

# Maine EMS Hurricane Response Playbook

Maine Bureau of Emergency Medical Services

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## Change Log

This is the first version of this document.

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## Executive Summary

This document is intended to serve as a resource for emergency medical services (EMS) agencies operating in the State of Maine who are preparing for and responding to a hurricane within the state. As our climate continues to change and the water temperatures off the coast of Maine continue to rise, the threat of tropical weather in the form of hurricanes continues to increase. It is imperative that EMS agencies, as an essential component to our state's healthcare system, be prepared for a variety of disaster types.

The National Preparedness Goal identifies five mission areas – Prevention, Protection, Mitigation, Response, and Recovery.<sup>1</sup> This document is not intended to serve as an exhaustive guide or strategy, but instead to foster conversations and planning activities at each EMS agency based on the potential hazards and risks that may be faced at that specific agency. For example, the storm surge may be a critical factor for locations like Bar Harbor, with limited access roads, all of which are seaside, but may be less pertinent for inland areas where storm surge may be a non-issue. Maine EMS and other state partners, including the Maine Emergency Management Agency (MEMA), stand ready to support EMS agencies in their prevention, protection, mitigation, response, and recovery efforts.

As with all aspects of emergency management, the most critical component will be the relationships that EMS leaders have established with their community and regional partners. All disasters are local – they occur in the towns where we work, live, and play; they affect our neighbors and loved ones. We must take the time to engage emergency management, healthcare, public safety, and other community partners to ensure that we are ready to respond and recover together, united.

Maine EMS will always do everything in its power to support the EMS system throughout the State of Maine through resources, technical assistance, and guidance. While we do not have an operational component, the office collectively holds decades of valuable experience and knowledge that we can leverage to support EMS agencies throughout the state. Do not hesitate to reach out to Maine EMS if there is ANYTHING we can do to support you and your service – before, during, and after a disaster or emergency.

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<sup>1</sup> Federal Emergency Management Agency. (2020). *Mission Areas and Core Capabilities*. Accessed on September 14, 2023, from <https://www.fema.gov/emergency-managers/national-preparedness/mission-core-capabilities>

## Purpose

The purpose of this playbook is to serve as a resource for emergency medical services (EMS) agencies operating in the State of Maine in response to severe weather associated with tropical storms, depressions, and hurricanes. This resource is not intended to be wholly authoritative or exhaustive, but rather a tool for local EMS leaders to plan, respond, and recover from adverse weather events relating to these weather systems.

## Situation

Emergency medical services (EMS) are charged with providing emergency medical care and transportation to sick and injured patients throughout the State of Maine.

The Maine Bureau of Emergency Medical Services (Maine EMS) is the central agency responsible for coordinating and integrating all state activities concerning emergency medical services and the overall planning, evaluation, coordination, facilitation, and regulation of emergency medical services systems.<sup>2</sup>

Monitoring and coordinating resources to support the care and movement of persons with medical and functional needs in impacted counties is one of the State's Emergency Support Function (ESF) 8 core missions described in Maine's Comprehensive Emergency Management Plan. As described in the plan, Maine EMS is regarded as a supporting agency to facilitate emergency response and provide emergency medical transportation as needed.<sup>3</sup>

## Background

The following hurricane hazards are referenced in the State of Maine Comprehensive Emergency Management Plan Incident Annex 1 – Hurricane (2017).

Hurricanes are swirling masses of wind and rain that are born in tropical waters and require an intricate combination of atmospheric processes to develop. They require warm ocean to form, and dissipate rapidly once they reach waters of colder temperature or reach landfall. Hurricane season in the Atlantic runs from June 1 to November 30 and hurricane threats increase late in the summer, as ocean temperatures warm. Hurricanes typically weaken before reaching Maine, but it is possible for strong storms to reach Maine. Hurricane forecasts will have uncertainty due variables of the hazard which include forward tract and approach, storm speed, wind speed, storm size, and precipitation.

## Wind

The classification of a tropical cyclone is based on wind speed. The location relative to the storm's center dictates the severity of the winds within a tropical cyclone. Wind speeds are most substantial in the front right quadrant of a tropical cyclone, and wind speeds are generally greater the higher above ground level.

