

# Hospital Surge Recommendations and Resources for Pediatric Care

EMERGENCY



The recommendations and resources below were compiled by pediatric experts from the Pediatric Pandemic Network, Gulf 7 – Pediatric Disaster Network, Region V for Kids, the Western Regional Alliance for Pediatric Emergency Medicine, and the Emergency Medical Services for Children Innovation and Improvement Center.

These ideas and resources are designed to support immediate response to the ongoing surge of pediatric patients in children’s and community hospitals and to guide planning and preparation for future surges. Every hospital is different; the suggestions below may not be appropriate for all facilities and situations.

This is a work in progress. Please email [pediatricpandemicnetwork@gmail.com](mailto:pedsandemicnetwork@gmail.com) to share additional suggested resources. Updated versions will be shared at [pedspandemicnetwork.org](http://pedspandemicnetwork.org).

## **CONTENTS**

SURGE RESPONSE RECOMMENDATIONS	3
RESOURCES FOR RIGHT NOW	4
RESOURCES FOR PEDIATRIC PREPAREDNESS	X
ACKNOWLEDGMENTS & DISCLAIMERS	8

Note: The Pediatric Pandemic Network is also offering on-demand surge-related guidance. To request guidance for your hospital or healthcare system, email [pediatricpandemicnetwork@gmail.com](mailto:pedsandemicnetwork@gmail.com).

## Surge Response Recommendations

### Strategies and support systems:

#### Use available tools, technology, and relationships.

- Activate [Hospital Incident Command Systems](#) and review pediatric-focused alternate and crisis care standards (examples below).
- Work with local Healthcare Coalitions (HCCs) and review their Pediatric Surge Annexes for guidance on working with community partners for patient care (infusion centers, primary care providers), policies (such as elective procedure delay), and expanding pediatric bed capacity.
- Share your situation. Coordinate with local and regional facilities and community-based providers to share updates on key data such as bed capacity, case counts, wait times, and supply levels.
- Use telehealth for patients in non-emergency situations. Pediatric specialists can provide telementoring to non-pediatric providers to help guide triage and care.
- Use public messaging to promote disease and injury prevention and encourage parents/caregivers to call pediatricians/primary care providers before bringing children to hospitals (in non-emergency scenarios).
- Consider offering in-hospital vaccinations and boosters to patients and parents/caregivers.
- Apply a pyramid nursing model, where a more senior pediatric nurse supervises and/or assists adult nurses brought in to care for children.

#### Space: Maximize use of inpatient beds and outpatient facilities.

- Hospital:
  - Review and reaffirm transfer agreements with children's and community hospitals.
  - During rounds, start with patients who may be ready to leave, to expedite discharge.
  - Consider admitting older children directly to adult units, depending on age and condition (e.g., >12years old/post-pubertal, >40 kg, illness has similar adult and pediatric pathophysiology).
- Outpatient: Ask family practices, pediatricians, and urgent care facilities to extend hours and consider adjusting telehealth protocols to help meet demand.

#### Supplies: Monitor and restock relevant supplies.

- Keep pediatric-specific supplies stocked (see the [Critical Supply List](#) and the National Pediatric Readiness Project [Emergency Department Checklist](#)).
- Track products that are in high demand during a respiratory-illness surge, including:
  - Fluids and oxygen
  - Respiratory-illness treatments (such as palivizumab)
  - Pediatric intubation supplies, ventilators, and suction supplies
  - Pediatric personal protective equipment (PPE), including N95s
  - Diapers and diaper rash treatments
- Alert vendors of potential needs ASAP.
- Prehospital: Use the [Prehospital Pediatric Readiness Project Toolkit and Checklist](#), which includes guidance for EMS agencies on equipment, supplies, and patient safety.

## **Staff: Promote well-being and support just-in-time training.**

- Prioritize staff physical and mental health. Offer mental health resources for healthcare professionals and encourage staff vaccination to limit preventable illness.
- Provide access to education and training on critical topics, including:
- Clinical guidance on pediatric respiratory illnesses (see below).
- Pediatric emergency care (courses such as [PALS](#), [ENPC](#), [TNCC](#), plus asynchronous resources – see below.)
- Pediatric mental/behavioral health and patient- and family-centered care (see below).

