

Domestic Preparedness Journal

Public Health Emergencies

Volume 20 Issue 4 April 2024

EST.



1998

Take Domestic Preparedness



On The Go

April 2024, Volume 20, Issue 4

Publisher	Michael Hull
Editor	Catherine L. Feinman
Project Manager	Elisa DeLeon
Marketing Coordinator	Nicolette Casey
Student Worker Intern	Annette Velasco

Advisory Board

Caroline Agarabi
Desiree Baccus
Raphael Barishansky
Michael Breslin
Paul Cope
Robert DesRosier Sr.
Nathan DiPillo

Kay C. Goss
Charles Guddemi
Robert C. Hutchinson
Rhonda Lawson
Joseph J. Leonard Jr.
Ann Lesperance
Anthony S. Mangeri

Sadie Martinez
Kesley Richardson
Tanya Scherr
Richard Schoeberl
Mary Schoenfeldt
Lynda Zambrano

Sponsor in This Issue:

Texas A&M University Interop Institute

Cover Source: [Karl Magnuson/Unsplash](#)

For more information about Domestic Preparedness, visit DomesticPreparedness.com

Business Office: 313 E Anderson Lane, Suite 300 Austin, Texas 78752

Copyright 2024, by the Texas Division of Emergency Management. Reproduction of any part of this publication without express written permission is strictly prohibited. Domestic Preparedness Journal is electronically delivered by the Texas Division of Emergency Management, 313 E Anderson Lane Suite 300, Austin, Texas 78752 USA; email: subscriber@domprep.com. The website, DomesticPreparedness.com, the *Domestic Preparedness Journal*, and The Weekly Brief include facts, views, opinions, and recommendations of individuals and organizations deemed of interest. The Texas Division of Emergency Management and the Texas A&M University System do not guarantee the accuracy, completeness, or timeliness of, or otherwise endorse, these views, facts, opinions or recommendations.



Source: Unsplash/Clark Young

Preparing for the Next Public Health Emergency

By Catherine L. Feinman

Unlike other public health emergencies in recent history, COVID-19 affected every community and spurred extensive discussion and research regarding critical health topics. The emergence of the global threat highlighted the importance of information sharing and lessons learned to better prepare for the next major incident. It also raised awareness about the key role public health plays in tracking disease outbreaks and gathering statistics related to infection rates, including monitoring health outcomes and the effectiveness of medical countermeasures such as vaccinations. However, public health is not just about pandemics but also about a wide range of threats that can affect the health and well-being of communities.

The first week of April each year marks National Public Health Week in the United States and serves as a reminder of public health's crucial role in prevention. By gathering information about current and past events, practitioners and researchers help communities plan for preparedness, response, and recovery activities related to major incidents such as floods, hurricanes, foodborne illnesses, drinking water contamination, air pollutants, and other hazards and threats. The aim is to prevent future risks, hazards, and threats.

In this April edition of the *Domestic Preparedness Journal*, practitioners share ways to prepare for the next public health emergency. This issue begins with a true story that could have had devastating effects but thankfully did not. Building awareness about this and other scenarios can help prevent similar threatening events from happening again. Other authors recommend investments in resources, training, and people, which can have returns on those investments that far outweigh the initial costs. For example, one significant public health challenge involves mental health and well-being. When responding to a disaster, emergency response personnel are particularly susceptible to stress and burnout.

In addition to public health issues, emergency preparedness and response professionals have been talking this month about protecting critical infrastructure against vulnerabilities like those recently exposed. For example, a ship lost power in Baltimore, Maryland, and took out a major transportation artery. A few weeks later, a severed fiber wire reduced interoperability and left millions across four states without access to vital 911 resources for up to several hours. Whether intentional or unintentional, disasters can happen. The authors in this journal offer suggestions for how to prevent them or at least mitigate their effects on communities.

TEXAS A&M UNIVERSITY INTEROP INSTITUTE MAY 6-10, 2024



CRITICAL COMMUNICATIONS & INTEROPERABILITY

The Interop Institute provides an annual opportunity organized by the Texas A&M University Internet2 Technology Evaluation Center (ITEC) for a diverse range of professionals to address critical issues related to public safety and national security emergency communications and interoperability.

- Connect with thought leaders, decision makers, end-users, private sector partners, and government agencies at local, state, and national levels involved in emergency response and the private sector.
- Showcase your dedication to fostering innovation and enhancing the lives of those committed to public safety.
- Participate in workshops to share insights and establish connections for potential future collaborations.
- Contribute to shaping the future of first responder communication by supporting the collaborative environment at Texas A&M University.



EVENT THEMES

- Mission Critical Push-to-Talk (MCPTT)
- Next Generation 9-1-1 (NG9-1-1)
- Team Awareness Kit (TAK)
- Identity Credentialing & Access Management (ICAM)
- Augmentation of First Responder Capabilities Using 5G/Private Wireless (AI/IoT)
- Information Sharing Framework (ISF)
- Primary, Alternate, Contingency, and Emergency Planning (PACE)

ATTEND
Individual In-Person \$350
Individual Virtual \$50
First Responder No Cost



TEXAS A&M UNIVERSITY

Internet2 Technology
Evaluation Center

www.interop2024.com

Table of Contents

Editor's Note

- 1 Preparing for the Next
Public Health Emergency
By Catherine L. Feinman

Feature Articles

- 4 The Missing Plague Vials
By Robert C. Hutchinson
- 10 Primary Care Investments
to Increase Community
Resilience
By Angie Im
- 14 Dungeons and Disasters:
Gamification of Public
Health Responses
By Michael Etzel and Michael Prasad
- 20 Sustaining Those Working
in Disasters
By Jolie Wills

- 24 Mental Awareness to
Enhance Preparedness
By Andrew (Andy) Altizer

- 28 The “R” Word
By George Schwartz

In the News

- 34 Key Bridge Collapse –
Transportation
Infrastructure and Global
Supply Chain
By Joseph J. Leonard Jr.
- 38 Week 2 – Restoring
Infrastructure and Instilling
Resilience
By Joseph J. Leonard Jr.

Other Expert Insights

- 44 Interoperability During
Mass Casualty Incidents
*By Charles J. Guddemi and
Catherine L. Feinman*

A black suitcase with a silver telescopic handle and wheels is positioned in the foreground on a wooden floor. The background shows a busy airport terminal with people, a man in a suit walking, and a large white structural pillar. A flight information display board is visible in the distance.

The Missing Plague Vials

By Robert C. Hutchinson

Source: [Michael Parzuchowski/Unsplash](#)

A Domestic Preparedness [article](#) in December 2020, titled *The Next Black Swan – Bioterrorism*, identified persistent public health and homeland security concerns regarding bioterrorism and biowarfare, along with critical infrastructure. The article was intentionally published one year into the ongoing severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and COVID-19 pandemic to emphasize significantly greater public health vulnerabilities and threats. The impact of SARS-CoV-2, with the inappropriate and inadequate response, was enormous and world-changing. Nevertheless, the article stressed that it may be a forewarning of much worse threats.

That article incorporated a true story of missing bubonic plague vials and other suspicious activities demonstrating biological vulnerabilities and threats. This little-known story generated pertinent questions and discussions for a more in-depth follow-up article. The expanded story merited deeper review and analysis – especially during emerging conflicts, volatile geopolitics, vulnerable economies, and suspicious bio-laboratories operating in the United States. The amazing tale also warranted a broader analysis in an era of growing distrust of questionable scientific experts, governmental statements, and investigations in a post-COVID-19 world.

This story may be helpful for deliberating and planning for possible biological vulnerabilities with severe or catastrophic consequences. The conflicting points of view and lessons learned remain essential today.

Missing Plague Vials

On January 13, 2003, scientist and physician Thomas C. Butler reported 30 vials of *Yersinia Pestis*, also known as the bubonic plague,

missing from his Texas Tech University laboratory. The 30 vials were reportedly part of 180 vials of the Black Death pathogen. Butler – a professor, reported plague research expert, and the chief of the Infectious Diseases Division of the Department of Internal Medicine – believed they may have been stolen from his laboratory. Even with 25 years of plague research experience, Butler reportedly did not believe it necessary to alert authorities. The medical school dean disagreed and said it could not be handled internally. It remained frightening times in 2003, with terrorism and bioterrorism being national priorities after the September 11 (9/11) and anthrax mail attacks in 2001.

Within hours, 60 federal agents arrived in Lubbock, Texas, to begin the investigation. Butler was the only one with authorized access to the missing bacterium. There was an access control system but no cameras in the research laboratory to provide additional information. During the initial investigation and interview, [federal agents reportedly promised Butler that they would not arrest him](#) if he admitted to accidentally destroying the vials. The professor admitted it was a misjudgment to report that the vials were stolen and then claimed that he accidentally destroyed them. They immediately arrested Butler after the interview.

The legal process took over. The government requested that Butler be held without bail as a flight risk and danger to the community, but they later released him on a \$100,000 bond with an electronic monitor and travel restrictions. The university administrative process engaged by changing laboratory locks and prohibiting him from campus with paid leave.

Butler was [indicted](#) in April 2003 for 15 federal counts involving the improper handling, control, and transportation of the plague samples. The well-known authority on infectious diseases was charged with allegedly smuggling plague bacterium into the United

States, improperly transporting them within the country, and lying to federal authorities. The charges also included defrauding Texas Tech and filing false tax returns. Via a superseding indictment against him in September 2003, an additional 54 charges included theft, embezzlement, and fraud. His bond later increased to \$250,000, with 69 felony charges having a maximum sentence of 469 years in prison.

60 Minutes Interview

In a [CBS 60 Minutes](#) interview in October 2003, Butler claimed that the Federal Bureau of Investigation (FBI) tricked him into saying that he accidentally destroyed the vials. After a nine-hour interview and searching his laboratory and home, there was no evidence of a break-in to support the theft claim. The FBI focused on Butler.

Butler stated in the 60 Minutes episode that if he had destroyed the vials, he would have remembered doing it, but he did not. Butler also claimed that authorities said he would not face charges if he could confirm accidental destruction. If Butler signed a confession, he could go home and close the case. Butler signed the document without an attorney present. According to the professor, the government wanted to close the case and reassure the public that there was a public health danger, so they arrested him for lying to the FBI instead of letting him go home. However, Butler's statements in the televised interview were concerning, especially for a renowned scientist:

Destruction of bacteria is a routine procedure in laboratories. And for one set of vials to be mixed up and placed inadvertently into the sterilizer is something that might happen... It could be carelessness. It could be hurried activity at the end of a day.

An hour after Butler and his attorney finished his interview with 60 Minutes, the federal judge for his case issued a [gag order](#) prohibiting extrajudicial statements by the parties, counsel, or agents. The order prevented any government response to the televised story.

The episode has also presented the prosecution's side of the story, including the inappropriate handling and transportation of plague vials identified as possible components of weapons of mass destruction. Butler allegedly hand-carried them on a commercial flight from Tanzania despite being well-trained and educated and being aware of the requirements. The deadly biological agent had to be transported in special and properly labeled safety containers since at least 1996.

