Pediatric (Non-PICU) Hospital Surge Plan Guidelines

Created by:
New York City Pediatric Disaster Coalition
New York City Department of Health and Mental Hygiene

NYC Health

Please use this publication with the **Pediatric Disaster Surge Plan Template** created by the New York City Pediatric Disaster Coalition (NYC PDC). These guidelines and recommendations were gathered from research, collaboration with hospitals around New York City, and best practices from NYC PDC. *These guidelines should be used to create and/or edit a pediatric surge plan to fit your individual facility.*

For questions or information about using these guidelines, please contact PDC.

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Pediatric Surge Plan Compliance with HICS and NIMS

Hospital Incident Command System (HICS)[1], Citywide Incident Management System (CIMS)[2] and National Incident Management System (NIMS)[3] plans are important to hospital preparedness. These systems provide local, state and national standardization for hospitals' emergency response and recovery strategies. A hospital's pediatric surge plan must use HICS and NIMS terminology and comply with HICS and NIMS processes. Hospitals must incorporate pediatric surge plans into their HICS and NIMS plans and the overall hospital emergency preparedness and response plan. Hospitals should also be familiar with CIMS, which establishes roles and responsibilities for emergency response within New York City (NYC).

Laying the Groundwork

Any type of event that generates a surge of critically ill pediatric patients may cause a health care system's pediatric services to become overwhelmed. Because disasters are difficult to predict and the patterns of injury or illness vary based on the type of incident, pediatric preparedness plans for all possible scenarios are essential. Plans to expand all pediatric service components, including the emergency department (ED), must be readily available.

Basic Assumptions

- The pediatric surge plan, which emphasizes the specific needs of children, should be an essential part of the overall disaster plan.
- During disasters, hospitals with pediatric departments that do not routinely admit or care for critically ill children may be required to treat and stabilize these patients until secondary transport is available. Depending on the circumstances, there could be a significant delay in transport. As a result, plans should include utilization of all hospital resources to offer the best available care for these patients. This may include using non-pediatric providers with pediatric skills or transferring older children to adult services.
- The pediatric surge plan should be linked to the surge plans of the ED and the entire hospital.
- Personnel from the pediatric department should report to the ED to help if the ED becomes overwhelmed with critically ill pediatric victims.
- Pediatric patients who are intubated, ventilated or hemodynamically unstable must be transported from the ED with proper surveillance. Health care providers (e.g., physicians, physician assistants, pediatric nurse practitioner, residents and nurses) should escort the patients to imaging suites and the operating room depending on their condition.
- Off-hours mass casualty events are more challenging than events occurring during routine work hours, as fewer staff are available and additional staff may be needed immediately.
- The pediatric department, as well as its supporting services, should plan to self-sustain without resupplying for a minimum of 96 hours.

[1] *California Emergency Medical Services Authority* (2014). "Hospital Incident Command System." Retrieved from: https://emsa.ca.gov/disaster-medical-services-division-hospital-incident-command-system-resources/

[2] *New York City Department of Health and Mental Hygiene* (2018). "Citywide Incident Management System." Retrieved from: https://www1.nyc.gov/site/em/about/citywide-incident-management-system.page

[3] *Federal Emergency Management System* (2018). "National Incident Management System." Retrieved from: https://www.fema.gov/national-incident-management-system

- If a state of emergency is declared and there are fewer resources than are needed, hospitals and departments will need to modify patient care practices. The standard of care may need to be redefined as "sufficient standard of care."
- To retain sufficient standard of care, a modified nurse-to-patient ratio may be needed.
- A significant number of staff may not report to work during a disaster if they are unable to reach the facility, are ill or have personal and family safety concerns.
- The pediatric surge plan should consider all types of injury or illness and their special requirements (e.g., supplies, pharmaceuticals, equipment, staff and other services). This includes injury or illness caused by chemical, biological, radiological, nuclear and high yield explosive (CBRNE) events and natural disasters (e.g., fires, floods, tornadoes).
- The pediatric surge bed is a unit that requires space, equipment, supplies and staff.
- Surge response capability includes the following:
  - Drills on all components of the plan until adequate level of proficiency is achieved
  - Surge plan implementation ensuring effective, safe and timely victim management
  - Patient care capacity
  - Type of events (e.g., CBRNE, natural disasters)
  - Availability of expertise
- The Society of Critical Care Medicine offers a course in Pediatric Fundamental Critical Care Support (PFCCS).[4] Non-critical care medical staff are encouraged to take the course to develop critical care skills in the event they need to provide care for critical and seriously injured patients.
- Hospital plans will vary based on their type, size and location. These guidelines are broad and some components may not be applicable to all hospitals.

Pediatric Surge Planning Stakeholders

The following list includes roles and departments that may contribute to or be impacted by pediatric surge operations. Hospitals should include these roles and departments in the planning process. (It is possible that some sites may have other stakeholders not mentioned or do not have these departments. Please include staff appropriate to your site's individual needs.)

Internal Facility Stakeholders

- Mental health providers (psychiatry, psychology)
- Social work
- Child life
- Respiratory therapy
- Emergency department
- Medical records, admitting and clerical staff
- Security

[4] *The Society of Critical Care Medicine (2018).* "Pediatric Fundamental Critical Care Support." Retrieved from: https://store.sccm.org/detail.aspx?id=PFCCS2E

External Stakeholders

- Emergency medical services (EMS)
- Fire department
- Law enforcement (Federal, local, cybersecurity)
- Poison control
- Greater NY Hospital Association (GNYHA)
- Local and state health departments

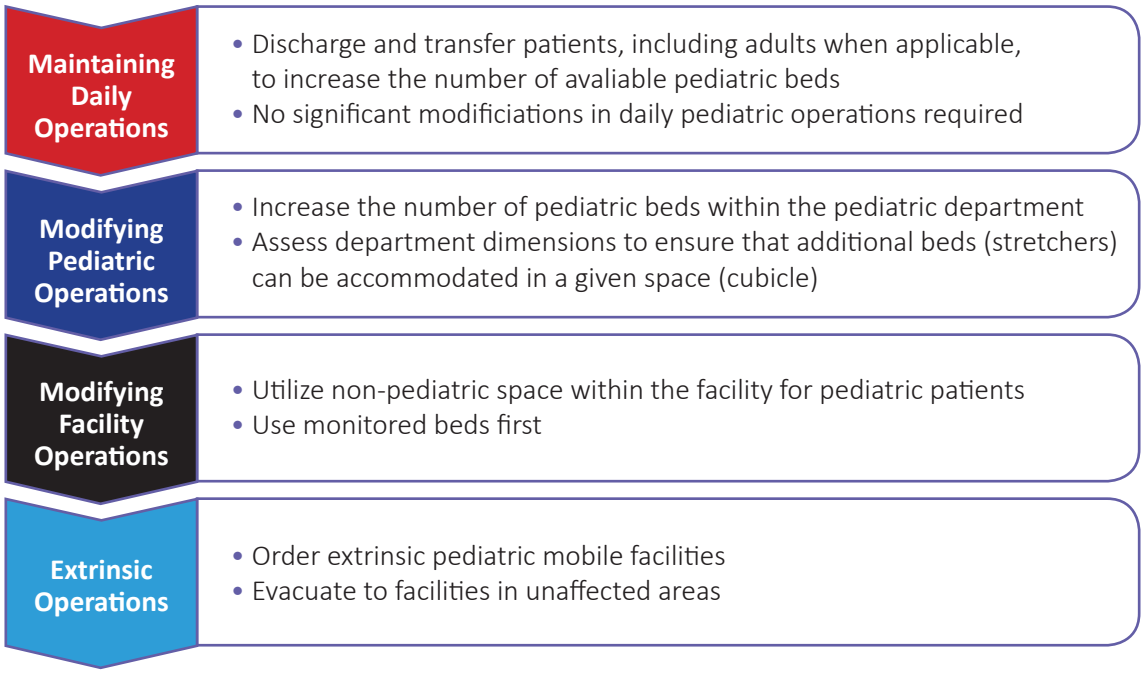
Planning Considerations

Surge Capacity Issues

To successfully respond to a pediatric mass casualty event, hospitals and pediatric departments must address the following issues while considering the specific needs of their pediatric patients:

- Organizational structure
- Communications
- Physical space
- Medical staff
- Ancillary staff
- Support (nutrition, mental health, etc.)
- Equipment
- Supplies
- Pharmaceuticals
- Other resources

Surge plans must be adaptable to meet the needs of any event and corresponding surge response. The diagram below illustrates how a surge response may change with increasing needs:



Communications

Maintain an up-to-date list of contact information* for all employees and establish a communication tree to notify staff of the surge. This tree can be implemented via phone, email, intranet, social media or other methods based on the facility's technology. Backup and redundancy plans must be available since the primary method of communication may fail during disasters (power failure, overuse of cell phone capacity, etc.).

