



JENSEN HUGHES

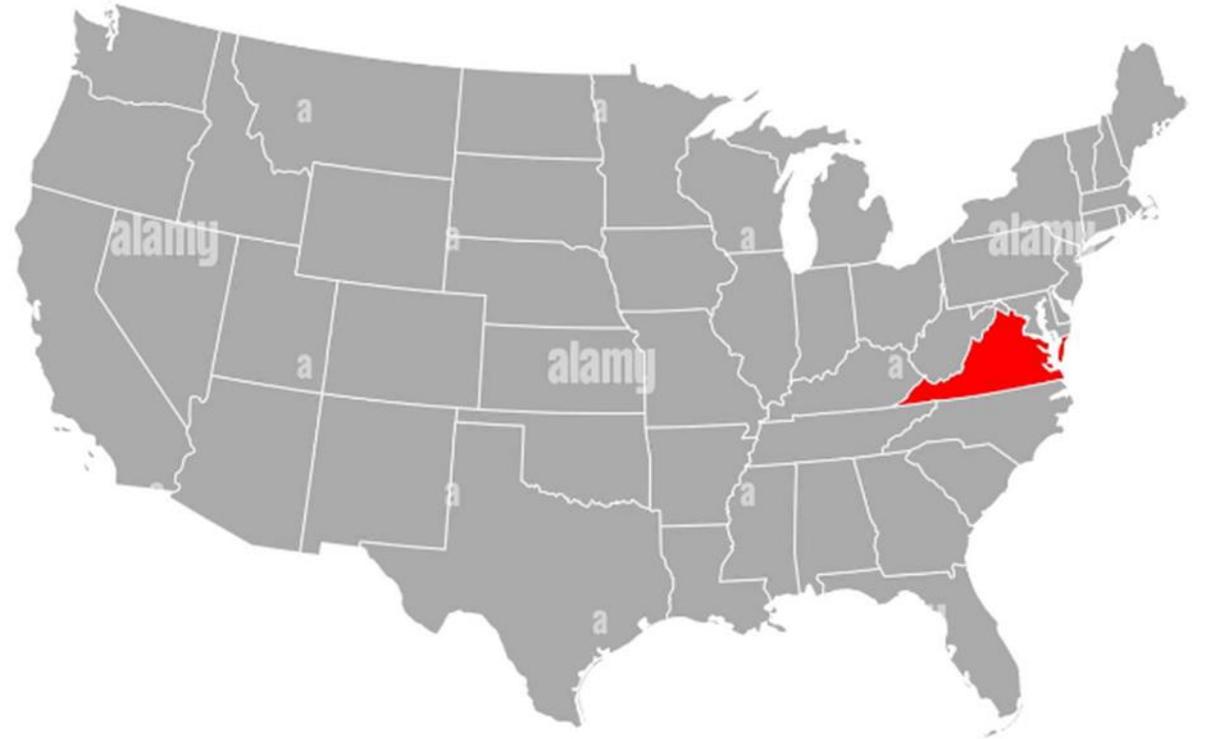
*Your Partner in Safety,
Security and Risk-Based
Engineering + Consulting*

HURRICANES

Presenter: Paul McManus

OBJECTIVES

- + Lessons Learned from past Hurricanes
- + Advanced Planning
- + Evacuation -vs- Sheltering In Place



Lessons Learned - Our Biggest Concerns

- + Annual Preparedness
- + Storm Surge (Coastal Facilities)
- + High Winds & Flooding
- + Loss of Utilities
 - Electric, Water, Gas, etc.
- + Sheltering in Place
 - Supplies
- + Planned or Forced Evacuation
- + Staffing



Lessons Learned from “Past” Hurricanes

+ Emergency Preparedness Program

- Some organizations did not have a formal written emergency plan because they “used the government’s plan” or later realized that they only “had some components,” but not a complete action plan.
 - Some plans had significant gaps and were not adequately executed.
 - Challenges and limitations to effectively respond and to mitigate the impact of the hurricanes, particularly lacking preparedness for the impact and damage of a category 4 or 5 hurricane.
 - Lack of adequate evacuation planning, staff training and exercising assigned roles & responsibilities.