The episode ended by reporting that Butler had recanted his confession. He was saying that he did not know if someone had destroyed, lost, or stolen the dangerous vials. They were just missing.

The Trial

The federal trial began in November 2003. Butler testified that he accidentally destroyed the vials and made a misjudgment in making the report. Butler stated that an FBI agent coached him on what to include in the written statement – if he did not want to be there for a long time. Butler faced the following consequences:

- Conviction of 47 of the 69 federal charges related to the pathogen mishandling (44 of the 47 convictions from the superseding indictment);
- Acquittal on charges of lying to federal authorities, illegally transporting plague samples, and smuggling samples into the United States;

- Conviction of fraud, theft, and embezzlement related to concealed contracts and interactions with pharmaceutical companies; and
- A two-year prison sentence, a \$15,000 fine, and the surrender of his medical license (he served his sentence at a federal medical center as an orderly).

The location and status of the missing plague vials remained unknown. The scientist may have destroyed the vials, or they could have been misplaced or improperly obtained by someone else. Butler reportedly located employment outside the United States after his release due to legal and licensing issues. However, there were conflicting perspectives on the seriousness and ramifications of his actions.

The Other Side of the Story

Many scientists believed that the charges were excessive, resulting from the post-anthrax hysteria. Butler had used poor judgment and practices at the wrong time in history. There was a fear that the reaction and prosecution would affect other researchers handling dangerous pathogens and agents. The responses ranged from the government trying to make an example of him to the proper response of addressing a serious pathogenic threat to the public. A Nobel prize winner in chemistry even offered to donate some of his winnings for Butler's defense.

In a 2005 *Clinical Infectious Diseases* journal [paper](#), over a dozen scientists questioned Butler's prosecution. The document identified his extensive education, research experience, and writings, especially with *Yersinia Pestis*. The paper provided an overview of the case with a positive view of Butler. Some organizations believed that the downward departures of numerous counts in the judge's sentencing demonstrated an overzealous prosecution. The Human Rights Committee



of the National Academy of Science, Institute of Medicine, New York Academy of Sciences, National Academy of Engineering, and other organizations supported Butler and opinions to the court and Justice Department. The scientists, organizations, and some in the media suggested that Butler was a victim of the bioterrorism fear to set an example. The writers encouraged readers to engage with congressional and government officials and donate to his legal appeal.

The Federation of American Scientists (FAS) created a [webpage](#) supporting Butler, an eminent scientist caught in a “Hitchcockian” situation. Last updated in September 2006, the webpage included links to articles, court documents, and other sources of information regarding Butler. FAS pronounced:

Here at FAS we don't know what Dr. Butler did or why. But we share the concern of other independent observers that the government prosecuted this case in a manner grossly disproportionate to the offenses that were alleged. Dr. Butler is not a terrorist.

The controversy faded until 2010, when another suspicious event questioned Butler’s activities and judgment. He was once again the subject of law enforcement and media attention.

A Bomb Threat at Miami International Airport

As more broadly and procedurally detailed in the 2020 article, Butler entered the United States in 2010 on a late-evening flight from Saudi Arabia via London at the Miami International Airport. After clearing customs border inspection without incident, the scientist went to the Transportation Security Administration screening for a connecting flight to Puerto Rico. During the routine screening, security found a suspicious object in his luggage: a 12-inch metal pipe with threaded metal end caps resembling a common pipe

bomb. The only thing missing was an obvious fuse or timer.

The responding federal and local law enforcement evacuated four of the six airport terminals, which was not a simple undertaking. As the bomb squad executed their response plans, local and federal officials interviewed the scientist to discover what was inside the enclosed metal tube. At that point, the scientist was just a traveler with a strange and concerning item in his baggage. Before discovering the worrisome history of the scientist in the early morning hours of the hectic incident and interview, the bomb squad disabled the suspicious device. Shortly after, the bomb squad received information regarding the scientist’s arrest history and previously missing bubonic plague vials, which resulted in an elevated concern about the unknown contents of the metal pipe.

Critical Infrastructure

Compounding the unease, responders unintentionally forcibly opened the object near a sizable heat, air ventilation, and cooling (HVAC) intake zone linked to several large airport terminals. The impact of accidentally releasing a serious biological threat during the response to the device could have been catastrophic. The possible number of exposures was high as passengers in a busy airport prepared to travel around the country and the world. The cost of possibly closing several large and critical terminals for years to remediate a public health threat in the HVAC system and throughout the terminals was astronomical. Such an event could result in immeasurable financial and economic consequences throughout the county, state, region, and country. An adverse outcome could have affected the overall transportation technology sector and possibly other [critical infrastructure sectors](#), including manufacturing and commercial facilities. The

airport enormously impacted international and domestic trade, travel, and commerce.

The incident was a reminder of airborne chemical, biological, and radiological threats to building environments, a priority focus after the 2001 anthrax attack. Several organizations issued [guidance](#) in 2003 to protect against these possible terrorist attacks. While it is impossible to mitigate all threats, the guidance updated over the years provided valuable information to review for planning and preparedness. Like so many homeland security threats and vulnerabilities, there was no simple answer. However, acknowledgment and understanding are important first steps.

A Broader Story to Reconsider

The substance in the metal pipe at Miami International Airport that eventful night was reportedly not the missing plague or another identified dangerous pathogen. If it were, this story would have been better known. The consequences could have ranged from serious to catastrophic with the extent of exposure to hundreds, if not thousands, of domestic and international travelers. It was a textbook location and method for transmitting a biological or chemical threat (intentional or unintentional) – a reminder of legitimate concerns from the early 2000s that remain today.

This expanded story provides a broader perspective of the lost vials and disturbing actions of the professor and government. The 9/11 and anthrax attacks likely influenced the activities and reactions in 2003. They may have been appropriate or an overreaction. The reactions in 2010 appeared logical within the immediate response with initial and evolving information. Nevertheless, both incidents merit further contemplation in 2024 for planning and preparedness. Homeland security threats and vulnerabilities remain and compound over time.

This more comprehensive story may be helpful when looking over the horizon for intersecting vulnerabilities and threats. Whether helpful, frightening, or overwhelming, the incidents were significant, highlighting homeland security and domestic preparedness concerns and weaknesses. The lessons learned are relevant, especially today, with an expanding distrust of scientific, governmental, and bio-laboratory activities over the years since the incidents. This story could be a warning of worse possibilities from poor or suspicious laboratory practices or a forewarning of directed biological, chemical, or radiological critical infrastructure attacks. There are two sides to this story, both with potentially serious public safety and societal consequences.

Robert C. Hutchinson, a long-time contributor to Domestic Preparedness, is a director at Black Swans Consulting LLC. Before joining the private sector, he was the chief of police for the Broward County Public School, Special Investigative Unit. He retired after over 28 years as a federal agent with the U.S. Department of Homeland Security and the U.S. Department of the Treasury. His positions included deputy director, assistant director, deputy special agent in charge, assistant special agent in charge, supervisory special agent, and special agent at offices in Florida, Washington DC (HQ), Maryland, and Texas. He was the deputy director of his agency's national emergency preparedness division and assistant director for its national firearms and tactical training division. His over 40 publications and many domestic and international presentations address the important need for cooperation, coordination, and collaboration between public health, emergency management, and law enforcement, especially in pandemic preparedness. He received his graduate degrees at the University of Delaware in public administration and Naval Postgraduate School in homeland security studies.



Community health centers are medical lifelines for millions of Americans.

Source: [Myriam Zilles/Unsplash](#)

Primary Care Investments to Increase Community Resilience

By Angie Im

Community health centers (“health centers”) are a cornerstone for medically underserved communities across the U.S. and its territories.

Beacons of healthcare accessibility, health centers play an indispensable role in addressing the multifaceted needs of communities, particularly for vulnerable populations. The significance of these centers becomes especially evident during crises, which can lead to a rapid influx of patients that overwhelms health facilities and causes other disruptions to health access. When that occurs, health centers must shift operations to expand services while continuing to provide care for existing patients who often have more complex conditions than the general population. Conditions can worsen due to disaster-related impacts impeding access to medicine or health services.

Over 31.5 million patients annually receive care from more than 14,000 health center locations nationwide. These centers are pivotal in addressing health disparities by providing comprehensive care to medically underserved rural and urban communities. Health center patients represent 1 in 11 Americans. Notably,

63% of these patients belong to racial or ethnic minority populations, with 90% living 200% below the federal poverty line.

Investments in health centers are imperative, as they represent investments in primary care. Beyond the professionals providing direct clinical care to patients, the full spectrum of individuals working in a health center are essential staff. From administrative schedulers to environmental services staff, all play a necessary and crucial role in ensuring patients can continue to receive care despite potential disruptions caused by disasters. These frontline workers are critical in enabling access to preventive services, chronic disease management, and overall health promotion, making their sustainability and resilience crucial for national well-being.

Understanding Disaster-Related Impacts and Recovery Needs of Frontline Workers

Public health emergencies and disasters – both natural and otherwise – often impact health centers disproportionately due to a variety of factors, including geography (42% were Rural

Health Centers as of 2020), staff size, smaller operating budgets, limited flexibility around funding sources, and cost of care associated with the served populations. In addition, chronic underfunding in public health over the past two decades has left health centers with lean operating margins (typically dramatically leaner than operating margins observed for more resourced healthcare facilities, such as hospitals), limiting their ability to invest in crucial areas at a rate that matches patient growth. Strategic investment areas – such as staff training, infrastructure development, and support for supply chain resiliency (i.e., the ability to withstand impacts to normal supply chain operations amid disruptions) – when left short, may increase health centers' vulnerability from disaster-related changes and hinder their capacity to implement robust preparedness measures for the next disaster. This ongoing struggle for resources jeopardizes the immediate health services these centers provide and places the institutions and the communities they serve at increased risk of disaster-related impacts.

The Health Resources and Services Administration, through the Bureau of Primary Health Care, provides cooperative agreement funding through the National Training and Technical Assistance Partners program (NTTAP). Funded through NTTAP, more than 20 leading national organizations aid health centers in their work to serve diverse, medically underserved populations, providing comprehensive support for trainings and technical assistance. Among them is the Association of Clinicians for the Underserved (ACU) and the National Association of Community Health Centers (NACHC). Find more information by visiting [ACU's Solutions, Training, and Assistance for Recruitment and Retention \(STAR²\) Center](#) and the [Health Center Resource Clearinghouse](#) managed by NACHC.

Healthcare Ready, a nonprofit organization whose mission is to leverage unique

relationships with government, nonprofit, and medical supply chains to build and enhance the resiliency of communities before, during, and after disaster, also launched an initiative in 2023 to examine workforce impacts of the COVID-19 pandemic specific to people who work in community health centers and free and charitable clinics. The [Restoring the Healthcare Workforce for Equity](#) initiative sought to better understand how frontline workers in safety-net facilities might be disproportionately affected by impacts that started during the pandemic and continue as communities navigate their recovery from the years-long event. Many of the challenges faced by the healthcare system during the COVID-19 pandemic were not new and helped to underscore the critical need for resilient and adaptable systems. Some of the unprecedented challenges health centers faced included rapidly expanding testing and vaccination efforts, including administering [18 million COVID-19 tests and 21 million vaccines to patients in 2021](#).

