



National Center for Disaster Medicine and Public Health

Pediatric Disaster Preparedness Curriculum Development

Conference Report

June 13, 2011

***Report Authors:
David Siegel, MD, FAAP
Kandra Strauss-Riggs, MPH
Amy Costello, MD, FAAP***

A diverse group of thought-leaders lent their considerable expertise to the Pediatric Disaster Preparedness Curriculum Development Conference (see Appendix C for attendee list).

The report authors would like to extend our particular thanks to those who took a leadership role in the planning and execution of the conference:

Group Leaders

ED/Hospital: Steven E. Krug, MD

EMS/First Responder: David Markenson, MD

Ambulatory: Scott Needle, MD

Team Leaders

Public Health: Kenneth W. Schor, DO, MPH

Mental Health: David Schonfeld, MD

CBRNE: Fred Henretig, MD; Sheldon Kaplan, MD; John Perentesis, MD

Speakers

Andrew Garrett, MD, MPH

Gregg Lord, MS

Yuri Milo, MD

Merritt “Chip” Schreiber, PhD

Richard Serino

Kevin Yeskey, MD

The opinions and recommendations contained herein do not necessarily represent the views and policies of the NCDMPH, USU, DOD, or the US Government.

Executive Summary

The National Center for Disaster Medicine and Public Health (NCDMPH) convened a Pediatric Disaster Preparedness Curriculum Development Conference on March 8-9, 2011 in Bethesda, Maryland. The purpose of the conference was to begin to address the unmet education and training needs of medical responders who care for children in a disaster. The products of this workshop will be utilized as contributory first steps in the process of developing a role-specific, competency based training program for pediatric disaster preparedness.

In fulfillment of a recommendation from the National Commission on Children and Disasters (NCCD) and the Federal Education and Training Interagency Group (FETIG) – approved NCDMPH strategic plan, the planning committee developed the following conference objectives:

- To initiate the development of the infrastructure and methodology needed to create a competency based pediatric disaster preparedness training program.
- To demonstrate this approach by developing prioritized, role-specific education and training recommendations for select healthcare roles.
- To demonstrate the capabilities of a public – private consortium for development of a disaster preparedness education and training program.

In support of the workshop objectives, conference planners formed three groups of clinicians expert in their respective areas of disaster medicine (EMS/First Responder, ED/Hospital and Ambulatory). To provide subspecialty support for the curriculum development, we formed three sub-specialty teams; chemical, biological, radiological, nuclear, explosive (CBRNE), public health, and mental health. The teams rotated and embedded team members in each group to provide subject matter expertise for their topics.

The National Center for Disaster Medicine and Public Health was proud to sponsor the first step towards establishing a role specific, competency based, pediatric disaster preparedness education and training program. Significant initial inroads included: identifying many of the health care provider roles that need to be trained, the priority of their training, and the preliminary role-specific curriculum recommendations. In addition, many of the identified roles

had significant curriculum overlap thus making development of a modular based program highly feasible.

The diverse, prestigious consortium of government and academic stakeholders that were convened at the conference represent an ideal mix of experts needed to ensure the successful development of this project. Especially in pediatrics, because of the paucity of pediatric disaster preparedness expertise at all levels of government, the utilization of the pediatric community's SME assets is crucial. As next steps, in order to ensure the successful further development of this program, a committee composed of those government and community assets should be created. The mandate of the committee will be to cost out and provide a clear, detailed plan for the development of a competency based, role-specific disaster preparedness education and training program.

Background

Needs

The National Center for Disaster Medicine and Public Health (NCDMPH) convened a Pediatric Disaster Preparedness Curriculum Development Conference on March 8-9, 2011 in Bethesda, Maryland. The purpose of the conference was to begin to address the unmet education and training needs of medical responders who care for children in a disaster.

Children represent 75,000,000 members, 30%, of our population. It has been almost 10 years since 9/11 and in spite of the fact that there have been large amounts of funding for disaster preparedness, the majority of our health care clinicians are unprepared to provide the necessary clinical support for children in the event of a disaster. Some of the major contributing factors for this lack of preparation include:

- Based upon a literature review conducted by the NIH librarian and NCDMPH staff, it was confirmed that the currently available disaster preparedness training programs contain little or no pediatric content

- There are no established role-specific national core competencies in disaster health for children
- In the event of a significant disaster many of our children will have to be cared for by non-pediatric or generalist trained clinicians (such as emergency physicians, nurses and paramedics) who have variable degrees of understanding of pediatric acute care. Their lack of pediatric clinical skills may limit their ability to function optimally when thrust into a situation where they must care for many ill or injured children.
- Due to a combination of competing demands at work as well as lack of sustained attention on disaster preparedness, the majority of health care clinicians are not seeking out preparedness training of their own volition.

To help remedy the situation for children and other populations, the National Center for Disaster Medicine and Public Health was founded in 2008 under Homeland Security Presidential Directive-21 with the following mission:

The National Center for Disaster Medicine and Public Health leads federal and coordinates national efforts to develop and propagate core curricula, education, training and research in all-hazards disaster health.

In addition to the creation of the NCDMPH, HSPD-21 also mandated the creation of the education and training coordinating mechanism which resulted in the Federal Education and Training Interagency Group (FETIG) which serves as an advisory group to the NCDMPH. The FETIG is comprised of representatives from the five lead coordinating agencies: the Department of Defense, the Department of Health and Human Services, the Department of Homeland Security, the Department of Veterans Affairs, and the Department of Transportation. Together, the NCDMPH and the FETIG are charged with advancing the field of disaster health education and training.

Objectives

This conference was a first step in fulfilling the pediatric part of NCDMPH strategic objective 2c, which reads, *“identify and integrate national disaster health core competencies in pediatrics*

and obstetrics.” The needs of children and pregnant women in disaster situations are not addressed explicitly in any of the competency sets currently in development, nor are they overtly addressed in most clinical curricula. The National Center chose to begin addressing this objective by focusing on the pediatric gaps, with obstetrical patients to be covered in the future.

In addition to being a key objective in the NCDMPH strategic plan, the conference begins fulfilling a recommendation from the National Commission on Children and Disasters (NCCD). Their recommendation 3.3 with a sub-recommendation reads: *HHS should ensure that health professionals who may treat children during a disaster have adequate pediatric disaster clinical training. The President should direct the FETIG, working through the NCDMPH, to prioritize the development of pediatric core competencies, core curricula, training and research via a newly-formed Pediatric Disaster Clinical Education and Training Working Group.* As a first step in support of the strategic plan of the NCDMPH and the recommendations of the NCCD, the planning committee developed the following conference objectives:

- To initiate the development of the infrastructure and methodology needed to create a competency based pediatric disaster preparedness training program.
- To demonstrate this approach by developing prioritized, role-specific education and training recommendations for select healthcare roles.
- To demonstrate the capabilities of a public – private consortium for development of a disaster preparedness education and training program.

Methodology

In a disaster involving massive casualties, non-pediatric clinicians most likely will be placed in the challenging situation of providing emergency care to children and pediatric providers will be doing the same for the adult population. Since most of the adult and child disaster preparedness curriculum content potentially overlaps, the ideal education and training methodology might be the establishment of a program that combines the healthcare training

needs of both populations. For those already “adult trained” supplemental pediatric curricula could be provided. However, since 9/11, the majority of the disaster preparedness training programs created have not included pediatric related training content in their courses. Because of this unfortunate history, the conference planning group recommended the development of a stand-alone pediatric education and training program.

