



NEW YORK CITY PEDIATRIC DISASTER HEALTHCARE PREPAREDNESS TOOLKIT

After Action Report/
Improvement Plan
Hospital X PICU Surge
Capacity Tabletop Exercise

Completed June 2018

New York City Pediatric Disaster Coalition
Pediatric Intensive Care Unit Surge Capacity Healthcare Facility Tabletop Exercise
After-Action Report/Improvement Plan

Prepared for:

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This exercise was developed with the support of the:

City of New York
Department of Health and Mental Hygiene (DOHMH),
Office of Emergency Preparedness and Response (OPER)
and through a grant from:
Office of the Assistant Secretary for Preparedness and Response (ASPR)

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Executive Summary



Executive Summary

Background

Since 2008, the New York City (NYC) Pediatric Disaster Coalition (PDC) has been engaged in extensive grant-funded disaster planning efforts to prepare NYC hospitals to manage pediatric surges likely the result of a mass casualty man-made event or natural disaster. These disaster planning efforts have been developed with the support of a federal grant provided by the New York City Department of Health and Mental Hygiene (DOHMH), Office of Emergency Preparedness and Response (OPER), and made possible by the Department of Health and Human Services' (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR).

The New York City (NYC) Pediatric Disaster Coalition (PDC) in coordination with the New York City Department of Health and Mental Hygiene Office of Emergency Preparedness and Response has sponsored a Pediatric Intensive Care Unit (PICU) Surge Capacity Exercise Program, which has included a Tabletop Exercise (TTX) to evaluate the ability of City health care facilities (HCF) to execute their PICU Surge Capacity plans.

The PICU Surge Capacity TTX Program has further demonstrated New York City's commitment to ensure public safety through collaborative partnerships that will prepare it to respond to any emergency. Input, advice and assistance was provided by the Exercise Planning Team, which followed guidance set forth by the U.S. Department of Homeland Security (DHS) Homeland Security Exercise and Evaluation Program (HSEEP).

This After-Action Report (AAR) has been developed following the conduct of a Pediatric Intensive Care Unit (PICU) Surge Capacity Healthcare Facility (HCF) Tabletop Exercise (TTX) at Hospital X (HX).

The purpose of this PICU Surge Capacity TTX was to engage the PICU staff, senior leaders and managers of Hospital X, in a facilitated discussion regarding how the facility has planned to respond to a PICU surge incident such as a fire in another hospital that has caused them to evacuate their entire PICU to HX's PICU. This exercise incorporated a scenario-driven, facilitated discussion, which challenged participants to employ the facility's PICU Surge Capacity Plan during a surge capacity event. The evaluation of the facility's response to a surge capacity event focused upon the following areas:

- Emergency Notification
- Activation of Hospital's Command Center
- Alternate Staging Areas Set-up
- Patient Movement and Treatment
- Family Management
- Communications

The overarching goal of the PICU Surge Capacity TTX was to provide HX PICU staff and leadership with an opportunity to increase their familiarity with the facility's PICU Surge Capacity Plan and to discuss in an open forum areas for improvement in the PICU Surge Capacity Plan.

Participants successfully accomplished all of the facilitated discussion objectives, including demonstrating their familiarity with the HX PICU Surge Capacity Plan and employing problem-solving techniques to overcome challenges and gaps in planning.

Exercise evaluators identified areas for improvement including, but not limited to: personnel becoming more familiar with hospital procedures for emergency notification, triage and placement decisions, and communication between the Command Center and those on the ground.

HX demonstrated a significant capacity to respond immediately to an emergency at another institution which would affect their PICU, take steps to establish an alternate care site, triage and discharge patients when appropriate and establish a strategic approach to create a task-oriented means of executing the work associated with a PICU surge. The PDC exercise and evaluation team therefore concludes that HX is prepared to participate in a full-scale PICU surge capacity exercise at this time.