Communication tree information should include:

- Staff contact phone number and an alternate number
- Email addresses
- Social media information
- Pager numbers
- Each staff member's department (including pediatric and other subspecialties) expertise, credentialing or specialty
- Approximate home distance and commute times
  - Consider putting together a list of staff who live close to the hospital and could report without transportation delays

*This list should be updated quarterly to account for changes in staff and contact information.

Establish a plan and procedure for communication between the hospital command center (HCC) and surge areas, the emergency department, operating room and other key departments. Know who will manage communications and what types of devices they will use (e.g., landlines, handheld walkie-talkies and radios). Include in the communications plan the contact information for external partners (e.g., corporate organizations, vendors, etc.), the local police precinct and fire department (non-911 contact numbers).

Staffing and Training

All staff should be involved in planning and preparedness activities related to their usual areas of responsibility, as well as predetermined additional roles they should assume during a surge event. Provide job action sheets to all staff members involved in the disaster plan to ensure they are well-versed in their roles and responsibilities. Individuals in leadership positions should have checklists to ensure they complete key steps when the surge plan is activated, such as internal and external notifications, limited access to entry areas and appropriate signage.

All staff should be prepared 24/7 for an immediate response. During rapid onset surge events, existing on-site staff should assume pre-planned roles and duties that maximize effectiveness and best outcomes. Hospitals should make every effort to increase staff levels during the response.

Facilities should establish an emergency staffing plan as they may require additional staff, especially for prolonged or catastrophic events. Hospitals should develop a database of temporary staff and volunteers, including within-network health care providers and community-based physicians from other facilities. Additional personnel should have pediatric experience and training and should be able and willing to join a response team. Hospitals should verify all personnel's credentials as part of the emergency staff plan preparation.

New York City-specific: Any hospital or health organization can request help from the NYC Medical Reserve Corps (MRC) if it is inside the five boroughs. When the city operations center is activated— the request would be made through the ESF-8 desk of the Incident Command System (ICS). During times when an emergency has ***not been declared***, institutions can request

NYC MRC volunteers by contacting the NYC Medical Reserve Corps (see **resource 9 in the Appendix** for contact information). PDC recommends contacting the NYC MRC to learn more about requesting volunteers and to ask institution-specific questions during the planning process.[5]

Memorandum of Understanding (MOU)

In preparation for a mass casualty incident, hospitals should establish MOUs for surge and evacuation with other pediatric institutions, health systems, local agencies and various supply vendors (e.g., oxygen, ventilators and blood bank). Hospitals can use an MOU to support an all hazards approach and determine how best to match resources to needs.^ MOUs should contain agreements for transfer protocols to other pediatric facilities in the event of a rapid full-scale evacuation or for the admittance of patients from other facilities during surge events.

^An all-hazards approach is a conceptual and management approach that uses the same set of management arrangements to deal with all types of hazards (e.g., natural, man-made, complex).[7]

Disaster Planning with Local Police and Fire

Hospitals should establish a relationship with their local NYPD precinct and FDNY firehouse and include them in the disaster planning. The hospital's emergency preparedness coordinator (EPC) or safety officer and community affairs representatives from the precinct and firehouse should meet to discuss communications and response during an event. The NYPD and FDNY require hospitals to share contact information, floor plans, pertinent facilities management infrastructure and security protocols. Hospitals should conduct targeted functional exercises with the NYPD and FDNY.

Surge Staffing

To immediately increase the number of available staff, hospitals should reassign nonessential staff to the ED or other surge areas. If possible, personnel from the pediatric department should report to the ED to help if the ED becomes overcrowded or overwhelmed with critically ill pediatric victims. Initially, this may compromise physician coverage or the nurse-to-patient ratio in the pediatric department. However, staff should maintain the department's sufficient standard of care, meaning the care provided meets the immediate needs of all patients. The goal is to provide the best outcomes for the greatest number of patients. Individual event details and the ability to match resources to needs will determine the best utilization of surge capabilities.[8]

When necessary, hospitals should recruit non-pediatric health care providers capable of caring for pediatric patients to assist. Hospitals should identify non-pediatric health care providers with pediatric experience, expertise and capabilities during disaster planning and integrate them into the disaster response staff. This includes medical, surgical, anesthesia, subspecialty, adult intensive care staff and others, as determined by site-specific resources. Older pediatric patients may be transferred to adult services, for medical, surgical, mental health or intensive care services, if necessary.

[5] *New York City Department of Health and Mental Hygiene.* "New York City Medical Reserve Corps." Retrieved from: http://www1.nyc.gov/site/doh/providers/emergency-prep/nyc-medical-reserve-corps.page

[7] Matherly, D., et al., National Cooperative Highway Research Program: A Transportation Guide for All-Hazards Emergency Evacuation. Transportation Research Board, 2013. http://www.trb.org/Publications/Blurbs/168631.aspx

[8] *The Joint Commission on Accreditation of Healthcare Organizations (2006).* "Surge Hospitals: Providing Safe Care in Emergencies." Retrieved from: https://www.jointcommission.org/assets/1/18/surge_hospital.pdf

Unattended children from the event must be assigned non-clinical caretakers to escort them. Determining which staff members will assume this role is an important part of the pre-event planning process. Nonclinical staff members who are not involved in the acute care of patients should carry out "babysitting functions."

Standards of Care

Conventional care: usual resources and level of care provided. The maximal use of the facilities' usual beds, staff and resources is ensured.

Contingency care: provision of functionally equivalent care. Care provided is adapted from usual practices; for example, having critical care patients in post-anesthesia care areas.

Crisis care: inadequate resources are available to provide equivalent care. Care is provided to best the level possible given the resource gap. Crisis care increases the risk of morbidity and mortality because of a lack of resources; this risk can be minimized by implementing resource use strategies.[9]

During a mass casualty event, if there are fewer resources than are needed, hospitals and departments may need to modify patient care practices. The standard of care may need to be redefined based on the specific incident.

Mass Casualty Incident Notification

Mass casualty incident notification for NYC has been developed through a cooperative effort between the Greater New York Hospital Association (GNYHA), the Fire Department of New York (FDNY) emergency medical services (EMS), the New York City Department of Mental Health and Hygiene (DOHMH) and New York City Emergency Management (NYCEM) (for more information, see **resource 4 in the Appendix**).

Activities After Incident Notification

Once a hospital receives an incident notification, they should consider HICS activation and implement it based on the potential effect on operations and the hospital surge plan. The pediatric department must ensure that a reliable communication system exists among EMS, the ED, inpatient services (including adult services) and HICS. The ED attending or designee will follow the hospital's emergency operations plan and contact the designated individuals from incident command who will activate the pediatric and hospital surge plan.

Activities

- The Hospital Command Center (HCC) is activated and the incident command structure is decided upon based on available staff and surge needs.
- Senior medical and nursing personnel familiar with the patients' clinical status should rapidly discharge patients from the emergency department, pediatric units, post-op areas and the operating room (for more information, see the **New York City Health Department's Rapid Discharge Tool**).

[9] *Institute of Medicine of the National Academies (2009).* "Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations." Retrieved from: https://www.nap.edu/catalog/12749/guidance-for-establishing-crisis-standards-of-care-for-use-in-disaster-situations

- A decision to cancel elective operating room procedures should be based on situational awareness or a needs assessment of available resources and the need for increased operating room capability.
- All attempts should be made to clear the ED of all patients by sending them rapidly to the OR for necessary surgery, admitting them to the inpatient units and establishing a secondary care site for non-critical patients.
- Patients in the pediatric wards and departments should be discharged if cleared by the rapid discharge team or transferred to safe, supervised areas while waiting for their caretakers.
- A communications system should be in place to reach parents and inform them of discharges. Consider utilizing a phone tree system similar to the staff notification process.

Plan Activation

Hospitals can activate the pediatric surge plan under specific situations, including formal notification from the FDNY/EMS or for an immediate surge in which patients arrive from a local event in close proximity to the facility. Hospitals should activate the HICS whenever they activate the surge plan. The level of activation needed for HICS is based on the potential severity, duration and resource needs of the incident, as well as expected patient numbers. Facilities should designate one 24/7 person and a backup to activate the HICS and the pediatric disaster plan (e.g., administrator on duty, director of nursing, ED director, pediatric department chairman, etc.).

Hospital Command Center

Activation of the hospital command center (HCC) during a pediatric surge event should mirror the hospital's general emergency operations plan. The hospital must consider who will staff the HCC and which activities HCC should initiate to provide adequate care and treatment of arriving patients.

The HCC should pay special attention to pediatric-specific space, staff and equipment needs, and establish access to pediatric medical leadership and staff. This also includes calling in staff that have expertise in caring for pediatric patients but may not routinely work in pediatric areas (see the **Surge Staffing** section). The HCC should have access to a pediatric medical leader to address ongoing issues. Surge spaces may require pediatric equipment (e.g., ventilators, incubators) and appropriate medications and countermeasures. Hospitals may also need to establish and staff a family information support center (FISC) and pediatric safe area (PSA) during a pediatric surge event.

