

Toward the Way Forward: The National Children's Disaster Mental Health Concept of Operations

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ABSTRACT

Although increasing evidence suggests that children are at particular risk from disasters and evidence-based practices have been developed to triage and treat them effectively, no strategy or concept of operations linking best practices for disaster response is currently in place. To our knowledge, this report describes the first effort to address this critical gap and outlines a triage-driven children's disaster mental health incident response strategy for seamless preparedness, response, and recovery elements that can be used now. The national children's disaster mental health concept of operations (NCDMH CONOPS) details the essential elements needed for an interoperable, coordinated response for the mental health needs of children by local communities, counties, regions, and states to better meet the needs of children affected by disasters and terrorism incidents. This CONOPS for children proposes the use of an evidence-based, rapid triage system to provide a common data metric to incident response and recovery action and to rationally align limited resources to those at greater need in a population-based approach.

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Key Words: children, disaster, psySTART triage, evidence base, national incident management system

The impact of disasters on the mental health of the nation's children is increasingly clear and reveals the need for an enhanced strategy at local, state, and national levels. The effects on children fall along a continuum, ranging from new incidence disorder and complex comorbidities to short-term distress with a trajectory toward resilience¹ and eventual post-traumatic growth for some.^{2,3} Neria and colleagues state that "the evidence suggests a particularly high prevalence of PTSD [posttraumatic stress disorder] among directly exposed children."⁴ (p470) In one of the few longitudinal studies involving children, a study of survivors of a shipping disaster that occurred during their adolescence revealed that approximately one-half developed incident-related PTSD in the succeeding five to eight years.⁵ PTSD commenced within six months of the disaster for most⁵ and endured for more than five years in one-fourth of those who developed the disorder.⁵ More than one-third of the survivors, compared to approximately 17% of an unexposed comparison group, developed major depression.⁶ Some studies have investigated outcomes dimensionally, in terms of emotional and behavioral responses rather than diagnoses. For example, in a longitudinal study of children exposed to Hurricane Andrew, most children in both high- and low-impact schools where participants were enrolled endorsed at least moderate levels of posttraumatic stress symptoms.⁷ These symptoms endured at moderate to severe levels for 70% of the participants from the high-impact school who were followed up at 21 months.⁸

Beginning with the Oklahoma City bombing and continuing with the September 11 attacks and Hurricane Katrina, significant progress has been made in the understanding of the continuum of impact created by disasters and terrorism on children and adolescents. Simultaneously, substantial advances have occurred in the development of evidence-informed practices in psychological first aid⁹⁻¹¹ for general populations, but only one model has been developed specifically for children.^{12,13} Importantly, an empirical evidence base has been developed for definitive, intensive interventions: trauma-focused cognitive behavioral therapy and cognitive behavioral intervention for trauma in the schools¹⁴⁻¹⁶ for highly traumatized children. A novel evidence-based rapid triage system is now available to quickly identify children who are most vulnerable and to estimate the level of risk in the affected population.¹⁷⁻²²

In spite of these discrete advances in the science of children's disaster mental health, real-world experience reveals that children, particularly those at high risk for new incidence disorder, remain significantly underserved. Findings from the September 11 attacks and Hurricane Katrina have consistently demonstrated that only a minority of high-risk or very symptomatic children receive evidence-based care. For example, following the September 11 terrorist attacks in New York City, only 27% of children with severe or very severe reactions has received counseling services up to five months after the disaster.²³ Recent longitudinal evidence from Hurricane Katrina has shown that approximately four years

post-event, 40.8% of parents in Louisiana and 49.1% of parents in Mississippi reported that their children still had mental health disorders as a result of the hurricane.²⁴ These findings suggest that critical windows of opportunity may be missed to intervene early with best practice and evidence-based care for high-risk children.

Substantial gaps in meeting the mental health needs of children and families across the continuum of disaster phases (ie, preparedness, response, and recovery) endure and constitute a national challenge. Both the National Advisory Committee on Children and Terrorism and the National Commission on Children and Disasters have concluded that more must be done to specifically address the mental health needs of children in the context of disasters and terrorism. To our knowledge, this report describes one effort to address the issues facing children and to reduce the gaps that exist by creating the first comprehensive national children's disaster mental health concept of operations (NCDMH CONOPS) as a blueprint for the "way forward" in a comprehensive disaster mental health response. The purpose of this NCDMH CONOPS is to enhance local and state capability and capacity by addressing the continuum of children's disaster mental health needs in an all-hazards framework with a goal to facilitate resilience.

