1 □ ARE YOU DISASTER READY?
   By:
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2 □ COURSE OBJECTIVES
   • Recognize types of disasters
   • Describe courses of action to be considered in disasters
   • Identify resources to prepare and respond to disasters
   • List infectious / contagious diseases of concern
   • Describe possible role of dental workers in mass disaster management

3 □ HEADLINES & FEAR
   • World pandemic: HIV
   • Reemergence of TB: Global Emergency
   • Hepatitis C: The Silent Killer
   • Influenza Pandemic
   • E-Coli In Your Sandwich
   • Legionnaires Disease
   • Cryptosporidium
   • Flesh - eating Resistant Staphylococcus
   • Norwalk virus, meningitis, Enterovirus
   • Ebola virus

4 □ PUBLIC AWARENESS / FEAR
   • Insect borne diseases
     • West Nile,
     • Lyme
     • Malaria, Chikungunya
   • Prion diseases
   • Influenza, MERS-CoV
   • Bio-terrorism
     • Most probable agents:
       • Anthrax
       • Smallpox
       • Botulism
       • Plague
       • Hemorrhagic fevers
   • Natural disasters

5 □ DISASTERS
   • Chaos
     • Fear, confusion, disrupted plans, separated family, pain, suffering
   • Absence of organized support system
     • Communication: poor, absent
     • Transportation: restricted, absent

6 □ DISASTERS
• Breach in safety standards – survival
  • Water, food, trusted medical care, shelter
• Emotional impact, panic
  
7 □ **HAVE A PLAN**
• Today is your day
• Get specific information
  • Phone numbers
  • Community services, risks
    • Where do you go?
    • What do you avoid?
    • Who will lead you?
• Set up arrangements
• Practice!
  
8 □ **EMOTIONS VS. LOGIC**
• Panic / horror shuts off cortex
• Fear, anxiety
• Anger
• Misery, depression, empathy
• Guilt, conflicted feelings
• Emotional response to: physical pain, fatigue, discomfort

9 □ **ANTICIPATE SHOCK, EMOTIONS**
• Practice drills
• Assign leaders
• Communicate clearly
  • Do not create / increase fear, panic
• Acknowledge emotions

10 □ **FEAR**
• Rational fear = controlled, managed
• Goal: channel fear into protective actions
• Irrational, extreme fear can cripple
• Erase “panic” from crisis vocabulary

11 □ **DENIAL**
• Some do not believe warnings
• Denial is a coping mechanism when overwhelmed
• Overcoming denial:
  • Recognize fear – “We are all afraid”
  • Action! Facilitate joining crisis response with others

12 □ **HOPELESSNESS**
• Overwhelmed people may give up, freeze
• Recognize gravity, be realistic
• NOT “It will be just fine”
• BUT “This is serious. We must do…. Let’s work together. We need you to...
• People who become victims put others at risk

13 FEAR & OVER-REACTION
• Internet, news, communications
• Racial profiling
• Stigmatization
  • Asian restaurants (SARS, Flu)
  • Middle Eastern culture (terrorism)
• Hysterical responses:
  • Suspected & imagined illnesses flood emergency centers

14 COMMUNICATIONS
• Difficult messages must be given
• “People are dying”
• State the unknowns:
  • Nature & extent of crisis
  • When it will end
• State facts (or best guesses)
• Direct action, continue updating info
• People disregard directions for other priorities (family...)
•

15 REJECTION OF PUBLIC DISASTER INSTRUCTIONS
• “Leave kids at school”
  • Safer there: coordinated evacuation
  • Parents WANT kids
• “Do not leave region”
  • People WANT to get away
• “All must evacuate”
  • Fear of mobs, losing valuables, denial
• How will you respond?

16 EMERGENCY ROOMS ARE IN CRISIS NOW!
• Under staffed, severely under funded, over crowded
• ER’s provide off-hours tx. & primary care to many uninsured
  • Hosp.’s use ER instead of pt. rooms
• Few trained or prepared for ANY disaster (Earthquake, pandemic, terrorist attacks)
•

17 ER CRISIS
• Inadequate supplies for casualty surge (need stockpile):
  • PPE
  • Decontamination showers
• Ventilators
• ICU beds
• Communication btw/ EMS & hosp.’s = very poor NOW!
• EMS not standardized in U.S. - Organized under:
  • Municipal control
  • Privately owned
  • Fire dept.
  • Hospitals
  • Other med. Organizations

18 □ ER’S:
• Must pre-arrange & manage:
  • Deferral of services
  • Admission / discharge criteria
  • Allocation of limited supplies, care
  • Alteration of practice standards
  • Alternative care sites
• Raises legal, ethical ?’s “greatest good for majority”
• Need standardized hierarchy, chain of command, circuit of communication
• Find out how your systems are organized

19 □ MODELS FOR MANAGING DISASTERS
• WHO - developed safety standards for remote dentistry – 3rd world
  • (Assoc of world’s ministries of health)
• Military
• OSAP, Doctors without Borders
• Red Cross: basic first aid, sanitation
• CDC disaster websites
  • Fact sheets, lists, contact info
  • Transmission based precautions
• All plans should satisfy primary needs first
  • Water, shelter, family, food, meds
  • Communication, transportation, med. care

20 □ HOW READY ARE WE?
OSHA PROGRAMS
• Written emergency plan (> 11 employees)
• Fire prevention & response
  • Sprinklers, hoses, extinguishers?
  • Compressed gas tanks?

21 □
• You are at work (6th floor):
• Doing a routine dental procedure.....
• Smell smoke
• You look up at the ceiling, see a slight smoky fog
• You stop the procedure, dial 911 immediately, calling out to alert your staff that there’s a
fire.
• Smoke seems to be coming from under the door from the shared hallway that leads to the stairwell.

22 □ FIRE SPRINKLERS GO ON

23 □
• Do you open the door to try to evacuate to the stairwell?
• Do you stay inside and try to wait for the firemen?
• What if opening the door allows dangerous levels of smoke and heat into your office?
• 911, local fire/policing #

24 □ WHAT’S WRONG WITH THIS PICTURE?

25 □ SMOKE IS BLACK & DEADLY
DROP TO THE FLOOR
CLOSE DOORS TO CONTAIN IT & FLAMES

26 □ FIRE
• Fire rated doors: time it takes fire to burn through
• Close to keep halls safe

27 □ ALARMS: SIRENS & LIGHTS
• Manual
• Smoke detectors
• Change batteries / with clocks
• Replace units @ 10-12 years
• Assume alarms = real!
• GO!

