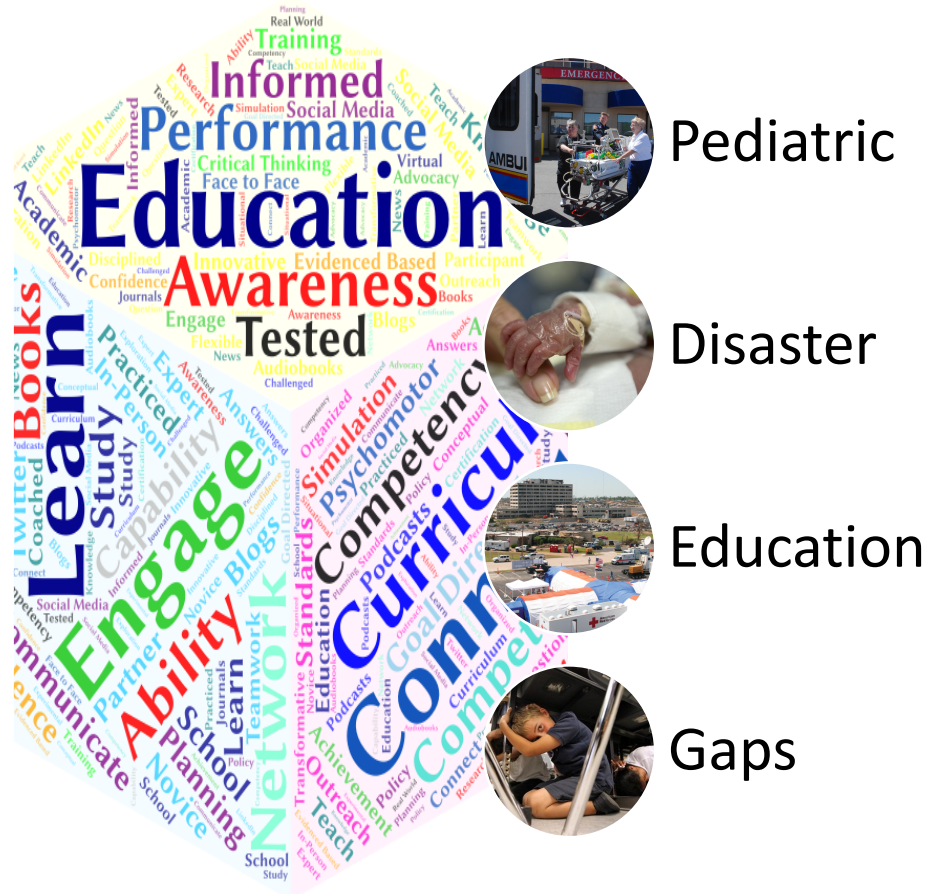


## The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

### SECTION 4. PEDIATRIC DISASTER EDUCATION GAPS



This section is part of a comprehensive review and analysis of current issues and trends in pediatric disaster education. The report explores current gaps and opportunities in pediatric disaster education. A Pediatric Disaster Education Concept of Operations is recommended to assure whole community inclusion of children in all phases of the disaster.

Eastern Great Lakes Pediatric Consortium for Disaster Response: Education  
Workgroup  
June 2021

# The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

## PEDIATRIC DISASTER EDUCATION GAPS

### Pediatric Disaster Education Gaps

Pediatric disaster readiness relies on a reliable foundation of general pediatric education and training. In a disaster, pediatric prehospital patient outcomes depend upon opportunity, familiarity, and competency in the care for children. Yet, the literature is full of surveys and studies, conducted by various disciplines, that identify critical gaps in pediatric care, pediatric emergency medicine, and pediatric disaster education. In many cases—especially in the prehospital setting—gaps in basic pediatric education contributes to gaps in pediatric disaster readiness.

One example is the findings from the [Children’s Safety Initiative](#), which conducted a national three-phase Delphi survey among prehospital service providers.<sup>1</sup> The study found significant deficits and the need for expanded pediatric training in general pediatric knowledge as well as emergency care that were part of day-to-day operations. The survey found that efforts to improve EMS pediatric care needed to prioritize pediatric airway management, patient assessment, decision-making, and mitigating anxiety. The recommendations, however, left it up to medical directors and educators to use the findings to improve education and training. The recommendations failed to call out the need for “systemic change” to successfully address education and training vulnerabilities.

