Evacuation Operations Plan

Version 2.3

July 2017

ACKNOWLEDGEMENTS

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SIGNATORIES

Signatory Party	Representative Name and Title	Signature

RECORD OF DISTRIBUTION

Agency/Organization	Date

RECORD OF CHANGES AND REVISIONS

Change/Revision	Date of Revision	Changing Entity

EXECUTIVE SUMMARY

In 2006, the Maryland Region III Health & Medical Coalition was created to increase regional collaboration between local and state government agencies and regional healthcare facilities in the area of emergency preparedness and response.

In 2013, the Maryland Region III Health & Medical Coalition Evacuation Subcommittee conducted a workshop on August 6 to identify evacuation-planning gaps with its constituency (e.g. 21-hospitals, 6-jurisdicitonal agencies and the various state agencies). The workshop produced the "Gaps and Associated Recommendations to Expedite Hospital-Wide Evacuation" report. In addition, the Maryland Region III Health & Medical Coalition Hospital Evacuation Toolkit was developed to provide planning assistance and to assist hospitals in refining and augmenting their efforts to prepare for the possible evacuation of part or all of their facilities.

In 2016, the Maryland Region III Health & Medical Coalition Regional Evacuation Guidance built upon this previous work by providing Region III members and partners guidance in coordinating and executing evacuation policies regionally and in individual hospitals. The plan details specific procedures and communications that can be used in a single or multiple facility evacuation, and the roles and responsibilities of the hospitals, government agencies, and other partners in such an event.

In 2017, the Maryland Region III Health & Medical Coalition Evacuation Subcommittee took the Evacuation Guidance Plan a step further by integrating community partners into the hospital evacuation process and developed the Region III Health and Medical Coalition Regional Operational Evacuation Plan.

Contents

1. INTRODUCTION

Purpose

- The decision to evacuate is one course of action a hospital can use to respond to a threat. The decision requires input from a variety of clinical and non-clinical personnel, as well as hospital leadership. The execution of an evacuation not only involves the hospital, but other community partners such as contractors, government agencies, and other area hospitals as well.
- This plan serves as an operational plan for all Region III Health & Medical Coalition members and partners to coordinate and execute regional evacuation plans. The plan details specific procedures and communications that can be used in a single or multiple facility evacuation, and the roles and responsibilities of the hospitals, government agencies, and other partners in such an event.
- The plan provides an operational structure and standard operating procedures for moving patients as appropriate. The plan also guides the development of a unified command center that hospitals can use in order to better direct and coordinate any level of evacuation.

Scope

- The plan can be used for any type of hospital evacuation within Region III. The guidance provided is all-hazards and can be scaled to any appropriate level.

Authorities and References

- Maryland Region III Health & Medical Task Force Hospital Evacuation Toolkit
- Maryland Region III Health & Medical Coalition Evacuation Subcommittee "Gaps and Associated Recommendations to Expedite Hospital-Wide Evacuation," June 11, 2015
- Maryland Region III Alternate Care Site and Training Center at Greater Baltimore Medical Center Plan, 2015
- Maryland Region III Health & Medical Task Force Region III Resource Management Plan, 2015
- Maryland Region III Health and Medical Coalition Communications Plan, 2015
- Baltimore City Healthcare Facilities Mutual Aid System Memorandum of Understanding
- MD Responds Medical Reserve Corps Volunteer Management Guide, 2014
- American Medical Association, Lessons Learned from the Evacuation of an Urban Teaching Hospital
- American College of Emergency Physicians, Absorbing Citywide Patient Surge During Hurricane Sandy: A Case Study in Accommodating Multiple Hospital Evacuations
- AHRQ: Hospital Assessment and Recovery Guide, May 2010
- Illinois Emergency Medical Services for Children Neonatal Intensive Care Unit (NICU) Evacuation Guidelines, February 2009
- St Agnes Hospital Evacuation Plan, July 2011
- Johns Hopkins Hospital Evacuation Flow Chart, 2015

Assumptions

- A unified command system is essential in minimizing potential chaos associated with any evacuation. All hospital leadership and staff should follow the National Incident Management System (NIMS) and Hospital Incident Command System (HICS) guidelines to coordinate a well-orchestrated management approach for any incident or event, assist in resource allocation, and develop consistent patient tracking processes.
- The Maryland Emergency Medical Resource Alerting Database (MEMRAD) through the Maryland Emergency Medical Services System (MIEMSS) will serve as the IT infrastructure to assist both sending and receiving hospitals, as well as the local and state agencies, in coordination and communication during the hospital-wide evacuation procedures.
- Hospitals will/should have memorandums of understanding (MOUs) with private ambulance agencies, critical care providers, aeromedical transportation providers, bus companies, and other transportation agencies that, although not conventional, may render services when medical transport vehicles are unavailable.
- Hospitals will maintain an accurate bed count of all their facilities and report out at specific intervals.
- As part of the pre-planning process, hospitals will conduct an inventory of vehicles owned or contracted to use for evacuation and coordinate with local local health departments (LHDs), local emergency management agencies (EMAs), and local emergency medical services (EMS) to get an inventory of ambulances in their jurisdiction.
- Hospital emergency planners and medical service line/specialty representatives will have identified resource-specific infrastructure capabilities and/or equipment/services with their respective subspecialties and inserted them into the established Region III Hospital Referral Matrix (Referral Matrix).
- Hospital emergency planners and subspecialty leadership and physicians will have identified which hospitals they normally refer their patients to in Maryland and in states in proximity to Maryland, and will have inserted the hospitals into the established Referral Matrix.
- Once a hospital has decided to evacuate, the hospital will contact OHCQ (Office of Health Care Quality), LHDs and EMAs, as well as neighboring hospitals and other partners through the use of centralized communication systems such as the Emergency Medical Resource Center (EMRC).
- Agencies may not be able to respond as described in the plan to the sending or receiving hospital depending on what other disasters may be impacting the jurisdiction.
- Hospitals and local agencies will exhaust local resources and mutual aid first, and then local agencies will coordinate help from state agencies.
- If hospitals are not the priority in a disaster, they may have to independently address resource needs.

Definitions

- **Alternate Care Site**: A mobile or temporary facility or building to which patients from the evacuated health care facility can be taken for continued care, treatment, and shelter.
- **Assembly Point**: Assembly Points can serve as temporary care sites during an evacuation. Hospitals should identify and designate Assembly Points located away from the main clinical

areas for every patient care unit and plan to continue essential patient care functions at Assembly Points while patient transport is being arranged.

- **Damage Assessment**: An appraisal of the nature and extent of the damage sustained by the hospital after a disaster.
- **Digital Emergency Medical Services Telephone (DEMSTEL) Voice over Internet Protocol (VoIP):** VoIP is a technology for making telephone calls over the Internet. If you are calling a regular phone number, the signal is converted to a regular telephone signal before it reaches the destination. VoIP allows you to make a call directly from a computer, using a special VoIP phone, or a traditional phone connected to a special adapter. VoIP is useful when organizations are participating in conference calls, because it limits crowding of landline telephone ports.
- **Emergency Medical Resource Center (EMRC)**: The EMRC medical channel radio communications system links EMS providers in the field with hospital-based medical consultation. Consultation facilities and multiple hospitals can be patched into a single consultation.
- **Evacuation**: The protective action that entails the actual movement of the public out of an affected or threatened area.
- **FRED Alert**: MIEMSS uses FRED to alert hospitals about significant events. Hospitals can indicate how many patients they can accept and what resources they may have that could assist in the response to the event.
- **Full Evacuation**: This level of evacuation is used only as a last resort and involves a complete evacuation of the facility. There are many different ways that a total or full evacuation can be planned for and managed.
- **Horizontal Evacuation**: Relocation on the same floor (horizontally) from the immediate area of the emergency into a smoke compartment (area of safety) unaffected by the emergency situation.
- **Hospital Command Center (HCC)**: The location where the Hospital Incident Command team coordinates activities during an emergency. It is managed using the Hospital Incident Command System (HICS).
- **Hospital Incident Command System (HICS)**: The management system used to manage and coordinate activities during an emergency.
- **Incident Commander (IC)**: The person responsible for all aspects of an emergency response, including developing incident objectives, managing all incident operations, application of resources, and responsibility for all persons involved.
- **Incident Command System (ICS)**: The flexible combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure to manage assigned resources and effectively respond to an emergency situation.
- **Maryland Emergency Medical Resource Alerting Database (MEMRAD)**: MEMRAD is a Maryland internet-based reporting system that provides alert-driven reporting of resources available to mitigate mass casualty incidents or similar situations that produce a surge of patients.
- **Maryland Health Alert Network (MDHAN)**: MDHAN provides a secure communication system capable of rapid distribution of health alerts and important documents, as well as collaboration within and between agencies throughout Maryland. MDHAN utilizes multiple formats to deliver notifications, which include email, phone, fax and text messaging.

- **Memorandum of Understanding (MOU)**: An agreement in writing between two or more organizations, groups, or individuals, which stipulate the resources, and actions expected to be provided in response to an emergency request. Does not include the contractual obligations of a mutual aid agreement, but codifies that which is understood or customary.
- **Mutual Aid Agreement (MAA)**: An agreement between two or more organizations or jurisdictions to provide reciprocal assistance to one another in times of emergencies. Establishes a contractual agreement, which is legally binding on the parties.
- **National Incident Management System (NIMS)**: NIMS provides a comprehensive and consistent nationwide template to enable all government, private sector, and nongovernmental organizations to work together during all-hazard domestic incidents.
- **Partial Evacuation**: Removal of some of the patients, staff, and visitors from an area within the facility.
- **Receiving Hospital**: A facility to which any number of patients is transferred during or after an emergency.
- **Recovery**: The overall process of decontamination and/or restoration of vital services and infrastructure to allow for resumption of normal activity in areas in which protective actions have been implemented.
- **Response**: The phase of emergency management activities, which provides emergency assistance for casualties, and actions, which reduce further damage or expedite recovery operations.
- **Sending Hospital**: A facility from which any number of patients needs to be transferred during or after an emergency.
- **Shelter in Place**: A process to keep persons in the facility during a time of potential exposure to a chemical release or other hazardous situation outside of the facility.
- **Staging Area**: A designated location where resources are assembled for providing a coordinated, controlled action of any type during either response or recovery operations.
- **Standard Operating Procedure (SOP)**: A detailed, established set of operational instructions which a department or agency will implement in response to an emergency.
- **Vertical Evacuation**: Evacuation from one floor or multiple floors to the floor(s) below or above.
- **WebEOC**: WebEOC is software designed to bring real-time crisis information before, during, and after an event to the Maryland State Emergency Operations Center (SEOC), as well as to other local, state, and federal emergency operation centers (EOCs).
- **WebFusion**: WebFusion allows a WebEOC server to communicate with other WebEOC servers, or to third-party systems, by acting as the central communications hub to route messages to intended recipients. If the recipient WebEOC system is not available, WebFusion stores the message until the system is available.

2. PLAN MAINTENANCE

Schedule

- In the event of an exercise, workshop, training, or real world incident, lessons learned and updated information will be included in the plan as soon as possible.
- In the absence of the above, the plan will be reviewed annually by the Region III Health & Medical Coalition to maintain the most up-to-date information, including information in the Referral Matrix for the hospitals.

Record of Changes

- The record of changes will be documented in the plan in the Record of Changes and Revisions section.

3. COMMAND AND CONTROL

Command and Control Steps for unplanned evacuation (The steps link to the plan annexes)

Action Steps	
1	Maintain continuous situational awareness and respond accordingly.
2	Identify which patients should be moved first using given priority list (e.g. ambulatory patients
3	Request beds for identified patients after reviewing hospital profiles-i.e. Referral Matrix.
4	Obtain acceptance of identified patients and beds available at accommodating hospital.
5	Arrange for transportation to relocate patients.
6	Inform family members that their loved ones have been relocated.
	Repeat steps until patients are all relocated.

Hospital Command and Control

- All hospital leadership and staff should follow the NIMS and HICS guidelines to coordinate a well-orchestrated management approach for any incident or event, assist in resource allocation, and develop consistent patient tracking processes.
- The HCC will serve as the hub for coordination and communication during an evacuation incident.

Local/State Government

- If the event warrants, the EMAs will activate the EOCs to serve as the coordination point for government response. Various agencies, such as the LHDs, will provide representation in the EOCs.
- The LHDs will set up the department operations centers (DOCs) in the event of an evacuation incident in which the EOCs have not been activated. The DOCs will provide a coordination point for LHDs activities.

Region III Health and Medical Coalition

- During an evacuation, the Region III Health & Medical Coalition will utilize WebFusion software to coordinate communication. Region III member hospitals should utilize WebFusion to communicate with other Region III members and leadership.

