Pediatric Disaster Preparedness For the Non-Pediatric Hospital

GEORGE FOLTIN, MD
CENTER FOR PEDIATRIC EMERGENCY MANAGEMENT (CPEM)

Children and Emergency Care

Children comprise 26% of the U.S. population

31 million children are seen in emergency departments each year

92% treated at local community hospitals

69% of emergency departments see < 15children a day

Slow Progress

2010: National Commission on Children and Disasters:

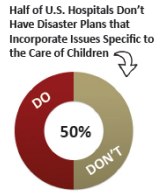
- "Deficiencies in every functional area of pediatric disaster preparedness"

2013: IOM Forum on Medical and Public Health Preparedness for Catastrophic Events:

- "State and local disaster plans don't include children and families"

Peds Ready Hospital Preparedness

"Less than half of all U.S. hospitals have written disaster plans addressing issues specific to the care of children"



Why Do We Need Pediatric Specific Plans?

History of Preparedness

- EMS and Trauma care evolved on adult need
- – children overlooked and plans retrofitted
- Pediatric systems evolved separately
  - Neonatal regionalization
- Community educates self
  - American Academy of Pediatrics
  - EMS-C Program
- Community educates Government
  - Special Taskforces
  - Interagency Work

Children Today (United States)

- Estimated 78 million people less than 18 years of age
- Roughly 25% of the population
- Largest vulnerable population
- Disabled children
- Tech dependent children
- 30% living at or near the poverty level
- Environment and Response provided by adults

Children Myriad Vulnerabilities

Collateral Damage
- Oklahoma City '99
- Madrid '04
- Boston Marathon

Katrina: 2000 lives lost
- 2,000,000 evacuated
- Many displaced
- Impact on Children
  - 5000 separated,
  - Loss of home, financial footing, security

WTC: 3000 adults lives lost
- How many parents lost?

Tsunami/Katrina
- Children as victims out of proportion to population
- Mental health, economic stability

H1 N1
- Children vulnerable
- Primary victims

School Shootings

Disasters can be….

Human Conflict Event	Technological Event	Public Health Event Natural Disasters
Explosive device (open vs. closed)	School bus crash, train derailment	Hurricane, tornado, tsunami, earthquake
Anthrax, plague, smallpox cluster	Chicken tainted by Salmonella typhi	Pandemic influenza, SARS, monkeypox
Nerve gas release	Chemical plant leak	Volcanic eruption
Nuclear plant attack	Nuclear plant leak (Three Mile Island)	Radon exposure
Incendiary device	Boiler explosion	Heat wave

Beyond comprehension or Soft Targets?

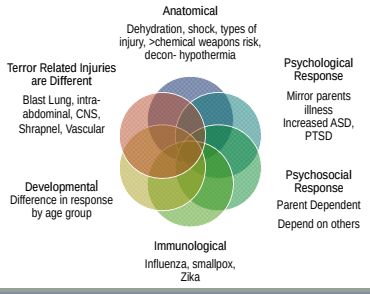
Children congregate during daytime
- Daycare/School/Camp
- En route on buses

School planning variable and not adequate
- Often not coordinated with municipal plans
- Notification and reunification plans rare

Children are Different

They are not merely "small adults"

Children are different!

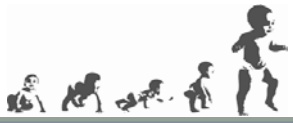


Therefore, the pediatric plan and response to disasters must be tailored to the special needs of children.