Lessons Learned from Past Hurricanes

- + Lack of communication services
 - Internally and Externally
- + Limited accessibility of critical supplies (food, water, meds, etc.)
- + Lack of utilities (44.4%) such as water and electric power
- + Limited access to roads and transportation resources

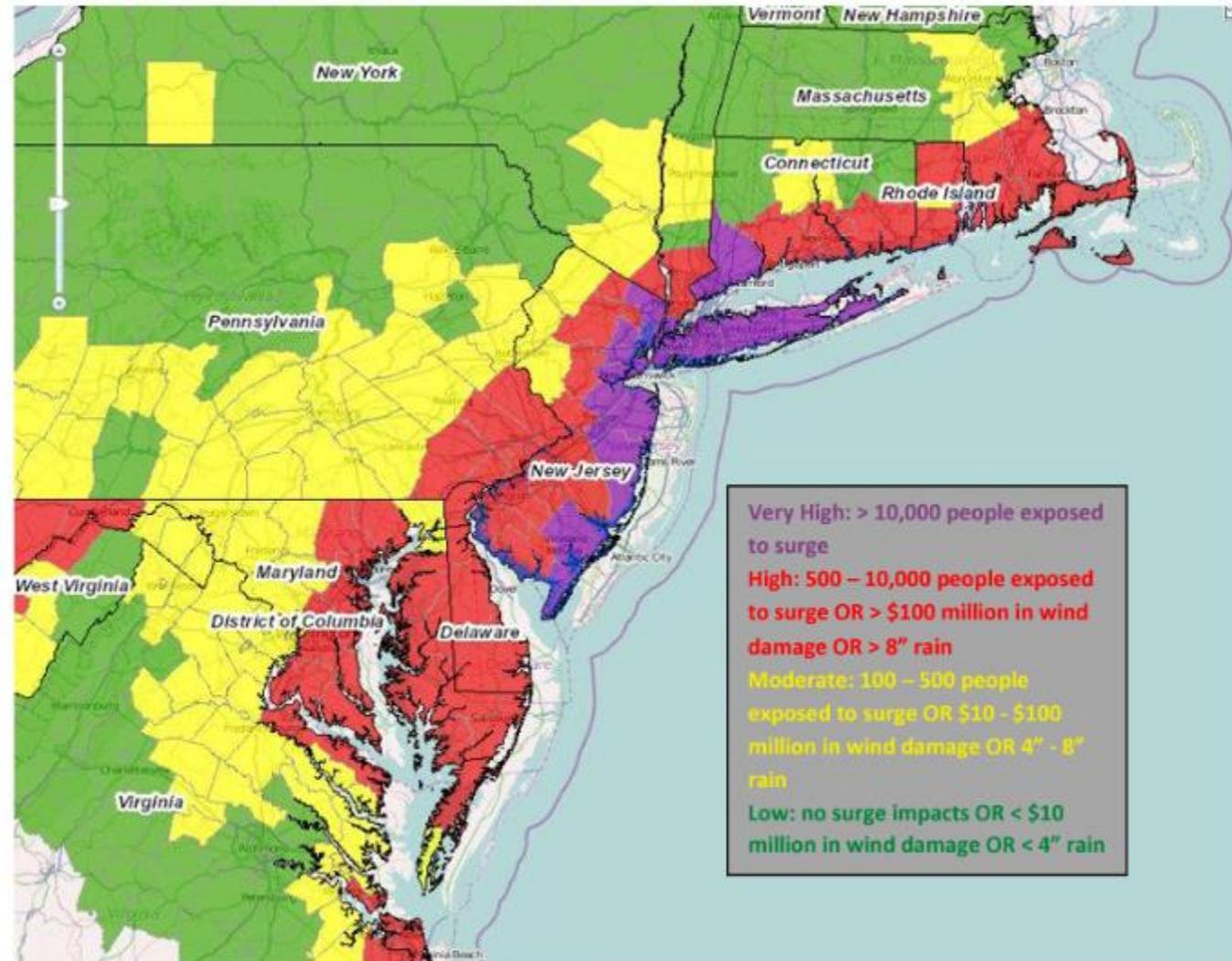


Figure 1.² FEMA Hurricane Sandy Impact Analysis

Lessons Learned from Past Hurricanes

- + Lack of staffing during an extended event
 - Staff inability to get to work
 - Concerns with their families, pets and homes
- + Consider a disaster staffing plan
 - Essential versus Non-essential staff
 - Phased staffing
 - Prior to and during a hurricane
 - After an All Clear

