NYC Pediatric Disaster Plan

Moving the Right Child, at the Right Time, to the Right Place.

Presented by the NYC Department of Mental Health & Hygiene, NYC Pediatric Disaster Coalition (PDC)

August 19, 2015
Today’s Agenda

1 – Introduction

• Children are Different
• Why is a Pediatric Disaster Plan (PDP) necessary?

2 – Current State of Readiness

• Pre-Hospital, Tiering, Transport, Hospital Planning, Exercises

3- Operation of the Pediatric Disaster Plan

• Presented by FDNY

4. The Pediatric Disaster Plan and the Pediatric Intensivist Response Team

• What is the PIRT?
• How will the PIRT operate?
• Questions?
Children are different!

Therefore, the pediatric plan and response to disasters must be tailored to the special needs of children.
Gravesend Houses, Coney Island, Brooklyn NY
Anatomical and Physiologic Differences

• Thin skin, soft pliable skeleton, large organs:
  • Increased severity of exposure to blasts chemicals, burns

• Large surface to volume ratio (Hypothermia)

• Poor immune response

• Small airways, limited respiratory reserve capacity

• Closer to the ground
Psychological Issues

- Parental dependence
- Reflect parents mental health
- Require developmental level diagnosis/treatment
- Greater risk of acute stress, anxiety, PTSD
Immunologic Issues

Immature Immune System

- Prone to some infections (RSV, Equine Encephalitis)
  - >infectivity, 30% influenza
- Vaccine reactions (smallpox)
- >Incidence thyroid cancer (use KI), leukemia, breast cancer with radiation
- Decreased incidence of SARS
Children As Primary Targets (Partial Listing)

1838 Blaukaans River, South Africa - Zulus kill 185 children
1974 Maalot School occupation after bus attack - 26 dead, 70 injured
1995 Murrah Building, Oklahoma City - 19 dead, 66 injured, nursery
1998 Elementary school, Jonesboro, Arkansas
1999 Columbine High School, Colorado
2000 Intifada, Israel
2003 Jerusalem Children’s Bus (9 killed, 40 wounded)
2004 Baghdad US troops giving out candy 35 dead
2004 Beslan, Russia (186 dead, school)
2006 Platte Canyon High School, Colorado
2011 Norway (69/77 dead, summer camp)
2012 France Ozar Hatorah Toulouse (3 dead, day school)
2012 Sandy Hook Elementary School Shootings, Newtown 28 dead (20 children), 2 injured
2014 IRAQ: Killings, Slavery (1000s)

And the list goes on...and on...
Specific injury due to a suicide bomber
No more hurting people.

Peace
Terror Related Injuries are Different

• Different than non-terror related trauma
• Depend on mechanism of injury
  • Blast, shrapnel, chemical etc.
• Dependent on developmental age related anatomy
• Stress response is different
May 1, 2010 Saturday Evening in Manhattan

The Danger is Real!

Times Scare
Gasoline bomb parked in middle of Broadway
Times Square, New York City
Pediatric Issues to Ponder

• Scene Triage
• How many patients?
• Severity of illness and injury
• How many beds are needed?
• Primary and Secondary Transport
• Match victims needs to available resources ED/OR, subspecialty ICU

Therefore: The plan and response to disasters must be tailored to the special needs of children.
Current State of Readiness

WORK SO FAR
Chain Of Events
Planning

Triage
Tiering
Transport
Surge
Pediatric Response Capability during an MCE

• A Mass Casualty Event (MCE) involving large numbers of pediatric patients could overwhelm existing hospital resources.

• Snapshot: NYC currently has 25 PICUs with a total of 262 beds and an additional 142 surge beds available- breakdown on next slide.

