Pediatric Readiness: Critical Steps to Pediatric Disaster Preparedness

Joyce Li, MD, MPH Anna Sessa, MA Michael Goldman, MD, MHS Michelle Moegling, RN





Disclosure

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Moderators & Speakers

Moderator:

Sarita Chung, MD
Director of Disaster Preparedness
Division of Emergency Medicine
Boston Children's Hospital

Speakers:

Joyce Li, MD, MPH
Associate Physician in Pediatrics
Division of Emergency Medicine
Boston Children's Hospital

Anna Sessa, MA
Project Manager
New Hampshire's EMS for Children

Michael P. Goldman, MD, MHS Associate Professor of Pediatrics

Pediatric Emergency Department

Yale-New Haven Children's Hospital

Michelle Moegling, BSN, RN, CPN

Co-Lead EIIC Hospital Domain
Region V for Kids Subject Matter
Expert and Project Manager

Learning Objectives

- 1. Review the intersection of pediatric readiness and healthcare disaster planning that require special focus for pediatric patients, including Triage, Special Health Care Needs, Guardianship, and Family Reunification.
- 2. Discuss how improving everyday pediatric emergency care capabilities in the ED can improve readiness for pediatric response to large-scale incidents.
- 3. Identify quality resources available to healthcare organizations that can help them improve their pediatric emergency care capabilities, including resources developed through the Pediatric Readiness Project.

Pediatric Readiness: Critical Step to Pediatric Disaster Readiness

Joyce Li MD MPH
Division of Emergency Medicine
Boston Children's Hospital
MA EMSC Regional Liaison
New England PECC Network Director

No financial disclosures

Case

A 3 yo girl named Avery with a h/o epilepsy presents to a rural ED in status epilepticus.

- ED doctor attempted to intubate the patient initially with an adult sized tube.
- After failing to intubate, they tried with smaller tubes but were unable to intubate.
- Cardiac arrest due to hypoxia → 6 rounds of CPR with adult doses of epinephrine.
- + ROSC but never able to intubate.
- Transferred to the local children's hospital where she was intubated on the first attempt.
- Brain death, Died 6 days after admission.

Case

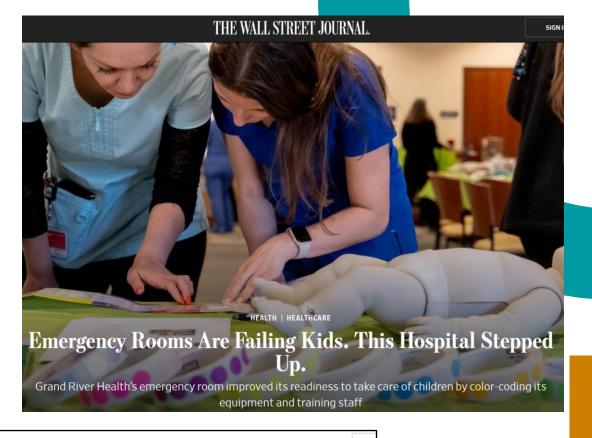
20 years earlier, a 6 yo boy named Matthew presented to this same ED and died after failed attempts at intubation



SIGN IN



Children Are Dying in Ill-Prepared Emergency Rooms Across America



THE WALL STREET JOURNAL.

HEALTH | HEALTHCARE

Find Hospitals Deemed Ready to Treat Children in Your Area

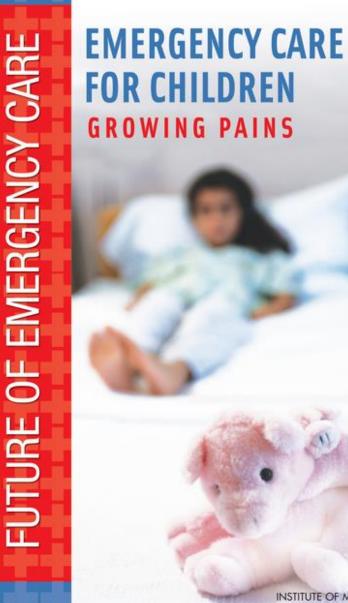
Only 14% of U.S. emergency departments are certified as pediatric ready or specialize in kids, though standards vary widely—and many parents don't know where they are

