Natural Disaster or Terrorism
How Prepared Can You Be?
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Conflict Of Interest Disclosure

- I have no financial interests or other relationships with commercial manufacturers and suppliers of commercial services.

- The opinions presented here are those solely of the speaker, and do not necessarily reflect Pacific NW University of Health Sciences policy or any other Federal Agency referenced.

Objectives

- Approach to preparing your family, yourself and your institution’s response to disasters

- List various physician roles in communities and hospitals preparing and responding to a natural disaster or terrorism

- Identify various national data sources for training your hospital and first responders

Outline

- Disasters overview
- Historical perspective
- Risks with most likely risk areas
- Individual & family preparedness
- Terrorism in all of its forms
- Disaster planning and mitigation
- References & Resources
What Is a Disaster?

Unforeseen natural or man-made event, may occur suddenly, results in great damage, destruction and human suffering.

“Disaster” Definition

- A disaster is present when needs exceeds resources!

Disaster = Need > Resources

A response need that is greater than the response available at a time in space!

What is Emergency Preparedness?

- Emergency preparedness is planning and actions undertaken in advance of a possible or probable natural or man-made disaster.
- Plans for reconstruction, food storage, sanitation equipment storage, and conducting drills are usually part of an emergency preparedness plan.

“All-Hazards”

**Man-made**
- Fires
- Explosive devices
- Active shooter
- Structural collapse
- Transportation event
  - Air, Rail, Roadway, Water
- Industrial HAZMAT
- Weapon mass destruction
  - NBC events
- Terrorism Events

**Natural**
- Earthquake
  - Alaska 03/28/1964 9.2
- Landslides
- Avalanche
- Volcano
- Tornado
- Hurricanes, floods
- Fires
- Meteors
- Etc...
### Weather Related Disasters in the United States

**Average $$ Each Year** (includes wild and forest fires)
- **Cost** = $52 billion ($1 billion per week)
- **Fatalities** = ~480

### Recent U.S. Disasters

- **1988 Drought**
  - $40 billion; 10,000 deaths
- **1993 Midwest Floods**
  - $21 billion; 48 deaths
- **2005 Hurricanes Katrina & Rita**
  - Katrina: $108 billion; 1,843 deaths
- **2012 Hurricane Sandy**
  - $50 billion;

### Anchorage, Alaska 1964

Credit: U.S. Geological Survey/AP
Disasters

- Disasters anytime, anywhere
  - Natural Disasters
    - Weather: Hurricane, Tornado, Winter storms
    - Floods
    - Earthquakes
  - Man made disasters
    - Industrial accidents
    - Terrorism: Explosive, chemical, biological, active shooter

Why Do You Need to Prepare as a Physician or Health Care Provider?

- Disasters are unpredictable
- Disasters can happen in any community
- It may take days for significant help to arrive
- Your family’s and your community’s well-being is important
- Your physician role is crucial to the mitigation of the disaster

Emergencies & Disaster Preparation

Paranoia or Prudence?

- How would you:
  - Assure your family survival for 72 hours?
  - Cope without power or tap water?
  - Contact your family members and receive information?
  - Cope with communications breakdowns?
  - Cope with transportation breakdown?
  - Quickly identify your role as a physician in the disaster?

Common Misconceptions

Why Should I Care?

- Most emergencies are short-lived
  - Sandy/Katrina history negates the postulate
- Help will arrive quickly; Don’t worry be happy!!
- I won't ever have to deal with an emergency
  - Joplin, Missouri; Boston, Alaska, Bus accident
- Cell phones are our safety link to each other
- I just can't prepare no matter what I do
- Preparing takes too much time, I am too busy with patient care!
- I will figure it out when the time comes
Are You Really Prepared?

In order for a community to be prepared for a disaster, **everyone needs to take the necessary steps** to become disaster-ready.

DHS & American Red Cross statement

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Recent Tornadoes In the Media

- 2011 Joplin MO
- 2013 Moore Oklahoma

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Tornado Risk Map

- ~1,200 tornadoes hit the U.S. yearly
- Beyond US, Argentina, Bangladesh.


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Tornado Damage Potential
What Can You And Your Family Do?

“Be Prepared”!

