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Before a Hurricane

Emergency Operations Plan

- Develop a written plan to facilitate recovery after a hurricane. Suggestions to include:
 - Purpose
 - Scope
 - Plan activation
 - Organization chart and roles
 - Communication Plan
 - Memoranda of Understanding
 - Continuity of Operations Plan
- Determine services available after the storm and how to triage appointments
- Develop downtime procedures with appropriate documentation
- Protect and back up essential documents with redundant methods
- Construct a memorandum of understanding for an alternate location to practice and to store vaccines
- Review insurance coverage to determine adequate coverage for the hazard and business disruption
- Identify patients medically dependent on technology or electricity
- Designate staff members to implement components of the disaster plan, such as dealing with facility issues, communication, operations, etc.
- Train employees on the emergency operations plan and developing their own family disaster plan
- Practice plan annually and update as necessary
- Record and update essential supplies and inventories regularly
- Become involved with local emergency preparedness planning
- Integrate plans with local hospitals and other clinics
- Educate patients on disaster preparedness and discuss contingency plans specific to the patient's needs
- Develop your own family disaster plans

Communication Plan

- Detail how to communicate with staff, patients, and community in a written plan
- Periodically verify contact information for patients and staff
- Establish a database of key contacts needed for business continuation
- Practice handling inquiries from families and conflicting information
- Designate staff member to serve as the communication lead to provide timely and accurate information
- Create message templates that can be easily modified for communication
- Identify multiple communication methods to use after the storm

Disaster Office Kit

- Office supplies
 - Pens
 - Paper
 - Batteries
 - Extension cords
 - Tape
 - Toilet paper
 - Paper towels
 - Cleaning supplies
 - Plastic bags
- Stethoscope
- Battery-powered otoscope and ophthalmoscope
- Tongue blades
- Cotton-tipped swabs
- Gloves
- Masks
- Thermometer
- Sphygmomanometer
- Tape measure
- Portable Scale
- Saline solution
- Skin disinfectant
- Various types of bandages and gauze
- Suture kits, steri-strips, skin glue
- Lidocaine
- Medications
 - Ibuprofen
 - Diphenhydramine
 - Oral steroids
 - Albuterol nebulizer solution
- Syringes and needles
- Downtime documentation
- Sharps container
- Prescription pad
- Copies of credentials, licenses, and insurance information

Business Continuity of Operations Plan

- Perform business impact analysis and prioritize essential functions
- Identify documentation, contact information, agreements, and resources required during recovery. Resources include:
 - Staff
 - Office space
 - Technology (internet, equipment, computer, etc.)
 - Vital records
 - Inventory and supplies
 - Utilities
 - Vendors
- Develop recovery strategies and alternate means to attain resources disrupted by the storm
- Identify recovery team and develop relocation plans
- Establish an order of succession to predetermine roles and responsibilities
- Cross-train staff members on essential tasks and explore collaborative agreements to share staff with other clinics
- Review financial support and payroll backup
- Determine alternate billing and collection options

During a Hurricane

Initial alert: 36-48 hours

- Listen to the local news for weather updates
- Go over flood zones, evacuation zones, and evacuation routes
- Review Family Disaster Plan, Emergency Operations Plan, and insurance coverage
- Ensure data has been backed up
- Alert staff members and patients
 - Help families with children dependent on electricity or special needs
- Inspect disaster kit for missing items

Approaching: 18-36 hours before

- Prepare office
 - Cover windows with storm shutters or plywood
 - Unplug electronics and cover with plastic
 - Move objects off the ground
 - Arrange pay for employees beforehand
 - Bring displays from outside
 - Secure first floor access with sandbags
- Follow instructions of local authorities about evacuation
 - Take disaster kit
 - Consider practicing at an alternate location

Near: 6-18 hours before

- Check the latest weather updates often
- Charge cell phones, computers, and other electronics to be able to work remotely

Right before: 0-6 hours

- Stay home if not in area of evacuation
- Do not go outside until storm is over
- Stay away from windows
- Check the latest weather updates often
- Be ready if ordered to leave

After a Hurricane

Short Term

- Take care of yourself and family after the storm
 - Make sure all needs are met before returning to practice
- Check on the status of staff and families
 - Determine if they need additional resources
- Initiate emergency operations plan, communication plan, and continuity of operations plan
- Survey the condition of the clinic if the building can be safely reached and local authorities have allowed access to the area
 - Inspect building and photograph damage
 - Salvage resources
 - Determine need to relocate
- Carry identification and licensing information
- Communicate with patients and staff about the current status of the clinic and information about future operations
- Establish services available after the storm

Long Term

- Fully recover all essential functions
- Submit claims to insurance and identify need for financial assistance
- Invite staff to submit comments on improving plans and response
- Address recommendations and corrective actions in the improvement plan
- Update and practice plans

