to respond to disasters but have been more effective and efficient in their response to actual emergencies.

Communities that actively participate in the project are provided assistance to develop strategies to become more disaster resistant. The overall strategy involves coordination and a local partnership of government and business to reduce the human and financial cost of disasters. In Hawaii, the County of Maui and Hawaii County were selected by FEMA's Project Impact and are part of a growing list of specially designated “disaster resistant communities.”

THE ROLE OF THE MEDICAL CENTERS

With 560 beds, the Queen's Medical Center (QMC) is the largest voluntary hospital and main trauma center in Hawaii. Founded in 1859 by Hawaiian royalty, it offers a comprehensive range of primary and specialized care services and plays a major role in the overall response to natural disasters and other emergencies in the state of Hawaii. The QMC currently has over 1,000 physicians on its staff, a total of 3,500 employees, and an annual budget of $1 billion. The QMC’s trauma facility has been verified as a level two trauma center by the Committee on Trauma of the American College of Surgeons, the national accrediting agency for trauma services.

As a level two trauma center, certain essential services must be made available to the public. These include:

- 24-hour immediate coverage by general surgeons and specialists in orthopedic and neurosurgery, anesthesiology, emergency medicine, radiology, and critical care;
- tertiary care needs, such as cardiac surgery, hemodialysis, and microvascular surgery, may be referred to a level one trauma center;
- an ongoing commitment to trauma prevention and to the continuing education of trauma team members; and
- continuous efforts to improve the quality and effectiveness of trauma care through a comprehensive quality assessment program.

At the hospital level, the QMC has its own emergency preparedness committee, which is responsible for developing and maintaining a system of emergency codes. When the appropriate code is activated (i.e., when an actual disaster or emergency has already occurred), a command center is created and headed by the administrative disaster officer at the medical center. When an event occurs, the QMC focuses primarily on:

- the number and types of victims coming into the hospital;
- internal problems at the hospital, including the possibility of risk through damage, contamination, etc.;
- optimizing patient outcomes; and
- assessing and improving risk management for similar incidents in the future.
The QMC has developed a comprehensive emergency safety manual, which contains detailed procedures for every unit of the hospital and for each kind of emergency. Currently, employees must respond to a monthly hospital-wide drill that uses a randomly selected emergency code. The results of the drills are reviewed by all three subcommittees and incorporated into the emergency preparedness recommendations they make to the board of trustees. According to Gary Dias, QMC’s Security Director, the trauma center is prepared for the victims, and patients receive treatment as soon as they arrive. Internally, the hospital’s emergency preparedness plan is activated and everything usually goes as planned.

From an overall assessment by the author, the major factors contributing to QMC’s excellent track record when handling emergencies can be identified as:

- continuous evaluation and improvement of the Emergency Preparedness Safety Manual;
- the high priority QMC places on continuous disaster preparedness training for all of its employees;
- competency of staff and especially the Trauma Services Unit; and
- the highly effective coordination QMC has developed with outside agencies.

HEALTHCARE ASSOCIATION OF HAWAII

It has been proposed that emergency management is both proactive and reactive, and this realization applies to QMC in its efforts to coordinate with outside agencies. The primary means by which QMC achieves its coordination is through the Healthcare Association of Hawaii (HAH).

HAH is a nonprofit organization representing the state of Hawaii’s acute care hospitals and two-thirds of the long-term care beds with a total of 41 facilities. HAH also represents community-based providers and many supporting organizations that provide services and supplies to the industry. This includes the HAH Emergency Preparedness Committee (EPC), which is responsible for providing hospital services in support of the state civil defense system as cited in Hawaii’s Disaster Relief Act and various federal, state, and county emergency response plans. The chair of the EPC is appointed by the CEO of HAH. Members are appointed by the CEO of their respective healthcare organization. The EPC coordinated “Island Crisis,” a full-scale chemical terrorism response drill in May 1999. Fourteen hospitals participated of which five facilities demonstrated an ability to provide emergency casualty decontamination.