Objectives

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What is Pediatric Readiness

- Pediatric Ready
 - The ability to provide high quality care to pediatric patients
 - Reduce morbidity and mortality due to severe illness or injury among children
- Children have unique physiologic, anatomic needs
- 2006 IOM report "Emergency Care for Children: Growing Pains"
 - Only half of hospitals had at least 85% of necessary pediatric emergency equipment

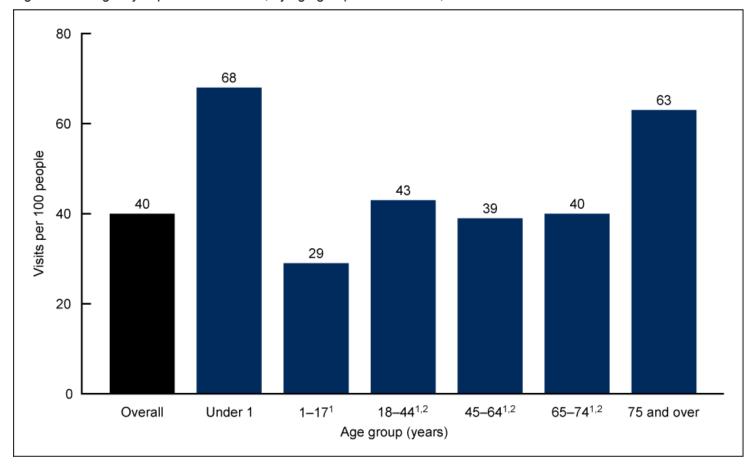


Pediatric ED Patients

80-90% of children are cared for in general EDs

81% of EDs see less than 10 pediatric patients per day

Figure 1. Emergency department visit rate, by age group: United States, 2020



¹Significantly different from under 1 and 75 and over.

SOURCE: National Center for Health Statistics, National Hospital Ambulatory Medical Care Survey, 2020.

²Significantly different from 1-17.

NOTES: Based on a sample of 14,860 emergency department (ED) visits made by patients in 2020, representing approximately 131 million ED visits. Visit rates are based on estimates of the U.S. civilian noninstitutionalized population as of July 1, 2020, from the U.S. Census Bureau, Population Division. Access data table for Figure 1 at: https://www.cdc.gov/nchs/data/databriefs/db452-tables.pdf#1.



Emergency Department Pediatric Readiness and Mortality in Critically Ill Children

Stefanie G. Ames, MD, MS,^a Billie S. Davis, PhD,^e Jennifer R. Marin, MD, MSc,^{c,d} Ericka L. Fink, MD, MS,^{c,e} Lenora M. Olson, PhD, MA,^g Marianne Gausche-Hill, MD,^{e,h,i} Jeremy M. Kahn, MD, MS^{e,f}



JAMA Pediatrics

Evaluation of Emergency Department Pediatric Readiness and Outcomes Among US Trauma Centers

Craig D. Newgard, MD, MPH¹; Amber Lin, MS¹; Lenora M. Olson, PhD²; et al

Mortality

Lower pediatric readiness scores (<87) are associated with higher morality

In high peds ready EDs:

76% lower mortality in ill children

60% lower mortality in injured children

At least 1400 children's lives saved if seen in high pediatric readiness EDs

National Pediatric Readiness Project

- Started in 2013
- Led by Emergency Medical Services for Children (EMSC) with AAP, ACEP and ENA
- Goal to provide resources and support so all EMS agencies and EDs can be pediatric ready