The initiative, funded by the Center for Disaster Philanthropy COVID-19 Response Fund, found that ongoing pandemic-related stress has led to significant staff shortages in health centers and clinics, with recruitment and retention challenges further exacerbating burnout and potentially worsening healthcare access for the communities served by these facilities. Additionally, the analysis revealed that people living in U.S. counties that experienced disproportionately greater rates of COVID-19 cases and deaths are at increased risk of being impacted during future disasters. These cases included communities of color, communities with greater numbers of older populations, or communities that saw lower than average percentages of vaccinated residents, potentially due to worsening disparities in healthcare access caused by workforce challenges.

Healthcare Investments for Community Resilience

Healthcare workers across all levels and roles in health centers and clinics demonstrate remarkable resilience and an unyielding commitment to patients, even in exceptionally challenging conditions, as was evident through the COVID-19 pandemic and other disasters. Often, these professional challenges coincide with mounting personal pressures. For example, health centers and clinics are frequently staffed by individuals who are local to the communities they serve or may identify as members of the communities affected by the same disasters that affect their patients. When a crisis strikes, the community, health center, and clinic workers will likely be personally affected. Baseline investments in the workforce and specific investments for response and recovery among workers can help strengthen the national healthcare infrastructure.

Funding at all levels and investments for recruitment, retention, and training resources are crucial for health centers and clinics to address health disparities. Federal funding for key programs such as the Community Health Center Fund and support for graduate medical education via the National Health Service Corps and Teaching Health Center Graduate Medical Education play pivotal roles in addressing workforce shortages. These programs offer financial incentives for providers to work in underserved areas, thereby strengthening the healthcare


infrastructure of local communities and leading to greater community resilience.

The COVID-19 pandemic underscores the importance of these programs in mitigating healthcare challenges. The aftermath of the COVID-19 pandemic starkly highlighted the repercussions of disrupted routine services and the impacts of rising misinformation and mistrust. These challenges lead to missed vaccinations, including among populations already more vulnerable to disproportionate disaster impacts. Health centers are pillars of trust within communities, fostering strong relationships and a firm understanding of unique community needs. Their presence and commitment are foundational to addressing health disparities and ensuring equitable access to healthcare resources. Therefore, lessons learned from the pandemic underscore the need to reinforce workforce capacity by supporting investments to increase the diversity and representation of those in the healthcare workforce. This support addresses the wide-ranging mental health and emotional impacts workers often experience in the wake of responding to disasters.

By strategically investing in primary care within health centers, it is possible to fortify the nation's healthcare infrastructure and cultivate more resilient communities in preparation for and response to disasters. This proactive approach ensures communities are better equipped to navigate challenges before, during, and after crises.



Angie Im is Healthcare Ready's associate director of Research and Policy. In this role, she oversees the organization's portfolio of research projects with government agencies and private partners. Prior to Healthcare Ready, Angie served in various roles, helping scale digital health startups in artificial intelligence and telemedicine and supporting digital transformation initiatives as a management consultant with IBM Global Consulting Services. Before her work in the private sector, Angie worked with nonprofit organizations and government agencies to design, build, and deploy information transparency tools. Angie has an M.S. in Public Policy & Management from Carnegie Mellon University and a B.S. in Public Health Sciences from the University of California, Irvine.



*New technologies
offer new ways to
train personnel
and exercise public
health responses like
COVID-19.*

Dungeons and Disasters: Gamification of Public Health Responses

By Michael Etzel and Michael Prasad

The U.S. Department of Homeland Security’s Homeland Security Exercise Evaluation Program (HSEEP) includes games as one of their discussion-based exercise types, alongside tabletops, workshops, and seminars. Although [tabletop exercises](#) are common discussion-based exercises in a multi-year Integrated Preparedness Plan (IPP), that practice format is not necessarily challenging to participants. For example, public health departments and hospital groups who need to test their response plans continually may go through the motions of “checking the box” on discussion-based exercises. Even with injects and debriefs, there is not an immediate *reaction* to the planned or discussed course of action implemented as part of the exercise. For public health and [hospital officials](#), this is not their reality, and they may not be challenged to engage the [scenario](#) critically with only a tabletop exercise.

[Games](#), especially online command and control (C²) games, offer a different experience for the player, the *controller*, or the *evaluator*. The online aspect allows players to participate from [anywhere](#) – saving time and money for participant travel and other exercise planning costs. The accessibility to and familiarity with

online games allows for “[whole community](#)” engagement in significant ways, namely, [motivation and engagement](#). It also provides controllers and evaluators with more elaborate reporting tools, such as players’ responses, delays, and decision-making time. Said reporting tools then can be used in after-action reports to provide [quantitative assessments](#) that contextualize survey feedback. This is one way that artificial intelligence is helping public health and other response organizations with their [continuity of operations](#) (COOP) and [continuity of government](#) (COG), ensuring essential functions are not disrupted across individual organizations and the whole of government, respectively.

Continuity of Operations

The COVID-19 pandemic demonstrated the [necessity](#) of effective COOP and COG planning. Fulfilling essential functions and protecting vital records and software are essential for public health agencies, but all organizations can benefit from such planning. Using games to exercise COOP and COG plans can provide pathways to assess decision-making, lines of succession, and mitigation measures. One example is the Federal Emergency Management Agency’s

(FEMA) [Cyber Ready Community Game](#), a board game that evaluates players' ability to prepare for cyber incidents adequately. By forcing players to prioritize the protection of specific vital systems (Community Lifelines and Critical Infrastructure) through mitigation techniques, the game attunes participants to how vital system failures can lead to cascading effects for an organization. The Cyber Ready Community Game is a great jumping-off point into gamification. It is cost-effective (free) and has a low barrier to entry; just be sure to have the facilitator(s) play a round beforehand so they understand the rules themselves.

Due to the severe impacts on healthcare facilities and the cascading effects they can cause, [cyberattacks](#) are a good example of a threat that can be mitigated through proper COOP and COG planning. The cybersecurity world adopted *gamification* early on (likely due to the nature of already being part of the virtual environment). In fact, the Cybersecurity and Infrastructure Security Agency (CISA) uses gaming to identify, test, and reward the federal workforce's best cybersecurity experts through a [nationwide competition](#). Online C² games can provide similar benefits to public health and hospital officials.

Challenging and Competitive

Many of these online games are role-playing games that encourage players to think on their feet in [decision-tree scenarios](#). Every decision a player makes – or fails to make on time – progresses the incident scenario so that the players cannot forecast the outcome in advance. Players often must react to unforeseen consequences of their decisions, for example:

- Will a public health clinic flood and have resources destroyed because its location

was not considered against the revised floodplain?

- What happens if the cellular network goes down?
- How does a downed network impact interoperable communications systems?
- What happens when a tornado strikes a community during a global pandemic?
- What happens when (not if) a plan goes sideways?

It is critical to monitor and report how quickly the players digest the information they just received, prioritize their objectives, develop courses of action, and communicate their strategy. These are all elements of online emergency management-related games, including those that benefit public health and healthcare. Creative thinking, reactionary decision-making, and short- and long-term strategic planning have been staples of the fantasy role-playing genre. These aspects are coming to [healthcare settings](#), [emergency operations centers](#), university simulation [labs](#) offering emergency management degrees, home offices, and consultant or third-party training facilities. Games also generally offer [benefits](#) (networking relationships, positive emotions, [competitive engagement](#) with co-workers, sense of accomplishment, etc.) to players.

Since its inception, the impromptu aspects of consequence management in C² have been a staple of [TEEX's IMS650 – Jurisdictional Crisis Incident Management – Incident Command Post](#) resident course at College Station, Texas. These same features can be amplified through artificial intelligence tools to provide a broader spectrum of scenario impacts and perform faster than a human controller or evaluator can re-order a [Master Scenario Exercise List](#).

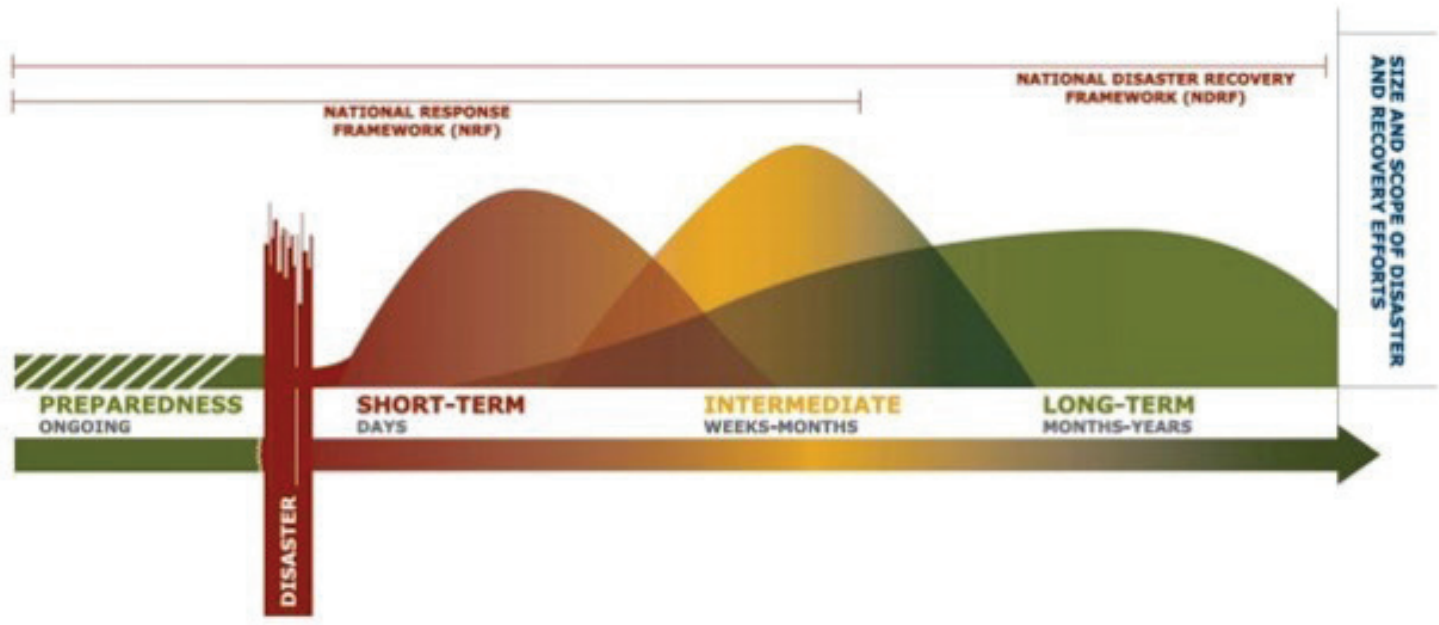


Fig. 1. Recovery continuum as portrayed in FEMA’s National Disaster Recovery Framework (Source: FEMA, 2016).