This NCDMH CONOPS is implemented via specification of discrete operational activities along the continuum of preparedness, response, and recovery, while accounting for the continuum of risk and resilience in the child population. The NCDMH CONOPS leverages existing national best practices by matching the continuum of risk to a corresponding continuum of timely, evidence-based care through the use of a rapid disaster mental health triage system that includes key local children's disaster systems of care.¹⁷⁻²²

Collectively, current research and national policy reveal that children are at differential risk for disaster-engendered mental health consequences and require specialized operational plans heretofore not developed. It is in this context that the NCDMH CONOPS begins with the consensus scientific observation that children are especially vulnerable to the effects of disasters.^{1,4} This CONOPS advances the first comprehensive, evidence-based, unified operational approach that can be leveraged and customized at the local, state, and national levels to collectively improve the national response to children.

THE NCDMH CONOPS STRATEGY

The CONOPS model is built on goals and key tactical operating principles that constitute the basis of the approach. The NCDMH CONOPS builds on federal leadership in this area including the Federal Emergency Management Agency (FEMA) Whole Community approach²⁴ and the US Department of Health and Human Services Field Operations Framework.²⁵

Goals of the NCDMH CONOPS Model

Service. The best possible disaster mental health evidence-based service should be delivered to the nation's children in emergency mass casualty disasters so that children's mental health and resilience are maximized based on their unique needs.

Continuity. A continuum of scalable, evidence-based disaster mental health interventions and practices should be integrated with public health, medical, human services, educational, and disaster preparedness/resilience building efforts.

Preparedness. Best practice, evidence-based modalities should be used by all of America's disaster mental health resources, including public and private mental health professionals and organizations that may be called on to respond to the disaster mental health needs of the nation's children. The use of children's disaster mental health competencies across local, regional, and state children's disaster systems of care should be a discrete benchmark to indicate all-hazards preparedness.

Anticipation. National, state, and local disaster systems of care should adopt a "lean-forward" posture that includes pre-event anticipation and possible advisory alerts specifically for the mental health needs of children.

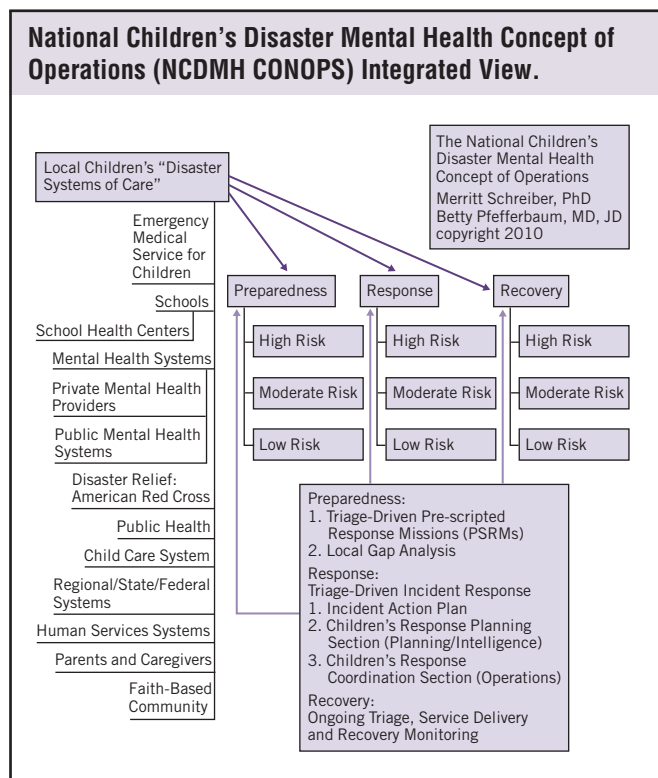
Evidence-Based Response and Recovery. The response to children should include a stepped or tiered capability. The national response to children in mass casualty incidents should be scalable based on the scope of impact, including the number of children affected; surge demand; local resources; the geographic dispersion of the incident; and the distribution of risk severity. The specific response to children will be tiered and matched to relative risk for enduring disorder and/or resilience.