Hospital Command Center Activities

- Monitor the incident and maintain situational awareness.
- Alert the facility of the surge plan activation and HICS level as applicable.
- Communicate with staff both on- and off-site.
- Initiate a call with all leadership who may be involved in the surge response.
- Convene and discuss ways to optimize bed availability. Review patients available for rapid discharge.
- Notify parents of patients who will be affected by the surge.
- Initiate ED preparation and capacity expansion activities.

- Coordinate setup and staffing of surge areas.
- Coordinate setup and staffing of surge triage areas, if needed.
- Maintain a patient tracking system.
- Coordinate setup and staffing of mental health evaluation and treatment areas.
- Coordinate setup of a family information support center (FISC), if needed.
- Coordinate setup and staffing of a pediatric safe area (PSA), if needed.
- Keep internal and off-duty staff updated on incident and treatment response.
- Initiate equipment and supply mobilization for surge and staging areas.
- Coordinate communication devices (e.g., walkie-talkies) to be distributed to staff as needed.
- Communicate and coordinate with any outside agencies.
- Assign staff roles for the surge event and distribute job action sheets.
- Conduct just-in-time trainings, especially for unusual events (CBRNE).

The HCC should continue the above activities throughout the entire surge event. During all stages of the surge, continued communication and information sharing among the departments, other locations (e.g., triage area) and the HCC is crucial.

Internal Communications

The Incident Commander should designate a staff member to ensure communications between the Command Center and the following:

- All Command Center ICS positions (Incident Commander, Logistics, Planning, Operations and Finance)
- Each patient care area or unit (e.g., ED and OR)
- Holding area(s)
- Loading area(s)
- Internal labor pool
- Surge space

Communications shall take place via:

- Standard telephones
- Two-way radios (i.e., walkie-talkies)
- Cell phones
- Commercial digital enhanced cordless telecommunications (DECT) phones
- Email
- Internet (e.g., social media, websites, intranet)
- Runners (i.e., individuals who relay messages if other communications systems fail)

If power failure occurs, identify which telephone lines (patient and family information lines, staff availability notifications hotline, etc.) need to be transferred to emergency phones or other forms of communication (radios, cell phones, runners, etc.).

Notifications and Communications

Having central control of messages sent to staff, patients and the public is important as it provides clear, consistent communication and situational awareness while decreasing rumors. The Incident Commander should first brief the hospital's senior management to ensure they are aware of the situation. Additionally, internal staff members should receive situational awareness updates so they can effectively respond and fulfill their responsibilities. Off-duty staff members should also be contacted and briefed on the surge event. Consider establishing a hotline for staff, the public, patients and their families and using an intranet web-based information portal for staff.

Senior Management

The Incident Commander or designee should notify senior management as soon as the surge event is announced. Senior management includes the chief executive officer (CEO), key vice presidents, director/chair of pediatric department or designee nursing director, emergency department director and other pertinent departmental heads included in the pediatric surge response.

If possible, an emergency briefing should be conducted in-person to bring these individuals together to facilitate plan activation and make incident-specific decisions. Contact information for senior management, department heads and all essential leadership personnel should be included in the communications plan. A 24/7 designated individual, as well as a backup, should be available for each area of responsibility.

Internal Staff

The pediatric surge plan should consider the specific needs of children. Based on the incident, this could include:

- Staffing beyond the pediatric department:
  - Trauma and general surgery
  - Subspecialties
  - Pharmacy
  - Poison control
  - Hazmat and radiation
  - Facilities management (e.g., special decontamination needs, respiratory therapy, etc.)
- Pediatric pharmaceuticals:
  - Antidotes and countermeasures
  - Equipment (ventilators, monitors etc.)
  - Clothing
  - Food supplies
- Appropriate geographic surge locations

An announcement using hospital codes or plain language should be made to alert staff of the situation, activation of the surge plan and preparation for the surge. Announcements can be made via overhead paging, email, text, internet or other methods. The surge plan should include the predetermined announcement script or code. Adult units and staff should be included in the surge planning process and notified, as stated above, if they need to respond.

Internal Staff Response

Any staff who are not caring for patients should report to their department heads for specific surge response assignments. Support departments should send unassigned support staff to the internal labor pool as designated by the Incident Commander.

Off-Duty Staff

Senior staff such as the Emergency Preparedness Coordinator (EPC), Alternate EPC or a human resources (HR) staff member should alert off-site and off-duty staff of the surge plan activation via telephone, text, internet, social media or other methods. Off-duty staff members should then report their availability and expected travel time to the HCC via a staff-only method of communication (hotline, email or intranet). This gives HCC an idea of the additional staff at their disposal if they become overwhelmed. Updates should be provided to off-duty staff to maintain situational awareness. The method of communication may change based on the nature of the surge.

Off-Duty Staff Response

Events involving children may generate large numbers of staff who arrive at the hospital on their own to offer assistance. This requires oversight and coordination. As part of the planning process, hospitals should consider where and who off-duty staff should report to once on-site. For example, planning instructions may read as follows, "If instructed to report to the hospital, off-duty staff shall report directly to the labor pool when they arrive. To prevent disruption of patient care, the labor pool location should be away from surge areas."

Off-duty staff who report to the facility during a surge must be briefed on the incident and surge activities taking place.

Other Notifications

Communication with outside agencies is essential, as they can provide resources and guidance during an event. A system should be in place for communicating with various external agencies, organizations and other stakeholders in accordance with the facility's emergency operations plan. All parties should be notified that the incident specifically includes children.

External Organizations and Agencies:

- NYC Blood Bank
- FDNY/EMS
- Local NYPD precinct
- Other law enforcement agencies, if applicable*
- Local fire department and FDNY
- NYC Emergency Management (NYCEM)
- Media
- Non-governmental organizations (e.g., Red Cross)
- Greater New York Hospital Association (GNHYA)
- New York City Department of Health and Mental Hygiene (DOHMH)
- New York State Department of Health (NYS DOH)
- New York State Health Emergency Response Data System (HERDS)

Pediatric-Specific Stakeholders

- Patients' families and emergency contacts
- Primary Care Pediatricians, and other health care providers
- Facility ombudsman and/or patient advocate
- Non-governmental organizations involved with pediatric disasters (e.g., United Nations Children's Fund [UNICEF], Save the Children).
- Vendors (e.g., respiratory therapy equipment, infant formula, clothing, protective gear)
- Schools and daycare centers, if applicable

*Coordinate through the NYPD Liaison (for more information, see **resource 4 in Appendix**).

Safety and Security

Controlling the flow of patients, families and visitors into the facility is critical. Depending on the event, security will be tasked with securing the facility from unauthorized visitors, as well as securing patient care areas. A breach of hospital security can unnecessarily expose staff to security risks, including dangerous individuals, active shooters, infected victims, disease and contaminated areas. Consider including security staff in ongoing training for basic mental health skills. Security should escort victims with significant mental health issues and acute stress reactions to a secure area. Security should also block off roads and redirect traffic if necessary. Depending on the incident, security may have to coordinate with federal, state or local law enforcement (for more information, see **resource 5 in the Appendix**).

Mass casualty events involving children will magnify security and safety needs. Unattended children from the event must be assigned babysitter staff until admission or discharge to escort them through the ED, the imaging process. Areas where discharged patients wait for family members must be secure and supervised by staff trained in the developmental needs of children. If possible, mental health, social work and child-life personnel should also staff these areas (see the **Family Information Support Center** section).

Below are security recommendations for surge events:

- Provide one central access point if possible
- Lock down all entrances not being utilized
- Partition off triage areas from public view and unauthorized access
- Clear all unauthorized personnel from triage area
- Block off all patient care areas from unauthorized access
- Screen all family members, visitors and others prior to letting them into the facility and patient care areas
- Have security escort patients with mental health disorders who require acute treatment to a safe, secure environment to prevent injury to themselves or others
- Station security at all access roads to the facility
- Establish communications with federal, state or local law enforcement and the fire department as needed (for more information, see **resource 5 in the Appendix**).

Facilities/Environmental Health

Engineering services may be needed to set up and maintain decontamination areas, individual or group isolation areas, or ventilation barriers that can isolate entire floors from the remainder of the facility. Adequate disposal of contaminated materials by environmental services personnel is crucial to avoiding contamination of hospital areas.

- Stock surge areas with decontamination equipment, biohazard bags, trash collection bags and cleaning supplies, as well as gloves, gowns and other personal protective equipment.
- Relocate additional oxygen tanks, beds, monitors and other supplies to surge areas.

Family Information Support Center (FISC)

A FISC provides services for family members and friends of victims in a safe and secure location. Services include mental health counseling, medical triage and critical information management. Activating and staffing the FISC may not be necessary for each surge event; however, planning for its activation and setup is an important part of the surge planning process. Communication between the FISC and the HCC is necessary to ensure accurate information, resources and logistics are provided as needed. Family members or friends may require medical attention or may need to be transferred to the ED due to the stressful nature of the situation.