- Be informed about hazards that can most likely affect you and your family
- A home emergency plan and supplies in place
  - Communications plan  https://www.ready.gov/
  - https://www.fema.gov/media-library/assets/documents/34330
- Collect and assemble a home disaster supply kit and car kits
- Learn the warning systems in your community. NOAA radios, cell phone alerts, TV or radio.
- Know the location of your local shelters

“Be Prepared” Home Preparation

- You and your family may need to survive on your own after an emergency.
  - Implies home storage of food, water and other supplies to last for at least 72 hours.
- Expect basic services such as electricity, gas, water, sewage treatment, service stations and telephones/cell phones may be cut off for days or weeks.
- Establish a backup plan with your family on how to communicate from the hospital if possible

https://www.fcc.gov/general/tips-communicating-emergency
Family Preparedness 1

- Step 1. Know the risks
- Step 2. Make a plan, talk it through with the kids
- Step 3. Plan for specific risks in your region
  - Earthquakes, tornadoes, power outages, floods and severe storms
  - Meeting places & back up communications instructions
    - Identify safe places where everyone should meet if you cannot go home or you need to evacuate
  - Plan for pets
    - Pets are not allowed in some public shelters or hotels. Prepare to take your pets with you to the home of a relative or friend

Home Family Preparation 2

Disaster supplies kit minimums:
- 3 day supply of non-perishable food
- 3 day supply of water (gal/day/person)
- Portable, battery-powered radio
- a NOAA weather radio
- Flashlights (LEDs)
- Cash and coins

Home Family Preparation 3

Family Communications Plan
- Your family may not be together when disaster strikes
  - You are at the clinic/hospital and they are elsewhere
  - Plan how you will contact one another and review what you will do in different situations including cell phone failure. Your kids should know the plan and what to do.
  - Determine an out-of-town contact for your family to call if something happens.
  - It may be easier to make long-distance phone calls than to call across town
  - Text messages best method to communicate with separated family members due to low bandwidth requirements compared to voice.

Emergency Car Kit

- Emergency car kit (“Go Pack”)
  - Keep it in the vehicle!
  - Emergency kit Food: Does not spoil, Ex. energy bars
  - Water In plastic bottles or pouches so they won’t break if frozen
  - Extra clothing and shoes in ‘Go Pack; Blanket
  - First aid kit with seatbelt cutter
  - Portable radio

https://www.ready.gov/prepare-for-emergencies
http://ready.wi.gov/winter/HowToMakeAKit.asp
Car Go Pack
Backpack with multiple pouches and removable organizer

- Rain poncho (adult sized); Tennis shoes, socks, gloves, wool hat
- Breathing mask for dust
- 1 Battery powered flashlight or LED flashlight equivalent
- 1 Hand Crank Emergency Radio or commercial equivalent (ex American Red Cross FRX1 Eton)
- 1 Emergency blanket, 4.5’x7’
- Moist towelettes (individually wrapped)
- Food packets, 2,400 calories total, 5 year shelf life (ingredients include wheat flour, vegetable shortening, granulated sugar, salt, water and coconut flavoring)
- Water pouches, total of 16 ounces, 5 year shelf life
- 1 Roll of duct tape, 2” x 30 yds
- 1 Water container, holds 3.5 gallons
- 1 Whistle, water proof matches
- 1 Hygiene comfort kit, including toothbrush, toothpaste, shampoo, lotion, soap, razor, deodorant, washcloth, comb, and mesh shower bag
- 1 -45-piece First aid kit, including compresses, adhesive bandages, first aid tape, antibiotic ointment, antiseptic wipes, hand sanitizer, scissors, gauze, and latex-free gloves

Terrorism 1962

“There is another type of warfare—new in its intensity, ancient in its origin—war by guerrillas, subversives, insurgents, assassins; war by ambush instead of combat, by infiltration instead of aggression, seeking victory by eroding and exhausting the enemy instead of engaging him...It preys on unrest…”

John F. Kennedy, 1962

- Terrorist acts are selected to favorably impress the terrorist group and its supporters and to dismay the targeted victims.

Defining Terrorism

No single, universally accepted, definition of terrorism.

- **One definition:** “the calculated use of violence or threat of violence to inculcate fear; intended to coerce or to intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological"

- **Code of Federal Regulations:** “the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives”

  - Can be domestic or international, depending on the origin, base, and objectives of the terrorist organization.

Terrorist Strategies

- Create chaos and confusion
- Undermine societal infrastructure
  - Transportation networks
  - Communications systems
  - Public health systems
- Undermine confidence in government
- Draw media attention
- Drive public opinion
Examples of Terrorist Attacks

- Oklahoma City 1995 Bombing
- 1995 Tokyo Sarin Attack
- 2001 World Trade Centers

Groups That Threaten

- Lone individual “Lone wolf” - Unabomber
  - “Unabomber,” by far the most difficult to detect.
- Identified local or non-aligned terrorist groups
- Internationally sponsored
- Doomsday cults
- Insurgents