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<sup>2</sup> 32 MRS §81-A

<sup>3</sup> Maine Emergency Management Agency. (2017). *Maine Comprehensive Emergency Management Plan*. Accessed on September 13, 2023, from [https://www.maine.gov/mema/sites/maine.gov/mema/files/inline-files/maine\\_emergency\\_operations\\_plan.pdf](https://www.maine.gov/mema/sites/maine.gov/mema/files/inline-files/maine_emergency_operations_plan.pdf)

Table 1 The Saffir-Simpson Hurricane Wind Scale<sup>4</sup>

Category	Sustained Winds of:	Effects
Tropical Storm	39-73 mph	Sustained winds capable of causing structural damage
1	74-95 mph	Very dangerous winds will produce some damage
2	96-110 mph	Extremely dangerous winds will cause extensive damage
3	111-129 mph	Devastating damage will occur
4	130-156 mph	Catastrophic damage will occur
5	157+ mph	Catastrophic damage will occur

Note: Hurricanes with winds greater than 110 mph (Category 3, 4, and 5) are considered major hurricanes.

## Flooding

### Storm Surge

Storm surge is an abnormal rise of water generated by a storm, over and above the predicted astronomical tide. Storm surge often poses the greatest threat to life and property. The following factors influence the extent of storm surge:

- Size and extent of storm's wind field ("radius of maximum winds")
- Strength of storm winds
- Storm's forward speed
- Storm track
- Storm's central pressure (contribution of pressure to total storm surge is small compared to wind)
- Landfall location
- Coastal elevation (much of the densely populated Atlantic and Gulf coastlines are less than 10 feet [three meters] above mean sea level, making them especially vulnerable.)
- Shape and characteristics of the coast (bays, rivers, etc.)

### Inland Flooding

It is common for hurricanes and tropical storms to provide between six (6) to 12 inches of precipitation. The heavy rainfall associated with hurricanes is more common during landfall and can cause flooding hundreds of miles inland. The following factors influence the extent of inland flooding:

- Speed of the storm
- Size of the storm
- Persistent rain bands
- Interactions with other weather systems, such as cold fronts
- Terrain
- Ground saturation

## Tornadoes

Tornadoes are violently rotating columns of wind that most often occur in the rain bands well away from the center of a storm. The National Weather Service can provide indications of tornadoes up to about

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<sup>4</sup> National Hurricane Center. (n.d.). *Saffir-Simpson Hurricane Wind Scale*. Accessed on September 14, 2023, from <https://www.nhc.noaa.gov/aboutsshws.php>

one hour in advance, though sometimes only a few minutes in advance. This means that storm-force winds will have already made landfall by the time forecasters can detect a tornado threat.

## Assumptions

The following items are considered assumptions for this document; please note that all assumptions are not considered universal and that many, if not all, may need to be evaluated locally to determine their applicability.

- A. Exclusively for the purpose of this playbook, Maine EMS is establishing the following definitions:
  1. “Evacuee” – “Evacuee” means an individual being evacuated from an established healthcare facility and is regarded as stable by the originating facility at the time of the encounter. These individuals may require a stretcher or other resources but do not require medical intervention. Individuals requiring medical interventions and/or care by EMS personnel are considered patients for the purpose of this playbook. This excludes individuals on constant oxygen supplementation via nasal cannula. This term only applies to individuals originating from healthcare facilities (e.g., nursing facilities, hospitals, and group homes).
  2. “Patient” – “Patient” means an individual evaluated for illness and/or injury or requiring medical assessment or intervention from the EMS clinician on the scene or in transit to the receiving facility. All individuals not covered by the definition of evacuee should be considered patients.
- B. During mass casualty incidents, local jurisdictions will follow existing comprehensive emergency management plans, and healthcare facilities' existing surge and evacuation plans.
  1. Initially, patients will be moved from the scene to the nearest receiving facility. Patients will be moved to facilities increasingly farther away as the nearest facilities reach capacity.
    - i. Mutual aid may move patients to surrounding counties and regions.
    - ii. Small numbers of patients may be moved via ground and air ambulance, through direct facility-to-facility transfer. However, resources may be quickly overwhelmed, and these plans may fail during larger or more severe incidents/events. Existing facility surges (i.e., seasonal flu outbreaks) may be a factor.
    - iii. Patient movement support may be requested if local capabilities are exceeded.
  2. During evacuation/decompressions, facilities often transfer to sister facilities, which may not be the closest facility.
  3. No-notice incidents may not allow for pre-event coordination.
  4. In larger, more severe incidents, patients may need to be moved out of the county/region due to a lack of capacity or specialized medical capabilities. State assistance may be requested from the State Emergency Operations Center (EOC), but should be fed through local emergency operation centers, when possible. Local, regional, and state personnel in respective EOCs will facilitate coordination, integration, and integration of state activities.
  5. Patient destinations will be pre-determined, and additional transportation resources may be requested to facilitate the movement.