The Honolulu based EPC is unique in the nation. Its strength is the ability to bring all key stakeholders involved in healthcare emergency response into one well-aligned and well-coordinated system. Improvement opportunities include the need to further incorporate nonhospital organizations into the network more effectively and improve the professional development of hospital emergency coordinators. For example, a key player with EPC is Toby Clairmont, Vice President of Kaiser Permanente Medical Center in the state of Hawaii. During peacetime, he chairs the EPC and during wartime, when an emergency threatens or has occurred, he serves as the special staff officer for the Honolulu EOC coordinating all hospitals in the state of Hawaii. According to Vice President Clairmont, who has worked over 250 emergencies in the last 25 years ranging from multifamily structural fires to hurricanes, three critical factors in successfully responding to emergencies are 1) family emergency preparedness, 2) local community emergency response teams, and 3) well-trained organizational coordinators.

HAH includes among its affiliate members other organizations which support coordination in emergency response efforts such as Hawaii Air Ambulance and International Life Support, Inc. Moreover, a Web site was developed by the Emergency Preparedness Program (EPP) of HAH. It is designed to provide information and data management services to healthcare facility emergency managers in the state of Hawaii. These organizations include the American Red Cross, Hawaii State Civil Defense, OCDA, and
hotels, which are also members of Honolulu’s disaster committee at the city and county levels of Honolulu’s EOC. This coordination extends to the neighbor islands. For example, in June 2001, the West Hawaii branch of the American Red Cross provided disaster response training to community-based volunteers in Kona.8

Other organizations in the Network are Kaiser Medical Center, Kuakini Medical Center, St. Francis Medical Center, QMC, Tripler Army Medical Center, and the Blood Bank of Hawaii. It should be noted that the Blood Bank of Hawaii plays a vital role and designates 10 percent of all donated blood to disaster victims suffering from trauma.

THE ROLE OF THE MEDIA IN DISASTER RESPONSE

The impact of the media on emergency management is a topic of great concern during all phases of a disaster but is particularly critical during the important final phase of disaster preparedness and the initial phase of disaster response. Media reports help shape perceptions about how to prepare and respond to disasters, especially in the immediate post-impact stage of the disaster.

To obtain first-hand data on the role of the media during the critical phases of final disaster preparedness and initial disaster response, a survey of the TV news reporters (including the news anchors of the four major Hawaii-based TV stations) were surveyed during the month of November 2003. Forty reporters who responded to the survey represented approximately 80 percent of the reporters who report on disaster-related news stories in Hawaii. The TV reporters were asked the following three questions:

1. Following a major disaster, do you feel the news media is more interested in actual damage or human-related type stories?

2. In the rush to get the headline story, do you think the news media omits critical facts that could or might help other individuals?

3. When selecting the story line after a disaster has already occurred, do you think the news media is responsible for broadcasting information provided by emergency management sources?

Results of the survey indicated that there exists variations in media reporting patterns on disasters and that this variation is due primarily to the type of disaster, interview incidence, “news hole” space, and time.

Apparently, it is more likely for exaggerations, omissions, and distortions to occur in the reporting of natural disasters as opposed to technologically related disasters. Technological disasters that are exaggerated are usually those that involve chemical spills, nuclear radiation, and transportation accidents (e.g., plane, ship, and train crashes).

It seems that what is referred to as “soft” news reporting occurs most with natural disasters, when there are available victims for interviews who have a high human interest to viewers. According to most of the respondents in these cases, the only constraint is time required to get the story in for the next TV broadcast slot and the “news hole” space, which prioritizes the time and/or space available or allotted for the story. According to the respondents, the more time for the story, the more likely “soft” news aspects of the disaster will be reported. The less time allotted, the more likely only the hard news facts of the natural disaster will be reported, such as the recorded wind velocity, number of inches of rain per hour, water levels at the shoreline, amount of property damage, and the number of injuries and deaths.

Generally, most of the respondents to the survey felt that they reported on both the actual damage and the human-interest type stories but tended to report more extensively on the human-interest stories.