Terrorism Raises The Disaster Stakes

- Disaster concerns are no longer just weather-related!
- September 11, 2001: $40 billion; 2,751 deaths
- Boston Marathon 2013

Potential Terrorist Targets

- Enclosed spaces
- Large crowds (high profile events)
- Critical facilities and infrastructure
- Accessible facilities with significant hazard / damage potential (materials in transit)
- Facilities of interest to terrorists’ cause
Tools of Terrorism

- Usually violent, not condoned by society at large
- Conventional munitions and explosives
  - Scale up as required
- Terrorism just part of most effective campaigns
  - Long term
  - Psychological operations
  - Fund-raising
  - Socialization of the cause
    - Create a community of like-minded individuals

Biological Radiological & Chemical

- Radiologicals
- Biologicals
- Chemicals

Why CBRNE Terrorism?

- CBRNE incident difficult to recognize
- Large amount not needed in enclosed space
- Agents are available & relatively easy to manufacture
- Easily spread over large areas
- *** Psychological impact **
- Incident can overwhelm existing resources

CBRNE = Chemical, biological, radiological, nuclear, explosive

Potential Probability vs. Impact
Anthrax Case Status (CDC 12/05/01)

<table>
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<th>Status</th>
<th>FLA</th>
<th>NY</th>
<th>NJ</th>
<th>DC</th>
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</table>

CBRNE Agent Sources

- Home production
- Laboratory / commercial production
- Industrial facilities
- Foreign military sources
- Medical / university research facilities
- Nuclear facilities

Proliferation of Anthrax Hoaxes

- **B'nai B'rith, Washington, D.C.**
  - April 1997
  - 30 persons decontaminated

- **Indianapolis, IN**
  - Sep - Dec 1998
  - 10 incidents
  - multiple incident per day

- **Post Office, Columbus, GA**
  - Jan 1999
  - 3 persons decontaminated

- **Los Angeles, CA**
  - Sep 98 - Jan 99
  - 16 incidents
  - Estimated cost: $4 - 5 Million

- **CBRNE News Bureau, Atlanta, GA**
  - Jan 1999
  - 3 blocks evacuated
  - 12 persons decontaminated

- **Washington Post & Old Executive Building**
  - Jan 1999
  - 2 incidents on same day
Limitations of CBRNE Agents

- Effective dissemination difficult
- Delayed effects can detract from impact
- Counterproductive to terrorists’ support
- Potentially hazardous to the terrorist
- Development and use require skill

Casualty Decontamination Site Overview
First Responders

- Arrival
  - Arrival Point (dirty)
  - Dirty Disposition Area
  - Evacuate (dirty)

- Triage / EMT
  - Triage Station
  - EMT Station
  - Evacuate (dirty)

- Decon
  - Ambulatory Decon
  - Litter Decon

- Clean Treatment
  - Clean Treatment Area
  - Evacuate (clean)

Very personnel resource intensive

Terrorism Crisis And Consequence Management

Tiered Disaster / Emergency Response
Are Our Hospitals Prepared?

- Is the US healthcare system prepared?
- We appear to be... each Hospital, EMS agency, Law enforcement agency, Fire department, and Community has...
  - a disaster plan
  - properly documented drills
  - annual training documented
  - Joint Commission Hospital Drills

But... Are physicians prepared?

A Disaster Occurs!

What is my physician role if Incident Command is activated?

Physician Preparation 101

- Step 1
    - Knowing the risks in your region can help you better prepare.
- Step 2
  - Clarify your physician role in a disaster – Critical!
    - Understand your professional role in the hospital plan and HICS.
- Step 3
  - Participate & practice in mass casualty disaster drills
    *You are not prepared until you make a plan & practice!*

Emergency Drills

- Helps everyone from first responders to the hospital staff practice and prepare for real emergencies.
- Scenario should be regarded as if is real
- Practice builds mental confidence and skills that kick in when faced with a disaster
- Practice like it is the real thing
Medical Anti-Terrorism Planning

- High proportion affected, non-injured personnel
- Security problems
- Existing and on-going “usual” care requirements
- Media attention
- Pressure on public health infrastructure
- Pets and agricultural animals

M.A.S.S. Triage
Also Known as MASCAL

- M – Move
- A – Assess
- S – Sort
- S – Send

Mass Casualty Incident (MCI)
“Mascal”

- First question: “I am seeing a trend where a a MCI is evolving such as a CBRN?”
- The first step in identifying an MCI is knowing your own capabilities.
- Any incident that exceeds the responder’s or receiving hospital’s capability to treat or transport is a basically a Mass Casualty Incident
  - May be present as a result of a lack of prehospital or in-hospital resources (or both)

“Id-Me” !!!