6. In the case of a significant or catastrophic incident resulting in many casualties, local, regional, and state capacities may be exceeded, and Emergency Management Assistance Compact (EMAC) and Federal assistance may be requested. Large numbers of patients may be sent via ground and air to debarkation points in non-impacted areas. Although all efforts will be made to pre-determine final destinations for patients before arriving at debarkation points, host communities should be prepared to place patients if needed.
- C. Decisions to evacuate, and who to evacuate, are always local decisions.
    1. Based on the event's size, scope, and scale, existing evacuation plans may be rendered invalid or ineffective.
    2. Intrastate evacuations will be the first option for patient movement, if possible. The greater and more complex the evacuee movement, the greater the risk of a poor outcome to the patient.
    3. Evacuees should be kept as close to their original location as possible while meeting their specific medical needs.
    4. Hospitals may choose to decompress current inpatients to accommodate the surge of casualties or due to facility system failures/damage.
  - D. Pediatric capability is limited, including resources to transport pediatric patients. Local/Regional Healthcare Coalitions may be a resource to pre-identify pediatric populations and resources to treat and transport pediatric patients.
  - E. Availability of EMS assets may be limited during disasters due to competing operational commitments.
  - F. Resource availability timelines vary, particularly during a no-notice incident.
  - G. All evacuations are subject to weather conditions and safety considerations.
  - H. Any potentially contaminated patient must be decontaminated before transport.
  - I. Patients will be stabilized before movement. The level of stabilization may vary.
  - J. During the patient movement process, the continuum of care must be maintained.
  - K. Patients may decompensate during transport.
  - L. Every attempt to ensure medical caregivers are transported with their corresponding patients should be made.
  - M. Various tracking systems/processes will be used from injury to release. Because some of these systems are not integrated, there is potential for a greater margin for error, inconsistent tracking, and duplication of services. *However*, any patient moved by EMS must be documented within the Maine EMS and Fire Incident Reporting System (MEFIRS).
  - N. Absent a Presidential declaration of a major disaster or emergency, no federal reimbursement is available for state or local patient movement activities costs.
  - O. With a Presidential declaration of a major disaster or emergency and a state request that federal patient movement occur, federal assets can provide both intrastate and interstate patient movement support. Federal patient movement support can be expected to be available within 48 hours.
  - P. Military aircraft are designed to transport average-sized personnel. Due to size constraints, bariatric and pediatric patients may not be appropriate for transport on these aircraft.
  - Q. Staging of federal resources should be coordinated between state and federal officials. Federal resources should not be deployed without a mission assignment.

## Authorities and References

While not exhaustive, the following statutes and regulations are applicable to this plan:

- A. Maine Revised Statutes:
  - 1. Title 32, Chapter 2-B
  - 2. Title 37-B, Chapter 13
- B. Code of Maine Rules: 16-163 CMR Chapters 1-23 (2023)

## Preplanning

- A. Develop, revise, and review the EMS agency's Continuity of Operations Plan (COOP). This plan should identify and ensure that primary mission essential functions can continue during various emergencies, including acts of nature (e.g., hurricanes, tornadoes, snowstorms), accidents, and technological or attack-related emergencies. The plan should function as a roadmap for the agency to implement and manage the Continuity Program. It should include, but not be limited to, the following:<sup>5</sup>
  - 1. Essential functions – critical activities the organization performs, especially after disrupting normal activities.
  - 2. Orders of succession – provisions for the assumption of leadership during an emergency if any established officials are unavailable to execute their responsibilities.
  - 3. Delegations of authority – identification, by position, of the authorities for making policy determinations and decisions at the agency and field level. These delegations are only intended to take effect when normal direction channels have been disrupted and will cease once they are re-established.
  - 4. Continuity facilities – locations, other than the primary facility, used to carry out essential functions, particularly in a continuity event.
  - 5. Continuity communications – communications that provide the capability to perform essential functions in conjunction with other agencies under all conditions
  - 6. Vital records management – the identification, protection, and availability of electronic and hard-copy documents, references, records, information systems, and data management software and equipment needed to support essential functions during a continuity situation.
  - 7. Human capital – during a continuity event, emergency employees and other special categories of employees are activated by an agency to perform assigned response duties.
  - 8. Tests, Training, and Exercises (TT&E) – measures to ensure that an agency's continuity plan can support the continued execution of the agency's essential functions throughout a continuity event.
  - 9. Devolution of control and direction – the capability to transfer authority and responsibility for essential functions from an agency's primary operating staff and facilities to other agency employees and facilities