Typical comments by respondents were:

Any good story would contain both elements. First and foremost, people make stories. If there’s a landslide out in the middle of nowhere, who cares. If there’s a landslide in someone’s backyard, that’s news. If I were to write a story on a major disaster, I would focus my story on the
people affected. I would then work the actual damage facts into the story.

TV news these days gets its style and direction from media consultants who are interested in how “real” people are affected by the horrible things that happen in this world. They will sacrifice the details and facts of an event to devote airtime to how people are affected by it.

When asked if the news media omits critical facts that could help individuals in their rush to get the headline story, most respondents admit that critical facts are sometimes omitted or reported incorrectly. However, respondents also noted that while time is a primary factor in critical facts being omitted or distorted, this is never done knowingly, and follow-up stories usually correct previous errors. Also, there was a general consensus that this is more of a problem for the TV news reporters than the print media.

Typical comments by respondents were:

In the rush to put stuff on air in general—whether meeting a 5PM deadline or being first with the story—mistakes are made at times. We try hard not to make mistakes, which is why we have a checks and balances system. Each script is read by several levels of managers before going on air. I don’t believe any critical facts would be knowingly omitted.

When things happen close to a deadline, whether it be for television or print, there is always a rush to get the story out, which could lead to mistakes. If there is a mistake, it should be corrected as soon as possible in the following newscast or newspaper edition.

In response to the final question as to whether the news media should be responsible to broadcast and/or print information provided by emergency management sources, most respondents said it should not be required to do so but should do it as a public service. Typical comments by two of the respondents are presented below.

The news media should not be required to display any information but should do so as a public service to its viewers. In the case of earthquakes and floods that affect so many citizens, people rely on their favorite TV stations and their everyday newscasters to provide FEMA and shelter numbers. Newspaper and TV and radio stations send a field reporter to the centers for a story and get interviews as matter of procedure.

Well, it depends. If there is information I think could help the viewer, I will include it. For example, when we had our last hurricane threat, I interviewed the Civil Defense guy. As part of the story, I showed viewers where in the phone book they could get information should they have to evacuate their home. I think, generally speaking, if the information provides a necessary service, include it. Remember, though, you only have a certain amount of time for your story—about two minutes. That means you have to weigh the importance of the resource information against other information you want to provide. It’s a judgment call.

CONCLUSIONS AND RECOMMENDATIONS

Based on the research undertaken, the author recommends that improvements by state and county agencies could also be made with an increased focus and funding for family emergency preparedness, local community response teams, and increased continuous training of emergency response coordinators in collaboration with the major medical and media organizations.

Improvement could also be made in the area of OCDA sponsored drills. Based on the results of the various interviews with agency personnel, some
glitches still exist in the alarm drill held each month for Oahu. Apparently, some parts of the alert system network are not always instantaneously connected as they should be. While the yearly drills and actual disaster simulation response are usually carried out very well, improvements could be made by having the key players take their designated places in the EOC. Apparently, some of the key players have been attending as observers and not participants.

Overall, it appears that Hawaii is adequately prepared in emergency response capability, particularly in the areas of medical services and interagency coordination, but coordination with the media reporting on disasters could be improved.

Finally, emergency management and disaster response in Hawaii should be maintained as a high priority by the leaders in the state of Hawaii. As noted by Secretary of Homeland Security Tom Ridge in his remarks at the Asia-Pacific Homeland Security Summit in Honolulu, “St. Thomas Aquinas said three things are necessary for the salvation of man: to know what he ought to believe, to know what he ought to desire, and to know what he ought to do. We knew minutes after the second plane hit the World Trade Center what we would need to do—that is, make the fullest protection of our people the highest charge of our nation.”

Ross Prizzia, PhD, Professor of Public Administration, University of Hawaii-West Oahu, Pearl City, Hawaii.

