2023 ISSUE 17

Health Care Facility Water and Other Utility Outages

the EXCHANGE

ASPR
Administration for Strategic Preparedness and Response

TRACIE
Healthcare Emergency Preparedness Information Gateway

FOREWORD

Health Care Facility Water and Other Utility Outages

Natural disasters remain an ongoing threat, something our colleagues in health emergency readiness and response know all too well. As temperatures rise and we approach hurricane season, we at ASPR encourage you to review your plans, supplies, and memoranda of understanding, and conduct exercises to determine what your facility would do in the event of a long-term utility outage.

The articles in this issue focus on the experiences and lessons learned by health care facilities and systems that endured water and other utility outages because of severe weather. We examine the effect of the Jackson, Mississippi's long-term water outage on a health care system; how HCA Houston Tomball has incorporated lessons learned after 2021's winter storm Uri led to power and water outages in several hospitals in Texas; the significant effect of Hurricane Ian on hospitals in Florida; and how the Northwest Health care Response Network worked with hospitals across Seattle and beyond to manage a severe heat event in 2021. These articles emphasize the importance of local, state, and regional partnerships and the need for regular exercises of our emergency response plans.

Since we published the last issue of *The Exchange*, ASPR finalized our reorganization, complete with an elevation from a staff office to an operating division within HHS. As Dawn O'Connell, the Assistant Secretary for Preparedness and Response, wrote in her recent blog, "ASPR's updated organizational structure enables us to strengthen operational capabilities, more effectively coordinate disaster response operations, develop our innovative medical countermeasure portfolio, and work with our partners in industry, health care, public health, emergency management, and more to strengthen health security." I invite you to visit our site where you will find information on response and readiness, medical countermeasures and biodefense, an updated newsroom, blog, tools and resources, and about the new ASPR Office of Preparedness.

ASPR TRACIE develops resources in conjunction with partners, stakeholders, and other subject matter experts who have direct experience in the field. Please share your own promising practices, experiences, or requests for technical assistance so that others may learn from you. As always, we welcome your feedback.

Be Well, Be Safe, and Be Kind!

Deborah E. Kramer
Deputy Assistant Secretary and
Director, Office of Preparedness

WELCOME TO ISSUE 17!

The last issue of The Exchange focused on decedent management during disasters (with articles on Disaster Mortuary Operational Response Teams; experiences shared by the State of Michigan and New York City during the COVID-19 pandemic; and fatality management after mass violence incidents in Uvalde, Texas and Las Vegas). As we continue observing and collecting lessons from the COVID-19 pandemic, natural and human-caused disasters persist; this issue reviews how our stakeholders prepared for and responded to water and other utility outages and extreme, geographically unusual heat and cold events during the pandemic.

ASPR TRACIE has had the honor of working with subject matter experts (SMEs) to gather and share timely information before and throughout the pandemic. We recognize that while utility outages occurred prior to the pandemic, recent challenges encountered by our colleagues across the country (particularly those affecting infrastructure not designed for extreme temperatures) highlighted the need to revisit plans, policies, and resource needs to better understand the impact of the pandemic on health care disaster response. It is our goal to develop new resources and share with you existing articles, tools, quick sheets, and templates—all vetted by SMEs—that can help you and your communities stay safe.

Please continue to refer to our updated Utility Failures Topic Collection and our Hurricane, COVID-19, Mpox, and Countries in Conflict Resource Pages. Your feedback is what makes us successful—please contact us with your comments, questions, technical assistance needs, and resources to share. We look forward to our continued collaboration.

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AT A GLANCE

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AT A GLANCE CONTINUED

WHAT'S NEW WITH ASPR?

Since its creation in 2006, ASPR has been tasked with helping the country prepare for and respond to public health emergencies (PHE) – both naturally occurring, and human caused. Much has happened as the nation continues to adjust to the post-COVID-19 environment. Since the last issue of The Exchange was published in December 2022, HHS ended the Mpox PHE on January 31, 2023 after Secretary Becerra noted in a December press release, "the Administration pulled every lever to stop the spread of the virus." However, a recent uptick in cases in the Chicago area, however, reminds us that Mpox cases continue to occur. Check out ASPR's Response to the Mpox Outbreak webpage to learn more about testing and the production and distribution of vaccines. The opioid PHE declaration was renewed on March 31, 2023, as overdose deaths continue to set records. The most current PHE information can be found on ASPR's Declarations of a Public Health Emergency webpage.