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<sup>5</sup> FEMA. (n.d.). *Continuity of Operations: An Overview*. Accessed on September 14, 2023, from [https://www.fema.gov/pdf/about/org/ncp/coop\\_brochure.pdf](https://www.fema.gov/pdf/about/org/ncp/coop_brochure.pdf)

10. Reconstitution – the process by which surviving and/or replacement agency personnel resume normal agency operations from the original or replacement primary operating facility.
- B. Develop an Emergency Communications Plan, incorporating multiple means of communicating with mutual aid partners, medical facilities, and governmental agencies. Consider signing up for Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) (see [Resources](#) for more information).
  - C. Review evacuation plans with healthcare facilities and locations with vulnerable populations within the agency’s response area, prioritizing those in evacuation zones. Identify potential resource needs required to conduct evacuations, if needed. Understand that some evacuations may be preplanned before the arrival of the storm, while others may be due to emergency conditions (e.g., flooding or generator failure).
  - D. Develop procedures for documenting costs related to disaster response. Some costs may be reimbursable if thresholds are met to receive a Presidential Disaster Declaration.
  - E. Reach out to vendors if there are anticipated supply chain issues due to forecasted storm impacts. Ensure enough supplies are on hand for the event or develop plans with mutual aid partners to share supplies if needed. Agencies should be prepared to function for at least 72 hours without additional supplies.
  - F. Ensure adequate supplies, such as food, water, and fuel, are on hand to support staff and the facility during extended power outages.
  - G. Identify staffing needs for periods of greatest impact and ensure staff members are not traveling during dangerous storm conditions. Provide resources to staff related to family and personal preparedness.
  - H. Establish contact and communications with your local public health liaison (see [Resources](#) for more information).
  - I. Maine EMS will work collaboratively with the Maine Center for Disease Control and Prevention to potentially source emPOWER data from the U.S. Department of Health and Human Services.<sup>6</sup> This dataset includes Medicare beneficiaries who live independently and rely on electricity-dependent durable medical and assistive equipment and devices, and/or essential health care services.
  - J. Prepare for calls for service related to individuals running low on oxygen supplies or who have electrically dependent medical devices and are without power. Identify resources in the community to provide support, such as a generator or an emergency shelter with backup power.

## Response

### A. Responder Safety

1. **It is not recommended to operate ambulances or other vehicles with large broad surfaces during periods of tropical storm force winds or higher (greater than 39 mph).**

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<sup>6</sup> US Department of Health and Human Services. (n.d.). *HHS emPOWER Program Platform*. Accessed on September 14, 2023, from <https://empowerprogram.hhs.gov/#:~:text=The%20HHS%20emPOWER%20Program%20provides,on%20electricity%2Ddependent%20durable%20medical>