REFERENCES
6. Hawaii Revised Statutes, Chapter 127.
ABSTRACT

The accredited Environmental Health Science BS degree program at Salisbury University, a member institution of the University System of Maryland, has developed an integrated chemical and bioterrorism course for undergraduate students and emergency management professionals. The one-credit class meets once a week. Course design is adapted from the Federal Emergency Management Agency’s (FEMA) integrated approach to chemical and bioterrorist defensive training strategies. Course objectives are to gain knowledge of specific chemical and biological agents; become familiar with peacetime equivalents and surrogate agents; understand biomedical and environmental factors related to agent exposures; become familiar with integrated response strategies; and gain understanding of government policy issues, agency coordination, and field operations.

Student input is based on specific discipline group response and participation in a simulated bioagent release. Discipline groups include public and emergency health, media, critical incident stress analysis, and conflict resolution. Student evaluations of the first course offered in the fall semester of 2002 indicated that the simulated release exercise gave each student an increased awareness of multiagency response necessary to mitigate bioterrorist-initiated events. Evaluation results also suggested the following modifications: include at least one community professional in each discipline group, extend the course to two credits, and schedule the class in late afternoon to accommodate working professionals.

INTRODUCTION

The Environmental Health Science (ENVH) program at Salisbury University, a member institution of the University System of Maryland, offers an undergraduate integrated emergency management course dealing with terrorist-initiated releases of chemical and biological agents. The ENVH program is fully accredited by the National Environmental Health Science and Protection Accreditation Council and is in its 11th year at Salisbury University.

As an accredited program, ENVH at Salisbury University is expected to offer a curriculum that prepares undergraduates to protect the public from a biological or chemical hazard. Traditionally, essential activities, such as protection of the drinking water, air, and food supply, as well as vector and sewage control, have been included in accredited ENVH programs. Today, there are new environmental threats that must be addressed by the environmental health work force and, consequently, by accredited environmental health science degree programs. Unfortunately, needs associated with protecting against terrorism, diseases, and other threats arise at a time when the economy limits the abilities of state and local agencies to meet demands. Institutions that offer a traditional environmental health science education need to train future employees to respond to these threats.

CURRICULUM DESIGN

Our undergraduate course design is not all-inclusive. Courses that deal with chemical and bioterrorist defense training strategies have been developed for various subspecialties. However, there is a current need for an undergraduate course addressing integrated response concepts and issues. The Integrated Emergency Management Course (IEMC) perspective is recognized as a primary training methodology for multiagency
The course is assigned one credit hour, requires one science course as a prerequisite, and is scheduled to meet once a week.

The course offered at Salisbury University is designed to attract a student profile that consists of upper-level undergraduates and health and emergency response professionals. As all students at Salisbury University are required to have three science courses (two of which must have laboratory sections), the prerequisite is met for students by their junior or senior year. The course is designated as a general education course. The purpose is to appeal to students across the university community and take advantage of diversified disciplines. Of particular interest is the need for environmental health groups to interact with various other disciplines in order to address different facets of community response.

Nondegree-program students who are health professionals and emergency responders are also recruited.

Designated reading is *Terrorism: Defensive Strategies for Individuals, Companies and Governments*. The course grade is based on a final exam, a written report, and an oral presentation based on the written report. The final exam constitutes 25 percent of the final grade and tests students on their knowledge and understanding of integrated response concepts. The written report (50 percent) is based on the specific discipline’s understanding of their role in agent identification and effects, necessary community resources, and agency responses with regard to a simulated release exercise. The oral portion (25 percent) also involves students as a part of a discipline.

### COURSE GOALS AND OBJECTIVES

The goal is to give students from various disciplines a working concept of the IEMC approach. This approach stresses the integrated team approach as opposed to a single response by a single agency. To accomplish this goal, the following course objectives are part of the overall design: 1) gain knowledge of specific chemicals and bioagents; 2) become familiar with peacetime equivalents and surrogate agents; 3) understand basic biomedical and environmental factors related to agent releases and exposures; 4) become familiar with multiagency integrated response strategies and understand issues that complicate integrated operations; and 5) gain understanding of relevant government policy issues, agency coordination, and field operations.