Staffing

- Coordinator
- Patient information officer
- Liaison to regional Family Assistance Center (FAC)
- Runners
- Trained and pre-screened volunteers
- Security
- Translators, as needed
- Professional staff (e.g., mental health professionals, medical providers, spiritual providers and social services)

Physical Setup

When setting up your FISC, be sure to position it away from surge treatment and triage areas but it should be accessible by hospital transport. An ideal location for the FISC is a large reception area or lobby with conveniently located restroom facilities. Your FISC should include the following:

- Information desk with message center and phone, fax and computer connections
- Photograph/identification room with limited access (e.g., close relatives only)
- Private rooms with tables, chairs, telephones, tissues and trash cans
- Pediatric Safe Area (for more information, see the **Pediatric Safe Area** section)

Mental Health

Everyone involved in a disaster and the surge response can have stress reactions, including patients, parents, families of patients and staff.

Children are especially sensitive to the mental health impact of disasters as they don't yet have the experience, skills, and resources to meet their mental and behavioral health needs.[10] Your surge planning, training and exercises should include a strong focus on the mental health needs of children.

[10] Schonfeld, D, Are We Ready and Willing to Address the Mental Health Needs of Children?: Implications From September 11th. Pediatrics, 2004.113: 1400. Retrieved from: http://pediatrics.aappublications.org/cgi/reprint/113/5/1400.

Social workers, family services, psychiatry and other appropriate mental health providers should be available to respond during a surge event as needed. PDC recommends that all staff, both clinical and nonclinical, receive training in mental health assessment and intervention techniques. These tools should be used in clinical areas, as well as those designated for mental health (MH) or family interventions MH responders should be able to recreate a sense of safety, ensure basic needs are met, deescalate psychosocial reactions to the event and facilitate social support through connection or reunification with family and friends — this is especially important for children.

As part of the planning process:

- Identify your facility's MH disaster response team
- Determine your areas of need for psychological support
- Establish an area for evaluation of the walking injured (i.e., those with no obvious physical injuries) that is separate or in close proximity to the FISC
- Determine which locations your MH staff should respond to
- Allocate a private space for mental health staff to meet with patients' families and other individuals during the surge response
- Formalize relationships with internal non-MH staff to perform MH functions (e.g., administer Psychological First Aid), staff may include nurses or designated surge non-clinical caretakers
- Ensure resources exist to deal with the mental health needs of staff both during and after the event

Location and Setup of Mental Health Response Areas

- Consider stationing at least one social worker, or family services, psychiatry, psychology, child life services or other appropriate personnel at various, clearly visible points throughout the facility such as*:
  - Facility entrances and exits
  - Treatment areas
  - Where people congregate:
    - ED
    - Entrance/front desk
    - Waiting room/discharge area
    - Triage areas
    - Television viewing areas
    - Treatment areas
    - Decontamination or isolation areas
    - All hospital departments
    - Public information or public relations briefing areas
    - Hospital incident command post

*If this is not possible, the mental health team should respond to these areas as needed.

- Create an area for patient mental health care and family reunification.
- Place mental health personnel in areas that can recreate a sense of safety, deescalate psycho-social reactions, and facilitate connection and reunification with family and friends, especially children with their parents and caregivers.
- Special provisions should be made with the leadership of the mental health providers to deal with the mental health needs of staff both during and after the event.

Pediatric Safe Area (PSA)

A PSA is a designated area to hold uninjured, displaced or released children who are awaiting adult caregivers after rapid patient discharge.

Designate a PSA Coordinator as part of your surge planning and identify staffing personnel. The PSA Coordinator is responsible for the following:

- Develop a system to track both accompanied and unaccompanied children.
- Develop a protocol to rapidly identify and protect displaced children, including recording key identifying information for use in later tracking and reunification with caregivers.
- Develop sign-in and sign-out procedures to track children, including times, name of the child and adult picking them up, and the adult's contact information.

Physical Setup

The Pediatric Safe Area should be kid-friendly and safe:

- The area should be free of choking hazards, poisonous substances, sharp objects and other items that may hurt children.
- Distractions (e.g., toys, books, art supplies, etc.), bathrooms and snacks (e.g., juice boxes, pretzels, etc.) should be readily available.
- Windows should be locked.
- The area should be away from stairwells and other fall risks.
- There should be enough staff and security to ensure the supervision and safety of the children.

Anyone picking up a child must identify themselves as a responsible party for the child.

Public Affairs and Disaster Communications

A Public Information Officer (PIO) should be responsible for communicating with patients' family members, the press, outside agencies and the public. Disaster communications from all staff should be uniform, truthful and provide reasonable information, advice and recommendations as dictated by the event. Disaster communications should be consistent with information prepared by local, state and federal authorities.

Physical Setup

- A separate area completely away from clinical care areas.
- Security should ensure that all members of the press and other non-patient related visitors report to and remain in the designated areas unless given permission to do otherwise.
- Security should limit access as necessary and provide designated areas for parking.

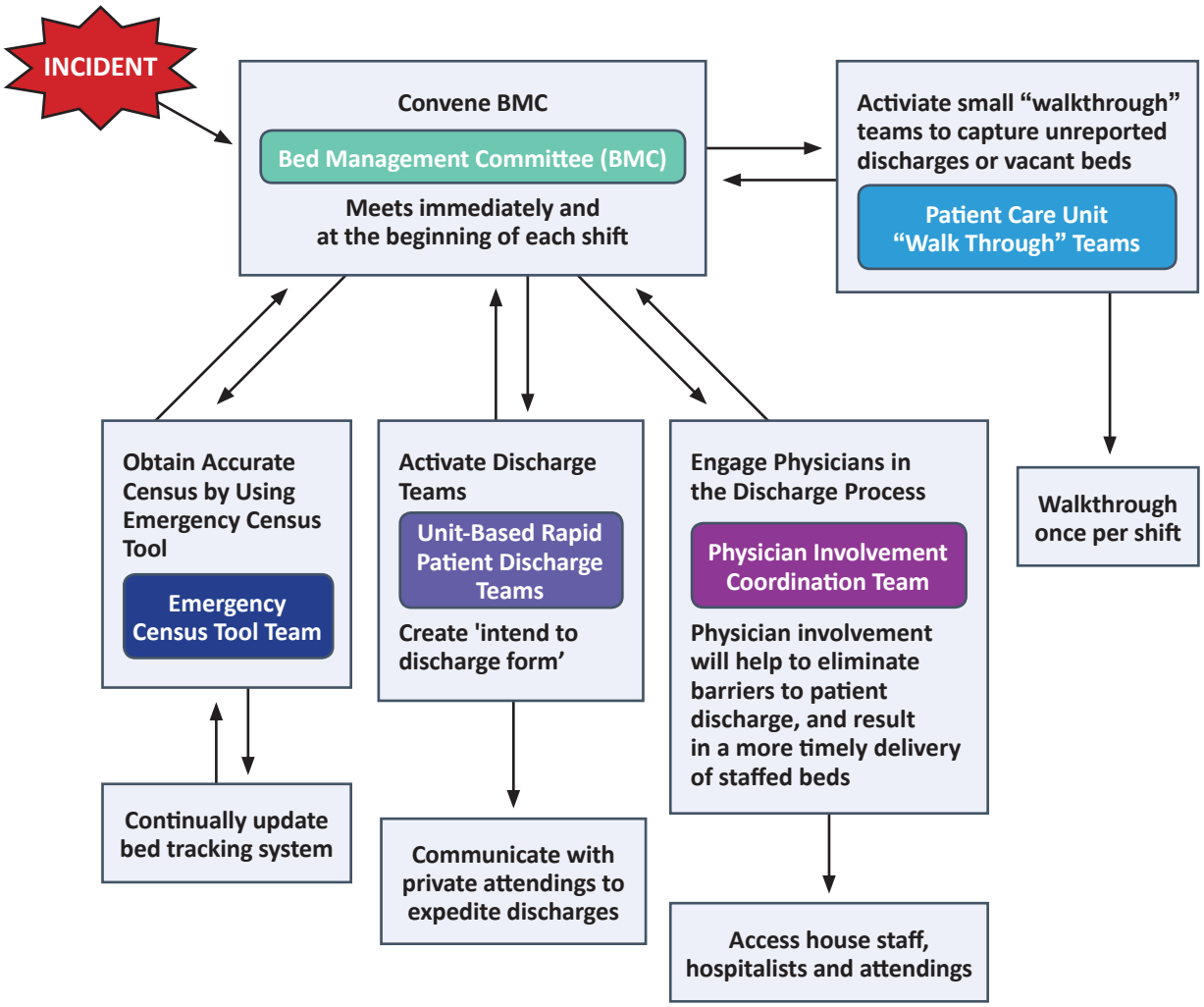
Emergency Department Preparation and Capacity Expansion

Because it is the initial portal of entry for pediatric disaster victims, the emergency department's (ED) surge capabilities are essential in the planning and response to mass casualty events. The ED and pediatric department must immediately respond to the expected surge in critically ill or injured pediatric patients by ensuring adequate availability of management space, staff capacity and age-appropriate equipment and supplies.