Size Matters

Developmental Differences

- Unable to recognize danger
- Can not physically escape from the site
- Can not provide reliable information
- Stress reaction age dependent and difficult to diagnose and treat



Chemical MCI Children more likely to be victims (closer to ground, higher respiratory rate

Example children have special needs Pediatric Generic Decon Issues

- Avoid Separation of Families
- Cannot assume parents can decon child plus self
- Older children may resist due to fear, peer pressure, modesty issues
- Risk of Hypothermia if temp <98°
- Large volume low pressure hand held hoses
- Beware airway management throughout
- Soap and water only

Psychological Response

- Parental dependence
- Reflect parents mental health
- Require developmental level diagnosis/treatment
- Greater risk of acute stress, anxiety, PTSDReflected in play
- Regression
- Somatisation

Shock And Awe Mattters

Emotional response

- Amputated
- Disembowled
- Dead
- Missing

How We Respond Matters!

Differences During Pediatric Disasters Matters

- May be unable to self identify
- Unable to provide reliable exposure history
- Impaired communication of symptoms
- Need constant adult supervision to avoid harm
- Afraid of staff in PPE & need constant reassurance
- Unable to walk through decon on their own
- Unable to legally consent for medical care

Pediatric Disaster Mental Health

- Over-represented in Disasters
- High Risk Population
- Dependent on Adults reflect Mental Health
- Developmental Level Presentations

Terror Related Injuries are different

Different than routine trauma

Depend on mechanism of injury (blast, shrapnel, chemical etc.)

Dependent on developmental age related anatomy (head size/fontanel, liver/spleen, C-spine etc.

Stress response is different

Types of injuries

More Severe > ED, ICU, Length of stay
Shrapnel
Blast Lung
Ear Injury
Intra-abdominal
Head
Limbs (amputation)
Vascular Injuries

SUMMARY TERROR VS.TRAUMA VICTIMS

Younger
Arrive in Mass
More Severely Injured
Heavier Consumers of Resources
Excess injuries to blood vessels and nerves
More ICU admissions
More Immediate Surgery/Procedures
Walking wounded ASR/Mental Health issues
Identification and reunification

Children and Pandemic Flu

Unclear resource allocation
- Ventilators
- Home care

Addressing unique pediatric problems
- Toddlers won't wear masks, are not great at washing their *hands,*
- *won't promise to not pick their noses*

Impact on Modern society of large numbers of pediatric mortalities

Palliative care

Children with special health care needs may also be MCI victims!

Systemwide Organization of Pediatric Critical Care Resources

There Must Be a Plan There must be Communication

Major Pediatric Centers must Surge
- Critically ill and injured children better served at specialty centers even if they must surge

Primary transport to the best Destination
- Centralized Triage
- Secondary transport must be vigorous
- All players must buy in
- Care Providers must be trained

Resources and Drills are Essential

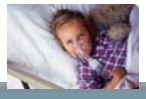
Community Preparedness for Children Soup to Nuts

Children and Acute Traumatic Stress, PTSD and Chronic morbidity

Decontaminating Children

Specialized Pediatric Field Triage Considerations

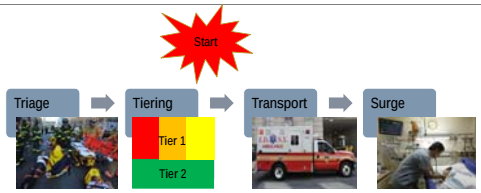
Overcoming Legal Obstacles Involving the Voluntary Care of Children Who Are Separated from their Legal Guardians During a Disaster



Everyday Readiness for Extraordinary Events

In the wake of Hurricane Katrina, the 2006 IOM report noted that such deficiencies in everyday operational readiness are exacerbated during a disaster, calling the nation's emergency care system "poorly prepared for disasters."

NYC Pediatric Disaster Plan



The PDC and their collaborative planning team created a comprehensive Pediatric Disaster Plan for NYC from the onset of the event and first response through pediatric intensive care surge.

