Planning for Hospital Pediatric Surge: Solutions Within Reach

Children’s Hospitals and Preparedness Webinar
Wednesday, June 27, 2018, 2:00pm ET/1:00pm CT
OBJECTIVES

1. Recognize the types of pediatric surge.
2. Determine the key components of a hospital pediatric surge plan.
3. Understand how to implement planning steps to improve preparedness for a surge of pediatric patients.
4. Identify where to find the most up-to-date recommendations and resources.
TECHNICAL SUPPORT

• Type issue into the chat feature
• Call 800-843-9166
• Email support@readytalk.com

Q & A

• Submit questions at any time through the chat box
• Over the phone, call 866-519-2796, ID #093393
• Dial *1 on your phone to ask a live question
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• This activity is acceptable for a maximum of 1.0 AAP credits. These credits can be applied toward the AAP CME/CPD Award available to Fellows and Candidate Members of the American Academy of Pediatrics.

• The American Academy of Physician Assistants (AAPA) accepts certificates of participation for educational activities certified for AMA PRA Category 1 Credit™ from organizations accredited by the ACCME. Physician assistants may receive a maximum of 1.0 hours of Category 1 credit for completing this program.
Ronald Ruffing, MD, MPH, MPS, FAAP
Chief - Division of Pediatric Emergency Medicine
Pediatric Emergency Medicine Physician
Children's Hospital of Michigan, Detroit, MI
DISCLOSURES

• The presenters have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider of commercial services discussed in this activity.

• The presenters do not intend to discuss an unapproved/investigative use of a commercial product/device in this presentation.
Pediatric Surge: Practical Planning

Marie Lozon, MD, FAAP
Ronald Ruffing, MD, MPH, MPS, FAAP
Fall of 2016: Emergency Preparedness Rule

- It wasn’t that there were no rules before...now they are more robust

Core EP Rule Elements

Quality, Safety & Oversight Group - Emergency Preparedness Regulation Guidance


The *Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers* regulation outlines four core elements which are applicable to all 17 provider types, with a degree of variation based on inpatient versus outpatient, long-term care versus non long-term care.

Four Core Elements of Emergency Preparedness
Four Core Elements of Emergency Preparedness

- Risk Assessment and Emergency Planning (Include but not limited to):
  - Hazards likely in geographic area
  - Care-related emergencies
  - Equipment and Power failures
  - Interruption in Communications, including cyber attacks
  - Loss of all/portion of facility
  - Loss of all/portion of supplies
  - Plan is to be reviewed and updated at least annually

- Communication Plan
  - Complies with Federal and State laws
  - System to Contact Staff, including patients’ physicians, other necessary persons
  - Well-coordinated within the facility, across health care providers, and with state and local public health departments and emergency management agencies.

- Policies and Procedures
  - Complies with Federal and State laws

- Training and Testing
  - Complies with Federal and State laws
  - Maintain and at a minimum update annually
Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers

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SURGE PLANNING

• When we talk about “surge”, we often think of an “INFLUX” of patients (mass casualties flooding into ED or pandemic), but surge cannot be discussed or managed without the mirror image...URGENT MOVEMENT OUT of patients...evacuation vs. rapid discharge or alternative care site

• In the last few years, guidance to manage surge includes emphasis on planning safe movement OUT to accommodate influx

The four HPP capabilities are:
1. Foundation for Health Care and Medical Readiness
2. Health Care and Medical Response Coordination
3. Continuity of Health Care Service Delivery
4. Medical Surge
HOSPITAL SURGE CANNOT OCCUR WITHOUT “IMMEDIATE BED AVAILABILITY”

- States and Regional Coalitions are receiving national guidance to develop methods to achieve “IBA”

- General guidelines, not specifically focused on children, but contain concepts and directions adaptable for children’s centers
Toolkit may be used by hospitals to achieve the nationally recommended goal of opening 20% of the facility’s staffed beds within 4 hours of incident notification to receive a surge of patients.
The left column depicts normal operations, but after declared disaster, the “IBA” processes can be leveraged to increase acute care space for managing influx of needful victims.
All of these tasks can be done seamlessly through the constant assessment of people, processes and infrastructure, such as the following:

**People:**
- Staffing considerations
- Staffing agreements
- Training and education
- Medical provider awareness and education
- Family support and awareness

**Processes:**
- Discharge planning and protocols
- Bed turnaround/housekeeping
- Billing and reimbursement services planning
- Patient transportation agreements
- Ongoing patient acuity monitoring