Census Reduction and Increasing Bed Availability

Hospitals can increase bed availability through rapid transfer and discharge of patients from the ED and the pediatric unit. The New York City Health Department's **Rapid Discharge Tool** can assist hospital administrators and emergency managers in preparing for and responding to unexpected increases in patient volume. The rapid discharge tool provides hospitals with adaptable plans for rapid patient discharge. It requires a Bed Management Committee (BMC) to oversee four activities (see figure below).

Rapid Patient Discharge Process



Please note: In an acute surge event the ED may be required to discharge or transfer patients to other areas within minutes to clear space for incoming casualties and to provide an acute critical and secondary care area before a BMC can be fully implemented. A physician and nurse familiar with pre-event patients should do an immediate walkthrough of the ED and designate discharges and transfers for immediate movement to destination sites. Depending on the event, the activities noted above may be updated frequently. The BMC should implement the rapid patient discharge tool as soon as possible during the event.

General Response Activities

Establish an ED Command Site staffed by the ED charge nurse or designee based on the availability of staff as dictated by the size of the event. This site will be responsible for situational awareness, patient tracking, supplies, staffing requests and logistics in the ED.

- Establish a communication line between the command desk and the emergency operations center (EOC), HCC, mental health areas, FISC and ED.
- Activate the Emergency Registration System. In case of registration system failure, prepositioned paper charts, with consecutive numbers, patient identifiers, lab slips etc. should be available.
- Clear Pediatric ED of all existing ED patients through rapid patient discharge and admission to other floors and designated areas (see the **Census Reduction** section).
- Establish and use a triage protocol (see the **Triage** section) and designate incoming patients as:
  - Critical: red tag
  - Moderate: yellow tag
  - Mild: green tag
- Ensure proper staffing of ED in consultation with EOC/HCS to include pediatric medical, surgical and nursing staff.
- Non-pediatric health care providers with pediatric experience, expertise and capabilities should be pre-identified in the disaster plan and integrated in to the ED response staff. This includes medical, surgical, anesthesia, subspecialty and adult intensive care staff.
- A decision to have older pediatric patients, such as teenagers, treated by the adult staff should be based on available resources and needs. This is especially important for surgical and intensive care.
- Ensure availability of proper age-specific medications, equipment and supplies including stretchers for transferring patients.
- Ensure sufficient emergency airway supplies, antidotes, infection control materials and decontamination equipment.
- Provide an additional patient care space (ambulatory modules and clinics) for incoming victims with mild injuries (green tags).
- Use the ED space primarily for critical patients (red tags in a dedicated area and yellow tags in a secondary area).

Special Event and Related Pediatric Considerations

Management of many aspects of the following events may be provided by an all hazards approach, one that uses the same set of management arrangements for all types of hazards.[^] However, each individual mass casualty event may have special requirements for space, staff or equipment and supplies that are uniquely challenging. Specific preparations are often required for chemical, biological and bomb blast events as per the following suggested outline:

Chemical Events

- Ensure that the decontamination facility is ready and operational.
- Ensure that adequate staff are available for decontamination.
- Perform proper diagnostic procedures to identify exposure substance.
- Ensure that patients are triaged.
- Provide appropriate treatment for all related injuries based on severity.
- Ensure that no victims are allowed to enter the ED unless they have been decontaminated.

- Maintain and provide age-specific decontamination equipment.
- Maintain and provide readily available age-specific countermeasures and antidotes.
- Open and staff your hospital's mental health areas and family information support center (FISC) for clients with no obvious physical injuries and family members.

Note: Patients may be injured by metal fragments, so the use of magnetic resonance imaging (MRI) is not recommended, unless ruled out.

In NYC, the FDNY and EMS will decontaminate every patient being transported to hospitals prior to arrival. Confirm with the EMS or the patient upon arrival if decontamination has been completed.* If triage staff is unable to determine if the patient has been previously decontaminated, PDC recommends proceeding with decontamination as a precaution.

If an area is contaminated it should be sealed off as soon as possible and decontaminated. If the area is essential to patient care and critically ill patients or others continue to arrive, personnel working there should wear protective gear while treating patients. Patients should be decontaminated there before transfer to another area (see the **Decontamination** section).

* An all-hazards approach is a conceptual and management approach that uses the same set of management arrangements to deal with all types of hazards (e.g., natural, man-made, complex). [11]

Biological Event

- Ensure that victims are adequately triaged, isolated and given protective equipment.
- Ensure that patients receive appropriate treatment based on severity of the illness.
- Perform proper diagnostic procedures to identify the pathogen.
- Ensure that staff use appropriate protective gear as dictated by the infectious agent.
- Utilize pediatric sized protective equipment including, masks, gowns, etc.
- Follow protocols for parents and caretakers visiting or remaining with infectious pediatric patients. Protocols are based on guidance from infection control and are dependent on the specific pathogen and mode of transmission.
- Provide isolation rooms and separate patients to prevent nosocomial transmission.
- Open and staff your hospital's mental health areas and FISC for clients with no obvious physical injuries and family members.

Bomb Blasts

Triage Issues

- Look out for metal fragments (e.g., nuts, bolts, nails) that can cause serious internal injury with minor or no obvious entry point wounds.
- Survey patients periodically.
- Triage walking patients and patients with mental health issues.
- Create a plan to address bottlenecks and staffing capacity issues that may arise from routine use of cat scans and x-ray machines.
- Establish one way flow if possible (ED-imaging-OR-admission to floors, discharge)
- Provide babysitters (preferably non-essential personnel) to care for patients and escort them to other areas.

[11] Matherly, D., et al., National Cooperative Highway Research Program: A Transportation Guide for All-Hazards Emergency Evacuation. Transportation Research Board, 2013. http://www.trb.org/Publications/Blurbs/168631.aspx

Treatment

Bomb victims are difficult to evaluate clinically due to specific types of injuries caused by bomb blasts. Pediatric blast injuries involving the neurologic system can occur even without the victim losing consciousness. Common injuries seen in bomb blast patients include:

- Occult (hidden) fragment injuries
- Occult (hidden) blast injuries
- Multiple entry wounds
- External and internal hemorrhage
- Burns
- Deformations
- Acute change in mental status
- Loss of consciousness
- Blast lung injuries
- Abdominal injuries
- Ear injuries
- Vascular injuries
- Ophthalmologic injuries

Utilization of Diagnostic Modalities

- Use triage and careful clinical assessment to prioritize and decrease the use of advanced imaging in mass casualty incidents (MCI).
- Reiterate the need for careful, detailed physical exams.
- Survey patients periodically to minimize clinical errors. Clinical assessment and judgment are often less than optimal during MCIs. Recurrent patient assessment and triage is essential.

Note: Patients may have twice as many multisystem injuries from bomb-related trauma than during other trauma depending on the severity of the event.

Triage

The composition and number of triage teams should be determined prior to a disaster. During the event, the Hospital Incident Commander, with input from ED and Pediatric Department leadership, makes decisions on triage location and team composition. PDC recommends using senior medical staff to triage patients; however, this can be modified to fit staff availability and patient need. Staff who may be called upon to triage patients should be trained in pediatric triage. First responders, nurses and residents, including non-pediatric specializing personnel, may be included in the staff planning.

Security should guide all patients requiring triage to the designated area. General triage should be located at a secure entry location to the clinical treatment area. In special circumstances–for example if patients need to be decontaminated or if there are many walking patients–a secured site may be designated outside of the normal ED triage space. Security should direct ambulances arriving with patients to a triage destination that allows for rapid entry and exit from the area. Patients should be removed immediately from ambulance stretchers to available hospital stretchers or beds that have been pre-located for surge activities.

Plan to activate and operate triage area(s) during a surge event for critical and urgent cases, non-critical patients and ambulatory patients with minor injuries or stress reactions.