### Disaster Education Gaps and Multidisciplinary Emergency Preparedness and Response

Pediatric disaster education gaps are tied to gaps in overall emergency preparedness. Opportunities to improve pediatric disaster capability depend on the engagement of allied health providers; these stakeholders are essential to pediatric disaster response operational teams, yet there is a lack of cross-sector education and training is standardized to support this level of response.

In 2011, the [Yale New Haven Center for Emergency Preparedness and Response](#) conducted a “Study to Determine the Current State of Disaster Medicine and Public Health Education and Training and Determine Long-term Expectations of Competencies.”<sup>2</sup> The study was designed to define disaster competencies by specialty for specific target groups (see chart), including accrediting bodies. This exhaustive study established a working panel and hosted six workshops involving multiple, diverse, and un-

integrated networks that included both military and civilian leaders. (See Appendix B for a link

APRNs	Dentists	LPNs	Physicians
Behavioral Health Professionals	Diagnostic Medical Sonographers	Medical and Clinical Laboratory Technologists	Physician Assistants
Cardiovascular Technologists & Technicians	Emergency Medical Technicians and Paramedics	Pharmacists	RNs
Veterinarians	Respiratory Therapists	Radiologic Technologists and Technicians	

# The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

## PEDIATRIC DISASTER EDUCATION GAPS

to this resource.)

To its credit, the working group included representatives from the EMS for Children Program, the National Advisory Committee for Children and Disaster, the National Association of Children's Hospitals, Children's National Medical Center (Washington, DC), and the National Commission for Children and Disaster. These entities participated in and helped to inform the study.

The resulting 408-page report, however, had only a *single reference* related to children, which came in response to the following post-conference survey question:

- **Question:** Are there any topics that you would have liked to have been covered, but were not?
- **Response:** *Panel on what non-government entities are doing at the community level. Recognition on day 1 about how the issues of children and disaster are different for adult populations*

Although children were not the integrated into the working group analysis, the Yale New Haven study identified significant opportunities and systemic barriers to achieving disaster education competency, which directly impact national pediatric disaster readiness efforts to this day.

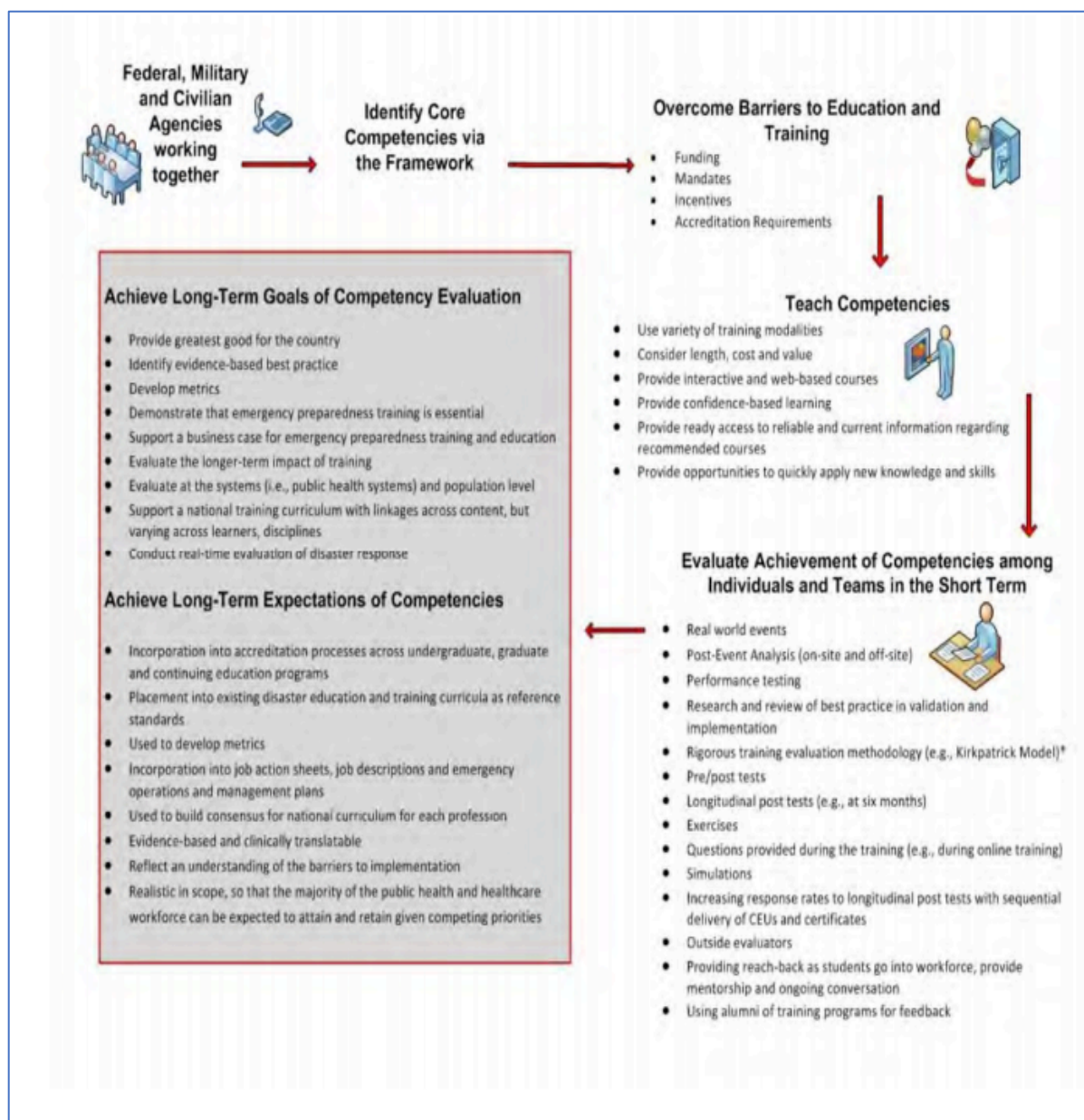
The barriers impeding integration were identified as systemic and primarily process barriers that interfere with efforts to transform process into practice. They include:

- Multiple, diverse and un-integrated networks among military and civilian healthcare responders.
- Mandates, regulations, or standards for civilian preparedness that differ from those of military responders.
- Organizational barriers that prevent effective communication and decision-making.
- Lack of a common vocabulary among civilian and military medical responders.
- Civilian responder jurisdictional control.
- Lack of a comprehensive listing of related medical response research topics.
- Lack of coordination efforts for medical response curriculum requirements, training, and tracking

The results of the Yale New Haven study produced the following framework, which illustrates long-term, national goals of competency development and evaluation:<sup>3</sup>

# The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

## PEDIATRIC DISASTER EDUCATION GAPS



**Illustration:** Yale New Haven Center for Emergency Preparedness and Disaster Response Report (Nov, 2011)

The study identified, more than 10 years ago, systemic barriers and opportunities to creating disaster competency. Moreover, the study's after-action laid the groundwork for the National Center for Disaster Medical and Public Health workshop in 2011, which subsequently provided [Curriculum Recommendations for Disaster Health Professionals The Pediatric Population](#).<sup>4</sup>

Pediatric Disaster Education Gap Analysis: "It depends on your discipline, operational, and organizational experience & priorities."

# The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

## PEDIATRIC DISASTER EDUCATION GAPS

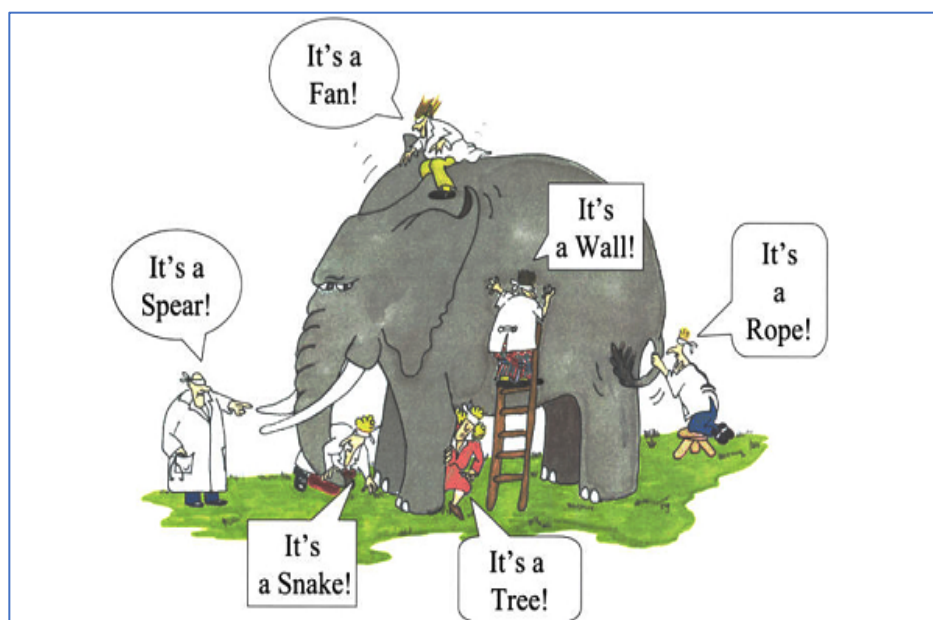


Illustration: <https://bit.ly/354fz1x>

It is vital that disaster leaders stop seeing pediatrics as a niche capability and start promoting pediatric disaster readiness in their communities. Education is a dynamic process that consists of many dimensions, the most crucial being relaying actionable knowledge, skills, and abilities (KSAs) to create capability and confidence. While there are no uniform KSAs for Pediatric Disaster readiness, there are clear systemic pediatric disaster education vulnerabilities that can be found in the literature. These systemic gaps fall into the following categories: content, workflow, workforce, knowledge, standards, policies, structural, and experience gaps (see chart below).

<b>Content Gaps:</b>	<b>Workflow Gaps:</b>	<b>Workforce Gaps:</b>	<b>Knowledge Gaps:</b>
A lack of evidence or training information exists to create an educational program	A lack of systems to continuously assure reliable quality education and training including time and space	A lack of personnel to participate or conduct training or individuals with the knowledge, skills, and abilities to lead educational activities.	A lack of availability to education and training clinical or operational knowledge driven by inadequate science or opportunity.
