

# Planning for Hospital Pediatric Surge: Solutions Within Reach

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

American Academy of Pediatrics

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# 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

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- Call 800-843-9166
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## Q & A

- Submit questions at any time through the chat box
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# FACULTY



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Department of Emergency Medicine

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# Pediatric Surge: Practical Planning

Marie Lozon, MD, FAAP

Ronald Ruffing, MD, MPH, MPS, FAAP

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# CENTERS FOR MEDICARE & MEDICAID SERVICES

- Fall of 2016: Emergency Preparedness Rule
  - It wasn't that there were no rules before...now they are more robust
  - See: <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertEmergPrep/Emergency-Prep-Rule.html>



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**Core EP Rule Elements**

## Core EP Rule Elements

**Quality, Safety & Oversight Group- Emergency Preparedness Regulation Guidance**

**Guidance for Surveyors, Providers and Suppliers Regarding the New Emergency Preparedness (EP) Rule**

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



**TRACIE**  
HEALTHCARE EMERGENCY PREPAREDNESS  
INFORMATION GATEWAY

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# 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



# MEDICAL SURGE CAPABILITY

Office of the Assistant Secretary for Preparedness and Response:  
*2017-2022 National Guidance for Healthcare System and Preparedness and Response* requires development of all four Healthcare Preparedness Program (HPP) capabilities.