In December, more than 1,500 members of the ASPR's National Disaster Medical System (NDMS), Incident Management Team, and Logistics Response Assistance Team received the U.S. Surgeon General's COVID-19 Pandemic Civilian Service Medal. During the pandemic, these teams responded to more than 1,800 missions to support nearly 50 states, territories, and jurisdictions. Shortly thereafter, HHS increased access to Tamiflu through the Strategic National Stockpile to respond to an increase in demand for the antiviral drug. At the end of December, ASPR deployed an NDMS team to the University of New Mexico Children's Hospital to help address staffing challenges and fill gaps in pediatric patient care, allowing existing staff some much needed relief.

In February, ASPR launched an online tool to help industry partner with the federal government to reduce medical chain vulnerabilities. The Industrial Base Expansion (IBx) Connect is a web-based application that will be used to coordinate specific strategic innovation and industrial base expansion efforts across ASPR, federal partners, academia, and the private sector. Of particular interest is solutions that can be applied to advanced manufacturing, personal protective equipment manufacturing, supply chain optimization, and testing and diagnostic devices and consumable components. The February blog Responding to Patient Surge: Information Sharing Proves Instrumental in Protecting Pediatric Patient Health details how one of ASPR's Regional Disaster Health Response Systems worked with Region 7 hospitals to address RSV-driven pediatric patient surge.

In March 2023, Assistant Secretary for Preparedness and Response Dawn O'Connell announced the release of $50 million in American Rescue Plan funding to states, territories, tribes, public/private partnerships, and other public entities to expand the work of the Medical Reserve Corps. Also announced in March was the release of the Cybersecurity Framework Implementation Guide, which provides specific steps that health care organizations can take immediately to manage cyber risks to their information technology systems. At the end of the month, HHS Secretary Becerra declared a PHE for Mississippi in response to a tornado outbreak that killed nearly 30, injured dozens, and devastated several communities. Also at the end of March, ASPR released their Public Health Emergency Medical Countermeasure Enterprise Multiyear Budget Assessment, the first since the start of the COVID-19 pandemic.

With the May 11, 2023, expiration of the COVID-19 PHE, you may be wondering how that affects various aspects of patient care. Readers can bookmark the HHS COVID-19 Public Health Emergency webpage for updated information on waivers, flexibilities, and the transition forward. Related, a press release dated May 11 details Project NextGen (led by ASPR's Biomedical Advanced Research and Development Authority), which will continue to accelerate and streamline the rapid development of the next generation of vaccines and treatments through public-private collaborations to help the Nation stay ahead of COVID-19.

ASPR's Office of Critical Infrastructure Protection (CIP) coordinates the activities of HHS as the Sector Risk Management Agency for the Health care and Public Health (HPH) Sector. CIP offers a variety of newsletters to keep stakeholders informed during emergency response and steady state. Visit the CIP newsletter subscription webpage to subscribe.

Visit the ASPR homepage and blog and follow us on LinkedIn, Facebook, Twitter, and Instagram to learn more about how we are working to keep our communities safe, healthy, and resilient.

Crisis in Mississippi: The Emergency Management and Hospital Response to the City of Jackson's Water Outage

SUMMARY

In August, 2022, parts of the City of Jackson went 7-10 days without drinking or potable water, challenging hospital operations and leading to a variety of lessons learned and incorporated into health care facility water outage plans.

KEY TAKEAWAYS

- *Plan for prolonged outages.*
- *Include fire suppression, supplemental water sources, and hazardous materials responses (and account for extreme outdoor temperatures) in emergency plans.*
- *Incorporate temporary restroom facilities into your plan.*
- *Ensure internal redundancy in well operations.*

RELATED ASPR TRACIE RESOURCES

- Going with No Flow: Coping with Hospital Water Supply Issues
- City of Jackson Water Crisis Response (Recording)
- Sudden Water Loss and Actionable Considerations
- Utility Failures Topic Collection

OTHER RELATED RESOURCES

- How Jackson, Mississippi, Ran Out of Water
- Jackson Water Failure Impacts Ability of State's Largest Hospital to Fight Fires

No-Notice Health Care Facility Water Loss: HCA Houston Healthcare Tomball's Experience

SUMMARY

In February 2021, Winter Storm Uri brought sub-zero temperatures and caused extended losses of power and water to over 4.3 million residents in the State of Texas. In March 2023, Jake Marshall (Senior Director of Enterprise Emergency Operations, HCA Health care) and Toni Carnie, Safety Officer and Emergency Management Coordinator (HCA Houston Health care Tomball) shared their lessons learned from one facility's perspective and how they have incorporated them as their system continues to recover.