<b>Standards Gaps:</b>	<b>Policy Gaps:</b>	<b>Structural Gaps:</b>	<b>Experience Gaps:</b>
A lack of a consensus in local or national standards or common aims for training various disciplines within a community	A lack of policy or regulatory guidance established by and with institutional or governmental entities	A lack of equipment, space, time, or materials to conduct or practice knowledge, skills, and abilities	A lack of practical hands-on experience that requires the integration of psychomotor and critical thinking.

## **The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report**

### **PEDIATRIC DISASTER EDUCATION GAPS**

Operationally, education should be designed to engage learners in the essential KSAs that promote confidence and capability when dealing with children during disaster events. The knowledge, skills, and abilities taught or relayed to learners are dependent on the individual's discipline, role, operational and organizational experience, and priorities during the event. There should be reliable methods to ensure that appropriate education is effectively delivered *and* received by learners.

Collaborative leadership and resources are required to successfully create systemic change. Content gaps associated with pediatric disaster competency are the easiest to address—but these efforts must be coupled with systems for content review and effective delivery. In contrast, gaps in experience are more difficult to resolve because doing so relies on mitigating other, systemic educational barriers. Pediatric disaster educational activities are commonly the domain of academic, scientific, or professional organizations that have the funding and capability to produce high-quality disaster training. Unfortunately, these exceptional resources are often not connected to local and regional whole-community mitigation, preparedness, response, and recovery efforts.

Calls for improvements in pediatric education across disciplines as part of health provider entry to practice to address pediatric education gaps have been made for decades. The process of updating established curriculums is seen as laborious and costly, however. Wide variation exists in amount of time each discipline dedicates to pediatric training. For example, Emergency Medical Technician- (EMT) level providers receive only approximately four hours of pediatric content as part of their 120-hour certification training. Yet, EMTs are expected to be competent in pediatric patient movement; trauma; triage; and Chemical, Biologic, Radiologic, Nuclear and Explosives (CBRNE). Similarly, it is rare to see initial Nursing, Medical, and Allied Health provider basic training that equips these providers to address children's care in disaster. This lack of inclusion leads to downstream impacts, such as the common perception that the sole responsibility for pediatric emergency care rests with pediatric regional hospitals and specialists.