Online gamification can be visual with recorded snippets of videos, text-driven, or even completely animated. The games can be built on any hazard or threat and, of course, incorporate complex scenarios. Games do not have to be too elaborate or expensive to generate. Although they tend to be response-phase oriented, they can be designed for any or all cycle phases (see Fig. 1). The success of a game – including potentially added wellness benefits to the players – will be more robust than a tabletop, in terms of exercising the plans, organization, equipment, and training. And games can have built-in feedback loops to be self-enhancing, through artificial intelligence.

Some additional aspects of the fantasy role-playing genre that public health, hospitals, and other response organizations can consider include:

- *Dice Rolls and Wheel Spins* – Dice rolls and wheel spins are often

used in role-playing games to add randomness to the game. In much the same way a simulation cell (SimCell) may randomly determine the success of an action, online and in other games, this randomizer can be built in. Adding randomness to an exercise can have interesting outcomes, forcing participants to overcome challenges they may not have anticipated.

- *Magical Powers* – The strengths and capabilities of an organization coming into a multi-player game (with different organizations, some having overlapping skills) are usually established before a game commences (and often align with their *real-world* strengths and capabilities). For example, if a fire department has 25 firefighters and three apparatus vehicles, that may be how they begin the game. Online games can be coded



to encourage mutual aid, penalize for it, or both. Scoring and available resources can be enhanced when participants perform cooperation, coordination, collaboration, and communication activities. The same enhancements can occur when real or notional players use whole-community partnerships in the game, depending on the game's design.

- *Open World, Many Decisions* – Public health and other response organization role-playing games have an overarching *mission* the players must complete. However, players may encounter dozens of *side missions* they can perform on their game journey, possibly distracting them from their stated goal. An exercise scenario with many components within the incident (and no direction from the facilitator or controller on where to start) challenges players to size up the situation and prioritize their objectives in more natural ways than other discussion-based exercises. For example, a complex coordinated terror attack scenario could include impacts on multiple critical infrastructure systems, forcing players to *collaboratively* discuss the Community Lifeline system they must first address and why. Watch how quickly *unity of effort* occurs.
- *Put Away the Plan...Sort Of* – In the strictest interpretation of the HSEEP goals, exercises test more than the players and their knowledge of the plans in play. It also exercises the systems and tools (the equipment) needed – especially for C² – and the previous training that needs exercises and evaluation. In an online game, the imagination of the players and facilitators or controllers (i.e., game masters) is often the only limit to

what can happen. This design can lead to wild, out-of-the-box tactics but also pushes players to generate creative solutions to the problem. Thanks in large part to the global pandemic of COVID-19, many public health and emergency management plans were dismissed *out of an abundance of caution*. As long as players remain within the game’s *framework* and are realistic about their roles and responsibilities, nontraditional tactics can be implemented successfully. Whether this leads to unexpectedly better or significantly worse outcomes, the essential factor is testing players’ abilities to identify critical decision-making points, think through possible consequences, and implement strategies.

As public health, healthcare, and emergency management organizations embrace artificial

intelligence more, they should also consider its use in online games. Such role-playing games have significant benefits – including those with *roguelike* aspects – for training and *exercising plans*, organizational constructs for response, recovery, and the other phases of a disaster, the equipment and systems used, and the training of all involved. As grant budgets get tighter and the cost of manpower and materials rises, games can provide a cost-effective option to evaluate decision-making during a response. These visual scenarios engage participants differently than tabletop exercises, provide immediate and post-exercise evaluation, and can be as simple or complex as is needed to achieve the exercise objectives. For these reasons, gamification is not just the future of the profession, but the current reality of public health and emergency management.



Michael Etzel is an Associate Emergency Manager® and an Emergency Management Specialist Trainee with the Nassau County (NY) Office of Emergency Management (NCOEM). Michael is primarily assigned to the office’s planning section where he coordinates planning projects, assists in training and exercise development, and serves as the NCOEM liaison to the Nassau County Fire Commission’s Emergency Management Committee. A graduate from St. John’s University with a B.S. and M.P.S. in homeland security, Michael is currently pursuing a doctoral degree. His research interests include domestic violent extremism, community resiliency, and emergency management theory.



*Michael Prasad is a Certified Emergency Manager®, a senior research analyst at Barton Dunant – Emergency Management Training and Consulting (www.bartondunant.com), and the executive director of the Center for Emergency Management Intelligence Research (www.cemir.org). Mr. Prasad has held emergency management director-level positions at the State of New Jersey and the American Red Cross, serving in leadership positions on more than 25 disaster response operations, including Superstorm Sandy’s response and recovery work. He researches and writes professionally on emergency management policies and procedures from a pracademic perspective. His first book, entitled “*Emergency Management Threats and Hazards: Water*,” will soon be published by Taylor & Francis/CRC Press. He holds a Bachelor of Business Administration degree from Ohio University and a Master of Arts degree in emergency and disaster management from American Public University. Views expressed do not necessarily represent the official position of any of these organizations.*



Centers for Disease Control and Prevention (CDC) staff support the 2019 nCoV response in the CDC's emergency operations center (Source: CDC/Unsplash).

Sustaining Those Working in Disasters

By Jolie Wills

Continual and prolonged stress is taking a toll on the health and well-being of those who work in emergencies. Two questions that are currently top of mind for those in emergency response sectors are:

- What can we do to support the well-being of those working in emergencies?
- How can leaders and teams be equipped to navigate immense pressure without succumbing to burnout?

These questions were also on leaders' minds in Christchurch, New Zealand, more than a decade ago. On September 4, 2010, a powerful magnitude 7.1 earthquake struck that city, triggering a sequence of earthquakes that damaged or destroyed 90% of the city's homes, claimed 185 lives, and forced the closure of the downtown area for more than two years. The road to recovery was long and arduous.

Amid these challenges, a crucial concern emerged: how to sustain those who had a vital role in supporting the impacted population through ongoing aftershocks and earthquake impacts. Put simply, the question is how to sustain mission-driven people working under immense and prolonged pressure. This concern prompted a [Winston Churchill Fellowship](#) – a global study tour – to explore the impacts of working under prolonged pressure after disaster and the actions needed to protect the well-

being of those working in emergencies. On completion of the research, a design challenge led to the creation of resources, tools, and training to sustain leaders and teams working under pressure based on lessons learned.

A Hazards Approach

Working to [support communities after a disaster](#) involves risks to the health and well-being of those working in emergencies and to the organizations, missions, and communities they serve. Clearly, this work is hazardous. But therein lies the solution for approaching other workplace hazards. Taking a hazards approach is key to sustaining the well-being and performance of those working in emergencies. Steps include identifying the hazards, eliminating or minimizing exposure to the hazards, and providing training and personal protective equipment (PPE).

Identify the Hazards

Psychosocial hazards with potential exposures are many and varied but include excessive workload, lack of rest and recovery, exposure to trauma, moral injury, unsupportive culture, lack of prioritization of effort, unnecessary politics, unhealthy team dynamics, lack of recognition, and managers who are ill-equipped to lead people under pressure. When exploring the stressors identified in the Winston Churchill Fellowship research, it became clear that

Research Snapshot

A study of emergency management professionals in the United States found that more than half of emergency managers suffer mild to severe secondary traumatic stress. As stated by Hollar et al. (2023):

Untreated or undertreated secondary traumatic stress can increase the likelihood of leaving the field by almost three times.... The current rate of departure portends a shortage of adequately trained emergency managers to respond to future disasters and pandemics.

The survey found that 64% considered leaving their jobs during the pandemic (up from 43% before the pandemic). Of those considering a job change, 46% considered leaving the emergency management field.

Hollar, T. L., Erickson, E., Patel, S., Guevara, K., & DeVito, R. (2023). Surveying mental health stressors of emergency management professionals: Factors in recruiting and retaining emergency managers in an era of disasters and pandemics. *Journal of Emergency Management*, 21(5), September/October 2023.

the stressors people faced while working in emergencies fell into three categories:

- *Unavoidable* – This work is challenging and involves exposure to traumatic events, accounts, and trauma-impacted people. It is impossible to avoid these stressors, but leaders can prepare and equip people to deal with them to the best of their ability.
- *Ourselves* – Many people working in disasters have stories they tell themselves, with habits and behaviors that can add weight to the load. For example, there is often a need to appear capable in any situation, to self-sacrifice in the service of others, to shun help, etc.
- *Addressable* – Some workplace stressors are addressable and preventable. Every organization has them. They might include frustrating and ineffective systems, inadequate access to the necessary tools or resources for a role, leaders who lack the necessary skills, support, or training to effectively lead, excessive bureaucracy, internal or inter-agency politics, and an unsupportive

organizational culture. The first step to keeping people safe in a hazardous environment is to identify the hazards, such as what they are for the team or organization and what they are contributing to the load people carry. The most helpful category to explore is the addressable workplace stressors.

Eliminate or Minimize Exposure to the Hazards

A common sentiment from the research was, “Yes, self-care is important, and the support we are being offered is great. But what would be much better is to address the organizational factors that are weighing us down and causing harm in the first place.”

Eliminating and minimizing exposures is the most important and influential step to prevent burnout and sustain those working in emergencies. While this work is challenging, and many stressors cannot be addressed, every organization contributes to preventable stressors. Addressing these will lighten the load for people under pressure. Getting to the source of the problem is more effective than helping people treat the symptoms.

The analogy often used in burnout prevention is the canary in the coal mine. When the canary succumbs to a hazardous environment, the answer is rarely a stronger canary. The most critical and effective step is to address the organizational factors contributing to burnout and harm.

Provide Training and PPE for Mental Well-Being

Once work has been done to eliminate or minimize exposure to the hazards, the next step is to do something to prevent harm. As with other hazards, providing education and tools so that people have what they need to keep themselves safe is critical. Educating and supporting leaders so they have the strategies and tools to support the performance and well-being of their teams under pressure is an essential step. Yes, leaders often overlook this skill development. Leading teams in high and prolonged-pressure environments is incredibly challenging and involves a particular skill set. This type of leadership does not happen by chance. Organizations must support leaders to develop these essential skills:

- Equip teams with the knowledge, skills, and practices to support each other under pressure and to pull together when it counts, especially when fatigue sets in. Again, this does not happen by accident. An intentional approach is needed.
- Equip individuals with tools and actionable insights to take a preventative approach and break through the barriers to self-care.

- Provide tools (PPE for pressure) for creating protective well-being plans and ensure accountability mechanisms are in play to prevent self-care from falling off the bottom of the list in the face of unrelenting demand.
- As with any hazard, prevention is vital. However, when harm does occur, ensure support is available for anyone harmed through their role.

Step Into a Support Role

A role that involves supporting communities impacted by disaster is incredibly rewarding and meaningful but also hazardous. Many well-being approaches are ineffective as they do not address the specific challenges and hazards that those working in emergencies face. Taking a hazards approach – a familiar approach that people are more comfortable with for other exposure hazards in the workplace – provides a framework and approach to minimize harm that gets to the heart of the challenges involved.