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



**Michigan  
Immediate Bed Availability  
Decompression Strategy  
Guidelines and Toolkit**



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**

# Patient Movement to Achieve IBA

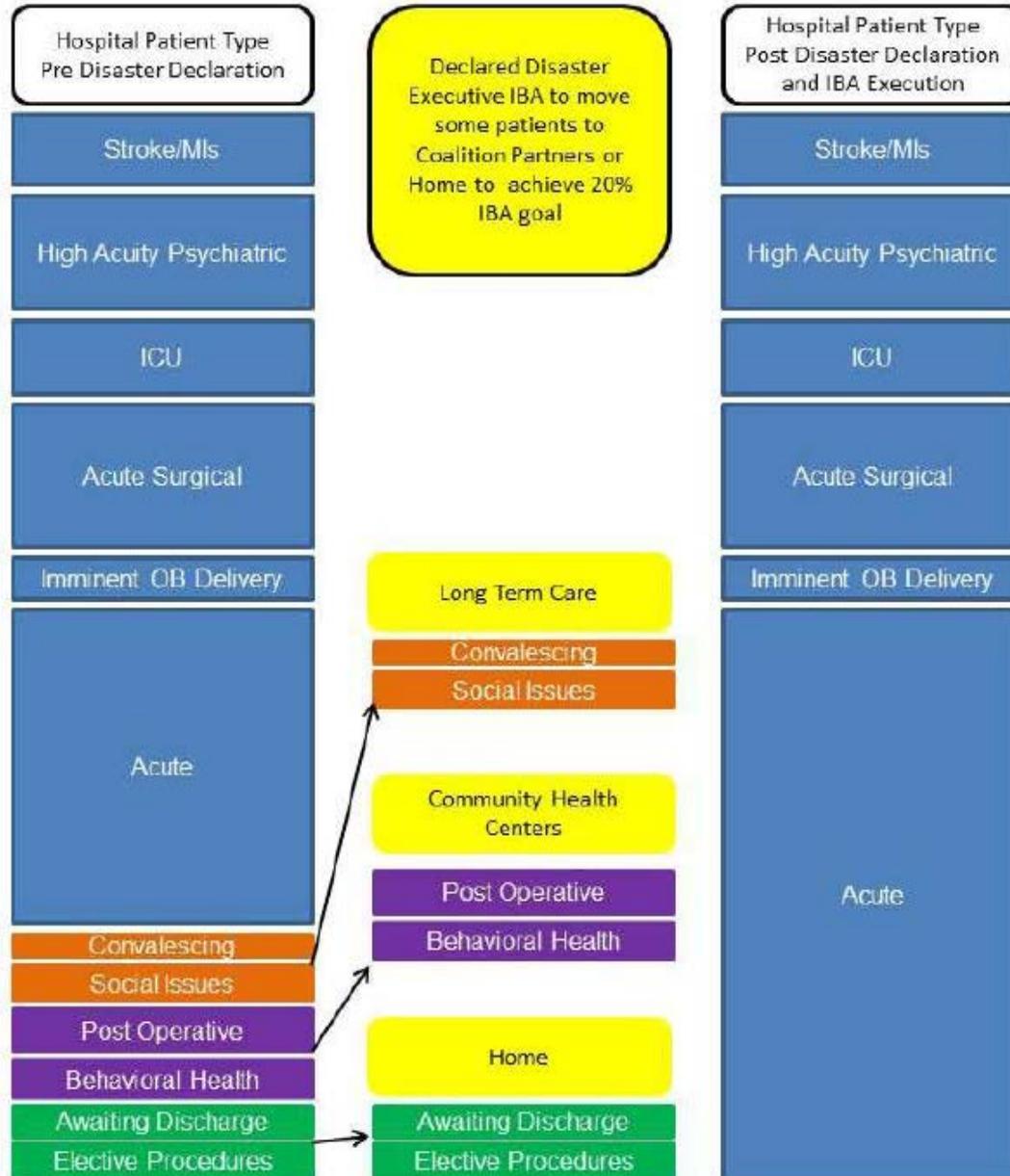


Diagram adapted from: South Carolina Hospital Association: Medical Surge through Immediate Bed Availability factsheet. [https://www.scha.org/files/iba\\_act\\_sheet\\_v6.pdf](https://www.scha.org/files/iba_act_sheet_v6.pdf).

**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



# PEDIATRIC SURGE PLANNING - IN NON-CHILDREN'S CENTERS

- 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



# Preplanning Disaster Triage for Pediatric Hospitals

## TRAIN TOOLKIT

Lucile Packard Children's Hospital



### PEDIATRIC SURGE POCKET GUIDE

Clinical checklists, guides, and just-in-time references to manage a surge of pediatric patients.

#### Sections

- Normal Values
- Triage and Assessment
- Treatment and Medications
- Equipment
- Decontamination
- Mental Health
- Pediatric Safe Areas



Minnesota Pediatric Surge Primer and Template Plan (4/9/2013)

## GREAT LOCAL, REGIONAL AND STATE EFFORTS THAT USE LOCAL DATA, RISK ASSESSMENTS AND EXPERIENCE IN PLANNING for PEDIATRIC SURGE

Los Angeles County Pediatric Surge Plan

EMSC | IIC  
Emergency Medical Services for Children | Innovation & Improvement Center

HOME ABOUT RESOURCES NEWS EVENTS

Rady Children's Hospital San Diego

Pediatric Surge Planning



Train the Trainer



EMERGENCY MEDICAL SERVICES AGENCY  
LOS ANGELES COUNTY

## PEDIATRIC DISASTER PREPAREDNESS TOOLBOX

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# LPCH TRAIN MATRIX

<i>Triage by Resource Allocation for IN-patients [TRAIN]®</i>				
<i>Transport</i>	<b>Car</b>	<b>BLS</b>	<b>Critical Care</b>	<b>Specialized</b>
<i>Life Support</i>	Stable	Minimal	Moderate-Stable	Max-Unstable
<i>Mobility</i>	Car/Carseat	Wheelchair/stretcher	Transport rig	Immobile
<i>Nutrition</i>	PO Feeds	PO/NG	NG/PO + TPN/IL	NPO & TPN/IL
<i>Pharmacy</i>	PO Meds	PO Meds/IV Meds/IV Fluids	IV Drip x1	IV drip ≥ 2
<i>Life Support</i>	<p>Minimal = Hood or Low Flow Cannula O<sub>2</sub>, Peritoneal Dialysis, etc.</p> <p>Moderate-Stable = Conventional Ventilator, CPAP/BiPAP/Hi-Flow, Externally paced, chest tube, wt &lt; 1500 grams, etc.</p> <p>Max-Unstable = Highly specialized equipt., e.g., HFOV, ECMO, iNO, CVVH, Berlin Heart, etc.</p>			
<i>Mobility</i>	<p>Car/Carseat = able to ride in automobile with age-appropriate restraints</p> <p>Transport rig = age-appropriate rig with equipment for connecting to ambulance</p> <p>Immobile = Unsafe to move without special equipment e.g., neurosurgical/bariatric</p>			