- “Id-me”!
  - A mnemonic for sorting patients during MCI triage.
  - Utilized effectively in the M.A.S.S. Triage model.
    - I - Immediate
    - D - Delayed
    - M - Minimal
    - E - Expectant
    - D - Dead
Disaster Acronym Paradigm


Incident Command System (ICS)
- Born and refined in the Fire Service
  - Managing wildfires in early 1970's
  - Interagency task force collaborative effort
- Uniform structure
- Clearly delineated roles & responsibilities
- Clear chain of command & communication

 Incident Command System

The Basics

“Commander”
Unified Command

Planning  Logistics  Operations  Finance

“Thinkers” “Getters” “Doers” “Payers”

Incident Command System Operations

ICS

OPERATIONS

EMS Operations  Fire Operations  LE Operations  Public Health

Medical Director
EMS Physician

Communications

Surveillance  Immunization
Clinics

Triage  Treatment  Transportation  Extrication/Rescue  Staging

Clinic 1  Clinic 2  Clinic 3
The Joint Commission & NFPA 99 require an “all-hazards” incident command structure

- Can be coordinated with the command system in the community
  - Utilizes the same terminology as the community ICS
- Flexible enough to allow activation and deactivation of components, based on the specific event

TJC and NFPA require a management structure that explicitly addresses

- Patient care
- Staff/family support
- Logistics of critical supplies
- Media
- Security

The Language of Emergency Management

What is HEICS?
Hospital Emergency Incident Command System

- An “all-hazards” command structure
- A universal link with outside resources
HEICS Provides...

- A dependable chain of command
- Improved communication through common language
- Flexibility
- Prioritization of tasks
- Organized documentation system
- Effective mutual aid planning

HICS Now Supersedes the Hospital Emergency Incident Command System (HEICS III)

- Supersedes the Hospital Emergency Incident Command System III, (HEICS III)
- Provides a way to use the Incident Command System (ICS) in the hospital/healthcare setting, consistent with the National Incident Management System (NIMS)
- Designed to help hospitals and communities improve emergency management planning, response, and recovery activities for unplanned incidents and planned events
- Applicable to all kinds of emergency responses

Hospital Incident Command System (HICS)

- System for managing emergent and non-emergent situations
- Provides hospitals with required tools to address the event
- HICS initiated by an internal/external event
  - Flexible in scale
  - Only those positions needed are activated
- Administrative position assumes role as Incident Commander

Physician Responder

Best if a member of a recognized, organized response team who has been invited and participates in regular training.
Communications

- Redundant communication systems
- Emergency Responders
  - 2-way radios
  - Cell phones
  - Ham radios
  - Satellite phones
- Nursing Staff
  - Regular phones
  - Special pagers
  - Red phones – located at the Nursing (Communication) station on patient unit

Planning Resources

- Answers a multitude of questions on disaster preparedness
  - www.EDEN.lsu.edu/resources/np
- Through a national Web site and an email listserv, EDEN delegates in each state share information on:
  - Natural disasters
  - Man-made disasters
  - Terrorism-related disasters

Family Preparedness Site

- Extension Disaster Education Network
  - http://eden.lsu.edu/EDENCourses/FamilyPreparedness/Pages/CourseMaterials.aspx
  - http://eden.lsu.edu/Pages/default.aspx

Tips For Talking to Children After a Disaster

- Provide opportunities to talk about what they are seeing on television and to ask?
- Don’t be afraid to admit you don’t know all the answers
- Answer? At a level the child can understand
- Establish a family emergency plan (Sense of doing something is helpful)
- Monitor children’s TV watching... They don’t need to see event over & over) Watch with children!
- Help kids to understand there are no bad emotions
- Try to not focus on blame
- In addition to tragic things seen, help kids focus on good things such as heroic actions, reuniting of families, assistance offered by people throughout the world
For Children Closer to The Disaster

- Disasters often reawaken a child’s fear of loss of own parents when parents are preoccupied with own fears ... consider family counseling
- Families may permit some regressive behavior weaning off by leaving bedroom door open, night lights, extra time with parents
- Parents may have trouble leaving child after a disaster, may be able to use child’s problem as a way of asking for help themselves
- Get the children into some sense of routine of school and play even if displaced
- Teachers can help kids with art, and play activities, encouraging group discussions and presentations about the disaster

Summary

- Emergency preparedness involves planning
- Be informed about hazards that can affect you and your family.
- Develop a home emergency plan and supplies.
  - When you know your family is ok, you will be more effective as you deal with the disaster as a physician.
- Avail yourself of medical courses offered to recognize and treat Chemical, Biological agents
- Participate in hospital and community drills, you will be more effective and confident.