In support of the workshop objectives, the NCDMPH initiated the pediatric disaster preparedness curriculum development process by forming three groups of expert clinicians in their respective areas of disaster medicine:

1. EMS/First Responder,
2. ED/Hospital, and
3. Ambulatory Care.

To provide subspecialty support for the curriculum development, three sub-specialty teams were formed:

1. chemical, biological, radiological, nuclear, explosive (CBRNE),
2. public health, and
3. mental health.

The sub-specialty teams rotated and embedded team members in each group to provide subject matter expertise for their respective topics. The planning process included pre-meeting conference calls, the results of which can be found on the NCDMPH website at:

<http://ncdmph.usuhs.edu/JointProgram/2011-03Workshop.htm>.

Public Health

The Public Health team was made up of local public health department staff and leadership from the National Center for Disaster Medicine and Public Health. The team developed detailed recommendations for the groups to consider and presented them to each group; many were incorporated into the curriculum recommendations. Issues raised by this team included: knowing your local public health system and resources, engaging with that system, and knowledge of strategic risk communication (see Appendix A).

CBRNE

The CBRNE team functioned as Subject Matter Experts providing input to each group's curriculum development process. The curricula include significant role-specific CBRNE content as reflected in the tables in the curriculum recommendations section of this report.

Mental Health

The Mental Health team developed detailed recommendations for the groups to consider and presented them to each group; many were discussed at length and incorporated into the curriculum recommendations, such as anticipating the needs of family members, providing psychological first aid, understanding risk and protective factors (see Appendix B).

Workshop Tasks

The products of this workshop will be utilized as contributory first steps in the process of developing a role-specific, competency based training program for pediatric disaster preparedness.

The activities of the workshop focused on health provider roles in the following three major areas: EMS/first responder, ED/hospital, and ambulatory. Each group was asked to:

- Identify all of the provider roles in their respective settings that are in need of training.
- Due to fiscal and time restraints, identify those key clinical roles for which prioritizing their training would have the greatest impact upon reducing morbidity and mortality.
- Identify 3 -4 different roles in each area for workshop curriculum development purposes that would represent a broad spectrum of education and training needs. Criteria for selection was to include: clinical importance, depiction of potential use of modular components, training adult health care providers to take care of children
- For each of the above identified roles develop role specific curricula including: identification of requisite subject matter areas including key content within those areas, identification of level of training required - awareness vs. performance vs. expert, identification/utilization of useful pre-existing curricula as much as possible, and to consider realities of education/training time limitations

OUTCOMES

Prioritized Roles

Each group (ED/Hospital, EMS/First Responder and Ambulatory) prioritized the roles that they recommended developing curricula for and prioritized them in tiers, with tier 1 being the first group recommended for training, based on their potential for reducing morbidity and mortality in a disaster.

The suggested clinical health provider roles in the **ED/Hospital** setting who need disaster preparedness training are:

- Hospital Incident Command System leadership
- ED Physicians
- ED Mid-level Practitioners – PAs, NPs
- ED Nurses – RNs, LPNs
- EDs – communications staff
- Trauma surgeons
- General surgeons
- Surgical subspecialists
- Medical subspecialists (e.g. infectious disease)
- Hospitalist, Intensivist MD
- Non-ED Mid-level Practitioners – PA, NP
- ICU, Trauma Team, OR, RR – RN
- Med Surge Inpatient RN
- Psychological-Social
- Other Hospital based staff (e.g. respiratory care)

The ED/Hospital group created the following three tiers of responders to target for training.

Table 1

Tier One – First Priority	Tier Two – Second Priority	Tier Three – Third Priority
Medical professionals that are involved in initial field response		
ED Physicians	Hospitalists (primary care physicians for patients in the hospital)	Other Hospital based staff (laboratory, environmental services - Tier 2-3)
ED RNs	Medical sub-specialists (that can function as hospitalist)	
ED communications	Mid-level practitioners	
Trauma	Respiratory	
General surgeons, neurosurgery	Surgical sub-specialists	
Ed Mid-level Practitioners	Critical care specialists	
Radiation Officer		
Security		

The roles in the **EMS/First Responder** setting who need disaster preparedness training are:

- EMT
- Advanced EMT
- Paramedic
- Disaster Medical Assistance Teams
- Emergency Physician
- Nursing
- Firefighters
- Police Officers
- Search & Rescue Personnel

- Community Emergency Response Team (CERT) members (varies by jurisdiction)
- Home Health Workers
- Mass Transit Operators
- Lay Personnel
- School Employees, Teachers, Childcare Workers, School Bus Drivers
- Security Officers
- General Aviation Pilots & Commercial Flight Attendants
- Sports coaches & Athletic Trainers
- Lifeguards
- Community Youth Groups
- High School Students – Community Service
- Clergy
- Social Workers

The EMS/First Responder group initially prioritized roles for training as follows:

Table 2

Tier One – First Priority	Tier Two – Second Priority	Tier Three- Third Priority	Tier Four – Fourth Priority
Medical professionals that are involved in initial field response			
EMTs	Fire	Teachers	Non-medically trained people on scene,
Paramedics	Police	Secondary Responders	High school students trained in CPR
	School nurses	Childcare Workers	
	Search & Rescue	Home Healthcare	
	911 Dispatchers	Teachers	

After further discussion, the EMS/First Responder group re-prioritized, as follows:

Table 2.A

Tier One	Tier Two	Tier Three
People who are likely to be present at the scene when children are injured, but who do not have classic response training	Clinicians who may have to care for children in an out-of-hospital environment	People who design the response systems and protocols, and who may be supervising personnel on scene
Schoolteachers	EMS	Supervisors
School Nurses	Physicians	
Childcare Workers	Nurses	
Staff at Child Care Facilities	Physician Assistants	

The **Ambulatory** care group identified primary care providers as the key frontline clinicians in a disaster. These clinicians provide all-encompassing longitudinal pediatric care, but are also office-based and largely independent. Members of the ambulatory group of primary care providers include pediatricians, family practitioners, selected pediatric subspecialists, nurse practitioners, and physician assistants, as well as care providers who provide adult primary

care, such as internists. Other medical personnel will also be vital, such as nursing staff, and support staff: office managers, receptionists, etc. The ambulatory group defined pediatric office-based primary care physicians as Tier 1, those to be trained first. These clinicians are competent in providing pediatric and longitudinal care but generally need to be brought up to speed on disaster issues. This group should include pediatric subspecialists who are used to caring for the whole child (e.g., pediatric oncologists and endocrinologists), as well as associated pediatric and pediatric subspecialty care nurses.

Tier 2 was described as the next level of care: these are the providers who are called on to care for children if Tier 1 is overwhelmed or unavailable. Tier 2 includes adult-based primary care practitioners; e.g. internists and family physicians who mostly see adults; and pediatric subspecialists who don't typically assume general pediatrics care. Ideally the Tier 2 providers should serve under the guidance and the leadership of a Tier 1 healthcare professional.

Tier 3 would include adult patient care focused providers, professionals who have not had significant training or experience in the field, or in the acute care of children.