• The New York City Pediatric Disaster Response Plan provides guidance for agencies and healthcare providers responding to a MCE that involves large numbers of pediatric patients.
## Preparedness Snapshot: PICU Beds

<table>
<thead>
<tr>
<th>Borough</th>
<th># PICUs</th>
<th># PICU Beds</th>
<th># PICU Surge Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronx</td>
<td>4</td>
<td>51</td>
<td>22</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>6</td>
<td>38</td>
<td>21</td>
</tr>
<tr>
<td>Manhattan</td>
<td>10</td>
<td>117</td>
<td>69</td>
</tr>
<tr>
<td>Queens</td>
<td>3</td>
<td>49</td>
<td>29</td>
</tr>
<tr>
<td>Staten Island</td>
<td>2</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>25</strong></td>
<td><strong>262</strong></td>
<td><strong>145</strong></td>
</tr>
</tbody>
</table>
• The PDC has created Surge and Evacuation Guidelines and Template Plans for PICUs, NICUs and Obstetric Services/Newborn Nursery

• The PDC assists hospitals in creating site specific plans using planning guidelines and templates

<table>
<thead>
<tr>
<th>Service</th>
<th># Plans Completed</th>
<th>Plans Tested Through FSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICU Surge</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>NICU Evacuation and Surge</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>OB and Newborn Evacuation and Surge</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
<td><strong>9</strong></td>
</tr>
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</table>
PFCCS

- A two-day, comprehensive course addressing fundamental management principles for the first 24 hours of pediatric critical care.

- Created by the Society of Critical Care Medicine (SCCM)

- The fundamentals of critical care support have been available since the mid 90’s, PFCCS, covering pediatric critical care, was released in 2008.

- Students have included pediatric hospitalists, emergency medicine physicians, nurses, EMT’s, nurses, physician assistants, nurse practitioners, transport personnel and military pre-deployment to cite a few.

- NYCDOHMH has supported training of over 100 medical personnel to date.
The PDC has worked with hospitals to help design and conduct 9 full-scale exercises

2010-2011
• 5 PICU Surge Capacity MCE exercises

2013-2014
• 2 PICU Surge Capacity Full-Scale Exercises
  • PICU to PICU transfer due to flooding from a hurricane

1 NICU Evacuation Full-Scale Exercise
  • Evacuation due to smoke condition/fire in the NICU

2014-2015
• 1 NICU Evacuation Full Scale Exercise

2015-2016
• Citywide Surge/Communications Exercise
• Exercise Tool Kit Validation Full Scale Exercise
NYC Pediatric Disaster Plan

DR. DARIO GONZALEZ AND DR. ARTHUR COOPER
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.
The Current Status: Transport/Transfer

If a pediatric disaster were to occur today:

• Patients would be triaged at the scene as per FDNY EMS protocols
• There are currently a limited number of hospitals that are fully prepared to receive critically injured pediatric patients
• Inter-facility transports are arranged on an ad hoc basis between sending and receiving hospitals so critical transports could be delayed
• The current system does not routinely transport pediatric patients to hospitals with specialized pediatric resources
• Nearest facility may not be the “best” final destination
Triage Modification

- **Victims**
  - **Children with no signs of life**
    - **BVM x 5**
      - **No response** → **Black**
      - **Responds** → **Red**
    - **Radial pulse**
      - **Respirations:**
        - <30/<10
        - Unable to follow command
      - **Yellow**
  - **Radial pulse**
    - **Respirations:**
      - >30/<10
      - Able to follow command
      - **Green** or **Orange**

**Infant = <12 mo**
FDNY Pediatric Field Triage

- New pediatric triage and transport algorithm
- Categorizes children by size, not age
- Recommends 5 rescue breathes before tagging a child “black” (unsalvageable)
- Classifies all infants as “red” (immediate)
- Adds an “orange” (urgent) up-triage category for respiratory distress and mental status changes
- This is now the current FDNY triage system

FDNY triage algorithm has been approved by NYC REMAC/REMSCO and NYS SEMAC/SEMSCO
Prioritization of pediatric patients prior to secondary transfer:

• Increases the number of children who will be transferred to definitive pediatric care facilities

• Allows for improved hospital utilization

• Prevents an overwhelming surge into hospitals that do not routinely care for critically injured children

• Minimizes the need for inter-facility transfer for seriously injured children
Operational goal of the PDP

The operational goal is to provide optimal medical care for the pediatric victims of an MCE by facilitating

(1) primary (pre-hospital) transport to pediatric capable hospitals, when available and appropriate; and subsequently

(2) secondary (inter-facility) transfer to such hospitals, when available and appropriate, in situations where primary transport was unavailable, or patients self-evacuated to facilities not capable of definitive pediatric care.
Proposed FDNY EMS Primary Pediatric Transport to Hospital

