

Innovations in Health Care Surge Capacity Management



the E CHANGE

ASPR
ADMINISTRATION FOR STRATEGIC
PREPAREDNESS AND RESPONSE



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HEALTHCARE EMERGENCY PREPAREDNESS
INFORMATION GATEWAY

FOREWORD

Innovations in Health Care Surge Capacity Management

As we approach the end of another year, with seasonal respiratory viruses on the rise, we at ASPR encourage you to review your patient surge plans, supplies, regional plans and memoranda of understanding, and determine how you will meet staff shortages in the various health care facilities you serve.

The articles [in this issue](#) can help our stakeholders do just that. They focus on the experiences and lessons learned by health care facilities and systems during the early phases of the COVID-19 pandemic and beyond, including the state of Washington's experience with the "triple-demic" (respiratory syncytial virus, influenza, and COVID-19) that affected children across the U.S. in the winter of 2022-2023. We also examine the history and evolution of the Southwest Texas Regional Advisory Council with a focus on their efforts to load-balance patients during mass casualty incidents and public health emergencies. Our other two articles focus on the rural aspect of patient care during patient surges. Subject matter experts from California discussed the unique characteristics and challenges faced by Imperial County and how tents and the use of an alternate care site bolstered patient care. Our final article highlights the experiences of a Navajo Area Indian Health Service hospital as they worked around the clock to locate appropriate receiving facilities and provided care in place while simultaneously managing staffing shortages. These articles emphasize the key role of routine communication in local, state, and regional partnerships.

Since we published the [last issue of *The Exchange*](#), ASPR has been busy working on the new National Health Care Preparedness and Response Capabilities that will provide strategic guidance for health care to save lives and maintain function in advance of, during, and after a response. I encourage you to keep up with the [Office of Health Care Readiness](#) to keep track of the updates and learn more about how we create connections among health care providers, specialty care providers, response organizations, regional partners, and public health professionals.

[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.



Jennifer Hannah

Director of the Office of Health
Care Readiness

WELCOME TO ISSUE 18!

The [last issue of *The Exchange*](#) focused on utility outages in health care facilities (with articles on the City of Jackson's [MS] long-term water outage; HCA Health care Tomball's [TX] no-notice water outage after winter storm Uri; flooding and water and power outages experienced by Lee Health [FL] after Hurricane Ian; and Seattle's lessons learned from a "heat dome" in 2021). In this issue, we shift our focus back to how our stakeholders managed patient surge—particularly in rural areas—during the COVID-19 pandemic, the pediatric "triple-demic" of 2022 – 2023, and mass casualty incidents.

[ASPR TRACIE](#) has had the honor of working with subject matter experts (SMEs) to gather and share timely information before and throughout the pandemic. While the health care field across the U.S. faces similar challenges, rural areas are particularly challenged to manage patient surge and provide care in place when transfer is delayed or not possible. It is our goal to develop new resources and share with you existing articles, tools, quick sheets, and templates—all vetted by subject matter experts—that can help you and your communities stay safe.

Please refer to our new [Utility Failures in Health Care Toolkit](#) and [related Topic Collection](#). Our SMEs have also helped us update our [Pre-Hospital \(e.g., EMS\)](#) and [Pre-Hospital Mass Casualty Triage and Trauma Care](#) Topic Collections. 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

6 [Editor's Notes](#)

Dr. John Hick, ASPR TRACIE's Senior Editor, kicks off this issue with an overview of the articles and outlines primary concerns associated with patient surge in rural areas. First, the need for space, staff, and supplies—especially oxygen. Patient transfer mechanisms—particularly support for both ground and air transport—are crucial. Finally, it is critical to have the tele-consultation and other tools in place to facilitate providing care in place when transfer is not possible.

7 [Managing a Pediatric Triple-demic: Lessons Learned from 2022](#)

During the winter months in 2022-2023, hospitals in the state of Washington were overwhelmed by pediatric patients suffering from influenza, COVID-19, and respiratory syncytial virus (RSV). In this article, subject matter experts (SMEs) provide an overview of the health care coalition, the state's pediatric capabilities, and how they used their Medical Operations Coordination Center (MOCC) and health care coalitions to balance patient loads, manage access to pediatric specialty care, and provide care-in-place advice to hospitals with pediatric inpatients throughout the state during this "triple-demic."

