

Re: Recommendations on EXTREME WEATHER CONDITIONS

This policy was developed to provide EMS agencies and providers with guidelines in adopting policies and procedures that will address the preparation, response and recovery stages to extreme weather conditions. These recommendations are meant to minimize the risks to EMS personnel and to promote a safe working environment. These guidelines reflect industry standards through proven certified tests to promote safe operations.

Background:

Over the past decades, severe weather has impacted the delivery of EMS. New York State has experienced natural disasters in the forms of hurricanes/tropical storms and winter (ice, snow) storms. EMS operations have been hindered and responses have ceased because of these conditions.

Extreme weather has destroyed responder's homes and displaced their families. Agency's infrastructures have been heavily damaged and personnel have incurred injuries. Sustained winds and snowy roads have caused emergency vehicles to be directed off roadways, into oncoming traffic and overturned. EMS personnel have risked their own lives to serve their communities. These guidelines are to promote safe operations.

General Policy Guidelines:

Each agency should be compliant with the National Incident Management System (NIMS) and use the Incident Management System (ICS) in response to an extreme weather event. This will ensure proper documentation is captured during the event and if the event is federally declared an emergency, this documentation will be most helpful in capturing federal reimbursement funds.

An agency should have a continuity of operations plan (COOP) in place. If an agency's infrastructure is damaged beyond maintaining daily operations, COOP will initiate a contingency plan to relocate the agency and remain in service. If an agency's building will require evacuation, COOP will be enacted. EMS personnel must be informed about the relocation of operations effective this date & time. A strategy to secure the agency's building will include instructions on shutting off utilities and securing electronic equipment & vital records. The agency should have an updated mutual aid plan and a memorandum of understanding or contracts with its vendors for supplies, equipment and oxygen.

The following should be conducted prior to the hurricane season (June 1 to November 30) and to the winter season:

- Agency's SOGs reviewed and updated
- Update mutual aid plan
- MOU or contracts with vendors for supplies, equipment, oxygen & spare tires
- Ensure vehicle tires have adequate tread
- Ensure a properly inflated spare tire, wheel wrench and jack

- Winter: have a shovel, ice scaper/snow brush, salt, jumper cables, windshield wiper fluid
- Schedule inventory & maintenance of equipment
- Preserve the integrity of the agency's building
- Maintain current personnel phone/pager lists
- Review & exercise the alternative communication plan
- Ensure adequate in-house sheltering
- Maintain a water and food supply for 3-5 days
- Review flood prone areas
- Contracts for snow & debris removal
- Ensure personnel have a family plan & the agency's family contact number
- Develop bench strength for in-house operations & for County EOC representation
- Frequently test the backup power source (generator) to the agency's infrastructure and periodically test with a load. All generators should be on a PM schedule.
- Secure an agreement for vehicle fuel replenishment
- Collaborate with Fire and DPW departments to form task forces to gain access to patients when roads are impassable (debris, snow).
- Ensure the utility company has your facility on a priority to power up your infrastructure during a power outage.
- Collaborate with Special Needs committees & utility companies to know where special needs residents are located. Review the evacuation of the disabled population.
- Attend LEPC, county disaster preparedness meetings to maintain working relationships with other disciplines, agencies, hospitals and regional/state departments.

National Weather Service (NWS):

Definitions can be found in the appendix.

Hurricane Watch: may become a threat within 36 hours

- Disaster plans should be referenced, consider opening an agency operating center & implement an incident action plan (IAP) process to include:
 1. Monitor weather advisories
 2. Ensure sufficient supplies; oxygen, food, potable water, batteries & flashlights
 3. Ensure sufficient spare tires including cabled (chains) spare tires
 4. Develop staffing schedules
 5. Secure adequate bedding supplies for sheltering
 6. Reach out to contracted medical & long term facilities. Are they planning to evacuate?

Hurricane Warning: Expected in hit within 24 hours

- Relocate if in a flood prone area, include personal vehicles
- Charge all batteries, keep all vehicles fueled up
- Instructions to report for duty with: extra sets of uniforms, socks, hygiene articles, bottled water, personal medications, wet weather gear , warm layered clothing for cold weather, personal flashlight & batteries, charger cord for personal phones/electronics
- Encourage employees to bring their snow plow blades attached to their personal vehicles
- Media releases advising the public if (specific) weather conditions occur, EMS responses will cease.