Medication administration

Pediatric Readiness in the Emergency Department

This checklist is based on the American Academy of Pediatrics (AAP), American College of Emergency Physicians (ACEP), and Emergency Nurses Association (ENA) 2018 joint policy statement "Pediatric Readiness in the Emergency Department." Use this tool to check if your hospital emergency department (ED) has the most critical components listed in the joint policy statement.

| Administration and Coordination of the ED for the Care of Children | ED Policies, Procedures, and Protocols | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Physician Coordinator for Pediatric Emergency Care (PECC)* | Policies, procedures, and protocols for the emergency care of children. These policies may be integrated into overall ED policies | | |
| Board certified/eligible in EM or PEM (preferred but not required for resource limited hospitals) The physician PECC is not board certified in EM or PEM but | as long as pediatric-specific issues are addressed. Illness and injury triage Pediatric patient assessment and reassessment | | |
| meets the qualifications for credentialing by the hospital as an emergency clinician specialist with special training and experience in the evaluation and management of the critically ill child. | Identification and notification of the responsible provider of abnormal pediatric vital signs | | |
| | Immunization assessment and management of the under-immunized patient Sedation and analgesia, for procedures including medical | | |
| Nurse Coordinator for Pediatric Emergency Care (PECC)* CPEN/CEN (preferred) Other credentials (e.g., CPN, CCRN) | imaging Consent, including when parent or legal guardian is not | | |
| * An advanced practice provider may serve in either of these roles. Please see the guidelines/toolkit for further definition of the role(s). | immediately available Social and behavioral health issues Physical or chemical restraint of patients Child maltreatment reporting and assessment Death of the child in the ED | | |
| Physicians, Advanced Practice Providers (APPs), Nurses, and Other ED Healthcare | Do not resuscitate (DNR) orders Children with special health care needs Family and guardian presence during all aspects of | | |
| Providers | emergency care, including resuscitation Patient, family, guardian, and caregiver education | | |
| Healthcare providers who staff the ED have periodic pediatric- specific competency evaluations for children of all ages. Areas of pediatric competencies include any/all of the following: | Discharge planning and instruction Bereavement counseling Communication with the patient's medical home | | |
| Assessment and treatment (e.g., triage) | or primary care provider as needed | | |

Telehealth and telecommunications

Domains

- 1.Administration/Coordination
- 2.ED Provider Pediatric Competency
- 3. Quality Improvement
- 4. Policies, Procedures, Protocols (Disaster)
- 5. Support Services
- 6. Safety Guidelines
- 7. Equipment, supplies, medication

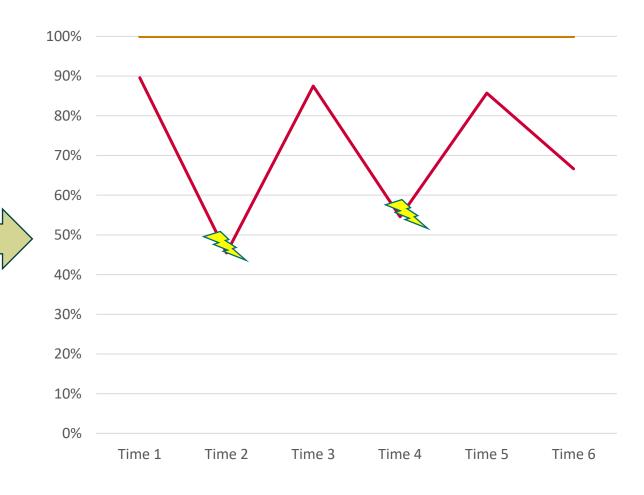
Policies/Procedures: Disaster

- Medications, vaccines, equipment, supplies and trained providers for children in disasters
- Care of children with special health care need
- Minimization of parent-child separation
- Tracking and reunification for children and families
- Pediatric surge capacity for injured and non-injured children

- Decontamination, isolation, and quarantine of families and children of all ages
- Access to specific behavioral health therapies and social services for children
- Disaster drills include a pediatric mass casualty incident at least every two years