4. HOSPITAL INCIDENT COMMAND SYSTEM

HICS is an incident management system that can be used by any hospital to manage threats, planned events, or emergency incidents. In an evacuation incident, the HCC will encompass the following action steps:

Action Steps	
1	Timely Situational Awareness: The situational assessment should be made at scheduled intervals or as needed to recipient hospitals, LHDs, EMAs, and state agencies. The situational assessment should cover the following topics: **Key Components:** -Bed availability in hospital -Hospital specialty/service line profiles regarding Referral Matrix -Patient tracking system and any updates -Triage tags and any updates -Transportation assets and coordination for the hospital -Equipment and Supplies -This information can be provided in MEMRAD and viewed by the above partners.
2	Coordinate care continuity & bed availability at recipient hospitals
3	Complete and coordinate discharge summaries for relocated patients
4	Complete and confirm credential verification process if staff is deployed to recipient hospitals **Baltimore City Healthcare Facilities Mutual Aid System Memorandum of Understanding (MOU).** The MOU states that recipient hospital will grant emergency privileges after receiving confirmation from sending hospital that credentialing process was completed for staff deployed.
5	Updates to external partners via MEMRAD as necessary, regarding any updates *outside* situational awareness reports. **Key Components:** -Bed availability in hospital -Hospital specialty/service line profiles regarding Referral Matrix -Patient tracking system and any updates -Triage tags and any updates -Transportation assets and coordination for the hospital -Equipment and Supplies
6	Coordinate and request equipment/supplies HCC will coordinate and request any additional resource needs through the EMAs, and the LHDs if necessary. HCC will have mechanisms to track equipment during an emergency patient transfer. **Key Components:** -Inpatient units will label equipment that will be sent (i.e., hospital, jurisdiction, stockpile, etc.). -Each tag that will be assigned to a patient has multiple peel-off bar codes (all the same number) that can be attached to the patient's belongings. There is also a note space in each record to indicate the belongings/ equipment if time allows. -The bar codes are incorporated into the Electronic Patient Tracking System (EPTS) as the standard system being used. -Equipment with no bar codes should be recorded on the discharge sheet as well.

5. HCC STRUCTURE

The ideal HCC structure will include the following positions/sections:

- **Finance/Administration**: Monitor the utilization of financial assets, accounting for financial expenditures, and the documentation of expenditures and cost reimbursement activities.
- **Logistics**: Organize the service and support activities needed to ensure that the material needs for the hospital's response to an incident are available when needed.
- **Operations**: Develop and implement strategies and tactics to carry out the objectives established by the Incident Commander (IC). May include Transportation, Situational Awareness, and Care and Bed Coordination sections.
- **Planning**: Oversee all incident related data gathering and analysis regarding incident operations and resource management, develop alternatives for tactical operations, initiate long range planning, and prepare the Incident Action Plan (IAP) for each operational period.
- **Situational Awareness**: Situational awareness can also can be part of Operations or Planning positions

Action Steps:
Assigned to Situational Assessment Chief
Situational Awareness is to be at scheduled intervals to recipient hospitals, LHDs, EMAs, and state agencies.

Key Components:
Bed availability in hospital
Hospital specialty/service line profiles regarding Referral Matrix
Patient tracking system and any updates
Triage tags and any updates
Transportation assets and coordination for the hospital
Equipment and Supplies

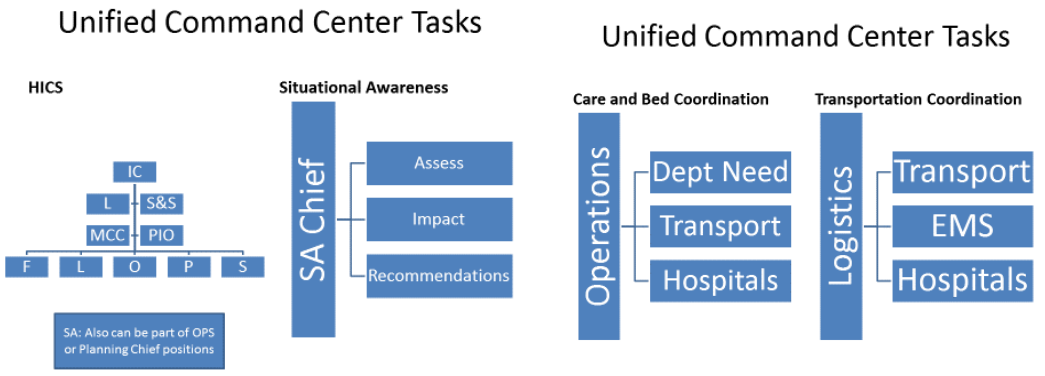


Figure 1

6. ROLES AND RESPONSIBILITIES

Hospitals
1. Serves as IC of their facility evacuation in implementing healthcare facility's emergency management plans.
2. In the event of a local (to one facility) or regional disaster, the facilities will communicate with one another and offer assistance to the facility in need through designated software and communication systems. This assistance may include supplies, equipment and personnel. It may also include the transfer of patients between facilities in the event of an evacuation.
3. Each facility's IC/designee (e.g. command and general staff) is responsible for coordination of patient relocation (in collaboration with sister hospitals and agencies), requesting personnel, pharmaceuticals, supplies, equipment, transportation, or authorizing evacuation for their respective facilities.
4. During a medical emergency, only the facility IC/designee has authority to request or offer assistance through the MOU entitled 'Baltimore City Healthcare Facilities Mutual Aid System MOU' signed in 2006 and Addendum (May 2013).
5. The Hospital's command post, set up in accordance with HICS and NIMS, is the facility's primary source of authority and decision-making process used during a disaster. The exception is in a fire or law enforcement situation when the police department or fire department may issue directives for safety/security that are implemented by the HICS structure for the facility.
6. When a facility is impacted, they are responsible for notifying other entities using the normal reporting channels. In the event of an evacuation, notification to EMS is also required.
7. Patient transfers may be tracked via use of EPTS or other integrated software between and among hospitals and health systems (i.e. EPIC, CRISP, etc.) with view of info available via web to MIEMSS, Department of Health and Mental Hygiene (DHMH), EMAs, LHDs, and fire departments/EMS. Access could also be made available to other hospitals and/or Department of Human Resources (DHR) to assist in family reunification.

Maryland Region III Health & Medical Coalition
1. Manages cache of equipment and supplies available for request. The Maryland Region III Health & Medical Task Force Region III Resource Management Plan outlines the available resources and request process.
2. Coordinates Alternate Care Site (ACS) request with the Greater Baltimore Medical Center (GBMC) to open the alternate care site and/or equipment cache.
3. Coordinates operations and communications through WebFusion for situational awareness.

MIEMSS
1. Coordinates communication between and amongst hospitals and agencies via MEMRAD, EMRC, and DEMSTEL.
2. Assists hospital command with coordination of patient transportation. • Coordination of transportation vehicles and other resources between local jurisdiction(s) and hospital(s) [as well as federal resources, if indicated] needing evacuation. The request must be made through EMAs and LHDs first, and then the EMAs will coordinate with the Maryland Emergency Management Agency (MEMA) and MIEMSS as necessary. • Assessment of available transportation resources and advice on the need for additional support

via Emergency Management Assistance Compact (EMAC)/the Federal Ambulance Contract.
3. Keeps track of bed availability and sends the numbers to the hospitals.
4. Facilitates the determination of the availability of commercial units in the event of a hospital-wide evacuation and a large mass casualty incident.
5. Coordinates with EMAs, local fire departments, MIEMSS Office of Commercial Ambulance Licensing and Regulation, and Maryland Transit Administration (MTA) for staging and movement.
6. Deploys a liaison to the sending HCC to facilitate transportation of evacuated patients to the recipient hospitals, as well as establishes their own incident command center (ICC) to assist the identified liaison in expediting transportation needs. If the scope of the incident is too large MIEMSS may not be able to provide a liaison to the HCC.
7. Supports patient tracking and liaison with family reunification needs in coordination with DHR. • DHR will have access to EPTS/MEMRAD and establish a hotline to support family reunification.
8. MIEMSS Strike Team Manual • MIEMSS is currently developing Strike Teams consisting of medical personnel and ambulances to rapidly send to jurisdictions in the event of an emergency.

DHMH Office of Preparedness and Response (OP&R)
The coordinating liaison body for the State for public health events/activities.

DHMH Office of Health Care Quality (OHCQ)
1. As part of DHMH ICS response, assists in coordinating communication (sharing updated contact information) and/or helping with queries to healthcare facilities, particularly for facilities without access to MEMRAD such as nursing homes or larger assisted living facilities, to accept relocated patients.
2. Requests or is notified of facility request for CMS 1135 waiver when an emergency is declared. State is required to verify waiver for CMS so situation updates from facility are needed to accompany requests.
3. Handles licensing and safety related issues during the response to the disaster and in the recovery phase to return hospital back to normal operations.
4. Re-inspects facilities to return a facility to normal operations.

Local Health Departments
1. Works with EMAs and EMS to identify ambulance resources when requested by the hospital.
2. Will be the lead agency for ESF #8 Health and Medical response, together with EMS. LHDs will receive status information and communicate and coordinate with healthcare facilities, together with MIEMSS and EMAs. • The LHDs encourage hospitals to use their normal reporting methods/channels to report if an incident has occurred. Depending on the incident the EOCs or DOCs may already be activated and will serve as the main point of contact (i.e. LHDs EOC representative).

3. In the event of MEMRAD inoperability, the EOCs or DOCs will help healthcare facilities communicate needs and/or situational information via available communications systems.
4. Healthcare facilities linking to designated partners or specialty facilities for coordination between themselves will disclose these facility arrangements to the LHDs and EMAs. • This information will be loaded on to MEMRAD for the LHDs to view. LHDs might be able to use the information to help coordinate transportation and other resources.
5. Plays a supporting role in messaging to public (via the Joint Information Center). • Sending/evacuating hospital(s) would serve as lead and LHDs would assist hospital(s) in drafting the unified message.
6. Monitors ESF #8 incident operations to identify current or potential problems. Provides assistance, if possible, when requested to do so (i.e. staff, space, and other resources).
7. Participates in ESF #8 planning meetings, providing current resource status, including limitations and capabilities of agency resources.
8. Provides general guidance on demobilization information and recovery requirements, if requested by the hospital. DHMH OHCQ will help provide guidance on regulations regarding hospital reopening.

Emergency Management Agencies
1. Coordinates the set-up and centralized coordination of city and county government agencies through the city/county EOCs or acts as the on-scene liaison for city/county agencies.
2. Serves in a supporting role to healthcare infrastructure in coordination of city/county government services and requests referred to the state level through MEMA or other jurisdictions. If hospitals need city/county/state help they must contact EMAs and/or LHDs first.
3. Coordinates jurisdictional resources to assist in hospital evacuation including: • Traffic control • Law enforcement • EMS assistance/Ambulance resources. Hospitals must coordinate with the EMAs and LHDs first and the EMAs will reach out to MEMA and MIEMSS as needed. • Other resources as necessary.
4. Coordinates public messaging with hospital Public Information Officer.
5. Requests other transportation resources to cover gaps in emergent hospital transportation needs such as buses.

APPENDIX A: PRE-DISASTER SELF-ASSESSMENT

Two additional tasks, which together comprise a Pre-Disaster Self-Assessment, should be completed as part of the planning process. The first task is completing a Pre-Disaster Assessment of Critical Infrastructure (see Table 1). A key consideration in deciding whether to issue a pre-event evacuation order is to assess vulnerabilities and determine the anticipated impact of the impending event on a hospital and its surrounding community. This impact on critical infrastructure is paramount, with water and power being most important.

The second Self-Assessment task involves estimating the time required to evacuate patients from the hospital. An Evacuation Time Self-Assessment Worksheet (see Table 2) can assist with this task. For Advanced Warning Events, it is critical to have estimated how long it will take to move patients out of the building and relocate them to other hospitals, ideally under a number of different sets of assumptions regarding patients, building conditions, and transportation resources.

The Pre-Disaster Assessment of Critical Infrastructure Worksheet is divided into eight sections: municipal water, steam, electricity, natural gas, boilers/chillers, powered life support equipment, information technology and telecommunications, and security.

The focus on environmental systems (HVAC), water, and electricity is appropriate, given that they are critical for hospital operations, and their loss for an extended period invariably triggers a need for evacuation. The Worksheet can be used in conjunction with the National Infrastructure Protection Plan (NIPP), which is a management guide for protecting critical infrastructure and key resources.

Decision teams should know how long their hospital can shelter-in-place if critical infrastructure are damaged. For example, how long could the hospital maintain a safe temperature without city water during the summer months, and how long could essential power be maintained with only the current on-site fuel supply? The Pre-Disaster Assessment of Critical Infrastructure Worksheet is designed to help decision teams consider the vulnerabilities of their critical infrastructure and their hospital's ability to shelter-in-place, which in turn may guide investment decisions for mitigating vulnerabilities.

If critical infrastructure has not sustained damage, the hospital's ability to shelter-in-place will be affected by the extent to which staffing levels can be maintained, and whether the supply of critical consumable resources—such as food, blood, and medications—can meet the needs of patients and staff, drawing on existing caches within the hospital and regular and backup supply channels. Maintaining safe levels of staffing and consumable resources should be addressed in a hospital's plan for sheltering-in-place. If there is no such plan, the ability to shelter-in-place for more than a few days may be degraded.

Municipal Water/ Steam

The loss of water will lead to hospital evacuation if not promptly restored. Loss of the municipal water supply also jeopardizes:

1) Hospital sprinkler systems
2) Heating systems in some hospitals who use steam
3) Air conditioning units
4) Electricity in some hospitals who use steam

A hospital pre-disaster self-assessment should recognize the presence/absence of backup water supply lines (in the event that the main line fails) and any on-site water reserves, such as a storage tanks or wells.

Electricity
Electricity plays a large role in evacuation decisions. Prolonged loss of electricity can lead to:

1) HVAC loss, which can necessitate evacuation
2) Medical technologies and other critical functions
3) Life support

The number of hours that a hospital can function without municipal electricity, or adequate fuel for backup generators, may be critical factors in an evacuation decision.

A hospital pre-disaster self-assessment should include the number and size of backup generators and an estimate of the length of time these generators can sustain electrically powered life-support equipment and HVAC. A self-assessment should also consider the fuel storage capacity on site and any potential refueling issues.

