Threat and Hazard Identification and Risk Assessment

**Introduction**

The Threat and Hazard Identification and Risk Assessment (THIRA) provides a comprehensive approach for identifying and assessing risks and associated impacts. Hazard Identification and Risk Assessment (HVAs) and other risk methodologies by reviewing the factors considered in the process, incorporating the whole healthcare community throughout the entire process and by accounting for important community specific factors

Using the THIRA results, a healthcare community can develop a strategy to allocate resources effectively to achieve a specific target capability and reduce risk. This strategy looks to connect community resources within a specific risk and target capability.

The THIRA provides the means to educate and update the healthcare community on the risk associated with a community.

**Basic Elements of the THIRA Process**

The THIRA process consists of five basic steps:

1. Identifying the threats and hazards: Based on past experiences, forecasting, subject matter experts, and available resources identify a list of threats and hazards of concern to the healthcare community
2. Give threats and hazards context: Using the list of threats and hazards develop context that shows how those threats and hazards may affect the community.
3. Examine the core capabilities using the treat and hazards: Identify impacts to the healthcare community
4. Set Target Capabilities: Looking across the estimated impacts to the healthcare community set target capabilities.
5. Apply the results:

Note: Core Capabilities provide a common frame work and common language for preparedness across the entire healthcare community and stretch across the five integrated mission areas of Prevention, Protection, Mitigation, Response and Recovery

* Prevention: Prevent, avoid, or stop an imminent, threatened, or actual act of terrorism.
* Protection: Protect our citizens, residents, visitors, and assets against the greatest threats and hazards in a manner that allows our interests, aspirations, and way of life to thrive.
* Mitigation: Reduce the loss of life and Property by lessening the impact of future disasters.
* Response: Respond quickly to save lives: protect property and environment and meet basic human needs in the aftermath of an incident.

**Step 1: Identify the Threat and Hazards**

The healthcare community faces a variety of threats and hazards that can be the result of natural, technological, or human caused incidents.

* Natural hazards are those resulting from acts of nature, such as hurricanes, earthquakes, weather related incidents and disease outbreaks
* Technological hazards are those resulting from accidents or the failure of systems and structures, such as hazardous material spills or utility failures
* Human caused incidents are those resulting from the intentional actions of an adversary, such as a threatened or actual chemical, biological, or cyber-attack

*Note this step helps decide what should or should not on the list.*

*Table 1*

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| **Natural** | **Technological** | **Human Caused** |
| Resulting from acts of nature | Involves accidents or the failures or systems and structures | Caused by the intentional actions of an adversary |
| * Drought * Epidemic * Earthquake * Flooding * Heat Wave * Hurricane * Nor Easter * Pandemic Influenza * Severe Weather * Severe Storm * Wildfire | * 96 hours without external support * Airborne Contamination * Aircraft Crash * Communication Failure * Critical Supply Shortage * Cyber – Attack * Electrical Power Failure * Fuel Shortage (gas) * Fuel Shortage (oil) * Internet Failure * Natural Gas Failure * Radiological Spill / Exposure * Surface / Marine Transport Incident * Water Supply Failure * Urban Conflagration | * Civil Disturbance * Hat Mat Incident / External * Labor Action * MCI * MCI with Haz Mat (decon needed) * Mass Fatality incident * Medical Facility Incident * Medical Facility Evacuation * Patient Surge * Terrorism – Biological * Terrorism – Chemical * Terrorism – Radiological |

***Consider threats and hazards that occur in a neighboring community since they may have widespread impacts***

***Use existing hazard and threat assessments as a starting point***

**Step 2: Give the Threat and Hazard Context**

Once a list of threats and hazards is developed, it will be important to put them in context as it relates to the healthcare community. Explain briefly the different conditions under which a threat or hazard might occur.

As descriptions of the expected situations are developed more than one may be needed if varying conditions such as the time of day, season, or the impact area make a significant difference in how a threat or hazard affects the healthcare community.

Many other factors are subject to change including demographics, and climate.