**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

**Triage by Resource Allocation for IN-patients [TRAIN]<sup>©</sup>**

<i>Transport</i>	<i>Car</i>	<i>BLS</i>	<i>Critical Care</i>	<i>Specialized</i>
<i>Life Support</i>	Stable	Minimal	Moderate-Stable	Max-Unstable
<i>Mobility</i>	Car/Carseat	Wheelchair/stretcher	Transport rig	Immobile
<i>Nutrition</i>	PO Feeds	PO/NG	NG/PO + TPN/IL	NPO & TPN/IL
<i>Pharmacy</i>	PO Meds	PO Meds/IV Meds/IV Fluids	IV Drip x1	IV drip $\geq 2$

<i>Life Support</i>	Minimal = Hood or Low Flow Cannula O <sub>2</sub> , 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.
<i>Mobility</i>	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

**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**



**\*PEDIATRIC DESIGNATION**

**PCCC:** Pediatric Critical Care Center    **EDAP:** Emergency Department Approved for Pediatrics  
**SEDP:** Standby Emergency Department for Pediatrics

**\*\*ILLINOIS PERINATAL LEVELS**

**Level Ø:** Non-Birthing Center    **Level I:** General Nursery    **Level II:** Intermediate Care Nursery  
**Level II-E:** Special Care Nursery with Extended Capabilities    **Level III:** Neonatal Intensive Care

**+ ILLINOIS PERINATAL REGIONAL NETWORKS**

**Loyola:** Loyola University Medical Center, Maywood  
**Mercyhealth:** Mercyhealth Rockton Avenue Campus, Rockford  
**Northwestern:** Northwestern Memorial Hospital, Chicago  
**Rush:** Rush University Medical Center, Chicago  
**St. Francis:** OSF Saint Francis Medical Center, Peoria

**St. John's:** St. John's Hospital, Springfield  
**Stroger:** John H. Stroger Jr. Hospital of Cook County, Chicago  
**SSM Health:** SSM Health Cardinal Glennon Children's Hospital/SSM Health St. Mary's Hospital, St. Louis, MO  
**U of C:** University of Chicago  
**UIC:** University of Illinois

**Local Health Departments**

Bureau County: (815) 872-5091	McLean County: (309) 888-5450
DeWitt-Piatt County (217) 935-3427	Mercer County: (309) 582-3759
Fulton County: (309) 647-1134	Peoria County: (309) 679-6000
Henderson County: (309) 627-2812	Putnam County: (815) 925-7326
Henry County: (309) 852-0197	Rock Island County: (309) 793-1955
Knox County: (309) 344-2224	Stark County: (309) 852-3115
LaSalle County: (815) 433-3366	Tazewell County: (309) 925-5511 or (309) 477-3115
Livingston County: (815) 844-7174	Warren County: (309) 734-1314
Marshall County: (309) 246-8074	Woodford County: (309) 467-3064
McDonough County: (309) 837-9951	

**Illinois Poison Center:** (800) 222-1222



**EMSC 2018** <http://www.illinoischildrens.org/EMSC>

**\*\*\*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

**Illinois EMSC has assisted in the tiering of each hospital so that all know their role in surge**

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*Development and printing of this card has been supported in part by a federal grant from the Assistant Secretary for Health Services, U.S. Department of Health and Human Services.*

# ILLINOIS DEPARTMENT OF HEALTH TIERING FOR PEDIATRIC SURGE

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

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# EMS Region 11 Pediatric Resources

RHCC Hospital Address	ED Phone	Pediatric Designation*	Trauma Center Level	Trauma Transfer	PICU Transfer PICU Phone	Perinatal Level**/ Network+	NICU Transfer NICU Phone	Transport Team Phone	PHMSRR/ Decompression Category***
Advocate Illinois Masonic Medical Center 836 W. Wellington Ave., Chicago, IL 60657	(773) 296-5878	EDAP	Level I	(888) 872-8620		III NICU Rush	(773) 296-5233 (773) 296-5474	(773) 296-5233	Chicago Category 1