Key Strengths

Across the board, the staff and leadership of HX demonstrated significant preparedness achievements with regards to executing a successful PICU surge capacity. The key strengths of the facility's PICU plan and staff were their ability to recognize and respond to the decisions and actions required during a surge capacity event including:

- Triage of patients who come to the hospital
- Family management
- Problem-solve in a collaborative and open manner
- Understand the role that each department and discipline within the facility plays during an surge capacity event, and leverage these players capabilities to promote the most optimal outcome

Areas for Improvement

PDC exercise evaluators identified general areas for improvement including, but not limited to:

- Increasing the familiarity of personnel with hospital emergency notification procedures
- Staffing considerations for alternate care sites
- Deciding which alternate care site to use and who makes those decisions
- The ability of hospital staff to communicate needs and situational awareness with each other and the Command Center
- Intra-facility coordination with respect to the forced, simultaneous surge capacity of multiple units beyond the PICU



Exercise Overview



Exercise Overview

This three-hour facilitated tabletop exercise was attended by 34 members of the HX staff, which included 33 exercise players and one Trusted Agent (TA). The PICU Surge Capacity TTX was held at Hospital X.

The facilitated discussion was organized into three functional modules. Each module was presented with identical, repetitive training objectives to reinforce the goals of the training. The scenario presented to participants involved a fire at another hospital's PICU which turned into a surge of PICU patients for HX over the course of two hours. The event spanned through three fundamental phases of response planning: activation, operations and long-term planning/demobilization. The scenario and discussions focused upon a simulated fire at another NYC hospital's PICU which progressed into a surge event for HX of over 10 PICU patients. Exercise play focused upon on the hospital's PICU Surge Capacity Plan.

Exercise Goals & Objectives

The purpose of this exercise was to provide participants with an opportunity to evaluate current response concepts, plans and capabilities in response to a surge capacity event in the PICU. The exercise focused upon the following training objectives for this exercise:

- **Emergency Notification.** Assess ability of PICU leadership to notify the emergency preparedness coordinator of an impending surge event and the following communications to alert all hospital staff.
- **Activation of Hospital Command Center.** Assess the ability of the Hospital Command Center to activate upon notification of a surge event.
- **Patient Movement and Treatment.** Assess ability of staff to move patients from the point of entrance to their respective bed while providing treatment based on information given from evacuating hospital.
- **Family Management.** Assess the ability of staff to provide information to parents who have a family member in the PICU or a family member coming to the hospital.
- **Communication.** Assess the ability of hospital staff to communicate internally as well as externally to other institutions or agencies.
- **Alternate Staging Areas Set-Up.** Assess ability of hospital staff to set up all alternate care sights including the PICU, PICU surge space and triage area.

Exercise Structure

The PICU Surge Capacity TTX brought together key HX personnel involved in PICU patient care and emergency management and response to test HX's PICU Surge Capacity Plan. The PICU Surge Capacity TTX was conducted as a facilitated discussion. Players participated in the following three modules:

- Module 1: Surge Capacity Activation
- Module 2: Surge Capacity Operations
- Module 3: Long-term Planning and Demobilization

Each module began with a situation update that summarized key scenario events occurring within that period. After the situation updates, the Facilitator led participants in a discussion of key points and recommendations. As part of the exercise play, the Lead Facilitator used a PowerPoint presentation, facilitator notes, and HX's PICU Surge Capacity Plan. Additionally, a scribe positioned at the discussion table recorded the discussion and highlighted issues and questions.

As part of the facilitated discussion, participants also received a course evaluation. This evaluation focused upon gaining participant feedback regarding the quality of the material covered, the effectiveness of the presentation, the participants' expectations and preparation, and the effectiveness of the lead and team of facilitator(s).

Following each hour's situation update, the Lead Facilitator guided participants toward greater familiarity with the HX PICU Surge Capacity Plan. The Lead Facilitator, when necessary, prompted participants with various questions to stimulate discussion in a particular area or to garner more involvement from others. Upon conclusion of the TTX, the exercise team led the participants through a half hour-long discussion forum or "hotwash", which allowed them to self-identify strengths, gaps in planning and opportunities for improvement.

Exercise Guidelines

This TTX was held in an open, low-stress, no-fault environment. Varying viewpoints, even disagreements, were expected. Players were encouraged to respond based upon their knowledge of current plans and capabilities (i.e. existing assets) and insights derived from training. Decisions were neither treated as precedent setting nor intended to reflect HX's final position on a given issue. This exercise served as an opportunity to discuss and present multiple options and possible solutions. Identifying issues was not considered as valuable as providing suggestions and recommended actions to improve response and preparedness efforts. Problem-solving efforts were the focus of the TTX. This TTX was designed to familiarize participants with their facility's PICU Surge Capacity Plan as well as policies and procedures supporting it. Players were encouraged to ask questions of one another and to challenge each other's assumptions.