Natural Gas/ Boilers/ Chillers
For hospitals that use natural gas, damage to gas mains lasting more than 1–2 days (especially in the winter) could lead to an evacuation. A hospital self-assessment should therefore recognize reliance on natural gas, whether there is more than one gas line feeding the hospital, and whether gas from just one intact gas line could meet the most critical needs of the hospital. Some hospitals use boilers to generate hot water; others use them for heating purposes, as well. Most hospitals also have chillers for air conditioning (with or without cooling towers).

1) Heat
2) Hot water
3) Air conditioning

Powered Life Support Equipment
Patients dependent on such equipment may need to be evacuated more quickly than others. A self-assessment should include an inventory of the powered life-support equipment in use on an average day, how many of these have backup battery packs, and how many hours these batteries will last (the latter being a critical factor in deciding how quickly such patients must be evacuated).

Health Information Technology
Loss of key health information technology (IT) and telecommunications systems will, at a minimum,

significantly reduce a hospital's ability to deliver health care services efficiently and may substantially delay evacuation.

1) Computerized provider order entry (CPOE) system delays order completion
2) Automated dispensing units inoperable
3) Access to electronic medical records (EMRs)- ability to create a useful discharge summary (current medications, allergies, orders, brief history).

Telecommunications
Lack of radio interoperability between hospitals and emergency responders, as well as between different teams of emergency responders (fire, military, police, EMS) may jeopardize essential communication. (The Federal Government does not mandate how a State or local community organizes incident response activities or communications.) Hospitals should consider local HAM radio operators to relay essential messages within and beyond their location. Two-way radio interoperability among emergency responders is critical.

The self-assessment focuses on the extent to which computer servers and essential data are backed up or managed offsite, whether redundant hardware and software systems exist, whether manual, paper based systems can be quickly reintroduced, and whether the hospital has backup telephonic communication that does not rely on local service providers.

Security
During a disaster, additional security staff are often needed to:

1) Keep unauthorized people out of the hospital
2) Guard transport vehicles as they move to and from the hospital evacuating patients
3) Maintain order inside the hospital

While the hospital is empty, security staff may be needed to safeguard the property and the costly medical equipment and supplies left behind. Some hospitals rely on a contracted service for primary or backup security; others employ their own security staff and augment this force when needed. Night and weekend shifts may have fewer security staff, making an evacuation at those times potentially less secure.

In some disaster situations, municipal and State police departments may be unable to deploy officers to hospitals because their officers, and the National Guard, are at capacity responding to other community needs. When civil unrest has been extreme, decision teams have occasionally resorted to hiring external security forces to escort evacuation vehicles. A pre-disaster self-assessment should address the availability of security staff (especially if the entire city is evacuating), backup plans if municipal/State law enforcement are insufficient, and how best to augment security staff around the clock, throughout an evacuation.

Estimating Evacuation Time

As part of pre-disaster planning, a decision team should estimate the time required to safely evacuate all patients. This is especially important for Advanced Warning Events. Hospitals should estimate time requirements for two components of evacuation time.

1) ***Time to empty the building***—that is, the time required to move patients from their location inside the hospital (e.g., their room) to a staging area from which they can be loaded into ambulances and other vehicles for transport to another hospital. The staging area might be the lobby of the hospital, the emergency department (which has ambulance bays), or a parking lot across the street from the hospital.

Movement of patients from their hospital rooms to the staging area and beyond depends in part on factors internal to the hospital:

- Whether hospital IT systems can generate a patient discharge summary
- Whether elevators are operational
- Whether staff have participated in evacuation drills
- How quickly additional staff can arrive to help with the evacuation

2) ***Time to transport patients***—that is, the time required to transport patients from the staging area to receiving hospitals or other care sites. The time required to transport patients from the staging area to receiving care sites depends primarily on factors external to the hospital, such as transportation resources availability, road conditions, and the locations of hospitals that can accept and properly care for patients.

Key factors that affect evacuation time are addressed in Table 2:

- Number of patients and mix of patient acuity
- Available staff
- Available exit routes within the hospital
- Patient transportation requirements
- Available transportation resources (vehicles, as well as the necessary staff, equipment, and supplies that must be in the vehicles)
- Entry and egress points at the hospital
- Road and traffic conditions
- Location of receiving care sites

Number of Patients and Patient Acuity Mix

The total number of patients in the hospital who need assistance to evacuate safely will typically be substantially fewer than the total patient census. Some patients will be medically stable and likely to self-evacuate or evacuate with family members. Other patients will be ambulatory and can walk out of the hospital with assistance, while still others will require wheelchairs. Some will require sophisticated equipment and handling if they are to survive the evacuation, and a few very ill patients will be unlikely to survive if moved. The Evacuation Time Self-Assessment should record the typical number of patients in the hospital who will require assistance from hospital staff to evacuate, by patient type or acuity, because different levels of assistance and types of hospital staff are required by different types of patients.

At a minimum, patients in the following hospital units should be considered:

• Adult ICU • Pediatric medical/surgical (“floor”) units • Pediatric ICU • Psychiatric unit • Neonatal ICU • Burn Unit or Burn ICU • Adult medical/surgical (“floor”) units • Other specialty care units

In addition, within these units special consideration should be given to bariatric patients, patients requiring dialysis, patients in negative pressure/isolation rooms, and patients from correctional (prison) facilities.

APPENDIX B: SITUATIONAL AWARENESS

- Situational awareness can be a separate positon of the HCC or part of the Operations or Planning positions and assigned to Situational Assessment Chief.
- The situational assessment should be made at scheduled intervals or as needed to recipient hospitals, LHDs, EMAs, and state agencies.
- The Situational Awareness Chief should review issues and determine their impact to the hospitals and/or other organizations, and recommend solutions to resolve or mitigate issues.
- The hospitals, in the event of a rare communications breakdown or a particularly chaotic incident, may need to send liaisons to designated places to provide situational awareness.
- Send information to external partners via MEMRAD as necessary, regarding any updates *outside* situational awareness reports.

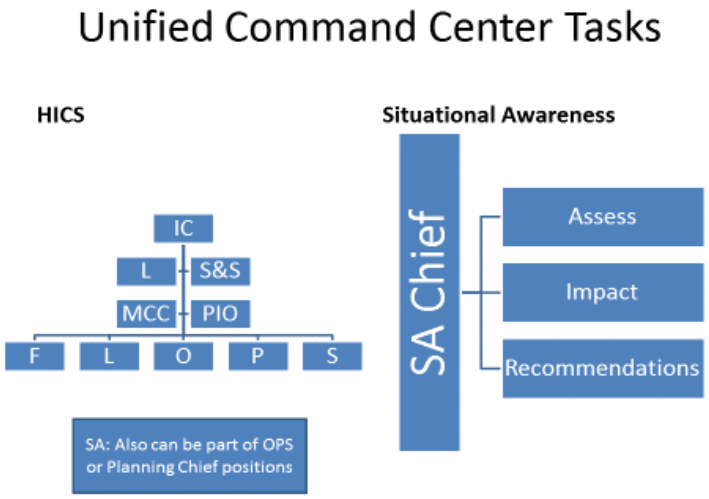


Figure 2

The more emergent the situation, the less situational awareness there might be.

Action Steps:	
1	Obtain current situational assessments by checking in with EMAs, LHDs, and MIEMSS or ask if a hospital staff member can be sent to the Emergency Operation
2	Bed Availability
3	Hospital Specialty/Service Line Profiles
4	Patient Tracking System
5	Triage Tags
6	Transportation Assets and Coordination
7	Equipment/Supplies

APPENDIX C: DECISIONS AND GUIDING PRINCIPLES

Decisions

Hospitals should strive to develop a clear, comprehensive, and consistent decision-making matrix that can be used when they are considering whether to evacuate or not.

The hospital should alert their local Emergency Management Agency (EMA) and local health department if they go on generator power. Request that the local EMA or the local health department act as an advocate for the hospital to ensure the power company is aware of the situation, especially if patient comfort and safety are being impacted.

In many cases, however, it is not immediately obvious that evacuation is the safest course of action for a hospital in response to a threat. Deciding to evacuate may require input from a variety of clinical and non-clinical leaders. When time permits, hospitals may wish to consider convening a pre-established Evacuation Decision Team that has representation from nursing, physicians, safety, facilities maintenance, security, and others so hospital leaders can quickly weigh the risks of evacuation against the risks of staying in place.

Reminder:
It is easier to evacuate with the lights on than with the lights off.

- Hospitals will make the decision to evacuate based on internal plans and triggers.
- Hospital evacuation triggers should include weather circumstances, including flooding.
- All hospital evacuation plans must delegate authority to order a full or partial evacuation to a leader who is onsite 24/7 to respond to an extraordinary situation.

In most emergencies, a full evacuation of the hospital will not be required. Evacuation is generally considered as a last resort due to the complex needs and unstable nature of many hospital patients. An evacuation should only be ordered when it is absolutely necessary. For example, evacuation would be necessary when there is an imminent or potential unmitigated hazard that threatens patient and staff safety. Hospital leadership must monitor and carefully consider the situation outside the hospital when making the evacuation decision. Any hospital evacuation puts a strain on community resources, often in a situation when those resources are already strained. Consideration should be given to bolstering hospital capabilities and resources if an evacuation could cause greater harm to patients by putting them into a setting that cannot provide an appropriate environment of care.

It is important to remember that the decision to evacuate is not necessarily an "all or none" action. When additional time is needed to assess the danger posed by the event, hospitals should consider issuing a "Prepare Only" order as long delaying the evacuation decision does not place patients and staff at risk. Under such an order, hospital staff should prepare for evacuation, but not actually remove patients from their care units (i.e. packing patients, moving supplies to Assembly Point, etc.) Subsequently, if the hospital needs to evacuate, it will have saved valuable time and minimized risks to patients. If the hospital does not need to evacuate, no patients will have been placed at risk in transit and the preparatory work will have served as excellent practice for staff.

In theory, any of the various types of disasters listed in the table below could lead a decision team to consider evacuating patients, either prior to an event "Advanced Warning Events" or in the aftermath of the event "No Advanced Warning Events." Advanced Warning Events, decision teams have time prior to the event to make evacuation decisions. Hurricanes are the most common example of an Advanced Warning Event. With earthquakes, tornadoes, and other instances of No Advanced Warning Events, decisions must often be made very quickly, either in the midst of the disaster or immediately afterward.

Table 3

Types of Disasters[1]

Natural Hazards	Technological Hazards	Terrorism
• Floods • Tornadoes • Hurricanes • Thunderstorms and Lightning • Winter Storms and Extreme Cold • Extreme Heat • Earthquakes • Volcanoes • Landslide and Debris Flow (Mudslide) • Tsunamis • Fires • Wildfires	• Hazardous Materials Incidents • Nuclear Power Plants	• Explosions • Biological Threats • Chemical Threats • Nuclear Blast • Radiological Dispersion Device (RDD)

Pre-Event Evacuation Decision Guide

A pre-event evacuation may be carried out in anticipation of an impending event, when the hospital structure and surrounding environment have not yet been compromised. A pre-event evacuation is appropriate when decision teams believe the effects of the impending disaster may either place patients and staff at unacceptable risk, or when an evacuation after the event is likely to be extremely dangerous or impossible.

Advanced Warning Events—disasters that decision teams and emergency officials can anticipate and track, as they assess the possible consequences of the disaster on their hospital and the surrounding community. Pre-event evacuations are an option with Advanced Warning Events such as hurricanes.

If decision teams elect not to preemptively evacuate—deciding instead to shelter-in-place—a post-event evacuation may become necessary, depending on the impact of the event on the hospital and surrounding area.

An Advanced Warning Event frequently requires two evacuation decisions:
1) one pre-event decision
2) one post-event decision

By contrast, an event with no advanced warning involves only the post-event decision.