28 □ FIRE SPRINKLERS
• Activated by heat
• Flush or hanging
• Need minimum of 18” clearance to work
• Water is contaminated!

29 □ FIRE DRILLS
• Practice!
• Who are your evacuation leaders?
• Herd mentality
• The hiders

30 □ HOW READY ARE WE?
OSHA PROGRAMS SHOULD INCLUDE:
• Emergency med. eval. & response
• Escape routes
• Audible & visible alarm
• Accountability, roles, duties
• How to report emergency
• Who to contact for info

31 WORKPLACE READINESS
• Unobstructed doors
  • Exits unlocked from inside
  • Exits signs - 6” X ¾”, illuminated & directions to exits signed
• Spill kits, SDS’s
• Caustic chemicals in fireproof cabinet
• Compressed gas tanks secured
• Emergency kits, meds
• PPE
  • Trained dental team

32 OCCUPATIONAL EXPOSURE TO INFECTIOUS MATERIALS

33 OCCUPATIONAL EXPOSURE TO INFECTIOUS MATERIALS
First aid for exposure
• Skin:
  • Wash thoroughly – running water & antimicrobial soap
  • Avoid abrading skin
  • If no water, use approved antiseptic hand cleanser, wash when possible
• Eye:
  • Thoroughly rinse using eye wash station
• Mucous membrane
  • Thoroughly rinse using antimicrobial
• Orally: antiseptic mouthwash

34 OCCUPATIONAL EXPOSURE TO INFECTIOUS MATERIALS
First aid for exposure
• Perenteral –
  • Control excessive bleeding
  • With limited bleeding: “milk” wound to flush
  • Thoroughly wash wound & adjacent tissue – antimicrobial soap & running water ASAP
  • If no water: approved antiseptic skin cleanser
• Airborne –
  • Prevent exposure with masks NIOSH approved N95 masks for known airborne diseases
  • unless immune (measles, chicken pox)
    • Susceptible workers stay out of room

35 WHAT DO YOU NEED TO KNOW ABOUT EYEWASH STATIONS?
• Location: within 15’ or 10 seconds
• No hot water (tepid!)
• Must deliver > 1.5 L/minute for 15 minutes, single-action & hands-free
• How to activate
• Eyewashes are flushed weekly
• When to use and when NOT to use eyewash stations

36 □ ASSESSING SITUATIONS
• Learn warning signals (warning vs. alert)
• Anticipate local risks (earthquakes, fire, biological, radiological)
• Vital information
  • First awareness of disaster
  • Scope
  • Public emergency system operating?
  • Communication + co-ordination possible?
• Nature of disaster?
• Shelter in place or evacuate?
• Location, accessibility of supplies
• Duration?

37 □ OUR POSSIBLE ROLES
• Triage (sorting injuries)
• Management of injuries
• Mass disaster management
• ID fatalities

38 □ OUR POSSIBLE ROLES
• Provide auxiliary medical care
  • Immunizations
  • Dispense meds, supplies
  • Guide / instruct victims, other care providers
  • Need to register volunteers, verify credentials
  • “Smart” card for emergency team
  • Must determine immune status

39 □ DENTAL TEAM’S ROLE IN DISASTER RESPONSE
• Prepare to facilitate:
  • Shelter in place
  • Evacuation
  • Communication
    • Receive instructions
    • Direct & organize others
• Identify & assess disaster
  • What type & scope?
  • Rapid recognition of clinical signs & symptoms
  • Give correct information to patients – avoid hysteria
• Respond to private, local needs
  • Office staff, patients & family
• Neighborhood
• Community
• Use dental training and supplies

40 DENTAL ROLES IN MASS DISASTERS
*Some duties = may require training (not all)
*DDS can free up MD’s for more vital uses
• Surveillance
  • Early detection: infectious agents, bioterrorism events, (ex: report clusters of no-shows)
  • Facilitated by location, frequent pt visits
• Referral of patients
  • Early tx saves lives (smallpox vaccine reduces disease, even after infected)
• Diagnosis and monitoring
  • Nasal, oral swabs, ID illness, determine infectivity
• Triage
  • Screen casualties

41 INFLUENZA RT- PCR ASSAY
• Nasopharyngeal or nasal swab
• Consider in context of symptoms, history

42 DENTAL ROLES IN MASS DISASTERS
• Immunizations (little training)
  • Rapid prevention
  • Offices = alternatives to hospitals
• Medications
  • Dispense prescribed meds
  • Monitor adverse rxns
• Infection Control
  • Trained in IC protocol
  • Decontamination of casualties
• Definitive Treatment

43 DENTAL ROLES IN DISASTERS
• Definitive Treatment
  • Oral, facial, cranial injuries
  • CPR, BLS
  • Obtain med histories
  • Collect blood, other samples
  • Provide & assist w/ anesthesia, IV’s
  • Suturing, surgery
  • Patient stabilization
  • Shock management

44 DENTAL ROLES IN DISASTERS
• Quarantine (infectious agent)
• Duration = based on incubation time
• MD’s may become infected
• Dentists fill in

45 - MASS TRIAGE: SORTING VICTIMS INTO TREATMENT PRIORITIES
• “Id-me”: sort victims by need
  • Immediate: no obvious risk
  • Delayed: need med care, may be delayed
  • Minimal: “walking wounded”
  • Expectant: little / no chance of survival (do not use supplies or time)
(Save those most likely to survive)
• M: Move
• A: Assess
• S: Sort
• S: Send

46 - LEGAL / LICENSURE ISSUES
• Licensure
  • Emergency exemption for responders
• Scope of practice / credentialing
  • Response team dentists: credentialed beyond usual scope
  • No time to check during event
• Legal liability?
  • Reasonable responsibility, good faith

47 - DISASTER RESPONSE PLAN
• Purpose
• Glossary of terms
• Situation / assumptions
• Organization / responsibilities
• Command, control, communications
• Volunteer coordination
• Liaison with disaster agencies
• Training, exercises
• Review & updates

48 - SO ARE YOU READY TO....?
• Assess the information
  • What is the scope of disaster?
  • What is the nature of disaster?
  • Which disaster plan is best?
• Perform first aid?
  • Train team
  • Register as first responders?
  • Buy first aid book!
• Provide & use PPE?
• Recognize and manage health & disease?
• How fast can you ID signs & symptoms
• Be Leaders?
• Establish dental office as emergency resource to community/patients?