The roles in the Ambulatory setting who need disaster preparedness training therefore include:

- Primary Care Pediatricians
- Family Practitioners
- Internists
- Ambulatory Pediatric Nursing
- Ambulatory FP Nursing
- Ambulatory Internal Medicine Nursing
- Pediatric Medical Sub-Specialists
- Adult Medical Sub-Specialists
- Office Assistants-medical assistant, office manager, other office staff
- Physical therapist/occupational therapist/speech therapist

The Ambulatory group created the following three tiers of responders to target for training:

Table 3

Tier One – First Priority	Tier Two – Second Priority	Tier 3 – Third Priority
Medical professionals experienced in pediatric primary care (longitudinal, all-encompassing)	Medical professionals experienced in adult primary care or pediatric subspecialty care	Other medical specialists (adult ambulatory specialists)
<i>Rationale:</i> Would already be usual source of care for children, most pediatric experience, least amount of pediatric disaster-specific training required	<i>Rationale:</i> Should be able to see children with specific pediatric training, preferably under direction of a pediatrician familiar with pediatric issues but would need training for care issues outside of specialty	<i>Rationale:</i> May be independent if necessary but preferably supervised by pediatrician; will need enhanced education of pediatric basics

Primary care pediatrician (MD, NP, PA)	Family practice, not pediatric-oriented	Adult ambulatory/cognitive specialist
Primary care pediatric nurse	Primary care internist	Adult specialist RN
Primary care family practice (who regularly sees children)	Pediatric ambulatory/cognitive subspecialists	
Pediatric specialist who treats “whole child”	Adult primary care RN	
	Pediatric subspecialty RN	
	Pediatric primary care office staff	

Curriculum Recommendations

ED/Hospital

The Emergency Department/Hospital group selected a community hospital as the typical healthcare setting, as this reflects the typical institution in the country. This institution would likely have little in the way of dedicated pediatric resources. It might not be accustomed to providing care for children for a prolonged time, and might have to make adjustments if the systems that would ordinarily allow them to transfer pediatric patients to a tertiary care center are not available.

The ED/Hospital group developed four categories to describe level of required training by each of the four recommended tiers: Foundational (overview), Awareness (understanding concepts), Proficient (capable of performing tasks), Expert (subject matter expert). The designation Expert/Proficient (E/P) was chosen for topics in which the group felt strongly that all practitioners should be proficient, but that there should also be some expert-level assistance available. Acknowledging that a typical community hospital is likely to bear the unexpected burden of caring for children in a disaster, the ED/Hospital group recommended that the goal should be to elevate pediatric disaster care so that it is consistently proficient. However, they felt that expert-level care knowledge consultation or guidance should be available to the proficiency-level providers in each of the topics selected for inclusion in the disaster curriculum. This expertise could be created in a variety of ways, whether by training local practitioners, or by developing resources accessible virtually or by phone. A pediatric emergency care resource coordinator has been suggested in a variety of white papers, such as: Institute of Medicine: *The Future of Emergency Care: Key Findings and Recommendations*; National Commission on Children and Disasters: 2010 Report to the President and Congress; American Academy of

Pediatrics, American College of Emergency Physicians, and Emergency Nurses Association: *Joint Policy Statement: Guidelines for Care in the Emergency Department*; Pediatric Patient Safety in the Emergency Department; Joint Commission Resources/American Academy of Pediatrics. This role might be a way to provide that additional local support for community hospital providers and may also serve to improve readiness in advance of an event.

The group felt that providers should at least be proficient in incident response management, if not expert, because this is their primary responsibility. They need to be able to do a hazard vulnerability analysis of their local hospital, as an example, and the other members of the team need to be able to function within that framework. The providers working in the ED and those working in any interim pediatric acute or critical care unit all need to understand their role in the system.

The ED/Hospital team felt that although triage (Table 1.C) is clearly an E/P level requirement in the ED, decontamination may not necessarily be a part of triage. Personnel responsible for identifying patients who require decontamination or for managing patients post-decontamination should have an awareness level of training. However, staff who are actually providing decontamination need to be at proficient level.

The concept of secondary mental health triage was introduced by the mental health team. The Awareness/Proficient (A/P) designation that the ED/Hospital group chose reflects an impression that mental health triage may not necessarily occur in the first stage of emergency triage but it may be part of a secondary step. These may be patients who are initially triaged as walking-wounded but then need to be screened for mental health concerns.

The ED/Hospital group re-affirmed that all personnel should be at least proficient in personal and family preparedness. Personal preparedness and family preparedness are critical because if health care providers and support staff are not managing these issues, they will likely not be able to report to work.

The delivery of acute care (Table 1.D) encompasses different phases: care provided in the acute care zone, ongoing care, and definitive care; and it should include support providers.

Emergency care providers and surge providers need to be at least proficient in all areas, while there is a general awareness and some expectation of proficiency of disaster leadership and support providers in this phase.

The group reviewed the various CBRNE agents (Tables 1.F-1.I). The cross-cutting issues in CBRNE include infection control, transmission, and communication. The disaster team leadership needs to be aware of these unique care issues, but cannot be expected to be experts. They should be expected to have access to an expert who can inform them as to how to best allocate resources and/or prepare the institution. Realistically it is very difficult to expect expertise in any organization on CBRNE, but providers need to be personally aware because disease recognition is key; therefore they need to be at the P (proficient) level at all times. All staff, in order to protect themselves, their patients and the organization, need to be very much aware of decontamination and containment concepts. Radiation (Table 1.H) is a uniquely problematic agent, encompassing the need to assess both short-term and long-term disease impact, dealing with communication issues and dealing with non-organic disease issues.

Public health issues (Table 1.E) are critical at the leadership level. The disaster planning entity within the hospital organization needs to be quite good at this and be at least proficient and have access to experts, whether they are within the organization, or whether they exist in the local public health entity or at a neighboring institution. Of particular note is the need for facilities to plan for evacuation and to do regular practice drills. Organizations need to consider public health proactively because the planning must be done before an event. Providers throughout the organization need to be aware of these issues, so the disaster planning leadership should provide them with at least awareness level training.

Codes for Levels:

- F: Foundational (overview)
- A: Aware (understanding concepts)
- P: Proficient (capable of performing tasks)
- E: Expert (subject matter expert)

Incident Response Management – Table 1.A

Topic	Roles With Level of Performance			
	Emergency Care (EC) Providers	Surge Providers	Disaster Leadership	Support Providers
Security/access/ control	A	A	E	F
Protection	E	A	E	F
Notification, communication	P/E	F	E	F
ICS	A	F	E	F
Identification and tracking	P	F	E	F
Containment	P	F	E	F
Decontamination	P	F	A	F
Treatment	P	F	A	F
Recovery	A	F	E	P
Professional Self Care	P	P	P	P

Systems/Resources – Table 1.B Note: In this table, the group focused their time on identifying the topics and will address the levels as part of next steps.