Wind Effects on Ambulances:

Certified tests have proven that ambulances have more empty space (lower density) than a fire truck, hence an ambulance is more susceptible to being deviated off the road and/or being overturned at a lower wind speed.

- An ambulance can be driven safely at 55 mph in wind gusts of 30 mph.
- An ambulance should have good tires, driven by an experienced driver and never ride alone.
- An ambulance will become difficult to drive in the wind speeds of 30 to 50 mph. At the upper end of this 30-50 range, an ambulance will become extremely dangerous and should be driving at a speed of 10-20 mph.
- Any sustained wind speed of 50 mph, an ambulance should seek shelter and NOT be driving.

Hurricane Operations:

The officer in charge will make the decision to cease EMS response dependent on the weather conditions.

- All EMS will remain within their respective assigned posts. The OIC will determine if EMS will respond. If responding, drive slowly and use caution. Ensure all equipment is secured.
- All EMS personnel are to wear eye protection, use extreme caution and be aware of the real threats of flying debris, down wires, flooding, haz-mat materials, gas leaks and displaced animals.
- Fire should accompany EMS dispatch for assistance in gaining access (clearing debris), movement of patient, etc.
- When responses are stopped, park your vehicle headfirst in the bay so the windshield is protected.
- If responses are suspended, your local PSAP or county 911 center or if designated, a hurricane center will prioritize emergency calls and will relay to EMS for response.

Post Hurricane:

The EMS OIC will determine when it is safe to resume EMS operations.

- Beware of vehicle exposure to salt water or any contaminated standing water.
- Frequently check your tire pressure when traveling over debris laden roadways
- Ensure the EMS agency's family contact phone line is manned.
- As EMS is responding to calls, EMS vehicles should relay any pertinent Intel i.e. road blockages, damage to roads, wires down, animals loose, etc., back to dispatch.
- Use extreme caution walking through water and driving on roadways that could be washed away.

- Report any generators running inside garages.

Winter Driving:

The leading cause of death and injuries during winter storms is transportation accidents! The most dangerous road conditions are on curves, hills, ramps and bridges. When braking on ice or snow, use your brakes lightly. If beginning to slide, remove foot from brake, steer in direction of skid and attempt to gain control of your vehicle.

- Good vision is key to good driving. Keep vehicle clear of ice & snow.
- Use low beams
- Be alert, watch for stopped vehicles, patches of fog and white outs
- Be aware of changing road conditions for snow & ice.
- INCREASE YOUR CUSHION OF SAFETY. Add 2 seconds for snow & 3 seconds for ice.
- Reduce your speed by ½ when traveling in snow & 2/3's when traveling ice.

EMS agency's need to be informed that snow plows are being pulled from the roads due to extreme conditions and their own safety. Discussions need to occur regarding inter-facility transfers, low acuity patients, a regional transport protocol to nearest facility i.e. urgent care, develop proper work schedules and the use of additional resources i.e. four-wheel vehicles, snow mobiles, toboggans.

Lastly, agencies should have policies providing guidance to the families of EMS personnel i.e. family plan, location of public safety shelters.

References:

Hurricane/Tropical Storm Outline,

County of Suffolk, Division of Emergency Medical Services

Wind Effects on Emergency Vehicles,

Florida Institute of Technology, Melbourne, Florida

Model Procedures for Response of Emergency Vehicles During Hurricanes & Tropical Storms,

IAFC, Fairfax, VA

NWS Definitions:

Tropical Depression	An organized system of persistent clouds and thunderstorms with a closed low-level circulation and maximum sustained winds of 38 mph
Tropical Storm	An organized system of strong thunderstorms with a well-defined circulation and maximum wind speeds of 39 to 78 mph.
Tropical Storm Watch	An announcement for coastal areas that a tropical storm condition poses a possible threat, generally within 36 hours
Tropical Storm Warning	An announcement that conditions including possible sustained winds of 39 to 78 mph are expected in specific coastal areas within 24 hours
Gale Warning	An announcement of wind with speeds of 38 to 55 mph
Hurricane Season	Officially June 1 – November 30; however, hurricanes can occur at other times if weather conditions permit.
Hurricane	Intense, low pressure system with winds in excess of 74 rotating around a central ‘eye’ in a counterclockwise direction. Speed of directional movement may vary from slow to rapid.
Hurricane Watch	An announcement for specific areas that a hurricane or an incipient hurricane condition poses a possible threat to a coastal area generally within 36-96 hours.
Hurricane Warning	An announcement that sustained winds in excess of 74 mph is expected in a specific coastal area within 24 hours. Erratic movement of the hurricane’s path may require warnings issued for periods less than 24 hours.
Category 1 Hurricane	Winds 74-95 mph. Storm surge generally 4-5 ft above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery and trees. Some damage to poorly constructed signs. Also, some coastal road flooding.
Category 2 Hurricane	Winds 96-110 mph. Storm surge generally 6-8 ft above normal. Some roofing material, door and window damage of buildings. Considerable Damage to shrubbery and trees with some trees blown down. Considerable to mobile homes, poorly constructive signs and piers. Coastal and low lying escape routes flood 2-4 ft before arrival of the hurricane center.
Category 3 Hurricane	Winds 111-130 mph. Storm surge generally 9-12 ft above normal. Some structural damage to small residences and utility buildings with a minor amount of curtain wall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the hurricane. Flooding near the coast destroys smaller structures with larger structures damaged by battering from floating debris. Evacuation of low-lying residences with several blocks of the shoreline may be required.

Category 4 Hurricane	Winds 131-155 mph. Storm surge generally 13-18 ft above normal. More extensive curtain wall failures with some complete roof structure failures on small residences. Shrubs, trees and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of structures near the shore. Terrain lower than 10 ft above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10km).
Category 5 Hurricane	Winds greater than 155 mph. Storm surge generally greater than 18 ft above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of all structures located less than 15 ft above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles of the shoreline may be required.
Tornado Watch	Conditions are favorable for the development of severe thunderstorms And tornadoes in and or close to the watch area.
Tornado Warning	Strong rotation in thunderstorm is indicated by Doppler radar or a tornado is sighted by sky warning spotters.
Severe Thunderstorm Watch	Conditions are favorable for the development of severe thunderstorms in or close to the watch area. These issues are usually valid for four to six hours.
Severe Thunderstorm Warning	A severe thunderstorm is indicated by Doppler radar or sighted by sky warning spotters. A severe thunderstorm contains large, damaging hail, $\frac{3}{4}$ inch diameter or larger, and/or damaging winds of around 60 mph or greater.
Flood Watch	Conditions are favorable for flooding in and close to the watch area. These watches are usually valid for the first 12-24 hours of a forecast.
Flash Flood Warning	A flood that occurs within 6 hours of excessive rainfall and that poses a threat to life and/or property is occurring, imminent or highly likely. Ice jams and dam failures can also cause flash floods. These warnings are generally in effect for up to 6 hours.
Flood Warning	General or aerial flooding of streets, low-lying areas, urban storm drains, creeks and small streams is occurring, imminent or highly likely. Flood warnings are issued for flooding that occurs more than 6 hours after the excessive rainfall and are generally in effect for 6-12 hours.

Winter Weather Advisory	Hazardous winter weather conditions are occurring, imminent or likely. Conditions will cause a significant inconvenience, and if caution is not exercised, will result in a potential threat to life and/or property. The generic term, winter weather advisory, is used for a combination of two or more of the following events: snow, freezing rain or drizzle, sleet and blowing snow.
Winter Storm Watch	Conditions are favorable for hazardous winter conditions including heavy snow, blizzard conditions or significant accumulations of freezing rain or sleet. These watches are usually issued 12-36 hours prior to the event.
Winter Storm Warning	Hazardous winter weather conditions that pose a threat to life and/or property is occurring, imminent or likely. The generic term, winter storm warning, is used for a combination of two or more of the following weather events: heavy snow, freezing rain, sleet and strong winds.
Blizzard Warning	Sustained winds or frequent gusts of 35 mph or greater, considerable falling and/or blowing snow reducing visibility frequently to ¼ mile or less for a period of three hours or more. There are no temperature criteria in the definition of a blizzard but freezing temperatures and 35 mph winds will create sub-zero wind chills.
Heavy Snow Warning	Snowfall of 6 inches or more in 12 hours or less, or 8 inches or more in 24 hours or less.
Ice Storm Warning	Accumulations of ¼ inch or more of freezing rain.
Heavy Sleet Warning	Accumulations of ½ inch or more of sleet.
Snow Advisory	Snowfall of 3-5 inches
Excessive Heat Warning	Extreme heat index making it feel like above 110 degrees F.
Heat Advisory	Maximum heat index of 105 to 110 degrees F for two or more consecutive days.