



ΜΑΖΙΚΕΣ ΚΑΤΑΣΤΡΟΦΕΣ : ΠΑΙΔΙΑ ΚΑΙ ΕΥΠΑΘΕΙΣ ΟΜΑΔΕΣ ΠΛΗΘΥΣΜΟΥ

**Διεθνείς οδηγίες για τη διαχείριση μαζικών
καταστροφών προσαρμοσμένες στα παιδιά**



Πέτσιος Κωνσταντίνος

*Επίκουρος Καθηγητής Παιδιατρικής Νοσηλευτικής
Εθνικό & Καποδιστριακό Πανεπιστήμιο Αθηνών*

cpetsios@nurs.uoa.gr

petsiosk@gmail.com



ΕΝΟΤΗΤΑ 2^η

ΕΥΑΛΩΤΟΙ ΠΛΗΘΥΣΜΟΙ

ΙΔΙΑΙΤΕΡΟΤΗΤΕΣ ΠΑΙΔΙΩΝ ΘΥΜΑΤΩΝ ΜΚ

Ιδιαιτερότητες παιδικής ηλικίας





Brain storming...

- Γιατί τα παιδιά είναι πιο ευάλωτα σε μαζικές καταστροφές;
- Η επίπτωση περιορίζεται στην θνητότητα;
- Ποιες είναι οι πιο ευάλωτες ομάδες πληθυσμού;
- Ποιοι παιδιατρικοί πληθυσμοί είναι ιδιαίτερα ευάλωτοι;
- Ειδικές κατασκηνώσεις για παιδιά ή γενικές κατασκηνώσεις;



Εν αρχή...

- Σε κάθε περίπτωση μαζικής καταστροφής τα παιδιά θύματα αποτελούν έναν **ειδικό και ευάλωτο πληθυσμό**.
- Σύμφωνα με τη διακήρυξη των Ηνωμένων Εθνών αναφορικά με τα δικαιώματα των παιδιών αναγνωρίζεται **ότι τα παιδιά θα πρέπει να είναι εκείνα που σε περιπτώσεις μαζικών καταστροφών θα πρέπει να λάβουν πρώτα βοήθεια**.
- Τα παιδιά δεν είναι μόνο πιο **ευάλωτα σωματικά** αλλά **εμφανίζουν αυξημένες ανάγκες επιβίωσης** (πρώτες βοήθειες, τροφή και στέγη) αλλά και **ψυχοκοινωνικές ανάγκες εξαιτίας του έντονου ψυχοσυναισθηματικού τραύματος** που βιώνουν, ιδιαίτερα αν συνοδεύεται από απώλεια ή απομάκρυνση από κάποιο ή όλα τα μέλη της οικογένειας.
- Οι αντιδράσεις των παιδιών κατά την εμφάνιση μιας ΜΚ ποικίλουν σημαντικά και εξαρτώνται άμεσα από:
 - **Την ηλικία τους**
 - **Το αναπτυξιακό τους στάδιο**
 - **Την εμπειρία τους**
- Συχνά οι ανάγκες των παιδιών σε περιστάσεις ΜΚ δεν αντιμετωπίζονται επαρκώς.



Ιδιαιτερότητες παιδικής ηλικίας...

• Ειδικές ανάγκες

Βιολογικές ιδιαιτερότητες

- Παθοφυσιολογικές διαφορές
- Ανατομικές διαφορές
 - Μικρότερη σωματική αντοχή
 - Τα παιδιά έχουν μικρότερο σώμα,
 - Λιγότερα αποθέματα ενέργειας και
 - Πιο ευαίσθητο ανοσοποιητικό σύστημα.

Έτσι, κινδυνεύουν περισσότερο από αφυδάτωση, υποθερμία, τραυματισμούς ή μολύνσεις.

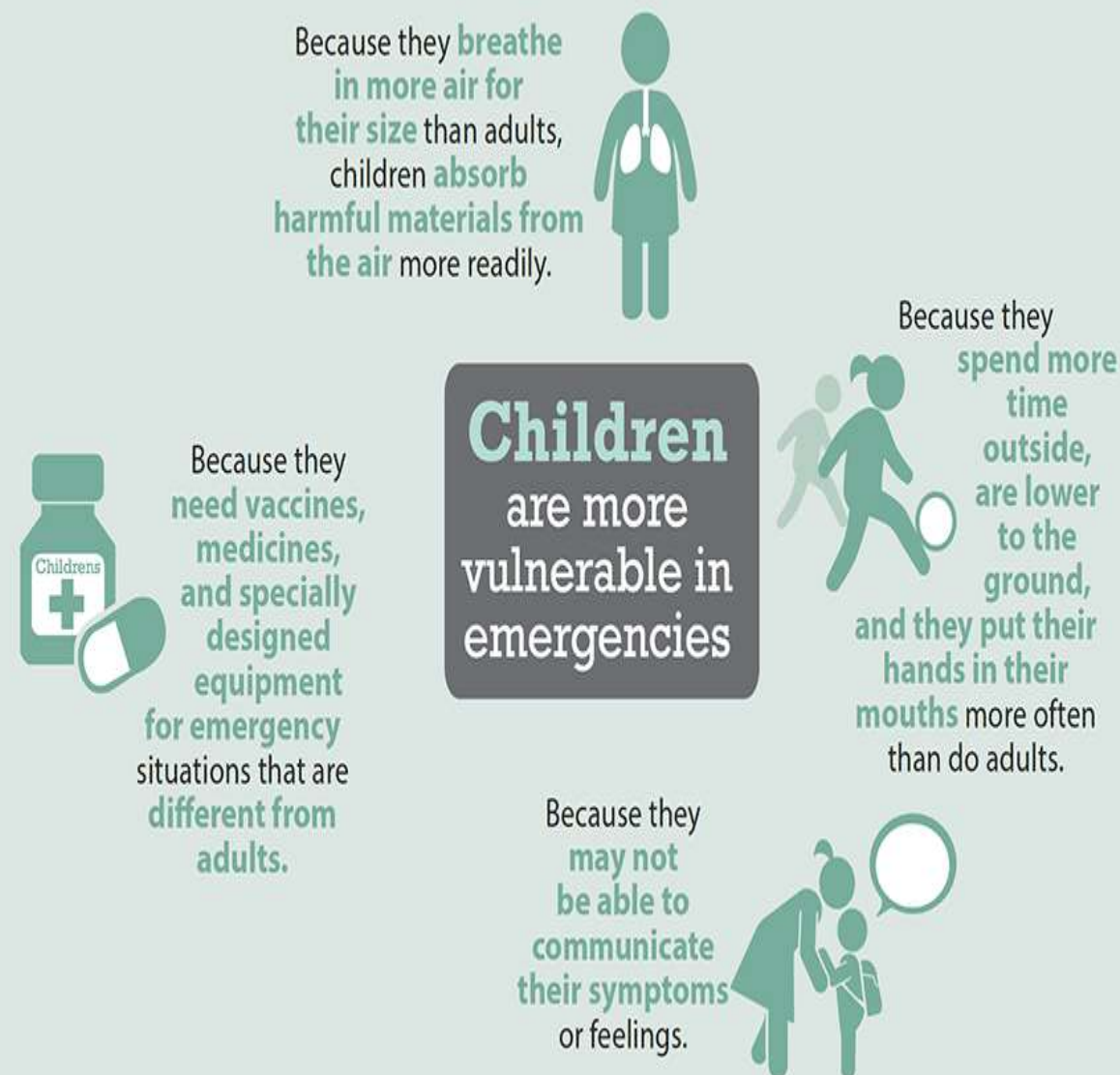
Παιδιά σε διαφορετικό αναπτυξιακό στάδιο

• Ανάγκη για συνεχή φροντίδα

Δεν μπορούν να φροντίσουν μόνο τους για βασικές ανάγκες (τροφή, νερό, ασφάλεια, φάρμακα).

• Ανάπτυξη οργανισμού

Οι επιπτώσεις από ρύπανση, τοξικές ουσίες ή ακτινοβολία είναι πιο σοβαρές σε οργανισμούς που αναπτύσσονται.



Ιδιαιτερότητες παιδικής ηλικίας...

Ψυχολογικοί λόγοι

- **Δυσκολία κατανόησης της κατάστασης**
 - Τα παιδιά δεν έχουν ακόμα ανεπτυγμένη την ικανότητα να κατανοούν τι συμβαίνει ή να εκτιμούν κινδύνους.
- **Έντονο ψυχικό τραύμα**
 - Οι μαζικές καταστροφές μπορεί να προκαλέσουν μακροχρόνιο άγχος, φόβο, διαταραχή ύπνου ή μετατραυματικό στρες (PTSD).
- **Ανάγκη για συναισθηματική ασφάλεια**
 - Η απώλεια ή ο χωρισμός από γονείς ή φροντιστές είναι ιδιαίτερα τραυματικός παράγοντας.

Κοινωνικοί και περιβαλλοντικοί λόγοι

- **Εξάρτηση από ενήλικες**
 - Αν οι γονείς ή οι φροντιστές τραυματιστούν ή πεθάνουν, τα παιδιά μένουν χωρίς στήριξη.
- **Έλλειψη πρόσβασης σε εκπαίδευση και υποστήριξη**
 - Μετά από καταστροφές, πολλά παιδιά χάνουν το σχολείο, το οποίο είναι σημαντικό όχι μόνο για μάθηση αλλά και για ψυχολογική σταθερότητα.
- **Κίνδυνος εκμετάλλευσης**
 - Σε συνθήκες χάους, τα παιδιά κινδυνεύουν από κακοποίηση, εμπορία ανθρώπων ή εργασιακή εκμετάλλευση.

Because they **breathe in more air** for their size than adults, children **absorb harmful materials** from the air more readily.



Because they **spend more time outside**, are lower to the ground, and they put their **hands in their mouths** more often than do adults.



Children are more vulnerable in emergencies

Because they **need vaccines, medicines, and specially designed equipment** for emergency situations that are **different from adults**.