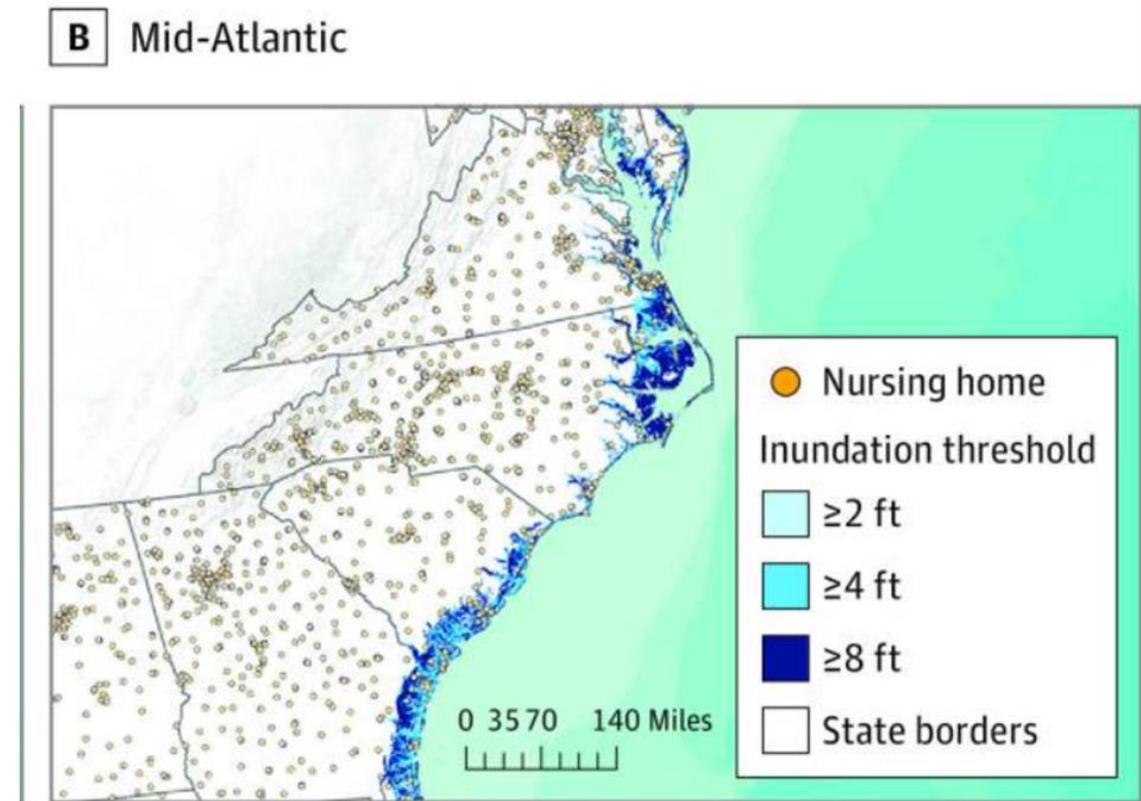


2023 Published Study

Journal of the American Medical Association - JAMA

“we found that 1 of 10 facilities were at risk of exposure to severe hurricane-related inundation that would preclude the safe ground evacuation of residents”

“Exposed facilities within the Mid-Atlantic region had a significantly greater likelihood of emergency preparedness deficiencies”.



Changing Weather Patterns

- + Extreme weather events and long-term changes in climate are making hazards more frequent and/or intense, and physical hazards are compounded by existing stressors and inequities.
- + EPA – “Scientific studies indicate that extreme weather events such as heat waves and large storms are likely to become more frequent or more intense”.



Impacts of Events on People and Facilities

- + Utility outages are likely to occur during significant weather events.
- + People may seek shelter in facilities with backup generators whether or not they are sick. This puts additional strain on healthcare facilities.



TERMINOLOGY

Warnings and watches are two levels of an alert issued by the National Weather Service (NWS) forecasting the imminent approach of a tropical cyclone or tropical storm of hurricane intensity.

TROPICAL STORM WATCH: Issued when tropical storm conditions, including winds from 39 to 73 mph, pose a possible threat to a specified coastal area within 36 hours.

HURRICANE WATCH: A hurricane watch is issued for a specified area for which a hurricane or hurricane-related hazard is a possible threat within 36 hours.

HURRICANE WARNING: A hurricane warning is issued when a hurricane with sustained winds of 74 mph or higher is expected in a specified coastal area in 24 hours or less.

Categories

STORM CATEGORIES

CATEGORY	WIND	APPROX. STORM SURGE	EXPECTED DAMAGE
Tropical Storm	39-73 mph		Flooding Possible
Hurricane I	74-95 mph	4-5 feet	Minimal
Hurricane II	96-110 mph	6-8 feet	Moderate
Hurricane III	111-130 mph	9-12 feet	Extensive
Hurricane IV	131-155 mph	13-18 feet	Extreme
Hurricane V	>156 mph	> 18 feet	Catastrophic

Support Actions – Hurricane Preparation

- + Emergency procedures up to date? Including all contact information (staff, vendors, response partners)?
- + MOU's/Written agreements in place with vendor and receiving facilities?
- + Inventories up to date (food, water, medical supplies, med, etc.)?
 - Is there a backup water supply (potable & non-potable)?
- + Ensure sanitary and biohazard storage/disposal procedures if normal routine is disrupted.
- + Know in advance which “at-risk” residents may require pre-storm evacuation, and where they will be relocated (CCRC – Villas, Apartments, Cottages).