Hospital Address	ED Phone	Pediatric Designation*	Trauma Center Level	Trauma Transfer	PICU Transfer PICU Phone	Perinatal Level**	NICU Transfer NICU Phone	Transport Team Phone	PHMSRR/ Decompression Category***
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2320 E. 93rd St., Chicago, IL 60617	978-2424					UIC			Chicago Category 4
Ann & Robert H Lurie Children's Hospital 225 E. Chicago Ave, Chicago, IL 60611	(312) 227-3800	PCCC/EDAP	Pediatric Level I	(312) 227-3700	(312) 227-3700 (312) 227-1600	III NICU Northwestern	(312) 227-3700 (312) 227-1400	(312) 227-3700	Chicago Category 1
Community First Medical Center	(773)	EDAP				Ø			Chicago



# 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 Uraneck, 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

Disaster Med Public Health  
Preparedness. 2017;11:473-478

# Pediatric Disaster Coalition Layers of Planning.

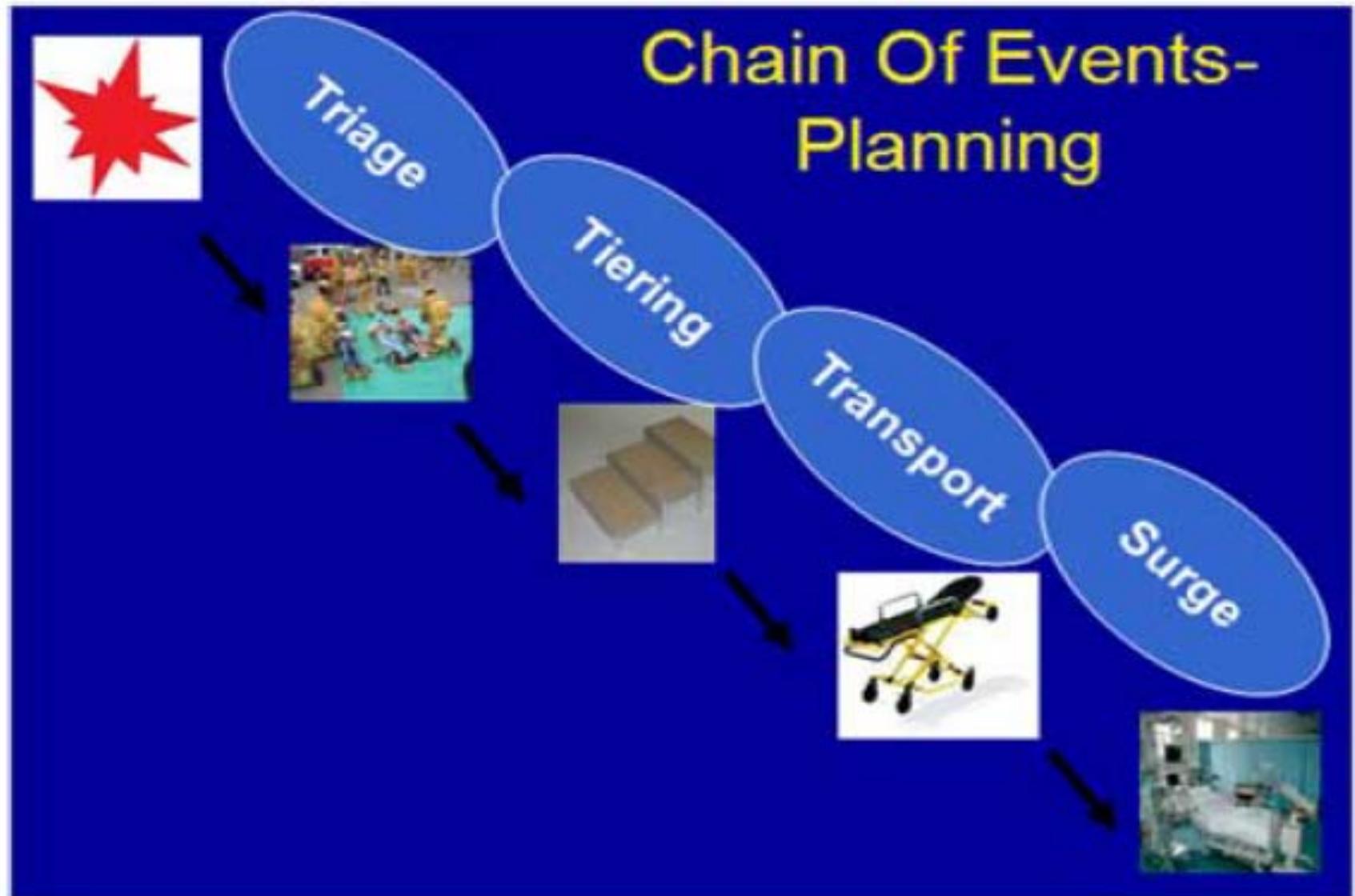
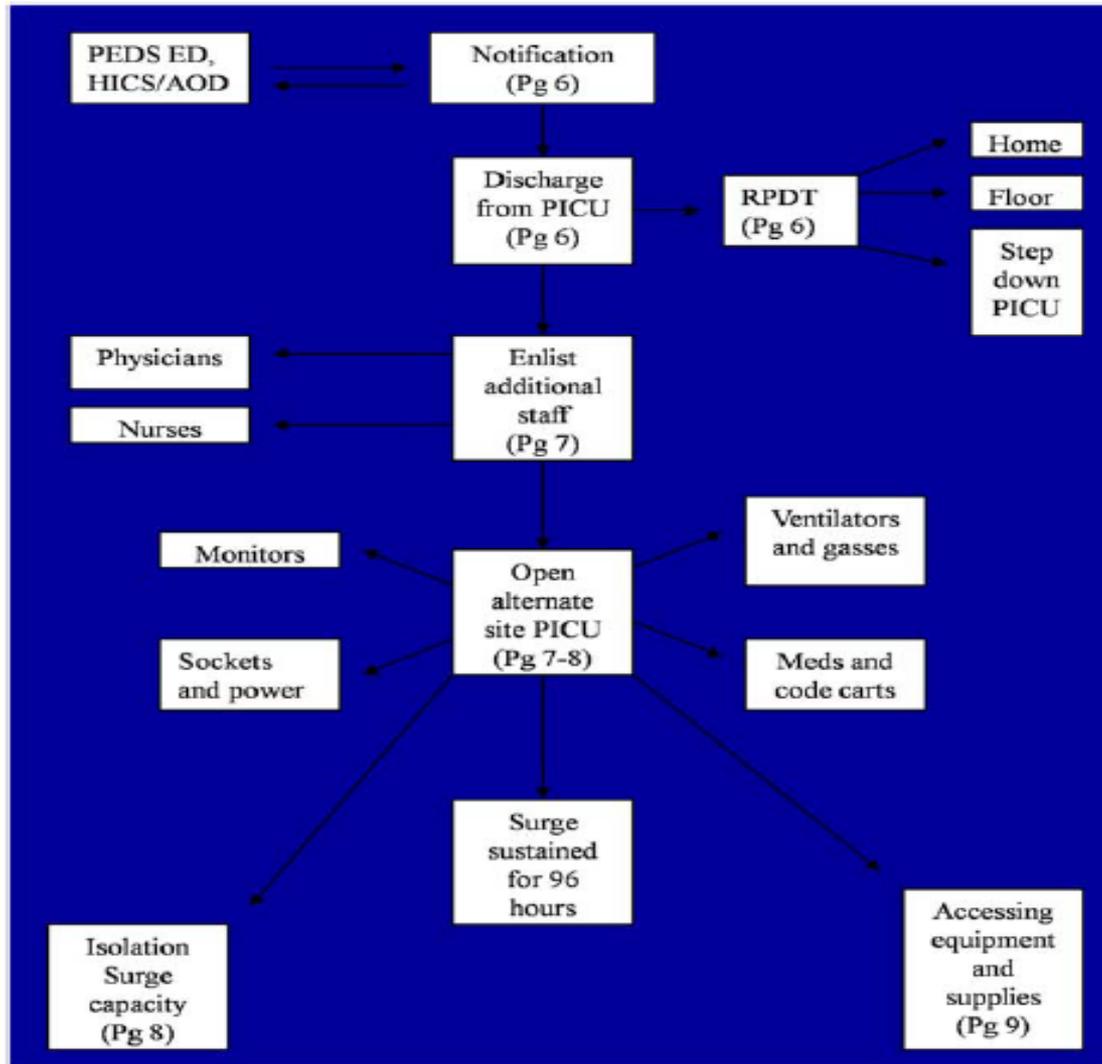


FIGURE 1

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.