Because they **may not be able to communicate** their symptoms or feelings.



Ιδιαιτερότητες παιδικής ηλικίας...

- Ψυχοκοινωνικές ανάγκες και άλλες αντιδράσεις
 - Συναισθηματικές αντιδράσεις
 - Μετατραυματικό στρες
 - Διαταραχές ύπνου
 - Άγχος/Κατάθλιψη
 - Θρήνος
 - Αποστέρηση οικογένειας
 - ...



Ιδιαιτερότητες παιδικής ηλικίας...

- **Ειδικές απαιτήσεις**
 - Εξειδικευμένο προσωπικό
 - Ειδικό εξοπλισμό
 - Εγκυμοσύνη-θηλασμός
- **Χώροι υποδοχής & παροχής φροντίδας**
 - Παιδιατρικά νοσοκομεία
 - Εξειδικευμένα κέντρα
 - Προστασία παιδιών στα κέντρα διαλογής
 - Καταφύγια (σχολεία, σκηνές, αποθήκες)



Παιδιά... τι αλλάζει;

- **Διαφορές στην αντιμετώπιση**
 - πχ Ανατομικές διαφορές
- **Διαφορές στην οργάνωση - σχεδιασμό**
 - πχ Επιλογή Τμημάτων Πρώτης Γραμμής
- **Διαφορές στη διαχείριση**
 - πχ Προμήθεια σε αναλώσιμο υλικό
- **Διαφορές στη διαλογή**
 - πχ Ανάγκη για ειδικά διαμορφωμένους χώρους υπό επίβλεψη και προστασία
- **Διαφορές στην μετά την καταστροφή αντιμετώπιση**
 - πχ Επανένωση με την οικογένεια





Caring for Children in a Disaster

CDC > Caring for Children in a Disaster



Caring for Children in a Disaster

How Children are Different

Why CDC Makes It a Priority

Helping Children Cope

Children with Special Healthcare Needs

Before, During, & After an
Emergency



Specific Threats



Real Stories



Tools and Resources



Articles



About Us

Children and Youth with Special Healthcare Needs in Emergencies

[Español \(Spanish\)](#)

Nearly 1 out of every 5 children in the United States has a special healthcare need. Children and youth with special healthcare needs (CYSHCN), also known as [children with special healthcare needs \(CSHCN\)](#) , require more care for their [physical](#) , [developmental](#), [behavioral](#), or [emotional](#) differences than their typically developing peers. A special healthcare need can include physical, intellectual, and developmental disabilities, as well as long-standing medical conditions, such as [asthma](#), [diabetes](#), or a [muscular dystrophy](#).

All children have [unique needs](#) in emergencies, but care for children with special healthcare needs is often more complex because of their various health conditions and extra care requirements. They may have a hard time moving from one place to another, urgent or constant medical needs, difficulty communicating or have trouble with transitioning to different situations. A disaster can present all these difficulties at once. Knowing what to do can help maintain calm and keep your family safe. Read more about the [real stories](#) of children with special healthcare needs preparing for and responding to emergencies.

Planning is key. It is important for families to have an [emergency care plan](#) in place in case a public health emergency like a natural disaster, act of terrorism, or disease outbreak occurs. If there is a child with special healthcare needs in your family, you and your family can prepare by





Μια αφήγηση...



“My daughter was small then, but she has a certain hostility toward everyone. She seems to want to hurt everyone...She liked to play with dolls before the flood, but now she punches out their eyes and pulls their arms off. She calls her daddy on her play phone now when it rains and tells him to come get her because the dam is breaking.”

Everything in Its Path by Kai T. Erikson

Τα παιδιά έχουν δικαιώματα...

GUIDELINES for CHILD-FRIENDLY DISASTER MANAGEMENT and RESPONSE



Office of Disaster Preparedness and Emergency Management (ODPEM), Jamaica

"Recognising that, in all countries of the world, there are children living in exceptionally difficult conditions, and that such children need special consideration."
"Convention on the Rights of the Child",
Adopted by the General Assembly of the United Nations
on 20 November 1989

RELEVANT EXCERPTS FROM THE CONVENTION ON THE RIGHTS OF THE CHILD (1989)

- Article 6** "...every child has inherent right to life."
- Article 9** "States Parties shall ensure that a child shall not be separated from his or her parents against their will..."
- Article 20** "A child temporarily or permanently deprived of his or her family environment...shall be entitled to special protection and assistance..."
- Article 22** "States Parties shall provide...co-operation in any efforts by the United Nations...to protect and assist such a child and to trace the parents or other members of the family...for reunification with his or her family."
- Article 24** "States Parties recognise the right of the child to the enjoyment of the highest attainable standard of health..."
- Article 28** "States Parties recognise the right of the child to education..."
- Article 31** "States Parties recognise the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child..."
- Article 34** "States Parties undertake to protect the child from all forms of sexual exploitation and sexual abuse."
- Article 39** "States Parties shall take all appropriate measures to promote physical and psychological recovery and social reintegration of a child victim of: any form of neglect, exploitation, or abuse..."



Σύμβαση για τα Δικαιώματα του Παιδιού

Για 30 χρόνια η Σύμβαση για τα Δικαιώματα του Παιδιού προστατεύει παιδιά και εφήβους από ευάλωτες καταστάσεις

- Η Σύμβαση για τα Δικαιώματα του Παιδιού υιοθετήθηκε από τη Γενική Συνέλευση του ΟΗΕ το 1989, για να αλλάξει τον τρόπο με τον οποίο αντιμετωπίζονται τα παιδιά, μετατρέποντάς τους από παθητικούς αποδέκτες φιλανθρωπίας σε ανθρώπινα όντα με ένα ξεχωριστό σύνολο δικαιωμάτων. Η Σύμβαση αναγνωρίζει ότι η παιδική ηλικία είναι μια ευάλωτη στιγμή και ότι τα παιδιά χρειάζονται ειδική φροντίδα και προστασία.
- Είναι το πρώτο παγκόσμιο σύνολο νομικά δεσμευτικών δικαιωμάτων που ισχύουν για όλα τα παιδιά. Έχει επικυρωθεί από κάθε χώρα της γης, με εξαίρεση τις Ηνωμένες Πολιτείες, καθιστώντας την ως την πιο ευρέως επικυρωμένη συμφωνία για τα ανθρώπινα δικαιώματα στην παγκόσμια ιστορία.
- Μέσω των 54 άρθρων της, η Σύμβαση για τα Δικαιώματα του Παιδιού θέτει τα πρότυπα για την ευημερία των παιδιών σε κάθε στάδιο της ανάπτυξής τους. Ισχύει για όλα τα παιδιά κάτω των 18 ετών (ο ορισμός του παιδιού), ανεξαρτήτως φύλου, προέλευσης, θρησκείας, αναπηρίας.
- **Η Σύμβαση καθοδηγείται από τέσσερις θεμελιώδεις αρχές που ισχύουν για κάθε παιδί:**
 - Όχι στις Διακρίσεις (άρθρο 2).
 - Το καλύτερο συμφέρον του παιδιού (άρθρο 3).
 - Επιβίωση, ανάπτυξη και προστασία (άρθρο 6).
 - Ελευθερία γνώμης και συμμετοχή (άρθρο 12).



Διεθνείς οδηγίες (Πηγές)

- Δημοσιεύσεις στις διεθνείς βάσεις MEDLINE & Ovid database
- Δημοσιεύσεις από διεθνείς οργανισμούς και κυβερνητικές οργανώσεις:
 - CDC, WHO, AMA, ICN, NICE...
 - World Federation of Pediatric Intensive and Critical Care Societies (WFPICCS)
<http://www.wfpiccs.org/societies.php>
 - U.S. Department of Homeland Security (DHS)/FEMA
- Επιστημονικές ενώσεις σε πολλές χώρες
 - **IPACCS** — Irish Paediatric Anaesthesia and Critical Care Society
 - **JSPICC** — Japanese Society of Pediatric Critical Care
 - **AAP** — American Academy of Pediatrics
 - **SLACIP** — Sociedad Latino Americana Cuidados Intensivos Pediatricos

Διαφορετικά επίπεδα σχεδιασμού

Διεθνές/διακρατικό
επίπεδο

Εθνικό επίπεδο

Επαρχιακό/Τοπικό
διαμέρισμα

Επίπεδο κοινότητας

Επίπεδο σχολείου



Προσαρμογή...

- Η παροχή παιδιατρικής μαζικής εντατικής φροντίδας δεν είναι απλά μια τροποποίηση της διαδικασίας παροχής φροντίδας, **αλλά είναι μια διαδικασία προσαρμογής των προτύπων φροντίδας σε συνθήκες κρίσης ή καταστροφής.**
- Η προσαρμογή αυτή καθορίζεται από:
 - **Το προσωπικό** το οποίο θα κληθεί να παρέχει βοήθεια σε συνθήκες μαζικής καταστροφής
 - Εξειδικευμένο υγειονομικό προσωπικό
 - Εξειδικευμένο μη υγειονομικό προσωπικό
 - Εθελοντές
 - Στρατιώτες
 - **Τους χώρους παροχής φροντίδας**
 - **Το διαθέσιμο υλικό**



PAEDIATRIC MASS DISASTER PREPAREDNESS: OBSTACLES AND RECOMMENDATIONS

*Konstantinos T. Petsios, PhD**

Paediatric & Clinical Research Nurse, "Onassis" Cardiac Surgery Center,
Invited Lecturer, National & Kapodistrian University of Athens,
Athens, Greece