* These should be considered when developing the threat and hazard descriptions as well as the time of day, and the healthcare communities ability to manage the incident at that time
* What location(s) would have the greatest impact?
  + Populated areas
  + Industrial areas
  + Coastal zones
  + Residential areas

*Table 2: Example Descriptions*

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| **Threat / Hazard Group** | **Threat / Hazard Type** |
| *Natural:* | *Heat Wave* |
| Description: A period of abnormally and uncomfortably hot and unusually humid weather. Typically a heat wave lasts two or more consecutive days with temperatures in excess of 90 degrees. | |
| Greatest Estimated Impact:  Temperatures >100 deg. F for >7 days; associated patient influx | |
| *Natural* | *Hurricane*  *(tropical cyclones, including tropical storms and depressions)* |
| Description: A tropical cyclone in the Atlantic, Caribbean Sea, Gulf of Mexico, or eastern Pacific, in which the maximum 1-minute sustained surface wind is 64 knots (74 mph) or greater. | |
| Greatest Estimated Impact: | |
| Technological | Fuel Shortage (gasoline) |
| Description: A disruption, failure, or loss of fuel oil supplies impacting the facility | |
| Greatest Estimated Impact: | |
| *Human Caused* | *Mass Casualty Incident* |
| Description: An incident (regardless of cause) resulting in an influx of casualties to the facility in excess of usual volume, capacity, or capability. | |
| Greatest Estimated Impact: | |

**Step 3: Core Capabilities Using the Threats and Hazards**

The desired outcomes should explain what the healthcare community wants to achieve for each core capability as well as level of effort needed to successfully deliver core capabilities

* Timelines should be considered for achieving desired outcomes
  + Response and Recovery must be accomplished by 72 hours, 3o days, 60 days, three months
  + Prevention and Protection and mitigation mission areas can be addressed in terms of percentage