Environmental Hazards

Mold

- Route and sources of exposure
 - Buildings wet for >48 hours in the aftermath of hurricane and associated flooding
 - Route of exposure by inhalation, skin contact, and ingestion of airborne spores or mycelial fragments
- Clinical Effects
 - Allergic and hypersensitivity reactions
 - Allergic rhinitis
 - Asthma exacerbations
 - Allergic dermatitis
 - Allergic bronchopulmonary aspergillosis (ABPA)
 - Hypersensitivity pneumonitis
 - Allergic fungal sinusitis (AFS)
 - Irritant reactions
 - Cough
 - Skin irritation
 - Conjunctivitis
 - Toxic reactions
 - Organic dust toxic syndrome
 - Pulmonary hemorrhage in infants
- Diagnosis
 - Environmental assessment with inquiry about mold and water damage
 - Laboratory and diagnostic tests as deemed appropriate
- Treatment
 - Removal from the environment
 - Rectifying conditions in the building
 - Medical treatment for symptoms and underlying conditions, such as:
 - Antihistamines

- Inhaled nasal corticosteroids
- Inhaled pulmonary corticosteroids
- Prevention of Exposure
 - Avoid areas with contamination
 - Use personal protective equipment
 - Keep hands, skin, and clothing clean
 - Do not allow children back into building until cleanup is finished

Mosquitoes

- Route and sources of exposure
 - The types of mosquitoes spreading viruses can increase 2 weeks to 2 months after a hurricane
 - Endemic areas of vector-borne diseases enhance potential exposure to malaria, dengue, chikungunya, West Nile, and zika
- Clinical Effects
 - Flu-like febrile illness with myalgias, arthralgias, and rash
 - Special characteristics
 - Chikungunya most likely involves small joints
 - Dengue can lead to capillary leak syndrome and severe bleeding
 - West Nile may be neuroinvasive, causing flaccid paralysis and/or meningoencephalitis
 - Pregnant women infected with Zika have an increased risk of microcephaly and malformations
- Diagnosis
 - Environmental assessment with inquiry about exposure to mosquitoes
 - Laboratory and diagnostic tests as deemed appropriate
- Treatment
 - Medical treatment for symptoms and underlying conditions
- Prevention of Exposure
 - Prevent bites
 - Wear long sleeves and pants

- Use insect repellants approved by the Environmental Protection Agency (EPA)
- Babies and children
 - Cover legs and arms with clothing
 - Cover strollers and baby carriers
 - No insect repellants on children < 2 months of age
 - No products with oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD) on children < 3 years of age
- Get rid of standing water
- Drain puddles of water or fill with dirt
- Repair holes in screens or gaps in walls, doors, and windows

Flood waters

- Route and sources of exposure
 - Flood water can be contaminated by waste, sewage, chemicals, biotoxins, heavy metals, and water-borne pathogens
 - A number of hidden hazards in the flood water from trees, branches, electrical wires, broken glass, and other sharp objects
 - Exposure by skin contact, inhalation, and ingestion
- Clinical Effects
 - Cutaneous infection
 - Common: *Staphylococcus aureus*, *Streptococcus pyogenes*
 - Less common: *Aeromonas* spp., *Vibrio* spp., *Shewanella* spp., *Leclercia adecarboxylata*, *Chromobacterium violaceum*, *Clostridium tetani*, fungi, mycobacteria
 - Aspiration pneumonia/pneumonitis
 - Gastroenteritis
 - *Shigella*, *Salmonella*, *Vibrio cholerae*, enterotoxigenic *Escherichia coli*
 - Leptospirosis
 - Hepatitis A or E infection
- Diagnosis

- Environmental assessment with inquiry about exposure to flood water
- Laboratory and diagnostic tests as deemed appropriate
- Treatment
 - Antibiotics indicated for cellulitis and soft tissue infections
 - Update tetanus prophylaxis
 - Medical treatment for symptoms and underlying conditions
- Prevention of Exposure
 - Do not swim or drive through floodwaters
 - Do not allow children to play in floodwaters
 - Avoid exposure to open wounds
 - Wash hands with clean water
 - Drink bottled water
 - Use bottled water to mix baby formula and for cooking
 - Bathe children with bottled water until tap water considered safe

Carbon Monoxide Poisoning

- Route and sources of exposure
 - Exposure by inhalation
 - CO poisoning increases due to loss of electricity
 - Sources of exposure:
 - Gasoline-powered generators and equipment
 - Charcoal or propane grills
 - Gas appliances
 - Tobacco smoke
- Clinical Effects
 - Clinical presentations are highly variable and do not correlate with the level of exposure. Symptoms include:

