

What Makes Kids Different?

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What Makes Kids Different?



What Makes Kids Different in Disasters?

When Disaster Strikes

Children are *still*
not just small adults!



Children as Primary Targets

(partial listing)



- 1995—Murrah Bldg daycare, Oklahoma
- 1998—Elem school, Jonesboro, Arkansas
- 1999—Columbine High School, Colorado
- 2000+ Intifada, Israel
- 2002—Al-Qaeda plans (seized)
- 2003—American School, Singapore (foiled)
- 2004—Beslan, Russia
- 2006—Amish schoolhouse
- 2008—Domail, Pakistan



Who's kids are next ???

What Makes Kids Different in Disasters?

Compared to adults:

- Higher exposures
- Greater susceptibilities
- Highly dependent
- Responders less prepared

Higher Exposures: Doses

Pound-for-pound:

Children breathe, drink and eat more than adults



SOS
Children's
Villages

Higher Exposures: Doses

- Greater ratio surface area : body weight
 - Greater absorption of toxins
 - Greater risk for hypothermia
- Higher proportion total body water
- Greater minute ventilation
- Xenobiotic detox pathways limited or reduced
- Permeable newborn skin

Higher Exposures: Pathways

- Outdoor play
- Hand-to-mouth
- Attraction to danger
- Need supervision
- Need supervision & help escaping



Higher Exposures: Pathways

- Increased skin contact with carpets, floors, soil
- Many toxic agents such as sarin concentrate close to the ground
- Impaired ability to communicate symptoms of pain or discomfort



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- **Greater susceptibilities**
- Highly dependent
- Responders less prepared

Greater Susceptibilities: Development in Progress

Can lead to effects beyond the
usual dose-response agents

- Toxics and biologicals
- Radionuclides
- Emotional trauma ¹

Greater Susceptibilities: Latency



More life-years remaining to develop latent health problems



Lead-exposed children (Idaho) had adverse effects as adults 15-20 years later ¹

Greater Susceptibilities: Emotional Trauma



**“My father died 100 times a day
on TVs all across the country.”**

Kathie Scobee Fulgham
Griefnet.org

Biggest Target is the Human Psyche

You can have a nightmare, no matter where you sleep

For a small child, that nightmare may last a lifetime

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Highly Dependent



Beslan, Russia

- Many can't self identify
- Can't provide reliable exposure history
- Impaired communication of symptoms
- Need constant adult supervision to avoid harm
- Afraid of responders & need constant reassurance
- Unable to walk through decon on their own
- Unable to legally consent for medical care



Dependent: In an Evacuation

Parents Won't Leave Without Their Children!





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“We had children lying everywhere”

Jonesboro, Arkansas March 1998



(Courtesy KATV)



(Courtesy WPTY)



Shock and Awe

Physiological response

- Hypovolemia
- Hypothermia
- Airway & vascular access issues

Emotional response

- Amputated
- Disembowled
- Dead
- Missing

Responder Trauma



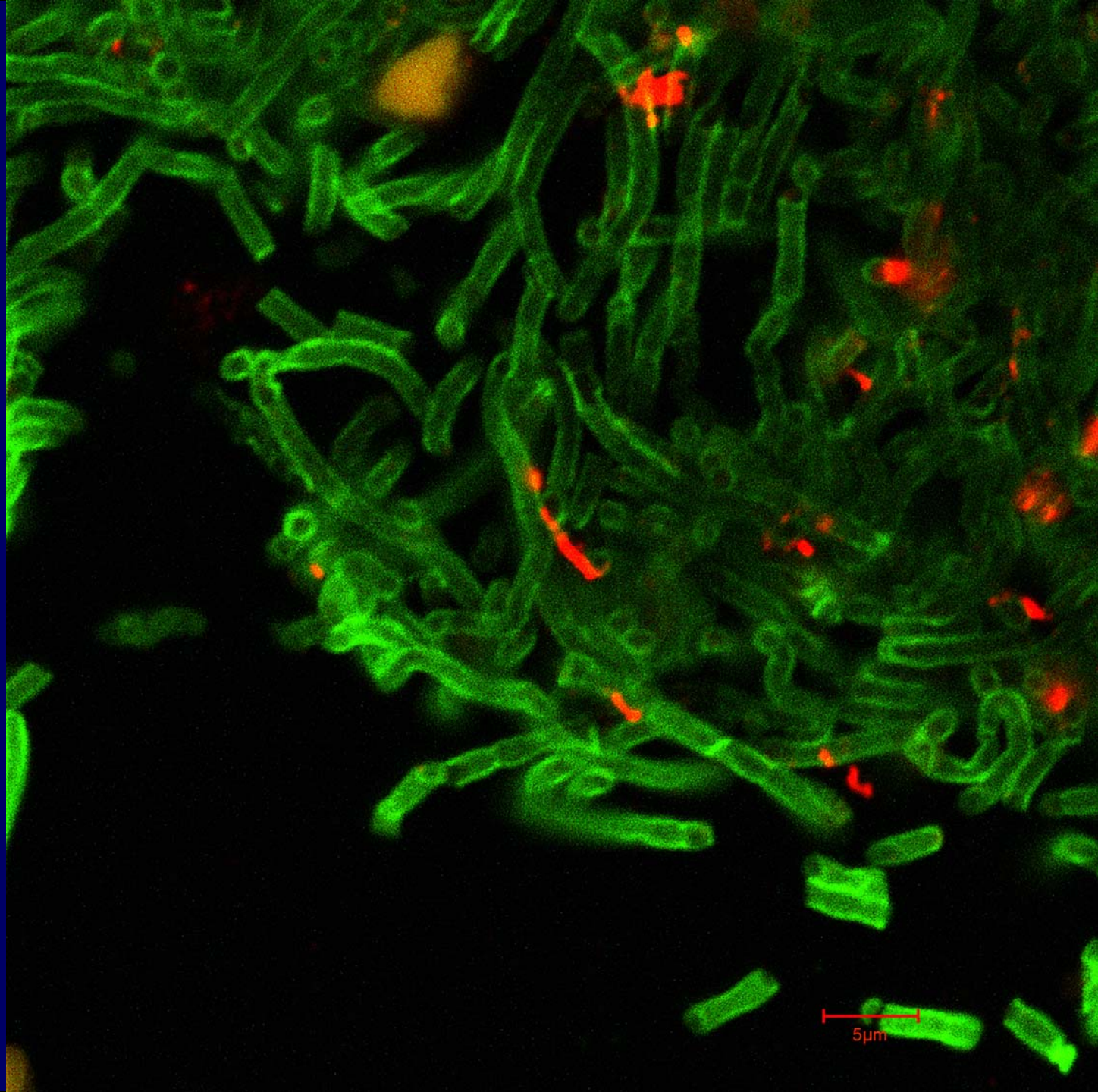
Univ Nebraska Omaha

- Even well-trained personnel can be traumatized
- Triage can be rendered ineffective



AP

Anthrax





Courtesy of Raymond Caputo, MD

What was the ER Staff's First Reaction?

- Emotional vs Clinical
- Unfamiliar vs Familiar
- At-Risk vs Protected
- Sprinted vs Paced

Professional Response to *Any* Event

- Detect and Confirm
- Contain and Protect
- Investigate & Prevent
- Follow up and Remediate

Prepare Responders



**Ok, so children
are not just small
adults!**

PrimeTime TV



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Thank You !