Figure 3 shows a flowchart that illustrates both the pre-event and post-event evacuation decisions that an Advanced Warning Event may require. There are several possible "paths" through the flowchart:

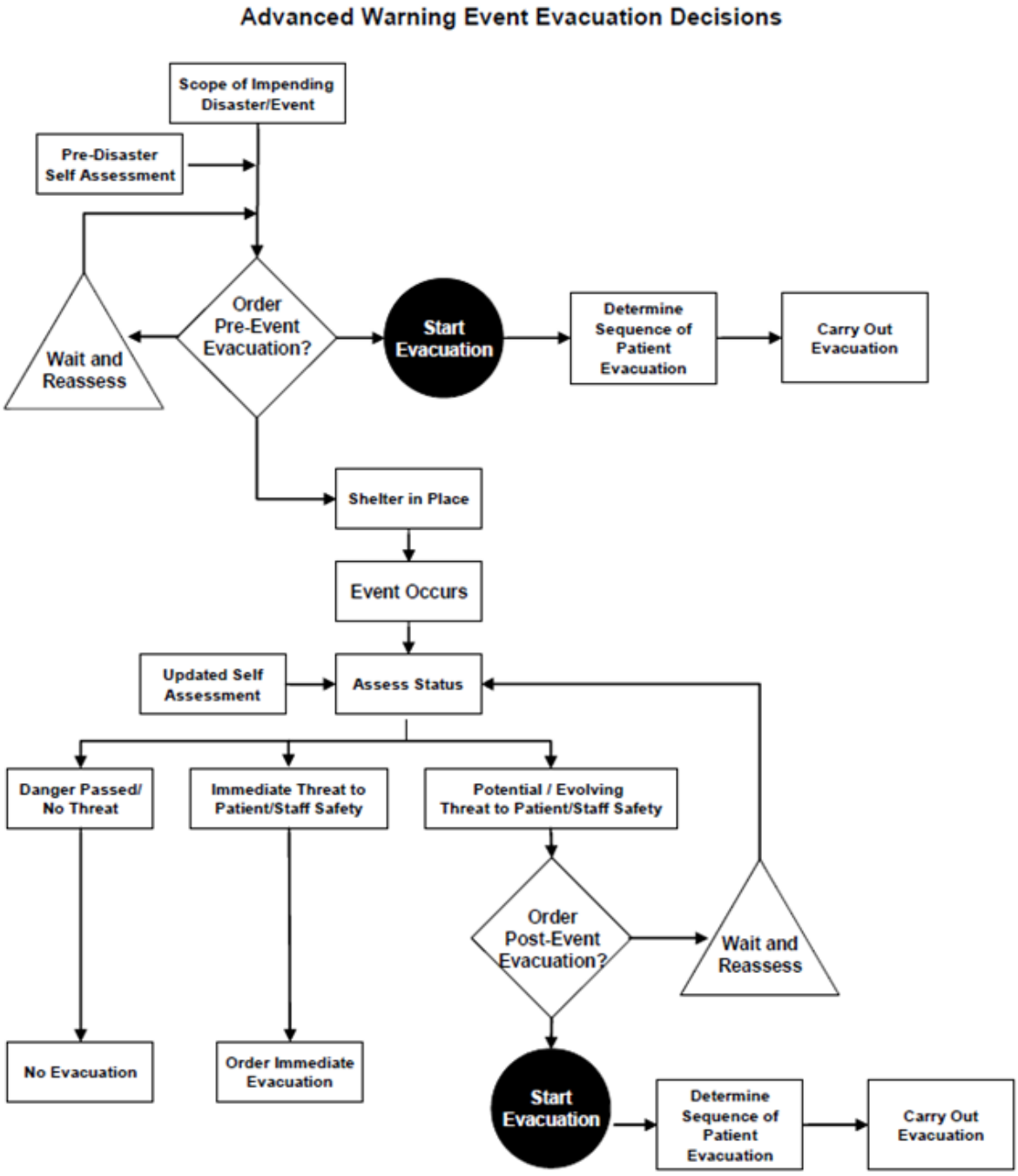
1) Ordering a pre-event evacuation following a wait and reassess period;
2) Deciding to shelter-in-place, with no subsequent evacuation required;
3) Deciding to shelter-in-place following a wait and reassess period, and then subsequently ordering a post-event evacuation.

The flowchart begins with an initial consideration of the decision to order a pre-event evacuation. Typically, this would occur as soon as a disaster is identified that could potentially threaten a hospital.

The flowchart on the next page highlights the three possible outcomes of this decision:

1) Wait and reassess
2) Start an evacuation
3) Make an explicit decision to shelter-in-place during the event.

Figure 3



The wait-and-reassess option defers the decision of whether to start a pre-event evacuation and is typically, the preferred option early in the tracking period, when the disaster is not yet an immediate threat. The wait-and-reassess option is predicated on decision teams' belief that after reassessment, there will still be ample time remaining for an evacuation, if it is needed. In this option, disaster tracking meetings are held regularly, and decision teams cycle through the flowchart loop of "Order Pre-Event Evacuation?" and "Wait and Reassess," possibly several times (see Figure 3).

Decision teams rely on emergency management officials for accurate information about both the expected time and magnitude of the event, as well as explicit quantification of the uncertainty of estimates. Of course in some situations, such as a verified bomb threat, there may be no time to "wait and reassess."

In the wait-and-reassess option, the expected time until the event occurs should be compared to the time required to evacuate patients from the building and safely transport them to other facilities to determine if the decision to evacuate can be deferred. The evacuation time assumptions generated as part of the Pre-Disaster Self-Assessment provide estimates for the time required to safely evacuate. These assumptions should be revisited based on current conditions in the hospital and the expected impact of the event.

Specific questions to consider in the reassessment of the time required to evacuate patients include the following:

1) Current patient census and mix
How does the current patient census differ from the assumptions used to estimate evacuation time and resource needs in the self-assessment?

2) Availability of ambulances, wheelchair vans, and buses. Are previous assumptions about the availability of transportation resources still valid? Are alternative sources of transportation resources available? Are other hospitals currently evacuating or planning to evacuate patients?

3) Location of facilities able to receive your hospital's patients. Are the intended receiving care sites still able to accept patients? What alternative receiving care sites are available to accept patients?

When there is time—particularly in the days prior to a hurricane—decision teams usually discharge any patients who can safely be released to their families and stop admitting new patients. This is called census reduction, and it reduces the demands on the hospital as the focus turns to evacuating patients who require ongoing care. Census reduction may take place before an official pre-event evacuation order is given, as in advance of hurricane; early discharges may also occur after a No Advanced Warning Event, such as an earthquake. Census reduction is a deliberate strategy to reduce the number of patients a hospital is responsible for transferring to other facilities.

Pre-Event Evacuation or Shelter-in-Place?

The wait-and-reassess option is viable for only a limited period of time; as the event progresses and conditions deteriorate, patients will not be able to be evacuated safely due to, for example, hurricane force winds or impassable roads. At some point, decision teams must decide whether to evacuate the hospital or shelter-in-place during the event. The most common decision during the approach of an Advanced Warning Event is to shelter-in-place.

Deciding whether to preemptively evacuate or shelter-in-place requires consideration of two factors:

- The nature of the event, including its expected arrival time, magnitude, area of impact, and duration;
- The anticipated effects on both the hospital and the community, given the nature of the event and the results of the Pre-Disaster Self-Assessment.

Table 4 is intended to help decision teams facing this complex set of considerations. The first section of the table focuses on issues to consider and implications of different characteristics of the

event. Decision teams will, of course, closely monitor impending disasters in order to gauge anticipated effects on the hospital and the surrounding area.

Four generic disaster characteristics to be monitored include:
1) Arrival time
2) Magnitude
3) Geographic area affected
4) Duration

Perhaps more important than the estimate of these characteristics is the variability around that estimate and how likely the variability could potentially change. The most common example of variability is the width of the hurricane "cone" showing the projected path of the hurricane. Local emergency management and other experts are the best source of information on event characteristics.

At a minimum, hospital decision teams should educate themselves on disaster specific characteristics, their variability, and what factors affect variability.

The second part of Table 4 provides a framework for assessing the anticipated effects of the event on key resources needed to care for patients (water, heat, and electricity), the overall structural integrity of the building, and the surrounding community. The latter may include road conditions, community security, evacuation status of nearby health care facilities, the official evacuation orders, and the availability of local emergency response agencies. Specific questions are listed for each of these factors, the answers to which will highlight the risk of ordering a pre-event evacuation relative to the risk of sheltering-in-place.

Pre-Event Evacuation Sequence

After census reduction has occurred and a pre-event evacuation has been ordered prior to an Advanced Warning Event, decision teams must decide whether to evacuate their most medically unstable patients (e.g., those requiring powered life-support equipment) or keep these patients in the threatened hospital and hope that essential services will not be disrupted.

If the decision is made to begin a pre-event evacuation, decision teams must also decide in what sequence to evacuate patients.

Ideally hospital evacuation plans should focus on keeping patients together with the staff who know them best, and evacuating entire floors or units together. However, if many hospital personnel are absent this may not be possible.

Flexibility is extremely appointment when implementing evacuation plans. Many of the decisions will be dependent on the situation the hospital finds itself in and available resources. Decision teams must decide whether the most fragile patients are at more risk from an evacuation than from sheltering-in-place.

1) The strategy of evacuating the most resource-intensive patients first in a pre-event evacuation emerged following Hurricane Katrina. It is preferable to preemptively evacuate resource-intensive patients well before disaster strikes, so as to avoid having to evacuate them in even more treacherous conditions.

2) Available transportation resources may dictate the sequence of patient transfer, especially if specific types of ambulances or air transport are not available for the transport of medically unstable patients (e.g., those requiring powered life-support equipment).

3) In the case of a community-wide evacuation order, hospital workers may be dispersed, leaving hospitals with insufficient staff to shelter-in-place or without enough able bodied people to assist during an evacuation.

4) The evacuation process drastically reduces the number of staff available to stay in the hospital and care for patients, as some staff must join transport teams. Medically unstable patients are particularly resource-intensive and may need to be transferred with several care givers (to provide manual ventilation, monitor cardiac status, and provide other services in the absence of electricity) on specialized vehicles. Therefore, an early pre-emptive evacuation may allow time for more staff to arrive as replacements for the departing transport teams.

5) Ideally, transportation pre-staging sites should be identified around the region to minimize the wait time between the arrival of a transport vehicle and their use. To facilitate the simultaneous evacuation of patients, each hospital should have separate patient loading areas at their facility based on the type of transport the patient requires.

Post-Event Evacuation Decision Guide

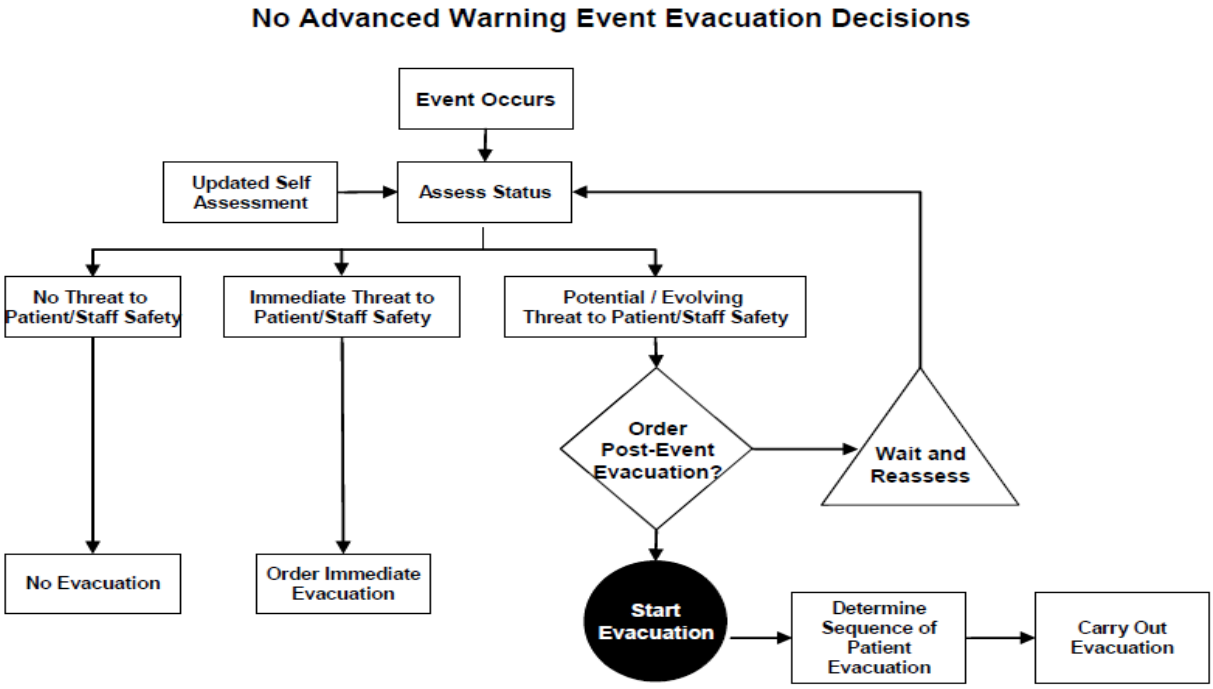
Post-event evacuations have occurred either following Advanced Warning Events (i.e., if the decision was made to shelter-in-place during the event, but subsequent damage was sufficient to necessitate evacuation) or during No Advanced Warning Events. No Advanced Warning Events include, most notably, earthquakes, building fires, tornadoes, and explosions (both accidental and terrorist acts).

The figure below shows a flowchart that illustrates the post-event evacuation decision process. The steps in the flowchart is identical to the bottom half of the previous flowchart, the decision process for an Advanced Warning Event in which the decision team decides to shelter-in-place.

There are several possible paths through the flowchart. Some of the possible paths are:

- An Immediate Threat to patient/staff safety and ordering an immediate post-event evacuation;
- Wait and Reassess period while monitoring a potential/evolving threat to patient/staff safety
- No threat and ultimately not evacuating the hospital
- Monitoring a Potential/Evolving threat to patient safety during a wait-and-reassess period, and then deciding to evacuate the hospital.

Figure 4



As soon as possible after the event occurs, building integrity, critical infrastructure, and other environmental factors must be assessed to determine whether the hospital can continue to provide appropriate medical care to patients or should instead be evacuated.

Wait and Reassess, or Evacuate?
Faced with a potential/evolving threat to patient and staff safety, decision teams must consider whether to evacuate. As shown in Figure 4, this decision has two possible outcomes:

• **Wait and reassess**. Absent a compelling reason to evacuate, the decision should be deferred and reconsidered at a later point, at which time the situation could significantly improve (i.e., no threat to patient/staff safety), significantly worsen (i.e., immediate threat to patient/staff safety), or not change significantly and require further careful assessment.

• **Start evacuation**. The factors that should be considered in the pre-event evacuation decision (see Table 4) are the same for post-event evacuations. Actual post-event evacuations are often delayed if possible and are sometimes unavoidable due to loss of critical resources.

Post-Event Evacuation Sequence
If the decision is made to begin an evacuation after the event has occurred, a subsequent judgment must be made regarding the sequence in which to evacuate patients.