## **Resources for Right Now**

### **1. Situational awareness**

- Healthcare Ready pediatric surge assessments and [situational reports](#) (sign up for weekly emails)
- [National Respiratory and Enteric Virus Surveillance System](#) (NRVSS) (data on RSV and other viruses)
- [CDC FluView](#) (weekly influenza surveillance report)
- [Children and COVID-19: State-Level Data Report](#) (American Academy of Pediatrics [AAP] and Children’s Hospital Association)

### **2. Clinical guidance on pediatric respiratory illness**

#### **Respiratory Syncytial Virus (RSV)**

- [Respiratory Syncytial Virus Infection \(RSV\) resources](#) (CDC, including information on symptoms and care, transmission, prevention, and RSV in infants and children)
- [Use of Palivizumab Prophylaxis to Prevent RSV Infection](#) (AAP, 2022)
- [Pediatric Collections: Respiratory Syncytial Virus \(RSV\)](#) (AAP open-access resources, various years)
- [AAP Red Book Online: Respiratory Syncytial Virus](#) chapter (AAP, 2021, requires log-in)
- [RSV in Infants and Children – Symptoms, Dangers, and Prevention](#) video (MountainStar Health, 2015)

#### **Bronchiolitis**

- [Clinical Practice Guideline: The Diagnosis, Management, and Prevention of Bronchiolitis](#) (AAP, 2014)
- [Clinical Pathways: Bronchiolitis](#) (Children’s Hospital Colorado – requires AgileMD log-in)
- [Bronchiolitis Pathway](#) (Seattle Children’s Hospital, 2022)
- [Bronchiolitis Clinical Practice Guideline](#) (The Royal Children’s Hospital Melbourne, 2020)
- [Bronchiolitis Clinical Guidelines](#) (Cook Children’s Medical Center, 2014)
- [Bronchiolitis Outpatient Pathway](#) (Monroe Carrel Jr. Children’s Hospital at Vanderbilt, 2018)
- [Bronchiolitis](#) article and podcast (Pediatric Emergency Playbook, 2016)

#### **High flow nasal cannula**

- [ASPR TRACIE Technical Assistance Request: High-Flow Nasal Cannulas \(HFNCs\) in Pediatric Patients](#) (collection of clinical pathways, guidelines, and other HFNC resources, 2022)
- [High Flow Nasal Cannula in the ED](#) video (Connecticut EMSC, 2022)
- [High Flow Nasal Cannula Training](#) webinar (Mass. Hospital Association/Department of Public Health, 2022)
- [High Flow Nasal Cannula in Bronchiolitis Guideline](#) (Boston Children’s Hospital, 2022)

- [Clinical Guideline: High-flow nasal cannula use in bronchiolitis](#) (Children’s Hospital of Richmond, 2019)
- [Early Initiation of Nasal High Flow in Pediatric Patients](#) video (F&P Healthcare, 2022)
- [High Flow Nasal Cannula](#) video (Mount Sinai Health System, 2020)
- [High Flow Help](#) video (Don’t Forget The Bubbles, 2021)
- [Implementation of a High-Flow Nasal Cannula Management Protocol in the Pediatric ICU](#) (Respiratory Care article, 2021)

#### **Additional respiratory illness clinical resources**

- [Increased Respiratory Virus Activity, Especially Among Children, Early in the 2022-2023 Fall and Winter](#) (CDC Health Alert Network Health Advisory from Nov. 4, includes clinical guidance and resources)
- [Recognition and Management of Pediatric Respiratory Distress](#) video playlist (OpenPediatrics)
- [Just-in-Time Basic Clinical Guidance for Pediatric Respiratory Illness](#) (WRAP-EM, 2022)
- [Pediatric Respiratory Education, Procedure Videos, and Live Respiratory Trainings](#) (EMSC Colorado)
- [Delivery of Medication via Nebulizers](#) video (OpenPediatrics, 2018)
- [Tips and Tricks to Pediatric Respiratory Distress](#) course (Prodigy EMS, 2022—free but requires log-in)
- [Pediatric Airway Toolbox](#) (Utah EMSC)

### **3. Surge response**

- [Pediatric surge resource collection](#) (ASPR TRACIE)
- [Caring for Patients in Inpatient and Outpatient Settings During Episodes of Surge](#) (AAP, 2022)
- [Best Practices for Improving Flow and Care of Pediatric Patients in the Emergency Department](#) (AAP technical report in Pediatrics, 2015)
- [Pediatric surge response resources](#) (Minnesota Department of Health, includes guides and checklists)
- [Hospital Incident Command System \(HICS\)](#) (including action sheets and response guides, 2014)
- [Just In Time Handbook: A Quick Pediatric Reference Guide for Adult Healthcare Providers](#) (WRAP-EM, PDF, 2021)
- [EMSC Connects newsletter – Nov. 2022](#) (Utah Emergency Medical Services for Children – EMS-focused surge resources)