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Diagnostic/treatment resources				
Surge related resources				
Identification & Tracking				
Regionalization issues				
Evacuation & transport				
Children w/disabilities				
PH Orgs - CDC, HHS - How to interface w/local health dept -overview				
Roles & responsibilities –Local-State – Fed NIMS, NRF, ESFs – overview				

MCI Triage – Table 1.C

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Crisis Standard of Care (Resource Scarcity)	P	A	A/P* (Clinical vs Non clinical)	F
Jump Start, SALT	P	F/A	F	F
Pediatric Vulnerabilities	P	P	A	P
Decontamination* (*Group doing it needs P)	A	F	F	F
Concerned Citizen/MUPS (Multiple Unexplained Physical Symptoms)	A/P	A	P	A
Secondary Mental Health Triage	A/P* (Someone needs to be P)	A	A	A
Professional Self Care	P	P	P	P

Pediatric Acute Care – Table 1.D

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Dx and treatment of shock, resp failure	E/P	E/P	F	A
Pediatric Resuscitation	E/P	E/P	F	A
Children w disabilities, special needs	E/P	E/P	F	A
Newborn	E/P	E/P	F	P
Managing Family & Children (Mental Health)	E/P	E/P	P	A
Crisis Standards of Care	E/P	A	E	A
Professional Self Care	P	P	P	P
Bereavement/Death Notification	P	P	A/P	A
Crisis/Risk Comm (During , to patient)	P	P	P	A
Ethics	P	P	P	P

Public Health, Community Response/Recovery Issues – Table 1.E

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Hospital Preparedness	A	A	E/P	A
Identify & coordinate regional ped specialty care capacity & access	A	A	E/P	A
Work w/local PH authorities	A	A	E/P	A
Plan for unaccompanied minors	A	A	E/P	A
Hazard Vulnerability Analysis	A	A	E/P	A
Personal Preparedness Staff	P	P	P	P
Patient/Family Preparedness	A	A	A	A
Communication w local/state EOC	A	A	E/P	F
Alternate Care Site (Creation)	A	A	P	A
Maintenance of Medical Home	A	A	P	F
Medical Reserve Corps, etc	A	A	P	A
Evacuation (ALL)	P	P	E/P	P
Strategic Communications (Media)	A	A	E/P	A

Chemical – Table 1.F

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Nerve Agent/ Organophosphates	P	P	A	A/P
Cyanide	P	P	A	A/P
Mustard	P	P	A	A/P
Lewisite	P	P	A	A/P
Chlorine	P	P	A	A/P
Phosgene	P	P	A	A/P
Ammonia	P	P	A	A/P
Solvents	P	P	A	A/P
Unidentified chemical	P	P	A	A/P
Incapacitants	P	P	A	A/P
Recognition	P	P	P	A
Decontamination	P	P	P	P
Containment/Provider Protection	P	P	P	P

Biological – Table 1.G

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Anthrax	P	P	A	A/P
Pandemic Influenza	P	P	A	A/P
Smallpox	P	P	A	A/P
Viral Hemorrhagic Fevers	P	P	A	A/P
Botulism	P	P	A	A/P
Ricin	P	P	A	A/P
Plague	P	P	A	A/P
Brucellosis	P	P	A	A/P
Recognition	P	P	A	A
Infection Control	P	P	P	P
Transmission	P	P	P	P
Communication	P	P	P	A
Professional Self Care	P	P	P	P
Identifying New Agents	P	P	A	F

Radiation – Table 1.H

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Recognition	P	P	P	P
Decontamination	P	P	P	A
Containment Provider Protection	P	P	P	P
Professional Self Care	P	P	P	P
Dose Estimation	P	P	P	A
Specific Communication	P	P	E/P	A

Explosive – Table 1.I

Topic	Roles With Level of Performance			
	EC Providers	Surge Providers	Disaster Leadership	Support Providers
Assessment of trauma patient	P	P	A	A/P
Initial management of burns, airway management	P	P	A	A/P
Traumatic Brain Injury	P	P	A	A/P
Injuries to Skull, Spine & Chest	P	P	A	A/P
Mangled extremities in MCI	P	P	A	A/P
Crush syndrome, Compartment Syndrome	P	P	A	A/P

EMS/First Responder

The EMS/First Responder group discussed what competencies should be expected of disaster responders, and what level of proficiency should be expected of each of the three tiers they

identified.

Incident response and incident management command training should be required of all providers. Traditional EMS responders should be expert-level, while lay providers might have an awareness level of understanding.

Identification, tracking, and reunification were important themes that should be embedded in every tier of training. Supervisors should include it in any system they set up, EMS providers should know how to incorporate those principles in their care, and the lay providers (as outlined in table 2.A) should know how to facilitate. It was noted that some of the highest potential for injury in a disaster may occur when children are unsupervised or in an uncontrolled environment.

Some aspects of pediatric care are so integral that they should be reinforced in any training program: respiratory management, blood sugar, thermal regulation, and shock. In addition, the needs of specific populations, including newborns and children with special health care needs, should be reviewed.

The majority of the EMS group recommended targeting triage training to Tier 1, for lay providers. EMS personnel are already very proficient in triage and use of lay providers to provide triage could free the medical personnel to provide more advanced care.

In their discussion of CBRNE principles, the EMS group felt that decontamination is not actually an EMS role. They acknowledged that although EMTs might perform decontamination, when they do, they are functioning as decontamination technicians rather than as medical personnel. The important components of decontamination training were thought to be more at the awareness level; both in terms of when decontamination needs to be done and whether it's necessary to treat a patient before they are decontaminated, and in terms of the effects of decontamination. These include issues such as hypothermia, family separation and reunification, and anxiety about both the exposure and the procedure.

They also identified key topics in CBRNE that should be emphasized. For explosives, important concepts in pediatric trauma management include crush injuries, compartment syndrome, and

airway management. Chemical weapons topics include toxic syndromes and typical presentations of chemical exposures and how they might differ in children versus adults, as well as which agents have therapies which need to be given in a time-sensitive manner, specifically organophosphates and cyanide. Industrial accidents should be taught as a potential source of chemical exposure. For biologic agents, the key issues were infection control, with respect to isolation and quarantine as opposed to normal hospital disposition, and awareness recognition. With regard to radiation, the most important need was thought to be for personal protection and decontamination. For topical radiation exposure, approximately 90% dose exposure reduction can be achieved by removal of outer clothing, and it is recommended that this be done as part of the first on-site response team.

Finally, there was discussion of training in when to modify normal approaches to care in a disaster. Triage approaches may vary, as discussed above. Alternate care sites may be used. EMS may have to decline to transport patients in limited-resource settings. And in a large disaster, there may be regional-level coordination, in addition to or in place of local-level coordination.

Based upon the recommended role prioritization in the pre-hospital group, the templates utilized by the other groups did not meet the needs of the EMS group. This will be addressed as part of the next steps.

Ambulatory

There is potential for overlap between the ED/Hospital group and the Ambulatory group, as ambulatory physicians may take on the role of surge providers in a disaster. The group appreciated that the ED/Hospital group came up with the idea of training surge responders, because that alleviates some of the demand for acute training under an ambulatory curriculum. If a provider leaves his or her office and goes out into the front lines, he or she has, in effect, become a surge provider as opposed to an office-based provider.

Disaster-ready office-based providers should be astute clinicians, ready to receive and recognize certain syndromes. They should know how to interface with the public health

system, how to prepare their offices, prepare families, and give particular attention to children with special healthcare needs.

The Ambulatory group identified two major themes. The first consisting of knowing who to call for support in various disaster scenarios or disease presentations. The second theme involves being prepared to manage pediatric and family psychological issues in disasters, as the pediatric primary care clinician is likely to be the resource of choice for families struggling with those issues. Pediatricians should have proficiency-level expertise in these topics and be able to demonstrate this through office drills and exercises. Ideally, these drills would also serve to build community contacts and collaboration.