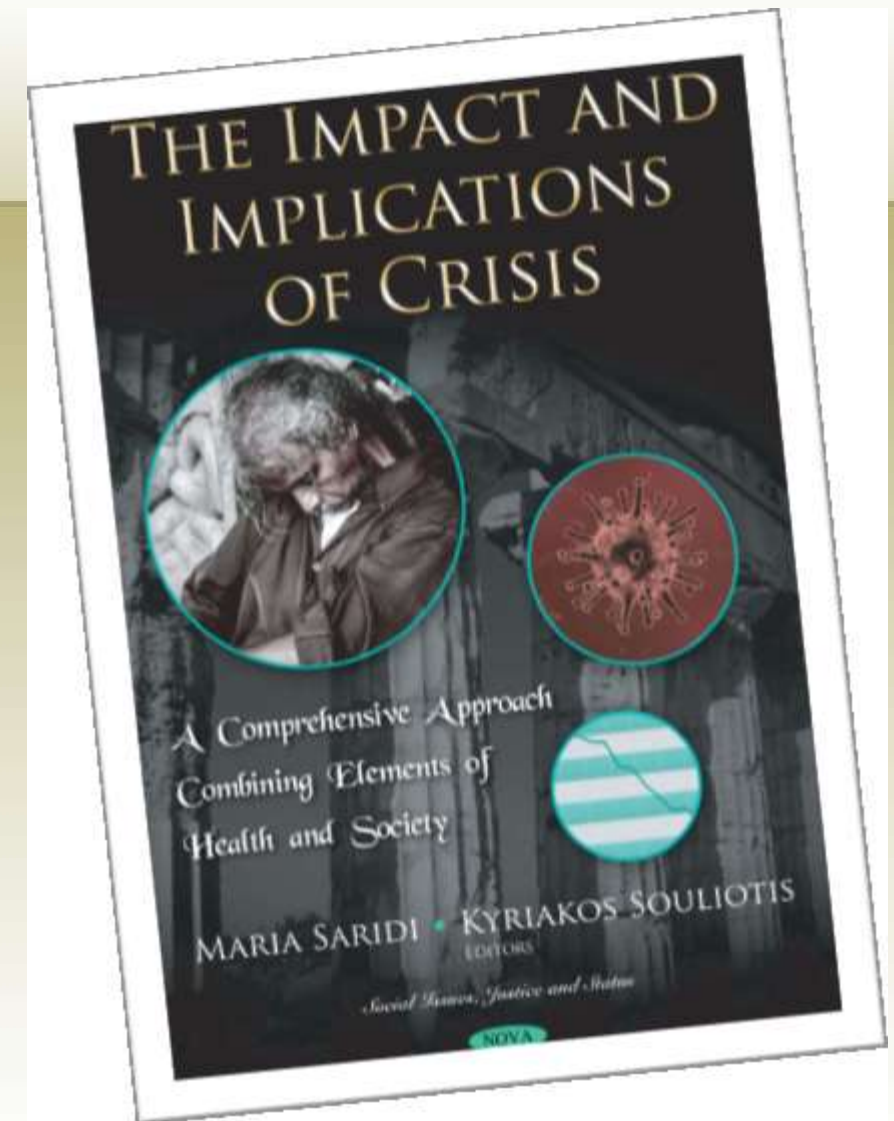
ABSTRACT

Paediatric population in a mass casualty event poses unique problems and issues for the healthcare community. This chapter aims to outline the basic principles of paediatric response and preparedness in case of mass casualty events involving children and families. In such events it is possible to deal with a great number of paediatric victims, especially in cases that the incident takes place in a highly populated area. Moreover, child mortality rates in disasters are significantly higher than those of adults, especially for children under five years old.

An important oversight in the planning of paediatric response in cases of mass casualty events has been the special needs of children. The vulnerability of children and their physiological characteristics place them at increased risk during a disaster. They are more vulnerable to environmental factors, their immunity system is immature, they have different psychosocial needs and they describe their symptoms or needs accordingly to their developmental age. Additionally, they are usually unable to recognize danger, escape, seek assistance and their coping skills are less developed.

Paediatric and nonpaediatric hospitals should establish protocols for paediatric victims. A holistic approach to paediatric mass event preparedness should include the prevention and/or the treatment of secondary medical conditions or injury during the post-event period. Another concern is school preparedness since children spend most of their waking hours in school or childcare center. Therefore, disaster planning should

* Corresponding Author: Konstantinos T. Petsios, petsiosk@gmail.com



K Petsios. Chapter 13. Paediatric Mass Disaster Preparedness: Obstacles and Recommendations. pp 219-236. In the "The Impact and Implications of Crisis: A Comprehensive Approach Combining Elements of Health and Society". Edited by M. Saridi and K. Souliotis. Nova Science Publishers. ISBN: 978-1-53613-191-8.

Structure of Japan's basic disaster management plan

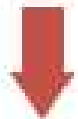
Countermeasures common to all disaster types

Natural disasters

- Earthquakes
- Tsunamis
- Windstorms and flooding
- Volcanic eruptions
- Snowstorms

Accidents

- Maritime
- Aviation
- Nuclear
- Hazardous materials
- Railroad
- Road
- Large-scale fires
- Forestfires



Description following each disaster phase



Description of concrete countermeasures to be taken by, and responsibilities of stakeholders



Towards an All-Hazards Approach to Emergency Preparedness and Response

Lessons Learnt from Non-Nuclear Events



Pediatric Hospital-Based Triage

Step 1: Is decontamination required?

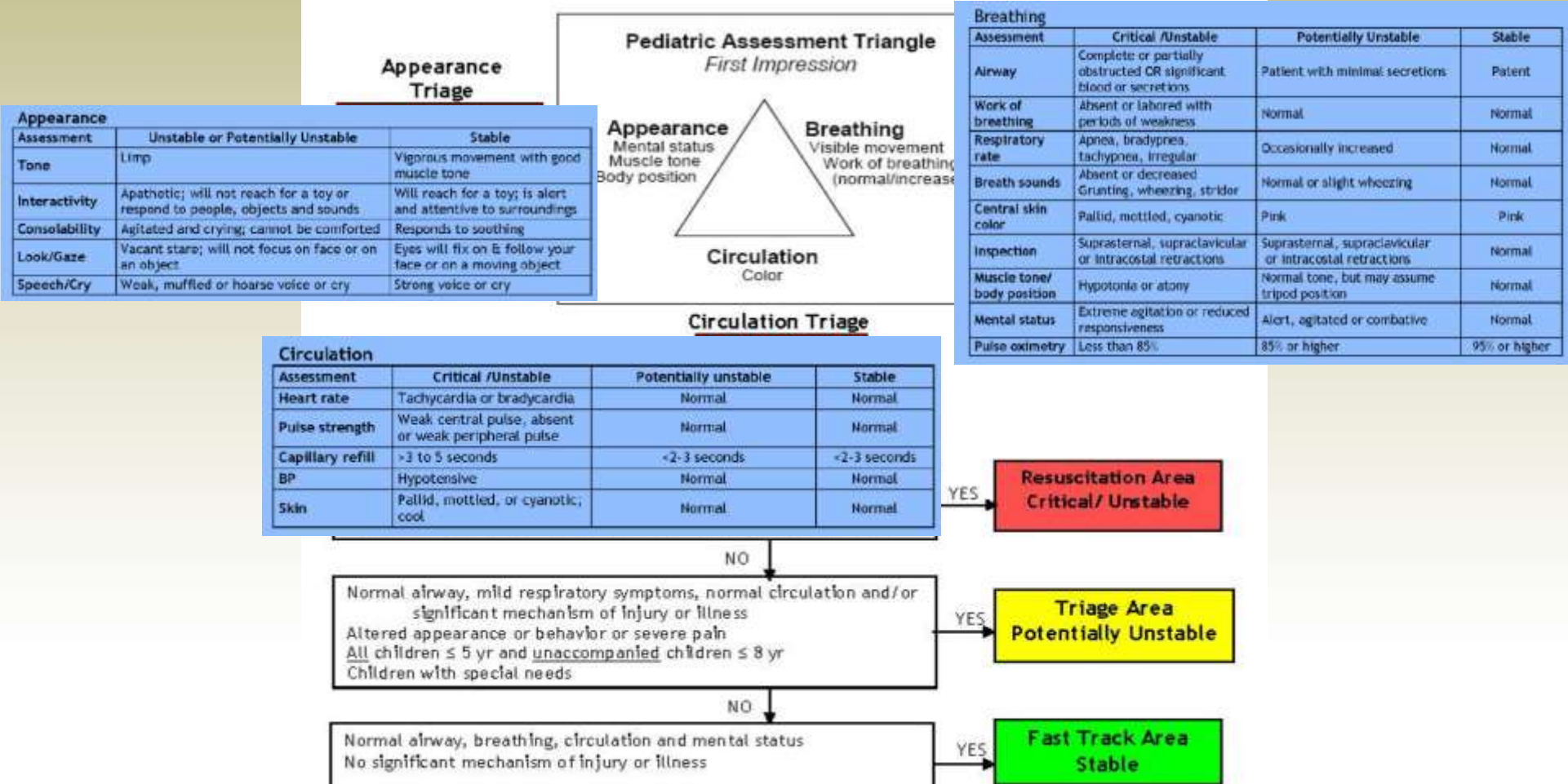
YES, Decontamination IS required:

1. Assessment and triage by Visual Inspection Officer 1 outside facility
2. Decontamination procedure outside
3. Reassessment and triage by Visual Inspection Officer 2 inside facility

NO, Decontamination is **NOT** required:

1. Assessment by Visual Inspection Officer 2
2. Triage to appropriate clinical care area

Step 2: Visual inspection triage via Pediatric Assessment Triangle (PAT)



NORMAL PEDIATRIC VITAL SIGNS

	HR Beats/ min	RR Breaths /min	BP (sys) mm/Hg	BP (dias) mm/Hg
Newborn 0-1 month	100-180	30-60	73-92	52-65
Infant 1-12 months	80-150	30-60	90-109	53-67
Toddler 1-3 years	75-130	25-35	95-105	56-68
Pre-School 3-5 years	75-120	22-32	99-110	55-70
School Age 5-11 years	70-110	20-30	97-118	60-76
Adolescent 13-18 years	65-105	16-22	110-133	63-83

GLASGOW COMA SCORE (GCS)