<ul style="list-style-type: none"> ▪ Headache ▪ Dizziness ▪ Fatigue ▪ Lethargy ▪ Weakness 	<ul style="list-style-type: none"> ▪ Drowsiness ▪ Nausea and emesis ▪ Skin pallor ▪ Dyspnea ▪ Palpitations
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- Confusion
- Irritability
- Loss of consciousness
- Death
- Lethargy and syncope are frequently reported in pediatric patients
- Delayed neuropsychological sequelae
 - Memory impairment
 - Decreased attention
 - Reduction of executive functioning
- Diagnosis
 - Environmental assessment with inquiry about generator use and mode of cooking
 - Other household members with the same non-specific symptoms
 - Carboxyhemoglobin (COHb) level
- Treatment
 - Removal from environment
 - Administration of 100% oxygen
- Prevention of Exposure
 - Limiting exposure by following safety guidelines and manufacturer's guidelines
 - Never operate indoors or in poorly ventilated areas
 - Use smoke detectors and CO detectors

Extreme Heat

- Route and sources of exposure
 - Inadequate cooling in buildings due to loss of electricity
 - Decreased cooling ability and increased risk of hyperthermia with higher humidity
- Clinical Effects
 - Injuries resulting from heat
 - Heat exhaustion
 - Heat cramps
 - Heat stroke
 - Systemic effects of heat

- Neurologic – Coma, seizures
- Cardiovascular – Tachycardia, cardiovascular collapse
- Musculoskeletal – Rhabdomyolysis
- Metabolic – Metabolic acidosis
- Respiratory – Tachypnea

□ Diagnosis

- Environmental assessment with inquiry about amount of time spent outside and associated activity
- Rectal temperature
- Laboratory and diagnostic tests as deemed appropriate

□ Treatment

- Rest, cooling, and hydration with fluids containing electrolytes
- Aggressive cooling techniques needed for heat stroke, such as cool water immersion and IV hydration

□ Prevention of Exposure

- Avoid excessive activity during extreme temperatures
- Adequate hydration
- Access to reliable air conditioning
- Never leave children unattended in vehicles

Animal Hazards

□ Route and sources of exposure

- Animal bites occur from displaced and frightened animals
- Most animal bites occur within 72 hours after the hurricane and wane to baseline in the following weeks
- Top animal bites result from dogs, cats, and snakes
- Snakes are typically pit vipers
 - Rattlesnakes
 - Copperheads
 - Cottonmouth water moccasins
 - Coral snakes

□ Clinical Effects

- Animal bites
 - Typically involve extremities
 - Wide range of injuries: abrasions, scratches, open lacerations, deep puncture wounds, crush injuries, tissue and bone avulsions
 - Variable symptoms: swelling, local pain, hemorrhage, cellulitis, numbness, and tingling
- Snake envenomation may include:
 - Severe local pain
 - High compartmental pressure and swelling
 - Coagulopathy
 - Myonecrosis
 - Changes in heart rate and rhythm
 - Shock
 - Multiorgan failure

□ Diagnosis

- Environmental assessment with inquiry about exposure and identification of animal hazard
- Laboratory and diagnostic tests as deemed appropriate
- Call poison control center for further guidance (1-800-222-1222)

□ Treatment

- Irrigation of wound
- Examine for bone fracture and nerve damage
- Update tetanus prophylaxis
- Assess for rabies exposure and administer rabies vaccine and rabies immunoglobulin, if necessary
- Evaluate need for pit viper antivenom
- Antibiotics if indicated

□ Prevention of Exposure

- Do not corner displaced animals
- Teach children not to approach unknown animals and to be careful around pets after the storm
- Remove food and water sources that can be used by displaced animals
- Throw away trash and debris as soon as possible

- Snakes may swim in water to get to higher ground
- Avoid putting hands and feet in places not able to be visualized
- Call local authorities for help removing animals from home

– Contact Poison Control Center or Regional PEHSU for other environmental hazards –

Important Phone Numbers

U.S. Department of Housing and Urban Development	1-800-955-2232
U.S. Postal Service	1-800-275-8777
Social Security Administration	1-800-772-1213
Medicare and Medical Issue	1-800-633-4227
Small Business Administration	1-800-659-2955
Federal Emergency Management Agency (FEMA)	1-800-621-FEMA or TTY 1-800-462-7585
FEMA, Open Emergency Shelter	Text SHELTER and zip code to 43362
SAMHSA's Disaster Distress Hotline	1-800-985-5990 or text TalkWithUs to 66746
National Suicide Prevention Lifeline	1-800-273-TALK (8255)
Salvation Army	1-800-758-2769
American Red Cross	1-800-RED CROSS / 1-800-733-2767
American Red Cross, hurricane or any disaster registry/welfare	1-866-GET-INFO or online at RedCross.org/SafeandWell
Poison Control	1-800-222-1222
Emergency Services	911
National Flood Insurance	1-800-720-1090

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Resources

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