Assumptions and Artificialities

In any exercise, assumptions and artificialities may be necessary to complete play in the time allotted. During this exercise, the following applied:

- The PICU was at full census at the time of the event.

Event Synopsis

This section provides a brief synopsis of the scenario presented to the players.

Zero Hour (Activation)

A local NYC hospital has had a life safety event within their PICU and has called the PICU at Hospital X to ask if they would accept 10 PICU patients. HX's PICU is currently at full census and patients would be immediately transferred.

Exercise Overview

Hour 1 (Operations)

Patients from the evacuating hospital have begun to arrive at HX. Several patients are brought to the wrong entrance, patient records are missing and incomplete and there are multiple ventilated patients.

Hour 2 (Long-term Planning)

What are the resource considerations in terms of staff, equipment and space if the surge exceeds your planning?

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Analysis of Evaluation Outcomes



Analysis of Evaluation Outcomes

Evaluators from the PDC and HX were tasked to observe and document the actions and the decisions of players, and did participate in discussions and answer questions. The Lead Facilitator, and recorders captured the discussion by the players for all three modules regarding the critical tasks performed by participants.

This section identifies the successes and areas for improvement and includes recommendations and corrective actions.

Detailed Findings and Recommendations

Evaluators qualitatively captured the HCF's response to the scenario events and if the objectives and discussion points were addressed. Evaluators also documented how and why certain outcomes were achieved (not just what was achieved), as well as addressed important issues about relevance, unintended effects and impact of exercise activities and player actions such as:

- Were expectations reasonable?
- Did players respond to exercise prompts and injects as expected?
- Were exercise players able to carry out their roles?
- How and to what extent (if any) did exercise artificialities impact decision-making or player actions?

Qualitative approaches often allow for more diversity in responses as well as the capacity to adapt to new developments or issues during the research process itself.

Exercise players addressed a wide variety of topics surrounding how HX would respond to a PICU surge event including PICU Surge Capacity Plan activation, alternate care site locations, staffing and resources and inter-hospital communications. The findings and recommendations provided below capture the main points both discussed by players and noted by evaluators that specifically relate to a PICU surge event.

Emergency Notification

Issue: Early notification to all departments that will play a role in the surge event

Discussion: All exercise players demonstrated a clear understanding of the importance of early notification of a possible surge.

During the Module 1 phase of the scenario, PICU players initially stated that they would alert the attending and charge nurse on the PICU floor when they received a phone call asking to take PICU patients and then would contact PICU leadership. PICU leadership exercise players noted the importance of following procedures put forth in the PICU Surge Capacity Plan in terms of who to immediately contact when that call is received. Players from Respiratory Therapy also stated the importance of them being immediately put on notice so they can begin to take count of the equipment they have and acquire additional equipment. This sentiment was echoed by additional players from other departments. Players also stated that during this time teams should be put together to take charge of each functional area and response action. Teams that were discussed included a triage team, surge space team, PICU team, transport team and floor team.

Exercise evaluators noted that, while the exercise players discussed activation within the PICU they did not activate the PICU Surge Capacity Plan and did not articulate what the PICU Surge

Capacity Plan's notification would entail. Pages 5-7 of HX's PICU Surge Capacity Plan contain a detailed description of numbers to call in an emergency as well as notification triggers and actions. The process of notifying the Command Center was also not explicitly stated but the Command Center was stood up.

Further notifications were necessary throughout the operations phase of the tabletop due to decisions of which alternate care sites to use and the evolving patient count and disposition throughout the surge. Some of these notifications were given through injects but many were not touched upon by the players.

Recommendations:

1. Staff training on hospital emergency notification systems including the use of Everbridge
2. Restructure the activation section of the plan to make it more user friendly
3. Consider adding in a decision tree for notification procedures
4. Consider adding in teams and job responsibilities for those teams as an annex to the plan

Activation of Hospital Command Center

Issue: Communication between departments and the Command Center

Discussion: The hospital Command Center was stood up upon notification of the event but there was little discussion between players in the Command Center and those on the ground of what resources were needed and situational awareness updates. Players from the Command Center made decisions regarding alternate care sites with little input from other players which introduced problems with staffing. Players also did not use the STATREP form to notify the Command Center of what resources they needed. During the hotwash players also voiced the need to know who is in charge, who should be making what decisions and who they should contact to know that.