**Infrastructure:**
- Logistics (patient management and discharge processes)
- Pharmacy planning and protocols
- Patient tracking means and protocols
- Legal considerations
- Health record management
PEDIATRIC SURGE PLANNING

• Planning for an influx of children (or the need to evacuate a children’s center and accommodate patients elsewhere) requires a local/regional nuanced analysis

• Barriers are many
  – Concentration of skilled providers in specialized pediatric specialty centers and that includes EMS
  – Planning often not prioritized
  – Maintaining readiness not incentivized
Key Elements in Planning for Pediatric Surge

- Security and Safety of children in a chaotic setting
  - Unaccompanied minors
  - Social support and reunification must be preplanned and resourced (Webinar on Friday!)
  - Psychological health of children requires different type of “psychological first aid” than adults
GREAT LOCAL, REGIONAL AND STATE EFFORTS THAT USE LOCAL DATA, RISK ASSESSMENTS AND EXPERIENCE IN PLANNING for PEDIATRIC SURGE
Using Resource Needs as a classification system to understand movement risk and planning appropriately
Neveah is a 3 day old ex-29-week premature baby girl who has persistent pulmonary hypertension. She is intubated, on high frequency oscillatory ventilation and requiring inhaled nitric oxide. She has been NPO and is on total parenteral nutrition.

Neveah would fall into the **RED** category

LPCH at Stanford uses this concept to prepare for a vertical evacuation, but this construct/matrix could be used to classify patients in a surge scenario.

Triage by Resource Allocation for IN-patients [TRAIN]

<table>
<thead>
<tr>
<th>Transport</th>
<th>Car</th>
<th>BLS</th>
<th>Critical Care</th>
<th>Specialized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Support</td>
<td>Stable</td>
<td>Minimal</td>
<td>Moderate-Stable</td>
<td>Max-Unstable</td>
</tr>
<tr>
<td>Mobility</td>
<td>Car/Carseat</td>
<td>Wheelchair/stretcher</td>
<td>Transport rig</td>
<td>Immobile</td>
</tr>
<tr>
<td>Nutrition</td>
<td>PO Feeds</td>
<td>PO/NG</td>
<td>NG/PO + TPN/IL</td>
<td>NPO &amp; TPN/IL</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>PO Meds</td>
<td>PO Meds/IV Meds/IV Fluids</td>
<td>IV Drip x1</td>
<td>IV drip &gt; 2</td>
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</tbody>
</table>

**Life Support**
- Minimal = Hood or Low Flow Cannula O2, Peritoneal Dialysis, etc.
- Moderate-Stable = Conventional Ventilator, CPAP/BiPAP/Hi-Flow, Externally paced, chest tube, wt < 1500 grams, etc.
- Max-Unstable = Highly specialized equipt., e.g., HFOV, ECMO, iNO, CVVH, Berlin Heart, etc.

**Mobility**
- Car/Carseat = able to ride in automobile with age-appropriate restraints
- Transport rig = age-appropriate rig with equipment for connecting to ambulance
- Immobile = Unsafe to move without special equipment e.g., neurosurgical/bariatric
Illinois EMSC has assisted in the tiering of each hospital so that all know their role in surge.
ILLINOIS DEPART OF HEALTH TIERING FOR PEDIATRIC SURGE

***Public Health & Medical Services Response Regions (PHMSRR) / Decompression Category

(More information can be found on the decompression categories in the IDPH ESF-8 Plan: Pediatric and Neonatal Surge Annex (state health & medical disaster plan)).

Category 1: Specialty Centers (PICU/NICU); provides complex care to ages 0-15 y/o
Category 2: Hospitals with some pediatric services; will accept ages 0-12 y/o
Category 3: Hospitals with no pediatric/nursery services; will accept ages >12 y/o
Category 4: Hospitals with some nursery but no pediatric services; will accept ages 0-1 y/o
# EMS Region 11 Pediatric Resources