With alarmingly high rates of turnover among those working in emergencies, the current state and approach are unsustainable. The good news is that intentional action can and will help prevent harm. Leaders can establish the conditions to support professional and personal growth. However, hope is not a method. To turn the tide on burnout and turnover among the dedicated, mission-driven people who serve communities in the wake of disaster, leaders must act intentionally and decisively.



Jolie Wills (MSc Cognitive Psyc), CEO of Hummingly, is a cognitive scientist and a psychosocial disaster recovery specialist who has spent the last decade researching and designing approaches to sustain those working in disasters. Jolie and her team design workshops and practical tools to support leaders, teams, and individuals to do well under pressure. www.hummingly.co, [LinkedIn: Jolie Wills/Hummingly](#).



Source: [Alexandra_Koch/Pixabay](#)

Mental Awareness to Enhance Preparedness

By Andrew (Andy) Altizer

Athletes often hear, “Get your head in the game.” The same applies to preparedness. Without focused mental agility in any emergency management phase, especially preparedness and response, mistakes or subpar performance are likely. The challenge is knowing how to get in the game and be at peak performance during critical incidents and stressful days.

Elevating the Need for Mental Fitness

Emergency managers, public health officials, and first responders often stress the importance of physical fitness. Sustained operations can be exhausting, and good physical condition can aid the operation and overall well-being of the operator or responder. Emergency managers urge businesses and the public to be on their own for up to three days after a disaster. However, the same emphasis is not always on the well-being of those involved in the operations.

Improvements in physical health continue to gain momentum, but mental health efforts still lag. In many professions like the military, police, firefighters, etc., mental health can

be a taboo topic. When discussed or planned for, it is usually in the context of the recovery phase through critical incident stress management. In other cases, the topic focuses on helping others, ignoring everyday mental complications that can cloud even the toughest life safety professional.

Being mentally fit takes some self-reflection, understanding, and perhaps research. Professionals should be encouraged to understand the importance of mental health, identify signs of struggle, and seek help when needed. Public safety professionals who spent endless days responding to emergencies like the Hawaiian wildfire, Hurricane Katrina, or COVID-19 had to mentally manage the anxiety and aftermath of what they did and saw. There are actions that these professionals can take before such stressful sustained operations to be more mentally prepared.

Implementing the M.I.N.D. Concept

Preparedness is about planning and being ready. It is time to add mental health to the preparedness plan. It could start slowly. With decades of experience in emergency

management planning, I needed an easy way to remember to prioritize mental health personally and in the planning process. So, I created the M.I.N.D. concept. This acronym stands for Mindfulness, Intuition, Never Ignore a Potential Problem, and self-Discipline. Remember, being prepared takes an open and clear mind and the ability to process information without distractions. Shifting the focus onto others can neglect building the mental agility to prepare and respond.

Mindfulness

According to [Psychology Today](#), mindfulness is a state of active, open attention to the present. Perhaps a better definition of mindfulness as it relates to preparedness “is the basic human ability to be fully present, aware of where we are and what we’re doing, and not overly reactive or overwhelmed by what’s going on around us.”

Like a component of situational awareness, this is a reminder of the importance of maintaining a mind free of clutter and distractions.

However, preparedness professionals regularly consider possible outcomes, different courses of action, and even worst-case scenarios to be better prepared. So, simultaneously, they must deconflict and declutter their minds, especially in the preparedness and emergency planning stages. This balance can be challenging when current challenges merge with past experiences that perhaps did not go well. The constant media barrage and training demonstrate the importance of wargaming the “what ifs.”

From a holistic perspective, mindfulness reduces worry and anxiety about what *might* happen, which is tough to overcome in the preparedness business. Ruminating before and after an emergency can be extremely unhealthy and counterproductive.

Intuition

Trusting one’s intuition could provide greater preparedness and increase overall mental strength. In 2010, psychologist [Robin Hogarth](#) wrote, “Intuition offers a reduction in cognitive load and the ability to respond instantly while providing confidence in our knowledge and decision making – even though it may defy analysis.” Often, people can overthink a problem, debate it, lose focus, ruminate, and then come up with the same initial conclusion based on their initial intuition. Although intuition cannot replace complex planning and problem-solving, which often need careful analysis, it should be a factor in decision-making. Overthinking can cause stress, irritability, and even poor decisions, whereas trusting the gut can move things forward much quicker without anxiety overload.

A quote by Rich Gasaway in his online article entitled [Where Does Intuition Come From?](#) reads:

It is amazing how many articles and videos I have watched lately in which they are talking about decision making based on “gut feel.” It is also disheartening how many first responders I have interviewed who have admitted to me that they have dismissed their gut feelings and proceeded to do things that resulted in bad outcomes.

Gasaway also quoted Albert Einstein, “The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.”

Never Ignore a Potential Problem

The assumption that someone else has reported, fixed, or updated a problem or plan can quickly become problematic. A minor problem does not always warrant immediate attention but requires action. Sometimes,

that action is simply to delegate or write it on a to-do list for later. Ignoring can also lead to forgetfulness or the realization that something was neglected. Alternatively, immediately acting as soon as a task arises can be an unhealthy habit, with mixed priorities adding to feeling overwhelmed and anxious. Walking past a problem increases the potential that it can come back as a bigger, more time-consuming, and more stressful problem in the future.

There are benefits to accomplishing something, no matter how small, such as improving self-esteem or taking a quick break from a more stressful or pressing matter. In 2014, Navy Admiral [William H. McRaven](#) gave a commencement speech centered on the importance of making the bed every morning to begin the day with an accomplishment. Perhaps the same approach can help preparedness professionals do something simple to feel fulfilled, such as putting in a work order for a malfunctioning light or updating a resource spreadsheet.

Self-Discipline

Self-discipline is challenging for most preparedness, public health, and public safety professionals, especially knowing when to walk away, take a break, or even consider seeking mental health assistance. The benefits of critical incident stress management have become acceptable in the field. However,

mental health counseling or mindfulness approaches such as mediating have not been as widely adopted as standard personal mitigation strategies.

Beyond mental health, the mental wellness concept should be an essential aspect of daily well-being to counter future anxiety. Wellness goes beyond losing weight, quitting bad habits (like smoking), and exercising. An active process and a holistic mindset, wellness is multidimensional: physical, mental, emotional, spiritual, social, and environmental. Each dimension is critical for maintaining a healthy body and mind.

Shifting the Focus Inward

Being strong and handling almost any situation are common expectations that preparedness, public health, and public safety professionals have for themselves and others in similar roles. However, these expectations are too high. By promoting self-care and seeking help when needed, professionals are better positioned to help others. The days of “walk it off” or “suck it up” should be a thing of the past. Shifting the focus inward and building greater mental resilience take time and practice, but it also means removing the stigma of getting help when the job is about helping others. Even heroes on the most stressful days have the right to go home healthy, strive for happiness, and ask for help when needed.



Andrew (Andy) Altizer has over 20 years of emergency management planning experience and another 10 years of planning experience in the military. He is the emergency preparedness coordinator for The Westminster Schools and a Criminal Justice instructor at Georgia State University. Previously, he was the director of emergency management at Kennesaw State University and director of emergency preparedness at Georgia Institute of Technology. He also served as the critical infrastructure protection program manager at the Georgia Office of Homeland Security. In the U.S. Army, his roles included inspector general, public affairs officer, artillery commander, and plans and operations officer.



The “R” Word

By George Schwartz

Words have meaning, and people can ascribe multiple definitions to each one. But as [Dr. Kelly E. Wright](#), an experimental linguist, points out, “True meaning ... is akin to standing on the banks of a rapid flowing river and asking someone to decide which molecule of water is actually the river.”

Resilience is a word that has multiple meanings for public health, emergency, and homeland security management professionals. There may not be an exact definition, but professionals use it often and recognize it when they see it. Resilience and its variants appeared more than 150 times in the *Domestic Preparedness Journal* throughout 2023 to describe such matters as supply chains and communications systems. Still, it is most often used to describe individual and community resilience, including public health:

- [“Increasing community resilience starts with increasing personal resilience.”](#)
- [“A community’s level of resilience during a disaster often relies on the preparedness efforts of its private sector partners.”](#)
- [“A resilient public is a vital component of a strong homeland defense.”](#)

Despite tendencies to use this word broadly and often about people and communities, the Federal Emergency Management

Agency’s (FEMA) doctrine mostly relegates resilience to hazard and disaster mitigation. Given how people commonly use the word, and since FEMA declared 2024 the *Year of Resilience*, now is the time to rethink the concept of resilience.

Resilience and National Preparedness

Regardless of how the word may have been used over the years, if one utilizes a system’s approach, the examination has to begin with the [National Preparedness System](#). Presidential Policy Directive 8 ([PPD-8](#)) of 2011 required the Department of Homeland Security to develop this system and the [National Preparedness Goal](#), which became:

[A] secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.

PPD-8 defined resilience as “the ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.”

This usage implies a broad meaning for the term resilience that is applicable across any phase of a disaster and any type of threat. However, drilling down into the National Preparedness System’s [five mission areas and core capabilities](#), “Community Resilience”

Prevention	Protection	Mitigation	Response	Recovery
Planning				
Public Information and Warning				
Operational Coordination				
Intelligence and Information Sharing		Community Resilience	Infrastructure Systems	
Interdiction and Disruption		Long-term Vulnerability Reduction	Critical Transportation	Economic Recovery
Screening, Search, and Detection		Risk and Disaster Resilience Assessment	Environmental Response/Health and Safety	Health and Social Services
Forensics and Attribution	Access Control and Identity Verification	Threats and Hazards Identification	Fatality Management Services	Housing
	Cybersecurity		Fire Management and Suppression	Natural and Cultural Resources
	Physical Protective Measures		Logistics and Supply Chain Management	
	Risk Management for Protection Programs and Activities		Mass Care Services	
	Supply Chain Integrity and Security		Mass Search and Rescue Operations	
			On-scene Security, Protection, and Law Enforcement	
			Operational Communications	
			Public Health, Healthcare, and Emergency Medical Services	
			Situational Assessment	

Figure 1. Core Capabilities by Mission Area from the *National Preparedness Goal* (2nd ed.).

only appears under the Mitigation mission area, which aims to “reduce the loss of life and property by lessening the impact of future disasters” (see Figure 1).

Each core capability addresses a significant national risk, so FEMA provides [worksheets](#) as tools to build capabilities and close gaps. For

Community Resilience, there are two capability objectives listed:

- Maximize the coverage of the U.S. population that has a localized, risk-informed mitigation plan developed through partnerships across the entire community.

- Empower individuals and communities to make informed decisions to facilitate actions necessary to adapt to, withstand, and quickly recover from future incidents.

The first refers to hazard and disaster mitigation as commonly understood and practiced. [Hazard mitigation planning](#) breaks the cycle of disaster damage and reconstruction, and [hazard mitigation actions](#) reduce long-term risk to communities from future disasters. In practice, mitigation requires funding for flood insurance, land redevelopment, and other projects to minimize hazards. The [Disaster Mitigation Act of 2000](#) provides communities access to such funds when they proactively reduce their vulnerability to natural disasters. The Building Resilient Infrastructure and Communities ([BRIC](#)) program also offers funding opportunities for hazard mitigation projects.