49 2 EMERGENCY RESPONSES
• “Evacuate”
  • Fire
  • Hazardous material
  • Natural disaster approaching
• “Shelter in place”
  • Outside unknown threat
  • Natural disaster present
  • Follow protocol previously practiced
  • Wait for instructions & communicate if possible
• Report incident to public health authorities:
  • Find local #’s: www.statepublichealth.org

50 NATURE OF THE HAZARD
• Chemical (Sarin or Ricin)
• Biological (Anthrax, Smallpox)
• Radiological (Dirty Bomb)
• Nuclear (Power plant mishap)

51 NATURE OF THE HAZARD
• Explosive (Incendiary devices)
• Power failure, flood: boil water order
• Train, plane, subway, truck crash
• Natural disaster

52 SCOPE OF THE INCIDENT
• Single site
• Multiple sites
• Entire city
• Several cities
• Geographical region

53 MOTHER NATURE
THE FIRST TERRORIST

54 HURRICANE TERMS
• Cyclone: North hem – counter clockwise, > 74 mph winds, high water
• East of dateline = “Hurricane”
• West of dateline = “Typhoon”
• Watch: 36 hrs
• Warning: 24 hrs
• Landfall: eye hits land
• Saffir-Simpson Scale (1 – 5) wind = determining factor
• Storm surge: increase in sea level over normal
• Storm tide: normal + surge = actual sea level

55 INSECT BORNE DISEASES
• West Nile Virus
  • Tick & mosquito!
• Dengue Fever
• Encephalitis
• Malaria
• Lime disease
• Plague
• Spider bite reactions

56 72 HOUR RULE
• Prepare to sustain yourself - 3 days
• Basic services gone:
  • Food, water, power, transportation, communication, medical care, police protection
  • What will be the first services restored: rescue?
• Check lists
• Where to locate supplies?

58 OUT OF STATE CONTACT CARDS

59 COMMUNICATIONS
• Pre-agreed plans:
  • What to do, where to meet
  • How to get public announcements
  • How to co-ordinate with family, office
• Portable radio / TV & batteries
• Phones? Cell phones?
• Short wave radio:
  • Only working communication
• Internet?

60 HAM RADIO NETWORKS
National:
• National Association for Amateur Radio (ARRL) (www.arrl.org)
• Amateur Radio Emergency Service (ARES) listed on ARRL site
  • www.arrl.org/ares
• Local Texas information:
  • TexasHams.org

61 EVACUATION
- Remain calm, assume duties
- Shut off all mechanical equipment
- Unplug appliances, shut off utilities
- Close all doors, windows
- “Ready 2 go” packs
- Do not use elevators
- Assist disabled & patients
- Know primary & alternate routes

62 PERSONAL EMERGENCY KIT
- Bottled water / filter / chlorine
- Non-perishable foods
- Flashlight, battery radio, batteries, 8 hr. glow sticks
- Meds, extra glasses, medical info
- Phone numbers, contact list
- First aid kit, PPE, whistle
- Sturdy, comfortable shoes, Mylar rain coat & blanket
- Cash – small denominations
- Plastic bags, marking pens

63 SHELTER IN PLACE
- “Safe haven” from weather, chemical plumes, radiological clouds, biological exposure
- Requires supplies – 3-6 days
  - Water, first aid, food, meds
  - Know local shelters

64 SPECIAL SUPPLIES
- Keys
- Glasses
- ID
- Undies
- Shoes

65 MED’S
- Doxycycline (bacterial toxins) - 100 mg tabs, 2x / day / 7 days
- Potassium iodide (Thyroid protection) - 1000 pouches, 14 tabs / pouch, 1 / day / 2 weeks
- Emergency med response kits
- Personal regular meds
- Personal preferred meds

66 PETS
- Evacuate pets
- Red Cross shelters can NOT accept pets except disability dogs
- Find hotels, vets, animal shelters that accept pets, know restrictions
- Food, meds, cages, leashes, beds, toys, photo, license / ID, implanted chip
- Humane Society*
NEED WATER FOR:

- Drinking
  - > 2 quarts / day, double in heat
  - Children, nursing mothers, ill: need more
  - Drink what you need! Never ration.
  - Reduce need: < activity, stay cool
- Washing hands, body, food
  - ½ - ¾ gal. / person / day
- Prevent exposure to infectious agents
  - First aid, asepsis, personal hygiene
- Remove chemical agents
  - Spills, suspected agents, prevent injury, illness

WATER SAFETY

- Store ~ 5 – 14 gal. / person, rotate
  - Enough for 5 days – 2 weeks
- ID other sources (water heater, ice)
- If time, fill containers
- Bleach & DUWL products?
- Do not use (wash hands or drink) contaminated water (flood water)
- Waterless hand sanitizers (alcohol = flammable)
- Purifying water
  - Boil, disinfect, distil

PORTABLE WATER FILTERS

- First Need filters bacteria, cysts, viruses, dirt, chemicals, tastes, connects to bottles, 150 gal / filter
- Hyperflow: faster, lighter, filters .2u bact., protozoa,
  - www.rei.com

WATER SOURCES INSIDE

- Shut off incoming water if contaminated
- Ice: seal in containers before they melt
- Water heater (gas & electricity off)
  - Drink only if purify
  - Open bottom drain, close intake, turn on hot water faucet.
  - Do not turn on elect & gas while empty
- Toilet reservoir tank
- Bath tub
- Pipes: drain highest faucet, introduce air, then drain lowest faucet

WATER SOURCES OUTSIDE

- Rainwater
- Streams, rivers, moving water
• Ponds, lakes
• Natural springs
• Swimming pools
• Never:
  • Foul, dark water
  • Flood water

72 WATER STORAGE CONTAINERS
• Sturdy, movable & usable size (evacuate)
• Drums?
• Easy to rotate (~ 6 mos.)
• Food grade plastic, glass, fiberglass, enamel-lined metal
• Not re-used chemical containers
• Seal & re-seal tightly
• Label!