Timely Triage Matching to Care. Timely delivery of specific evidence-based practices to certain high-risk children may improve clinical outcomes. Rapid needs estimates, including locations, types, and number of children at risk, will facilitate improved population-level resilience of children by quickly determining needs and scaling response to provide services based on level of risk.

Flexible, Engaged Partnerships. The national response for children should be flexible with the partnerships it employs to achieve mutually-supportive disaster systems of care²² serving children (eg, American Red Cross, child congregate settings including schools, medical examiner, federal medical stations, volunteers, and federal disaster mental health sources). This goal is consistent with the Whole Community approach recently articulated by FEMA.

Sustainable. The national response for children should be sustainable across preparedness, response, and recovery phase efforts for people at risk.

FIGURE 1



Comprehensive. The national operational response should address the continuum of mental health risk, including a graded range of acute and long-term evidence-based interventions for children across all disaster phases.

Integration. National disaster systems of care shall coordinate with disaster mental health providers, mental health organizations, and disaster relief to support a linkage of incident-appropriate practical assistance at local-, state-, or national-level resources.

Unity of Effort. The national disaster systems of care response will achieve unity of effort of disparate interagency partner resources through a unified disaster mental health incident coordination strategy. Clarity of purpose and unity of effort should be achieved through shared objectives that are understood and agreed on and understood by all involved in disaster mental health response operations across national incident management system (NIMS) levels. Varied disaster systems of care will respond to children's needs in a predictable and consistent manner.

Communication. Disaster systems of care will ensure an effective response by communicating rapidly, consistently, clearly, and directly with disaster mental health response elements and families. The goal is to communicate using a common language of risk and requirements to achieve a common operating picture.

Performance Improvement. Disaster systems of care serving children shall be a high-performance organizational structure that achieves sustained community engagement for the ongoing evolution of disaster mental health response and recovery actions. A performance-improvement process should be embedded in the system via after-action reports and a defined, accessible lessons-learned system.

Key Operational Features

- Principle 1: Assess and address the continuum of mental health risk in children.
- Principle 2: Adopt an all-hazards approach to include the unique impact on children of chemical, biological, radiological, and nuclear incidents.
- Principle 3: Assess individual- and population-level impact.
- Principle 4: Implement a local, rapid mental health triage-driven incident management system that is characterized by a seamless triage-to-care service delivery system across diverse children's disaster systems of care.

CONOPS principle 4 is elaborated as an example. This principle begins with the basic premise that disaster response requires situational awareness and a common operating picture. The 2010 National Health Security Strategy²⁶ (NHSS) requires that government "ensure situational awareness, foster integrated scalable health care delivery . . . and leverage connections between routine health promotion and emergency preparedness." In the NCDMH CONOPS model (Figure 1), this integration is achieved via the use of the PsySTART Rapid Mental Health Triage and Incident Management System.^{16,17,19} This system collects evidence-based, rapid individual triage data obtained in key disaster systems of care²² including hospitals, clinics, schools, decontamination sites, mass casualty collection points, and disaster relief settings, such as American Red Cross shelters. This system allows for aggregation of individual-level triage data to generate an estimate of the population-level impact of a disaster or terrorism incident across sentinel sites. This system also permits aggregated triage-risk data to be shared across children's disaster systems of care in near real time, permitting shared situational awareness of triage levels and specific risk indicators. This information can then be used to determine levels, types, and locations of children's mental health needs. The incident action plan and planning and operations functions within a local, state, or national incident command system are then informed, in turn. When needs outstrip resources and the crisis standards of care are created, the system permits the rational allocation of limited resources to those most in need by using a "floating triage algorithm."¹⁷⁻²⁰ This algorithm matches relatively higher risk children first, within the larger high-risk category, and thus provides an ethical way to align limited resources, which follows recent crisis standards of care guidelines.²⁷

The NCDMH CONOPS also includes essential operations sub-components: the identified sub-components are designed to achieve unity of effort and a common operating picture across

disaster systems of care. To accomplish this with near real-time situational awareness, local communities, states, and national partners use a shared, triage-driven continuum of emergency mental health operations across pre-event, response, and recovery phases. The broad mission profile includes:

- A novel child-focused, triage information-driven incident action plan process in near real time.
- Engagement of disaster systems of care²² operating at key touch points, including field settings such as federal medical stations, national disaster medical system settings, American Red Cross shelters, casualty collection points, family assistance centers, points of dispensing, hospitals, decontamination sites, and other incident-specific settings (eg, radiation screening “portals”).
- Provision of child-specific, seamless “triage to care” including population-level mental health risk epidemiology and mental health surveillance throughout all phases of response and recovery.
- Provision of disaster mental health messaging that targets parents and those who serve children based on evidence-informed strategies (eg, the “Listen, Protect, and Connect” psychological first aid for children delivered by parents and adapted for public messaging and social networking venues).
- Provision of evidence-based and timely clinical disaster mental health services to symptomatic and at-risk child victims and parents who require and desire them.
- Establishment of a discrete child-specific disaster mental health tactical element in the planning and operations section within the incident command system across all NIMS levels.

NCDMH CONOPS Structural Elements

Although, local, state, and national entities may already have a disaster mental health element in their emergency plans, the NCDMH CONOPS significantly expands the traditional incident command system (ICS) with refined structural and functional elements to better meet the needs of children. The ICS contains an operations section and a planning section but lacks, at present, a common data metric. Also, it is not sufficiently operational at the tactical level to meet the mental health response to the needs of children. Accordingly, the NCDMH CONOPS develops new refinements of the traditional incident command system to address the mental health needs of children.

First, a new ICS-compliant children's response coordination section (CRCS) structure has been designed to augment the traditional operations section. In this new structure, the CRCS facilitates coordination to all jurisdictional operations in support of the emergency response by implementing the organizational level's incident action plan (IAP). At the field level, the operations section/CRCS is responsible for the coordinated tactical response directly applicable to, or in support of, the response objectives in accordance with the IAP. The CRCS

provides overall tactical management of disaster mental health operations to address the continuum of children's needs, thereby establishing unity of effort in a defined incident operational area between children's disaster systems of care. Finally, the CRCS supports field disaster mental health efforts in accordance with their initial children's mental health IAP.

Second, within ICS planning/intelligence, a new children's response planning section (CRPS) has been developed. The CRPS is responsible to collect, evaluate, and disseminate operational information related to the incident for the preparation of the IAP using rapid triage data and other sources. More specifically, the CRPS functions include:

- Situational awareness processes and capacities focused specifically on issues impacting children and their families;
- Child-specific IAPs development during pre-event, response, and recovery;
- Advance planning processes, including preparation of a crisis counseling program application and support for requesting enhanced or specialized crisis counseling services; and
- Mutual aid linkage.

The CRPS is supported by local mental health professionals, “reachback” subject matter experts, and/or others on an incident-specific basis. The CRPS may also flexibly include a virtual subject matter reachback advisory component in addition to in-person input by subject matter experts based on incident-specific features.

The local CRPS will assume primary responsibility for the planning and intelligence functions within an existing mental health emergency plan and operational response structure. The CRPS also maintains information on the current and forecasted situations and on the status of resources assigned to the emergency by the emergency operations center specific to the mental health needs of children. In large events, unit coordinators are appointed as needed to collect and analyze triage data, prepare situation reports, develop action plans, set geographic information systems (GIS) triage-system priorities, compile and maintain documentation, conduct advance planning, manage technical specialists, and coordinate demobilization. In smaller events, the CRCS and CRPS can be fused into a single child mental health planning/operational cell.