This systemic lack of introduction to whole-population disaster concepts is contrary to the tenets promoted in the [National Response Framework](#),<sup>5</sup> which places great importance on a collaborative, coordinated preparedness efforts that emphasize “whole population” and “whole community” approaches to capability as part of [Emergency Support Function #6](#)<sup>6</sup> (Mass Care, Emergency Assistance, Temporary Housing and Human Services Annex) and [Emergency Support Function #8](#)<sup>7</sup> (Public Health and Medical Services Annex).

Health care providers do participate in continuing education activities after graduation in order to qualify for license renewal and/or as part of organizational or accreditation mandates. Requirements vary between states and jurisdictions, however, and the organization and individual bear the time and cost of continuing education activities. Adding pediatric disaster continuing education requirements as part of mandatory education continues to be perceived as both challenging and costly.



# **The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report**

## **PEDIATRIC DISASTER EDUCATION GAPS**

Pediatric disaster education gaps are highly variable; this makes it difficult to implement a one-solution approach. How the gaps manifest themselves is strongly influenced by an individual's discipline, operational and organizational experience, and priorities. There are, however, consistent themes that highlight the challenges posed by a lack of awareness, an inability to effectively access training solutions, and anxiety and fear on the part of providers who are not experienced in pediatrics of "getting it wrong."

### The Role of Funding in Creating Pediatric Disaster Education Solutions

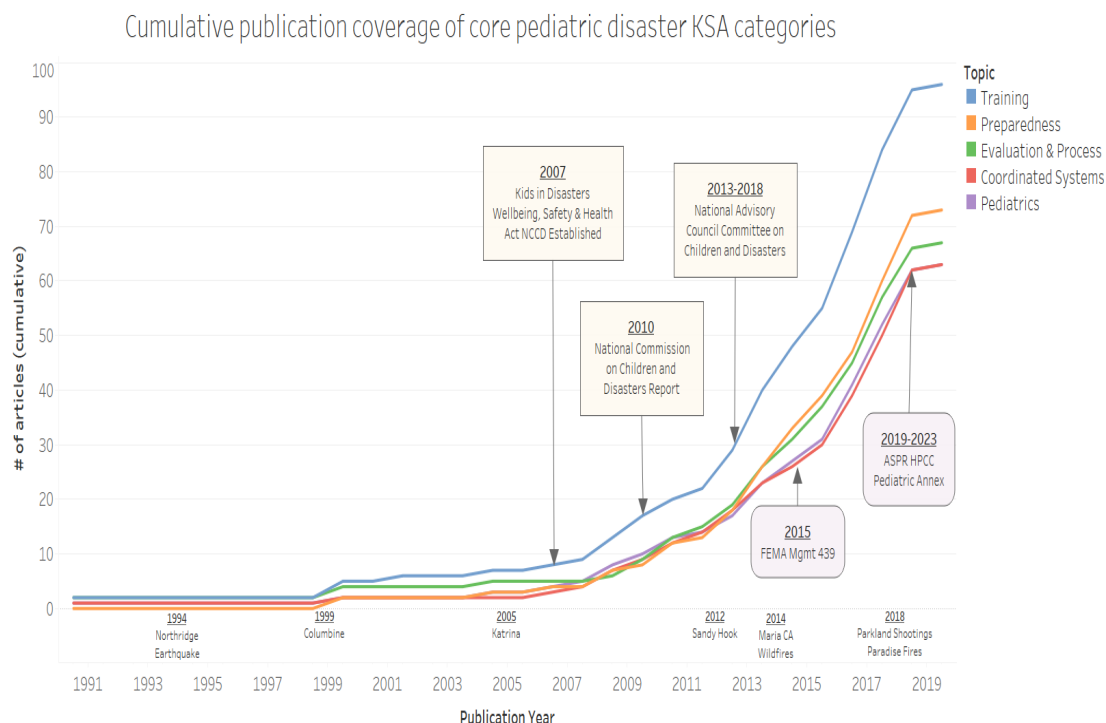
Every gap analysis conducted in disaster education and training has addressed the important role of federal funding to support capability. Funding is a powerful incentive to increase interdisciplinary engagement and collaboration. Funding has successfully closed many of the "content gaps" associated with pediatric disaster education; it should now pivot to close the systemic operational gaps that persist at the local, regional, and state levels.