To address the wide range of issues, the lecture portion of the course deals with the various specialties

### Table 1. Chemical and bioterrorism course schedule, off campus lecturers

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Lecturer</th>
<th>Institution or agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 2</td>
<td>Federal law enforcement bioterrorism</td>
<td>Robert Scripp Counter Terrorism</td>
<td>Federal Bureau of Investigation (FBI)</td>
</tr>
<tr>
<td>Week 5</td>
<td>Law enforcement local response</td>
<td>Col. Joseph Bolestra (Ret.) Police Department</td>
<td>City of Baltimore</td>
</tr>
<tr>
<td>Week 6</td>
<td>Terrorism and public policy federal government</td>
<td>Larry Hogan (Ret.) House of Representatives</td>
<td>United States Congress</td>
</tr>
<tr>
<td>Week 7</td>
<td>Federal response: FEMA chemical &amp; bioterrorism</td>
<td>Stephen Sharrow Superintendent</td>
<td>Emergency Management Institute, National Emergency Training Center</td>
</tr>
<tr>
<td>Week 11</td>
<td>Federal response: CDC federal health component</td>
<td>Kent Gray, Chief (Ret.) Emergency Response</td>
<td>Centers for Disease Control (CDC)</td>
</tr>
<tr>
<td>Week 13</td>
<td>Mental health component critical incident stress</td>
<td>Dr. Jeffrey Mitchell Associate Professor</td>
<td>University of Maryland, Baltimore County</td>
</tr>
</tbody>
</table>
required in an integrated approach to a terrorist event. On-campus lecturers who have the necessary expertise with chemical and biological agents, emergency medicine, and media issues teach these assigned sections. Off-campus lecturers are used when on-campus expertise is not available or when certain speakers provide highly specialized knowledge. A list of off-campus lecturers is shown in Table 1. Student knowledge gained from these lectures is applied (in group discipline format) to the development of oral presentations and written reports that define responses to a simulated bioagent release.

SIMULATED BIOAGENT RELEASE

As previously mentioned, the integration of disciplines into a coherent structure requires a scenario-driven approach to reinforce integration methodologies and maximize student interaction among groups. The class is presented a simulated release scenario relating to a specific agent utilized by a fictitious terrorist group. The agent of choice is based upon the agent matrix, as shown in Table 2. Although the matrix is not inclusive, the list provides a realistic choice of chemical and biological agents released during a simulated event. Specific chemical agents are those that are documented warfare agents as well as toxicants that can be used as peacetime equivalent surrogates. The bioagents are divided into infectious agents and toxins. This category is adapted from the Centers for Disease Control’s A and B list. Specific toxicants are also included. Many of these chemicals are commercially available and are excellent candidates for terrorist use. An additional reason for incorporating a short list of toxicants and toxins is to give the student exposure to the complexity of accurate agent identification. In many instances, symptoms associated with toxin exposure may be confused with those associated with chemical toxicants. For example, T-2 toxin (a fungal metabolite produced by *Fusarium* spp.) produces symptoms similar to those associated with mustard gas.

The agent release involves a variety of community targets, exposure pathways, delivery systems, sensitive target groups, and response agencies. Each student is required to choose a discipline group and participate in both the oral and written report phases. The student must choose a discipline early in the semester to integrate a specific response into the overall class strategies. Discipline groups include public/emergency health,
media, critical stress management, conflict resolution, and governmental emergency response agencies. Reports and the presentations must include agent identification, agency response, event mitigation and emergency response, and community involvement. Each presentation is based upon the planning criteria shown in Table 3. (The planning criteria matrix was adapted from the EMI/IEMC planning matrix used in the Office of Homeland Security’s Consequences of Terrorism courses.) Course design and student backgrounds do not make it feasible to undertake policy planning to any degree. Instead, the course focuses on operation and coordination phases. The recovery phase is briefly examined only from the standpoint of “what’s next” after the official announcement is made when the event is terminated.