NCDMH CONOPS Phase-Specific Elements

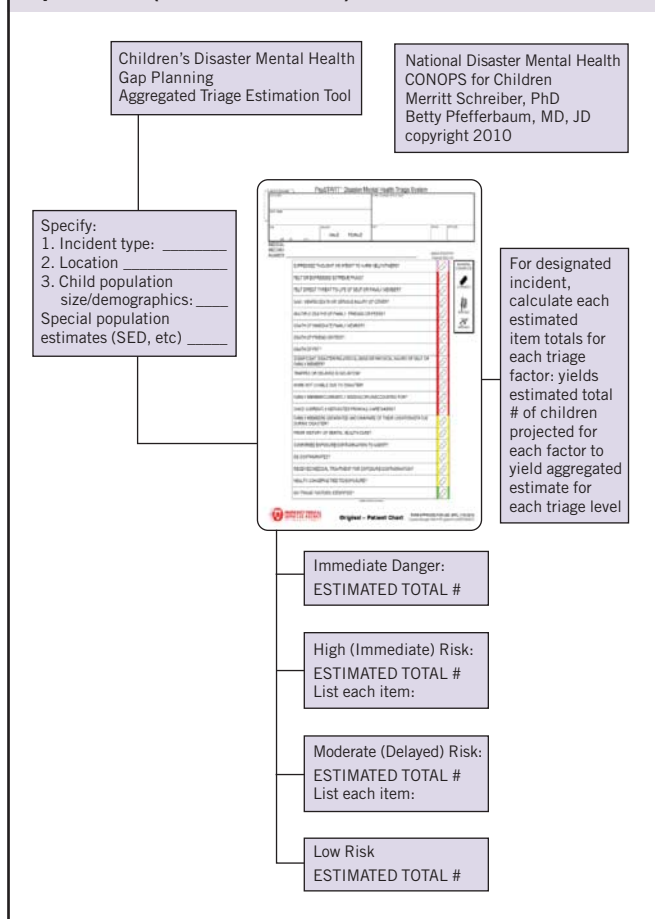
The pre-event/preparedness phase comprises three elements: (1) conduct children's disaster mental health gap analysis, (2) develop pre-scripted children's disaster mental health response missions, and (3) employ targeted preparedness actions.

Conduct children's disaster mental health gap analysis (Figure 2):

- Identify significant local scenarios for gap analysis (based on local hazard identification and risk assessment).
- Estimate response capability requirements for children's needs across response and sustained recovery phases based

FIGURE 2

PsySTART Gap Estimation Analysis Tool for the National Children's Disaster Mental Health Concept of Operations (NCDMH CONOPS).



on incident-specific scenarios (including local hazards and national planning).

- Assess current (baseline) capabilities and capacities for the disaster mental health needs of children following a continuum of evidence care guidelines described in the response section.
- Estimate population-level children's disaster mental health needs using PsySTART triage-risk factors aggregated based on scenario-specific indicators and population demographics.
- Subtract project needs for high-risk children who will require definitive intervention, beyond psychological first aid or crisis intervention, from current capability and capacity to reveal potential gaps.
- Estimate number of children with the following conditions for local gap analysis:
 - Functional or special health care needs, including severely emotionally disturbed;
 - In the juvenile justice system; and
 - Homeless.

This gap analysis then guides proactive efforts to maximize improved reach to high-risk children in specific scenario types.

Develop Pre-scripted Children's Disaster Mental Health Response Missions:

The pre-scripted children's disaster mental health response missions (PSRM) approach proposed in this CONOPS pre-identifies or pre-scripts probable children's mental health response/recovery actions. The PSRMs address needs including mental health mutual aid, just-in-time training, and customized coping messaging specifically targeting children's unique needs. Specific examples are detailed here. The intended net effect of this approach is enhanced community resilience. Resilience is enhanced by determination of anticipated requirements for defined children's mental health missions in advance of the occurrence of disasters.

To create local CDMH PSRMs, the following actions are required: one children's PSRM would identify provision of rapid disaster mental health triage at key disaster touch points and specify professional mental health follow-up or secondary assessment of those triaged as high risk. Another PSRM would provide "disaster crisis intervention" for those triaged yellow or red. Currently, the hospital incident command system for Los Angeles County has been modified to include a rapid mental health triage unit leader and "job action sheet," effectively representing a pre-scripted mission assignment for rapid disaster mental health triage in hospitals.

Targeted Preparedness Actions:

- Parents/caregivers develop a customized "personal resilience plan"²⁸ based on their own hazard vulnerability analysis and other pre-incident risks factors
 - Parents/caregivers use the anticipate, plan, and deter²⁹ family-resilience strategy. The anticipate, plan, and deter resilience system model includes three basic components: stress inoculation components for anticipated stressors and needs (anticipate), customized planning for identified needs (plan), and activation of the personal coping strategy during a disaster (deter).
- Based on gap analysis, local disaster systems of care engage to eliminate or reduce identified gaps yielding enhanced community resilience via:
 - shared triage platform, interoperability via the CONOPS;
 - delineation of core competencies and training in evidence-based capabilities; and
 - build, leverage, and define operational connections between disaster systems of care for response and recovery phase efforts.
- Establish common rapid disaster mental health triage/incident coordination, system capacity, and policies and procedures across disaster systems of care²² serving children and families (eg, shelters, public health, emergency departments, mental health settings, and American Red Cross service delivery sites).
- Train all responders in rapid mental health triage as a core competency
- Pre-identify incident-specific reachback subject matter experts to advise the ICS CRPS.