With that in mind, the first topic the Ambulatory group selected to cover is basic disaster response. The average office-based pediatrician or family care physician has insufficient knowledge about the disaster response system. They need to know the basics of the Incident Command System (ICS) and how their offices can fit into the broader local/state/federal response picture. This topic should also be taught at proficiency level expectation. With regard to triage and CBRNE issues (tables 3.E and 3.J – 3.P), the Ambulatory group felt that the clinicians should be trained to an awareness level, with additional information conveyed through just-in-time training as appropriate; nevertheless, ambulatory clinicians should still be proficient in terms of recognizing chemical toxidromes, pathogenomic biological agent presentations and radiation sickness. Clinicians would also need to be proficient in personal protective equipment use, decontamination measures, and management of pediatric-specific vulnerabilities. In terms of radiation, in particular, the primary care clinician would be responsible for first line assessment and response, but also continuing care of the patient in the disaster setting. These responsibilities would also include proficiency in monitoring for delayed effects of radiation, including radiation sickness and marrow suppression. They also would need foundational knowledge in monitoring for long-term complications in conjunction with appropriate specialists.

The group felt all tiers should be proficient in the practice of Psychological First Aid, and should be aware of the mental health resources available in the community. The group thought this

should ideally be part of a drill.

The group determined that there would not be significant differences in the level of training required for different providers. Adult primary care providers may need additional intensive training in pediatric fundamentals and pediatric-specific concerns. Nurses would be expected to be more skilled in the practice of office-based patient procedures, such as decontamination, while physicians and similar providers would need more training in disaster scenario-specific cognitive diagnostic and management issues.

The Ambulatory group perceived two additional curriculum issues unique to their target audience. The group felt that clinicians needed to know about community response and recovery, at least on an awareness level. Office-based clinicians provide longitudinal care, so they need to be aware of the expected physical, economic, psychological and social concerns and changes in the community that they may encounter over the next weeks, months, and even years. Secondly, the group included office preparedness planning for clinicians and stressed the need to conduct drills and exercises so that disaster response is a living and dynamic plan.

Finally, the Ambulatory group pointed out that a distribution plan for this material will need to be addressed, since office-based clinicians are not part of any larger system. Primary care physicians should reach out to mental health and public health professionals, and to the local hospitals, but the community connections should go both ways, and appropriate messages and incentives will be needed to build these community connections.

Note: For tables 3.H, 3.I and 3.M the group focused their efforts around identifying the topics and will address the levels in future activities.

Codes for roles that provide a broad representation of education and training needs:

- Pediatric Primary Care Provider - **PCP** (MD, DO, NP, PA)
- Pediatric Primary Care - **PC** (RN)
- Adult Primary Care Provider - **APC** (MD, DO, NP,PA)

Codes for Levels:

- F: Foundational (overview)
- A: Aware (understanding concepts)
- P: Proficient (capable of performing tasks)

Basics of Disaster Response – Table 3.A

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Definitions: disaster, recovery, preparedness, resiliency	F/A	F/A	F/A
Ambulatory Roles – overview; Prepare families, CSHCN; Sentinel responder/astute clinician surveillance, team membership, e.g. MRC	F/A	F/A	F/A
Longitudinal care- medical home	F/A	F/A	F/A
Roles and responsibilities –Local, State, Federal NIMS, NRF, ESFs , overview	F/A	F/A	F/A
Public health organizations - CDC, HHS; How to interface with the local health department - overview	F/A	F/A	F/A
Community preparedness	F/A	F/A	F/A

Incident Response Management – Table 3.B

Topics	Roles-Level		
	PCP	PC(RN)	APCP
Security/access/control	A	A	A
Communications	A	A	A
ICS	A	A	A
Identification and tracking	A	A	A

Systems/Resources – Table 3.C

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Further development of Select items from basics of disaster response			
Evacuation and transport	A		A
Communications	P	P	P
Stabilization	A		A
Modes of transport	A		A
Responsibilities of field staff, transport staff, accepting facility	A		A
Regional coordination	A		A

First Responder Training – Table 3.D

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Primary , secondary survey, bleeding, shock Injuries to the skull, spine and neck, extremities/splinting One and two person transport	P	P	P
APLS, PALS	A vs P		A vs P

MCI Triage – Table 3.E

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Scarcity of resources, altered standards of care	A		A
JumpStart, SALT	A		A
Operational logistics	A		A
Surge capacity	A		A

Psychosocial – Table 3.F

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Typical, age-normal/developmentally normal responses	A	A	A
Healthcare provider mental health			
General guidelines for referral & intervention			
Bio/Chem/Rad (psychological aspects of)	A	A	A
Continuum of response/impact and neurobiology of trauma	F/A	F	F/A
Risk factors/protective factors	A	A	A
Psychological First Aid	P	P	P
Communication and Resources	P	P	P
Advice for parents; supportive measures	P	P	P
PTSD and therapies (CBT, EMDR; <i>not forced debriefing</i>)	A	A	A
Appropriate use of psychopharmacologic agents (propranolol, SSRIs, etc.)	A	A	A

Community Response/Recovery Issues – Table 3.G

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Debris	A	A	A
Essential functions	A		A
Economic recovery; tax base	A		A
Stafford Act capabilities/limitations	A		A
NDRF	A		A
Scope/timeframe	A		A
Psychological recovery (expected course)	A		A
Community-level health care	A		A
Anticipated players	A		A
Hospital issues (and how they would affect the ambulatory provider	A		A

Office Preparedness Planning – Table 3.H

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Insurance			
Vaccines			
Office environment, utilities, alternate facilities			
Supplies/Equipment			
Vendors/billing			
Staff/employee planning			
Communications			
Records			
Infection control			
Emergency “GO Kit” and emergency supplies			
Staff Training		P	

Public Health – Table 3.I

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Maintain ambulatory pediatric emergency care skills			
Develop office disaster and continuity of operations plan			
Pre-identify possible community support roles			
Messaging; risk and crisis communication			

Chemical – Table 3.J

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Toxidromes	P	P	P
Rescuer Protection/PPE	A	A	A
Decontamination	A	P	A
Pediatric vulnerabilities	P	P	P
Treatment	P	P	

Biological – Table 3.K

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Recognition, clinical signs and symptoms	P	P	P
Decontamination	A	P	A
Isolation-transmission based precautions, PPE	P	P	P
Communication-hospital infection control, public health	P	P	P
Differential Dx	A	A	A
Laboratory testing	A	A	A
Treatment, prophylaxis	A	A	A

Specific Biological Agents – Table 3.L

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Anthrax	A/P*	A/P*	
Pandemic Influenza	A/P	A/P	
Smallpox	A/P	A/P	
Viral hemorrhagic fevers	A/P	A/P	
Botulism	A/P	A/P	
Ricin	A/P	A/P	
Plague	A/P	A/P	
Brucellosis	A/P	A/P	
Tularemia	A/P	A/P	

* Generally can be awareness but increased to proficiency with Just-In-Time training in case of acute outbreak/management

Specific Other Infectious Issues: Biological – Table 3.M

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Cholera, TB, Typhoid			
Foodborne Illness			
Wound (skin/soft tissue/ bone)			

Radiation – Table 3.N

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Overview radiation concepts, delivery sources	A	A	A
Shelter in place, evacuation	A	A	A
Radiation triage, decontamination, and PPEs	P	P	P
Acute Radiation Sickness (diagnosis and management)- biodosimetry, biomarkers, other lab testing, treatment	A	A	A
Radiation –management of burns, blast, and blunt trauma-surgical guidance	A	A	A
Internal contamination-treatment modalities i.e. blocking agents, chelating agents	A	A	A
Assessing dose; pediatric vulnerability	P	A	A/P
F/u Include long term management	A	A	A