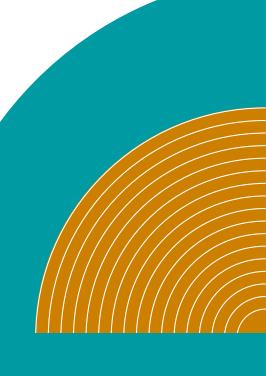
Forgetting Curve





Equipment: How to be Prepared Everyday and for Disasters

| Equipment/Supplies: General Equipment | Equipment/Supplies: Respiratory | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Patient warming device (infant warmer) IV blood and/or fluid warmer Restraint device Weight scale, in kilograms only (no opportunity to weigh or report in pounds), for infants and children Tool or chart that relies on weight (kilograms) used to assist physicians and nurses in determining equipment size and correct drug dosing (by weight and total volume) Pain scale assessment tools that are appropriate for age Rigid boards for use in CPR Pediatric-specific AED pads Atomizer for intranasal administration of medication | Endotracheal tubes uncuffed 2.5 mm uncuffed 3.0 mm cuffed or uncuffed 3.5 mm cuffed or uncuffed 4.0 mm cuffed or uncuffed 4.5 mm cuffed or uncuffed 5.0 mm cuffed or uncuffed 5.5 mm cuffed 6.0 mm Feeding tubes 5F 8F | Stylets for endotracheal tubes pediatric infant Suction catheters infant (6-8F) child (10-12F) Rigid suction device pediatric Bag-mask device, self-inflating infant (250 ml) child (450-500 ml) |
| Equipment/Supplies: Vascular Access Arm boards infant child Catheter-over-the-needle device 22 gauge | Laryngoscope blades straight: 0 straight: 1 straight: 2 curved: 2 Magill forceps pediatric | Non-rebreather masks infant child Clear oxygen masks infant child Masks to fit bag-mask device adaptor |
| | Manager Lands and Lands | Tactice daupter |



Equipment: How to be Prepared Everyday and for Disasters

- Easily accessible, clearly labeled, and logically organized
- ED staff is educated on the location of all items
 - Scavenger hunts
- Daily method in place to verify the proper location and function of pediatric equipment and supplies
- Standardized chart or tool used to estimate weight in kilograms if resuscitation precludes the use of a weight scale (e.g., length-based tape)
- Medication chart, length-based tape, medical software, or other systems is readily available to ensure proper sizing of resuscitation equipment and proper dosing of medications

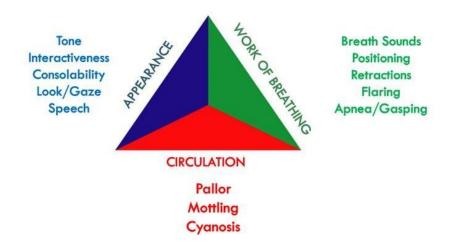
Policies/Procedures

Triage

- Identification and notification of the responsible provider of abnormal pediatric vital signs
- Everyday: PAT
- Disaster Triage: Jumpstart

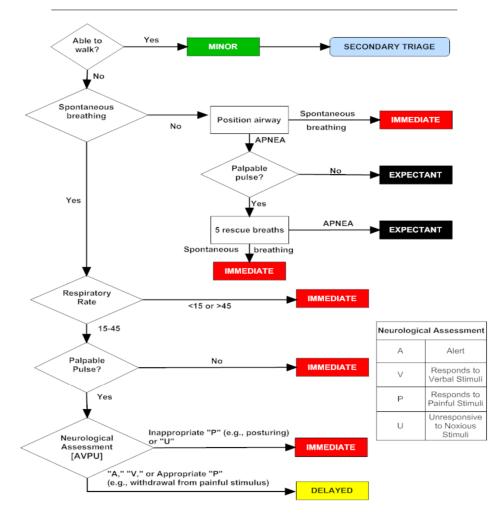
Triage

Everyday:
Pediatric Assessment Triangle
(PAT)