<table>
<thead>
<tr>
<th>RHCC Hospital Address</th>
<th>ED Phone</th>
<th>Pediatric Designation</th>
<th>Trauma Center Level</th>
<th>Trauma Transfer</th>
<th>PICU Transfer</th>
<th>Perinatal Level**/Network+</th>
<th>NICU Transfer NICU Phone</th>
<th>Transport Team Phone</th>
<th>PHMSRR/ Decompression Category***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocate Illinois Masonic Medical Center</td>
<td>(773) 296-5878</td>
<td>EDAP</td>
<td>Level I</td>
<td>(888) 872-8620</td>
<td></td>
<td>III NICU Rush</td>
<td>(773) 296-5233</td>
<td>(773) 296-5474</td>
<td>Chicago Category 1</td>
</tr>
<tr>
<td>836 W. Wellington Ave., Chicago, IL 60657</td>
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<th>NICU Transfer NICU Phone</th>
<th>Transport Team Phone</th>
<th>PHMSRR/ Decompression Category***</th>
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<tr>
<td>2320 E. 93rd St., Chicago, IL 60617</td>
<td>(773) 978-2424</td>
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<td></td>
<td></td>
<td>UIC</td>
<td></td>
<td></td>
<td>Category 4</td>
</tr>
<tr>
<td>Ann &amp; Robert H Lurie Children's Hospital</td>
<td>(312) 227-3800</td>
<td>PCCC/EDAP</td>
<td>Pediatric Level I</td>
<td>(312) 227-3700</td>
<td>(312) 227-3700</td>
<td>III NICU Northwestern</td>
<td>(312) 227-3700</td>
<td>(312) 227-3700</td>
<td>Chicago Category 1</td>
</tr>
<tr>
<td>225 E. Chicago Ave, Chicago, IL 60611</td>
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<td>Community First Medical Center</td>
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<td>EDAP</td>
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<td>Chicago</td>
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CONCEPTS IN DISASTER MEDICINE

Utilizing a Pediatric Disaster Coalition Model to Increase Pediatric Critical Care Surge Capacity in New York City

Michael Frogel, MD; Avram Flamm, DO, EMT-P; Mayer Sagy, MD; Katharine Uranek, MD; Edward Conway, MD; Michael Ushay, MD, PhD; Bruce M. Greenwald, MD; Louisdon Pierre, MD; Vikas Shah, MD; Mohamed Gaffoor, MD; Arthur Cooper, MD; George Foltin, MD

Pediatric Disaster Coalition Layers of Planning.

Chain Of Events Planning

Triage
Tiering
Transport
Surge
Planning for Increasing Pediatric Critical Care Surge Capacity

**FIGURE 1**

Example of Template Plan Flow Chart.

Abbreviations: AOD, administrator on duty; HICS, Hospital Incident Command System; PICU, pediatric intensive care unit; RPDT, Rapid Patient Discharge Tool.
Reverse triage, has been explored in the adult population. Reverse triage is a utilitarian ethical concept (ie, greatest good for the greatest number) wherein inpatients at low risk for untoward events would be discharged or transferred back to the community, giving inpatients and individuals affected by the disaster equal consideration for inpatient resources.
HOW WILL SURGE IMPACT KEY CLINICAL CARE SITES?

• Emergency Department
• Intensive Care Units
• Operating Rooms
• Inpatient Med/Surge Beds
**Emergency Department Surge**

- Our Generalist Emergency Medicine colleagues take care of the vast majority of sick and injured children in this country...well over 80%
- Community Emergency Departments are the safety net for children who live in their catchment area and are often well prepared to receive a critical child...but will rapidly transfer out...but what if they must receive a large number and must shelter them for longer than normal?
**Emergency Department Surge**

- For mass casualty or disaster requiring decontamination, there must be preparation for
  - Decontamination of children requires skills and equipment to prevent effects such as hypothermia and psychological trauma to youngest kids
  - Both prehospital and ED personnel must be prepared to switch to “disaster” triage that incorporates pediatric physiologic differences
EVERYDAY EMERGENCY DEPARTMENT PREPAREDNESS FOR CHILDREN CAN HELP WITH SURGE

www.pedsready.org/
Preparedness Leadership and Planning

- Hospital Incident Command System would hopefully have been stood up should a pediatric surge need arise.
- Pediatric Specialty Centers and Community Hospitals must recognize the need to share resources and have MOAs and plans in place...with the assistance of the Healthcare Coalitions.
Staff Support During Surge

• Material support to your impacted staff during a mass influx, evacuation, pandemic, etc - they must have the tools to deliver care

• Food, Rest for staff planned in advance (“ride out plan”)

• Recovery support
  – Psychological first aid, critical incident debriefing for staff
Regional Healthcare Coalition Integration

• All hospitals must have partnership with Regional coalition
  – If your Regional HCC doesn’t have a robust pediatric committee or subject matter experts...ADVOCATE FOR THESE CHAMPIONS
  – Regional HCCs, at the direction of the states, are staging more “no notice” surge exercises...this is a good thing...learn from each one!
MASS CASUALTY EXERCISE EXAMPLE