73 WATER SYSTEM DISASTERS
• Broken dams, pipes, levees
• Sabotaged dams (terrorism)
• Contaminated lakes, rivers....
• Flooding (sewers overflow, chemical & biological contaminants spread by water)
• Drought, climate changes
• Ecological impact / risks
  • Alligators, snakes, sharks in New Orleans
• Economic and social impact

74 IMPORTANT GLOBAL WATERBORNE DISEASES
• Developing Countries:
  • 10% of diseases are from water supply
    • diarrhea
    • intestinal worms
    • fevers

75 U.S. WATER CONCERNS
• Developed Countries:
  • Facing drinking water crisis.
  • Decrepit equipment.
  • > Population
  • “Safe water can no longer be taken for granted...” (American Academy of Microbiology)

76 WATERBORNE DISEASES IN DEVELOPED COUNTRIES
• Waterborne pathogens increase significantly each year.
• Pathogens = resistant to treatment chemicals.
  • Cryptosporidium
  • Giardia
  • Cyclospora
• People live longer, immunocompromised

77 □ CRYPTOSPORIDIUM ("CRYPTO")
• Most common non-viral cause of diarrhea
• Waterborne parasite
• Spore phase resists chlorine, desiccation

78 □ LEGIONELLA
• Legionnaire’s Disease / Pontiac Fever
• Standing / hot water
• Found with amoeba
• Fastidious

79 □ AFTER FLOODING
• Do not return until officially cleared
• Hazards include:
  • Power lines
  • Snakes, rats, wildlife, escaped pets
  • Ground sink holes
  • Structure cave-ins (floors, roofs)
  • Asbestos contamination
    • Buildings older than 1970
  • Lead paint, building materials
  • Released chemicals, products

80 □ AFTER FLOODING
• Fungi & Spores after water recedes
• Molds may prevent building occupation
  • Allergens
  • Toxins
  • Penetrate materials rapidly
  • Must be professionally removed

81 □ AFTER FLOODING
• Paper records will be destroyed
  • Electronic files, off-site data?
• Paper damaged in 3 hours, dissolves in 4 - 5 days
• Wet paper: never put in plastic bags
  • Lower humidity, avoid sunlight
  • Wear protective (mold) gear to handle

82 □ AFTER FLOODING
• Do not use flood-damaged products
• Most paper type products = useless
• Major equipment – typically not repairable
• Waterlines: mold & bacterially contaminated
• In floods, sewers flood 1st – overflow
• Most insurance policies: “floods = acts of nature” – not covered
• FEMA insures flood damage

83 BOIL-WATER ADVISORIES
• Do not deliver public water to patients through dental unit, ultrasonic scaler, or any dental equipment.
• Do not use public water for dental treatment, patient rinsing, or handwashing
• Use antimicrobial waterless hand sanitizers (alcohol rubs)
• Wash soiled hands with bottled water or antiseptic towelette
  CDC

84 AFTER BOIL-WATER ADVISORIES
• Follow local water utility guidance re: flushing all waterlines
• If no guidance is given: flush waterlines and faucets for 1 - 5 minutes prior to patient care
• Disinfect dental waterlines as recommended by unit manufacturer

85

86 DUWL – RELATED DEATH (2011)
LANCET
• 82-yr old Italian Woman
• Legionnaires’ dis (L. pneumophila)
• Proven from dentist’s waterlines
• No other exposures

87 SOURCES OF WATERLINE PATHOGENS
• Municipal water supply
• Commercial irrigants
• Contamination from handling water system
• Retraction from patients
• Tubing = incubator...just give it time

88 STANDARDS FOR WATER SAFETY
• Sterile - for surgery, (cutting bone, normally sterile tissue)
  • 0 CFU/mL of heterotrophic water bacteria
  • CDC, OSAP, State BODE
  •
• Potable - for non-surgical procedures -
  • 500 CFU/mL of heterotrophic water bacteria (meets EPA safe drinking water standards)
  • CDC, OSAP, EPA, ADA

89 SIMPLE FLUSHING OF WATERLINES
• Flushing is important: flushing removes planktonic contaminants
BUT: flushing alone is NOT a reliable way to control DUWL biofilms.

90 SELF CONTAINED WATER SYSTEMS
• If your goal is: ≤ 500 CFU
• Access to add chemicals
• Treatment fluid:
  • Sterile water
  • Freshly distilled water
  • Medicaments / antimicrobials
• Must treat regularly
• Biofilm returns

91 SELF CONTAINED WATER SYSTEM
• Maintenance
  • Comply with manufacturers’ recommendations
• Chemical products:
  • 1. Prevent biofilm
  • 2. Remove biofilm
  • 3. Kill organisms
  • ‘Shock’ treatments &/or
  • Treatment fluid options

92 WATERLINE TREATMENT OPTIONS
• Chemical “Shock” - removes biofilm
  • Sterilex, bleach
  • Caustic, may injure tissue. Rinse!
• Continuous chemical “maintenance” - prevents biofilm, keeps CFU’s low.
  • DentaPure 1/year
  • BluTab (Silver ions) - ProEdge
  • ICX (Silver ions) – Adec
  • Team Vista - HuFriedy

93 EARTHQUAKES
• Today’s increased building risks
  • Mobile homes & buildings not attached to foundations
  • Buildings on landfill, sand shift, “liquefy”
• Where do you go?
  • Under sturdy furniture (protect from falling objects) away from windows (interior wall)
  • NOT doorways (no stronger than other areas)
  • Evacuate AFTER shaking stops if possible
  • Flashlight & shoes

94 EARTHQUAKE REMINDERS
• Bolt & brace water heaters & gas appliances to wall studs
• Bolt tall furniture (bookcases, china cabinets) to wall studs
• Do not hang heavy items (mirrors, etc) over beds, work areas
• Brace overhead light fixtures
• Install strong latches / bolts on cabinets (with wrench)
• Know your building: utilities, exits...

95 □ EARTHQUAKE RESPONSE
IF YOU’RE INSIDE...
• Drop, cover, hold on. Stay still.
• If in bed, stay there, curl up, hold on. Protect head.
• Stay inside until shaking stops.
• Avoid elevators. Use stairs only!
• Avoid windows (glass shatters, may be delayed)
• Sprinklers & fire alarms may go off

96 □ EARTHQUAKE RESPONSE
IF YOU’RE OUTSIDE...
• Go to a clear spot, drop to the ground until shaking stops
• Avoid buildings, power lines, trees, streetlights
• If in a vehicle, pull over, stop. Stay in seatbelt.
  • Avoid bridges, overpasses, power lines
  • Drive if safe, after shaking stops
  • If power line falls on car, DO NOT GET OUT. Wait for help.
• Watch for landslides, expect traffic light outages

97 □ AFTER EARTHQUAKES
• Prepare for aftershocks, landslides, sink holes, cracks, tsunami, collapse of damaged structures
• With every aftershock: drop, cover, hold
• Aftershocks can occur for months
• Check yourself for injuries. First aid
• Then help others
• Don long pants, sleeves, work gloves to help others