# SURGE CONCEPTS

JAMA Pediatrics | Original Investigation

## Effect of Reverse Triage on Creation of Surge Capacity in a Pediatric Hospital

Gabor D. Kelen, MD, FRCPC; Ruben Troncoso, MD; Joshua Trebach, MD; Scott Levin, PhD; Gai Cole, DrPh; Caitlin M. Delaney, MD; J. Lee Jenkins, MD, MSc; James Fackler, MD; Lauren Sauer, MSc

*JAMA Pediatr.* 2017;171(4):e164829. doi:10.1001/jamapediatrics.2016.4829

**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

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# 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

National  Pediatric Readiness Project  
Ensuring Emergency Care for All Children



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## PEDIATRIC READINESS READINESS TOOLKIT

[www.pedsready.org/](http://www.pedsready.org/)

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# 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**

**HANDBOOK FOR PEER ASSESSORS AND TRUSTED  
INSIDER**

JANUARY 2017

## 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

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# SCHOOL BUS CRASH

**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)

**Assessing  
your  
pediatric  
assets - Our  
very recent  
exercise in  
Michigan**

### 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 cordoned 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 follows:

- 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 image shows a screenshot of a web browser displaying a survey form. The browser's address bar shows a URL starting with 'http://portal.zsouth.org/Exercise/PediatricSurge2018HCC/Forms/templ...'. The browser's toolbar includes icons for Close, Paste, Cut, Print Preview, and View. The survey title is '2018 Pediatric Healthcare Resources Survey To Be Filled Out By Regional Healthcare Coalition', accompanied by an icon of a woman and a child. Below the title, there is a navigation section with buttons for 'Module 1', 'Module 2', 'Module 3', 'Module 4', and 'Summary'. A note states: 'NOTE: Fields highlighted in **RED** are required to be filled in before the form can be submitted.' The current module is 'MODULE 1 - REGIONAL PEDIATRIC RESOURCES'. The first question is '1. Michigan Healthcare Coalition Region', with a dropdown menu labeled 'select Region' highlighted in red. The second question is '2. Total Number Of Regional Acute Care Facilities', with an input field highlighted in red. The browser's taskbar at the bottom shows several open applications, including 'Pediatric Surge 2018', 'HCC - Microsoft Pow...', 'Reports', and 'Microsoft Excel - All...'.

2018 Pediatric Healthcare Resources Survey  
To Be Filled Out By Regional Healthcare Coalition

Navigate To A Module By Clicking On One Of The Buttons Below

Module 1    Module 2    Module 3    Module 4    Summary

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

**MODULE 1 - REGIONAL PEDIATRIC RESOURCES**

1. Michigan Healthcare Coalition Region  
**select Region**

2. Total Number Of Regional Acute Care Facilities

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

Facility Name	Street Address	City	State	Zip Code
Michigan Medicine	1500 East Medical Center Drive	Ann Arbor	Michigan	48109

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

2S

### 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

Total Patients Per Year: > 50,000

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

(using whatever age criteria has been established at your facility)

Total Pediatric Patients Per Year: > 20,000

### 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?

28



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

Yes If Yes, What Trauma Level?

No

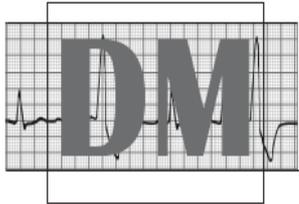
## 4. Is Your Facility An American College of Surgery (ACS) Verified Pediatric Trauma Center?

Yes If Yes, What Trauma Level?

No



# PEDIATRIC SURGE - PANDEMIC



## ORIGINAL ARTICLE

Factors associated with preparedness of the US healthcare system to respond to a pediatric surge during an infectious disease pandemic: Is our nation prepared?