However, the second is a wide-ranging statement and could be interpreted in various ways, including beyond the Mitigation Mission Area. Empowering people to make informed decisions is applicable in every mission area, from Prevention (deciding how much convenience to sacrifice for security) to Recovery (determining how to spend recovery funds to build back better).

A Core Capability for All Mission Areas

To make the definition of resilience fit its common usage, two changes to FEMA doctrine could have a significant impact. The first recommendation would be to add a new capability objective that captures the term's common uses regarding people and communities.

In March 2023, [FEMA announced](#) a new “effort to create guidance and resources for the whole community to help everyone understand and fulfill their critical roles related to increasing national resilience.” [The National Resilience Guidance](#), published in February 2024, promotes this Vision of Resilience, which captures in the following statements some ways to use resilience:

- **Resilient people** with optimal health and wellbeing. The whole community has a sense of security, social connectedness, and diminished vulnerability that serve as the foundation for thriving and resilient communities.
- **Resilient society** that has a robust sense of belonging and a high degree of trust. Empowerment and cooperation within and across communities is fostered and supports strong civic engagement.
- **Resilient economies** that support all members of society. These economies are built around a diverse range of industries and draw on regional strengths and assets.
- **Resilient built environment** that supports a high quality of life that includes adequate, safe, secure, and humane housing, and critical infrastructure systems that are robust, adaptable, and support economic growth and innovation.
- **Resilient natural environment** with clean land, air, and water and healthy ecosystems that can withstand shocks and stressors.

Notably, this vision puts people first (with health at the forefront) and provides an ideal reference for a new capability objective under Community Resilience. A new list of objectives could look something like this:

Prevention		Protection		Mitigation		Response		Recovery	
Planning									
Public Information and Warning									
Operational Coordination									
Community Resilience									
Intelligence and Information Sharing			Long-term Vulnerability Reduction Risk and Disaster Resilience Assessment Threats and Hazards Identification			Infrastructure Systems			
Interdiction and Disruption						Critical Transportation		Economic Recovery	
Screening, Search, and Detection						Environmental Response/Health and Safety		Health and Social Services	
Forensics and Attribution		Access Control and Identity Verification				Fatality Management Services		Housing	
		Cybersecurity				Fire Management and Suppression		Natural and Cultural Resources	
		Physical Protective Measures				Logistics and Supply Chain Management			
		Risk Management for Protection Programs and Activities				Mass Care Services			
		Supply Chain Integrity and Security		Mass Search and Rescue Operations		On-scene Security, Protection, and Law Enforcement			
				Operational Communications		Public Health, Healthcare, and Emergency Medical Services			
				Situational Assessment					

Figure 2. Expanded Community Resilience Core Capability, adapted from the *National Preparedness Goal* (2nd ed.).

- Support the National Resilience Vision by reinforcing community determination to address threats, preparing people for the challenges, collaborating with key stakeholders to overcome natural and human-caused disasters, and adapting and recovering stronger than before to face future adversity.
- Maximize the coverage of the U.S. population that has a localized, risk-informed mitigation plan developed

through partnerships across the entire community.

- Empower individuals and communities to make informed decisions to facilitate actions necessary to adapt to, withstand, and quickly recover from future incidents.

Because there are many constructs of resilience, the expanded objectives can consider multiple perspectives and not just hazard mitigation, for example, public health, disaster recovery, and cybersecurity. It also maintains the aspirations of partnership and empowerment of communities for decision-making.

These objectives can apply to any mission area, which leads to the second recommendation: to expand the Community Resilience (or simply Resilience) core capability and increase its usage across all five mission areas. This is already the case for three Core Capabilities: Planning, Public Information, and Coordination. Not only are these capabilities necessary for success in every mission area, but applying them across the system also helps to unify the mission areas. It should be the same with Resilience – it must be integral to every mission area (see Figure 2).



Dr. George Schwartz is an associate professor at Immaculata University and has been the director of the bachelor's degree in Emergency Planning & Management program since 2014. He is also a retired senior Army officer with more than 30 years of service overseas and in the homeland, including leading National Guard units during domestic response operations.

2024: Year of Resilience

At a United Nations conference in 2023, FEMA Administrator Deanne Criswell announced that 2024 would be the agency's *Year of Resilience*. She commented, "FEMA is typically recognized as a response and recovery agency, but now more than ever, we are a resilience agency." Shortly afterward, FEMA also announced that it was supporting the Year of Resilience with a new round of [low-interest loans](#) directly to local communities to reduce their vulnerability to disasters and reduce disaster impacts. These loans will profoundly affect the environmental resilience of communities throughout the country.

In her 2023 article entitled "[The Power of Words](#)," *Harvard Business Review* editor Lucy Swedberg wrote that "there are specific words that, when used in the right way at the right time, are more impactful than others – at changing minds, engaging audiences, and driving action." With the new vision of resilience, a declaration that FEMA is a resilience agency, and the announcement of The Year of Resilience, now is the right time to clearly define the term resilience and use it to make more impact.



Francis Scott Key Bridge, September 10, 2014 (Source: U.S. Navy photo by Mass Communication Specialist 3rd class Laura Hoover, public domain, via Wikimedia Commons).

Key Bridge Collapse – Transportation Infrastructure and Global Supply Chain

By Joseph J. Leonard Jr.

A cargo ship crashed into the Francis Scott Key Bridge in Baltimore, Maryland, at approximately 1:30 a.m. on March 26, 2024. The structure collapsed immediately, taking down a major metropolitan roadway and cutting off automobile traffic above and vessel traffic along the Patapsco River, a critical East Coast shipping hub and transportation highway. The region and nation will feel the cascading effects.

The Transportation Systems Sector is one of the nation's 16 Critical Infrastructure Sectors. Transportation is Emergency Support Function 1. Events like the Key Bridge collapse highlight how vital the transportation networks and their associated infrastructure are to the U.S. economy, national security, and resilience. Transportation networks hold the other 15 sectors together.

On March 23, 2021, the container vessel *Ever Given*, one of the largest container vessels in the world, ran aground in the Suez Canal,

paralyzing the global supply chain. Steven Weiss, the chief underwriting officer and founder of Incarnation Specialty Underwriters, pointed out in a personal conversation on March 26, 2024:

[T]he Baltimore bridge collapse] is the third disruption to the global supply chain. Low water in the Panama Canal and the ongoing attacks by Houthis on Red Sea shipping are already having a significant impact on maritime commerce. It shows how fragile our global infrastructure is and why we need alternatives thought out in advance.

Baltimore Bridge Collapse

The response to the collapse of the Francis Scott Key Bridge following the allision (i.e., a vessel striking a fixed object) from the container vessel *DALI* is but a few hours old. Yet, experts already know that the impact on the nation's 9th largest port will be enormous and long-lasting.

How long-lasting is yet to be determined. However, A port recovery exercise conducted in Houston some 15 years ago using a similar scenario estimated it would be at least 140 days before the port was again open to all vessel traffic. That estimate would only be achievable with a considerable outlay of resources.

There are about 40 vessels currently in the Port of Baltimore, north of the incident site. They will undoubtedly be there for a while. Likewise, about 30 ships waiting to enter the port must reroute to other ports where their cargo can move to their final destinations. This process will involve considerable effort and cost, not only in the facilities and resources needed but also in the fuel required to transport the cargo to end users. Then, there is the impact on Interstate 695, one of the busiest highway corridors in the United States. About 11.5 million vehicles transit this bridge annually, all of which will need to find alternate means through and around the City of Baltimore and Baltimore County, stressing their transportation infrastructure. Dr. Michael Hicks, Ph.D., the director of the Center for Business and Economic Research at Ball State University, stated in another personal conversation on March 26, 2024:

Baltimore City and County are home to close to 45,000 logistics and warehousing workers, about a third of which are directly employed by the Port of Baltimore. Together, they earn about \$2.1 billion in wages and produce \$3.7 billion in Gross Domestic Product. While not all of them are directly linked to the port, almost the entire industry is linked to local movement of goods. Thus, an immediate shock would be to idle these workers as products are moved to other ports.

Policymakers will likely push for improvements in the nation’s infrastructure. These ideas will require evaluation for long-term viability, with some undoubtedly being very worthwhile while others less so. All would come with significant costs.

Recommendations for Recovery Efforts

With just over 12 hours since this incident occurred, my initial six recommendations are as follows:

1. Conduct a regional gap analysis on the transportation infrastructure. Note the areas that are most brittle and need reinforcement to enhance resilience. An example would be to add island protection structures around bridge support columns to minimize the likelihood of another vessel collision causing an incident of this nature. These protections were added to the Sunshine Skyway Bridge following its 1980 incident.
2. Recovery, including restoration of maritime commerce and reconstruction of the Francis Scott Key Bridge, will be a lengthy process. Weiss noted, “It will be months before Baltimore is fully recovered as a port and years before 695 is rebuilt. Plan for long-term rerouting and alternative plans for your supply chain.”
3. Test regional recovery plans, with emphasis on the transportation networks. Look at plans, training, resources, capabilities, and facilities. Share after-action reports and implement improvement plans.
4. Consider if anything can be done for the port workforce and entities that

support it, as well as what communities need to do to support economic recovery. Dr. Hicks highlighted that: “A 75 percent port capacity reduction for the equivalent of one year would cost Baltimore County and Baltimore City a combined 35,000 jobs and a loss of 44.5 billion in Gross Domestic Product. [The] combined tax effect would be over \$300 million for state and local government, and income losses would be close to \$1.8 billion.”

5. The U.S. Coast Guard employs a Marine Transportation System Recovery Unit (MTRSU) within its Planning Section to help manage the impact on and recovery of the Marine Transportation System. Expand this MTRSU concept into a “Transportation System Recovery Unit” that can prioritize a response and recovery work effort in the wake of an incident.
6. Build or enhance regional collaboration and information sharing

among federal, state, local, tribal, private sector, and international partners and stakeholders. Remember, “It’s all about relationships.”

The Port of Baltimore is the nation’s largest for handling specialized roll-on/roll-off cargo and a considerable amount of bulk cargo, especially steel, agriculture products, and farm and construction machinery. Hicks stated:

This is a first-order shock to the nation’s logistics system that will test our resiliency. The state of Maryland and the city and county of Baltimore will require significant federal assistance.

This incident will find a means to impact everyone, most likely in an increased cost of consumer goods and services. Everyone has a stake in this effort, and everyone needs to contribute to its long-term improvement. Keeping the nation’s ports safe, secure, and resilient is critical.