2. Flood waters may contain contaminants, such as chemicals or biohazards, so personnel should not respond to flooded areas without the proper training and personal protective equipment (PPE).
- B. Report life safety electrical hazards directly to the PSAP/Dispatch. Report priority power issues, such as citizens being cut off from emergency services due to downed trees and power lines, to the county emergency management agency to communicate with the utility.
- C. The Maine Department of Public Safety may request assistance from EMS services along evacuation routes and at shelters (*State of Maine Comprehensive Emergency Management Plan Incident Annex 1 – Hurricane*). Municipalities and counties may also request support related to evacuation and mass care activities.
- D. Monitor road closures and the status of healthcare facilities within the response area.
- E. Communication
  1. Review the agency’s emergency communications plan on how the agency will communicate with mutual aid partners, healthcare facilities, emergency management, the public, etc., during the event, especially when normal communication resources may be compromised.
    - i. CONOPS Channels – For communications outside of normal operations, consider using CONOPS channels.
  2. Work collaboratively with other response entities through a local Joint Information Center (JIC) and/or Statewide JIC to maintain clear, consistent, and reliable messaging to the public. If communicating to the public, consider utilizing Crisis and Emergency Risk Communication Principles established by the U.S. Centers for Disease Control and Prevention.<sup>7</sup>
    - i. Be first – crises are time-sensitive. Communicating information quickly is crucial. For members of the public, the first source of information often becomes the preferred source.
    - ii. Be right – accuracy establishes credibility. Information can include what is known, what is not known, and what is being done to fill in the gaps.
    - iii. Be credible – honesty and truthfulness should not be compromised during crises.
    - iv. Express empathy – crises create harm, and the suffering should be acknowledged in words. Addressing what people are feeling, and the challenges they face builds trust and rapport.
    - v. Promote action – giving people meaningful things to do calms anxiety, helps restore order, and promotes some sense of control.
    - vi. Show respect – respectful communication is critical when people feel vulnerable. Respectful communication promotes cooperation and rapport.
  3. Consider referencing FEMA’s Effective Communication Student Manual for additional resources and guidance.<sup>8</sup>

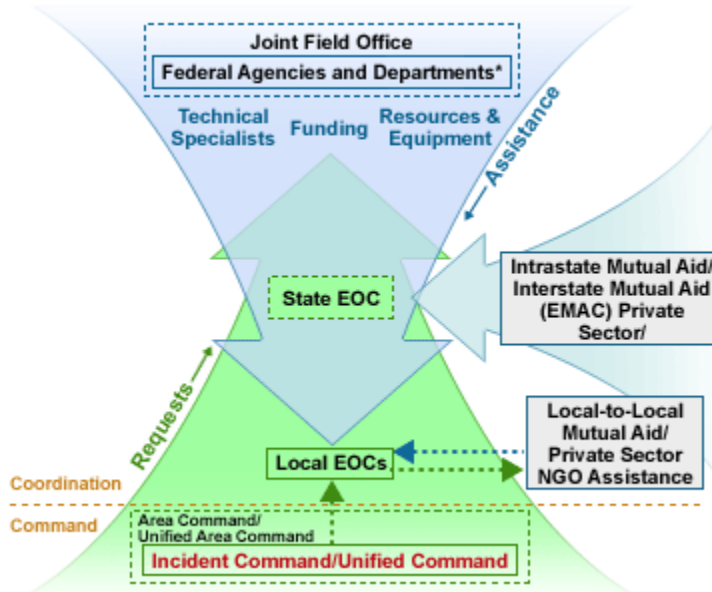
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<sup>7</sup> US Centers for Disease Control and Prevention. (2018). *Crisis + Emergency Risk Communication Introduction*. Accessed on September 15, 2023, from [https://emergency.cdc.gov/cerc/ppt/CERC\\_Introduction.pdf](https://emergency.cdc.gov/cerc/ppt/CERC_Introduction.pdf)

<sup>8</sup> FEMA. (2014). *Lesson Three: Communicating in an Emergency*. Accessed on September 15, 2023, from [https://training.fema.gov/emiweb/is/is242b/student%20manual/sm\\_03.pdf](https://training.fema.gov/emiweb/is/is242b/student%20manual/sm_03.pdf)

- F. If the local area command identifies that local resources are overwhelmed, reference the Federal Emergency Management Agency’s Flow of Requests and Assistance.

Figure 1 Flow of Requests and Assistance During Large-Scale Incidents<sup>9</sup>



## Recovery

- A. Planning for demobilization starts during the response phase and usually occurs in stages based on improving community stabilization and incrementally decreasing demand. Service leaders will collaborate within their existing incident command structure to prepare and implement a phased operational period-based Demobilization Plan to ensure that an orderly, safe, and cost-effective demobilization of personnel and equipment is accomplished.
- B. Monitor for disease outbreaks and contamination in affected disaster areas.
- C. Collaborate with local public safety officials and facility leadership to safely return evacuees and patients to healthcare facilities and their homes.
- D. A financial report capturing estimated costs related to response will be submitted to municipal or county emergency management agencies upon request. This may include expenses related to overtime, backfill, supplies, fuel, damaged equipment, etc.
- E. Provide an opportunity for staff to participate in a Hotwash or After Action Meeting to discuss future improvements and lessons learned from the response.
- F. Create an After Action Report/Improvement Plan to capture identified improvement items with a timeline to achieve goals.
  - 1. There are a variety of resources and tools to develop an after-action report and improvement plan. Feel free to contact Maine EMS for templates and resources if you do not have them available locally. The Federal Emergency Management Agency has