### **4. Prevention & patient education**

- [We Can Do This vaccination messaging](#) (HHS)
- [Flu vaccine messaging toolkit](#) (AAP)
- [Call Your Pediatrician messaging toolkit](#) (AAP)

#### **For families/caregivers:**

- FAQs on RSV from [AAP](#), the [University of California-San Francisco](#), and [Ann & Robert H. Lurie Children’s Hospital of Chicago](#)
- [Patient education video on RSV](#) (Cleveland Clinic)
- [COVID-19 & Other Respiratory Illnesses: How Are They Different?](#) (AAP)

## General Sources

- [Centers for Disease Control & Prevention](#) (CDC)
- [American Academy of Pediatrics](#) (AAP), [Healthy Children](#) (AAP's parent/caregiver website), and [AAP Council on Children and Disasters](#)
- [ASPR](#) (Administration for Strategic Preparedness and Response) and [ASPR TRACIE](#) (Technical Resources, Assistance Center, and Information Exchange)
- ASPR Pediatric Disaster Care Centers of Excellence: Gulf 7 – Pediatric Disaster Network, [Region V for Kids](#), and the [Western Regional Alliance for Pediatric Disaster Management](#) (resources, trainings, and programs to support pediatric disaster work in their regions and nationally)
- [Emergency Medical Services for Children Innovation and Improvement Center](#) (EIIIC) (tools, webinars, and programs focused on improving pediatric emergency readiness)
- [National Pediatric Disaster Coalition](#) (robust and regularly updated [resource collection](#) on pediatric disaster preparedness, mitigation, response, and recovery)
- [National Pediatric Readiness Project](#) and [Prehospital Pediatric Readiness Project](#) (large-scale projects focused on improving pediatric readiness; resources include checklists and toolkits)

## Pediatric Surge and Crisis Standards of Care

### Pediatric surge annex resources for Healthcare Coalitions (from ASPR TRACIE):

- [Developing a Healthcare Coalition Pediatric Surge Annex](#) (2020 - webinar)
- [Healthcare Pediatric Surge Annex: Leveraging Templates for Operational Impact](#) (2021 - webinar)
- [Healthcare Coalition Pediatric Surge Annex Template](#) (PDF)
- [Pediatric Surge Annex Tabletop Exercise \(TTX\) Toolkit Template](#) (PDF)
- [Pediatric Crisis Standards of Care Template – COVID-19](#) (WRAP-EM, 2021)

### State-specific plans and annexes:

- AZ: [Arizona Crisis Standards of Care Plan](#) (Arizona Department of Health Services, 2021 - includes pediatrics)
- CA: [Perinatal, Neonatal, and Pediatric Surge Annex to the California Patient Movement Plan](#) (California Department of Public Health and Emergency Medical Services Authority, 2021)
- CA: [Los Angeles County Pediatric Surge Plan](#) (LA County EMS Agency, 2013)
- ID: [St. Luke's Boise Children's Hospital Surge Plan](#) (St. Luke's Boise Children's Hospital, 2020)
- IL: [Pediatric and Neonatal Surge Annex](#) (Illinois Department of Public Health, 2020)
- MN: [Minnesota Pediatric Surge Plan](#) (Minnesota Department of Health, 2019)
- MN: [Facility Pediatric Surge Preparedness Checklist](#) (Minnesota Department of Health, 2018)
- NY: [Pediatric \(Non-PICU\) Hospital Surge Plan Guidelines](#) and [Non-PICU Hospital Pediatric Disaster Surge Plan Template](#) (New York City Pediatric Disaster Coalition and New York City Department of Health and Mental Hygiene, 2020). [NICU](#) and [PICU](#) plan templates also available.)
- OR: [Pediatric Surge tools](#), including a [Surge Planning Toolkit](#) and [Pediatric Annex for a Hospital Emergency Operations Plan](#) (Oregon Health Authority and NW Oregon Health Preparedness Organization)