Response and Recovery Phases

In response and recovery phases, the NCDMH CONOPS provides for a seamless continuum of triage to care incident operation. For operational purposes, individual triage data are aggregated from local disaster systems of care to enable near real time, GIS-based situational awareness of population-level risk. This information permits the rational allocation of limited acute-phase resources to maximize "population-level reach,"²⁹ helps inform mutual aid decisions, and provides the basis to justify Stafford Act mental health recovery funding.

In the recovery phase of complex, evolving disasters, this CONOPS specifies ongoing, sustained assessment of emerging life event stressors using the (PsySTART) triage platform for timely linkage to appropriate interventions as new risk accrues (Figure 3).

Tactical Response Actions

On learning of an incident or potential incident with significant surge or mass casualty potential, and before the activation order to stand up full-scale operations, the CRPS will lean forward to develop situational awareness and a common operating picture (COP) focused on children's needs.

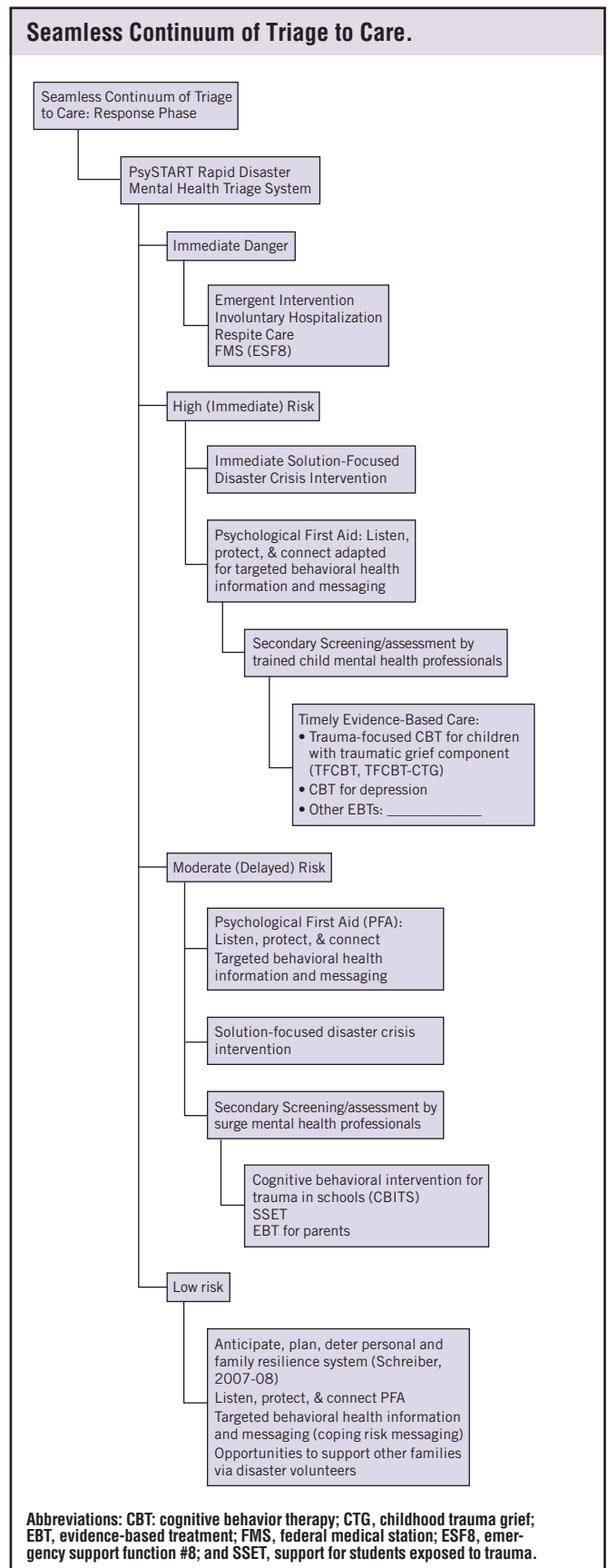
The CRPS will initiate contact with the affected area's mental health agency, other key local agencies, and as many children's disaster systems of care response partners (eg, American Red Cross) as feasible to facilitate the common operating picture and validate near real-time situational awareness of children's needs and resources. The CRPS will identify a range of potential mental health response postures with recommendations to the incident commander or leader for potential operational missions and posture.

