# ASPR TRACIE Technical Assistance

**Request Receipt Date (by ASPR TRACIE):** 4 March 2021
**Response Date:** 10 March 2021
**Type of TA Request:** Complex

## Request:

The ASPR TRACIE Team was asked for resources that can help inform the development of a pediatric crisis standards of care (CSC) plan.

## Response:

The ASPR TRACIE Team reviewed existing resources, namely the following:

- Pediatric/ Children Topic Collection, specifically the Pediatric Surge Capacity section.
- An ASPR TRACIE TA request on pediatric patient movement resources.
- Crisis Standards of Care Topic Collection, which may be helpful in overall CSC planning.
- COVID-19 Crisis Standards of Care Resources, which provides CSC resources specific to COVID-19.

We also conducted a search online and outreach to our ASPR TRACIE Subject Matter Expert (SME) cadre members. Comments from our SMEs can be found in Section I of this document.

## I. ASPR TRACIE SME Cadre Member Comments

Please note: These are direct quotes or paraphrased comments from emails and other correspondence provided by ASPR TRACIE SME Cadre members in response to this specific request. They do not necessarily express the views of ASPR or ASPR TRACIE.

**SME Cadre Member 1:**

- With regards to pediatric CSC, the Centers for Disease Control and Prevention (CDC) convened workgroups on this several years ago but the general discussions are still relevant and not much has changed with the scoring:

  Christian, M., Toltzis, P., Kanter, R., et al. (2011). Treatment and Triage Recommendations for Pediatric Emergency Mass Critical Care. Pediatric Critical Care Medicine. 12(6 Suppl):S109-19.

  The authors discuss issues related to developing triage algorithms and protocols, and the allocation of scarce resources during pediatric emergency mass critical care.

- **The first step**, which is critical, is to leverage regional pediatric resources. The following articles relate to regional pediatric distribution relative to overload situations and outcomes.

Antiel, R.M., Curlin, F.A., Persad, G., et al. (2020). Should Pediatric Patients be Prioritized When Rationing Life-Saving Treatments during the COVID-19 Pandemic? Pediatrics. doi: 10.1542/peds.2020-012542.

This article addresses the ethical underpinnings of considering the needs of children versus adults during the COVID-19 pandemic when resources may be scarce.

Kanter, R.K. and Moran, J.R. (2007). Pediatric Hospital and Intensive Care Unit Capacity in Regional Disasters: Expanding Capacity by Altering Standards of Care. (Abstract only) Pediatrics. 119(1):94-100.

The authors used a simulation to determine how altered standards of care during a large-scale emergency or disaster could expand pediatric intensive care unit (PICU) beds and non-ICU beds. Modeling showed that altered standards could increase capacity, but that ICU beds would still be insufficient during large disasters.

Toltzis, P., Soto-Campos, G., Kuhn, E., et al. (2015). Evidence-Based Pediatric Outcome Predictors to Guide the Allocation of Critical Care Resources in a Mass Casualty Event. Pediatric Critical Care Medicine. 16(7): e207–e216.

The authors created an evidence-based crisis standards of care triage allocation scheme specifically for children. Results gathered from studying pediatric PICU subjects indicated improved population outcomes on "patients likely to benefit from short-duration ICU interventions."

Ytzhak, A., Sagi, R., Bader, T., et al. (2012). Pediatric Ventilation in a Disaster: Clinical and Ethical Decision Making. (Abstract only.) Critical Care Medicine. 40(2).

After the 2010 earthquake that struck Haiti, medical staff from the Israeli Defense Forces Medical Corps field hospital responded and was the only facility that had the capability to ventilate children and neonates during the first week after the disaster. The authors provide an overview of five case studies and the decision-making processes they went through using a tool developed for ventilator allocation during an influenza pandemic.