### **Additional pediatric surge resources:**

- [Platinum Pediatric Surge Playbook: Catastrophic Capable](#) (Recording of a presentation at the 2022 California Hospital Association's Disaster Planning Conference. [Download](#) the presentation; for additional related materials, see the [conference website](#).)
- Pediatric Surge Project video modules (Minnesota Department of Health, 2018; modules may reference documents/protocols specific to Minnesota):
  - [Crisis Standards of Care](#)
  - [Triage and Decontamination](#)
  - [Non-Traumatic Disaster](#)
  - [Children with Special Needs](#)
- [Operations and Incident Management PICU in the MICU: How Adult ICUs Can Support Pediatric Care in Public Health Emergencies](#) (CHEST Journal, 2022)
- [Managing a Busy Emergency Department](#) (article) and [The Respiratory Surge - How to Manage a Busy ED](#) (video) (Don't Forget The Bubbles, 2021 - UK-focused)
- [Pediatric Surge Planning: Train the Trainer curriculum](#) (Rady Children's Hospital-San Diego & San Diego County Healthcare Disaster Council, 2011 - PDF)

### **Mental Health**

#### **Pediatric mental and behavioral health:**

- Critical Crossroads: [Pediatric Mental Health Care in the ED](#)
- [New England Regional Behavioral Health Toolkit](#)
- [National Child Traumatic Stress Network](#)
- [WRAP-EM Mental Health Resources](#)

#### **Patient- and family-centered care:**

- [Institute for Patient- and Family-Centered Care](#)
- [Patient- and Family-Centered Care Toolkit](#) (EIIC)
- [Patient-and Family-Centered Care in EMS](#) (PPRP)

#### **Provider mental health:**

- [Toolkit for Emotional Coping for Healthcare Staff \(TECHS\)](#)
- [Mental Health and Resiliency Tools for Health Care Workers](#) (Minnesota Department of Health - compiled as a COVID-19 resource, but includes tools relevant to non-COVID situations)
- [Compassionate Options for Pediatric EMS \(COPE\)](#)
- [Code Green Campaign](#)<sup>®</sup> (education and advocacy focused on first responder mental health)

### **Pediatric Care in Emergencies and Disasters**

- [Pediatric Education and Advocacy Kits](#) (PEAKs on suicide, pain, status epilepticus, and agitation)
- [Pediatric Disaster Digital Toolkits](#) (links to pediatric disaster-related apps, Region V for Kids, 2021)
- [Pediatric Assessment Triangle video overview](#) and [reference card](#)
- [Emergency Severity Index \(ESI\)](#) (triage tool for emergency departments, includes pediatrics chapter)
- [Advancing Pediatric Telehealth Capability: Use of Technology During Disaster Response](#) (virtual tabletop exercise hosted by Region V for Kids, 2021)
- [Planning and Caring for Pediatric and Neonatal Patients in Disasters: Inpatient and Outpatient Guidelines](#) (Northwest Healthcare Response Network, 2020)
- [OpenPediatrics](#) (open-access educational content)
- [Model EMS Clinical Guidelines](#) (National Association of EMS Officials)

## Acknowledgments & Disclaimers

The Emergency Medical Services for Children Innovation and Improvement Center (EIIIC) is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of award U07MC37471 with 0 percent financed with nongovernmental sources.

The Regional Pediatric Pandemic Network (PPN) is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of grant awards U11MC43532 and U11MC45814 with 0 percent financed with nongovernmental sources.

Gulf 7 - Pediatric Disaster Network is supported by Award Number U3REP220671-01-00 from the Administration for Strategic Preparedness and Response.

Region V for Kids (formerly the Eastern Great Lakes Pediatric Consortium for Disaster Response) is supported by Award Number U3REP190615-01-01 from the Administration for Strategic Preparedness and Response.

The Western Regional Alliance for Pediatric Emergency Management (WRAP-EM) is supported by Award Number 6 U3REP190616-01-02 from the Administration for Strategic Preparedness and Response.

The content presented is that of the authors and does not necessarily represent the official views of, nor an endorsement by, ASPR, HRSA, HHS, or the U.S. Government.



The Pediatric Pandemic Network is supported in part by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of cooperative agreements U11MC43532 and U11MC45814 with 0 percent financed with nongovernmental sources. The content presented here is that of the authors and does not necessarily represent the official views of, nor an endorsement by HRSA, HHS, or the U.S. Government. For more information, visit [HRSA.gov](https://www.hrsa.gov).