Disaster:

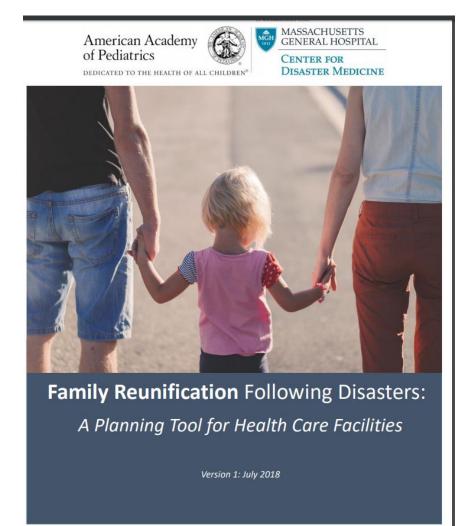
JUMPSTART



Policies/Procedures

Children in Disasters: Family Reunification

- Identification of children
- Confirmation of identity and guardianship
- Plans for children without a provider/identification
- Having 4 separate areas: Pediatric safe area, Family Assistance Center, Family Reunification Center, Media Center



Policies/Procedures

Death of the child in the ED

Bereavement counseling

Children with special health care needs

Consent for care, including when guardianship is not available

Behavioral Health

Activity Resource Packet



Purchasing Safe Pediatric Resource Materials

This ED staff purchasing guide is intended for ED PECC's and administrators that are able to purchase additional materials and activities for pediatric patients with a behavioral health condition.

Expand ~

Activity Kits

Normal Operations:
Boarding patients/MBH

Disaster:
Pediatric Safe
Area

Bereavement Counseling Death of a Child

Normal Operations

Disaster:

Family Reunification Cetner

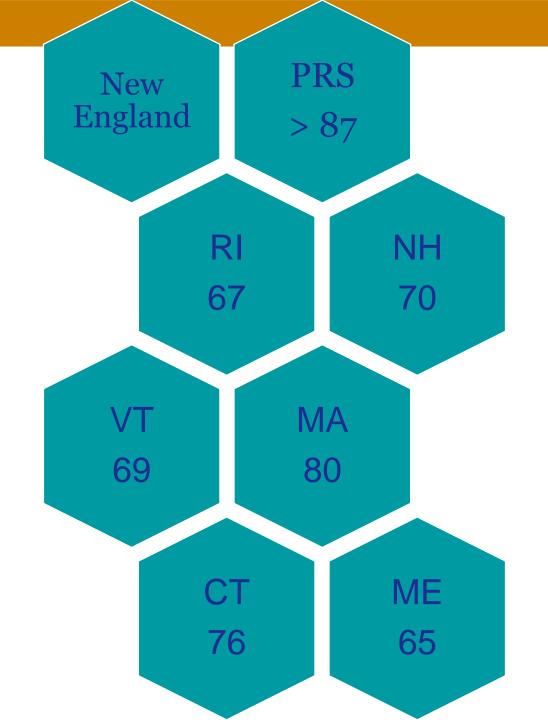
Children with Special Health Care Needs

Normal Operations

Disaster

Administration/ Competencies

- Administrative:
 - Pediatric Emergency Care Coordinator (PECC)
 - PECCs have been associated with increased pediatric readiness scores
 - Disaster Coordinator
 - Competencies-Disaster Drills
 - Ongoing education and preparation



Summary

The majority of children are seen in general EDs where most see less than 10 pediatric patients per day.

Lower pediatric readiness scores have been associated with higher mortality.

Being pediatric ready is a step towards large scale disaster preparedness.