Recommendations:

5. Train staff on the use of STATREP in an emergency
6. Have further discussions regarding who will be in the Command Center, who the leadership is and how decisions will be communicated to staff

Patient Movement and Treatment

Issue: Patient identification and record maintenance

Discussion: All players were aware of the potential staging areas for a PICU surge and how to move patients to those areas as well as which patients should stay in the ED and who should go to the PICU. Players were given injects that certain patients came without medical records and that situation was not fully played out. Players stated that they would do a quick assessment in the triage area and patients would be transferred from there. There was little discussion regarding admitting's role in this and at what point they would be put into the system or tracked back to the evacuating hospital. Players did state that if a nurse came with the patient they would gather as much information from them as possible and do the same if a parent was available.

Recommendations:

7. Build out patient record maintenance in the plan
8. Incorporate the use of parents and nurses from other hospitals for information regarding the patients

Family Management

Issue: Communication to the family staging area

Discussion: Exercise players identified the Family Learning Center as the staging area for family members who come to the hospital. Players from Security took the lead on controlling the possible influx of people to the hospital and making sure they got to the appropriate area to learn more about their family member who may be a patient. Players also stated that they would not separate family members from the patient during any stage of the process. What was not explicitly stated was how the family staging area will get information as to what patients have arrived and where they are within the hospital.

Recommendations:

9. Consider adding into the plan the location of the family staging area and the responsibilities of those that are running it
10. Consider adding in to the plan how the family staging area will receive and send information
11. Consider adding in phone number for families to call into the plan so all staff are aware and can give that information out

Issue: Coordination of supplies and equipment

Communication

Issue: Inter-departmental communications, Command Center and department communication and hospital to hospital communication

Discussion: During the exercise there was a lack of communication between the departments, the departments to the Command Center and there was no communication past the initial notification between HX and the evacuating hospital. Decisions were being made regarding coordination and operations of the surge event but players did not state who they were communicating to regarding the decisions. Many players voiced the usefulness of a teline for an emergency to communicate with all departments. Other issues were brought up about what devices to use for communications because there are certain dead zones in the hospital.

Questions were brought up by players about the patients they were getting and the timeframe but the next step to contact the evacuating hospital was not taken so the information remained unknown.

Recommendations:

12. Integrate into the PICU Surge Capacity Plan the importance of communication between PICU staff and the Command Center.
13. Integrate into the plan the ability to contact outside institutions regarding the event

Alternate Staging Areas Set-Up

Issue: Alternate care site decision making and staffing

Discussion: During the entire exercise players wrestled with which alternate care site would be appropriate to use and how many. Multiple care areas were initially considered but it was brought up that it would stretch staff thin to have them in multiple places and it would also make coordination with other departments more difficult. The decision was made to use what space was available in the PICU for patients that met HX's requirements of really needing an actual PICU

Evaluation Process

bed and then putting the rest of the patients in HX 8. The ED also stated that they would keep any patients that required their assistance.

Players stated their concern of taking staff from one patient care area to another and how that would affect patient care. They also spoke to opening an alternate care site close to already existing patient care areas so the staff can easily be used.

Recommendations:

14. Integrate into the PICU Surge Capacity Plan the importance of all departments knowing which locations are being used and what patients are there
15. Incorporate into the PICU plan who makes the decision of which staging areas to use and how to decisions should be made

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Conclusion



Conclusion

The NYC Pediatric Disaster Coalition’s goal for PICU surge capacity hospital planning is to set up hospitals to be prepared for any event that may cause them to surge their PICU whether it be an immediate threat or a notice event.

The HX TTX demonstrated that its PICU staff and senior leaders and managers are reasonably prepared to manage an actual event provided they continue to familiarize themselves with details associated with the strategies identified in the HX PICU Surge Capacity Plan.

The focused participation of PICU and management staff proved that HX is relatively prepared to manage the effects of an actual event. The didactic training and facilitated discussion provided an opportunity for HX to discuss specific issues reflecting the PICU and hospital’s overall emergency preparedness. Following this exercise, HX and its personnel are more prepared to respond to an event resulting in a surge of PICU patients than before these planning initiatives took place.