*Table 3: Example Desired Outcome Chart*

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| ***Core Capability*** | ***Capability Goal (Outcome): Impacts to Healthcare Community*** |
| **Emergency Operations Center**  Emergency operations coordination regarding healthcare is the ability for healthcare organizations to engage with incident management at the Emergency Operations Center or with on-scene  incident management during an incident to coordinate information and resource allocation for affected healthcare organizations. This is done through multi-agency coordination representing healthcare organizations or by integrating this coordination into plans and protocols that guide incident management to make the appropriate decisions. Coordination ensures that the healthcare organizations, incident management, and the public have relevant and timely information about the status and needs of the healthcare delivery system in the community. This enables healthcare organizations to coordinate their response with that of the community response | The event (or incident) is effectively managed  Hospital HOC, local EOC, and or State EOC facilities are open (stood up) |
| **Fatality Management**  Fatality management is the ability to coordinate with organizations (e.g., law enforcement, healthcare, emergency management, and medical examiner/coroner) to ensure the proper recovery,  handling, identification, transportation, tracking, storage, and disposal of human remains and personal effects; certify cause of death; and facilitate access to mental/behavioral health services  for family members, responders, and survivors of an incident. Coordination also includes the proper and culturally sensitive storage of human remains during periods of increased deaths at healthcare organizations during an incident. | Provide fatality management services, including body recovery and victim identification, working with state and local authorities to provide temporary mortuary solutions, sharing information with mass care services for the purpose of reunifying family members and caregivers with missing persons/remains, and providing counseling to the bereaved. |
| **Healthcare System Preparedness**  Healthcare system preparedness is the ability of a community’s healthcare system to prepare, respond, and recover from incidents that have a public health and medical impact in the short  and long term. The healthcare system role in community preparedness involves coordination with emergency management, public health, mental/behavioral health providers, community and faith based partners. | Healthcare System Preparedness is achieved through a continuous cycle of planning, organizing, equipping, training, exercises, evaluations and corrective actions |
| **Healthcare System Recovery**  Healthcare system recovery involves the collaboration with Emergency Management and other community partners, (e.g., public health, business, and education) to develop efficient processes  and advocate for the rebuilding of public health, medical, and mental/behavioral health systems to at least a level of functioning comparable to pre-incident levels and improved levels where possible. The focus is an effective and efficient return to normalcy or a new standard of normalcy for the provision of healthcare delivery to the community. | Maintain continuity of healthcare delivery by coordinating recovery across functional healthcare organizations and encouraging business continuity planning.  An effective and efficient return to normalcy or a new standard of normalcy for the provision of healthcare delivery to the community. |
| **Information Sharing**  Information sharing is the ability to conduct multijurisdictional, multidisciplinary exchange of public health and medical related information and situational awareness between the healthcare  system and local, state, Federal, tribal, and territorial levels of government and the private sector. This includes the sharing of healthcare information through routine coordination with the Joint  Information System for dissemination to the local, state, and Federal levels of government and the community in preparation for and response to events or incidents of public health and medical  significance. | Effective and timely sharing of information and intelligence occurs across Federal, State, local, Tribal, regional, and private sector entities to achieve coordinated awareness of, prevention of, protection against, and response to a threatened or actual domestic terrorist attack, major disaster, or other emergency. |
| **Medical Countermeasure Dispensing**  Medical countermeasure dispensing is the ability to provide medical countermeasures (including vaccines, antiviral drugs, antibiotics, antitoxin, etc.) in support of treatment or prophylaxis (oral or vaccination) to the identified population in accordance with public health guidelines and/or recommendations. This would be continued ability during an event | Appropriate drug prophylaxis and vaccination strategies are implemented in a timely manner upon the onset of an event to prevent the  development of disease in exposed individuals. Public information strategies include recommendations on specific actions individuals can take to protect their family, friends, and themselves |
| **Medical Surge**  The Medical surge capability is the ability to provide adequate medical evaluation and care during incidents that exceed the limits of the normal medical infrastructure within the community. This  encompasses the ability of healthcare organizations to survive an all-hazards incident, and maintain or rapidly recover operations that were compromised. | Injured or ill from the event are rapidly and appropriately cared for. Continuity of care is maintained for non-incident related illness or injury, and those affected by the event. |
| **Responder Health and Safety**  The responder safety and health capability describes the ability of healthcare organizations to protect the safety and health of healthcare workers from a variety of hazards during emergencies  and disasters. This includes processes to equip, train, and provide other resources needed to ensure healthcare workers at the highest risk for adverse exposure, illness, and injury are adequately  protected from all hazards during response and recovery operations. | No illnesses or injury to any first responder, first receiver, medical facility staff member, or other skilled support personnel as a result of preventable exposure to secondary trauma, chemical/radiological release, infectious disease, or physical and emotional stress after the initial incident or during decontamination and incident follow-up. |
| **Volunteer Management**  Volunteer management is the ability to coordinate the identification, recruitment, registration, credential verification, training, engagement, and retention of volunteers to support healthcare  organizations with the medical preparedness and response to incidents and events. | The value of using unaffiliated volunteers and unsolicited donations is maximized and does not hinder response and recovery activities. This would include shelter and food distribution.  Use of the Medical Reserve Corps. |

*Table 4: Example Mitigation of Event*

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| Threat / Hazard | Heat Wave |
| Description | A period of abnormally and uncomfortably hot and unusually humid weather. Typically a heat wave lasts two or more consecutive days with temperatures in excess of 90 degrees  Temperatures >100 deg. F for >7 days; associated patient influx |
| Cascading Potential | Isolated Situation – no cascade potential  May trigger at least one additional threat which would not result in regional impact  May Trigger several additional threats which would not result in regional impact  will trigger at least one additional major threat which may result in minor regional impact  Will trigger at least two additional major threats which will result in moderate regional  impact  Will result in multiple concurrent or secondary situations which will result in significant  regional Impact |
| Core Capability **Medical Surge** | |
| Mitigation Efforts |  |
| Required Resources |  |
| Possible Sources |  |
| Required / Recommended Training |  |