KEY TAKEAWAYS

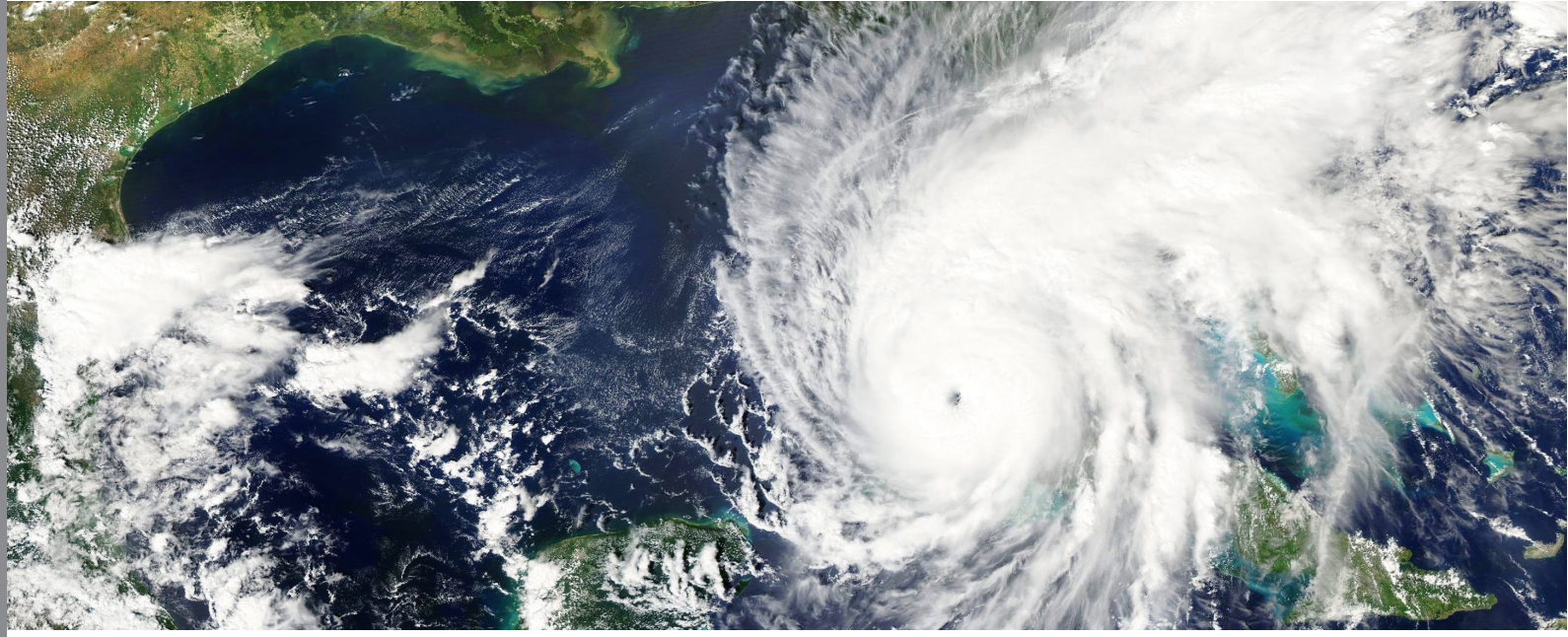
- *Once in 500-year events aren't just occurring more frequently, their geographic spread is much greater than before.*
- *We must transition not just our own mindsets, but those of our organizations' executive leaders, from the "it'll never happen here" perspective to a more proactive and comprehensive readiness mindset.*
- *To be prepared for no-notice community-wide incidents, it is important to foster relationships with colleagues in other critical infrastructure sectors such as transportation, energy, and water.*
- *Municipal and facility water pipes are vulnerable to damage when not designed for freezing environments leading to both water pressure loss and potability issues.*