Category	For Patients <2 Years Old	For Patients >2 Years Old
Eye Opening (E)	(4) Spontaneous (3) To speech (2) To pain (1) None	(4) Spontaneous (3) To speech (2) To pain (1) None
Verbal Response (V)	(5) Coos, babbles (4) Irritable, cries (3) Cries to pain (2) Moans to pain (1) None	(5) Oriented (4) Confused (3) Inappropriate words (2) Incomprehensible (1) None
Motor Response (M)	(6) Normal spontaneous movements (5) Withdraws from touch (4) Withdraws from pain (3) Abnormal flexion (2) Abnormal extension (1) None	(6) Obeys commands (5) Localizes to pain (4) Withdrawal to pain (3) Flexion to pain (2) Extension to pain (1) None

Sources for the Pediatric Surge Quick Reference Guide can be found online at:
<http://ems.dhs.lacounty.gov>
www.CHLA.org/DisasterCenter

Guide last updated 11.27.12



Pediatric Surge Quick Reference Guide

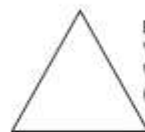
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PEDIATRIC RISKS DURING DISASTERS

System / Area	Risk
Respiratory	- Higher breaths/minute increases exposure to inhaled agents - Nuclear fallout and heavier gases settle lower to the ground and may affect children more seriously
Gastrointestinal	May be more at risk for dehydration from vomiting and diarrhea after exposure to contamination
Skin	- Higher body surface area increases risk of skin exposure - Skin is thinner and more susceptible to injury from burns, chemicals and absorbable toxins
Endocrine	Increased risk of thyroid cancer from radiation exposure
Thermoregulation	Less able to cope with temperature problems with higher risk of hypothermia
Development	Less capability to escape environmental dangers or anticipate hazards
Psychological	- Prolonged stress from critical incidents - Susceptible to separation anxiety

PEDIATRIC ASSESSMENT TRIANGLE (PAT)

AIRWAY & APPEARANCE
 Mental status
 Muscle tone
 Body position



BREATHING
 Visible movement
 Work of breathing
 (normal/increased)

CIRCULATION
 Color

Component	Abnormal Signs
Appearance	Abnormal or absent cry or speech, Decreased response to parents or environmental stimuli, Floppy or rigid muscle tone or not moving
Breathing	Increased/excessive (nasal flaring, accessory retractions or abdominal muscle use) or decreased/absent respiratory effort or noisy breathing
Circulation	Cyanosis, mottling, paleness/pallor or obvious significant bleeding

PEDIATRIC SIGNS OF RESPIRATORY DISTRESS AND RESPIRATORY FAILURE

Respiratory distress is apparent when a child fails to maintain adequate gas exchange. As the child tires, effort and/or function deteriorate and gas exchange cannot be maintained.

Respiratory failure requires intervention to prevent deterioration to cardiac arrest.

Indicators may vary with severity.

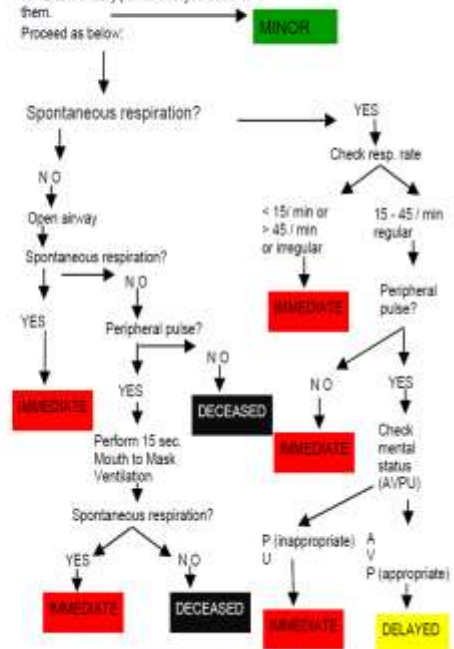
Respiratory Distress	Respiratory Failure
Tachypnea	Marked Tachypnea (early)
Increased respiratory effort (nasal flaring, retractions)	Increased, decreased or no respiratory effort
Inadequate respiratory effort (hypoventilation, bradypnea)	Bradypnea, apnea (late)
Abnormal airway sounds (stridor, wheezing, grunting)	Poor to absent distal air movement
Tachycardia	Tachycardia (early), Bradycardia (late)
Pale, cool skin	Cyanosis
Changes in level of consciousness	Stupor, coma (late)

JUMPSTART FIELD PEDIATRIC MULTICASUALTY TRIAGE SYSTEM

Patients aged 1-8 years

Identify and direct all ambulatory patients to designated Green area for secondary triage and treatment. Begin assessment of nonambulatory patients as you come to them.
 Proceed as below:

Black = Deceased / expectant
 Red = Immediate
 Yellow = Delayed
 Green = Minor / Ambulatory



TREATMENT PRIORITIZATION

Triage category	Description
Green Minor	Patients with mild injuries that are self-limited and can tolerate a delay in care without increasing mortality risk
Yellow Delayed	Remaining patients who do not fit in the Red or Green categories
Red Immediate	Patients who do not obey commands <u>Or</u> do not have a peripheral pulse, <u>Or</u> are in respiratory distress, <u>Or</u> have uncontrolled major hemorrhage
Black Expectant or Dead	Expectant: Patients who have injuries incompatible with life given the current available resources Dead: Patients who are not breathing after life-saving interventions



USING KILOGRAMS

Weigh all children in kilograms. 1kg = 2.2 lbs
Method to estimate weight: Newborn (term): usually 3 kg 1-10 yrs: age multiplied by 2 + 10 (kg) >10 yrs: age multiplied by 2 + 20 (kg)
If available, a Broselow Tape may be used for weight estimation.

DAILY MAINTENANCE FLUID AND ELECTROLYTE REQUIREMENTS

	Calculation
Fluids per hour	4mL/kg/hr for first 10kg of weight 2mL/kg/hr for next 10 kg of weight 1mL/kg/hr for each kg over 20kg
Fluids per 24 hour period	100mL/kg for the first 10kg body weight 1000mL + 50mL/kg for the next 10kg body wt 1500mL + 20mL for each kg of body weight over 20kg
Maintenance electrolyte calculations for IV Fluid	Sodium: 3-4 mEq/kg/day or 30-50 mEq/m2/day Potassium: 2-3 mEq/kg/day or 20-40 mEq/m2/day

APPROPRIATE INFANT NUTRITION

Age	
Birth - 1 mo	2-3 ounces (60-90 mL) per feeding breast or bottle every 2-3 hours
2-4 mos	3-4 ounces (90-120 mL) per feeding every 3-4 hours
4-6 mos	4-5 ounces (120-150 mL) per feeding, four or more times daily Begins baby food, usually rice cereal
6-8 mos	6-8 ounces (180-240 mL) per feeding, four times daily Eats baby food such as rice cereal, fruits and vegetables
8-12 mos	6 ounces (180 mL) per feeding, four times a day, Soft finger foods

Breastfeeding is best—support mothers with safe locations to breastfeed and remain hydrated

CLINICAL FEATURES OF DEHYDRATION

Feature	Mild (<5%)	Moderate (5% to 10%)	Severe (>10%)
Heart rate	Normal	Slightly increased	Rapid, weak
Systolic BP	Normal	Normal to orthostatic, >10 mmHg change	Hypotension
Urine output	Decreased	Moderately decreased	Markedly decreased, anuria
Mucous membranes	Slightly dry	Very dry	Parched
Anterior fontanel	Normal	Normal to sunken	Sunken
Tears	Present	Decreased, eyes sunken	Absent, eyes sunken
Skin	Normal turgor	Decreased turgor	Tenting
Skin perfusion	Normal capillary refill (<2 seconds)	Capillary refill slowed (2-4 seconds); skin cool to touch	Capillary refill markedly delayed (>4 seconds); skin cool, mottled, gray

NORMAL BLOOD VOLUME

Total blood volume varies by weight. Approximate volume is 80mL/kg.

PRBC/Platelet/Albumin 5%/FFP = 10mL/kg

BURN TREATMENT: FLUID RESUSCITATION

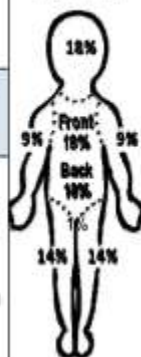
Fluid Resuscitation Formula (2-12 yrs)
3 - 4 mL x kg x %TBSA burn
(one half over 1st 8h, second 1/2 over next 16h)

For Infants (0 - 2 years; less than 30 kg):
Use maintenance fluid containing 5% dextrose in D5 Lactated Ringer's

Pediatric Considerations

- Increased fluid requirements relative to adults
- Increased surface area : mass ratio
- Hypoglycemia may occur in infants (<30 kg) due to limited glycogen reserves

Rule of "10" children



FLUID RESUSCITATION

- Administer 20 mL/kg of isotonic or crystalloid (NS or LR)
- Monitor:
 - Peripheral perfusion
 - Urine output
 - Vital signs
 - LOC
- Repeat bolus if no improvement
- Reassess status

Consider blood products in traumatic injuries requiring >40-60 mL/kg of fluid

HYPOVOLEMIC SHOCK

- Hypovolemic shock is the most common type of shock in children.
- Children increase their cardiac output by tachycardia, therefore bradycardia is an ominous sign.