98 □ AFTER EARTHQUAKES
• Check home / office for damage. Evacuate if unsafe
• Fire is the most common hazard!
• Listen to battery / crank radio for instructions
• Check phones. Briefly report emergencies
• Find, clean up chemical spills, flammable liquids immediately
• Open cabinets, doors carefully (contents shift)

99 □ AFTER EARTHQUAKES
• Assist elderly, babies, injured
• Keep animals under direct control
• Do NOT enter damaged buildings
• Register on American Red Cross “Safe and Well” website or call 1-866-get-info to let family know your status
• https://safeandwell.communityos.org/zf/safesearch/search

100 □ LANDSLIDES
• After earthquakes, flooding, fires
  • Mudslides or "debris flows"
• Old landfills
• Usually repeat of past landslide
• Landslide insurance generally not available
• Debris flow damage may be covered by flood insurance www.FloodSmart.gov

101 □ LANDSLIDE PREPAREDNESS
• Learn local emergency response & evacuation plans
• Have & practice a family / office plan
• Emergency kit
• Plan for animals
• Recognize unusual sounds: cracking, rumbling, creaking, roaring
• Notice changes in streams, run-off

102 □ AFTER LANDSLIDES
• Personal first aid, get help?
• Shoes, gloves, clothes
• Expect unstable ground, avoid electrical wires, flames, sparks, gas
• Communications: listen and follow directions
• Evacuate carefully?
• Safe and Well Red Cross website – communicate with family

103 □ FOOD SAFETY PLANNING
POWER LOSS
• Keep a thermometer in frig & freezer
• Set frig < 40°F, Freezer @ 0°F
• Freeze gel packs & water bags
• Raise stored food off floor: flooding
•

104 □

105 □ FOOD SAFETY PLANNING
LOST POWER
• Frig keeps food safe ~ 4 hrs if unopened
• Discard after 4 hrs
• Freezer holds food ~ 48 hrs if unopened
• 24 hrs if half full
• May re-freeze food if still contains ice crystals or < 40°F
• Don’t taste to test safety

106 □ FOOD SAFETY PLANNING

POWER LOSS
• Put dry or block ice in freezer
  • 50 lbs dry ice keeps 18 cu ft. freezer for 2 days
• When in doubt Throw it out!

107 □ FLOODING
• Discard all food possibly contacted by flood water
• Discard wooden cutting boards, plastic utensils, baby bottle nipples, pacifiers possibly contacted by flood water
• Sanitize cooking utensils, pans, dishes (soap, water, boil or bleach)

108 □ FOOD
• Rationing is OK, except children, pregnant & nursing women
• If water = limited, no salty foods, low fat & protein (thirsty)
• Familiar foods (comforting)
• Canned, no-prep foods
  • Watch salt!
• Canned dietetic foods, juices, soups
  • For ill, elderly, lower in salt
• Pets

109 □ STORED FOOD TIPS
• Stockpile regular items, rotate
  • Label & date
  • Shelf-life: handout
• Keep dry, cool, dark
• Keep covered, pest free
  • Jars, sealed containers
• Select re-closable containers
• Inspect before using
• Consider portability, access
• Store vitamins, protein supplements

110 □ HOW MUCH FOOD?
• Red Cross: 2 weeks
• Eat ≥ 1 balanced meal / day
• Balance food with water
• Keep strength up

111 □ HOW LONG CAN LEFT-OVERS BE OUT?
• (When must you refrigerate them after a meal?)
HOW LONG CAN LEFT-OVERS BE OUT?
• 2 hours

WHAT IS THE SAFE “RE-HEAT” TEMP?
• 165°F internally

PANDEMICS, EPIDEMICS

AEROSOL TRANSMISSIBLE DISEASES
• Pathogens capable of surviving air suspension:
  • Suspension in air, desiccation
  • Travel on dust particles, air currents
  • Particles < 5μ
  • Absorption through conjunctivae, mucosal tissue of nose, respiratory tract

WHAT IS REQUIRED TO SEE ATD (+) PTS?
• Private (-) pressure room
• 6 – 12 air changes / hour
• Safe discharge of air outdoors or monitored high efficiency filtration of room exhaust air
• Keep door closed, pt. in room
• N95 respirator to enter room
  • Unless immune to measles, varicella
• No entry to susceptible HCW’s
• Mask on pt. to transport

SARS VIRUS
• 8,500 cases, 9% died
• Highly contagious
  • air, oral secretions, tears, blood (apartment vent pipes)
• Health care workers w/ indirect contact infected
• Rapid IC efforts contained disease
• WHO declared SARS contained July, 2003
• A few lab cases have occurred

LESSONS LEARNED:
• Animal pathogens can pose major risks for humans.
• SARS can spread rapidly around the world.
• Healthcare facilities played central role.
• Most cases were spread person-to-person.
• Destroyed by tuberculocidal disinfectants.
• Most febrile respiratory infections in U.S. were not SARS.

MERS-COV
MIDDLE EAST RESPIRATORY SYNDROME
BETA CORONAVIRUS
• Arabian Peninsula, Egypt
• 25% fatal
• Lower respiratory disease
  • Cough, difficulty breathing, fever
  • Recent travel (14 days)

120 □ MERS-COV
• Genetically similar to SARS
• Causes severe respiratory distress
• Triggers severe immune response
• Transmitted easily to family, care-givers
• Human transmission = ¾ of recent cases

121 □ INFLUENZA
• Highly infectious respiratory disease
• Epidemics since 1510
• Mild to severe, usually targets very young, elderly, weak
• All flu viruses originate in birds most stay there
•

122 □ 1918 “SPANISH” FLU
• Killed 50 mil.  3 X more than died in Great War
• Targeted 20-30 year olds
• Why?