Assessment Tools

* + Threat and Hazard Context
  + Special Population / Circumstances List
  + National Protected Areas/Known Areas

of Risk / Areas of Special Concern

***Threat and Hazard Context***

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| **Threat / Hazard Group** | **Threat / Hazard Type** |
| *Natural* | *Drought* |
| Description A deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area. | |
| Greatest Estimated Impact: Curtailment of water use; minor environmental impact | |
| *Natural* | *Earthquake* |
| Description:  Shaking and vibration at the surface of the earth resulting from underground movement along a fault plane of or from volcanic activity | |
| Greatest Estimated Impact: Richter magnitude 5.9 (Moderate; can cause major damage to poorly constructed buildings over small regions. At most slight damage to well-designed buildings). Minor structural damage to a health care facility; moderate influx of patients. | |
| Natural | *Epidemic* |
| Description: The occurrence of more cases of a disease than would be expected in a community or region during a given time period. A sudden severe outbreak of a disease such as SARS. | |
| Greatest Estimated Impact: Severe outbreak of a communicable disease with high morbidity and mortality rates affecting a small portion of the population in the Long Island Region | |
| *Natural* | *Flooding (riverine, flash, coastal, and urban)* |
| Description: Any high flow, overflow, or inundation by water from outside the facility which causes or threatens damage. | |
| Greatest Estimated Impact: SLOSH (Sea, Lake, and Overland Surges for Hurricanes) event or equivalent at Category 3 with associated community evacuation | |
| *Natural* | *Heat Wave* |
| Description: A period of abnormally and uncomfortably hot and unusually humid weather. Typically a heat wave lasts two or more consecutive days with temperatures in excess of 90 degrees. | |
| Greatest Estimated Impact: Temperatures >100 deg. F for >7 days; associated patient influx | |
| *Natural* | *Hurricane*  *(tropical cyclones, including tropical storms and depressions)* |
| Description A tropical cyclone in the Atlantic, Caribbean Sea, Gulf of Mexico, or eastern Pacific, in which the maximum 1-minute sustained surface wind is 64 knots (74 mph) or greater. | |
| Greatest Estimated Impact: Category 3 hurricane; hurricane event with sustained loss of power; major community-wide impact with mass casualties (<http://www.nhc.noaa.gov/aboutsshs.shtml>) and sustained flooding | |
| *Natural* | *Nor'Easters*  *(extra-tropical cyclones; severe winter low pressure systems)* |
| Description: A strong winter low pressure system notorious for producing heavy snow, rain, and tremendous waves that crash onto coastal beaches, often causing beach erosion and structural damage. Wind gusts associated with these storms can exceed hurricane force in intensity. | |
| Greatest Estimated Impact: High wind with heavy rains for sustained period of time. Loss of power; coastal and urban flooding are potential secondary events. | |
| Natural | *Pandemic Influenza* |
| Description: A global disease outbreak. An influenza pandemic occurs when a new influenza virus emerges for which people have little or no immunity and for which there is no vaccine. The disease spreads easily person-to-person, causing serious illness, and can sweep across the country and around the world in very short time. | |
| Greatest Estimated Impact:  A pandemic event where the healthcare system is surged, and there is a need for additional equipment such as vents, anti-viral medication, specialists and critical care beds. This event may cause staff shortages within regional facilities | |
| *Natural* | *Severe Storm*  *(windstorms; thunderstorms; hail; tornados)* |
| Description A severe thunderstorm produces winds of at least 58 mph (50 knots) and/or hail at least "1-inch" (quarter size) in diameter. It can produce a tornado and/or a down burst (sudden down draft of accelerating winds). Near severe or strong thunderstorms are those that are below severe levels, typically for wind gusts of 40-57 mph and/or for small hail less than 1-inch in diameter | |
|  | |
| Greatest Estimated Impact*: High wind with heavy rains during rush hour period; may impact areas under construction. Limited loss of power; localized flooding; spawning tornado. Trees with full canopies that are near power lines and down bursts can produce damage typically observed by up to an EF2 tornado* | |
| *Natural* | *Severe Winter Storm*  *(heavy snow, blizzards, ice storms)* |
| Description: A weather event that produces, or is forecast to produce, heavy snow and/or significant ice accumulations. A blizzard is a winter storm with sustained or frequent winds of 35 mph or higher with considerable falling and/or blowing snow that frequently reduces visibility to one-quarter mile or less. These conditions are expected to prevail for a minimum of 3 hours.  An ice storm is used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of one-quarter inch or greater. | |
| Greatest Estimated Impact: An accumulation of 24 inches of snow in less than 48 hours, or other winter storm condition that results in loss of power, patient influx, and/or increased staff absenteeism. Includes ice storm greater than 1/2 inch of buildup; snow accumulation above 28 inches; occurrence during a rush hour period; associated with high winds and temperatures in the teens or below. Roads may not be able to be cleared or may be unusable do to a flash freeze. | |
| *Natural* | *Wildfire* |
| Description An uncontrolled fire often occurring in wild land areas, but which can also consume houses or agricultural resources. | |
| Greatest Estimated Impact: Wildfire affecting populated areas; affecting air quality; impeding travel and requiring evacuations | |