Look for:

Slow irregular breathing, grunting, bradycardia, cyanosis, hypotension, decreased LOC

NORMAL DEVELOPMENT

Age	Gross Motor Skills	Fine Motor Skills
2 months	Flexed position when prone	Inhibited grasp reflex
4 months	Rolls from front to back, back to side	Carries object to mouth
6 months	Rolls from back to abdomen	Holds bottle
9 months	Sits steady, creeps or crawls	Holds objects in both hands and bangs together
12 months	Cruises well	Bangs 2 blocks Together
15-18 mos	Pushes and pulls toys	Uses cup well, some spoon agility
2 years	Runs well with wide stance	Turns doorknob and unscrews lids
3 years	Climbs stairs alternating feet	Copies circles and cross
4 years	Hops, jumps, and skips on one foot	Draws person with greater than 3 body parts
5 years	Skips alternating feet	Prints some letters

EQUIPMENT ESTIMATIONS

Method to estimate Endotracheal Tube (ETT) size:

Tube diameter (mm) = [16 + age(y)] / 4

ETT Depth in cm at lip = 3x ETT size

EQUIPMENT SIZES: NEWBORN - 6

Equipment	New-born	3-6 mos	1 year	2-3 yrs	4-6 yrs
Weight	3 kg	5 kg	10 kg	15 kg	20 kg
ETT	3-3.5	3.5-4.0	4-4.5	4.5-5.0	5.0-5.5
L Blade	Miller 0-1	Miller 0-1	Miller 0-1	Miller 1-2	Miller 2
Suction	6-8 Fr	8-10 Fr	10 Fr	10 Fr	10 Fr
NG Tube	5-8 Fr	5-8 Fr	8-10 Fr	10-12 Fr	12-14 Fr
Foley	6-8 Fr	6-8 Fr	8-10 Fr	10-12 Fr	10-12 Fr
Chest Tube	10-12 Fr	12-16 Fr	16-20 Fr	20-24 Fr	24-32 Fr
LMA (cuff)	1 (4 mL)	1.5 (7 mL)	2 (10 mL)	2 (10 mL)	2-2.5 (14 mL)

EQUIPMENT SIZES: 7 YEARS - OLDER

Equipment	7-9 yrs	10-12 yrs	13-15 yrs	>15 yrs
Weight	25 kg	30 kg	40 kg	> 50 kg
ETT	5.5-6.0 cuff	6.0-6.5 cuff	7.0-7.5 cuff	7.5-8.0 cuff
L Blade	Miller 2	Miller 2-3	Miller 3	Miller 3
Suction	10 Fr	10 Fr	12 Fr	12-14 Fr
NG Tube	12-14 Fr	14-26 Fr	14-16 Fr	16-18 Fr
Foley	12 Fr	12 Fr	12-14 Fr	12-14 Fr
Chest Tube	28-32 Fr	28-32 Fr	32-40 Fr	32-40 Fr
LMA (cuff)	2.5 (17 mL)	3 (20 mL)	3 (20 mL)	4-6 (30-50 mL)



PEWS...

Pediatric Early Warning Score Card

Pediatric Early Warning Score Card

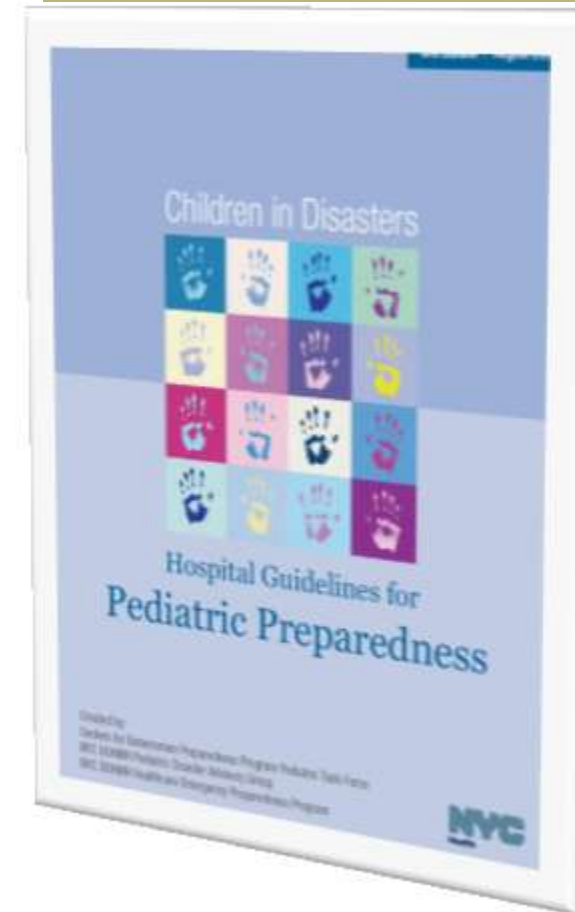
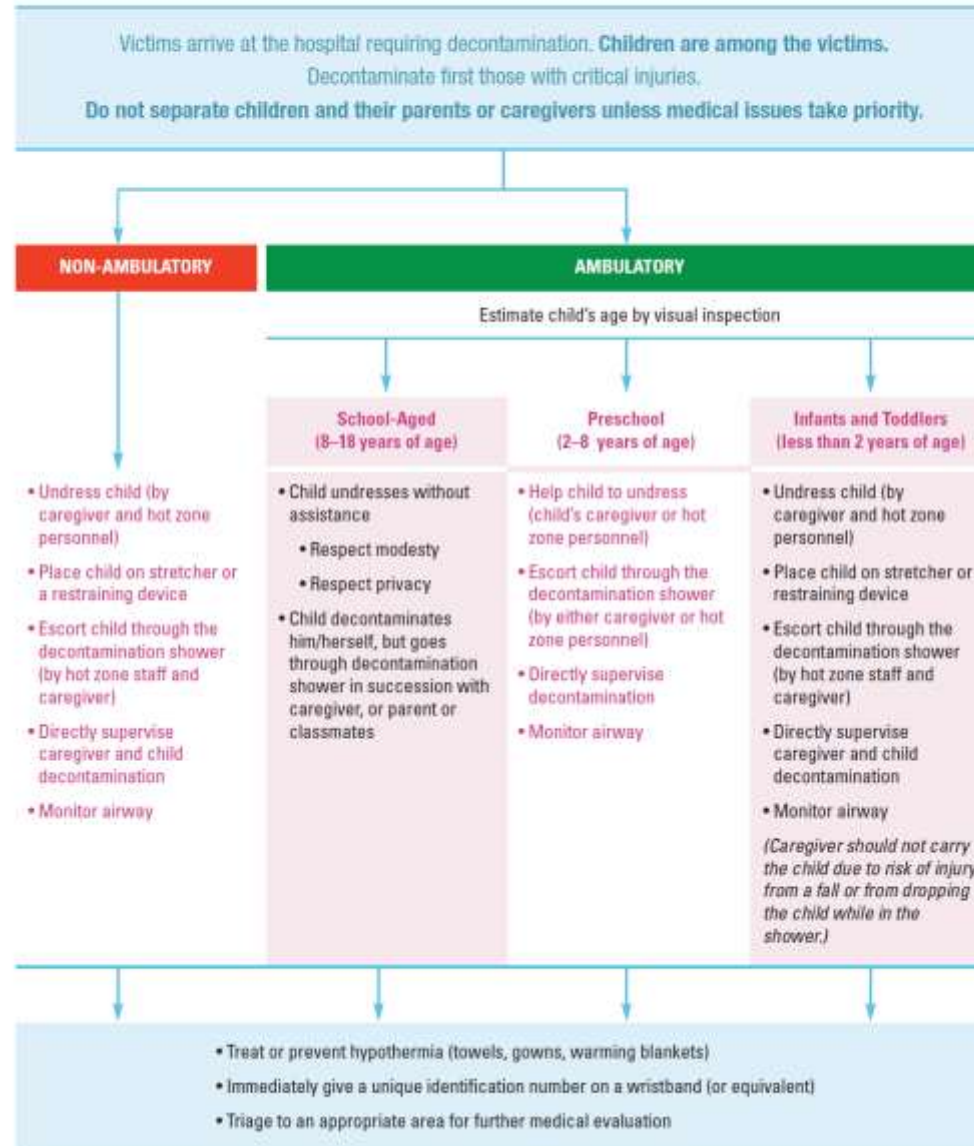
	3	2	1	0	Score *
Behavior	• Lethargic, confused, or • Reduced pain response	• Irritable or agitated and not consolable	• Sleeping or • Irritable and consolable	• Playing • Appropriate for patient	
Cardiovascular	• Grey or • CRT ≥ 5 or • Tachycardia 30 above or • Bradycardia for age	• CRT 4 seconds or • Tachycardia of 20 above normal parameters	• Pale or • CRT 3 seconds	• Pink, CRT 1-2 seconds	
Respiratory	• 5 below normal with retractions and/or • $\geq 50\%$ FiO2	• > 20 above normal • Using accessory muscles or • 40%-49% FiO2 or • ≥ 3 LPM	• > 10 above normal • Using accessory muscles or • 24-40% FiO2 or ≥ 2 LPM • Any initiation of O2	• WNL for age • No retractions	
* Add 2 points for frequent interventions (suction, positioning, O2 changes) or multiple IV attempts.					
TOTAL					

** Parental concern should be an automatic call to the Rapid Response Team.

Score ≥ 7 Assmt. every 30 mins. • Score 6 Assmt. every 1 hour. • Score 5 Assmt. every 1-2 hours. • Score 0-4 Assmt. every 4 hours.

Figure 1-1. Algorithm for hospital decontamination of pediatric patients.