8 [The Evolution of Patient Load Balancing](#)

Regional patient load balancing and transfer management is a key component of capacity management that is evolving rapidly across the U.S., particularly over the past few years. ASPR TRACIE interviewed Eric Epley of the Southwest Texas Regional Advisory Council—who was the Council's first official hire in 1998 and currently serves as the executive director/chief executive officer—to learn more about how the Council has evolved and examine promising practices in disaster load balancing and daily trauma-referral management.

10 [Augmenting Rural Hospital Capacity in California: Lessons Learned from COVID-19](#)

The COVID-19 pandemic challenged all aspects of health care, and rural areas were hit particularly hard. Many rural hospitals do not have the capacity to accommodate patient surge, may not have the on-site capabilities to treat very ill patients, and may be challenged with providing care in place versus transferring patients, especially during a pandemic. ASPR TRACIE met with SMEs from California who helped manage the response to the pandemic across the state to learn more about how they worked with hospital staff particularly in Imperial County (a rural area bordered by San Diego, Riverside, and Yuma [Arizona] counties, and Mexico) to augment capacity and accommodate patient surge through a multi-pronged approach.

AT A GLANCE CONTINUED

12 Managing Patient Surge in Rural Areas: Experiences from Gallup Indian Medical Center

For many health care facilities and systems, accomplishing patient transfer can pose a host of logistical challenges. In many rural areas these issues are exacerbated by various factors, including distance to receiving hospitals, geography, available mode of transport, and—in many cases—available staff to treat, transport, and receive patients. ASPR TRACIE interviewed Dr. Emily Bartlett, an emergency medicine physician who has worked at the Gallup Indian Medical Center in New Mexico since 2020 to learn more about how the center determined which patients to transport and which to treat in place as they overcame related challenges (e.g., no available beds in the region, not enough staff to accomplish patient transport).



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 June 2023, HHS determined that a public health emergency existed in the following:

- The State of Hawaii due to wildfires ([renewed on October 31, 2023](#))
- [The State of Florida due to Hurricane Idalia](#)
- [The State of Georgia due to Hurricane Idalia](#)

[The opioid PHE declaration was renewed on September 26, 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 September, the [Biden-Harris Administration awarded \\$600 Million to bolster U.S. manufacturing of COVID-19 tests and announced the re-opening of COVIDTests.gov](#). Assistant Secretary O'Connell penned [a blog in honor of National Preparedness Month](#). [HHS also deployed Public Health Service officers to Hawaii](#) to provide behavioral health support services to individuals impacted by the wildfires. The blog [Support for Behavioral Health Services Increases as More Communities Face Growing Number and Severity of Disasters](#) describes how ASPR is bolstering their related resources and workforce.

In October, [HHS and Pfizer reached an agreement to increase patient access to Paxlovid](#). [Project NextGen selected initial vaccine candidates and awarded over \\$500 million to advance development of vaccines and therapeutics](#). HHS [published a letter to COVID-19 therapeutics manufacturers, distributors, pharmacies and the health care payer community](#), asking for ongoing partnership during and after the transition from government distribution to traditional channels. At the end of the month, [behavioral health specialists were deployed again, this time to Maine in response to the Lewiston shootings](#). Assistant Secretary O'Connell's October blog focused on [ASPR serving as the HHS sector risk management agency lead for healthcare and public health sector in response to an array of cyber-attacks](#).

[National Climate Assessment 5 was unveiled in November](#), and two weeks later, the [Biden-Harris Administration announced a partnership to distribute free COVID-19 tests to schools across the country](#). Assistant Secretary O'Connell also published a blog on [Building Strong Domestic Manufacturing Infrastructure](#) in November.

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In this issue of *The Exchange*, we focus on lessons learned in expanding capacity in rural health care environments. Rural hospitals had to manage multiple challenges simultaneously during the COVID-19 pandemic that may also be issues during future all-hazards incidents. With limited resources and relatively constrained scopes of services, rural facilities face unique challenges on a daily basis, let alone during an emergency. On the plus side, close relationships with nearby hospitals and health care coalitions can lead to rapid and effective problem-solving that might not be possible in larger facilities and systems. Several themes emerged from the articles in this issue; I hope that you will dig into the details as there are great learning points for all hospitals, systems, coalitions, and jurisdictions. Some of the specific considerations I noted while reviewing them follow.