Support Actions – Hurricane Preparation

- + Generator tested and maintained; fuel topped off?
 - Diesel exhaust fluid (DEF) on hand, as applicable
- + Extension cords, flashlights, batteries, etc. inventoried?
- + Hurricane shutters / board up materials checked.
- + Review assigned roles & responsibilities with leadership and general staff.
- + Independent housing on campus?
 - Each resident should have a separate checklist (meds, water, etc.).
 - Is there a resident relocation plan for category 2 or higher hurricane?



Support Actions – Hurricane Watch

- + Activate the Incident Command System and assess the situation, review plans, and take preventive measures.
 - Keep staff advised of hurricane development.
- + Analyze staffing needs, scheduling; confirm assigned roles & responsibilities.
 - Staff sheltering
- + Updated resident census
 - Update communications plan with residents and family members.
- + Establish liaison with response partners and other healthcare facilities.



Support Actions – Hurricane Watch

- + Check and top off fuel supplies (generator and vehicles) if not already done.
- + Pre-planned boarding of windows, check roof drains, clear exterior of patio furniture and other potential projectiles.
- + Plan for 5-7 days of medical, respiratory and other critical supplies.
 - Conservation measures to extend inventories.
- + Consider relocating items (records, equipment, supplies) that may be damaged by flooding.
- + Check emergency supplies such as food, water, flashlights & batteries, linens, plastic sheeting, tarps, etc.



Support Actions – Hurricane Watch

- + Test and inventory emergency communications:
 - Facility cellular phones
 - Facility pagers
 - Portable radios



- + Confirm and designate sheltering areas for staff and their family members, if authorized by the Incident Commander. (Pets, community members, etc.?)
- + Census reduction, cancellation of non-essential services.
- + Conduct a Transportation Survey (pre-evacuation).
- + Confirm vendor and receiving facilities written agreements (MOU's).

Support Actions – Hurricane **Warning**

- + Determine need to access cash prior to storm impact.
- + Confirm inventories are up to par (5-7 days).
- + Confirm fuel supplies are topped.
- + Confirm staffing and disaster scheduling is complete:
 - A Team remain at work for duration of storm.
 - B Team sent home, reporting back for clean up after the “all clear”.
- + Confirm relocation of residents, equipment, supplies and records, as needed.



Support Actions – Hurricane **Warning**

- + Confirm inventory & test emergency communications:
 - Facility cellular phones and portable radios
 - Confirm Liaison contact information with emergency response partners
- + Consider a campus lockdown.
- + Confirm all technology systems are backed up.
- + Discontinue non-essential services.
- + Confirm plan for emotional and psychological support for residents and staff.
- + No open / uncovered dumpsters on site.



Support Actions – Hurricane **Warning**

- + Review and confirm full building evacuation plan and transportation vendors:
 - Confirm receiving facility capacity and capability (care categories).
 - Print of primary & secondary evacuation route maps.
 - Consider how equipment & supplies will be transported to receiving facilities.
- + Ensure residents have ID bracelets.
- + Ensure sufficient supply of portable O2 tanks, as necessary.
- + Consider need to fill containers with water.
- + Distribute emergency supplies as necessary (Flashlights, extension cords, etc.).

Support Actions – Hurricane **Warning**

- + Ensure staff have a family plan in place (hurricane preparation).
- + Confirm repair & restoration equipment and supplies are on hand:
 - Tarps, plywood, Wet Vac's, fans, floor blowers
 - Restoration company contact information
 - Contractor / Vendor 24/7 contact number
- + Maintain a record of staff hours and costs associated with hurricane damage.
- + Address Social Media:
 - Inadvertent dissemination of misinformation



Prepare for hurricanes
before they happen

- 🌀 Pack an emergency supplies kit
- 🌀 Don't forget about your pets
- 🌀 Stay weather-ready

[weather.gov/hurricanesafety](https://www.weather.gov/hurricanesafety) 

[jensenhughes.com](https://www.jensenhughes.com)

Support Actions – Land Fall to All Clear

- + Conduct assessments:
 - Injuries, ability to provide continued safe resident care
 - Building & Grounds Damage Assessments
 - Inventories
 - Staffing Needs
 - Staff personal losses
- + Determine – partial/full building evacuation or sheltering in place
- + Continued Resident, Family and Staff communications
- + B Team reports to work to relieve the A Team



Support Actions – Land Fall to All Clear

- + Initiate repairs as necessary.
- + Return of relocated residents, equipment supplies, records, etc.
- + Reconsider need for campus lockdown.
- + Restore technology systems if off-line or down during storm.
- + Return to normal staff schedules.
- + Continued emotional & psychological support.



For Information and Resources

Virginia Long Term Care Infrastructure Pilot Project



<https://www.vhca.org/vlipp/>



VHCA EMPrep emprep@vhca.org

***Program: (Other) – VA LTC Infrastructure Pilot
Project (VLIPP)***

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Thank you!



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