Elements to consider

- Identify primary and secondary triage areas (e.g., consider external triage areas, event type and facility damage).
- Plan to staff alternate triage sites.
- Post signage to direct patients to triage area(s).
- When possible, use clinicians who usually evaluate acutely ill children.
- Use pediatric-specific algorithms (e.g., JumpSTART[12]) when required, as pediatric disaster victims can have unique triage requirements. Standard disaster triage protocols frequently assess the patient's ability to move and follow verbal commands (e.g., "If you can hear my voice, walk to the white tent") as the initial triage criterion. For non-ambulatory patients, use verbal commands only (e.g., "If you can hear my voice, raise one hand").
- Implement triage protocols for internal and external patient disposition (e.g., patient care areas for critical and noncritical care, minor care, mental health, walking well, delayed care, triage/holding, hospital or local government alternate care sites, etc.).
- Work with the HCC to identify available community resources (e.g., checklist with level of care capability and contact information).
- Consider the scope and type of event, and stock the triage area with supplies and equipment. Use the facility Hazard Vulnerability Assessment (HVA).
- Use standardized triage algorithms and experienced trained personnel to provide guidance for triage personnel in making unbiased decisions in stressful situations.
- Consider the number of patients received to determine triage location. For example, triage may occur in the ambulance bay of the emergency department, in the lobby of the hospital, or in driveways, traffic circles, or other areas normally used by vehicular traffic. Triage teams should report to the triage location determined by the Hospital Incident Commander. The exact composition of triage teams may vary, depending on staffing levels.
- Consider triage areas hot zones (i.e., areas in which the greatest risk for contamination occurs).
- Usually high intensity care should go to the sickest patient; however, available resources and needs may require a shift to disaster triage. The goal of disaster triage is to provide the best outcomes for the largest number of patients, depending on available resources and needs. Disaster triage may require the following:
  - Altering standards of care based on resource availability
  - Sorting victims based on level of injury, ranging from slight injury to unlikely to survive
  - Giving immediate treatment only to victims that will most benefit from the procedure or intervention
- During events that are likely to overwhelm the ED, direct ambulatory patients with minor injuries to a different care area (e.g., predesignated clinics, urgent care, lobby or other open area of the facility).
- Implement infectious and/or exposed patient triage area(s) and protocols. These protocols should include standard precautions, staff personal protective equipment, ventilation and infection control protocols for staff and patients.
- If triage decisions are being made proactively, you may need to invoke specific legal and liability protections through local or state emergency declarations. Protections for providers making these types of proactive decisions vary, and emergency physicians

[12] US Department of Health & Human Services: Chemical Hazards Emergency Medical Management. *JumpSTART Pediatric Triage Algorithm*. Retrieved from: https://chemm.nlm.nih.gov/startpediatric.htm

are encouraged to understand what protections (and limitations) exist for their facility. Facility legal departments may be included in these plan determinations. Providers with out-of-hospital, interstate or federal responsibilities will need to be familiar with the protections offered for that practice situation as well.

Have written plans and policies in place to respond to crisis situations that require disaster triage. These plans and policies should include an ethical framework and a concept of operations that allows proactive clinical decisions to be documented and peer-reviewed. During some disasters "inadequate resources are available to provide equivalent care. Care is provided to the best level possible given the resource gap. Crisis care increases the risk of morbidity and mortality because of a lack of resources; this risk can be minimized by implementing resource use strategies."[13] Several articles have addressed these proactive approaches and provided templates for a concept of operations for health care facility decision making. Consultation with the hospital legal team, local and state health departments are recommended.

- Use disaster triage forms to expedite gathering patient and relevant medical information.
- Implement any additional protocols to address the needs of pediatric patients who may be too developmentally immature to respond to verbal commands.

Surge Triage Space

Depending on available space and staff resources, it may be possible to create a separate triage space away from the usually designated triage areas. Use all appropriate available spaces and staff them with trained personnel. Use senior medical staff to triage patients; however, this can be modified to fit staff availability and patient needs. It is essential to realize that health care personnel with less experience may be the only staff available. Planning must include triage training and account for individual facility staffing patterns. Security should be available at the triage site. The surge triage space will be used to triage patients to other areas and admit patients as they come into the hospital to avoid overwhelming the ED.

The surge triage space serves multiple purposes:

- It creates an area for assessment and triage.
- It allows for patients to be stabilized as much as possible in a secure space that is properly equipped with staff and equipment (not potentially in the hallway of the facility).
- It reduces the number of transfers.

Physical Setup

- Make sure surge beds have the appropriate equipment and staff.
- Create procedures for converting outpatient beds to surge beds.
- Establish a secure discharge holding area (see **Pediatric Safe Area**).
- Use hallways or create alternate treatment areas (e.g., ambulatory clinics, on-site fitness center, etc.).

Strategies to create pediatric emergency treatment capacity outside of the hospital:

- Initiate mutual agreements with other health care facilities, such as pediatric long-term care and rehabilitation facilities.

[13] *Institute of Medicine of the National Academies* (2009). "Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations." Retrieved from: https://www.nap.edu/catalog/12749/guidance-for-establishing-crisis-standards-of-care-for-use-in-disaster-situations

- Utilize mobile clinics, hospital-based ambulances, urgent care centers, faith-based facilities, fitness centers and schools as alternate treatment areas.
- Establish relationships with pediatric tertiary care centers.

Patient Movement

If you are using a surge triage space, it is important to note which route should be taken and who will move patients from that space to the other surge spaces. The route should be easily accessible from the ED and allow for movement of both ambulatory and non-ambulatory patients. A map of each floor of the facility indicating the route should be included in the surge plan.

Staffing

Place staff at entrances where patients may arrive (e.g., patients coming from EMS with emergency medical technicians, paramedics or on their own). Security should be tasked with minimizing access to the facility to reduce the need to station staff at all entrances. All of the personnel for the surge triage space do not have to be clinical. However, the HCC should determine staff assignments in advance to ensure the personnel assigned are aware of their responsibilities.

ABCD Special Considerations

Providing care to pediatric victims of disasters may require special skills, equipment and supplies. It is imperative to have the proper-sized materials and delivery systems readily available based on age and size from neonates through adolescents. Utilizing specialized pediatric systems for patient treatment such as weight based dosing systems and designated equipment carts can be lifesaving.

- **Airway** – All red (critical) patients may require airway management. Age-specific, bag-mask-valves (BMV), airways, intubation equipment and backup airway equipment including supra-glottic and surgical airway supplies must be available.
- **Breathing** – Many red patients may need a chest tube. All red and yellow patients may require supplemental oxygen.
- **Circulation** – All red and yellow patients and some green patients may require intravenous (IV) access (some of these may require intra-osseous [IO] access). IV kits include cannulas, arm boards, fluids, pumps, drip sets, etc.
- **Disability/Neuro** – Red and yellow patients may require an age-specific cervical collar. A number of patients will require a splint (SAM, cardboard/arm board, plaster, etc.).

Decontamination

Exposure to hazardous chemicals released during an accident, dirty bomb or chemical attack poses a serious health threat that requires immediate response and treatment. Children have a higher surface to volume ratio and per minute ventilation, making them more susceptible to injury from chemical exposures than adults. Ideally, when medically appropriate, patients should be decontaminated before reaching the hospital. However, complete on-site decontamination of patients may not be possible due to the medical conditions of the employees, training and skills of emergency responders, weather conditions and equipment availability. Therefore, the hospital should plan to have designated decontamination areas.[14]

[14] *United States Department of Labor, Occupational Safety and Health Administration (OSHA).* "OSHA 3152: Hospitals and Community Emergency Response - What You Need to Know." Retrieved from: https://www.osha.gov/Publications/OSHA3152/osha3152.html

Although areas dedicated solely to decontamination do not need to be set aside, hospitals need to take appropriate precautions to prevent the spread of contamination to other areas within the hospital and provide appropriate decontamination facilities and equipment during events. Decontamination should be performed in areas of the facility that will minimize any exposures to uncontaminated employees, other patients or equipment. Morgues can be utilized as decontamination rooms because of the preexisting drainage and ventilation system. Morgues often have ventilation isolation to prevent mixing of airflow with other area systems.[15] An alternative to an indoor decontamination area is an outdoor or portable decontamination facility. This might include outdoors showers, along with bags for disposal of contaminated clothes.[16]

Treatment and decontamination of pediatric patients exposed to hazardous chemicals requires specialized planning.

Pediatric-specific planning:

- Develop a system to keep children with their caregiver, unless medical issues take priority.
- Incorporate high-volume, low-pressure water delivery systems (e.g., handheld hose sprayers) that are child-friendly into the hospital decontamination showers.
- Many children do not like showers and will resist, try to decontaminate families together. If this is not possible, plan for reuniting the family in the holding area.
- Utilize body temperature water to minimize risk of hypothermia.
- Recommend acquisition of a pediatric pharmacy disaster cart (length-based, color-coded system, such as weight-based dosing and sizing system) for countermeasures.
- Maintain an appropriate and current stock of countermeasures for rapid treatment of patients

Pediatric-Specific Decontamination Consideration

Note: Children will need assistance from hospital staff for proper decontamination. If possible decontaminate children with their family caregivers. If this is not possible provide for future reunification as soon as possible. Decontamination of smaller children may be more complex.

- Attention to airway management is a priority throughout decontamination.
- Removal of clothing alone accounts for removal of most contaminants.
- Soap and water should be used to decontaminate skin, as bleach and other chemicals may be toxic to the sensitive skin of children.
- If possible, use warm water in a heated area to avoid rapid heat loss of the pediatric patient and use heaters, warming blankets and radiant warmers after decontamination.
- The cooler the water or ambient temperature, the greater risk of hypothermia, especially in smaller, younger children.
- The plan should include a means of safely transporting them via car seats or gurney.
- Decontaminating children can take as long as 15 minutes per child, due to the additional time required to assist them.
- Older children may resist decontamination out of fear, peer pressure and modesty issues.

