

ENA Topic Brief

Key Information

- Only 47% of U.S. emergency departments have pediatric disaster plans in place³
- Resources are available to assist emergency departments in assessing and improving their facilities' preparedness for a pediatric surge event⁴
- Interprofessional and interagency collaboration is critical for the successful response to a pediatric surge
- Surge plans should incorporate both short- and longer- term elements designed to meet patients' immediate needs and provide them with extended care until they can be safely transferred to pediatric facilities
- Exercising the plan prior to any actual event prepares the healthcare facility and staff, allowing planners and frontline staff to address weaknesses, strengths, opportunities, and threats

Disaster Planning: Preparing for Pediatric Surges

Purpose

Surge plans for healthcare facilities are developed to maintain triage, treatment, and tracking of outpatients and inpatients when their numbers exceed capacity during events such as natural disasters, infectious disease outbreaks, hazardous materials exposures, natural catastrophes, and mass casualty incidents.¹

Only 10% of pediatric patients are cared for in pediatric-specific emergency departments (EDs).² It is important for a facility's surge plan to address pediatric patients as a vulnerable population because children differ from adults physically, psychologically, and psychosocially. The 2013 National Pediatric Readiness Project found only 47% of United States EDs had disaster plans specifically for children.³ This assessment is based on a 2009 Joint Policy Statement that calls on all hospital EDs to meet the standards for pediatric readiness everyday.⁴

This Topic Brief addresses the need for pediatric surge planning and provides information for facilities converting from a standard

operating capacity to a pediatric surge capacity. Multi-generational EDs (those caring for both adult and pediatric patients) should develop plans to modify current supplemental surge policies to include management of events involving large numbers of ill or injured pediatric patients.

Overview

Terrorist attacks, pandemics, and outbreaks of foodborne illness in the United States have triggered the development of guidelines for hospital responses to patient surges, but few include pediatric-specific components.⁵ In disaster surge planning, it is important to see pediatric patients as a vulnerable population that requires special planning and response.⁶ Emergency health care providers require specialized training to understand a child's response to illness and injury as well as to recognize the need for monitoring and frequent assessment. Competency in weight-based calculation and administration of medications and fluid resuscitation is also necessary; clinical pharmacists who specialize in pediatric care and fully understand weight-based dosing are a helpful resource.

Further, pediatric patients require size-specific equipment and caregivers trained to use that equipment. Surge plans should also include methods for reuniting families who are often separated during rescue operations.

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A 2000 American Hospital Association report, *Hospital Preparedness for Mass Casualties*, determined that most hospitals were well-prepared for high impact, short-duration events. However, there was inadequate planning for true, high intensity, long-term events requiring involvement of the entire community.⁷ The report defined a pediatric surge event as a community-wide concern requiring a response from multiple resources that might have to be sustained for days or weeks rather than hours. Such an event could overwhelm the capacity of all hospitals in the region. The conclusion called for more community-wide plans with recurring drills to properly prepare hospitals for high-intensity, long-duration events.

Emergency department visits have increased over the last two decades while the number of emergency and inpatient beds has decreased, resulting in crowding and boarding of patients in the ED.⁸ Activation of a pediatric surge plan may be delayed owing to ED overcrowding and failure to recognize the need to transition to a mass casualty incident (MCI) disaster response.⁹ According to Rady Children's Hospital's Pediatric Surge Planning manual,¹⁰ ED operations are severely compromised by chronic overcrowding, leading to capacity-to-demand mismatch when attempting to ensure that inpatient bed spaces are never wasted. To optimize quality patient care in the event of a natural disaster, disease outbreak, terrorist attack, or any situation requiring a surge capacity response, hospital administrators are encouraged to find solutions for chronic ED overcrowding.

In the event of a pediatric surge, all affected hospitals may be required to care for children until the system is decompressed. Plans that involve all levels of a healthcare facility, not just the ED, will contribute to the delivery of this care.