- FDNY will transport casualties to Tier I or Tier II Pediatric Disaster Ambulance Destinations (PDAD) from the field
- Pediatric Disaster Ambulance Destinations have been tiered based on resources
- The goal of primary transport:
  - To minimize the need for inter-facility transfer
  - Transport the patient to a pediatric capable hospital with specialized resources so critical pediatric care is not delayed
## Pediatric Disaster Ambulance Destination (PDAD)

<table>
<thead>
<tr>
<th>Tier 1 PDAD</th>
<th>Tier 2 PDAD</th>
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<tbody>
<tr>
<td>• Committed to pediatric subspecialty care</td>
<td>• Committed to general pediatric care</td>
</tr>
<tr>
<td>• Pediatric surgical service</td>
<td>• Pediatric surgical consultants</td>
</tr>
<tr>
<td>• Pediatric emergency service</td>
<td>• Pediatric resuscitation capable ED</td>
</tr>
<tr>
<td>• Pediatric intensive care unit</td>
<td>• Pediatric inpatient unit</td>
</tr>
<tr>
<td>• Pediatric inpatient unit</td>
<td>• Level II nursery</td>
</tr>
<tr>
<td>• Level III nursery</td>
<td>• Pediatric transfer agreement</td>
</tr>
<tr>
<td>• Comprehensive pediatric subspecialty support</td>
<td>• Pediatric disaster plan</td>
</tr>
<tr>
<td>• Anesthesiology, neurosurgery, orthopedic surgery with experience in management of children</td>
<td>• Transfers children needing ICU care</td>
</tr>
<tr>
<td>• Pediatric disaster plan</td>
<td>• Currently 16 Tier 2, all boroughs except Staten Island</td>
</tr>
</tbody>
</table>

*Currently 19 Tier 1, all boroughs*
Inter-facility Transfer

Inter-facility transfers may be needed for:

• Self referrals to neighboring facilities
• Pediatric patients taken to facilities that are unable to provide necessary pediatric critical care
• FDNY EMS does not currently provide routine inter-facility transfer
• The inter-facility transfer plan is one of the most critical aspects of the proposed plan
Pediatric Intensivist Response Team (PIRT)

DR. BRUCE GREENWALD
What is the Pediatric Intensivist Response Team (PIRT)?

- Provides prioritization triage consultation service to FDNY EMS for inter-facility transfer of patients
- Volunteer Pediatric Intensivists
- Serve under NYC Medical Reserve Corp umbrella
- All currently practice at PICUs in NYC
PIRT’s Role in the PDP

1. Upon activation of the PDP, sending hospital will contact FDNY EMS to request a transfer
2. FDNY EMS will collect basic data and details of patient’s injuries or illness
3. FDNY EMS will relay the request and information to PIRT Physician on call
4. PIRT Physician will triage/prioritize the patients based on acuity and need for specialized services, and relay this information to FDNY EMS
5. FDNY EMS will use this information as well as the list of available beds in PDADs to determine inter-facility transfer destinations
PIRT’s Role in the PDP

6. FDNY EMS will assign PDAD

7. Sending physician will then speak with receiving PDAD physician

8. FDNY EMS will utilize available 911 resources

9. FDNY EMS may also use specialized pediatric transport services if available

10. FDNY EMS will be notified upon completion of transfer
Patient Information Shared between FDNY & PIRT

a. Patient identifier
b. Patient age or size (infant, toddler, child, adolescent)
c. Nature of injury/injuries
d. Respiratory Support
e. Medications
   • Chronic
   • Currently administered
f. Vital signs
   • Blood Pressure ___/_____
   • Heart Rate __________
   • Respiratory Rate ______
   • O2 Saturation (if available) ______
   • Glasgow Coma Scale ______
   • Pupils: □ fixed and dilated □ unequal
     □ equal and reactive
g. Co-morbidities
Patient Information Shared between FDNY & PIRT

PIRT assigns priority and FDNY assigns destination

- **RED** – Immediate Transfer
- **ORANGE** – Urgent Transfer
- **YELLOW** – Delayed Transfer
- **GREEN** - Do not transfer; treat at current hospital unless there is a change in status
- **BLACK** – Expectant/Expired (PIRT physician may speak to sending hospital physician in these types of cases if necessary)
  - **DEFFERED** until deactivation
Questions
Thank You for your Time!

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