Explosive – Table 3.O

Topics	Roles with Level of Performance		
	PCP	PC(RN)	APCP
Primary injury (shock wave)	A	A	A
Secondary injury (fragments/shrapnel and	A	A	A

penetrating trauma)			
Tertiary injury (blast wind, collision w/objects; blunt and penetrating),	A	A	A
Quaternary injury (burns, inhalation)	A	A	A
Assessment of trauma patient (First Responder)	A	A	A
Initial management of burns, airway management (First Responder)	A	A	A
Traumatic Brain Injury	A	A	A
Injuries to the Skull, Spine and Chest (First Responder)	A	A	A

Discussion

Our goal was to initiate the development of a pediatric disaster education and training program that has the potential for establishing national standards. The first key step was to identify and convene the proper combination of subject matter experts. To ensure that the appropriate and relevant talent was included in this process, the consortium of Subject Matter Experts (SMEs) included representation from both the private and public sectors. They included:

- Academic and administrative leaders of the pediatric and adult disaster preparedness community who also continue to provide patient care in the EMS/First Responder, ED/Hospital or Ambulatory settings.
- Academic and administrative experts in disaster related sub-specialty subject matter including but not limited to: chemical, biological, radiation/nuclear, and explosive, (CBRNE), psycho-social, and public health.
- Adult and pediatric expert health care providers, including but not limited to, physicians, nursing, EMS, psychologists, public health practitioners and allied health.
- Senior-level representatives from key organizations: American Academy of Pediatrics-Disaster Preparedness Advisory Council (AAP-DPAC), National Commission on Children and Disasters (NCCD), American College of Emergency Physicians (ACEP), Emergency Nurses Association (ENA), American Medical Association (AMA), National Association of Children’s Hospitals and Related Institutions (NACRI), Department of Veterans Affairs (VA), Medical Reserve Corps (MRC), Federal Emergency Management Agency (FEMA), Department of Homeland Security (DHS), Department of Defense (DOD), Health and Human Services Office of the Assistant Secretary for Preparedness and Response (ASPR).

Some of the key factors considered at this conference as a first step in the development of a pediatric disaster preparedness training program included:

- Identification of specific targeted training audiences in a disaster situation involving children.
- Identification of which providers would have the greatest impact in reducing morbidity and mortality in children, with appropriate training.

The initial task of the working groups was to identify those in each health provider category (EMS/First Responder, ED/Hospital, and Ambulatory) who should have pediatric disaster preparedness training and whose training would have the greatest impact regarding the reduction of morbidity and mortality of children. All of the groups identified the provider categories in need of training (see tables 1, 2, 3). However, while the ED/Hospital group identified the medical and surgical clinicians who traditionally provide acute care to have potentially greatest impact, and the Ambulatory group identified medical professionals who are the most experienced in pediatric primary care as those whose training should be prioritized, many members of the EMS/First Responder group, after deliberation, took exception with this “traditional approach.” After initially identifying medical professionals such as EMTs and Paramedics (traditional first responders) for inclusion in tier 1, this recommendation was subsequently revised. Lay/medical assistants (i.e. school teachers, school nurses, childcare workers, and staff at child congregate facilities), the people who are likely to be present at the scene when children are injured but who do not have classic response training, were placed in tier 1 (see table 2A). The concern was that in a large-scale casualty event, the availability of traditional EMS would be inadequate, and the best outcomes could be achieved by providing some basic training to the lay population. Since the depth of knowledge that they would need is not extensive it was felt that their training could be accomplished with efficient use of resources.

While the training of the “lay population” can indeed have significant benefits, the content, methodology, and prioritization of their training should be carefully investigated as part of next steps of the pediatric disaster preparedness training program development. Other key questions considered at this conference as first steps in the development of a pediatric disaster preparedness training program included:

- What are the recommended subject matter focus areas for the identified role specific curricula?
- What is the requisite role specific depth of knowledge for the different subject matter areas of the curriculum (i.e. foundation, awareness, proficiency)?
- To minimize costs, is there enough curriculum overlap between the various health provider roles such that select subject matter content can be shared?
- What additional training is necessary to provide adult clinicians with the requisite tools to take care of children and what additional training is necessary to provide to general pediatricians so they may function in acute care settings?

The working groups' second task was to identify 3-4 roles in each of their respective sections (EMS/First Responder, ED/Hospital or Ambulatory) and develop an overview of the specific disaster preparedness subject matter those designated role(s) would require (with consideration of the above factors). Preliminary role identification for curriculum development purposes was done preconference by a core group of each of the sections. While structure for this conference was provided to support the achievement of the objectives, since this was the first large scale gathering of pediatric preparedness subject matter experts, it was decided to allow the teams/team leaders the latitude to make new recommendations whenever they deemed it necessary. As demonstrated in the **curriculum recommendations section**, this approach enabled fruitful discussions and astute recommendations from all three of the groups.

Ambulatory

The Ambulatory group focused on the roles of the pediatric primary care providers (MD, DO, NP, PA), pediatric primary care nurses, and adult primary care providers (MD, NP, PA) for descriptive purposes. In addition to providing a comprehensive identification of the key subject areas for education and training (i.e. Basics of Disaster Response, Incident Response Management, Systems/Resources – see tables 3A-3O), an excellent elaboration of the important components of each of these subject areas was presented. These components will provide highly useful starting points for competency development. The succinct delineation of role-specific training levels (foundation, awareness and proficient) will aid in the development of content.

In addition, there is significant redundancy of curricula for the different roles, supporting the development of a modular system. Some key content areas identified by the working group that should be emphasized in the primary care disaster preparedness education and training process include:

- Ambulatory physicians may take on the role of surge providers in a disaster in the prehospital and hospital settings (including, with training in the PICU)
- Preparation of their offices, patient families, and especially children with special healthcare needs, for a disaster situation.
- Management of pediatric and family psychological issues in disasters, as the pediatric primary care clinician is likely to be the resource of choice for families struggling with those issues.
- In terms of radiation, in particular, the primary care clinician would be responsible for the monitoring and triage of otherwise well-appearing radiation-exposed children over the first days to weeks of an event. This cadre of primary care clinicians requires knowledge of protocols and algorithms to identify individuals with radiation sickness and marrow suppression for management at a health care facility. In addition, they would need to understand how to monitor the long-term effects of radiation, though that activity would be in conjunction with hematology/oncology specialists.
- Office-based clinicians provide longitudinal care, and require familiarity with community-based issues in terms of the physical, economic, psychological and social aspects they can expect to see over the next weeks, months, and even years.

Emergency Department/Hospital

The Emergency Department/Hospital group, as opposed to identifying individual roles for curriculum development purposes, elected to approach this task more broadly. They identified four categories of care providers; emergency care providers, surge providers, disaster leadership, and support providers. Like the Ambulatory group, they also provided a very comprehensive identification of the requisite subject areas for curriculum development as well as an excellent elaboration of the three important components they identified as key to each of those areas: Incident Response Management, Systems/Resources and MCI Triage (see tables 1A-1I). The ED/Hospital group elected to utilize four categories to describe the level of required training by each of the four recommended tiers: awareness, foundational, proficient and expert. It was felt that expert-level care or guidance should be available to the proficiency-level

providers for select topics in the disaster curriculum (see tables 1A-1I). Further delineation of what level of knowledge in a given subject area defines expert level vs. proficient should be a focus of “next steps” in the training program development process. Additional next steps will need to include the further breakdown of the four categories: emergency care providers, surge providers, disaster leadership and support providers into specific caregiver roles with reapplication of the depth of training criteria in select areas. Also noted was the significant curriculum overlap between the emergency care and surge providers in the pediatric acute care and CBRNE sections supporting development of a modular system.