123 □ SPANISH FLU
• No immunity: new strain
• Most died of Pneumonia
• Human H1 virus circulating since 1900
• H1 picked up bird flu genes in 1918, became deadly

124 □ INFLUENZA SIGNS & SYMPTOMS
• Fever – sudden onset
  • Babies: > 100.4
  • Others: > 101.1
• Cough
• Sore throat
• Intense body aches
• Headache
• Chills
• Fatigue
• Some: diarrhea, vomiting

125 □ WHEN TO GO TO THE ER
  KIDS  ADULTS
  • Fast, troubled breathing
  • Bluish skin
• Refusal of liquids
• Difficulty waking up, interacting
• Too irritable to be held
• Symptoms improve, then return with fever, worse cough
• Fever & rash, especially if does not blanch
• Severe, persistent vomiting
• Difficulty breathing, shortness of breath
• Chest pain, pressure
• Abdominal pain
• Sudden dizziness
  • Confusion
• Symptoms improve, then return with fever, worse cough
• Severe or persistent vomiting

126  OFFICE & HOME ASEPSIS
• Wash hands when arrive & frequently
• Clean highly touched spots
  • Doorknobs, handles, tables, phones, pens, car, kitchen, bathroom, remote controls, sinks, chairs
• Don’t share pens, towels, cups, utensils
• Sanitize / wash after touching money, public surfaces
  
www.parenting.com

127  PANDEMIC PLANNING
• Need to stockpile PPE, supplies for 8 weeks
• Need to plan for rationing care & alternate sites, standards, but keep asepsis effective
• Get involved locally

128  FLU RESOURCES
• http://www.pandemicflu.gov
• OSAP.org
• www.cdc.org
• Isolation / survival kit

129  EMERGING MICROBIAL ISSUES
• “Controlled, or eradicated” diseases:
  • Measles: (droplet, air) endemic most countries
  • Polio: Africa, Middle East, Now Indonesia
  • Malaria: spreading, resistant

130  HOW DO WE COMBAT FEAR & MISS-INFORMATION?

131  WHO SHOULD BE VACCINATED?
• Everyone over 6 months old (CDC)
• Even those who had flu!
Confirmed previous cases: vaccine improves immunity
Suspected previous H1N1 cases: vaccinate
HIGHLY recommended if:
- have existing health problems
- have contact with children under 5
- healthcare professionals

MAKE SURE YOU ARE PROTECTED!

1. HBV
   - Influenza
   - Measles
   - Mumps
   - Rubella
   - Varicella-Zoster

2. Tetanus
   - Polio
   - Pneumonia
   - Meningitis
   - HPV

MASK, EYE PROTECTION, FACE SHIELD

- Purpose: to protect mucous membranes of eyes, nose & mouth from splashes or sprays of blood, OPIM
- Most people wore masks incorrectly in New Orleans

CDC PANDEMIC MASK REC’S:

- Science not complete
- Common sense advice only
- Avoid crowds & close contact
- Stay home if ill
- Masks will not eliminate risk
  - (Dr. Julie Gerberding, CDC May, ’07)
- Medical masks offer droplet protection
- Fitted N95 respirator for true exposure
  - No beards
- CDC stockpile for medical workers:
  - 52 mil. Surgical masks
  - 100 mil. N95 respirators

GET THESE NOW:
- NIOSH N95 respirators - TB protection
• Patient protection
• Facial fit
• Mask degradation from;
  • Perspiration
  • Talking
  • Sneezing
  • Length of time mask is worn

137 MRSA ENTERS OPEN SKIN.
PIMPLES, BOILS, LESIONS; MAY LEAD TO PNEUMONIA, SEVERE SKIN, BONE, BLOODSTREAM INFECTIONS

138
• Transmitted on towels, clothes, surfaces, equipment, skin-to-skin contact
• Enters broken skin
• Causes HIGH FEVER
• Often undiagnosed - allowed to progress
• Tx: IV AB’s, high $, side effects
• Follow CDC Recommendations – they work!

139 EBOLA
2014-2015
& IT’S BACK

140 EBOLA VIRUS
5 ENVELOPED VIRUSES
4 INFECT HUMANS

141 EBOLA VIRUS TRANSMISSION
• Direct contact with all body fluids / substances of a symptomatic person or animal (bats, bush meat)
  • Blood, urine, feces, vomit, sweat

142 EBOLA TRANSMISSION
• Exposure to contaminated objects (sharps: needles = highest risk...)
• Sexually transmitted, > 1 year after male recovers

143 UPDATED PPE TO TREAT SUSPECTED / KNOWN EBOLA PATIENTS
• Full body suit, no skin exposed
• Double gloves
• Fit-tested respirator
• Training to safely don, remove, use PPE
• Trained helper to don & remove PPE

144 EBOLA SURVIVORS’ AILMENTS
• Neurological symptoms (~75% of pts.)
  • Memory loss, cognitive disorders
  • Headaches, Parkinson’s-like symptoms
  • Extreme fatigue, anxiety, depression, sleep disorders
• Eyes (~60% of pts):
  • Cataracts, blurred vision, redness, pain, light sensitivity, detached retina, blindness, light flashes
• Muscles: pain, weakness
• Joints & cartilage: pain
• Ears: ringing (tinnitus), deafness / hearing loss

145 EBOLA (LIKE HIV) HIDES IN RESERVOIRS & RECURS IN EPISODES
• Virus hides in reservoirs with “immune privilege”
  • Eyes
  • Testes (> 1 year after recovery, even with (-) blood test)
  • Joints, joint cartilage
  • Brain
  • Uterus?
• Immune (macrophage) response to Ebola virus may set off cytokine storm in brain, joints (like HIV) fatigue, pain.
  •
  •
  •

146 EBOLA VACCINE TRIALS
• STRIVE = rVSV-ZEBOV (recombinant Vesicular Stomatitis Virus Zaire ebolavirus vaccine.
• Protects against Zaire ebolavirus
• Vaccine cannot cause Ebola because it does not contain the whole Ebola virus
• “As of April 28, 2016, no Ebola cases and no vaccine-related serious adverse events.” But limited study due to control of epidemic (CDC)

147 EDUCATION NEEDED
• > ½ of polled Africans have mis-conceptions:
  • “mosquitos or ambient air spread ebola”
  • Majority improved handwashing & touching suspected ebola victims
  •

148 ENVIRONMENTAL PRECAUTIONS
EBOLA = CATEGORY A INFECTIOUS SUBSTANCE
• No products specifically list Ebola
• Use high potency EPA-registered disinfectant with label claim vs. Non-enveloped virus (norovirus, toravirus, adenovirus, poliovirus)
  • Ebola = enveloped virus
  • Margin of safety: will inactivate both classes of viruses (U.S. DOT Haz. Mat. Reg 49 D.F.R, Parts 171-180)

149 MICROBIAL RESISTANCE TO KILLING
• Prions
• Bacterial endospores
• Fungal spores
• Mycobacteria - *Mycobacterium tuberculosis*
• Nonlipid or small viruses (Non enveloped) - *Polio virus, enteroviruses*
• Fungi - *Trichophyton spp.*
• Vegetative bacteria - *Pseudomonas aeruginosa, Staphylococcus aureus*
• Lipid (enveloped) or medium-sized viruses - *Herpes simplex virus, hepatitis A, B & C virus, HIV, Ebola* (CDC)

**FOLLOW LABEL DIRECTIONS**
• Clean before disinfecting
• Proteins neutralize disinfectants

**CLEAN BEFORE DISINFECTING**

**LEAVE FOR STATED TIME**

**BIOTERRORISM & BIOLOGICAL WARFARE**
The intentional use of microorganisms or toxins derived from living organisms to produce death or disease in humans, animals, or plants.