First, rural hospitals will need support to manage adult and pediatric patient surge across the usual domains of space, staff, and supplies, particularly oxygen. One hospital had to restrict oxygen flow rates to 4 liters per minute for most patients during a COVID-19 surge to avoid dropping the system's overall pressure. Some hospitals had to add additional oxygen capacity such as tanks and needed support from facilities management and oxygen vendors to solve these issues. State-based, federal, and non-governmental organizations provided staffing support (though it is important to have a rapid process for on-boarding as this was a key bottleneck at one hospital). Space expansion was accomplished by using internal spaces, tenting on-site to support ambulatory as well as basic non-ambulatory care, and, in some cases, standing up community alternate care sites.

Second, rural hospitals will need help transferring patients to definitive care. This may need to involve prioritization of patients for transfer, and a mechanism (such as a Medical Operations Coordination Cell, or MOCC) to rapidly arrange transfers for emergent cases in a balanced manner. In these articles, transfers involved usual referral partners but in many cases crossed state lines, particularly when specialty care was needed. Support for both ground and rotor-wing transfers helps relieve local EMS of undue burden. State support is often needed in the form of ambulance strike teams and other resources. In California, the equivalent of an entire hospital (about 60 patients) was moved each week by air from Imperial County during surges, illustrating the importance of these efforts to unload overwhelmed facilities. Oxygen limitations during transfers were also noted as a key issue due to longer transfer distances, high flow applications, and altitude changes.

Third, rural hospitals will often have to provide inpatient care services beyond their usual scope. As examples, many rural hospitals cared for patients on mechanical ventilation during the pandemic, and inpatient pediatric care was provided last winter when no transfers were possible. Advice and support for in-place care is vital. Many times, this advice came from usual referral partners but sometimes it came from very remote (e.g., Massachusetts to New Mexico) virtual sources. Rapid availability of consultation, particularly for specialty services (e.g., critical care, burn, pediatrics) helps guide initial interventions, transfer prioritization, and ongoing care. Whether this is done through a MOCC or another source these providers must be rapidly available, and their advice protected from liability.

Rural hospitals are vital to our nation's healthcare system but are vulnerable and under daily strain. These stressors are exacerbated during disasters. Fortunately, there are many lessons learned that can inform plans for rapid support of these facilities hopefully yielding better outcomes and equitable access to services for ill or injured patients in rural areas.

--Dr. John L. Hick, ASPR TRACIE Senior Editor and Hennepin Healthcare



Managing a Pediatric Tripledemic: Lessons Learned from 2022

SUMMARY

During the winter months in 2022-2023, hospitals in the state of Washington were overwhelmed by pediatric patients suffering from influenza, COVID-19, and respiratory syncytial virus (RSV). In this article, subject matter experts (SMEs) provide an overview of the health care coalition, the state's pediatric capabilities, and how they used their Medical Operations Coordination Center (MOCC) and health care coalitions to balance patient loads, manage access to pediatric specialty care, and provide care-in-place advice to hospitals with pediatric inpatients throughout the state during this "tripledeemic."

KEY TAKEAWAYS

- *Reliable, transparent, statewide situational awareness is key to successful patient load-balancing and transfer management.*
- *Be prepared to admit some teenagers to adult intensive care units, to expand neonatal care, and provide care in place.*
- *It is easier to load balance pediatric patients when you have an existing MOCC and accompanying relationships.*
- *When planning for patient transport, take geographic, weather, and other variables (e.g., oxygen availability) into account.*

RELATED ASPR TRACIE RESOURCES

- [COVID-19 Patient Surge and Scarce Resource Allocation \(Resource Page\)](#)
- [Medical Operations Coordination Cells Toolkit \(Second Edition: MOCC 2.0\)](#)
- [MOCC Adaptations during a Pediatric Surge \(Speaker Series Recording\)](#)