Some key thoughts identified by the ED/Hospital group for the curriculum development process include:

- The average community hospital is likely to bear the burden of caring for children in a disaster; therefore, the goal should be to elevate pediatric care in that setting so that it's consistently proficient.
- The utilization of general pediatricians as ICU extenders.
- The cross-cutting issues across CBRNE include infection control, transmission, and communication.
- All staff, in order to protect themselves and the organization, need to be very much aware of decontamination and containment issues.
- The concept of secondary mental health triage is key. The A/P designation that the ED/Hospital sub-group chose reflects that mental health triage may not necessarily happen in the first stage of emergency triage, but it may be a secondary step. This may be appropriate for patients who are initially triaged as walking-wounded but then need to be screened for mental health concerns
- The public health, organization of care delivery, and network of expertise issues are critical at the leadership level. The disaster planning entity within the hospital organization must be at a minimum proficient, with access to experts, whether they are within the organization, or whether they exist in the local public health entity or at a neighboring institution.

EMS/ First Responder

Due to the potential for overwhelming the traditional EMS system in a massive casualty event the EMS/First Responder group elected to prioritize the training of people who are most likely to be present at the scene when children are injured (school teachers, school nurses, childcare

workers). Traditional EMS and clinicians who may have to care for children in and out of the hospital environment (i.e. physicians, nurses, and PAs) were placed in tier 2. While not utilizing the provided template for curriculum development, this working group's recommendations had many subject area recommendations that were similar in scope to the other working groups but geared more to the foundation/awareness level of the lay population. Examples of subject matter areas that overlapped with the Ambulatory and ED/Hospital and recommended for the tier 1 lay and the tier 2 health care providers included: incident response management (at the awareness level for tier 1), triage training for tier 1 (it was felt that the use of lay providers for triage purposes would free up medical providers to provide more advanced care), pediatric acute care, children with special health care needs, and many aspects of CBRNE. This curriculum overlap with both the ED/Hospital and Ambulatory groups supports the development of modules that could be shared particularly with the tier 2 group. Other key thoughts considered by this group as a first step in the development of a pediatric disaster preparedness training program included:

- Identification, tracking, and reunification were important themes that should be embedded in every tier of training. Supervisors should include it in any system they set up, EMS providers should know how to incorporate those principles in their care, and lay providers should know how to facilitate.
- The use of lay providers to do triage could free medical personnel to provide more advanced care.
- In their discussion of CBRNE principles, the EMS group felt that decontamination is not consistently an EMS role across all types of exposures. They acknowledged that although EMTs might perform decontamination, when they do, they are functioning as decontamination technicians rather than as medical personnel.
- Finally, there was discussion of training in when to modify normal approaches to care in a disaster such as modification of triage approaches.

Next Steps

The National Center for Disaster Medicine and Public Health is proud to have sponsored the first step towards establishing a role specific, competency based, pediatric disaster preparedness education and training program. Significant initial inroads included: identifying many of the health care provider roles that need to be trained, the priority recommendations of their training, and the preliminary role-specific curriculum recommendations. In addition,

many of the identified roles had significant curriculum content overlap thus making development of a modular based program feasible.

Some of the next steps that will need to be considered include:

- Determining the structure and delivery of education and training program that needs to be developed, including the competencies it should meet. Much of the content of a pediatric disaster preparedness education and training program would be similar to the adult version. In addition, in a mass casualty event, adult health care clinicians will be taking care of kids and children's health care providers will be taking care of adults. What curriculum development pathway should be taken? The options include: a free standing pediatric program, a combined "adult and pediatric" program, an adult program with pediatric supplements, just pediatric supplements (i.e. for EMS providers that are already trained).
- Further identification of the health care provider and non-health care provider roles that need to be trained.
- Further delineation of the role of the "lay provider" as a First Responder and definition of their training needs.
- Identifying the ideal teaching modalities of the different components of the curriculum.
- How much time should be allocated for education/training purposes? How does that translate into time spent for individual subject matter areas?
- Further development of modular, role dependent curricula including prioritized competencies.
- Development of a user-friendly education/training platform(s) that can document successful completion of competencies.

The diverse and prominent consortium of stakeholders and thought-leaders that were convened at the conference contributed to the robustness and representativeness of the process and product. Due to the paucity of pediatric disaster preparedness expertise at all levels of government, the utilization of the national pediatric community's SME assets is crucial. As next steps, in order to ensure the successful further development of this program, a committee composed of those government and community assets should be created. The task of the committee will be to cost out and provide a clear, detailed plan for the development of a competency based, role-specific disaster preparedness education and training program.

APPENDIX A: Public Health Recommendations

1. The level of proficiency for the majority of public health team considerations would be “awareness” for most responders. Scenario-based methodology was utilized as a way of imparting information to the groups. Leaders may need more detailed “big picture” knowledge of systems and the role of public health agencies and issues in domestic response.
2. Unfamiliarity with the roles and resources of public health agencies at all levels was a recurring theme among the ambulatory, pre-hospital, and hospital groups.
3. Two specific systems awareness issues became apparent to the PHT:
 - a. Knowledge by pediatric disaster providers and facilities of the “fit” and leadership role of public health in Incident Command
 - i. Pediatric disaster preparedness should include consideration of medical direction and control during disaster response.
4. Knowledge of local (city and county) response plans, on-going planning efforts (or lack thereof), public health capabilities/limitations, and strategic communication (inclusive of risk communication) is critical to pediatric preparedness. A representative list of response plans that may directly involve pediatric patients includes:
 - a. Community shelter (mass care) plans
 - b. Alternate medical care site plans
 - c. Special needs populations plans
 - d. Family tracking and reunification plans
 - e. Mass dispensing plans
 - f. Evacuation plans
 - g. Mutual aid agreements
 - h. Local role and capability of MRC/CERT/National Guard.

Pediatric disaster preparedness can be enhanced through internet and face-to-face interaction with:

- i. Graduate public health schools and programs
 - j. Public health preparedness centers (now called “PERLS”)
 - k. CDC.
5. All responders and providers need to know:
 - a. Their potential role in disease and injury surveillance and reporting
 - b. Infection control resources and recommendations.
6. In response to requests from the working groups for specific public health competencies, they were provided with the Public Health Preparedness & Response Core Competency Model (can be found here: <http://www.asph.org/document.cfm?page=1081>).

This document was prepared by the Association of Schools of Public Health with the assistance of the Centers for Disease Control Office of Public Health Preparedness and Response (CDC PPHR) at the request of the CDC to develop a model of core competencies for the public health preparedness and response workforce.