Available Planning Resources

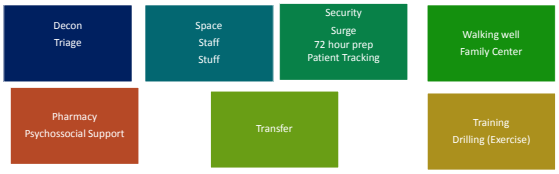
- Pediatric Resource Directory
- Pediatric Disaster Toolkit
- Pediatric Table Top Exercise
- Hospital Guidelines
- Templates
  - Surge plans
  - Evacuation
  - Shelter in place

Pediatric Disaster Tabletop Exercise

Moderated by: George Foltin, MD
Facilitated by: Michael Tunik, MD
Bonnie Arquilla, DO

NYC Health THE NEW YORK CITY DEPARTMENT of HEALTH and MENTAL HYGIENE

General Hospital Preparedness



Space, Staff, Stuff

Space:

Rapid Patient Discharge from ED, PICU, Floor

Expansion Plans (Additional/ Alternate area, doubling up)

Equipment and supplies

- known location, accessible, prepackaged

Staff

Enlisting Additional Staff
- Planning for relief
- Planning for accomodations
- Understanding your per diem pool

Pediatric Fundamentals of Critical Care Support (PFCCS)
- Train the trainer courses

Just in Time Training (JITT)

Safety and Security

Include safety and security in exercises.

Security should perform crowd control and cover building entrances/egress.

Communication methods should be checked before exercises or events.

Some patients suffering from Acute Stress Response (ASR) may require security supervision.

Consider designating a press area.

Pediatric and NICU Surge and Evacuation Planning & Exercise Series Toolkit

The PDC is currently finalizing a Pediatric and NICU Surge and Evacuation Planning & Exercise Series Toolkit

What is the "Toolkit"?
- A comprehensive document that will be made available to hospitals to:
  - Develop their own PICU Surge Capacity Plans and NICU Evacuation Plans
  - Design, conduct and evaluate workshops, tabletops, drills and full-scale exercises
- What's within the "Toolkit"
  - A detailed description of how to develop plans, design, conduct and evaluate exercises in compliance with the Homeland Security Exercise and Evaluation Program (HSEEP) ***based on PDC best practices***
  - Appendices with PDC PICU Surge Capacity and NICU Evacuation Template Plans and exercise document templates

Outpatient Disaster Planning

Develop pediatric specific guidelines and planning templates for surge evacuation for Outpatient (FQHCS) and Urgent Care Centers in New York City

Process:

- Form subject matter expert group
- Conduct literature search (ASPR/TRACIE, et al.) to identify existing literature of best practices
- Create Guidelines and Template Plans
- Assist facilities in adapting and implementing these plans, thereby, increasing surge/evacuation capabilities
- Test and exercise the plans
- Make revisions based upon gaps and lessons learned

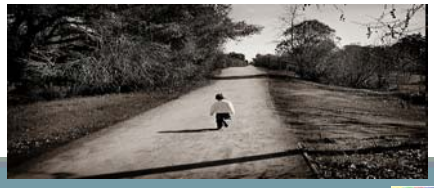
Advocacy, Planning and Clarity of Mission matters

In order to solve a problem one has to think about the problem

Barriers to Response for Kids

"We have come a long way but……

We have a long way to go."



Final Thought

Public Health for Catastrophes

- Preparing as if we were wartime England
- Society must be Brave
- As a nation we need to make the correct though difficult choices
- Protection of assets and our way of life

Need to over focus on children

- This is what we tell others, what do we need to tell ourselves?

Thank You for your Time!

Dr. George Foltin
Co-Principal Investigator
NYC Pediatric Disaster Coalition
gfoltin@maimonidesmed.org

Dr. Michael Frogel
Co-Principal Investigator
NYC Pediatric Disaster Coalition
mikefrogel@gmail.com

LuAnn Gibson
Program Manager
NYC Pediatric Disaster Coalition
LUGibson@maimonidesmed.org

Wanda Medina
Senior Program Manager
NYC DOHMH
wmedina2@health.nyc.gov

Website:
www.pediatricdisastercoalition.org
Email:
info@pediatricdisastercoalition.org