Resources

Psychosocial Issues for Children and Families in Disasters
A Guide for the Primary Care Physician

Toddler and Preschoolers
- Reaction reflects that of parents
- Regressive behaviors
- Decreased appetite
- Vomiting, constipation, diarrhea
- Sleep disorders (insomnia, nightmares)
- Tics, stuttering, muteness
- Clinging
- Reenactment via play
- Exaggerated startle response
- Irritability
- Posttraumatic stress disorder

School-Age Children
- Most marked reaction
- Fear, anxiety
- Increased hostility with siblings
- Somatic complaints
- Sleep disorders
- School problems
- Social withdrawal
- Reenactment via play
- Apathy
- Posttraumatic stress disorder
- Decreased interest in peers, hobbies, school
**Resources**

![Table 5. Developmental Considerations in the Comprehension of Death in Children and Adolescents](image)

<table>
<thead>
<tr>
<th>Developmental Considerations</th>
<th>Infants</th>
<th>Preschool Children</th>
<th>School-Age Children</th>
<th>Adolescents</th>
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<tr>
<td>Object permanence, establishing trust</td>
<td>Magical thinking, egocentric, no concept of time</td>
<td>Logical thinking, conceptions of time, differentiation of self from others</td>
<td>Establishing independence, abstract thinking, feelings of omnipotence</td>
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<td>Effect of Disaster</td>
<td>Destroys routine, loss of loved ones</td>
<td>Destroys routine, loss of loved ones</td>
<td>Destroys routine, loss of loved ones</td>
<td>Loss of lifestyle, loved ones</td>
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<tr>
<td>Result of Disaster</td>
<td>Regression, detachment</td>
<td>Posttraumatic play, withdrawal, apathy</td>
<td>School problems, anxiety, somatic complaints, anger, posttraumatic play</td>
<td>Risk-taking, somatization, depression, anger, hostility to others</td>
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<tr>
<td>View of Disaster</td>
<td>No comprehension</td>
<td>Reversible</td>
<td>Understand loss as a consequence of injury and illness</td>
<td>Full understanding</td>
</tr>
</tbody>
</table>

**References 1**

- **Communications**
  - [https://www.fcc.gov/general/tips-communicating-emergency](https://www.fcc.gov/general/tips-communicating-emergency)
- **Tornadoes**
- **Earthquakes**
  - [https://earthquake.usgs.gov/earthquakes](https://earthquake.usgs.gov/earthquakes)
- **Personal and family preparedness plans and suggested supplies:**
  - [http://www.ready.gov](http://www.ready.gov)
  - [https://www.ready.gov/build-a-kit](https://www.ready.gov/build-a-kit)
  - [http://www.redcross.org/prepare/location/home-family](http://www.redcross.org/prepare/location/home-family)
- **Federal Emergency Management Agency (FEMA)**
  - [http://www.ready.gov/be-informed](http://www.ready.gov/be-informed)
  - [https://www.fema.gov/](https://www.fema.gov/)

**References 2**

- **Education sites:**
  - [https://www.hhs.gov/programs/emergency-preparedness/index.html](https://www.hhs.gov/programs/emergency-preparedness/index.html)
- **Incident and Hospital Command System:**
- **Center for Disease control; Excellent site with links to Bioterrorism, radiation and chemical training and recognition;**
  - [https://emergency.cdc.gov/coping/index.asp](https://emergency.cdc.gov/coping/index.asp)
  - **Bioterrorism Readiness Plan: A Template for Healthcare Facilities**
- **Hospital Command System**
  - **ICS part of the National Incident Management System (NIMS)**
  - [https://www.remm.nlm.gov/ics_hics.htm](https://www.remm.nlm.gov/ics_hics.htm)
References 3

- Bioterrorism reference & training for physicians:
  - https://emergency.cdc.gov/bioterrorism/
- Chemical accidents/terrorism diagnosis and treatment training for physicians
  - http://emergency.cdc.gov/chemical/
- The following link is to the FEMA training site. Tons of presentation/training information: (excellent site for hospital incident planning)
  - https://training.fema.gov/is/crslist.aspx
    - All of the courses (ISP and NIMS) are excellent resources:
      IS-22, Are you Ready? An In-depth Guide to Citizen Preparedness
      IS-100.HCb, Introduction to the Incident Command System (ICS 100) for Healthcare/Hospitals
      IS-200.HCa, Applying ICS to Healthcare Organizations
- Extension Disaster Education Network
  - http://eden.lsu.edu/Pages/default.aspx
  - http://eden.lsu.edu/EDENCourses/FamilyPreparedness/Pages/CourseMaterials.aspx