Coalition Surge Test
An Exercise for Assessing and Improving Health Care Coalition Readiness

Hospital Surge Evaluation Tool
USER MANUAL FOR CONTROLLERS AND EVALUATORS

U.S. Department of Health and Human Services
Office of the Assistant Secretary for Preparedness and Response
Office of Emergency Management
Hospital Preparedness Program

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®
Pediatric champions engaging with AAP Chapter leaders AND Regional HCC’s to assess pediatric capabilities.... Working and Learning TOGETHER

Module 2: Pediatric MCI (critical patients care)

SCENARIO 2: 1505
Police and initial EMS have arrived on scene of the school bus crash. Unified command is established. The police have secured the scene and established an ambulance corridor. Ambulatory children able to extricate themselves from the bus have been are cordon off along the side of the road and are being supervised by bystander volunteers. EMS has established a triage point and is implementing its pediatric disaster triage protocol. Additional first responders have been requested.

1520:
Over the last fifteen minutes more ambulances arrive on the scene. The injured patients have been extricated from the bus and triaged as follow

- Red: 7 Total-2 adults, 5 children (2 adults and 2 children have burns greater than 40% of the body)
- Yellow: 8 children
- Green: 22 children
- Black: 4 adults, 2 children

Your facility has been designated to receive the 7 red and 8 yellow patients. 2 red pediatric patients are already in an ambulance and on route to your facility. 13 additional patients (2 adults and 11 children) are awaiting transport.
June 13, 2018 (yes 2 weeks ago) we ran a statewide tabletop with all the Regional HCCs and many hospitals!
The Regional Healthcare Coalitions directed the hospitals in their region to contribute pediatric resource inventory data, EMS capabilities, operating room resources, general emergency department capacity and capability to our pre-exercise database.

### 2018 Pediatric Healthcare Resources Survey

**NOTE:** Fields highlighted in **red** are required to be filled in before the form can be submitted.

#### 1. Identify Your Healthcare Facility

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Street Address</th>
<th>City</th>
<th>State</th>
<th>Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan Medicine</td>
<td>× 1500 East Medical Center Drive</td>
<td>Ann Arbor</td>
<td>Michigan</td>
<td>48109</td>
</tr>
</tbody>
</table>

#### 2. Which Michigan Healthcare Coalition Region Is Your Facility Located In?

- 28

#### 3. Is Your Facility An American College of Surgery (ACS) Verified Adult Trauma Center?

- Yes

- If Yes, What Trauma Level? Select Trauma Level.

- No

#### 4. Is Your Facility An American College of Surgery (ACS) Verified Pediatric Trauma Center?

- Yes

- If Yes, What Trauma Level? Select Trauma Level.

- No

#### 5. Your Facility's 2017 Total ED Volume

<table>
<thead>
<tr>
<th>Total Patients Per Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 50,000</td>
<td></td>
</tr>
</tbody>
</table>

#### 6. Your Facility's 2017 Total Pediatric ED Volume

(Click whenever age criteria has been established at your facility)

<table>
<thead>
<tr>
<th>Total Pediatric Patients Per Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 20,000</td>
<td></td>
</tr>
</tbody>
</table>

#### 7. Does Your Facility Have A Designated Pediatric Emergency Department?

- Yes

- No

#### 8. Does Your Facility Have Inpatient Pediatric Beds?

- Review this document for details on levels of neonatal care

- Pediatric Beds
**Exercise included collecting very specific institutional data**

2. **Which Michigan Healthcare Coalition Region Is Your Facility Located In?**

<table>
<thead>
<tr>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>2S</td>
</tr>
</tbody>
</table>

3. **Is Your Facility An American College of Surgery (ACS) Verified Adult Trauma Center?**

- **Yes**
  - If Yes, What Trauma Level? **Select Trauma Level...**

- **No**

4. **Is Your Facility An American College of Surgery (ACS) Verified Pediatric Trauma Center?**