In larger areas or cities, the CRCS may alert or deploy a liaison(s) to the city, county, regional, or state emergency operations center. The CRCS may deploy one or more liaisons via established linkages to the following local disaster systems of care partners, including schools, emergency departments, disaster relief settings, casualty collection points, and decontamination or radiation portals. Based on incident-specific features, other disaster systems of care may be flexibly determined as they emerge.

Should the incident dictate need for children's mental health response, the CRCS (subject to approval by local mental health agency leadership) will transmit a series of actions, including communication of alert, activation, and operational directives to local mental health professional staff and other disaster systems of care response partners, as required by the incident.

The CRPS and CRCS will adopt a lean-forward posture accomplished by:

FIGURE 3



National Children's Disaster Mental Health

- Review of local, state, and regional response plans associated with the incident type
- Anticipation of likely children's disaster mental health response requirements, should the situation evolve, such as a need for trauma-focused cognitive behavioral treatment, including traumatic grief modules
- Anticipation of potential unfolding of children's disaster mental health needs and anticipated staffing levels.

Incident Action Plan

The CRCS will develop a children's IAP and direct assets according to the traditional IAP. An operations IAP will describe:

- Current situational awareness and a common operating picture for the projection needs using the rapid triage platform
- Ways in which mental health assets will respond to meet the needs of children
- Operational response staff and teams
- A communications plan for deployed assets and resources
- Information technology requirements

As part of the children's IAP, the CRPS will identify in affected area(s) children's disaster systems of care that can be activated and deployed to support field operations. The CRCS recommendations to management or the incident commander will determine the level of activation/deployment.

Progress to Date

To date, earlier component variants of the NCDMH CONOPS have been piloted by the American Red Cross in Hurricane Ike and Tennessee floods of 2010. In addition, in 2006, the US Public Health Service's (USPHS) mental health teams (MHT) have also trained and piloted components of this CONOPS model as part of the National Response Framework's ESF-8 public health and medical provision.

The USPHS MHTs identified the need for customized field training and specifically highlighted the needs of children. To this end, a disaster mental health curriculum was developed and included competency-based training based on early versions of the NCMH CONOPS. These tools included just-in-time training on PsySTART disaster management system; listen, protect, and connect psychological first aid for children; and an overview of trauma-focused cognitive behavioral therapy, the best-practice intervention for high-risk children.

The most comprehensive field use of training of the CONOPS to date has been the USPHS MHT response to the 2009 tsunami in American Samoa.¹⁷ The MHTs and Centers for Disease Control and Prevention community assessment teams used the PsySTART triage system data to identify survivors who were at risk of needing further assessment and to estimate the epidemiology of mental health risk. These data were used to estimate acute and long-term needs for an IAP, which identified strategies for allocation of limited resources (crisis standards of disaster mental

health care), rational and highlighted capacity, and capability requirements to be addressed in the recovery phase.

During the summer of 2010, the USPHS MHTs conducted field training in Erwin, Tennessee. As one part of community resilience-oriented efforts with local partners, the MHTs provided disaster mental health training to staff members at local hospitals. The goal of the training was to help hospitals increase surge capacity and obtain effective utilization of mental health resources at the local level in a crisis standards-of-care situation. During the USPHS field training, MHTs were also trained on principles of the Mercy model, a population-level-focused model for disaster relief and humanitarian assistance.³⁰⁻³² The Mercy model teaches disaster managers the leadership process to implement tactical strategies, such as those in the CONOPs. This leadership focus creates the context to facilitate use of the CONOPs in support of local communities with limited children's disaster mental health resources.

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