1) Many times, resource-intensive patients are evacuated first.

2) Patients may also be triaged according to acuity and available transportation resources.

3) Matching patients with properly trained staff and appropriate transport technology may be important for patient's requiring specialized care due to the inherent hazards of moving these exceptionally fragile patients.

4) There are some circumstances when decision teams must focus on saving the greatest number of patients such as if there is a fear of an immediate building collapse. A decision team might decide to move the most mobile patients first, beginning on the ground floor and working upwards, ambulatory patients would be escorted from the building first, followed by people who could not walk but were otherwise self-sufficient. ICU patients could be evacuated next, and when all other patients were in a safe area outside, trapped patients could be rescued. This strategy was selected as the best approach to maximize the number of lives saved in this type of situation.

APPENDIX D: ACTIVATION, MULTI-AGENCY COORDINATION, COMMUNICATION FLOWCHART

Activation
All hospital evacuation plans must delegate authority to order a full or partial evacuation to a leader who is onsite 24/7 to respond to an extraordinary situation.

An appropriate and available official must retain or be delegated the authority to order partial or full evacuation of the hospital. This authority may generally rest with the CEO, the Administrator On-Call (AOC), and/or the Incident Commander in an activation of the hospital EOP. All hospital evacuation plans must delegate the authority to order an evacuation to a leader who is on-site 24 hours a day, 7 days per week so s/he may act immediately to respond to an extraordinary situation. Hospitals must also be prepared to receive and immediately act upon an evacuation order issued by an external authority.

Action Steps:
If time permits, convene your Evacuation Decision Team and have them review the hospital's Evacuation Decision Making Matrix.
Decision Making Factors Risk to patients Maintenance of power, water, steam, sewage, oxygen Hospital employee safety Available resources- call to find out, do not make assumptions
Ask units to begin discharging appropriate patients to decrease the overall census load.
Review your hospital's Emergency Checklist.
Obtain a current situational assessment by checking in with EMAs, LHDs, and MIEMSS or ask if a staff member can be sent to the Emergency Operation Center (EOC).
Issue a "Prepare Only" order and ask units to review their evacuation plan. Even if you decide not to evacuate, units will become more familiar with the process.
The hospital will follow procedures to notify staff and visitors of an evacuation. That may include the PA system, text and email alerts, and web notification.
The hospital will follow procedures to activate staffing plans, and communicate with staff currently present and with off duty staff (depending on day vs. night shift).
Hospitals should use their normal reporting methods/channels to communicate if an incident has occurred. Depending on the incident the EOCs or DOCs may already be activated and will serve as the main point of contact (i.e. LHDs EOC representative).

Communication Flow

1) A hospital must take immediate steps at the time an incident occurs:

a) Implement their HICS (Hospital Incident Command System) and assign an incident commander.

b) Convene your Evacuation Decision Team and review your Evacuation Decision Making Matrix.

c) Obtain current situational awareness reports from either the local Emergency Operations center or local health department.

d) Immediately issue a "Prepare Order" and ask all units to review their evacuation plan.

2) Evacuation decisions can be one of the following:

a) Shelter-in-place

b) Shelter in place with those patients who cannot be safely discharged.

c) Wait and reassess later

d) Issue a partial evacuation order

e) Issue a full evacuation order

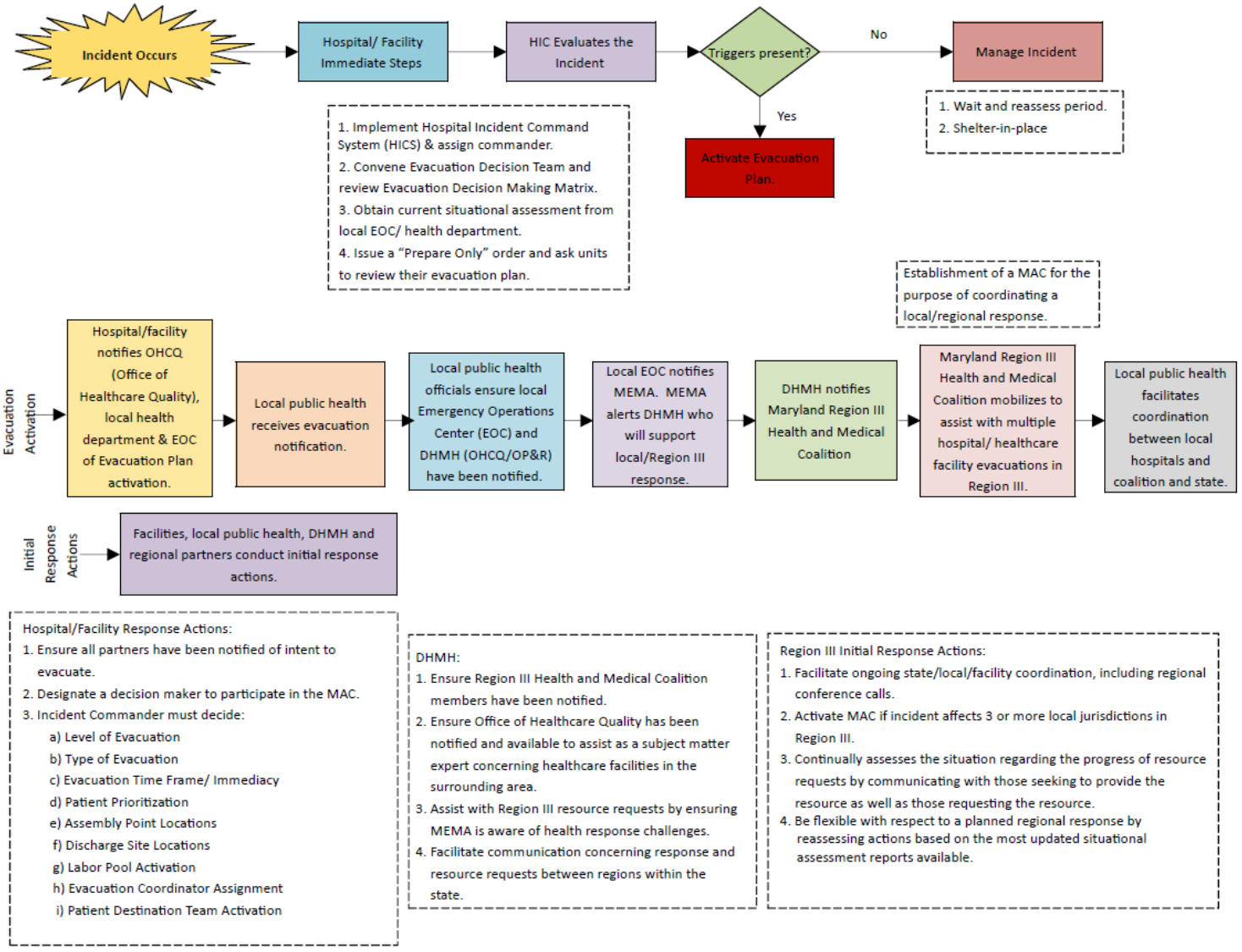
3) If an evacuation is ordered:

a) Notify OHCQ (Office of Healthcare Quality), local Emergency Operations Center (EOC) and local health department.

b) The local health department will ensure both the local EOC and DHMH (OHCQ and Office of Preparedness and Response- OP&R) have been notified and facilitate communication and coordination of activities between local hospitals, the regional coalition and the state.

c) The local EOC will notify MEMA (Maryland Emergency Management Agency) who will alert DHMH (Office of Preparedness and Response) who will support the local and Region III response.

d) DHMH will notify the Region III Health and Medical Coalition who may mobilize to assist ` with the coordination of evacuation activities.


Incident Occurs
Hospital/ Facility Immediate Steps
HIC Evaluates the Incident
Triggers present?
No
Manage Incident
1. Wait and reassess period.
2. Shelter-in-place
Yes
Activate Evacuation Plan.
1. Implement Hospital Incident Command System (HICS) & assign commander.
2. Convene Evacuation Decision Team and review Evacuation Decision Making Matrix.
3. Obtain current situational assessment from local EOC/ health department.
4. Issue a "Prepare Only" order and ask units to review their evacuation plan.
Establishment of a MAC for the purpose of coordinating a local/regional response.
Evacuation Activation
Hospital/facility notifies OHCQ (Office of Healthcare Quality), local health department & EOC of Evacuation Plan activation.
Local public health receives evacuation notification.
Local public health officials ensure local Emergency Operations Center (EOC) and DHMH (OHCQ/OP&R) have been notified.
Local EOC notifies MEMA. MEMA alerts DHMH who will support local/Region III response.
DHMH notifies Maryland Region III Health and Medical Coalition
Maryland Region III Health and Medical Coalition mobilizes to assist with multiple hospital/ healthcare facility evacuations in Region III.
Local public health facilitates coordination between local hospitals and coalition and state.
Initial Response Actions
Facilities, local public health, DHMH and regional partners conduct initial response actions.
Hospital/Facility Response Actions:
1. Ensure all partners have been notified of intent to evacuate.
2. Designate a decision maker to participate in the MAC.
3. Incident Commander must decide:
a) Level of Evacuation
b) Type of Evacuation
c) Evacuation Time Frame/ Immediacy
d) Patient Prioritization
e) Assembly Point Locations
f) Discharge Site Locations
g) Labor Pool Activation
h) Evacuation Coordinator Assignment
i) Patient Destination Team Activation
DHMH:
1. Ensure Region III Health and Medical Coalition members have been notified.
2. Ensure Office of Healthcare Quality has been notified and available to assist as a subject matter expert concerning healthcare facilities in the surrounding area.
3. Assist with Region III resource requests by ensuring MEMA is aware of health response challenges.
4. Facilitate communication concerning response and resource requests between regions within the state.
Region III Initial Response Actions:
1. Facilitate ongoing state/local/facility coordination, including regional conference calls.
2. Activate MAC if incident affects 3 or more local jurisdictions in Region III.
3. Continually assesses the situation regarding the progress of resource requests by communicating with those seeking to provide the resource as well as those requesting the resource.
4. Be flexible with respect to a planned regional response by reassessing actions based on the most updated situational assessment reports available.

MULTI-AGENCY COORDINATION

Multi-agency coordination (or MAC) is a generalized term which describes the functions and activities of agency and/or jurisdictional representatives who come together for the purpose of making decisions regarding the prioritization of activities and how to share critical resources for a specific operational event.

MAC ACTIVATION AND NOTIFICATION

A local/regional jurisdiction can activate a MAC whenever a hospital or healthcare facility decides to evacuate.

A MAC operates as a response facilitator specific to an operational activity. The incident can define its activities and its size. However, its operational goals are:

- To ensure all critical partners have been identified and are communicating.
- To advise responders on what decisions need to be made.
- Assist with obtaining required resources.
- Assist with overcoming challenges during the evacuation (provide subject matter experts).
- Monitor situational assessment reports.

It is recommended that a MAC be activated when an evacuation operation involves three or more hospitals within Region III. However, the MAC may be activated if the evacuation incident affects less than three hospitals at the local/regional jurisdiction's discretion.

Note: If three or more hospitals are being evacuated within the same region, a regional MAC should be established. This should be led by a regional representative, not hospital representatives.

The MAC Coordinator has the responsibility of deciding who should participate in the MAC and how the MAC will function based on the required resources for the event. The MAC Coordinator should ensure a hospital decision maker(s) from the evacuating hospital(s) provides a high level of situational awareness at all times. The MAC Coordinator should also ensure the Office of Healthcare Quality (OHCQ), local jurisdiction's health department and local Emergency Management Agency have been notified of the MAC's activation.

Participating MAC personnel can be notified of the MAC's activation using the following three communication systems:

1. HC Standard
2. Emergency Medical Resource Center (EMRC)
3. WebFusion

Furthermore, MAC personnel are encouraged to use phones to contact each other or their counterparts at effected locations. It is recommended that the MAC keep updated contact information on personnel who may be required to report during an incident and key personnel at each hospital within the region.

STRUCTURE & LOCATION

The local EOC is the preferable location for the MAC; however, the physical location of the MAC may inevitably depend on the location of the emergency. The following chart may also provide some guidance regarding ideal locations for a MAC.

Evacuating Hospitals	First Choice	Second Choice
One	Local EOC	Hospital Incident Command
Two in same jurisdiction	Local EOC	MEMA
Two in different local jurisdictions	MEMA	Designated regional location
Three or more in the same region	MEMA	Designated regional location

Note: A MAC can operate virtually, however, communication is much more challenging.

In addition, the following supplies should be available or assembled at the MAC location to support a MAC operation:

Telephones:

- 1 phone line for voice for each MAC Representative
- 1 phone line for voice for the MAC Coordinator
- 1 fax machine (preferably separate incoming/outgoing lines)

Computers:

- 1 laptop for note-taking purposes, with internet connection to transmit notes to MAC participants

Copy Machine:

- Access to a copy machine
- Paper

Office Supplies:

- Notepads, pencils, pens
- Paper clips, masking tape, file folders, markers, file boxes
- Poster or permanent markers, dry-erase markers, erasers, easel pads

Miscellaneous:

- MAC Group Incident Status Summary Forms
- Health and Medical MAC Group Operations Handbook (yet to be developed)

MAC COORDINATOR

The Coordinator should be a person who:

- Has the greatest knowledge concerning the specifics of the event;
- Will be the most effective liaison based on which resources are required;
- Has knowledge of regional resources and how to access/request them; and
- Is available to carry out the duties of coordinating a regional response.