OTHER RELATED RESOURCES

- [PICU in the MICU: How Adult ICUs Can Support Pediatric Care in Public Health Emergencies](#)
- [WRAP-EM Pediatric Surge Playbook](#)
- [Using Two Statewide Medical Operations Coordination Centers to Load Balance in Pediatric Hospitals During a Severe Respiratory Surge in the United States](#)



The Evolution of Patient Load Balancing: The Southwest Texas Regional Advisory Council

SUMMARY

Regional patient load balancing and transfer management is a key component of capacity management that is evolving rapidly across the U.S., particularly over the past few years. ASPR TRACIE interviewed Eric Epley of the Southwest Texas Regional Advisory Council— who was the Council's first official hire in 1998 and currently serves as the executive director/chief executive officer—to learn more about how the Council has evolved and examine promising practices in disaster load balancing and daily trauma-referral management.

KEY TAKEAWAYS

- Having daily systems for transfer management that can be adapted for disaster use is likely optimal practice.
- Having access to senior leadership during a critical incident/public health emergency can help identify and solve problems across a jurisdiction.
- Interoperable software can save time and help providers from various hospitals stay current with ever-changing facility and patient care needs.

RELATED ASPR TRACIE RESOURCES

- [COVID-19 Patient Surge and Scarce Resource Allocation](#)
- [Establishing Medical Operations Coordination Cells \(MOCCs\) for COVID-19](#)
- [Excess Mortality and COVID-19 Surges: Defining the Problem and Solutions](#)
- [Healthcare Coalition \(HCC\) Medical Operations Coordination Cell \(MOCC\) Resource Assessments](#)
- [Innovations in COVID-19 Patient Surge Management \(Tip Sheet\)](#)
- [Medical Operations Coordination Cells Toolkit \(Second Edition; MOCC 2.0\)](#)
- [Medical Operations Coordination Centers \(MOCC\)/Patient Load-Balancing: Summary of Lessons Learned during COVID-19](#)

OTHER RELATED RESOURCES

- [A Regional Medical Operations Center Improves Disaster Response and Inter-hospital Trauma Transfers](#)
- [Southwest Texas Regional Advisory Council's Hospital and ICU Pandemic Crisis Guidelines](#)
- [STRAC Webpage](#)
- [The Value of a Regional Medical Operations Center](#)



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Augmenting Rural Hospital Capacity in California: Lessons Learned from COVID-19

SUMMARY

The COVID-19 pandemic challenged all aspects of health care, and rural areas were hit particularly hard. Many rural hospitals do not have the capacity to accommodate patient surge, may not have the on-site capabilities to treat very ill patients, and may be challenged with providing care in place versus transferring patients, especially during a pandemic. ASPR TRACIE met with SMEs from California who helped manage the response to the pandemic across the state to learn more about how they worked with hospital staff particularly in Imperial County (a rural area bordered by San Diego, Riverside, and Yuma [Arizona] counties, and Mexico) to augment capacity and accommodate patient surge through a multi-pronged approach.

KEY TAKEAWAYS

- *Be flexible and innovative when setting up alternate care sites (ACS). Ensure the mission meets the needs.*
- *ACS can help treat patients with lower acuity and free up hospital space for sicker patients.*
- *Plan to house patients with various physical limitations in ACS and ensure the site is capable of supporting demands for HVAC, hot water, and oxygen.*
- *Oxygen may become a scarce resource; be prepared to use less traditional (but equally effective) delivery mechanisms.*
- *Telehealth can both ensure patients are getting the care they need and save a significant amount of emergency responder and provider resources.*

RELATED ASPR TRACIE RESOURCES

- [ACS Funding Summary: Establishment and Operationalization](#)
- [Alternative Care Sites-The Federal Experience in New York City](#)
- [Baltimore Convention Center Field Hospital: One State's Experience during COVID-19](#)

- [COVID-19 Alternate Care Strategies \(Webinar\)](#)
- [Funding Sources for the Establishment and Operationalization of Alternate Care Sites](#)
- [Telehealth in Alternate Care Sites: Ensuring Patient Care and Staff Safety in Massachusetts](#)
- [Use of Telemedicine in Alternate Care Sites \(Webinar\)](#)
- [Using Electronic Health Records to Track Patients at an Alternate Care Site](#)