Joe Leonard, CDR (ret.), is a nationally recognized emergency responder, incident manager, and trainer with 44 years of U.S. Coast Guard, U.S. Army, volunteer municipal fire service, and private-sector experience responding to natural disasters, oil spills, hazardous materials releases, marine fires, mass rescue operations, mass care and shelter events, national special security events, and maritime homeland security events. He is currently the president and chief executive officer of the Unified Services Consulting Group, LLC. He was recognized with the prestigious U.S. Navy League’s Captain David H. Jarvis Award for Inspirational Leadership and was named a Fox News “Power Player of the Week” on September 11, 2005, for his services as the FEMA-designated Area Commander-

Houston Area Mega-Shelter Operations following landfall of Hurricane Katrina. He holds certifications as a Master Exercise Practitioner, Master Continuity Professional, Certified Emergency Manager, Coast Guard Emergency Management Credential, Certified Homeland Protection Professional, and Certified Port Executive. He has a bachelor’s degree in history from the Virginia Military Institute and a master’s degree in engineering technology from Murray State University. He is a graduate of the National Emergency Management Executive and Advanced Academies.



Source: Domestic Preparedness (2024)

Week 2 – Restoring Infrastructure and Instilling Resilience

By Joseph J. Leonard Jr.

The incident involving the container vessel *DALI* and the Francis Scott Key Bridge has led the news cycle and professional discussions for days. Many news reports point to the 1980 Sunshine Skyway Bridge collapse when the motor vessel *SUMMIT VENTURE* collided with a support pier, killing 35 people. However, that was not the last such incident:

- September 22, 1993: The tugboat *MAUVILLA* allided (i.e., a moving vessel struck a fixed object) with the Big Bayou Canot Bridge near Mobile, Alabama. The resulting impact deformed the rails on the bridge. Eight minutes later, Amtrak's *Sunset Limited* derailed, resulting in 47 killed and 103 injured.
- September 15, 2001: Four loaded barges allided with the support column supporting the Queen Isabella Causeway Bridge over Laguna Madre near Port Isabel, Texas. The incident resulted in eight deaths and three people rescued after their cars plummeted 80 feet into the water below.
- May 26, 2002: The towboat *ROBERT Y. LOVE* allided with a pier of the Interstate-40 bridge over the Arkansas

River in Webbers Falls, Oklahoma, killing 14 people and injuring 5 others.

It does not take a large vessel hitting a bridge to result in a tragic incident. The AP found 35 such incidents between 1960 and 2015, which killed a total of 342 people. These incidents happen and will happen again (with the most recent barge allision on the U.S. Highway 59 bridge over the Arkansas River on March 30, 2024, near Sallisaw, Oklahoma) without actions to mitigate them.

According to the 2021 Infrastructure Report Card:

There are more than 617,000 bridges across the United States. Currently, 42% of all bridges are at least 50 years old, and 46,154, or 7.5% of the nation's bridges, are considered structurally deficient, meaning they are in "poor" condition. Unfortunately, 178 million trips are taken across these structurally deficient bridges every day. In recent years, though, as the average age of America's bridges increases to 44 years, the number of structurally deficient bridges has continued to decline; however, the rate of improvements has slowed.

A recent estimate for the nation’s backlog of bridge repair needs is \$125 billion. Estimates show that we need to increase spending on bridge rehabilitation from \$14.4 billion annually to \$22.7 billion annually, or by 58%, if we are to improve the condition. At the current rate of investment, it will take until 2071 to make all of the repairs that are currently necessary, and the additional deterioration over the next 50 years will become overwhelming.

Preparedness officials and policymakers should consider the following local-, regional-, and national-level recommendations.

Local and Regional (Short-Term Goals)

Efforts that support the restoration of local and regional infrastructure will be the immediate focus of activities to enable one of the busiest highways and 9th largest port in the nation to restore operational capacity and economic viability. This will require significant funding from the public and private sectors to complete recovery and restoration activities and enhance long-term resilience.

Recovery and Restoration

The most recent data available on March 31, 2024, Steven Weiss, the Chief Underwriting Officer and Founder of Incarnation Specialty Underwriters, succinctly captured the impact on the Port of Baltimore (9th largest in the nation) in a personal e-mail:

Baltimore is the sole export coal terminal on the east coast for northern Appalachian coal (used for metallurgical use in Europe and brick making in India). The port handles approximately 1,000,000 intermodal containers annually. It takes a lot of dedicated space and stevedoring [loading and unloading cargo onto vessels in ports] to handle the Baltimore-bound cargo (vehicles, bulk coal and containers). Port workers will be out of

work or commuting to other ports until the problem is fixed. The longer it takes the less likely these jobs will return to Baltimore. Other ports (Hampton Roads, Charleston, Savannah, and New York/New Jersey) will likely see an uptick. This move will likely increase the cost of doing business and lead to higher potential business interruption claims. FedEx and Amazon also have large import facilities here and while the operations can be moved, the costs and potential job losses will be felt locally. Traffic will naturally increase on other roads in the vicinity as this is a choke point for East Coast traffic – this will lead to delays and higher costs. Many of the larger companies will have a well-thought-out master plan of resilience, but many smaller ones (think of the small trucking companies, the folks that clean and prep the cars or handle the cargo) may not have a built-in plan and workaround. Additionally, the shipping lines blocked from Baltimore deliveries are declaring Force Majeure, thereby not assisting their clients in getting their cargoes back to Baltimore thereby increasing those costs.

According to [Thomson Reuters](#):

Force majeure events are usually defined as certain acts, events or circumstances beyond the control of the parties, for example, natural disasters or the outbreak of hostilities.... Its underlying principle is that on the occurrence of certain events which are outside a party’s control, that party is excused from, or entitled to suspend performance of all or part of its obligations.

These concerns can be addressed by establishing an interagency effort (“Baltimore Recovery Task Force”) as soon as possible to manage the long-term restoration of infrastructure in and around the Port of Baltimore. This task force would focus

primarily (but not solely) on highway and maritime as those are the currently impacted modes. Led by the U.S. Department of Transportation and comprised of representatives from the Federal Highway Administration, the U.S. Coast Guard, the Army Corps of Engineers, the Federal Emergency Management Agency, the Maryland Department of Transportation, Maryland Department of Emergency Management, the Maryland Port Administration, Baltimore County, and the City of Baltimore, this Task Force would lead recovery efforts, broker resources, manage funding, coordinate activities, and inform stakeholders of recovery efforts through regular, comprehensive updates. The sooner this Task Force is established and functioning, the sooner the long-term effort could focus on recovery. “Restoring Infrastructure and Instilling Resilience” might serve as a shared vision and a catchy motto for this Task Force.

Resilience

FEMA Administrator Deanne Criswell declared 2024 the “[Year of Resilience](#).” Long-term resilience needs to be built into any recovery effort to minimize impact from future incidents. Public and private sector entities that depend on the Port of Baltimore and I-695 for activity to support and sustain business operations are no doubt implementing their continuity of operations plans (for public sector entities, such as the U.S. Coast Guard Yard in Curtis Bay, Maryland, which performs significant maintenance activities on the service’s fleet of cutters and small boats) or business continuity plans (for private sector entities such as the Maryland Cruise Terminal, a host of break bulk facilities and terminals, and local entities that support daily port operations). Master Continuity Practitioners and Certified Business Continuity Practitioners are well-versed in developing and implementing these plans. These practitioners could help public and private sector entities that have not created these plans or are



Francis Scott Key Bridge, September 10, 2014 (*Source: U.S. Navy photo by Mass Communication Specialist 3rd class Laura Hoover, public domain, via Wikimedia Commons*).

struggling to apply them at this critical time. Otherwise, entities may struggle to produce goods or provide services, which affects regional capabilities, the supply chain, and long-term economic vitality.

National (Long-Term Goals)

Actions at the national level also could enhance the resilience of the infrastructure and supply chain.

Infrastructure

The U.S. Coast Guard defines an [island protection system](#) as:

A protective island built around a bridge pier; typically a sand or quarry-run rock core protected by outer layers of heavy rock riprap for wave, current, and ice protection. The island geometry is developed to stop an aberrant vessel from hitting a pier by forcing it to run ground.

The U.S. Congress could mandate these systems for future bridge construction over navigable waterways where a pier is near transiting vessels and provide grants to bridge operators to offset the cost of retrofitting them onto existing bridges. Making this structure part of the initial construction is significantly easier than retrofitting it afterward. Of course, this will most likely be costly, requiring environmental impact statements and design approvals, possibly disrupting transiting vessel traffic, and being workforce intensive. Regarding island protection systems, Engineer Scott Horan, who recently retired as the Director of Public Works for the City of Manassas, Virginia, stated in a personal e-mail to me on March 29, 2024, that:

Resources required include but are not limited to, cranes, machinery handling equipment, concrete batch plant, steel/concrete reinforced piers, work barges, hopper barges, tugboats, workboats, shoreside support facilities, quarry

rocks (rip-rap), wood, fill, and of course manpower. All wrapped in an expedited schedule that will more than likely see some type of 24/7 work schedule requiring a large professional workforce.

In concert with this, the public and private sectors could conduct a gap analysis of transportation infrastructure as well as transit and commodity flow patterns. Emphasis should be on determining how and where disruptions might occur and the most effective means to reroute mass transit and commodities. Although not eliminating economic impacts, analysis can help highlight the complexities and lessen the overall impact.

Management

The U.S. Coast Guard states on its [Vessel Traffic Services webpage](#) that:

The purpose of a Vessel Traffic Service (VTS) is to provide active monitoring and navigational advice for vessels in particularly confined and busy waterways...They encompass a wide range of techniques and capabilities aimed at preventing vessel collisions, ramblings, and groundings in the harbor, harbor approach and inland waterway phase of navigation. They are also designed to expedite ship movements, increase transportation system efficiency, and improve all-weather operating capability.

The U.S. Coast Guard currently operates 12 Vessel Traffic Services throughout the United States in Prince William Sound, Puget Sound, Valdez, Seattle, San Francisco, Los Angeles/Long Beach, Houston-Galveston, Berwick Bay, Louisville, Saint Mary's River, Port Arthur, Tampa, and New York. It is time for the Coast Guard and an interagency team to study major U.S. port complexes not listed here to see which, if any, could benefit from establishing Vessel Traffic Services. These findings could prompt Congress to commit funding for the activation

of these additional services, contributing to maritime safety and security as well as long-term critical infrastructure protection along the vital marine transportation system.

During large-scale responses, the Coast Guard employs a “Marine Transportation System Recovery Unit” in the Planning Section. Chapter 16 of the [Coast Guard’s Incident Management Handbook](#) from May 2014 describes Marine Transportation Recovery as a mechanism:

[T]o facilitate the recovery of the [Marine Transportation Recovery] following a significant transportation disruption and to work effectively with maritime stakeholders to ensure the expeditious resumption of trade. The goals of [Marine Transportation Recovery] recovery are to facilitate the return of critical infrastructure and essential government and commercial marine services to a functional, if not pre-disaster, status (i.e., short-term recovery), and assist in providing a bridge to permanent restoration measures (i.e., long-term recovery).

The primary goals are:

- System stabilization,
- Short-term recovery, and
- Transition from short-term recovery to long-term recovery.