When an incident occurs, the Coordinator may be the one who meets the greatest number of qualifications (stated above). However, if a more qualified individual becomes available, then that person should take over the responsibilities of Coordinator.

One of the Coordinator's most important jobs is knowing who to contact for resources and coordinating the actions of other partner agencies to ensure resources are found and directed to the appropriate site/location. The Coordinator can also call on subject matter experts to assist them with how to best respond to the incident. Other duties of the Coordinator are:

- Conducting initial and ongoing screening of issues to evaluate if they are appropriate for MAC consideration.
- Assigning and supervising assigned personnel.
- Facilitating the MAC decision-making process by providing a regional prioritization of resource needs.
- Establishing a daily schedule for meetings and conference calls and providing schedule and agenda information to all MAC participants for long term events.
- Requesting technical specialist(s) to assist the MAC.
- Facilitating all conference calls and MAC meetings.
- Orienting new members to the MAC.

MAC STAFF / FUNCTIONAL OPERATIONS

All the following agencies should be notified if a MAC is established and can provide the following important information for the response:

- Hospitals/medical facilities close to afflicted facility.
- Maryland Region III Health and Medical Coalition- coordination of regional resources and response.
- MIEMSS- medical transport.
- DHMH Office of Preparedness and Response (OP&R) - health representative at state level.
- MEMA
- DHMH Office of Health Care Quality (OHCQ) - licensing body for health facilities.
- Local Health Departments- liaison between local, regional and state health resources.
- Local Emergency Management Agencies- information regarding road closures.
- Law Enforcement Agencies- assist with traffic management if available.
- State and Local Transportation Agencies

Job duties of the MAC personnel can be organized under an Incident Command structure. It is advised that personnel be organized as follows:

Operations (works with impacted health facilities)

- Work with impacted hospitals by obtaining a list of required resources.
- Assist impacted hospitals by reminding them of decisions they should be making and how to address incident challenges (may use a subject matter expert).

Note: The hospital decision maker/ representative must provide the MAC with a list of required evacuation resources and possible challenges so the MAC members can begin assisting with obtaining resources and offering possible solutions to the identified challenges.

Planning (assists MAC Coordinator - Incident Commander (IC))

- Track resources.
- Obtain situational assessments.
- Document Incident Action Plan and details relevant to the incident.
- Obtain/contact subject matter experts/ technical specialists.

Note: Accurate situational assessments are critical with respect to ensuring resource requests are met and the Incident Action Plan correctly reflects the required activities that must be carried out to meet the operational goals .

Logistics (may collaborate with MIEMSS)

- Direct transport vehicles to the correct locations for patient pick up.
- Assists with communication challenges.
- Provides MAC facility maintenance as needed.

Below is a visual structure to see how the MAC will exist within local and/or state emergency management organizational structure.

DEACTIVATION

The MAC Coordinator possesses the authority to deactivate the MAC and initiate recovery.

Below is a diagram of how the MAC exists within the context of the overall state and local emergency management infrastructure and hierarchy.

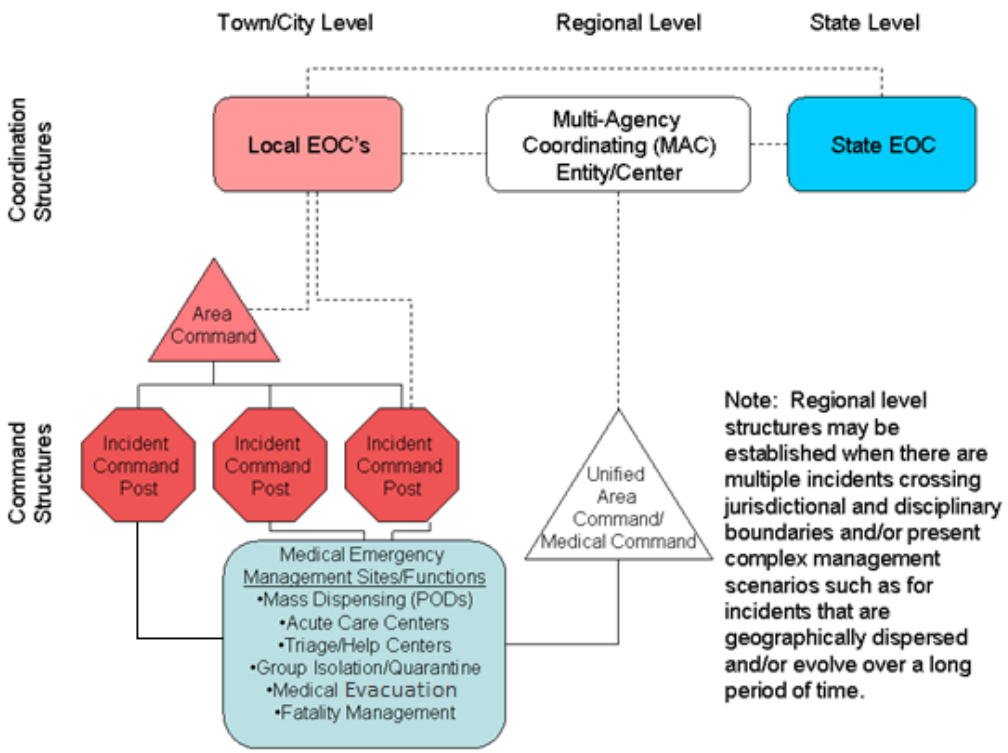


Figure 6

APPENDIX E: HOSPITAL EVACUATION TOOLKIT

Region III Health Coalition Hospital Evacuation Toolkit

- Designed to assist hospitals with evacuation planning efforts by providing guidance and tools that are useful in most anticipated disaster scenarios in its efforts to prepare for the possible evacuation of part or all the facility.

- Meant to complement and integrate with the hospital's Emergency Operations Plan (EOP), and not replace, duplicate, or conflict with the structures, roles, or guidance offered by the EOP, especially the HICS structure.

- Not all portions of the guidance will be appropriate for all hospitals. Hospitals are encouraged to review this document and adapt and incorporate those sections and tools they deem useful and appropriate to their needs.

- Attached: Maryland Region III Health and Medical Coalition Hospital Evacuation Toolkit and Worksheets.

Evacuation_Hospital Tool Kit v1 0_Appendi

Hospital Evacuation Worksheets.pdf

APPENDIX F: COMMUNICATION METHODS

Communication methods involve the use of landlines, cellular devices, fax, email and web-based alert systems as the first line of communication during normal and emergency operations. Hospitals utilize the following for communication:

- EMRC
- DEMSTEL
- MEMRAD
- WebEOC
- WebFusion

Back-up Hospital Equipment
Certain back-up equipment can be used as the second line of communications during normal and/or emergency operations.

- Radios: ability to make/receive transmissions during a widespread power-outage and to configure talk groups that allow for interagency communication between local jurisdictions and local emergency response organizations.
- MSAT: allows groups of users to communicate during a mass power outage.
- Ham Radios: used to communicate with emergency responders and known for its capability to work on batteries and portable generators. However, the radio requires individual licenses to operate or qualified ARES/RACES personnel.

In the event of MEMRAD inoperability, healthcare facilities will communicate needs and/or situational information to the EOCs or DOCs via available communications systems.

For more information regarding communications, please refer to the Region III Health and Medical Coalition Communications Plan.

APPENDIX G: REFERRAL MATRICES

- Hospital emergency planners and medical service line/specialty representatives will identify resource specific infrastructure capabilities and/or equipment/services with their respective subspecialties and insert them into the established Referral Matrix.
- Hospital emergency planners and subspecialty leadership and physicians will identify which hospitals they normally refer their patients to in Maryland and in states in proximity to Maryland and insert the hospitals into the established Referral Matrix.
- Referral Matrices are used for hospital and regional evacuation incidents to match and transfer evacuating patients with appropriate receiving hospital(s) to help continue their care.
- Referral Matrices should be given to the HCC and added to MEMRAD to maintain information on possible recipient hospitals.
- Attached: Region III Hospital Referral Matrix

Region III Evacuation Operations Plan v2.1 4-4-17.xlsx

APPENDIX H: TRANSFER PROCEDURES

- Sending Hospital: Match patient to most appropriate hospital.
- Recipient Hospital: Beds available by specialty based on pre-established profile (Referral Matrix).
- Hospitals will use transfer/discharge procedures used on a day-to-day basis, usually physician to physician contact and agreement.

Action Steps:	
1	Physician-to-physician initiated calls for transfers will need to provide the same day-to-day information but in multiple increments based on case mix and acuity if more than one bed is available at the recipient hospital.
2	Hospital staff will begin working as soon as the evacuation plan is activated to match evacuating patients with appropriate available beds in other facilities (see Referral Matrix).
3	Physicians with the highest number of admissions should be part of HCC to avoid having them discharge/transfer their patients without notifying the HCC.
4	The sending hospital should document the required information or data fields through MEMRAD to the recipient hospitals' HCCs and/or respective departments.
5	Once information is received by the recipient hospitals' HCCs and/or respective departments, the appropriate HCC team members will formalize/coordinate procedures for relocating/transferring patients.
6	Once confirmation is received from the recipient hospitals' HCCs and/or respective departments that they can accept the patients, the sending hospital can then complete the logistics for evacuation through the HCC.

APPENDIX I: FAMILY NOTIFICATION

- Family notification involves attempting to notify family members and other related and responsible parties, if time allows, about patient transfer destinations, answering calls, and responding to questions from family members about patient welfare and location.

Action Steps:	
1	Contact patients' families to notify them about the impending evacuation.
2	Manage, if resources and time allow, a phone bank that will answer calls from families looking for information.
3	Manage and determine locations for the primary and secondary family waiting areas for families that are on-site during the evacuation if they will not or cannot leave.
4	Prepare evacuation risk communication messages that describe the process for obtaining further information about the status of patients.

- DHR can assist with family notification as they will have access to EPTS/MEMRAD and will provide a hotline number.
- Hospitals should coordinate with the EMAs, DHR, and MIEMSS to set up the family reunification process.

APPENDIX J: TRANSPORTATION AND EVACUATION TIME

Action Steps:	
1	Hospitals will coordinate ambulance and bus requests first through the EMAs, EMS, and LHDs. • Need to distinguish between Advanced Life Support and Basic Life Support ambulance needs.
2	After local resources and MOUs have been exhausted, local agencies will coordinate with MEMA and MIEMSS.
3	Hospitals will activate public and private ambulances, helicopters, and other vehicles and have them report to the designated location at the sending hospital.
4	HCC will work with sending and recipient hospital transportation coordinators to coordinate transportation for identified patients.
5	HCC will identify credentialed staff to accompany patients.
6	HCC will use EPTS and work with hospital staff to communicate patient relocation with respective family members.

- MIEMSS will deploy a liaison to the sending HCC to facilitate transportation of evacuated patients to the recipient hospitals, as well as establish their ICC to assist the identified liaison in expediting transportation needs.
    - Note: MIEMSS may not be able to respond as described to the sending or receiving hospitals depending on what other disasters may be impacting the local jurisdiction.

- Ideally, transportation pre-staging sites should be identified around the region to minimize the wait time between the arrival of a transport vehicle and their use. To facilitate the simultaneous evacuation of patients, each hospital should have separate patient loading areas at their facility based on the type of transport the patient requires.

Egress Routes From Within the Hospital
While unlikely to be a problem during an "orderly and planned" evacuation, egress from a hospital may be severely constrained during a "drop everything and go" evacuation.

- Stairwells or exits may be obscured by smoke or unavailable because of fire.
- Stairwells may be dark if backup power has failed.
- Elevators can also be out of service, lengthening the time required to move all patients out of the hospital.

Entry and Egress Routes Outside the Hospital
A hospital evacuation requires road access to ramp-equipped hospital exits. If a hospital has only a few exists with ramps an orderly and safe evacuation could take days, especially if the rest of the city (and all its hospitals) are also trying to evacuate or if there is poor coordination between the hospital and transportation providers. Poor coordination can lead to numerous vehicles waiting for patients to transport, or numerous patients waiting at the hospital exits for vehicles.

A pre-disaster self-assessment should estimate the number of vehicles that can be loaded at ramp equipped hospital exits, whether there is a single loading area or if there are multiple loading areas accessible from different streets, and how long it might take to evacuate all wheelchair and bedbound

patients through these exits.

Some hospitals have an interim plan to bring patients to a location (perhaps outdoors) where they could then be loaded into vehicles more quickly—in effect a two-stage evacuation. Again, a self-assessment could ascertain how long it would take to move patients to this alternative location, and then how long it would take to load them all into vehicles for the second stage of evacuation.

Patient Transportation Requirements
The Self-Assessment Worksheet should include an estimate of the number (or percentage) of patients who will require transportation resources to be safely transported to other facilities. Transportation resources include not only the vehicle, but also:

- The required number of accompanying staff
- Equipment and supplies
- Vehicle types typically include buses (if patients are ambulatory or need limited assistance)
- Wheelchair vans (if they can sit up)
- BLS ambulances
- ALS ambulances- patients dependent on powered life support equipment

Pre-disaster planning and coordination with ambulance providers and local, county, and State EMS agencies is essential so that hospital staff know what types of patients can be transported safety in the ambulances used in their area.

Typically, a detailed census review will be required for a precise count of the number of patients that could be transported via bus, wheelchair van, BLS ambulance, or ALS ambulance based on patient's functional status. Of course, many other types of vehicles can be used to evacuate patients, particularly when post-event conditions limit access to the hospital. Depending on the circumstances, patients may have to be transported in vehicles (or accompanied by hospital staff) that do not conform to ordinary standards of care.