OTHER RELATED RESOURCES

- [Establishment of an Alternate Care Site \(ACS\) in Imperial County During COVID-19](#)
- [Oxygen and Ventilator Logistics During California's COVID-19 Surge: When Oxygen Becomes a Scarce Resource](#)
- [Rapid Expansion and Adaptability of California Medical Disaster Teams](#)



All photos courtesy of the authors



Managing Patient Surge in Rural Areas: Experiences from Gallup Indian Medical Center

SUMMARY

For many health care facilities and systems, accomplishing patient transfer can pose a host of logistical challenges. In many rural areas these issues are exacerbated by various factors, including distance to receiving hospitals, geography, available mode of transport, and—in many cases—available staff to treat, transport, and receive patients. ASPR TRACIE interviewed Dr. Emily Bartlett, an emergency medicine physician who has worked at the Gallup Indian Medical Center in New Mexico since 2020 to learn more about how the center determined which patients to transport and which to treat in place as they overcame related challenges (e.g., no available beds in the region, not enough staff to accomplish patient transport). She was joined by Brandon Wyaco, Public Information Officer from the Navajo Area Indian Health Service.

KEY TAKEAWAYS

- Consultation from external health care providers (e.g., critical care, pulmonologists) can help rural providers care for patients in place.
- Facilities may have enough resources but struggle with the staff needed to use them.
- Detailing staff from less taxed clinics to operate telephone lines can help facilitate the patient transfer process.
- EMS resources can be a key limiting factor in patient transfers.

RELATED ASPR TRACIE RESOURCES

- [COVID-19 and Tribal Hospitals: Tuba City Regional Health Care Corporation](#)
- [Lessons Learned in Health Care Communications \(Speaker Series Recording, Article\)](#)
- [Populations with Access and Functional Needs Topic Collection](#)
- [Rural Disaster Health Topic Collection](#)

OTHER RELATED RESOURCES

- [Indian Health Service: Navajo Area](#)
- [REACH](#)

RECOMMENDED RESOURCES



Since the last issue of *The Exchange* was published, ASPR TRACIE released the following new resources (listed alphabetically):

- [Cybersecurity Incident Response Preparedness](#) (Speaker Series Recording)
- [Impacts of Planned and Unplanned Power Disruptions on California's Public Health and Medical Systems](#) (Key Takeaways)
- [Lessons Learned from the Pediatric Tripledeemic-Systems, Staff, Space, and Supplies](#) (ASPR TRACIE Roundtable)
- [Mass Casualty Hospital Capacity Expansion Toolkit Demonstration](#) (Recording)
- [MOCC Adaptations during a Pediatric Surge](#) (Speaker Series Recording)
- [Utility Failures in Health Care Toolkit](#)

We also updated the following resources:

- [Countries Experiencing Conflict: Health Care Preparedness and Response Resources](#)
- [Health Care Facility Onboarding Checklist](#)
- [Health Care Provider Shortages-Resources and Strategies for Meeting Demand](#)
- [Outbreak Considerations for Long-Term Care Communities](#)
- [Pre-Hospital Topic Collection](#)
- [Pre-Hospital Mass Casualty Triage and Trauma Care Topic Collection](#)

We continue to review and refresh our [60 Topic Collections](#) and reviewed our [20 COVID-19 Healthcare Planning Resource Collections](#) this fall; check back often.

You can also learn more about rating, commenting on, and saving resources [in this short tutorial](#).



We encourage you to review our recent requests for technical assistance on [Alternate Care Site \(ACS\) Memorandum of Understanding \(MOU\) Templates](#), [Hospital Design and Infrastructure Resilience](#), [Missing Person Policies and Procedures for Health Care Facilities](#), and our [summary of responses to select TA requests](#). Check out [this tutorial](#) for assistance navigating the Assistance Center.



Did you know you can create a private group in our [Information Exchange domain](#)? Groups can share files and information in a password protected area in near real-time. [Reach out](#) to learn more!

ASPR TRACIE

Your Healthcare 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, healthcare 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, healthcare coalitions, healthcare entities, healthcare providers, emergency managers, public health practitioners, and others working in disaster medicine, healthcare system preparedness, and public health emergency preparedness. The infographic illustrates ASPR TRACIE's reach since launching in September 2015.



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