Note: Children and their families (parents or caregivers) should not be separated unless critical medical issues take priority



Supplies and equipment for pediatric emergency mass critical care

Desmond Bohn, MB; Robert K. Kanter, MD; Jeffrey Burns, MD; Wanda D. Barfield, MD, MPH, FAAP; Niranjana Kissoon, MD, FRCP(C), FAAP, FCCM, FACPE; for the Task Force for Pediatric Emergency Mass Critical Care

Table 2. Minimal mass critical care equipment needs for a surge population whose age distribution is similar to ordinary everyday pediatric population

Item		
Respiratory		
Oral airway		21
		7
		18
		13
	Small adult	9
	Adult	24
Self-inflatable bag	Child	22
	Adult	21
Resuscitation mask	Infant	17
		13
		13
		9
Oxygen mask		21
		24
		21
Endotracheal tube		26
		22
		13
		17
		22
		6
Stylette		23
		23
Closed-circuit suction catheter	Adult	20
	6F	17
	8F	10F
	10F	23
	12F	5
Yankauer suction device	Standard Size	26
Ventilator circuit	Infant	8
	Adult	18
Other		
Peripheral intravenous catheters	24 gauge	39
	22 gauge	112
	20 gauge	61
	18 gauge	36
	16 gauge	9
Central venous catheters	4F/8 cm	1
	5F/15 cm	11
	7F/30 cm	1
Nasogastric tube	5F	2
	8F	9
	10F	3
	12F	4
	14F	5
	18F	3
Urinary catheter	5F	2
	8F	6
	10F	6
	12F	12
Chest tube	10F	1
	16F	1
	20F	1
	24F	1
	28F	2
	38F	1
Blood pressure cuff	Neonate	1
	Infant	2
	Child	6
	Small adult	1
	Adult	1

Ελάχιστος απαραίτητος εξοπλισμός για την παροχή εντατικής παιδιατρικής φροντίδας σε 10 κλίνες για 10 ημέρες υπό συνθήκες ΜΚ

Παρόμοια ηλικιακή διακύμανση με το συνήθη νοσηλευόμενο πληθυσμό

Ηλικιακή διακύμανση με 75% μιας συγκεκριμένης ηλικιακής ομάδας και 25% με το συνήθη νοσηλευόμενο πληθυσμό

3πλάσιες
ανάγκες

Table 3. Complete mass critical care equipment needs for a surge population that includes 75% from a specific age group and 25% from the general pediatric population

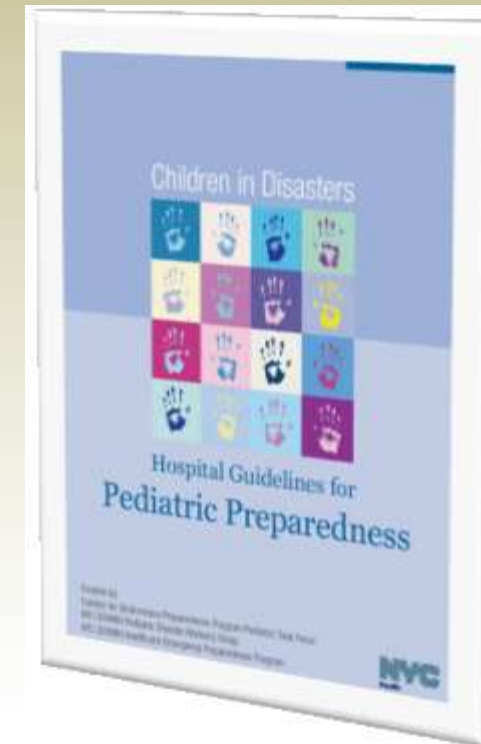
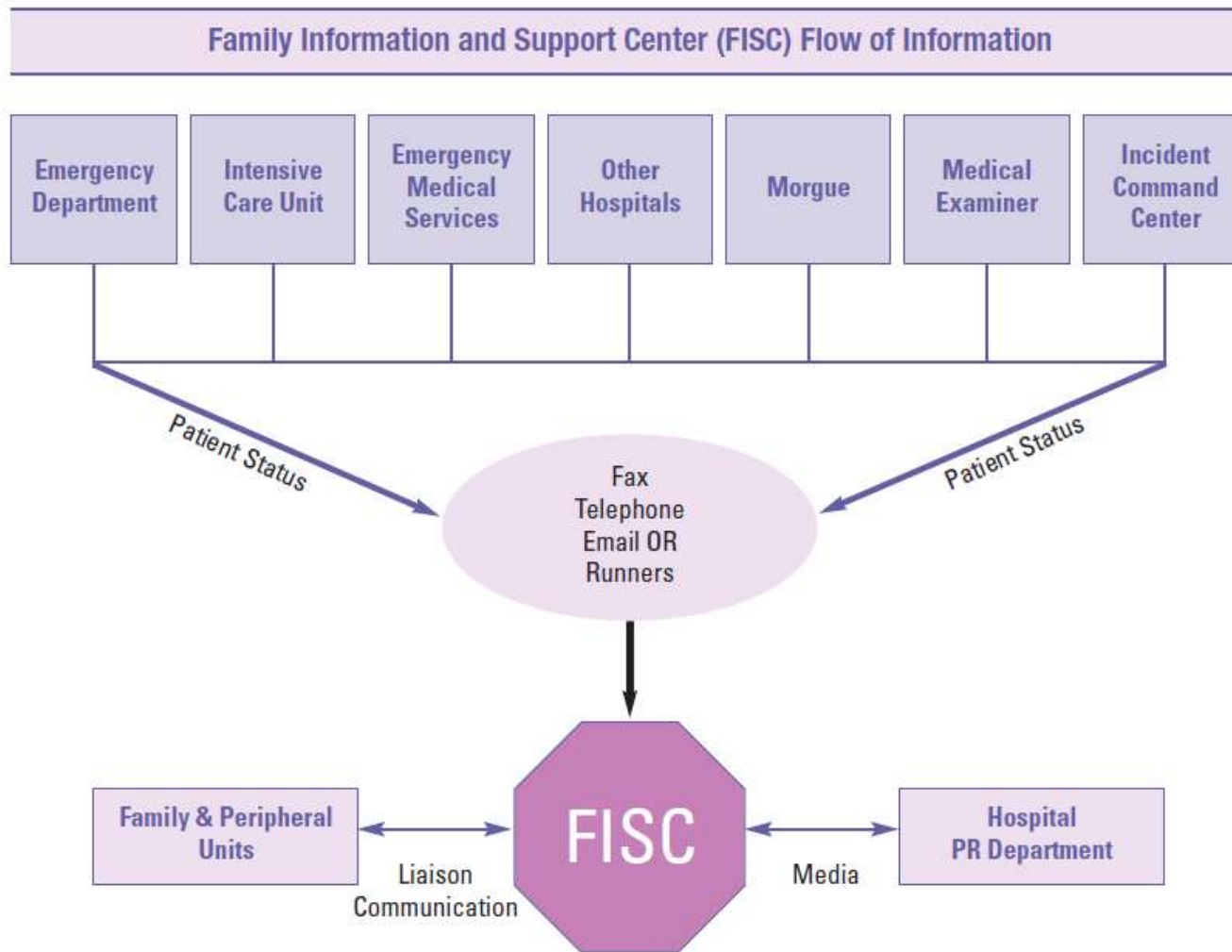
	Number of Items per Ten Mass Critical Care Beds Over 10 Days
	21
	7
	18
	13
	9
Self-inflatable bag	24
	22
	21
	17
	13
	13
	9
	21
	24
	21
	26
	22
	13
	17
	22
	6
	23
	23
Closed-circuit suction catheter	Adult
	6F
	8F
	10F
	12F
Yankauer suction device	Standard size
Ventilator circuit	Infant
	Adult
Other	
Peripheral intravenous catheters	24 gauge
	22 gauge
	20 gauge
	18 gauge
	16 gauge
Central venous catheters	4F/8 cm
	5F/15 cm
	7F/30 cm
Nasogastric tube	5F
	8F
	10F
	12F
	14F
	18F
Urinary catheter	5F
	8F
	10F
	12F
Chest tube	10F
	16F
	20F
	24F
	28F
	38F
Blood pressure cuff	Neonate
	Infant
	Child
	Small adult
	Adult

Επανασύνδεση οικογενειών...

- Για τα παιδιά μετά τη διάσωση & τη διαλογή 1^η προτεραιότητα είναι η επανασύνδεση με την οικογένεια.
 - Ειδικό σχέδιο επικοινωνίας των κέντρων διαλογής
 - Αναζήτηση ανά επίπεδο (Τοπικό – Περιφέρειας – Εθνικό)
 - Επιβεβαίωση ταυτότητας
 - Διασφάλιση μετακίνησης & διαμονής οικογένειας



Figure 4-1. Optimal information flow within the Family Information and Support Center.



Ο ρόλος των γονέων/οικογένειας

Helping Children Cope During and After a Disaster

A Resource for Parents and Caregivers

The amount of damage caused from a disaster can be overwhelming. The destruction of homes and separation from school, family, and friends can create a great amount of stress and anxiety for children. They may not fully understand what is going on. A child's reaction and signs of stress may vary depending on age and previous experiences and typical coping behavior with stress.

What You Can Do to Help Children Cope with a Disaster

Set a good example by managing your own stress through healthy lifestyle choices, such as eating healthy, exercising regularly, getting plenty of sleep, and avoiding drugs and alcohol. When you are prepared, rested, and relaxed, you can respond better to unexpected events and can make decisions in the best interest of your loved ones.



The following tips can help reduce stress before, during, and after a disaster or traumatic event.

Before

- Assure your children that you are prepared to keep them safe.
- Review safety plans before a disaster or emergency happens. Having a plan will increase your children's confidence and help give them a sense of control.

During

- Stay calm and reassure your children.
- Talk to your children about what is happening in a way that they can understand. Keep it simple and appropriate for each child's age.

After

- Give your children opportunities to talk about what they went through. Encourage them to share concerns and ask questions.
- Encourage your children to take action directly related to the disaster so they feel a sense of control. For example, children can help others after a disaster, such as volunteering to help community or family members in a safe environment. Children should NOT participate in disaster cleanup activities for health and safety reasons.
- Because parents, teachers, and other adults see children in different situations, it is important for them to work together to share information about how each child is coping after a traumatic event.
- Help your children to have a sense of structure, which can make them feel more at ease or provide a sense of familiarity. Once schools and child care opens again, help them return to their regular activities.

CDC Continued

Common Reactions

The common reactions to distress will fade over time for most children. Children who were directly exposed to a disaster can become upset again and behavior related to the event may return if they see or hear reminders.

If children continue to be very upset or if their reactions hurt their relationships or schoolwork, parents may want to talk to a professional or have their children talk to someone who specializes in children's emotional needs.

Learn more about common reactions to distress below:



For Infants to 2-Year-Olds

Infants may become more cranky. They may cry more than usual or want to be held and cuddled more.