Transportation Resources
The number of vehicles of each type that are available to transport evacuated patients (assuming they are properly staffed and equipped) is a critical determinant in how long it will take to move all patients to receiving care sites.

Pre-existing contracts
Even with pre-existing contracts, there is no guarantee that vehicles will be available, particularly if multiple hospitals are evacuating simultaneously, in which case the "competition" for ambulance and other transportation resources will likely be significant. During widespread disasters affecting an entire metropolitan area, all the medical facilities rely on local ambulance companies—and many rely on *the same* ambulance companies. It is important to understand whether a hospital has an exclusive contract with one or more transportation providers, or whether they will be dependent on ambulance companies that also serve many other facilities. Even if a hospital has an exclusive contract, a backup plan is required because these resources may not be available when an entire community is trying to evacuate simultaneously.

Government actions
Actions by government officials may also affect the availability of contracted ambulance services. A hospital administrator called his ambulance contractor the day before Hurricane Katrina's landfall to move 12 ventilator-dependent patients to Lake Charles, but he was told that the mayor had taken control of all ambulances and the traffic was so bad that they would not likely get back and forth before the storm hit.

FEMA's national contract
FEMA has entered a national contract for emergency ambulance services. The contract currently covers two regions (the Atlantic Coast and the Gulf Coast), providing up to 300 ambulances, 25 air ambulances, and paratransit vehicles to transport 3,500 persons per region. Requests for additional ambulances can also be made from other States through the Emergency Management Assistance Compact (EMAC). These additional ambulances coming from outside a disaster area may be more helpful in some hospital evacuations (e.g., prior to hurricane landfall) than in others (e.g., an earthquake). Because the ambulances may not be able to reach the scene quickly enough to assist in an immediate no-notice evacuation, hospitals must plan to be able to support temporary patient care outside of their physical facility until appropriate transportation capability arrives. Decision teams should also consider whether these ambulances and accompanying personnel will be equipped to transport neonates, children, and other special needs populations. The national ambulance contract includes all patients, regardless of age, condition, or special needs.

U.S. Department of Defense's (DoD's) Memorandum of Agreement
Medical special needs patients are not covered in the U.S. Department of Defense's (DoD's) Memorandum of Agreement for aero-evacuation of patients via the National Disaster Medical System (NDMS), although the DoD is committed to assisting with the evacuation of all patients.

Location of Care Sites Receiving Evacuated Patients
A hospital evacuation will be planned differently depending on whether the entire area is being evacuated or just one hospital. If just one hospital is evacuating (e.g., due to a fire inside that building), patients can be more easily dispersed among nearby hospitals. In most metro areas, this transport would be for less than 10 miles, and ambulances could cycle back and forth moving patients. An evacuating suburban or rural hospital may have to send patients farther away to appropriate receiving care sites.

A self-assessment should determine how close the nearest appropriate hospitals are and what numbers of various types of patients—especially ICU and other specialty-care patients—those nearby hospitals can absorb, on an average day. Local or regional bed availability systems, if available, can assist with this task.

In a disaster that causes a widespread evacuation of health care facilities:
- Transport destinations may include other states.
- Traffic-choked highways and lack of refueling stations could also slow the evacuation and prevent ambulances from cycling back for repeated evacuation trips.

Evacuation plans therefore should anticipate the possible necessity of including aeromedical services in their patient transport and distribution systems.

Patients must be transported to another health care facility with the same level of care the patient is currently receiving, whenever possible. If there is no other hospital in the state that can provide the required level of care then transporting the patient out of state should be considered.

Estimating Evacuation Time
At a practical level, decision teams should focus on perhaps two or three of the most likely scenarios for their setting and attempt to estimate the most probable evacuation times. One such scenario is a planned and orderly evacuation of the typical mix of patients, with systems operating normally (e.g., all elevators are functional), and if the hospital is the only one in the area that is evacuating.

A variation of this scenario is to assume that other hospitals in the area are also evacuating.

Listed below are four possible approaches to estimating the time required to evacuate patients.

1) The easiest—but least rigorous—approach is to estimate evacuation time based on how long it took other hospitals to evacuate and how closely those circumstances resemble the assumptions in the relevant planning scenario. However, this approach is not recommended. Still, data from other hospitals may offer some guidance.

2) Exercises. The results of evacuation tabletop exercises, adjusted and confirmed by data from drills, can inform evacuation time estimates.

3) Computer models. Simulations and other types of computer models are available for hospital planners. The AHRQ Mass Evacuation Transportation Model, for example, estimates the time required to transport patients from one or more evacuating hospitals to one or more receiving care sites. (It does not consider the internal characteristics of evacuating hospitals that would affect the time to move patients from their rooms to a staging area location.)

4) "Back of the envelope" calculations. An alternative approach for estimating the transport time is to estimate the number of round-trips required for each vehicle participating in the evacuation and the average round trip cycle time from staging area to receiving care site.

APPENDIX K: PATIENT TRACKING

Maryland triage tags along with the possible use of CRISP (Chesapeake Regional Information System for our Patients) will be used to track patients in Maryland.

Note: CRISP is Maryland's statewide health information exchange (HIE) and Regional Extension Center (REC). It is Maryland's electronic patient record system.

Action Steps:	
1	Triage tags should be placed on patients as soon as the decision to evacuate has been made.
2	Due to the limited number of bar code scanners, a paper log may need to be kept with the patient during their internal transport (transport within the evacuating hospital).

APPENDIX L: RESOURCE REQUEST AND MANAGEMENT / REGION III MOU

Resource Request and Management

- **Hospitals will first contact the EMAs and LHDs for external resources**
    - Local agencies will exhaust resources and mutual aid first. See Region III Hospital MOU link.

Regional Hospital MOU.pdf

    - Local agencies will coordinate help from the State and Region III once local resources have been exhausted.
- **Mutual aid availability is dependent on the extent of the disaster-at-hand**
    - However, mutual aid for just one to two hospitals within a jurisdiction will be more likely than a disaster impacting more than two hospitals or a disaster affecting a larger jurisdictional area.
    - Region III members can use the Maryland Region III Health & Medical Task Force Region III Resource Management Plan to request HPP and UASI equipment from area hospitals as well as the ACS at GBMC.
    - The ACS at GBMC can be requested as a resource for the movement and transfer of patients. Refer to the Maryland Region III Alternate Care Site and Training Center at Greater Baltimore Medical Center Plan for the request process and details.
- Hospitals are encouraged to give notice to MEMA, MIEMSS or DHMH that while they are requesting resources through the locals first, they might need resources beyond local capabilities.
- If hospitals are not the priority in a disaster, resource decisions will be timelier to allow the hospitals to independently address them.
- Hospitals should also consider matching complementary resource needs with other hospitals-i.e., sending hospital may send staff to the receiving hospital that can accept patients based on equipment and bed count, but might not have staff availability.
- Mechanisms to track equipment during an emergency patient transfer:
    - Inpatient units will label equipment that will be sent (i.e., hospital, jurisdiction, stockpile, etc.).
        - Each tag that will be assigned to a patient has multiple peel-off bar codes (all the same number) that can be attached to the patient's belongings. There is also a note space in each record to indicate the belongings/equipment if time allows.
        - The bar codes are incorporated into EPTS as the standard system being used.
        - Equipment with no bar codes should be recorded on the discharge sheet as well.

Regional Assets Procedures for Deployment

Requesting Facility:

- Only the Emergency Incident Commander/designee at each Requesting Facility has the authority to initiate the transfer or receipt of resources.
- The onsite Incident Commander must first:
    - Identify the funding stream under which an asset was purchased (UASI or HPP)
    - Determine the location of the asset (Maintaining Facility/Organization) by consulting the Unified Resource Listing (Section V.a) and/or the Resource Information Sheets (Section V.b).
- The Requesting Facility should then notify their local health department and EOC (if activated) of any external requests for assets through either the HPP or UASI processes.

Local health department:

- Communicate the resource request to the local EOC (if activated) as well as inform DHMH of the resource request.
- Assist with ensuring the validation process is carried through to the Request Authorizing Agency (RAA) which varies according to the resource.

Requesting Authorizing Agency:

- Prior to deployment and utilization, requests must be approved by the appropriate Request Authorizing Agency (RAA). The RAA varies by circumstance.
- DHMH shall serve as the RAA for HPP-purchased resources. The DHMH- Region III Coordinator will serve as a subject matter expert regarding the HPP resource(s) being requested.
    - The Baltimore Regional UASI coordinator or his/her representative shall serve as the RAA for UASI purchased resources.

In-house HPP assets only:

- The Maintaining Facility/Organization may utilize their assets without receiving DHMH approval. However, the assets continue to be reserved for emergency use only. Following use of in-house HPP assets, the facility is required to:
    - Notify DHMH within 24 hours of asset utilization. Notify DHMH via email at MDHPP.dhmh@Mayland.gov or call 410- 767-8826; and
    - Submit an incident After Accident Report within 60 days of asset utilization.

HPP assets not located in-house:

The initial request for transfer may be verbal to allow the Maintaining Facility/Organization appropriate time to ensure access to equipment. However, a verbal request must be followed-up with a formal Regional Resource Request Form (R3 Form ± Appendix A-1) submitted prior to final transfer of the assets from the Maintaining Facility/Organization to the Requesting Facility.

Appendix A-1 – Region III Regional Resource Request (R3) Form

Maryland Region III Resource Request (R3) Form

REQUESTOR			
Requesting Facility /Organization (RFO)		Time/Date of Request	
RFO Representative		Proposed Time/Date of Request Pick-up	
RFO Phone #		RFO E-mail	
RESOURCE			
Name of Resource Requested		Resource Code (RMP)	
Type/Kind of Resource		Quantity Requested	
NEED			
Describe the Need (Current status of hospital, level of requested supply, ability to obtain the resource elsewhere)			
Signature of RFO Representative			Date

Figure 7

APPENDIX M: STAFFING, CREDENTIALING AND VOLUNTEERS

- For staffing,

  Staff are required to move patients out of the hospital and may be needed to accompany patients during transport to a receiving care site. Depending on the type of disaster, there will likely be staff shortages. It is helpful to try to pre-estimate the attrition rate of a hospital's workforce during a disaster, as many employees may themselves become victims of the disaster, or may have family responsibilities that interfere with their ability to staff the hospital (e.g. evacuating dependent children).

  - Require essential staff to remain in the hospital throughout a declared disaster so that they are available to assist in an evacuation—this is a condition of employment and staff must make alternative arrangements for their dependents.

  A pre-disaster self-assessment should therefore consider the personnel policies in place and the staff deficits that could occur in different types of disasters that may involve community-wide evacuation orders.

  Hospitals also typically have significantly fewer staff on hand during night and weekend shifts, which would greatly affect the ability to quickly move patients out of the hospital in an urgent evacuation. Some hospitals rely more heavily than others on staff from temporary agencies, or 'traveling' staff who contract for short assignments (especially nurses and technicians). Such staff may not be as readily available as full-time hospital employees during an emergency.

  Volunteers, visitors, and family members may be available to assist in evacuating some patients.

- For credentialing, Region III members are part of the Baltimore City Healthcare Facilities Mutual Aid System Memorandum of Understanding

  - Recipient hospital will grant emergency privileges to other hospital staff after receiving confirmation from sending hospital that credentialing process was completed for staff deployed.

  - Personnel being offered to assist must be fully accredited or credentialed by the facility providing the staff and must have documentation (identification badges, etc.) to that effect. The recipient hospital provides supervision and work shifts for the donated personnel to the same extent that it supervises it own staff.

  - Please refer to the Baltimore City Healthcare Facilities Mutual Aid System Memorandum of Understanding for more details.

- For volunteer needs, Region III members can utilize DHMH's Maryland Responds Medical Reserve Corps

  - Administered by DHMH OP&R.

- Maryland Responders include medical and public health professionals, such as physicians, nurses, physician assistants, pharmacists, dentists, veterinarians and epidemiologists. Many other nonmedical community members also support the Maryland Responds MRC, such as interpreters, chaplains, office workers, and legal advisors.
- Please refer to the MD Responds Medical Reserve Corps Volunteer Management Guide for more details about the program and the request process.
- Volunteers must be assigned appropriate tasks, as trained medical staff are required to move and transport most patients with intensive care needs.

APPENDIX N: RECOVERY

- The hospitals will use their normal reporting methods/channels internally and externally to communicate that the evacuation has been completed, the incident is over, and the hospital is now in recovery mode.

- Hospitals need to be prepared with resources to facilitate the recovery process. The hospitals need to do the following:

Action Steps:	
1	Assess and document the specific damage that occurred in the hospital due to the emergency incident and the subsequent evacuation and vacancy.
2	Identify necessary repairs.
3	Identify and document equipment and supplies that must be repaired or replaced.
4	Collect information that will be required by accrediting and licensing organizations.
5	Estimate the amount of time needed to complete repairs/replacements prior to reopening.

- DHMH OHCQ will help provide guidance on regulations regarding hospital reopening.

- LHDs will provide general guidance on demobilization information and recovery requirements, if requested by the hospital.

APPENDIX O: EXERCISES AND TRAINING

- Hospitals will conduct internal exercises and trainings
    - Define orientation and annual staff training for evacuation procedures provided to all staff.
    - Describe how the evacuation protocols will be tested during drills and/or exercises.
    - Below are a few examples of drills and exercises that can be done.