<sup>9</sup> Federal Emergency Management Agency. (n.d.). *Flow of Requests and Assistance During Large-Scale Incidents*. Accessed on September 14, 2023, from [https://emilms.fema.gov/is\\_0102c/groups/13.html](https://emilms.fema.gov/is_0102c/groups/13.html)

made available an After-Action Report (AAR) User Guide, a great starting point for understanding the process and accessing similar resources through their Continuous Improvement Technical Assistance Program.<sup>10</sup>

- G. Consider providing staff with a CISM debriefing and mental health resources throughout recovery.

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<sup>10</sup> Federal Emergency Management Agency. (2021). *After-Action Report (AAR) User Guide*. Accessed on September 14, 2023, from [https://preptoolkit.fema.gov/documents/36933745/36933872/AAR\\_Guide\\_062021.docx/ab2fb4c1-264a-1c9f-a564-f4eac9d83764?t=1627673238099&download=true](https://preptoolkit.fema.gov/documents/36933745/36933872/AAR_Guide_062021.docx/ab2fb4c1-264a-1c9f-a564-f4eac9d83764?t=1627673238099&download=true)

## Resources

The following resources may be helpful in tropical storm or hurricane events:

### Weather

- National Weather Service, Gray <https://www.weather.gov/gyx/>
- National Weather Service, Caribou <https://www.weather.gov/car/>
- National Hurricane Center <https://www.nhc.noaa.gov/>

### Emergency Management

- Maine Emergency Management Agency <https://www.maine.gov/mema/>
- County Emergency Management Agencies <https://www.maine.gov/mema/ema-community/county-local/county-emergency-management-agencies>

### Communication

- Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) <https://www.fcc.gov/general/public-safety-homeland-security-policy-areas-priority-services>
- CONOPS & RegionNet Guide (2017) <https://www.maine.gov/mema/ema-community/communications/document-library>

### Transportation

- New England 5-1-1 <https://newengland511.org/>

### Mass Care

- 211 Maine <https://211maine.org/>
- American Red Cross <https://www.redcross.org/local/me-nh-vt.html>

### Public Health & Social Services

- Maine Center for Disease Control & Prevention <https://www.maine.gov/dhhs/mecdc/>
  - Maine CDC Public Health Liaisons: <https://www.maine.gov/dhhs/mecdc/public-health-systems/lphd/index.shtml>
- Maine Department of Health and Human Services <https://www.maine.gov/dhhs/>

### Utilities

- Central Maine Power <https://www.cmpco.com/>
- Versant Power <https://www.versantpower.com/>
- Eastern Maine Electric <https://www.emec.com/>

## Definitions

The following definitions apply to this playbook and scenario unless otherwise specified.

- A. “Evacuee” – “Evacuee” means an individual being evacuated from an established healthcare facility and is regarded as stable by the originating facility at the time of the encounter. These individuals may require a stretcher or other resources that prevent them from using a mass transit vehicle (bus) but do not require medical intervention. Individuals requiring medical interventions and/or care by EMS personnel are considered patients for the purpose of this playbook. This excludes individuals on constant oxygen supplementation via nasal cannula. This term only applies to individuals originating from healthcare facilities (e.g., nursing facilities, hospitals, and group homes).
- B. “Patient” – “Patient” means an individual evaluated for illness and/or injury or requiring medical assessment or intervention from the EMS clinician on the scene or in transit to the receiving facility. All individuals not covered by the definition of evacuee should be considered patients.



A circular blue sign with a white border. At the top, there is a white graphic of a hurricane. Below the graphic, the words "HURRICANE", "EVACUATION", and "ROUTE" are written in white, bold, sans-serif capital letters, stacked vertically. The sign is mounted on a metal post.

HURRICANE  
EVACUATION  
ROUTE

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