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[15] *United States Department of Labor, Occupational Safety and Health Administration (OSHA).* "OSHA 3152: Hospitals and Community Emergency Response - What You Need to Know." Retrieved from: https://www.osha.gov/Publications/OSHA3152/osha3152.html

[16] *United States Department of Labor, Occupational Safety and Health Administration (OSHA).* "OSHA 3152: Hospitals and Community Emergency Response - What You Need to Know." Retrieved from: https://www.osha.gov/Publications/OSHA3152/osha3152.html

- Parents or caregivers may not be able to decontaminate both themselves and their children at the same time. Hot zone personnel should recognize the need to assist children and their family members.
- Blankets and age-appropriate clothing should be immediately available after decontamination.

Pediatric Department Preparation and Capacity Expansion

- Notification and situational awareness should be communicated with leadership and subsequently with the staff.
- A huddle should be held by leadership (e.g., medical, subspecialty, nursing, house-staff, respiratory therapy) with their staff to activate the surge plan, define roles and offer just in time training as dictated by current situational awareness.
- Senior or designated staff should provide job assignments to all house-staff.
- Rapid patient discharge should be implemented upon notification of a surge event.
- A communications center or desk should be established with the HCC.
- All discharged, transferred and admitted patients should be tracked.
- All surge spaces should be set up, provided with necessary equipment and staffed accordingly.
- Staff in the facility should be mobilized immediately and prepare for a surge of patients.
- Staff not on site should a called in, activated and assigned to specified roles by leadership
- Non-essential personnel should report to the ED to offer assistance.
- Leadership will monitor ongoing patient care and surge capabilities and report needs and issues to the HCC.
- The department will participate in the deactivation process (see the **Deactivation** section) and modify plans based on lessons learned.

Patient Registration and Admission

- Assign a dedicated space or utilize bedside registration and admission procedures.
- Train clerical and admitting staff in disaster procedures.
- Hospitals should register patients into the EMR as quickly as possible so they can utilize the NYC Emergency Patient Search (NYCEPS) to access real-time information about admissions through the Regional Health Information Organizations (RHIOs).
- If possible, take digital pictures of all patients.
- If the IT system goes down utilize pre-positioned medical records with ID tags, lab slips etc.
- The facility should determine if there are types of patients they cannot admit/support and inform incident command of why (e.g., insufficient generator or electrical outlets for ventilator patients).
- Keep the Command Center informed of any changes and track all patients.

Patient Identification

Patient identification and tracking is a crucial aspect of surge response.

Recommendations:

- Identity document (ID) bands preferably bar coded should be utilized to identify patients.
- If possible, pictures can be taken of all patients and attached to the medical record.

- During the planning phase, prepare a paper based system for patient identification, lab information and other information as a backup to your electronic process if the system goes down.
- For incoming surge transfer patients or patients requiring transfer to another facility, follow your E-finds patient tracking protocol.
- Identification of identified or unidentified victims or family members:
  - Personal details and pictures of surviving victims are sent to the family and information support center (FISC) electronically or via fax or runners.
  - Information is included on all unaccompanied children, regardless of injury status.
  - Adults coming to the hospital to claim children should provide information that identifies them as a responsible party for the child, such as a photo ID. A picture that includes the adult with the child, such as a family photograph, may also be helpful. This should be addressed in the hospital's disaster communications with the public.
  - Adult family members of victims not reported to the hospital's FISC should be referred to the regional Family Assistance Center (FAC) for more information.

Medical Records

Maintain the security and confidentiality of medical records during a surge event. Standard forms can be edited to collect only basic but critical information for continuation of care and/or transfer of patients to another facility.

- Develop and utilize pre-positioned paper medical records with ID tags, lab slips etc.
- Establish and maintain crucial elements of the electronic medical records (EMR) needed for the continuation and transfer of care.
- For inpatients, maintain a paper summary printed out daily that contains essential demographics, diagnoses, treatment, medications, equipment and settings.
- For ED patients, develop a simple disaster medical record form that include essential data as above.

Supplies

Because basic supplies can be exhausted at a rapid pace, continuous maintenance of inventory is critical. Rotation of products may be the critical planning factor for supplies such as pharmaceuticals with a short shelf life, and space may be the problem with more durable supplies such as beds.

As part of the planning process facilities must consider logistics to ensure the restocking of supplies during and immediately after a surge event. Depending on the size of the disaster, various state and regional medical supplies may be requested through contracted vendors as well as through the Centers for Disease Control and Prevention-sponsored Strategic National Stockpile (SNS). The SNS is intended to supplement and resupply state and local public health agencies in the event of a national emergency. Further research during the planning process on SNS is recommended.[17]

Medical and Patient Care

Examples of critical supplies needed during surge events to aid in the triage and treatment of pediatric patients:

- Cots
- Linens

[17] *Centers for Disease Control and Prevention (2018).* "Strategic National Stockpile." Retrieved from: http://www.cdc.gov/phpr/stockpile/

- Age-specific clothing
- Food, formula and diapers
- IV polls
- IV access: catheters, intraosseous
- Gloves
- Gowns
- Masks
- Protective gear
- BP cuffs
- Stethoscopes
- Pediatric size based disaster cart
- Incubators
- Warming devices and blankets
- Age-specific respiratory equipment: nebulizers, continuous positive airway pressure (CPAP), intubation, BMVs, ventilators, tracheostomy
- Blood bank products and administration equipment

Upon notification of a surge event, the ED staff should prepare to access hospital-generated, pre-positioned stocks of vascular access supplies (e.g., interosseous needles), respiratory materials (e.g., Ambu bags), medication measurement based dosing guidelines (e.g. Broselow tapes) and antidotes. Supplies should be stored in the ED or in a convenient location such as a storage locker in the hospital ambulance bay.

Hospital Command Center

The Hospital Command Center (HCC) should be stocked with sufficient supplies to ensure operations. Supplies should include:

- Clerical supplies (pens, paper, folders, etc.)
- Computers
- Fax machine
- Telephones
- Walkie-talkies
- Radios
- Satellite or ham radio, if possible
- Batteries
- Hospital and city emergency contact directories
- Electronic systems for day-to-day or emergency response tracking and reporting.
- Disaster-related tracking forms
- E-finds (i.e., a system developed by New York State to record and track patients who are transferred/surge during an emergency)
- Hospital charts
- Patient flow board
- Reference documents (e.g., triage protocols, surge capacity plans, patient reporting guidelines)
- HICS job action sheets
- Communication trees and directories for internal and external communications

- Area maps
- Copies of vendor memoranda of understanding
- Risk communication templates and protocols

Medications

Stock and maintain a 96-hour supply of medications in pediatric formulations:

- Resuscitation drugs: epinephrine, atropine, amiodarone, calcium chloride, magnesium
- Analgesia: narcotics, ibuprofen, ketamine
- Bronchodilators: appropriate nebulizer masks, metered dose inhalers, and spacers
- Antibiotics: intravenous (narrow and broad-spectrum), topical and oral antibiotics (flavored syrups preferable to enhance palatability)
- Antivirals: acyclovir (IV and oral), oseltamivir
- Antiemetics: ondansetron (injectable and oral)
- Antihistamines: diphenhydramine (injectable and oral)
- Anticonvulsants: fosphenytoin, phenobarbital, levetiracetam
- Dextrose
- Steroids (injectable and oral)
- Sedatives/anesthetics: ketamine, benzodiazepines, etomidate, propofol
- IV solutions
- Hypertonic saline: 3% or 5%, which can be given via peripheral IV
- Local anesthetics: EMLA, LET, other topical and injectable anesthetics
- Countermeasures: hydroxocobalamine for cyanide poisoning, Atropine, 2-PAM, Prussian Blue
- Post-exposure prophylaxis for biologic agents with pediatric formulations
- Ocular drugs: proparacaine and topical antibiotics

Controlled Substances

The facility may wish to consider a disaster "pull list" for the pharmacy, which results in certain medications (e.g., narcotics, sedation, and intubation medications) being automatically pulled and sent to the ED when a mass casualty event occurs.

Special Circumstances*

When anticipating or faced with a resource shortfall, providers may use six key strategies[18]:

- **Prepare:** Optimally, planning can identify and mitigate resource shortfalls by stockpiling commonly needed (and often inexpensive) items such as morphine and intubation equipment. Preparation also includes methods to maintain the equipment and supplies; for example, adherence to preventative maintenance, stock rotation, and restocking schedules.
- **Conserve:** Restrictions are placed on the use of certain therapies or interventions to maintain supply (for example, N95 masks, oxygen).
- **Substitute:** A functionally equivalent medication or device can be used.
- **Adapt:** Use of a device for purposes for which it was not intended (for example, using an anesthesia machine or Bi-level positive airway pressure machine as temporary ventilator or

[18] *Annals of Emergency Medicine* (2012). "Allocating Scarce Resources in Disasters: Emergency Department Principles". Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/21855170

using an oxygen saturation monitor with high/low rate alarms instead of cardiac monitor to detect tachycardic or bradycardic dysrhythmias).