- **Yes**
  - If Yes, What Trauma Level? **Select Trauma Level...**

- **No**
Conclusion: The review has supported the concern that the US health system is unprepared for a pediatric surge induced by infectious disease pandemics. Common themes suggest that response plans should reflect the 4Ss and national guidelines must be translated into regional response systems that account for local nuances.
<table>
<thead>
<tr>
<th>#</th>
<th>Concept</th>
<th>Suggestions in Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>Incident Command System</td>
<td>Have a preplanned tiered system indicating the number of and type of resources based on patient census</td>
</tr>
<tr>
<td>1B</td>
<td>Prehospital Planning and Transportation</td>
<td>Train EMS personnel and implement pediatric specific algorithms such as JumpStart</td>
</tr>
<tr>
<td>1C</td>
<td>Communication</td>
<td>Ensure two-way communication channels between local health planners, hospitals, and prehospital providers.</td>
</tr>
<tr>
<td>1D</td>
<td>Disease Surveillance</td>
<td>Provide access to healthcare professionals to local and national registries and continue to monitor</td>
</tr>
<tr>
<td>1E</td>
<td>Disease Prevention and Treatment</td>
<td>Partner with local immunization programs; Utilize cell culture system and encourage more vaccine production</td>
</tr>
<tr>
<td>1F</td>
<td>Education</td>
<td>Establish automated call centers, nursing health lines to reduce unnecessary inpatient care</td>
</tr>
<tr>
<td>1G</td>
<td>Community, Local, State, Federal Responsibilities</td>
<td>Develop frameworks for protocol implementation, financial assistance, ethical decision-making, and resource provision</td>
</tr>
<tr>
<td>1H</td>
<td>Financial Matters</td>
<td>Purchase supplies in bulk and distribute regionally</td>
</tr>
<tr>
<td>#</td>
<td>Concept</td>
<td>Suggestions in articles</td>
</tr>
<tr>
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<td>----------------------------------------------------------------------------------------</td>
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</tbody>
</table>
| 2A  | Education and Training   | • Conduct table-top exercises, simulations  
|     |                          | • Establish annual competency evaluations overseen by individuals managing surge capacity |
| 2B  | Availability and Attendance | • Institutional mandate for increasing work hours/shifts;  
|     |                          | • Allow moonlighting hours for practitioners;  
<p>|     |                          | • Provide support for responders such as training and childcare provisions               |</p>
<table>
<thead>
<tr>
<th>Concept</th>
<th>Suggestions in articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric equipment availability</td>
<td>• Mandate facilities to store a constant supply of all age-appropriate and size-appropriate recommended EMSC equipment (^{46,170}) and medications in an easily accessible area</td>
</tr>
<tr>
<td>Estimation calculators</td>
<td>• Utilize mathematical modeling software, such as FluSurge and FluAid, to estimate the number of hospital admissions and resources needed in a catchment area</td>
</tr>
<tr>
<td>All-hazards approach planning</td>
<td>• Retain services such as back-up electricity, power generators, and pediatric specific laboratory services</td>
</tr>
<tr>
<td>Tools for triage and resource allocation</td>
<td>• Utilize triaging protocols and scoring systems, such as the PELOD score</td>
</tr>
</tbody>
</table>
WHAT ARE THE GAPS IN YOUR PLANS?

• Assess and Reassess...no shame, no blame, no embarrassment...just data...then SHARE!!!

• Themes from our recent exercise
  – Reunification and Tracking!!!
  – Training of prehospital colleagues
  – Concepts of sheltering in place with kids when your team has a LOW comfort level...
RESOURCES


https://asprtracie.hhs.gov/technical-resources/58/Hospital-Surge-Capacity-and-Immediate-Bed-Availability/58#Pediatric


CME/MOC Credit

- Complete the post activity survey.
- **Only physicians** can claim MOC Part 2 credit. A quiz for MOC Part 2 credit will be included in the post activity survey.
- Physicians must identify their ABP ID number.

AAP staff will email each person claiming CME/MOC 2 credit with their certificate of completion. Email DisasterReady@aap.org with any questions.
QUESTIONS?

- Dial *1 on your phone to ask a live question.
- Phone: 866-519-2796
- Conference ID: 093393
- Can ask questions through chat box in lower left corner. AAP staff or presenters will address unanswered questions via e-mail after the call.

Please e-mail DisasterReady@aap.org to receive info on future events, or follow-up as needed.
UPCOMING WEBINAR

- **Title:** Family Reunification: Debut of a New AAP Tool
- **Date:** Friday, June 29, 2018
- **Time:** 2:00pm ET/1:00pm CT
- **Speakers:** Sarita Chung, MD, FAAP, and Rachel Charney, MD, FAAP

For more information, including a link to register for this event, please visit [www.aap.org/disasters/upcomingevents](http://www.aap.org/disasters/upcomingevents).
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