**HISTORY: MAN’S INHUMANITY TO MAN**
• 6th Century B.C.: Assyrians poisoned wells with rye ergot.
• 14th Century: Plague in Tartar army; corpses were catapulted over city walls to spread epidemic, forcing defenders to surrender.
• 18th Century: British gave “gifts” of smallpox-laden blankets to Native Americans
• 1940: Japanese dropped plague-infected fleas in China, causing epidemics

**RECENT HISTORY**
• 1979: Anthrax spores accidentally aerosolized from military research facility; (77 cases of anthrax).
• 1984: Salad bars deliberately contaminated with *Salmonella typhimurium* (700 ill).
• 1991: Desert Storm -- biological weapons plants
• 1995: Aum Shinrikyo & Tokyo subway attacks - Sarin (12 dead; 5,500 injured)
• 1991/1992: Anthrax spores spread via US mail

**NUCLEAR TERRORISM**
• Great destruction, death, injury = likely
• Fallout of vaporized radioactive particles
• Wide area of impact
• Initial blast & debris → injury, death
• Secondary radiation sickness → long term population damage

**BIOTERRORISM: YOU SHOULD KNOW.....**
• Location of targets near you

**AVAILABLE ON INTERNET**

**RADIATION THREATS**
• Radioactive food, water supply
  • More fear, chaos than threat
  • Local threat, or large area but diluted
• Explosives scatter radioactivity (dirty bomb)
  • Local threat: blast, later sickness
• Bombing, destroying nuclear facility
  • Meltdown, explosion, fallout
  • Acute radiation syndrome, sickness, death
• Small nuclear device
  • Injury, death
  • Acute and chronic radiation poisoning, death

160 RADIATION EXPOSURE
• Radiation = measured in "curies"
• Dose received = measured in “rems”
• Effects may appear years later
• Mild effects:
  • Skin reddening, lesions, hair loss
  • Risk of illness later in life
• Severe effects:
  • Organ failure, cancer, death
  • Faster onset with higher exposure
• Depends on:
  • Amount absorbed (dose)
  • Type of radiation
  • Route of exposure
  • Length of time exposed

161 PREPARATION FOR RADIATION EMERGENCY
• Learn community plan
• Know plans of; schools, nursing homes, day-care, employers
• Discuss family plans
• Plan for evacuation or sheltering in place
• Have access to local emergency communications, news
  • Battery operated: radio, ham radio, computers

162 DURING RADIATION EMERGENCY
Shelter in place:
• Close, lock all doors, windows
• Close off all outside air intake
  • Fans, HVAC, chimney dampers
  • Re-circulate air
• Bring all pets inside if possible
• Move to inner room, basement
• Keep connected: radio, TV, etc

### DURING RADIATION EMERGENCY

Evacuation
• Follow directions quickly
• Take emergency supply kits
  • Meds, water, food, batteries, flashlight, radio, first aid kits, cash, credit cards, ID
• Take pets only if:
  • Shelter will receive them
  • Using own car

### POTASSIUM IODIDE (KI)

• KI = stable iodine (like in food) in pill, works for 24 hours
• Take only for exposure to radioactive iodine:
  • Nuclear power plant accident or bomb
• Internal exposure (inhalation) may cause thyroid disease
• KI saturates thyroid with iodine, preventing uptake of radioactive iodine
• KI only protects thyroid gland
• Effectiveness:
  • How fast administered, absorbed
  • Exposure levels

### DOSES: POTASSIUM IODIDE (KI)

• Do not take if allergic to iodine
• Fetus & infants - thyroids at highest risk of injury from radiation
• Give full (age appropriate) doses:
  • Newborns to 1 month (16 mg 1 dose only)
  • Infants, even if breastfeeding (32 mg)
  • Children 3 to 18 (65 mg)
  • Young adults 18 - 40 (130 mg)
  • Pregnant women (130 mg 1 dose only)
  • Breastfeeding mothers: (130 mg 1 dose only)

### POTASSIUM IODIDE (KI) RISKS

• If pub health officials say to take KI, benefits outweigh risks for all
• Otherwise, not recommended for: Adults over 40
  • Lowest risk of thyroid cancer, injury
  • Highest risk of allergic reaction
• Risks increased if:
  • Higher doses
  • Prolonged treatment with KI
  • Pre-existing thyroid disease
  • Newborn given > 1 dose (hypothyroidism)
• Get FDA approved KI from pharmacist

### DIRTY BOMBS

• Combines conventional explosives + radioactive pellets or powder
• Intent: create chaos, inflict damage, expose people to radioactivity
  • Sickness, cancer, death

168 □ CHEMICAL AGENT EXAMPLES
• Biotoxins: Plant or animal poisons
  • Ricin, strychnine
• Blister agents: severely burn eyes, respiratory tract, skin
  • Mustard gas, nitrogen mustard
• Blood agents: absorbed into blood
  • Cyanide, arsine, carbon monoxide
• Caustics: burn, corrode skin, eyes, mucous membranes - hydrofluoric acid
• Choking / pulmonary agents: severe resp. tract irritation, swelling - ammonia, chlorine

169 □ CHEMICAL AGENT EXAMPLES
• Long-acting coagulants: poisons prevent clotting → uncontrolled bleeding - super warfarin (rat poison)
• Metals: metallic poisons
  • Arsenic, mercury
• Nerve agents: highly poisonous prevent nervous system function
  • Sarin, tabun
• Riot control agents / tear gas: highly irritating - mace

170 □ CHEMICAL VS. BIOLOGICAL ATTACK

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>BIOLOGICAL</th>
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<tbody>
<tr>
<td>1 • Immediate effects</td>
<td>1 • Detection easy</td>
</tr>
<tr>
<td>•</td>
<td>•</td>
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</tbody>
</table>
| | • Dermal contamination during triage
| | • Point source of outbreak
| 2 • Signs / symptoms delayed | 2 • Detection more difficult |
| • Less contamination during triage | • |
| • | • Point source of epidemic with propagation of some agents