The EGLPCDR education workgroup conducted a systematic pediatric disaster literature review and found that federal policies and funding in response to real-world events are strongly aligned with pediatric disaster education. Unfortunately, it was common to find that, without sustainable funding, pediatric disaster content efforts were disrupted; the result was of resources "dying on the vine" with no continuity of operations or plan for review, update, and/or deployment. Given the amount of effort, time, and advocacy required, future federal grant incentives should promote up-to-date sustainable, open-source, systems of multi-discipline deployable pediatric disaster education.

The illustration below represents a timeline of the volume of pediatric and disaster core curriculum publications and major, high-profile disaster incidents between 1991 and 2019. The timeline illustrates the establishment of federally-funded pediatric disaster national commissions and initiatives, and the volume of pediatric and disaster core curriculum literature. The clear association of high-profile disaster incidents and core curriculum publications focused on top KSAs strongly suggests that such crisis events are powerful drivers of guidance. In this limited review, the core curriculum literature's top KSAs were most associated with training, preparedness, evaluation and process, coordinated systems, and pediatrics.

# The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

## PEDIATRIC DISASTER EDUCATION GAPS



### Summary & Recommendations

Numerous gaps in pediatric disaster education and training persist due to the focus on content rather than on systemic improvement. Future funding on the part of HHS/ASPR should promote sustainable systems of pediatric disaster education and training on the local, regional, and state leadership levels.

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*Illustrations and Graphics that are not referenced are provided via courtesy of Microsoft Word Stock Images & Opensource Online Photos*



# **The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report**

## **PEDIATRIC DISASTER EDUCATION GAPS**

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# **The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report**

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# **The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report**

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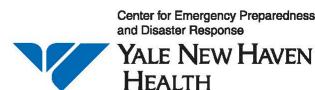
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# The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

## PEDIATRIC DISASTER EDUCATION GAPS

### Appendix B. Yale / New Haven Health, Study to Determine the Current State of Disaster Medicine and Public Health Education and Training and Determine Long-term Expectations of Competence



## **Study to Determine the Current State of Disaster Medicine and Public Health Education and Training and Determine Long-term Expectations of Competencies**

By

Yale New Haven Center for Emergency Preparedness and Disaster Response  
Principal Investigator

For

North American Aerospace Defense Command  
and United States Northern Command

November 30, 2011

**Contract No. W911NF-07-D-0001**

**Delivery Order No. 0824/TCN 09-238**

**Scientific Services Program**

Download Yale/New Haven Health at: <https://drive.google.com/file/d/16VJ-vNImJcJrR0s1nIV1Sj2IP-2GYjCx/view?usp=sharing>

# The State of Pediatric Disaster Education: A Comprehensive Review & Analysis Report

## PEDIATRIC DISASTER EDUCATION GAPS

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<sup>2</sup> Yale New Haven Center for Emergency Preparedness and Disaster Response (Nov 30, 2011) "Study to determine the current State of Disaster Medicine and Public Health Education and Training and Determine Long-term Expectations of Competencies" for North American Aerospace Defense Command and US Northern Command. Accessible upon request: National Center for Disaster Medicine and Public Health.

<sup>3</sup> Yale New Haven Center for Emergency Preparedness and Disaster Response (Nov, 2011) "Study to determine the current State of Disaster Medicine and Public Health Education and Training and Determine Long-term Expectations of Competencies"  
<https://ncdmph.usuhs.edu/research/publications/reports>

<sup>4</sup> Johnson, et al (June 2014) Curriculum Recommendations for Disaster Health Professionals: The Pediatric Population. <https://bit.ly/2YYrwmy>

<sup>5</sup> FEMA (2020) <https://www.fema.gov/emergency-managers/national-preparedness/frameworks/response>

<sup>6</sup> FEMA (2020) [https://www.fema.gov/sites/default/files/2020-07/fema\\_ESF\\_6\\_Mass-Care.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_ESF_6_Mass-Care.pdf)

<sup>7</sup> FEMA (2020) [https://www.fema.gov/sites/default/files/2020-07/fema\\_ESF\\_8\\_Public-Health-Medical.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_ESF_8_Public-Health-Medical.pdf)