Establishing a PECC is a great way to get started



Intro to EIIC/EMSC

Region I

Michelle Moegling, BSN, RN, CPN

Co-Lead EIIC Hospital Domain

Region V for Kids Subject Matter Expert and Project Manager



Disclosure

The EMSC Innovation and Improvement Center is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award (U07MC37471) totaling \$2.5M with 0 percent financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, HRSA, HHS or the U.S. government. For more information, visit HRSA.gov.



NPRP Hospital Checklist

 Updated checklist based on 2018 guidelines, revised in 2020



https://emscimprovement.center/domains/pediatric-readiness-project/readiness-toolkit/





Pediatric Readiness in the Emergency Department

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| hysicians, Advanced Practice Providers APPs), Nurses, and Other ED Healthcare roviders Healthcare providers who staff the ED have periodic pediatric- specific competency evaluations for children of all ages. Areas of pediatric competencies include anylall of the following: - Assessment and treatment (e.g., triage) - Medication administration | Children with special health care needs Family and quardian presence during all aspects of emergency care, including resuscitation Patient, family, guardian, and caregiver education Discharge planning and instruction Bereavement counseling Communication with the patient's medical home or primary care provider as needed Telehealth and telecommunications |
| Device/equipment safety Critical procedures Resuscitation | All-Hazard Disaster Preparedness |
| Resuscitation Trauma resuscitation and stabilization Disaster drills that include children Patient- and family-centered care Team training and effective communication | The written all-hazard disaster-preparedness plan addresses pediatric-specific needs within the core domains including: Medications, vaccines, equipment, supplies and trained providers for children in disasters |
| uidelines for the QI/PI in the ED | Pediatric surge capacity for injured and non-injured children Decontamination, isolation, and quarantine of families and |
| The QI/PI plan includes pediatric-specific indicators Data are collected and analyzed System changes are implemented based on performance System performance is monitored over time case see the quidelines/toolkit for additional details. | children of all ages Minimization of parent-child separation Tracking and reunification for children and families Access to specific behavioral health therapies and social services for children Disaster drills include a pediatric mass casualty incident at least every two years |

Toolkit

Policies, Procedures, and Protocols

Policies, procedures, and protocols for the emergency care of children are age specific and include neonates, infants, children, adolescents, and children with special health care needs. It is recommended that staff are educated accordingly and monitored for compliance and periodically updated. Click on the topic area to find relevant recommendations on policies, procedures, or protocols.

MEDIA TYPE



Document 1

SORT ORDER



(Most Recent



↓ Alphabetical



Search

16 Results



Illness and Injury Triage



Mental and Behavioral health

3 Resources

Immunization assessment and management



Sedation and Analgesia



Child Maltreatment

7 Resources

Death of a Child in the ED







Equipment, Supplies, and Medications

Prehos







Education & Competencies



Equipment & Supplies



Patient & Medication Safety



Patient- & Family-Centered Care



Policies, Procedures, & Protocols (to include Medical Oversight)



Quality & Process Improvement



About the ssessment 024



Interactions with Systems of Care





Pediatric Education and Advocacy Kits



iders; prolonged procedure time; slower healing) and lo roidance of healthcare settings; needle phobia, higher le e multi-modal pain care improves procedure success ratitient flow, and improves patient and caregiver satisfactive y's situation, level of distress, and life experience can hel

ALES IN CHILDREN

their pain. If unable [e.g., cognitive issues, non-verbal], th 10-3 years of age or non-verbal. or children 4-12 years of age. re - For children over 6 years of age re 0 is no pain and 10 is the worst pain



EIIC/TREKK BOTTOM LINE RECOMMENDATIONS: PAIN TREATMENT

Key facts and recommendations for treating pain in children.



and distress for the child, caregivers, and healthcare provid igher levels of anxiety before a procedure). Timely and effectives rates, prevents the need for repeated attempts, improves p sfaction.³ Before initiating any procedure: consider whether it is mize pain management, and engage caregivers in planning/dec

emain present if possible and provide them with guidance to cal, puch lif desired by the child, singing, and soothing words is g., may hold the child in a number of comfort positions that do not ct physical contact with caregiver!, and reck their child after the nefit from facilitated tucking (legs and arms tucked close to be refore/during/after procedures.

procedures (e.g., venipuncture, IV insertion) can be soothing for t e.g., pacifier! can be used if breastleeding is not available.