Common impediments to an effective response include:¹¹

- Pediatric bed capacity
- Geographic variability (e.g., longer travel times, fewer resources)
- Pediatric intensive care capacity
- Limited availability of healthcare staff educated and competent to care for pediatric patients
- Pediatric-specific emergency care supplies
- Limited ability of facilities to accept children
- Transportation of children across jurisdictions

Healthcare leadership and frontline staff should collaborate in the development of an internal pediatric surge plan that addresses the unique needs of the organization across multiple internal departments and includes external agencies. Plans for resource allocation and transition to crisis standards of care require collaboration across the entire organization as well as with jurisdictional partners to minimize duplication of effort and fragmentation of the chain of command.¹² Healthcare facilities should participate on jurisdictional disaster planning committees to improve communication and collaboration between the multiple agencies involved in pediatric surge planning.¹³

Federal partners include the Emergency Medical Services for Children (EMSC) Program, funded by the Department of Health and Human Services (DHHS) via the Health Resources and Services Administration (HRSA), and the Department of Defense (DOD). The DOD leads in the coordination of national pediatric

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transport resources and serves as a valuable national stakeholder with the potential to support pediatric transport, including the provision of military aircraft, especially when normal means of transport are interrupted during prolonged, large-scale events.¹⁴

Recommendations include:^{4,14,15}

- All EDs should be brought up to established guidelines with regard to staff competencies, equipment, and supplies
- Strategic planning to free up inpatient beds by identifying patients that can be triaged, relocated, or discharged
- Plans for just-in-time training for pediatric-specific care and triage systems (see links under *Resources*)
- Development of policies for emergency credentialing of outside personnel using an effective and efficient program such as the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP)
- Flexibility of multigenerational facilities to accommodate an influx of pediatric inpatients
- Plans for conversion of outpatient procedure beds to inpatient beds
- Family reunification center strategies at the time of patient and family reunion. (Security will be needed to protect patients, including an identity verification process prior to their discharge.)
- Designated alternate care treatment areas (e.g., post-anesthesia care unit, surgical outpatient care unit, clinics, employee health, etc.)
- Recognition of ethical considerations (e.g., special needs patients, emancipated youth, HIV status)
- Implementation of appropriate security personnel and procedures ensuring the safety of patients, family members, staff, and the ongoing operations of the facility
- Behavioral health professionals (e.g., short-term counseling, referrals)

Conclusion

Children may be disproportionately affected by a disaster. Their anatomical, physiological, developmental, and psychological differences from adults dictate special considerations in disaster response planning and implementation. The main challenge is how to accommodate the special requirements of this group given the limited capabilities likely to be available following a mass casualty event. Adequate response to the needs of children during a surge event is challenging because of the increased need for pediatric-specialty personnel, appropriately sized equipment, and pediatric inpatient and specialty beds. In order to meet these specialized needs, the first step is to maintain a constant state of preparedness to care for children. The next step is to plan for the supply and maintenance of resources to care for a surge of pediatric patients, because a catastrophic event may prevent the timely transfer of these patients to a specialty care center.

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Emergency nurses play an integral role in preparing for the response to events that precipitate the influx of large numbers of ill or injured children. Planning, training, logistical support, and collaboration will enhance a facility's ability to provide the specialized care necessary for children in a disaster surge event.¹⁴

Tools and Resources

[AAP: Joint Policy Statement - Guidelines for Care of Children in the Emergency Department](#)

[American Association for Respiratory Care: The Strategic National Stockpile \(SNS\) - Ventilator Training Program](#)

[American Hospital Association: Hospital Preparedness for Mass Casualties: Summary of an Invitational Forum](#)

[AHRQ: Pediatric Hospital Surge Capacity in Public Health Emergencies](#)

[Southeastern Regional Pediatric Disaster Surge Network: A Public Health Partnership](#)

[Illinois Department of Public Health: ESF-8 plan: Pediatric and Neonatal Surge Annex](#)

[IOM: Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response](#)

[EMSC National Resource Center: Pediatric Readiness Project - State Results](#)

[Rady Children's Hospital and San Diego County Healthcare Disaster Council: Pediatric Surge Planning- Train the Trainer](#)

[U.S. Department of Health and Human Services: Medical Surge Capacity Handbook \(2nd ed.\)](#)

[CDC: Capability 10: Medical Surge](#)

[FEMA: Emergency Support Function #8 – Public Health and Medical Services Annex](#)

[National Advisory Committee on Children and Disasters: Near-term Strategies to Improve Pediatric Surge Capacity During Infectious Disease Outbreaks](#)

[ASPR: Hospital Surge Capacity and Immediate Bed Availability](#)

Definitions of Terms

Surge Capacity: The ability to expand care capabilities in response to sudden or more prolonged demand¹⁶

Surge Planning: Maintaining outpatient and inpatient surge capacity for the triage, treatment, and tracking of patients in the facility, in alternative sites of care, or in alternative hospitals during infectious disease outbreaks, hazardous materials exposures, and mass casualty incidents¹

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