**TECHNICAL AND GRANT RESOURCES**

Electronic databases, Thomson MICROMEDEX® ChemKnowledge™ and BioDex™ are made available to students developing strategies to simulated releases of chemical and bioagents. The ChemKnowledge database includes extensive data on chemical and biological agents used in warfare as well as safety and handling procedures and medical treatment procedures. The BioDex database contains information specifically for first responders and contains information that includes containment and decontamination information.

**FUTURE CONSIDERATIONS**

Anticipated modifications for future courses were based, in part, upon student evaluations after the first course in fall 2002. Of the forty students that had enrolled, approximately one-quarter were community response professionals, which included representatives from the local county hazardous materials team, environmental health department, and law enforcement. The remainder of the student body comprised upper-level students whose majors included environmental health science, biology, media, and business. Some psychology majors also enrolled. At least one community response professional was assigned to each group. Once the groups were formed, the remainder of the semester was devoted to the development of response and mitigation strategies relating to simulated agent releases. Upon completion of specific group presentations (both oral and written) at the end of the semester, students were asked to evaluate the course.

Evaluation results indicated that the simulated release exercise gave each student an increased awareness of multiagency responses necessary to mitigate a terrorist-initiated release. Previously, many students had a preconceived idea that only one or a few agencies were involved in an actual exercise. They were surprised at the scope of the effort and the need for a wide variety of agencies to successfully mitigate the event. Professional responders appreciated the creative solutions designed by undergraduates (unrestricted by bureaucratic limitations). Most students indicated that they were not fully aware or appreciative of media, conflict resolution, and incident stress professionals who dealt with catastrophic events. Student insight into this multiagency process

<table>
<thead>
<tr>
<th>Table 3. Planning issues matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparedness</strong></td>
</tr>
<tr>
<td><strong>Policy</strong></td>
</tr>
<tr>
<td><strong>Coordination</strong></td>
</tr>
<tr>
<td><strong>Operations</strong></td>
</tr>
</tbody>
</table>
was most evident when each discipline group contained a mix of undergraduates and professional responders. As a result, future course offerings should make every attempt to include at least one community professional into each discipline group.

Another consideration would be to extend the course to two credit hours due to student comments that one hour did not allow for student questions when outside lecturers were invited. The presentation time averaged one hour, leaving no time for adequate discussion or queries by the students. To allow professionals with job-related time constraints to participate in the course, students suggested that they schedule the two-hour class in the late afternoon.

**CONCLUSION**

Students found chemical and bioterrorist issues complicated and difficult to understand because the associated risks and consequences of a terrorist event are difficult to define. Cost-benefits are also difficult to establish. In addition, requisite expertise may vary for each incident. Information concerning a terrorist event is often vague, and technical problems are multifaceted.

Considering all these factors, our course helped students understand the type of training necessary to prepare professional emergency responders. Serious consideration was given in the course design to appeal to a broad academic audience that worked in conjunction with the professional response community. By putting community responders and future professionals together in an undergraduate setting, students gained understanding of the scope and complexity of an integrated response approach. As this process evolved, the students began to evaluate various response activities and formulate creative solutions.

**ACKNOWLEDGMENTS**

We express our appreciation to Stephen Sharro, Superintendent of the Emergency Management Institute, National Emergency Management Training Center, Emmitsburg, Maryland, for participating as a guest lecturer. We also extend our thanks to the Emergency Management Institute staff whose training courses bring the IEMC concept to first responders throughout the United States.

Special thanks goes to Salisbury University’s Provost, Dr. David Buchanan and Dr. Thomas Jones, Dean of the Richard A. Henson School of Science and Technology for providing financial support. This assistance insured the participation of internationally known speakers and provided up-to-date biomedical databases for utilization in simulated bioagent releases.

Vaughn E. Wagner, PhD, BCE, ME, Assistant Professor of Environmental Health Science, Salisbury University, Salisbury, Maryland; Adjunct Professor, Federal Emergency Management Agency, National Emergency Training Center, Emmitsburg, Maryland.

Elichia A. Venso, PhD, Associate Professor and Program Director of Environmental Health Science, Salisbury University, Salisbury, Maryland.