APPENDIX B: Mental Health Recommendations

a) Need to address basic needs of children and adults (and healthcare providers), including food, shelter, communication, reunification with family/friends, etc. and appreciation of the role that this plays in promoting recovery and resiliency

b) Need to anticipate and address needs of family members and others accompanying children and how to support unaccompanied minors (throughout healthcare delivery process and when discharged from healthcare setting)

c) Staffing during surge -- how other professionals and non-professionals can help fulfill behavioral health needs

The following topics were recommended by the mental health team (Note: some of these topics are closely related (e.g., 1/2, 3/4, 5/6 and 10/11) so not skipping a line between them was intentional -- the team thought they were different enough, they warranted a separate designation) :

1) Continuum of behavioral health response/impact (typical/atypical/worrisome)

2) Underlying neurobiology of stress (keep practical focus -- e.g., to justify need to address reactions and to help organize understanding of nature of reactions)

3) Behavioral Health Triage and risk factors for adjustment difficulties

4) Guidelines for referral for mental health services

5) Neuropsychological symptoms of biological and chemical agents

6) Stress reactions manifesting as, or exacerbating, symptoms of exposure to biological and chemical agents

7) Psychological first aid and brief supportive interventions

8) Anticipatory guidance that can be provided to parents/adult caregivers to promote resilience and reduce negative impact (this would include limiting exposure to traumatic images/sounds)

9) Risk and crisis communication

10) Bereavement support

11) Death notification

12) Professional self-care

APPENDIX C: Conference Attendees

LAST	FIRST	DEGREE	AFFILIATION
Abbey	Rachel	MPH	Montgomery Co MD / DHHS
Addo-Ayensu	Gloria	MD, MPH	Fairfax County / Health Dept
Arnesen	Stacey	MS	National Library of Medicine
Belton	Beverly	RN, MSN, NE-BC	Yale New Haven Health System / Center for Em Prep & Disaster Response
Berry	David	BA	NCDMPH / Communications
Brecher	Deena	MSN	Emergency Nurses Association
Brown	Kristen	BA	NCDMPH
Bryson	Dave		Department of Transportation
Chow	Laurie	MA, MPH	NCDMPH / Research
Chung	Sarita	MD	Children's Hospital Boston / Emergency Medicine
Cicero	Mark	MD	Yale University / Pediatrics
Cocrane	Richard	MPH, MA	LMI / Support to DOD (HA)
Connors	Holly	BS, RN	Montgomery Co MD / Public Health Services
Cooper	Art	MD, MS	Columbia University / Harlem Hospital / Surgery / Pediatrics
Costello	Amy	MD	USUHS / Resident
Cozza	Stephen	MD	USUHS / Center for the Study of Traumatic Stress
Crouch	Gary	MD, MHSA	USUHS / Pediatrics
Cunningham	Christine		LMI / Support to DOD (HA)
DiCarlo	Andrea	PhD	NIH / NIAID
Dodgen	Daniel	PhD	DHHS / ASPR
Drayton	Amy	RN, MSN, CCRN, CPAN	USNS Comfort (T-AH20), NNMC
Dubinsky	Diane	MD	Fairfax Pediatric Associates
Edgerton	Elizabeth	MD, MPH	HRSA / MCHB
Edwards	David	MBA	Virginia Dept of Health / OEMS
Fagbuyi	Dan	MD	CNMC / GWU / Pediatrics & Emergency Medicine

Feerick	Margaret	PhD	USUHS / Center for the Study of Traumatic Stress
Flynn	Brian	EdD	USUHS / Center for the Study of Traumatic Stress
Forte	Elaine	BS, MT(ASCP)	Yale New Haven Health System / Center for Em Prep & Disaster Response
Garrett	Andy	MD, MPH	DHHS / NDMS
Gurwittch	Robin	PhD	Cincinnati Children's Hospital Medical Center / Pediatrics
Hakkinen	Bert	PhD	NIH / NLM
Harris	Mark	MD, MPH, MBA	DHHS
Haymon	Jaclynn	MPA, RN	EMSC National Resource Center
Henretig	Fred	MD	Children's Hospital of Philadelphia / Emergency Medicine
Hohenhaus	Susan	MA, RN	Emergency Nurses Association / IQSIP
Hovor	Cynthia	MS	NCDMPH / Research
Hoyle, Sr.	John	BA, MHA	FEMA / Emergency Management Institute / Preparedness Branch
Huddleston	Kathi	PhD, MSN	Inova Childrens Hospital / Pediatrics
Jantusch	Barbara	MD	CNMC / Infectious Disease
Jett	David	MS, PhD	NIH / NINDS
Kaplan	Sheldon	MD	Baylor College of Medicine / Pediatrics
Kimmer	Sandy	MD, MPH	USUHS / Family Medicine
Knox	H. Donald	MD, FAAP	Inova Fairfax Hospital for Children
Koroshetz	Walter	MD	NIH / NINDS
Krug	Steve	MD	Children's Memorial Hospital / Emergency Medicine
Lezama	Nicholas	MD, MPH	USUHS / Preventive Medicine & Biometrics
Lord	Graydon "Gregg"	MS	National Commission on Children and Disasters

Margolis	Gregg	PhD	DHHS / ASPR / Division of Health Systems & Health Care Policy
Markenson	David	MD	Westchester Medical Center / Disaster Medicine & Regional Emergency Services
Martinello	Richard	MD	VA / Office of Public Health & Environmental Hazards
Needle	Scott	MD	CHS Healthcare / Creekside Pediatrics
Newmark	Jonathan	MD	DOD / JPEO ChemBio Defense
Nguyen	Lan Anh	MSPH	OCVMRC / Deployment Ops
Ochsenschlager	Daniel	MD	MIEMSS / Region 4
Oetjen	Cheryl		Inova Fairfax
Payne	Skip	MSPH	Office of US Surgeon General / OCVMRC
Perentesis	John	MD	Cincinnati Children's Hospital Medical Center / Oncology
Picchini	Alyssa	PhD	DHHS / APSR / Office of Policy & Planning
Pullman	Audrey	MD	DHS / FEMA / Office of Disability Integration & Coordination
Rahman	Abid	MPH, PhD	VA / Emergency Management Strategic Health Care
Reaman	Greg	MD	CNMC / Center for Cancer & Blood Disorders
Rodriguez	William	MD, PhD	FDA / OPT / OC
Romanosky	Al	MD, PhD	MD Dept of Health & Mental Hygiene / Office of Prep & Response
Satouri	Raja'A	MD	Fairfax County / Health Dept
Schonfeld	David	MD	Cincinnati Children's Hospital Medical Center / Div of Developmental & Behavioral Pediatrics
Schor	Kenneth	DO, MPH	NCDMPH / Acting Director

Schreiber	Merritt "Chip"	PhD	NORAD-USNORTHCOM / Office of the Command Surgeon
Scouten	William	MD, FAAP	NMC Portsmouth / Pediatrics
Serino	Richard		FEMA Deputy Administrator
Siegel	David	MD, FAAP	NIH / NICHD
Sokora	Dawne	Nurse	Inova Women & Childrens / PICU
Stern	Michael	NREMT-P	National Fire Academy / US Fire Administration
Strauss-Riggs	Kandra	MPH	NCDMPH / Academic Joint Program
Taylor-Zapata	Perdita	MD	NIH / Medical Officer
Thomas	Kevin "Kip"	PhD, MBA	Boston Univeristy School of Medicine / Healthcare Emergency Management Program
Upperman	Jeff	MD	Children's Hospital Los Angeles / Surgery
Ushay	Michael	MD, PhD	Montefiore Medical Center / Pediatrics
Walsh	Lauren	MPH	American Medical Association
Weinstein	Steven	MD	Weill Cornell Medical College / NYP Hospital
Weston	Ian	MPP, EMT	Emergency Medical Services for Children
Yeskey	Kevin	MD	DHHS / ASPR
Yuri	Millo	MD	SiTEL
Zajicek	Anne	MD, PharmD	NIH / OB and Pediatric Pharmacology Branch
Zukowski	Rebecca	RN, MSN	NCDMPH / Advisor