RELATED ASPR TRACIE RESOURCES

- City of Jackson Water Crisis Response (Recording)
- Going with No Flow: Coping with Hospital Water Supply Issues
- Managing the Storm after the Storm: Health care in TX Recovers from Severe Winter Weather
- Sudden Water Loss and Actionable Considerations
- Utility Failures Topic Collection

OTHER RELATED RESOURCES

- An Emergency on Top of a Pandemic: Texas Hospital Workers Scramble as Winter Storm Hampered Operations
- Texas Hospitals Deal with Winter Storm Disaster
- Winter Storms Relief Efforts: HCA Health care and its Affiliated Hospitals in Texas to Contribute $250,000
- Valentine's Week Winter Outbreak 2021: Snow, Ice, & Record Cold



The Hurricane Ian Experience at Lee Health: Wreckage, Resilience, and Recovery

SUMMARY

More than 150 direct and indirect deaths and over $112 billion in damage have been attributed to 2022's Hurricane Ian, which made landfall in southwestern Florida as a near-Category 5 storm. Dave Kistel (Vice President and Chief Facilities Executive at Lee Health) shares how the hospital system prepared for, responded to, and recovered from Hurricane Ian, which caused $12 million in damage to Lee Health facilities.

KEY TAKEAWAYS

- *Health care facility wind mitigation strategies (e.g., shutters, replacing windows) were effective.*
- *Bolstering emergency generator and fuel storage capacities was extremely critical.*
- *Well permits and secondary potable water sources are necessary.*
- *Have a reliable secondary fire suppression water source.*
- *Identify a reliable secondary condensed water source for building cooling.*

RELATED ASPR TRACIE RESOURCES

- Natural Disasters Topic Collection
- City of Jackson Water Crisis Response (Recording) (Article)
- Going with No Flow: Coping with Hospital Water Supply Issues
- Hurricane Resource Page
- Sudden Water Loss and Actionable Considerations
- The Hurricane Ian Experience at Lee Health: Wreckage, Resilience, and Recovery (Recording)

OTHER RELATED RESOURCES

- Global Warming and Hurricanes
- Internet Access Down Across Florida Areas Hit by Hurricane Ian
- National Hurricane Center Tropical Cyclone Report: Hurricane Ian
- NHC Report Ranks Ian as Costliest Florida Hurricane, Shows Forecasting, Storm Surge
- Power Outages after Hurricane Ian
- Florida Building Codes Made a Big Difference for Newer Homes in Ian, Reports Show

Extreme Heat Events: Lessons from Seattle's Record-Breaking Summers

SUMMARY

Triple digit temperatures are affecting areas of the U.S. that historically never experienced them, including Seattle, where home and facility air conditioning is rare or is not designed for extreme temperatures. "Heat domes" (when the atmosphere traps hot ocean air like a cap) struck the city in the summer of 2021, leading to several days of temperatures nearly 30 degrees Fahrenheit above the average highs for that period and nearly 160 excess injury deaths. To add to the challenge, the U.S. was in the midst of the COVID-19 pandemic. Susan Koppelmann (director of preparedness and response at the Northwest Health care Response Network [NWHRN]), Onora Lien (executive director of the NWHRN), and Dr. Steve Mitchell (emergency physician and medical director at Harborview Medical Center share their experiences responding to the extreme heat event.

KEY TAKEAWAYS

- *Health care coalitions can help convene partners, maintain situational awareness, establish thresholds, connect public health departments with each other and partners to amplify and share information, and bring associations into the discussion to help support their members, improving overall community response.*
- *Working with the National Weather Service and state, local, and tribal public health and emergency management agencies to ensure their perspectives on extreme heat and vulnerable populations are incorporated is key.*
- *Many health care devices (e.g., CT and lab equipment) have narrow operating temperature ranges and can overheat and shut down.*
- *Many long-term care facilities are not equipped with adequate HVAC for extreme temperature, placing their residents at risk.*

RELATED ASPR TRACIE RESOURCES

- Natural Disasters Topic Collection
  - Lessons Learned: Extreme Heat
  - Plans, Tools, and Templates: Extreme Heat

OTHER RELATED RESOURCES

Washington Heat Dome Resources:

- 2021 Heat Wave is Now the Deadliest Weather-Related Event in Washington History
- Excess Injury Mortality in Washington State During the 2021 Heat Wave
- Heat Wave 2021
- Hospitals Brace for Surge as Seattle Area Feels the Heat
- Washington Heat Wave Kills 10. Emergency Rooms Treat 540 Heat Victims

University of Washington's:

- Center for Health and the Global Environment
- Climate Impacts Group
- Collaborative on Extreme Event Resilience

Extreme Heat Planning Resources:

- Extreme Heat Tip Sheet
- HEAT.gov (National Integrated Heat Health Information System)
- How Health Care Organizations Are Preparing for Climate Shocks and Protecting Vulnerable Patients
- NWS HeatRisk Prototype

Acting Director's Note

The articles in Issue 17 of *The Exchange* highlight the serious threat of utility outages due to extreme weather on health care operations across the country. With climate change increasing the frequency and intensity of extreme temperatures and natural disasters, it is more important than ever to assess the resiliency of your facility and plan for the unthinkable. These events impact more than facility operations; they can lead to medical surge as our colleagues in Seattle experienced. And as our colleagues at Lee Health demonstrated, your facility needs to be prepared to evacuate and move vulnerable patients in the event of a utility failure.

Water and electrical power outages are the most common disruptions experienced by hospitals, but we encourage readers to review their facilities' outage plans for piped medical gases, fuel, and heating, ventilation, air conditioning, and refrigeration systems.

Collaboration and the sharing of best practices are critical to building resilience across health care so please remember to collaborate with critical infrastructure operators from other sectors and remember to share your facilities stories with ASPR TRACIE. We will continue to collect stories and develop resources that address utility outages, extreme weather, and concurrent emergencies.

ASPR TRACIE has gathered the following resilience assessments that can be used by health care staff to plan for, respond to, and recovery from outages. And we encourage readers to access the Plans, Tools, and Templates section of the Utility Failures Topic Collection.

Resilience Assessments for Utility Disruptions

California Emergency Medical Services Authority. (2017). Incident Planning Guide: Utility Failure.

> This document includes a series of questions to guide hospitals in planning for utility failures associated with systems such as power, water, heating, ventilation, air conditioning, medical air, vacuum, or medical gases.

California Hospital Association. (n.d.). Loss of Utilities/Services. (Accessed 5/26/2023.)

> This webpage includes links to many resources related to health care facilities preparing for and responding to utility outages. There are links to presentations, tools categorized by utility system, best practices, and lessons learned. **NOTE:** Review the following links to relevant resources: Best Practices / Guidelines Document, Probability, Water Conservation Equipment, and Alternate Water Source Options.

California Hospital Association. (2020). Hospital Repopulation after Evacuation: Guidelines and Checklist.

The California Hospital Association worked with subject matter experts to identify best practices and regulatory agency requirements that have to be taken into account when repopulating after full or partial evacuation of general acute care hospital inpatient buildings. The guide includes a checklist that can be completed electronically or printed and filled out by hand.

Centers for Disease Control and Prevention. (2013). Remediation and Infection Control Considerations for Reopening Health care Facilities Closed Due to Extensive Water and Wind Damage.

This page provides information to assist health care facilities with the tasks involved during clean-up and reopening of health care facilities after a natural disaster. It includes checklists for mold remediation and structural recovery, water and electrical utilities, ventilation system, structural building materials, medical equipment, certification for occupancy, and post-reoccupation surveillance.

Centers for Disease Control and Prevention. (2019). Emergency Water Supply Planning Guide for Hospitals and Health Care Facilities.

This comprehensive document provides a four-step process for the development of a hospital emergency water supply plan and includes tips for assembling the right planning team, performing a water use audit, analyzing alternatives, and developing and exercising the plan.

Florida Health care Association. (2016). Post-Storm Recovery Planning Considerations.

This document provides post-storm recovery guidance and checklists for nursing homes/ long term care facilities.

Greater New York Hospital Association. (2017). Recovery Checklist for Hospitals After a Disaster.

Hospital staff can utilize this facility recovery checklist to check for potential issues in the facility after a disaster.

Health care & Public Health Sector Coordinating Councils. (2014). Planning for Water Supply Interruptions: A Guide for Hospitals & Health care Facilities. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response.