The PICU Surge Capacity TTX provided an excellent opportunity to review current hospital-based emergency operations planning and consider opportunities for improving mitigation, preparedness, response, and recovery issues that are necessary for the successful response of HX to a PICU surge scenario. Implementation of the provided recommendations, together with the ongoing improvement process within HX’s emergency management program, will enhance the Corporation’s readiness for a PICU surge event. It is the conclusion of the PDC exercise and evaluation staff that the plan, staff and facility of HX is prepared to conduct a full-scale PICU surge capacity exercise at this time.



Improvement Plan



Improvement Plan

At the end of the exercise, participants discussed other types of venues to help HX staff prepare to respond to an actual PICU surge capacity event. Most staff believed that their receiving the didactic training and participating in the facilitated discussion comprised a good start toward overall increasing HX preparedness; however, preparedness efforts must continue for HX to enact this PICU Surge Capacity Plan effectively.

Below is a list of additional preparedness activities identified by HX and the PDC during the exercise to enhance HX's ability to respond to a PICU surge event. The PDC recommends that these efforts continue to be managed and integrated into the HX PICU Surge Capacity Plan as part of HX's ongoing Emergency Preparedness Program.

Improvement Plan

Improvement Plan Matrix

Recommendation	Improvement Action Description	Responsible Person/ Department	Start Date	Completion Date
1. Restructure the activation section of the plan to make it more user friendly				
2. Consider adding in a decision tree for notification procedures				
3. Consider adding in teams and job responsibilities for those teams as an annex to the plan				
4. Inservice unit leadership on the use of STATREP in an emergency				
5. Consider adding into the plan the location of the family staging area and the responsibilities of those that are running it				
6. Consider adding in to the plan how the family staging area will receive and send information				
7. Consider adding in phone number for families to call into the plan so all staff are aware and can give that information out				
8. Integrate into the PICU Surge Capacity Plan the importance of communication between PICU staff and the Command Center.				
9. Integrate into the plan the ability to contact outside institutions regarding the event				
10. Integrate into the PICU Surge Capacity Plan the importance of all departments knowing which locations are being used and what patients are there				
11. Incorporate into the PICU plan who makes the decision of which staging areas to use and how to decisions should be made				
12. Further detail long term planning considerations and demobilization				



After-Action Report/ Improvement Plan



After-Action Report/Improvement Plan

The After-Action Report/Improvement Plan (AAR/IP) aligns exercise objectives with preparedness doctrine to include the National Preparedness Goal and related frameworks and guidance. Exercise information required for preparedness reporting and trend analysis is included; users are encouraged to add additional sections as needed to support their own organizational needs.



Exercise Overview

Exercise Name
Exercise Name
Scope
Mission Area(s)
Core Capabilities
Objectives
Threat or Hazard
Scenario
Sponsor
Participating Organizations
Point of Contact



Analysis of Core Capabilities

Aligning exercise objectives and core capabilities provides a consistent taxonomy for evaluation that transcends individual exercises to support preparedness reporting and trend analysis. Table 1 includes the exercise objectives, aligned core capabilities, and performance ratings for each core capability as observed during the exercise and determined by the evaluation team.

Table 1. Summary of Core Capability Performance

Objective	Core Capability	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U)

Ratings Definitions:

- Performed without Challenges (P): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws.
- Performed with Some Challenges (S): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified.
- Performed with Major Challenges (M): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws.
- Unable to be Performed (U): The targets and critical tasks associated with the core capability were not performed in a manner that achieved the objective(s).

The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.

Analysis of Core Capabilities (Continued)

The strengths and areas for improvement for each core capability aligned to this objective are described in this section.

Strengths

The [full] capability level can be attributed to the following strengths:

Strength 1:

Strength 2:

Strength 3:

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1:

Reference:

Analysis:

Area for Improvement 2:

Reference:

Analysis:

Strengths

The [full] capability level can be attributed to the following strengths:

Strength 1:

Strength 2:

Strength 3:

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1:

Reference:

Analysis:

After-Action Report/Improvement Plan



Appendix A: Improvement Plan

This IP has been developed specifically for _____ as a result of _____ conducted on _____.

Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element ¹	Primary Responsible Organization	Organization POC	Start Date	Completion Date

¹ Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