Christy Anthony, MD; Tito Joe Thomas, BS; Bridget M. Berg, MPH; Rita V. Burke, PhD, MPH; Jeffrey S. Upperman, MD, FAAP, FACS

**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.*

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**Table 2. Summary of Recommendations - Structure**

#	Concept	Suggestions in Articles
1A	Incident Command System	Have a preplanned tiered system indicating the number of and type of resources based on patient census
1B	Prehospital Planning and Transportation	Train EMS personnel and implement pediatric specific algorithms such as JumpStart
1C	Communication	Ensure two-way communication channels between local health planners, hospitals, and prehospital providers.
1D	Disease Surveillance	Provide access to healthcare professionals to local and national registries and continue to monitor
1E	Disease Prevention and Treatment	Partner with local immunization programs; Utilize cell culture system and encourage more vaccine production
1F	Education	Establish automated call centers, nursing health lines to reduce unnecessary inpatient care
1G	Community, Local, State, Federal Responsibilities	Develop frameworks for protocol implementation, financial assistance, ethical decision-making, and resource provision
1H	Financial Matters	Purchase supplies in bulk and distribute regionally



**Table 3. Summary of Recommendations - Staff**

#	Concept	Suggestions in articles
2A	Education and Training	<ul style="list-style-type: none"> <li>• Conduct table-top exercises, simulations</li> <li>• Establish annual competency evaluations overseen by individuals managing surge capacity</li> </ul>
2B	Availability and Attendance	<ul style="list-style-type: none"> <li>• Institutional mandate for increasing work hours/shifts;</li> <li>• Allow moonlighting hours for practitioners;</li> <li>• Provide support for responders such as training and childcare provisions</li> </ul>



**Table 4. Summary of Recommendations - Stuff**

<b>Concept</b>	<b>Suggestions in articles</b>
Pediatric equipment availability	<ul style="list-style-type: none"> <li>• Mandate facilities to store a constant supply of all age-appropriate and size-appropriate recommended EMSC equipment<sup>46,170</sup> and medications in an easily accessible area</li> </ul>
Estimation calculators	<ul style="list-style-type: none"> <li>• Utilize mathematical modeling software, such as FluSurge and FluAid, to estimate the number of hospital admissions and resources needed in a catchment area</li> </ul>
All-hazards approach planning	<ul style="list-style-type: none"> <li>• Retain services such as back-up electricity, power generators, and pediatric specific laboratory services</li> </ul>
Tools for triage and resource allocation	<ul style="list-style-type: none"> <li>• Utilize triaging protocols and scoring systems, such as the PELOD score</li> </ul>



# 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

1. Frogel M, Flamm A, Sagy M, et al. Utilizing a Pediatric Disaster Coalition Model to Increase Pediatric Critical Care Surge Capacity in New York City. *Disaster Med Public Health Prep.* 2017;11(4):473-478.
2. Kelen GD, Sauer L, Clattenburg E, Lewis-Newby M, Fackler J. Pediatric Disposition Classification (Reverse Triage) System to Create Surge Capacity. *Disaster Med Public Health Prep.* 2015;9(3):283-290.
3. Kelen GD, Troncoso R, Trebach J, et al. Effect of Reverse Triage on Creation of Surge Capacity in a Pediatric Hospital. *JAMA Pediatr.* 2017;171(4):e164829.
4. Lin AC, Burke RV, Reynaldo S, Berg BM, Upperman JS. Pediatric Surge Pocket Guide: review of an easily accessible tool for managing an influx of pediatric patients. *American journal of disaster medicine.* 2013;8(1):75-82.
5. Rozenfeld RA, Reynolds SL, Ewing S, Crulcich MM, Stephenson M. Development of an Evacuation Tool to Facilitate Disaster Preparedness: Use in a Planned Evacuation to Support a Hospital Move. *Disaster Med Public Health Prep.* 2017;11(4):479-486.

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

Barbera, J.A. and Macintyre, A.G. (2009). [Medical Surge Capacity and Capability: The Healthcare Coalition in Emergency Response and Recovery](#). U.S. Department of Health and Human Services.

<https://www.phe.gov/Preparedness/planning/hpp/Documents/coalition-surge-test-manual.pdf>

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# 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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