EIIC/TREKK BOTTOM LINE RECOMMENDATIONS: PROCEDURAL PAIN

Key facts and recommendations for procedural pain management in children.

AUDIENCE



ED clinicians 14



EMS clinicians 8



Nurses 15



Patients & Families 13

MEDIA TYPE



Search...

20 Results



∓ Pinned

EIIC: Administering Intranasal Pain Medications - prehospital

6 minutes





1 Details

PEAK: Agitation



PEAK: Child Abuse



▼ Pinned

OPENPediatrics: Pediatric Pain Management in the Emergency Department with Dr. Corrie



Search

National Pediatric Readiness Quality Improvement









DOMAIN 3: PEDIATRIC SURGE CAPACITY

Evaluating an institution's current surge capacity to identify weaknesses and develop strategies to address all aspects of surge capacity allows institutions to effectively prepare for current capacity and be better prepared for an unexpected high number of pediatric patients.

| RECOMMENDED ACTIVITY | FOUNDATION | INTERMEDIATE | ADVANCED |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Surge Planning | O Identify and continue to augment baseline pediatric capabilities: • Emergency department capacity. • Surgical capacity. • Extended care for up to 48-72 hours when immediate transfer is not available. O Establish a protocol to triage pediatric patients and determine which require priority transfer. O Establish a plan for accessing pediatric expertise at the community and regional level (telemedicine, phone consultation). O Consider establishing a formal relationship with local primary care pediatricians to augment surge capabilities. | O Establish a plan for caring for sick/ more complex pediatric patients as part of a surge especially when immediate transfer is not available. O Determine ability to augment capacity of pediatric services within the hospital: • Surge targets of 120%, 200%, 300% under conventional/contingency/crisis models. • Consider how to both expand pediatric capacity/capability and convert adult services to pediatric use. | O Lead coordination efforts across the region regarding pediatric patient transfers to regional pediatric centers. • Special considerations: burn, pediatric critical care (advanced respiratory and blood pressure support). O Establish a plan for how to provide pediatric expertise within the community (telemedicine, phone consultation). O Ensure pediatric considerations are included in regional crisis care guidelines and support regional transfer coordination for children with different/complex needs (pediatric-specific transport). |
| Surgical Capabilities | O Identify surgeons within your institution who already care for pediatric patients or are prepared to provide care in a disaster | O Identify immediate access to a pediatric surgeon. O Identify capabilities in pediatric | O Immediate access to pediatric surgical subspecialities regardless of trauma designation (orthopedics, |



Region Children

Children and Youth with Special Healthcare Need

Clinical Skills

Patient, Family, and **Provider Preparednes**



Care of the G-Tube Site

Quick concepts to support training for providers and parents to care for GT; 3 min (2019).









☐ Video

☐ Video

Emergency Trach Tube Change

Video simulation; 6 min (2016).









№ Webpage

Webpage

Virtual Home Visit for the Child With **Medical Complexity Course**

Preparedness for Feeding Tubes

Resource for families with feeding tubes.

Online course for providers (2019).











☐ Video

STARS Video 1: Gasric Tube Training

Video training lecture; 30 min (2020).











STARS Video 2: Pediatric **Tracheostomy Scenarios**

Video scenarios; 63 min (2020).









ds

Clinical Skills

THANK YOU!! QUESTIONS??



Questions

Thank you!







Region1RDHRS@mgh.harvard.edu



www.rdhrs.org



@Region1RDHRS

MGHBRT@partners.org

www.massgeneral.org/disaster-medicine

@MGHDisasterMed