- **The next step** is to leverage all available resources in the area and distribute pediatric patients according to their needs (e.g., age <5 to designated pediatric center or those with complex congenital disease,, and those with more common problems or older kids to adult hospitals).
    - See the ASPR TRACIE Healthcare Coalition Pediatric Surge Annex Template, which includes sample pediatric plans.
    - Examining pediatric-specific predictors for outcome across a range of conditions is an excellent idea. The data is already robust for burn cases and we have good correlations with trauma (ISS scores). The absolute key is to make sure that it is

understood how those integrate with adult risk stratification. It will not work to have adult and pediatric CSC decision-making "silos" - there must be interface so there is consistency and understanding of what factors weigh how. We also cannot use younger age groups as a preferential factor in awarding resources, although this is an accepted value in many communities, it will not withstand legal challenge.

- **Finally**, it is important to note that staying OUT of CSC for pediatrics is the goal. Therefore, figuring out how to maximally leverage available regional resources for pediatrics comes first, and then determining how that spills over into other hospitals and how the distribution triage is accomplished.
- Making sure that all hospitals in the area have access to pediatric critical care consultation is important. This may be needed for care-in-place advice and support during large incidents or when weather, floods, or other factors limit transports/patient movement and is a critical link to the transportation prioritization to specialty centers (vs. those cases that can be handled in community hospitals safely).

**SME Cadre Member 2:**

- Many localities seem to be looking for a standardized scoring system for pediatrics. The Pediatric Logistic Organ Dysfunction 2 (PELOD 2) score calculator is a reasonable tool for this.
    - NOTE: The PELOD score calculator is referenced in the Scarce Resource Management and Crisis Standards of Care: Overview and Materials (Washington State Department of Health and Northwest Healthcare Response Network, 2020) resource cited in this document, specifically on page 43.

## II. Additional Select Resources

Please review the Pediatric Surge Capacity section of the Pediatric/ Children Topic Collection for additional resources.

Alameda County Public Health Department. (2017). Alameda County Operational Area Pediatric Medical Surge Plan and Resources.

This concise plan describes a tiered approach to meeting surge capacity needs during incidents with a disproportionately high number of pediatric patients that other jurisdictions may refer to when conducting their planning activities.

Arizona Department of Health Services. (2020). Arizona Crisis Standards of Care Plan: A Comprehensive and Compassionate Response.

This comprehensive plan is the result of years of collaboration between the state public health, healthcare, legal, ethical, and emergency management disciplines and can serve as a model for others. Sections include: Statewide Concept of Operations; Clinical Concept of Operations; Organization and Assignment of Responsibilities; Direction, Control, and Coordination; Information Collection, Analysis, and Dissemination; Communications; Administration, Finance, and Logistics; and Legal Considerations. **NOTE**: A section on pediatrics begins on page 54.

Boyer, E.W., Fitch, J., and Shannon, M. (2009). Pediatric Hospital Surge Capacity in Public Health Emergencies. (Archived.) Agency for Healthcare Research and Quality.

The special medical needs of children make it essential that healthcare facilities be prepared for both pediatric and adult victims of bioterrorism attacks and other public health emergencies. Clinicians and hospital administrators may use the report's recommendations to develop unique responses to mass casualty events involving pediatric patients.

Central Valley, CA. (2012). Regional Pediatric Disaster Surge Framework. California Hospital Association.

This document provides a framework for community collaboration to develop regional, comprehensive, integrated pediatric preparedness response plans.

Contra Costa Health Services Emergency Medical Services Agency. (2011). Contra Costa Pediatric/Neonatal Disaster and Medical Surge Plan and Preparedness Toolkit.

This toolkit was developed to facilitate disaster preparedness that involves the practice of including neonates and pediatrics in all county, provider agency, and hospital-based disaster exercises. It provides an example of implementing guidelines for emergency medical services for children at the healthcare coalition level.

Ginter, P.M., Rucks, A.C., Duncan, W.J,. et al. (2010). Southeastern Regional Pediatric Disaster Surge Network: A Public Health Partnership. Public Health Reports. 125(Suppl 5): 117-125.