**REFERENCES**

**New products**

**MOROVISION RELEASES ENHANCED MV-14 NIGHT-VISION MINI-MONOCULAR**

Using a high performance 64/lp image tube, the all new MV-14 (Morovision Night Vision, Inc., Laguna Beach, CA) provides exceptional quality image resolution under varying light conditions. The innovative mil-spec housing is extremely lightweight, weighing only 9.2 oz, and can be submerged to depths up to 66 feet. The MV-14 operates using either one AA or one 3V lithium battery and includes a built-in IR Illuminator for increased image clarity in low light situations. Standard accessories including a head mount assembly and a weapons mount make the versatile MV-14 suitable for all “light the night” applications. Information about the MV-14 is available online at www.morovision.com.

**MOBILE EMERGENCY DATACENTER PROVIDES FULL TECHNICAL CAPABILITIES TO DISASTER RECOVERY SITES**

North American Access Technologies (NAAT) (Hawthorne, NY) offers a flexible Homeland Security Platform for support of critical infrastructure. The Mobile Emergency Datacenter (MED™) serves as both an alternative and an adjunct to fixed disaster-recovery sites. The MED provides a custom-built, self-contained, and self-propelled vehicle with an onboard generator, UPS, multiple high-capacity servers, satellite Internet links, and wireless ethernet transceivers to support wireless laptops. It also serves as an emergency communications center with satellite, cellular telephones, and fax machines and can create a secure, encrypted, wireless command-and-control communications zone up to several miles in diameter. The MED is now on GSA contract. Information about the MED can be found at www.naat.com.

**SELF-HEATING, WARM WATER EMERGENCY SHOWERS OVERCOME COMMON SITE PROBLEMS**

Fire Safety International, Inc. (Berea, OH) has introduced a line of fully integrated, permanently installed emergency tank showers. The 100% stainless steel units incorporate their own dedicated gravity-fed water storage tank complete with heating coil overhead. As a result, they overcome site problems such as unavailable or no water supply and offer warm and tempered water as required for prolonged drenching of personnel. Guaranteed water drench of up to 15 minutes, even in the event of water supply failure. Simply plumb and plug in. More information about the emergency tank showers can be found at www.fsinorth.com.

**PLYLOX PROVIDES DRILL-FREE, EASY-TO-APPLY HURRICANE WINDOW CLIPS**

PLYLOX™ window clips (Friendswood, TX) provide an inexpensive, nondestructive way to protect windows from high winds and airborne debris. The window clips are patented h-shaped carbon steel clips engineered to fit 1/2” plywood without nails, screws, or adhesives. Installed in seconds, PLYLOX window clips slide onto the edge of a 1/2” plywood sheet, which is then easily inserted into the exterior window casings of your home or business. No drilling is required. Easily removed in seconds, without tools, after use. Wind blowing across the face of the plywood generates lift that can pull the cover out of the casing, but PLYLOX clips transfer the outward force of the lift through their tension legs. This transfer of energy forces the clip against the casing and holds the cover securely in place in the most severe wind conditions. There is also a clip specifically designed for commercial buildings. Information about the window clips is available at www.plylox.com.
THE COMMUNICATOR! PROVIDES HIGH-SPEED COMMUNITY EMERGENCY NOTIFICATION

Dialogic Communications Corporation (Franklin, TN) offers the Communicator!™ rapid, accurate GIS-driven notification technology that enables geographic-based alerting of communities-at-risk, helping to secure public safety in critical situations. The Communicator! can be installed on-site or provide an off-site solution through DCC’s hosting services. The system provides important information and potentially life-saving instruction through all available communications media.

The Communicator! automates any manual notification procedure, regardless of complexity or reach. Call-outs are activated remotely by phone or directly from the desktop, initiating hundreds, or even thousands of notifications within minutes and gathers the feedback necessary for timely and appropriate response.

Uses include notification of first responders, employees/personnel, or entire geographic areas for inclement weather, HAZMAT incidents, utility outages, security breaches, evacuations, military recalls, and community policing. More information is available on the Web at www.dccusa.com.