For 3 to 6-Year-Olds

They may have toileting accidents, bed-wetting, tantrums and a hard time sleeping, or be frightened about being separated from their parents/caregivers.



For 7 to 10-Year-Olds

Older children may feel sad, mad, or afraid that the event will happen again. Correct misinformation the child may get from others.



For Preteens and Teenagers

Some preteens and teenagers respond to trauma by acting out or feeling afraid to leave the home. Their overwhelming emotions may lead to increased arguing and even fighting with siblings, parents/caregivers or other adults.



For Special Needs Children

Children with physical, emotional, or intellectual limitations may have stronger reactions to a threatened or actual disaster. Children with special needs may need extra words of reassurance, more explanations about the event, and more comfort and other positive physical contact such as hugs from loved ones.



Want to learn more?

<https://www.cdc.gov/childrenandteens/index.html>



Helping Children and Adolescents Cope With Disasters and Other Traumatic Events

What Parents, Rescue Workers, and the Community Can Do

National Institute of Mental Health

Helping Children and Adolescents Cope with Violence and Disasters

For Parents of Children Exposed to Violence or Disaster

What Parents Can Do



National Institute
of Mental Health

Transforming the understanding
and treatment of mental illnesses.

Each year, children experience violence and disaster and face other traumas. Young people are injured, they see others harmed by violence, they suffer sexual abuse, and they lose loved ones or witness other tragic and shocking events. Parents and caregivers can help children overcome these experiences and start the process of recovery.

It's important to remember:

- Children's reactions to trauma are strongly influenced by adults' responses to trauma.
- People from different cultures may have their own ways of reacting to trauma.

Adult helpers should:

Pay attention to children

- Listen to them
- Accept/do not argue about their feelings
- Help them cope with the reality of their experiences.

Reduce effects of other stressors, such as

- Frequent moving or changes in place of residence
- Long periods away from family and friends
- Pressures to perform well in school
- Transportation problems
- Fighting within the family
- Being hungry.

Monitor healing

- It takes time
- Do not ignore severe reactions
- Pay attention to sudden changes in behaviors, speech, language use, or strong emotions.

Remind children that adults

- Love them
- Support them
- Will be with them when possible.



NIH
National Institute
of Mental Health

Προετοιμασία οικογένειας...

Caring for Children in a Disaster

CDC > Caring for Children in a Disaster > Tools and Resources



Home Caring for Children in a Disaster

How Children are Different

Why CDC Makes It a Priority

Helping Children Cope

Children with Special Healthcare Needs

Before, During, & After an Emergency

Specific Threats

Real Stories

Tools and Resources

Teachers and Childcare

Kids and Families

Health Professionals

Emergency Kit Checklists

Emergency Planners

Infographic: Easy as ABC

Children In Disasters: Kids and Families

Check out these games and activities to help you and your family stay safe during emergencies.

- Join [Ready Wrigley](#) as she helps her family prepare for disasters!



- Being a hero is fun with these interactive games from FEMA.



[Disaster Master](#)



[Build a Kit](#)

- Learn how to stay safe and understand your feelings after a flood.



- Activity book: [Being Safe After a Flood](#) [5.13 MB / 8 pages]
- Flyers
 - [In Your Home](#) [188 KB / 1 page]
 - [When You're Outside](#) [245 KB / 1 page]
 - [Safe Food and Water](#) [237 KB / 1 page]
 - [Feelings After a Flood](#) [252 KB / 1 page]

EASY AS ABC

STEPS TO PROTECT YOUR CHILD DURING EMERGENCIES IN THE SCHOOL DAY



ASK how you would be reunited with your child in an emergency or evacuation



BRING extra medications, special food, or supplies your child would need if you were separated overnight



COMPLETE a backpack card and tuck one in your child's backpack and your wallet



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Download a printable worksheet
for your emergency information at
emergency.cdc.gov/children

CS258368

Emergency Kit Checklist for Kids and Families

An emergency kit has all of the things that you and your family may need during an emergency in which you may have to stay inside for longer than usual or the electricity could go out. Making a family emergency kit can be fun for the family to do together. Here's how to have a family emergency kit treasure hunt:

1. You will need a large plastic bin or box to put things into.
2. Answer the following questions to guide your treasure hunt.
3. Check items off the list as you put them into your emergency kit box.
4. Place an updated copy of your checklist inside your large plastic bin or box once your kit is put together to know what is inside the kit and to know where you can always find your checklist.

An emergency kit is a collection of items that you may need in an [emergency](#).

Do you have a child in your house who has a disability or special needs?

[View our checklist for Families with Children and Youth with Special Healthcare Needs \(CYSHCN\).](#)



Emergency Kit Checklist for Families with Children and Youth with Special Healthcare Needs (CYSHCN)

If a child with special healthcare needs is part of your family it is very important to be prepared for an emergency in which you may have to stay inside for longer than usual or in the event the electricity goes out. An emergency kit is necessary for all families, and especially important for families of children with special healthcare needs.

An emergency kit has all of the things that you and your family may need during an emergency. In addition to the common items found on [the emergency kit checklist for kids and families page](#), the checklist described here contains items that are specific for families of children and youth with special healthcare needs (CYSHCN). Each family's kit will vary depending on the individual needs of their child. It is best to have all of these things collected before an emergency, stored in a container, and kept in a place that is safe and easy to get to in the event of an emergency. Making a family emergency kit can be fun for the family to do together. Here's how to have a family emergency kit treasure hunt:

1. You will need a large plastic bin or box to put things into.
2. Answer the following questions to guide your treasure hunt.
3. Check items off the list as you put them into your emergency kit box.
4. Place an updated copy of your checklist inside your large plastic bin or box once your kit is put together to know what is inside the kit and to know where you can always find your checklist.







Ready
Prepare. Plan. Stay Informed.



FEMA

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BE INFORMED
What to do before, during, and after an emergency.

MAKE A PLAN
Prepare, plan and stay informed for emergencies.

BUILD A KIT
Build a kit for disasters to be prepared.

GET INVOLVED
Find opportunities to support community preparedness.

BUSINESS
Plan for and protect your business.

KIDS
Fun and games for kids.

STEP 1
Know the Facts

STEP 2
Make A Plan

STEP 3
Build A Kit

STEP 4
Graduate from Readiness U!

Fun & Games

Parents & Teachers

Kids

"WORD SEARCH GAME"

SEE IF YOU CAN FIND THESE HIDDEN WORDS ABOUT BEING READY FOR UNEXPECTED SITUATIONS.

PLAY NOW →



BE PREPARED IN EVERY SITUATION

Are you ready to put your planning skills to good use? Are you ready to help your family get prepared for the unexpected? Your family can use this Web site to create a plan that will help you be ready for many different kinds of unexpected situations!

You're already a great planner! Every day you get your homework done, get to music or sports practice on time and plan where and when you'll meet up with friends. But how do you get prepared for emergencies?

It's simple! It just takes planning and practice and these fun activities from Ready Kids can help!

Click on these easy steps, talk to your family, and make a plan and put it in a safe place. When you're all through, you'll be ready to graduate from Readiness U!



00000000



DISASTER MASTER

Help the Heroes! Will you know what to do? Make the right decisions and earn points to unlock new levels. But watch out! The wrong choice could end the game. Survive all 7 levels plus a turn in the hot seat and become a Disaster Master! Print out chapters of your own graphic novel as you play.

- | | |
|------------------------------|------------------------------------|
| Level 1 - Wildfire | Level 5: Winter Storm/Extreme Cold |
| Level 2 - Tornado | Level 6 - Tsunami/Earthquake |
| Level 3 - Hurricane/Blackout | Level 7: Thunderstorm/Lightning |
| Level 4 - Home Fire | Level 8: The Hot Seat |



Write down the password at the end of each game to unlock the next level.



Be a Hero... and Build a Kit!

Join Gayle and her friends in gathering supplies needed to prepare for an emergency.

Go through each level and pick the correct items for you and your family. You don't need to fill every box. When you are done, print out an emergency kit checklist!

*Remember —
people often lose electricity
after a disaster!*

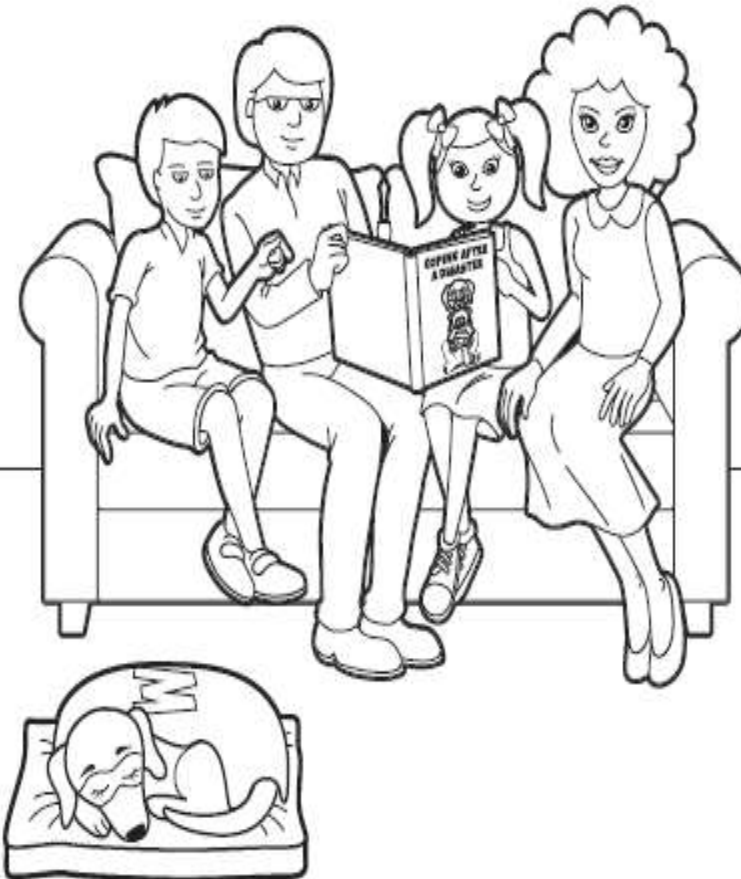
Ready?