Action Steps:	
1	Drills: A floor (unit) level drill using checklists or toolkits; a patient packaging drill; a stairwell drill moving an entire unit's ambulatory and non-ambulatory patients down the stairwells to the ground floor; an Assembly Point operations drill.
2	Tabletops: A leadership exercise reviewing the decision to evacuate and initial command decisions required; a floor (unit) level tabletop exercise.
3	Functional Exercises: a hospital functional exercise • This exercise would progress through the entire evacuation sequence from start to finish • This exercise would test communications capabilities, flow of information, and situational awareness among: o Hospital Incident Commander o Individual Care Units o The Assembly Point o The Staging Area
4	Full Scale Exercises: Hospitals may wish to combine elements of the several drills, tabletop exercises, and functional exercises to create variations on a full-scale exercise. These exercises can be done with inanimate objects (i.e. boxes), mannequins that weigh the same as typical hospital patients, or with live volunteers.

- Education and Communication
    - Region III Health & Medical Coalition will provide seminars, workshops, and exercises regarding the regional evacuation procedures and guidance.

TABLES

Pre-Disaster Critical Infrastructure Self-Assessment

Evacuation-Relevant Resources	Implication
City Water	
• Is water used for heating the hospital?	Y= more vulnerable
• Is water used for cooling?	Y=more vulnerable
• Does the hospital have a well?	N=more vulnerable
• Is there one water line going into the hospital, or also a backup line?	Only 1=more vulnerable
• Is there a water storage tower/tank on the roof?	Y=more vulnerable to earthquakes (but good backup water source)
• If the water tower/tank collapsed, would the hospital then be without water (or sufficient pressure)?	Y=more vulnerable
• How long can the hospital maintain a safe temperature without city water in summer heat?	Hours = time until evacuation
• How long can the hospital maintain a safe temperature without city water in winter cold?	Hours = time until evacuation
Steam	
• Does the hospital receive steam for heat from a separate steam-generation plant?	Y=more vulnerable
• Is that steam plant on the hospital premises?	N=more vulnerable
• Is there one steam line into the hospital, or also a backup conduit?	Only 1=more vulnerable
• How long can the hospital maintain a safe temperature if the steam-generation plant is off line?	Hours = time until evacuation
• Is steam also used to generate electricity?	Y=more vulnerable
• If so, what % of electricity would be lost if the steam-generation plant went offline?	>50%=vulnerable
Electricity	
• Does the hospital have a central backup generator?	N= more vulnerable
• More than 1?	N= more vulnerable
• Is there a fuel storage tank on site with a direct line to the backup generator?	N= more vulnerable
• Is the fuel storage tank underground?	N= more vulnerable
• In a flood, would the intake be underwater?	Y= more vulnerable
• How long can essential power be maintained using the current fuel supply?	Hours = time until evacuation
• Does the hospital have smaller or portable generators for floors/sections of the hospital?	N=more vulnerable

Pre-Disaster Critical Infrastructure Self-Assessment

Evacuation-Relevant Resources	Implication
• Can all essential areas of the hospital be powered with these smaller generators?	N= more vulnerable
• Is fuel stored on site for these smaller generators?	N= more vulnerable
• How long can essential power be maintained using the current fuel supply and these smaller generators?	Hours = time until evacuation
Natural Gas	
• Is the boiler or other heating equipment fired by natural gas?	
• Is there one gas line into the hospital, or also a backup pipe?	Only 1= more vulnerable
• How long can the hospital maintain a safe temperature if the gas stops?	Hours = time until evacuation
Boilers/Chillers	
• Does the hospital have backup/redundant boilers?	N= more vulnerable
• Does the hospital have backup/redundant chillers?	N= more vulnerable
• How long can the hospital maintain a safe temperature without the chiller in summer heat?	Hours = time until evacuation
• How long can the hospital maintain a safe temperature without the boiler in winter cold?	Hours = time until evacuation
Powered Life Support Equipment	
• On a typical weekday, how many patients are on ventilators or other powered life-support equipment (including neonatal incubators and ventilators)?	<10 ____ 11-25 ____ 26-50 ____ 51-100 ____ 100+ ____
• Does each of these ventilators or other pieces of equipment have a battery pack?	N= more vulnerable
• What is the average battery life per ventilator/equip?	Hours = time until evacuation

Pre-Disaster Critical Infrastructure Self-Assessment

Evacuation-Relevant Resources	Implication
• How many patients are otherwise oxygen dependent?	<10 ____ 11-25 ____ 26-50 ____ 51-100 ____ 100+ ____
• Does the medical gas system rely on electricity?	Y= more vulnerable
• If the medical gas system fails, how long can these patients be maintained using the current stock of portable/backup oxygen?	Hours = time until evacuation
Information Technology and Telecommunication	
• Are servers and other telecommunication systems on the hospital premises or offsite?	On premises = more vulnerable
• Are redundant hardware and software systems deployed offsite?	N = more vulnerable
• Are critical databases (e.g. EMRs) managed or backed up offsite?	N = more vulnerable
• Can the EMR quickly generate patient discharge summaries to accompany each evacuated patient?	N = more vulnerable
• Can manual, paper-based backup systems and procedures be rapidly reconstituted (e.g. manual order entry, manual medication dispensing), and have staff been trained to safely use these systems?	N = more vulnerable
• Does the hospital have VOIP capabilities or two-way radios that interoperate with local emergency responders?	N = more vulnerable
Security	
• Does the hospital employ its own security staff or contract with an outside security firm?	Own staff____ Contracted____
• Are sufficient security staff on site during every shift (including nights and weekends) so that two can be stationed at every entrance/exit?	N= more vulnerable
• Can sufficient additional security staff be brought in to escort/guard transport vehicles?	N= more vulnerable
• Does the hospital evacuation plan assume that municipal or State police will be available to assist?	Y= more vulnerable

Evacuation Time Self-Assessment Worksheet

Evacuation-Relevant Resources	Implication
People	
• If a mandatory city-wide evacuation order is issued, what percentage of your staff is likely to leave with their families (and not report for work)?	High % = more vulnerable
• Have additional trained staff been identified/located to assist, if necessary, with the evacuation?	N = more vulnerable
Evacuation Resources and Patient Mix	
Patient Census and Mix	
a. How many patients are in the ICU (including adult, pediatric, and neonatal intensive care units) and other units (e.g., burn units) with special evacuation needs (e.g., patient must be accompanied by two health care professionals)? b. Typical census of adult and pediatric patients? c. Typical census of patients with special evacuation needs (e.g., psychiatric patients, bariatric patients, patients from correctional facilities)?	The more ICU and specialty care patients, the more limited the options for where they can be transported.
Patient Transportation Needs	
a. What percentage of patients could self-evacuate (e.g., be taken home or evacuated by family/friends)? b. What percentage of patients are ambulatory (e.g.,could be evacuated in a bus)? c. What percentage can sit up but not walk (e.g., could be evacuated in wheelchair vans)? d. What percentage require medical attention at the BLS level during transport? e. What percentage require life support equipment (e.g., could only be evacuated in an ALS ambulance or medevac helicopter)?	Percentages in items a-e should sum to 100%. The higher the percentage, the more vulnerable if ALS ambulances are scarce.

Evacuation Time Self-Assessment Worksheet

Evacuation-Relevant Resources	Implication
Evacuation Transportation	
• Does the hospital have an *exclusive* contract with transportation providers to supply vehicles, or is it dependent on public/private vehicles that must also provide services to other hospitals?	No exclusive contract = more vulnerable
• Has the hospital established relationships with State and regional emergency management agencies and developed coordinated plans for sharing transportation resources?	N = more vulnerable
• How many different access roads reach the hospital, where there are ramp-equipped exits for moving patients?	1-2 = more vulnerable
• How long would it take to get all of the patients out of the hospital and on the road to another location (assuming the hospital is full, roads are not damaged/blocked, and appropriate vehicles and staff are available)?	Hours = time until evacuation
• Does the hospital plan specify an off-site "assembly point" where patients could be moved without vehicles, and from which transportation/loading into vehicles would be faster?	No off-site "assembly point" specified = more vulnerable
• How long would this two-stage evacuation take?	Hours = time until evacuation
• How quickly could all the patients be moved out of the building (e.g. in case of a fire)?	Minutes = time until evacuation
Closest Appropriate Care Site	
• How close is the nearest care site that could provide appropriate care for: - NICU patients - PICU patients - CICU patients - Other adult ICU patients - Psych patients - Other ventilator-dependent patients - Other patients with special/advanced medical needs	< 1 mile 1-5 miles 6-10 miles 11-20 miles 21-50 miles 51-100 miles 100+ miles

Evacuation Time Self-Assessment Worksheet

Evacuation-Relevant Resources	Implication
• Are there nearby "sister" facilities under the same corporate or organization umbrella?	N = more vulnerable
• What percentage of patients could that nearest care site or sister facility safely accept in an emergency (how many would they have room for)?	The lower the %, the more vulnerable
• If capacity at the nearest care site is insufficient, how close is the next-nearest care site?	< 1 mile 1-5 miles 6-20 miles 21-50 miles 51-100 miles 100+ miles

Types of Disasters[1]

Natural Hazards	Technological Hazards	Terrorism
• Floods • Tornadoes • Hurricanes • Thunderstorms and Lightning • Winter Storms and Extreme Cold • Extreme Heat • Earthquakes • Volcanoes • Landslide and Debris Flow (Mudslide) • Tsunamis • Fires • Wildfires	• Hazardous Materials Incidents • Nuclear Power Plants	• Explosions • Biological Threats • Chemical Threats • Nuclear Blast • Radiological Dispersion Device (RDD)

Factors to Consider in Deciding Whether to Begin a Pre-Event Evacuation

Factor	Issues to Consider	Implications
Event Characteristics		
• Arrival	• When is the event expected to "hit" the hospital? The metropolitan area? • How variable is the time the event is expected to "hit"?	• The amount of time until the event "hits," combined with the anticipated time to evacuate patients, determines how long an evacuation decision can be deferred.
• Magnitude	• What is the expected strength of the event? • How likely is the event to gain or lose strength before it reaches the hospital? The metropolitan area?	• The magnitude of the event forewarns the potential damage to a facility and utilities, which could cut off the supply of key resources, or otherwise limit the ability to shelter-in-place and care for patients.
• Area impacted	• How large is the geographic area to be affected by the event? • How many vulnerable health care facilities are in this geographic area?	• Competition for resources needed to evacuate patients (especially vehicles) increases when more facilities evacuate simultaneously.
• Duration	• How long is the event expected to last? • How variable is the expected duration of the event?	• The duration of the event will affect how long hospitals have to shelter-in-place or operate on backup, alternative, or less predictable sources of key resources.
Anticipated Effect of the Event on Key Resources Needed to Care for Patients		
• Water source	• Is the main city water supply in jeopardy? Already non-functional? • Is there a backup water supply (well, nearby building with intact water mains)? • If not, how soon will city water return?	• Water loss of unknown duration (more than 1-2 days) is almost always cause for evacuation.
• Heat source	• Is the heat source in jeopardy (steam, water for boilers, etc.)? Already non-functional? • Is there a backup (intact nearby building that still has power/heat)? • If not, will the building be too cold for patient safety before adequate heat returns?	• Loss of heat, especially during a northern winter, is almost always a cause for evacuation—often within 12 hours.

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• Electricity	• Is power in jeopardy? Just for the hospital or a wider area? • Are backup generators functional? How long can they run without refueling? Is refueling possible (e.g., intake not under water)? • Can some sections/wings be shut down to reduce fuel consumption and stretch fuel supplies?	• Loss of electricity endangers ventilated patients, among others, and may affect the sequence in which patients are evacuated.
• Building structural integrity	• Is the building obviously/visibly unsafe? All of it or only portions (e.g., can people be consolidated in safer sections)? • Was there a water tower on the roof, and is it intact? • Is a building engineer needed to determine structural integrity/safety?	• Earthquakes or explosions may cause rooftop water towers to fail, flooding the building. • Safety/integrity may not be obvious to untrained occupants.
Anticipated Effect of the Event on the Surrounding Environment and Community That Could Affect an Evacuation Decision		
• Road conditions	• Are any major routes from the hospital to potential receiving care sites closed? • Is traffic at gridlock on major routes from the hospital to potential receiving care sites? • Are access routes to the hospital cut off?	• There may be a limited window of opportunity to carry out a ground-based evacuation. • Increased use of helicopters to evacuate patients may be required. • Staff may not be able to get to the hospital to relieve existing staff or assist in the evacuation.
• Community/building security	• Have any nearby areas experienced increases in disorder or looting? • Are local law enforcement agencies understaffed due to self-evacuations or significant additional responsibilities? • Are additional private security officers available to secure the hospital?	• If patient and staff safety cannot be assured, evacuation will be necessary.

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• Evacuation status of other nearby health care facilities	• Are other hospitals or other health care facilities already evacuating or planning to evacuate, or have they decided to shelter-in-place?	• If other hospitals or health care facilities are evacuating: – the competition for ambulances, wheelchair vans, and buses may be substantially increased. – the hospital may be asked to accept additional patients. – patients may have to be relocated to facilities further away than anticipated.
• State/county/local evacuation order	• Have evacuation orders been issued in areas that are closer to the event? • Have any public or private statements been issued regarding the possibility of an evacuation order? • Have any other incidents occurred that increase the likelihood that an evacuation order will be issued?	• You may have no choice but to evacuate.
• Availability of local emergency response agencies	• Are local emergency response agencies understaffed (or otherwise unavailable) due to self-evacuations or additional responsibilities?	• Unavailability of local fire agencies increases the risk of sheltering-in-place.