This information sheet highlights some of the impacts of a water interruption and poses questions to ask to help facilities prepare for an interruption. Additionally, it provides information on existing resources that can help facilities develop and implement their preparedness strategy, including information related to the Joint Commission Emergency Management Standards for hospitals to have a plan to respond to a 96-hour denial of service for all utilities, including water and wastewater services. A similar resource on planning for power outages can be found here: https://www.michigan.gov/documents/michiganprepares/HC_PH_Energy_387430_7.pdf

Zane, R., Biddinger, P., Gerteis, J., and Hassol, A. (2010). Hospital Assessment and Recovery Guide. U.S. Department of Health and Human Services.

This guide is designed to help hospital staff conduct an initial assessment of a hospital after a closure or evacuation due to an emergency event. The guide is divided into 11 sections, each with its own team and assessment assignment: Administration, Facilities, Security and Fire Safety, Information Technology and Communications, Biomedical Engineering, Medical, Ancillary Services, Materials Management, Building and Grounds Maintenance/ Environmental Services, and Support Services.

Coming Soon: The RISC Toolkit 2.0

The Risk Identification and Site Criticality (RISC) Toolkit 1.0, designed by the Department of Health and Human Services' (HHS) Administration for Strategic Preparedness and Response (ASPR) is an objective, data-driven all-hazard vulnerability assessment tool that can be used by public and private organizations within the health care and public health sector to inform emergency preparedness planning, risk management activities, and resource investments. The RISC Toolkit 1.0 is widely utilized across all 50 States, DC, Puerto Rico, and the U.S. Virgin Islands.

The RISC Toolkit 2.0 provides an improved user experience over RISC 1.0, including a web-based interface and advanced tools for analytics, reporting, and dashboarding. RISC 2.0 is comprehensive and easy to use, supports 67 hazards, and further expands the Toolkit's reach beyond hospitals. There will be a limited release of RISC 2.0 in June 2023, but it will be widely available for all public health and health care organizations, facilities, and systems across the United States in quarter four of 2023.

RISC 2.0 will feature advanced features such as:

- **Increased functionality for non-hospitals:** RISC 2.0 is expanding its risk assessment functionality beyond hospitals, with plans to support nursing homes, pharmacy, medical materials, blood labs, health care IT, public health, supply chain, and mass fatality stakeholders in the future.
- **Dashboarding:** the dashboarding feature will allow users to build advanced visualizations to enhance preparedness activities and promote collaboration with partners.
- **Cloning assessments from previous years:** the cloning feature will allow users to replicate responses and scores without having to re-enter all the answers. This will accelerate the process of creating a new assessment and will save users significant time.
- **Health care genealogy:** RISC 2.0 will allow health care systems to create, maintain, and manage a health care genealogy. This will make the RISC 2.0 accessible and easy to use at a health system and public health department level.

Learn more on about RISC 2.0 on the ASPR website.

RECOMMENDED RESOURCES

TECHNICAL RESOURCES

Since the last issue of *The Exchange* was published, ASPR TRACIE released an On-Campus Health Care Facility Armed Assailant Planning Considerations document to help health care planners prepare their facilities to mitigate, respond to, and recover from an active shooter or armed assailant situation. Our Disaster Available Supplies in Hospitals (DASH) Tool can help hospital emergency planners and supply chain staff estimate supplies that may need to be immediately available during various mass casualty incidents (MCI) and infectious disease emergencies based on hospital characteristics. We also partnered with the HHS Coordination Operations and Response Element (H-CORE) to produce a new resource page on Medical Countermeasure Commercialization. We have also worked with our subject matter experts to comprehensively refresh numerous Topic Collections, including Risk Communications/Emergency Public Information and Warning, Social Media in Emergency Response, and Utility Failures. We continue to maintain our 20 COVID-19 Health care Planning Resource Collections; check back often. You can also learn more about rating, commenting on, and saving resources in this short tutorial.

ASSISTANCE CENTER

We encourage you to review our recent requests for technical assistance (TA) specific to Dry Decontamination Methods and Hospital Decontamination Shower Requirements, and our summary of responses to select TA requests. Check out this tutorial for assistance navigating the Assistance Center.

INFORMATION EXCHANGE

Check out the COVID-19 threads in the Information Exchange (IE) to access what your colleagues are sharing and provide feedback. Don't have an account? Register for the IE today, where you can share your opinions and resources with us and your colleagues. Access our quick tutorial for help with registration.