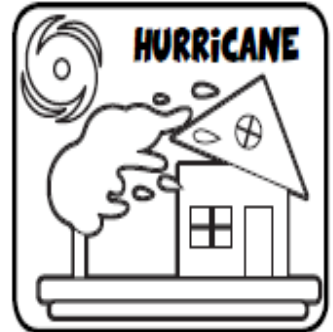
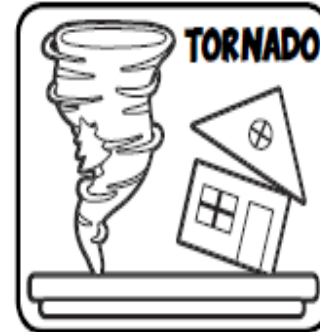
COPING AFTER A DISASTER



Wrigley and her family are learning about emergencies and disasters. A disaster or emergency can hurt people and damage buildings, houses, and neighborhoods. Big storms, floods, and wildfires are all types of disasters.



There are different types of disasters. A natural disaster could be a tornado, hurricane, flood, or wildfire. It can break or knock down trees, houses, and buildings. People can get hurt.



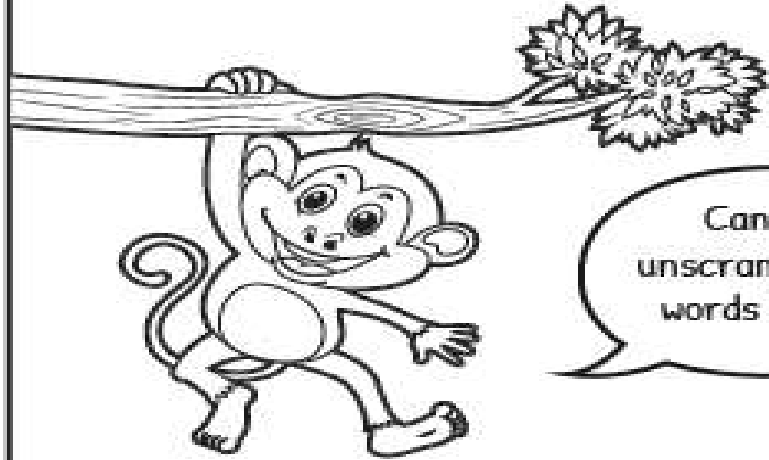
NATURAL DISASTERS



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

WORD SCRAMBLE

Use this workbook to help you feel better whenever you need it. Talk with your parents about how you feel. And always remember, what happened is not your fault!



Can you
unscramble the
words below?

EBHRTAE _____
OROLC _____
CDANE _____
RADW _____
IFENLSEG _____
PLHE _____
SGHU _____
SLETIN _____
PYAL _____
EDAR _____
SERT _____

INSG _____
LISME _____
AKLT _____

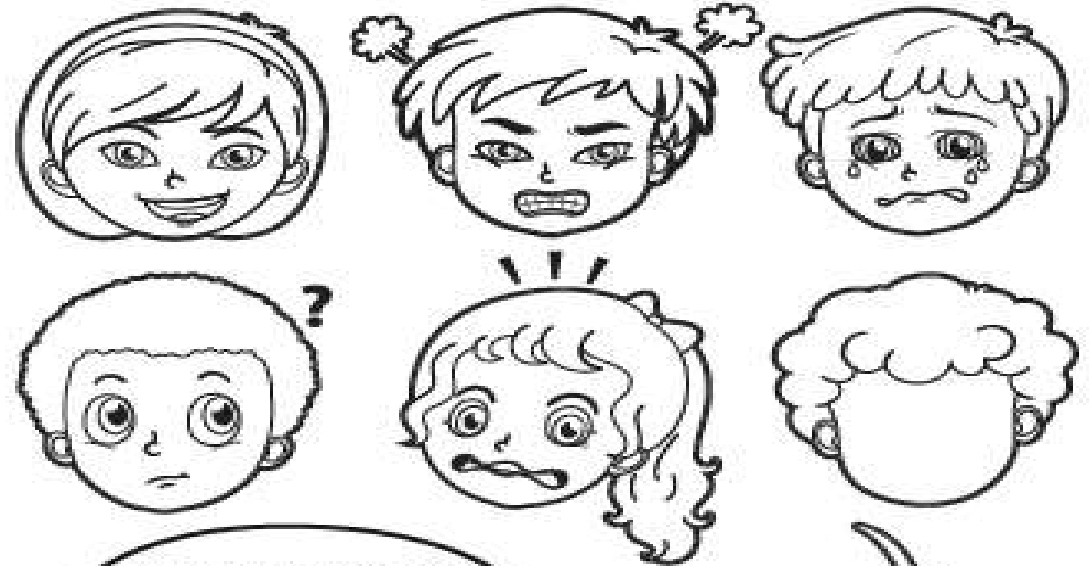


Answer: breathe, color, dance, draw, feeling, help, hugs, listen, play, read, rest, sing, smile, talk

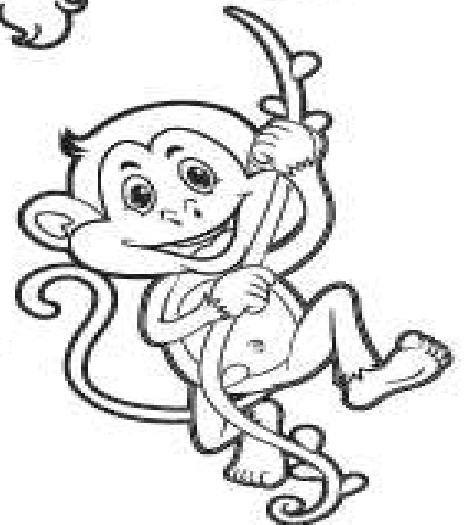
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HOW THE HURRICANE MADE ME FEEL

Sometimes bad things happen. It's okay if you feel sad, mad, or scared. Grown-ups sometimes feel this way, too.



How do you feel right
now? Circle the face that
matches how you're feeling.
If none of those are right, fill
in the blank face to show how
you're feeling instead.



fold here

Children and Disasters

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[Collaborative
Initiatives](#)

[Strategic Plan for
Disaster
Preparedness](#)

Audience

Children & Disasters

Disaster preparedness to meet children's needs



Strategic Plan for Disaster Preparedness

The American Academy of Pediatrics (AAP) Disaster Preparedness Advisory Council (DPAC) has developed the following 5-year AAP Strategic Plan for Disaster Preparedness. Download a [PDF](#) of the Strategic Plan for 2016-2020.

Στρατηγικό πλάνο σε 3 άξονες

- Εκτίμηση των αναγκών των παιδιών
- Υποστήριξη των παιδιατρικών δομών κατά την παροχή υπηρεσιών σε ΜΚ
- Διεθνής διασύνδεση και συνεργασία

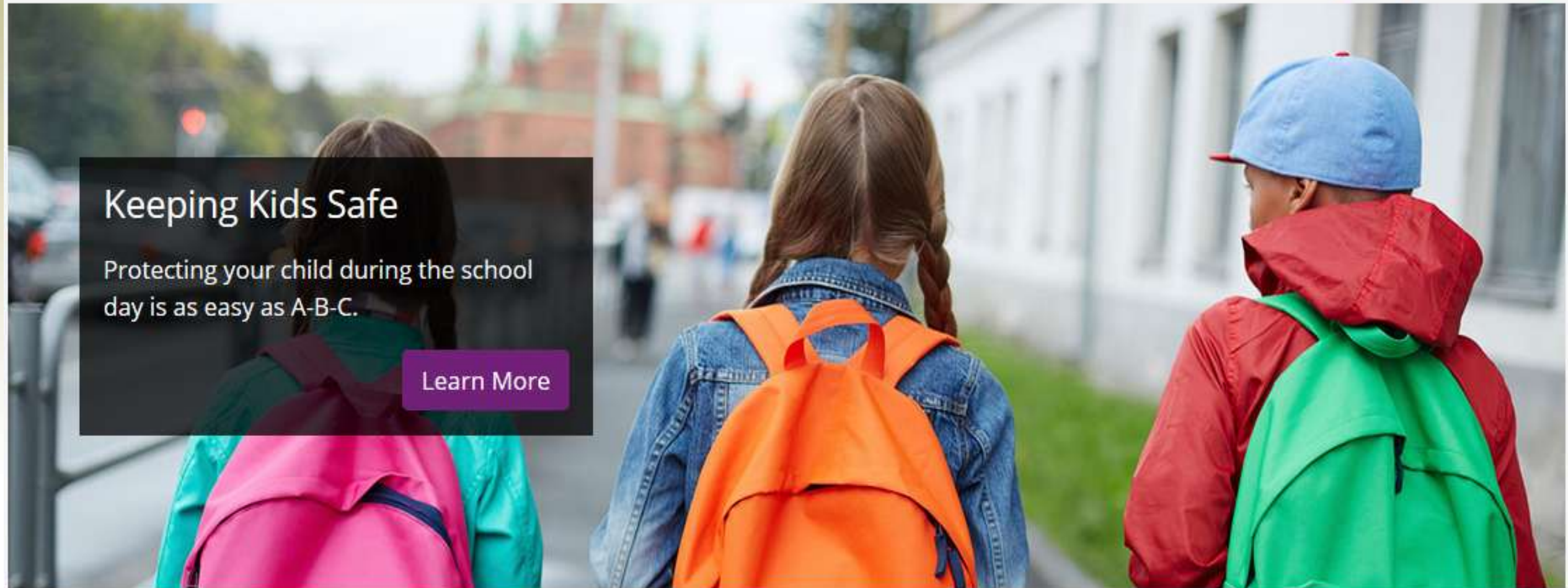
Caring for Children in a Disaster



Keeping Kids Safe

Protecting your child during the school day is as easy as A-B-C.

[Learn More](#)





Ερωτήσεις