- **Reuse:** After appropriate cleaning, disinfection or sterilization, the majority of material resources can be reused.
- **Reallocate:** Certain critical resources (ventilators, extracorporeal membrane oxygenation) may have to be allocated to those patients most likely to benefit. In extreme situations this may involve removal from one patient to give another patient a better outcome. This is a last resort and should be done only when no other options exist.

*Ethically-based dilemmas should be discussed as part of the planning process to guide health care providers in decision making when demand is higher than supply.

Plan Deactiviation

Once surge activities are no longer needed, the Command Center should begin plan deactivation activities. Deactivation of the plan includes all activities that allow the facility to return to normal services. Ideally, the same person who activated the plan should be responsible for deactivation; however, depending on how long the surge plan remained activated, there may have been changes in onsite leadership due to shift changes. Regardless, the identified Incident Commander on shift at time of deactivation must oversee the following activities:

Activities

- Notification to internal staff of plan deactivation
- Notification to patients/family of plan deactivation
- Notification to off-duty staff of plan deactivation
- Notification to external contacts of plan deactivation
- Deactivation and cleaning of surge areas
- Cleaning and maintenance of equipment
- Debriefing of staff and families involved
- Closing the Hospital Command Center
- Facilitation of hot wash^ and after action report/improvement plan AAR/IP
- Surge plan updates based on improvements/recommendations from hot wash

An after action report/improvement plan (AAR/IP) should be created based on the feedback from the hot wash. Upon approval and acceptance of the AAR/IP the facility's Pediatric Surge Capacity Plan should be updated to reflect all after action items and improvement plans. This task must be closely monitored and be given a time limit (recommended two weeks post surge plan activation).

^ Facilitated discussion held immediately after an exercise or event among those involved. It captures feedback about any issues, concerns or proposed improvements. The hot wash is an opportunity for staff members to voice their opinions on the event and their performance.[19]

Post Event Mental Health Issues

Mental health staff should remain available for staff and families of those who were involved in the surge event. This should be available for several days post surge event. Additional resources

[19] *Federal Emergency Management Agency (FEMA) (2018).* "Glossary." Retrieved from: https://training.fema.gov/programs/emischool/el361toolkit/glossary.htm#H

and referrals to community providers should also be provided for staff, patients and their families.

Debriefing is a priority for all involved to gather information on how the surge went as well as to make sure that staff is emotionally and physically unharmed. A specified debriefing location must be identified and communicated to staff. Debriefing should preferably be held within two hours post surge plan deactivation for all staff. If the surge plan is activated over several shifts, debriefings by designated mental health staff should be held at the end of each shift.

Training

The National Association of Public Hospitals (NAPH) reports that regular staff training is important to have an effective response to a disaster surge; however, there is no standard curriculum for emergency response training of health care workers, and disaster training topics and methods can vary greatly. NAPH reported that the most common training methods included table-top exercises (i.e., role-play of a disaster event), classes and lectures.[20] Regardless of the method used by an individual facility, it is important that staff receive training on not only activating surge plans but also being aware of and planning for the surge of pediatric patients.

Recommendations:

- Just-in-time training may be used for tasks that can be safely performed by other providers. This allows staff with lower levels of training to be assigned to provide workforce extension (e.g., serving meals, etc.).
- Training should encompass contact and communication with parents and family members.
- Consider cross training of nurses and other staff in useful areas.
- Facilities should keep a list of departments and staff members that are cross trained.
- Training should include seminars and table-top and full scale exercises to evaluate, test and modify surge plans.
- Training and functional exercises should be conducted in areas such as disaster communications, utilization of equipment and procedures.

Hospitals with pediatric providers who do not provide critical care services on a regular basis can strengthen critical care capability by taking the Pediatric Fundamentals Critical Care Support (PFCCS) course.[^] The following categories of care providers should be encouraged to take a PFCCS course:

- Non-Critical Care MDs
- ED fellows
- Chief residents
- CC nurse specialists
- PAs
- House Staff
- Urgent Care Physicians
- Attending Pediatricians

[^] Pediatric Fundamental Critical Care Support (PFCCS) course is available. Non-critical care medical staff are encouraged to take the course to increase the number of pediatric providers with some degree of critical care skills to be used during disasters.

[20] *National Association of Public Hospitals and Health Systems* (2007). "Hospital Staffing and Surge Capacity During a Disaster Event." Retrieved from: https://essentialhospitals.org/wp-content/uploads/2014/10/May2007_Research_Brief.pdf

Appendix: Resources

1. **Hospital Incident Command System (HICS)**
   In the United States, the Hospital Incident Command System (HICS) is an incident command system (ICS) designed for hospitals and intended for use in both emergency and non-emergency situations.

2. **Citywide Incident Management System (CIMS)**
   The CIMS Protocol is New York City's implementation of the National Incident Management System (NIMS). NIMS compliance is a requirement for future federal domestic preparedness funding for local governments.

3. **Greater New York Hospital Association (GNYHA)**
   Greater New York Hospital Association (GNYHA) is a dynamic, constantly evolving center for health care advocacy and expertise.

4. **GNYHA "EMS-To-Hospital Response Process for Mass Casualty Incidents: Hospital Guidance Document"**
   This document describes the new FDNYEMS GNYHA guidelines for responding to mass casualty incidents (MICs) and defines four levels of severity and the operational plan to deal with MCI's in New York City.

5. **GNYHA "Hospital Coordination with Law Enforcement: Hospital Guidance Document"**
   This document describes how hospitals can communicate and coordinate law enforcement responses during situations that require enhanced security and a law enforcement response during MCIs or other events.

6. **National Incident Management System (NIMS)**
   The National Incident Management System (NIMS) is a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations and the private sector to work together seamlessly and manage incidents involving all threats and hazards—regardless of cause, size, location, or complexity—in order to reduce loss of life, property and harm to the environment.

7. **Pediatric Fundamental Critical Care Support (PFCCS)**
   PFCCS prepares non-intensivists, nurses and critical care practitioners to deal with acute deterioration of critically ill pediatric patients.

8. **American Heart Association (Pediatric Advanced Life Support)**
   This classroom, instructor-led course teaches participants to improve the quality of care provided to seriously ill or injured children, resulting in improved outcomes.

9. **New York City Medical Reserve Corps (NYC MRC)**
   The New York City Health Department's NYC Medical Reserve Corps (NYC MRC) enhances New York City's emergency preparedness by ensuring that a trained group of health professionals is ready to respond to health emergencies. NYC MRC members represent a variety of health disciplines.

10. **Sufficiency of Care**
    Ideally, the goal of the surge facility is to maintain high standards of care. In practice, however, medical treatment in a surge hospital may reach only the level of sufficiency of care because of the challenging circumstances under which the facility must operate.

11. **Are We Ready and Willing to Address the Mental Health Needs of Children?: Implications From September 11th**

    This article in *Pediatrics* describes the mental health impact of disasters on children and the unique challenges and needs children face.

12. **Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations**

    This article describes how to address the special mental and behavioral health needs of children during disasters. This requires planning, training, exercises and response and recovery efforts at all levels of Federal, State and local government and communities. It emphasizes the needs to close current gaps in pediatric disaster and behavioral health preparedness.

13. **New York City Health Department's Mental Health First Aid**

    Mental Health First Aid trainings provide strategies to help you recognize the early signs and symptoms of mental illness and substance misuse, to listen without judgment, and to respond to and help someone in distress until they can get the professional care they may need.

14. **JumpSTART Triage**

    The JumpSTART Pediatric MCI Triage Tool is the first objective tool developed specifically for the triage of children in the multi-casualty or disaster settings.

15. **Institute of Medicine Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations**

    This resource helps facilities create written plans and policies for responding to crisis situations that require resource triage, including an ethical framework and a concept of operations that allows proactive clinical decisions to be made, documented and reviewed.

16. **OSHA 3152 Hospitals and Community Emergency Response - What You Need to Know**

    This informational booklet provides information on protecting health care workers who respond to emergencies involving hazardous substances. Health care workers dealing with emergencies may be exposed to chemical, biological, physical or radioactive hazards. Hospitals providing emergency response services must be prepared to carry out their missions without jeopardizing the safety and health of their own workers.

17. **WISER**

    This web-based system is designed to help emergency responders to determine specific toxic substances and to provide treatment during hazardous material incidents.

18. **Centers for Disease Control and Prevention: Strategic National Stockpile**

    The CDC's Strategic National Stockpile is the nation's largest supply of potentially life-saving pharmaceuticals and medical supplies for use in a public health emergencies in which local supplies to run out.

19. **Allocating Scarce Resources in Disasters: Emergency Department Principles**

    This resource provides information on planning for disasters with limited resources through a structured approach, utilizing foundational elements of goals, ethical principles, concepts of operations for reactive and proactive triage, and decision tools for physicians and staff before an incident.

20. **National Association of Public Hospitals, Hospital Staffing and Surge Capacity During a Disaster Event**

    This publication discusses how to plan staffing for surge events with particular attention to providing for, the needs of staff members so that they will be able to work during disasters that may impact their family and community. (e.g. providing daycare for staff children)

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