This article describes the development of the Southeastern Regional Pediatric Disaster Surge Network, comprised of over 40 agencies and institutions working together since 2005 to establish a regional pediatric disaster preparedness network across five states: Alabama, Florida, Louisiana, Mississippi, and Tennessee.

Illinois Department of Public Health. (2017). Pediatric and Neonatal Surge Annex.

This plan provides a detailed framework for various stakeholders involved in an emergency response within the State of Illinois and surrounding states in order to protect children and provide appropriate pediatric medical care during a disaster. The plan can be used to guide a state-level response and provides local medical services guidance on the care of children, including patient movement, system decompression, recommendations for care, and resource allocation during a surge of pediatric patients. It includes several tools such as transfer forms and algorithms.

Los Angeles County Emergency Medical Services Agency. (2012). Pediatric Surge Quick Reference Guide. California Hospital Association.

This document contains summaries of critical information for managing the care of children during emergencies or disasters, including vital signs; risks during disasters; signs of respiratory distress; equipment sizes; and fluid resuscitation.

Los Angeles County Emergency Medical Services Agency. (2016). Los Angeles County Pediatric Surge Plan. California Hospital Association.

This plan provides details on how each hospital within Los Angeles County would support a pediatric surge of patients, including surge targets, supplies, and patient types. This plan also includes parameters for transporting children from prehospital field operations to healthcare facilities and transferring of patients among hospitals.

Minnesota Department of Health. (2019). Minnesota Pediatric Surge Primer.

This primer is geared for small community hospitals that do not usually provide pediatric trauma or inpatient services. It provides guidance that facilities and regions can follow to plan for pediatric patients in a mass casualty event.

Minnesota Department of Health. (n.d.). Pediatric Surge. (Accessed 3/9/2021.)

This webpage includes links to various resources in support of pediatric surge planning, including a Pediatric Surge Toolkit with assessment tools, planning tools, response tools, training tools, and exercise tools.

Minnesota Department of Health, Center for Emergency Preparedness and Response, Minnesota Healthcare Preparedness Program. (2020). Patient Care Strategies for Scarce Resource Situations.

This card set can help facilitate an orderly approach to resource shortfalls at a healthcare facility. It is a decision support tool to be used by key personnel, along with incident management, who are familiar with ethical frameworks and processes that underlie these decisions.

Stanislaus County Health Services Agency. (2019). Stanislaus County Healthcare Emergency Preparedness Coalition Pediatric Disaster Surge Plan.

This county-specific pediatric disaster surge plan supports the Stanislaus County Healthcare Emergency Preparedness Coalitions' (SCHEPC) Medical Health Surge Plan. This plan is intended to support, not replace, any agencies' existing policies or plans by providing uniform response actions in the case of pediatric emergency.

Utah Hospital Association. (2018). Utah Crisis Standards of Care Guidelines.

This document provides guidance on the allocation of patient care resources during a public health emergency of any kind when demand for services overwhelmingly exceeds the supply of the resources needed. **NOTE**: This document uses the Modified Sequential Organ Failure Assessment (mSOFA) Score to determine whether the patient receives treatment. However, recent evidence from COVID-19 confirms that the average score of 2-4 include the vast majority of COVID-19 patients. Chronic conditions, specifically end stage renal disease, causes disproportionate skewing of scores.

Washington State Department of Health and Northwest Healthcare Response Network. (2020). Scarce Resource Management and Crisis Standards of Care: Overview and Materials.

This resource provides: background information on CSC, scarce resource cards for potentially limited resources, algorithms, worksheets, triage team guidelines, and implementation recommendations.

Western Regional Alliance for Pediatric Emergency Management. (2020). Pediatric Crisis Standards of Care Template – COVID-19. (Please contact the ASPR TRACIE Assistance Center for a copy.)

This document provides guidance on pediatric CSC issues, including practical and legal considerations, scoring systems, and links to other relevant resources.