Joe Leonard, CDR (ret.), is a nationally recognized emergency responder, incident manager, and trainer with 44 years of U.S. Coast Guard, U.S. Army, volunteer municipal fire service, and private-sector experience responding to natural disasters, oil spills, hazardous materials releases, marine fires, mass rescue operations, mass care and shelter events, national special security events, and maritime homeland security events. He is currently the president and chief executive officer of the Unified Services Consulting Group, LLC. He was recognized with the prestigious U.S. Navy League’s Captain David H. Jarvis Award for Inspirational Leadership and was named a Fox News “Power Player of the Week” on September 11, 2005, for his services as the FEMA-designated Area Commander-Houston Area Mega-Shelter

Operations following landfall of Hurricane Katrina. He holds certifications as a Master Exercise Practitioner, Master Continuity Professional, Certified Emergency Manager, Coast Guard Emergency Management Credential, Certified Homeland Protection Professional, and Certified Port Executive. He has a bachelor’s degree in history from the Virginia Military Institute and a master’s degree in engineering technology from Murray State University. He is a graduate of the National Emergency Management Executive and Advanced Academies.

With the interconnectedness of transportation networks, consider expanding this into a “Transportation System Recovery Unit,” where the Coast Guard’s current unit would form a component with added highway, rail, air, and pipeline components. A member of the U.S. Department of Transportation with Emergency Support Function-1 or Transportation Systems Sector experience could lead this unit.

Additional unit members could be from federal, state, tribal, local, and private sector entities impacted by the incident. With the right skill sets, this team could assess the impact, plan recovery, and provide an economic outlook on the overall impact and short- and long-term implications for the region and the nation. The Transportation System Recovery Unit could be exercised at least once a year during regional exercises with a transportation component and support Emergency Support Function 1 – Transportation when the National Response Framework is activated.

These recommendations are not all-inclusive, with more lessons learned and improvement plans developing as additional information becomes available. Timely and effective implementation of any of these could mitigate the potential impact on transportation infrastructure and the global supply chain.



Centers for Disease Control and Prevention activated its emergency operations center to assist public health partners in responding to the novel coronavirus outbreak, February 4, 2020 (Source: CDC/Unsplash).

Interoperability During Mass Casualty Incidents

By Charles J. Guddemi and
Catherine L. Feinman

When two pressure cooker bombs exploded at the [Boston Marathon](#) in 2013, three people died, and hundreds more were injured. The death toll would likely have been much higher if it were not for the swift actions of the boots on the ground, the 911 operators' effective handling of the calls, and the utilization of the Disaster Radio Network to facilitate patient care and inter-facility communications between the scene and medical receiving facilities.

The District of Columbia's Homeland Security and Emergency Management Agency (HSEMA) hosted its fifth annual [Interoperability Summit](#) in September 2023 to review the lessons learned from that 2013 attack. The discussions at the summit spurred key action items to help participants close interoperability gaps within their jurisdictions. Three of the 10 items focused on communications planning with hospitals and other medical systems:

- Ensuring that third-party and private services such as emergency medical services and security have direct interoperability capabilities with local first responders;
- Incorporating the often overlooked “responders” in the planning process (e.g., 911 call centers, hospitals); and
- Planning for the unique issues regarding patient data and transfer of care.

Learning what worked, what did not work, and what communities still need to do is only a start. The real work begins when participants use that information to take actions that reduce the likelihood of repeating mistakes or not closing known gaps.

Setting the Stage for Effective Communications During Active Assailant Incidents

Using the action items from the Interoperability Summit, HSEMA hosted a workshop on January 10-11, 2024. The “Effective Communications During Active

SHARE YOUR INSIGHTS



SUBMIT AN ARTICLE TO THE JOURNAL

WWW.DOMESTICPREPAREDNESS.COM/
AUTHORS

Shooter Incidents” workshop brought together D.C.-area communications supervisors, dispatchers, law enforcement, fire and EMS supervisors, radio technicians and information technology support, emergency management, hospitals and mutual aid partners, and public information officers. The discussion focused on three primary objectives for addressing mass casualty incidents:

- Identify interoperable emergency communications lessons learned in hospitals and healthcare systems;
- Learn how national gaps relate to local medical system capabilities; and
- Develop actions to resolve locally identified capability gaps in communications.

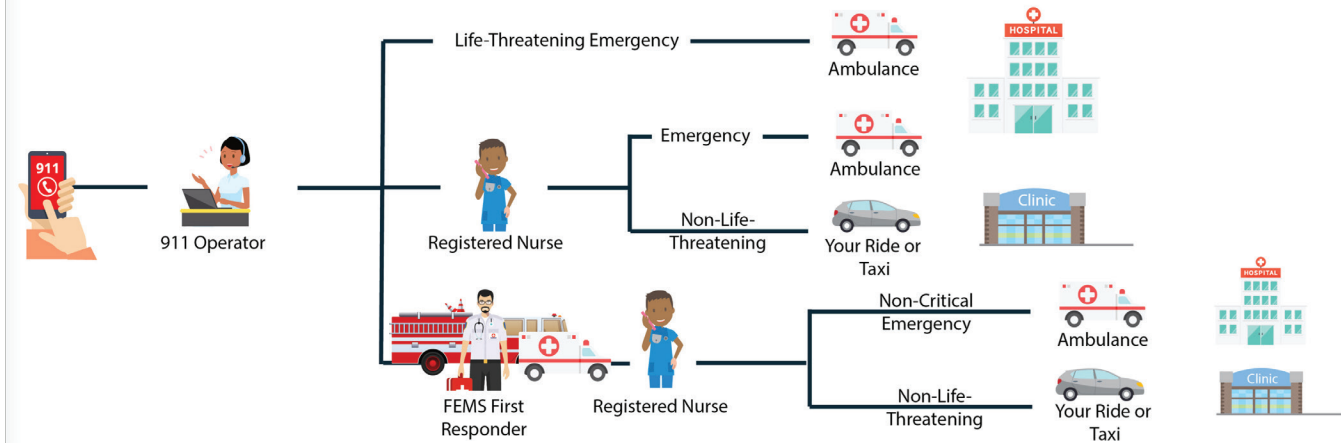
Because this event included some the often overlooked responders, Day 1 began with an overview of the basics about the statewide interoperability coordinators’ (SWIC) roles, defining interoperability, and describing the emergency communications ecosystem and PACE plans. Since Washington, DC, has some interoperability gaps that would need to be addressed to effectively coordinate patient transfers – as needed after the Boston Marathon bombing – it was critical to include the medical community in working through a mass casualty scenario.

Assistant Chief Rodney Reed of the Harris County (Texas) Fire Marshal’s Office set the stage for an active assailant scenario by describing trending gaps in interoperability during the Christopher Dorner manhunt in California in 2013, the Paris terrorist attacks in 2015, the Pulse nightclub attack in Florida in 2016, and the Route 91 Harvest Festival shooting in Nevada in 2017. Such incidents create an influx of calls to 911 call centers that

What Happens When You Call 911 For a Medical Need

We provide every 911 caller with the most appropriate and responsible path to improved health outcomes. Based on a caller's description of their symptoms, a caller may be transferred to a nurse in order to determine the most appropriate path for treatment.

Text DC RIGHTCARE to 468311 for more information.



 D.C. Fire and Emergency Medical Services Department | fems.dc.gov | (202) 673-3320 |  RIGHTCARE RIGHTNOW |  WE ARE WASHINGTON | GOVERNMENT OF THE DISTRICT OF COLUMBIA |  DC MURIEL BOWSER, MAYOR

Source: District of Columbia Fire and EMS Department (2018).

can overwhelm dispatchers and delay aid to those who are critically injured. Hospitals experience sudden patient surges, but the medical staff may not have all the pertinent information about the threat, the extent of injuries to expect, and the resources to keep up with the patient flow.

Interoperability Challenges

Any incident that results in large numbers of casualties has the potential to overwhelm the response efforts. However, there often are opportunities to save more lives during crises. As Reed noted during the workshop, injuries are not always life-threatening, but some fatalities may be preventable with swift action and solid communication. When emergency medical services, hospitals, and other healthcare facilities are included in communications plans, close coordination and improved interoperability capabilities can reduce response and treatment delays.

Simply conveying messages to other agencies through dispatchers is not true interoperability. However, some current equipment may have the ability to become interoperable if users know how to engage it. It is important to note that even if a radio can be interoperable, it not necessarily should be used in that manner. Training is a key component for any communications system, especially units that are not used daily. The middle of a crisis should not be the first time someone uses the equipment.

When large-scale incidents occur, the equipment also can become overwhelmed. Computer-aided dispatch (CAD) systems can be pushed to the limit by off-duty responders logging in. People who do not have new information about an incident can tie up 911 lines and delay or prevent critical calls from getting through. Family and friends who are trying to obtain information about

their loved ones may make repeated calls to emergency services.

Closing the Gaps

Planning and collaboration with hospitals and other medical facilities can increase interoperability and improve patient care during a disaster. For example, first responder agencies could stage equipment in hospitals and train personnel on its use to ensure the medical staff is alert to potential patient surges. In addition, dispatchers could deploy first responders to medical centers nearest the incident to assist with overflow and increase interoperable communications.

Events like the Interoperability Summit bring together key stakeholders to share lessons learned and best practices. So,

talking about issues and plans is a good first step. The next step would be follow-up. Workshops like the one in January on effective communications during an incident go beyond talk to create action items for the stakeholders who will be involved in the response. It is not enough to simply identify a problem and talk about what should be done. Take the next step to close the gaps. Collaboration and effective communication with other key stakeholders cannot wait till the next critical incident.

Planning has begun for HSEMA's 6th Interoperability Summit, to be held on September 4th and 5th. The 2024 theme will be "Preparing for the 60th Presidential Inauguration; Interoperability Is Our Common Language."



Charles Guddemi is the District of Columbia's Homeland Security and Emergency Management Agency's (HSEMA) statewide interoperability coordinator (SWIC). He is responsible for coordinating interoperability and communications projects involving voice, data, and video. He chairs the District's Interoperable Communications Committee and Cellular Industry/WiFi Provider Working Group. He serves as the secretary for the Statewide Interoperability Executives Council, is a member of the National Council of Statewide Interoperability Coordinators and current co-chair of FEMA's Region III Regional Emergency Communications Coordinators Working Group. He also participates on several Metropolitan Washington Council of Governments (MWCOC) committees and working groups. He joined HSEMA after a 25-year career with the United States Park Police (USPP). His assignments included working in Washington, D.C., New York Field Office, San Francisco Field Office, and the National Park Service Northeast Regional Headquarters in Philadelphia, Pennsylvania. He achieved the rank of deputy chief serving as the commander of the Services Division.



Catherine L. Feinman, M.A., joined Domestic Preparedness in January 2010. She has more than 30 years of publishing experience and currently serves as editor of the Domestic Preparedness Journal, DomesticPreparedness.com, and The Weekly Brief, and works with writers and other contributors to build and create new content that is relevant to the emergency preparedness, response, and recovery communities. She received a bachelor's degree in international business from University of Maryland, College Park, and a master's degree in emergency and disaster management from American Military University.

EST



1998

Domestic Preparedness

Real-World Insights for Safer Communities



We Cover It All



Subscribe Today!