171 □ CHARACTERISTICS OF BIOTERRORISM AGENTS
• Difficult to detect -- invisible, odorless
• Easy to obtain
• Simple technology for delivery
• Provide large area of coverage
• Create fear & panic, leading to more extensive, widespread harm than original attack
• Very inexpensive
  • CDC
LIKELY BIO-TERRORISM AGENTS

Category A (High priority)
- Easy dissemination &/or transmission
- High mortality rates
- Potential major pub. Health impact
- Likely to cause pub. Panic, chaos, disrupt healthcare system
  - Anthrax
  - Botulism
  - Plague
  - Tularemia
  - Viral hemorrhagic fevers

Category B (Mod priority)
- Less easy dissemination &/or transmission
- Lower mortality rates
- Potential moderate pub. Health impact
- Less likely to cause pub. Panic, chaos, disrupt healthcare system
  - Brucellosis
  - Food safety threats (ex.: salmonella)
  - Psittacosis (Chlamydia psittaci)
  - Q fever
  - Water threats (ex.: cholera)

Category C (Emerging pathogens)
- Could be bioengineered in future
- Available components
- Easy production, dissemination
- Potentially high morbidity & mortality
  - Influenza
  - Nipah virus
  - Hantaviruses
  - Ebola

BIOTERRORISM: UNIQUE CHALLENGES
- Event may not be suspected
  - 1st clue may be casualties
  - EMS or MD’s = 1st responders?
  - HCW’s typically unfamiliar w/ disorders
- Cases may occur distant from exposure site
- Population has little immunity to likely agents
- Person – to – person transmission possible for some agents

ANTHRAX (BACILLUS ANTHRACIS)
• Common in sheep, goats, cattle
• Transmission:
  • Inhalation of spores (2-60 days) – pulmonary edema (90% fatal)
  • Cutaneous contact with spores (1-7 days), painless black eschar
  • Ingestion of spores (1-7 days)
• Person to person rare, except cutaneous
• Vaccines ~ 93% effective

177 □ BOTULISM (CLOSTRIDIUM BOTULINUM)
• Anaerobic gm(+) bacillus, spores
• Potent neurotoxin, prevents muscle contraction
• Most poisonous substance known to mankind
• 7 oz concentrated toxin kills all humans
• Transmission:
  • Ingestion of toxin in food (12-36 hours)
  • Aerosolization (24 – 72 hours)
  • Injection
• Not transmitted person - to - person
• New vaccines available, not recommended yet

178 □ FOODBORNE BOTULISM SYMPTOMS
• Weakness & dizziness 1-2 days after ingesting contaminated food
• diplopia dilated pupils
• dry mouth constipation
• abdominal pain no fever
• Progressive symmetric flaccid descending paralysis
  • Head, jaw, face, upper airway, arms, respiratory muscles, then legs
• Death from respiratory paralysis

179 □ SMALLPOX, VARIOLA VIRUS
• Transmission: airborne, contact
• Acute, generalized rash vesicles pustules
• Incubation period 7-17 days
• Prodrome
  • abrupt onset of fever ≥101°F lasts 1-4 days
  • malaise, headache, muscle pain, nausea, vomiting, backache
• Rash (21 days)
  • Lesions on palms & soles (>50% of cases)
  • Lesions in same stage & evolve slowly (1-2 days/stage)
• Last reported case: Somalia, 1977

180 □ SMALLPOX RASH
• Mucous membrane lesions appear ~ 24 hours before skin rash
  • Small red spots on tongue, oral/pharyngeal mucosa
  • Lesions: enlarge, ulcerate quickly, highly infectious
Saliva virus titers are highest & most infectious during first week of exanthem (skin rash)

**PROGRESSION OF SMALLPOX**
- Incubation Period
- Prodrome Stage
- Macules
- Papules
- Vesicles
- Pustules
- Scabs
- Scars

**DIFFERENTIAL DIAGNOSIS**

1. **SMALLPOX**
   - Deep, hard lesions
   - Round, well circumscribed
   - Confluent or umbilicated
   - Lesions at same stage of development

2. **CHICKEN POX**
   - Superficial
   - Not well circumscribed
   - Confluence and umbilation uncommon
   - Lesions at all stages of development

**SMALLPOX: INFECTION PREVENTION AND CONTROL**

*Prevention:* Vaccinia vaccine (attenuated) production re-instituted;

*Procedure:* multiple puncture technique with bifurcated needle

*Adverse effects:* common
- papule at site of vaccination (2 - 5 days)
- fever in children
- inadvertent inoculation at other site

Vaccine effective only before symptoms manifest

**RESPIRATORY PROTECTION - SMALLPOX**
**NOTICE & REPORT:**
- Unusual increase in people seeking care (clusters)
  - Unusual symptoms, time, pattern
- Unexplained # of dead animals / birds
- Lower attack rate for those who were indoors
- Large # of rapidly fatal illnesses
- Any pt. presenting w/ uncommon disease with bioterrorism potential

**INFECTION CONTROL ISSUES FOR SELECTED AGENTS**

**BACK FROM GREECE**
You are back to work only 1 week after traveling to Greece for 2 weeks.
You notice a small red lesion on your forearm that doesn’t itch or hurt. You think it’s a bite from a Greek bug.
You work the morning, are eating lunch, & your daughter comes by. She has two spots on her neck. They don’t hurt either, so you both ignore them.

**THANK YOU, GREECE!**
When you get home, your spouse complains about itchy red spots on her legs. You’re glad yours are not itchy.
Your spot is getting bigger, and looking dark in the center, with a raised border.
Differential diagnosis options for all?

**HEALTHCARE PROVIDERS ARE LEADERS FOR DISASTERS, TERRORISM**
- Notice atypical illness events, clusters
  - Fever, sepsis, pneumonia, rash, paralysis, respiratory failure, uncommon age,
- Report to Health Dept
- Local #:____________________
- State #:____________________
- FBI Field Office#:____________________
- CDC Bioterrorism emergency#: 770-488-7100
- Fire dept #:____________________
- Local med. specialist #:____________________

**BIOTERRORISM RESOURCES**
- Center for Biosecurity – Univ. of Pittsburgh Med. Center
  - www.upmc-biosecurity.org
• Org. for Safety and Asepsis Procedures
  • www.osap.org
• American Dental Assoc.
  • www.ada.org
• Fed. Emergency Management Agency (FEMA)
  • A Guide for Citizen Preparedness
  • www.fema.gov
• To help: www.ready.gov

ARE YOU DISASTER READY?

By:
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