ASPR TRACIE

Your Health care Emergency Preparedness Information Gateway

The Exchange is produced by the Administration for Strategic Preparedness and Response (ASPR) Technical Resources, Assistance Center, and Information Exchange (TRACIE). Through the pages of *The Exchange*, emergency health professionals share firsthand experiences, information, and resources while examining the disaster medicine, health care system preparedness, and public health emergency preparedness issues that are important to the field. To receive *The Exchange*, visit https://asprtracie.hhs.gov/register and enter your email address.

ASPR TRACIE was created to meet the information and technical assistance needs of ASPR staff, health care coalitions, health care entities, health care providers, emergency managers, public health practitioners, and others working in disaster medicine, health care system preparedness, and public health emergency preparedness. The infographic illustrates ASPR TRACIE's reach since launching in September 2015.

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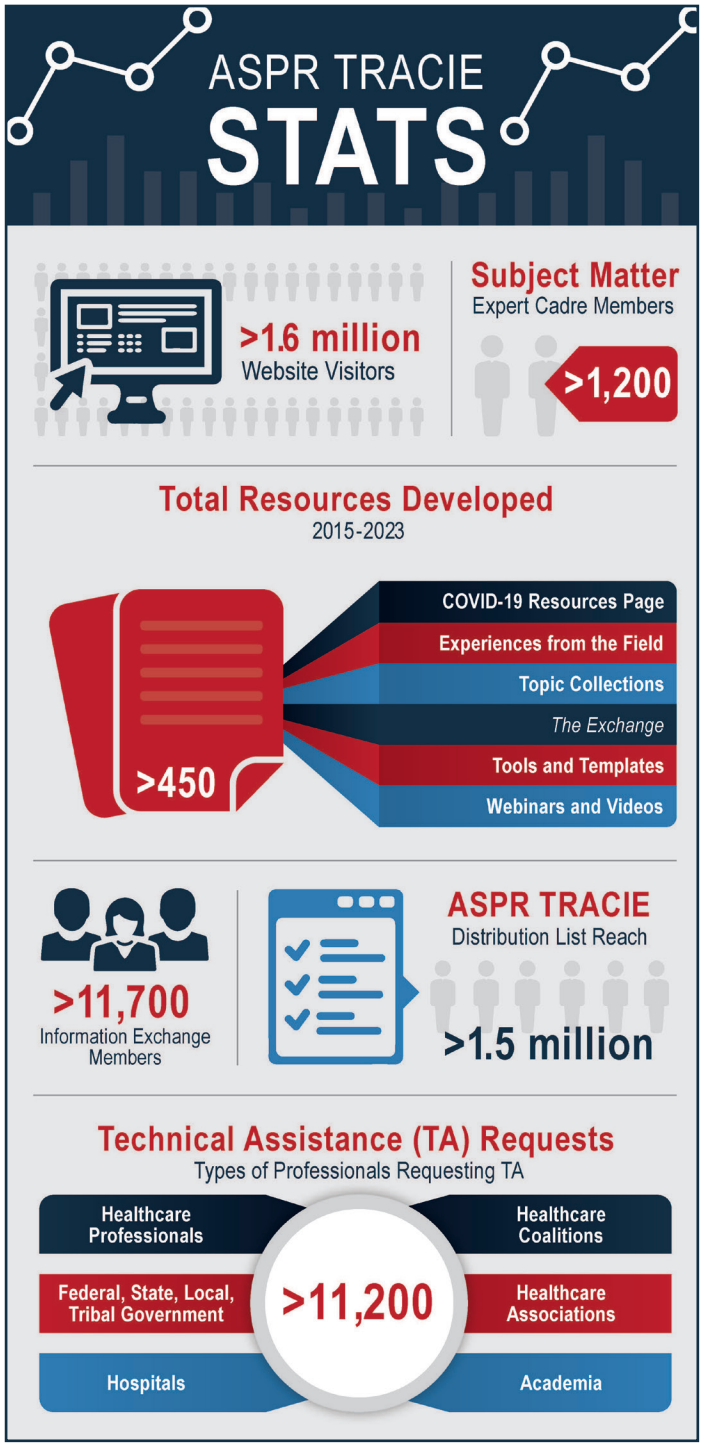

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