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| **Threat / Hazard Group** | **Threat / Hazard Type** |
| *Technological Events* | *Airborne Contamination* |
| Description: The uncontrolled exposure to or release of smoke, fumes, or airborne (non-biological) agents across the region | |
| Greatest Estimated Impact: Airborne substance in the environment that affects the health and safety of people, requiring their use of personal protective equipment or sheltering | |
| *Technological Events* | Aircraft Crash/Incident |
| Description: An incident that affects the facility that is unique due to its occurrence involving an aircraft (rotary or fixed wing). | |
| Greatest Estimated Impact: A mid-air collision of aircraft over a densely populated area or the accidental or intentional landing of a craft in a location other than an airport | |
| *Technological Events* | *Communications Failure* |
| Description: A disruption, instability, or loss of primary external communications to or within the regions facilities | |
| Greatest Estimated Impact: Loss of critical infrastructure and technology affecting regional telecommunication | |
| *Technological Events* | *Cyber Attack* |
| Description: Deliberate exploitation of computer systems, technology-dependent enterprises and networks | |
| Greatest Estimated Impact: A complete lack of ability to use any mission essential computer, technology, or network system. Compromise of information contained on systems, loss of lockdown capability, and other effects within the region, and/or interruption of community infrastructure (such as power grid, water supply, regional outage of internet.). | |
| *Technological Events* | *Electrical Power Failure* |
| Description A disruption, instability, or loss of primary electrical utility power affecting the facilities within the region or regional community | |
| Greatest Estimated Impact: Regional power grid disruption of greater than 12 hours duration extending to possible multiday outages, specifically during weather incidents | |
| *Technological Events* | *Fuel Shortage (gasoline)* |
| Description A disruption, failure, or loss of fuel oil supplies impacting the regions facilities | |
| Greatest Estimated Impact: Event requiring fuel rationing for longer than one week | |
| *Technological Events* | *Fuel Shortage –Oil* |
| Description A disruption, failure, or loss of fuel oil supplies impacting the regions facilities. This can include shipping, and terrorist attacks | |
| Greatest Estimated Impact: Inability to acquire fuel oil for greater than one week during winter | |
| *Technological Events* | *Internet Failure* |
| Description A disruption, failure, or loss of Internet service across the region. | |
| Greatest Estimated Impact: Loss of regional internet service | |
| *Technological Events* | *Natural Gas Failure* |
| Description A disruption, failure, or loss of primary natural gas service impacting the region | |
| Greatest Estimated Impact: A disruption, failure, or loss of primary natural gas service affecting a portion of the region for greater than 24 hours during winter | |
| *Technological Events* | *Radiological Spill/Exposure* |
| Description The uncontrolled exposure to or release of radioactive materials within the region | |
| Greatest Estimated Impact: An airborne radioactive plume | |
| *Technological Events* | *Surface/Marine Transportation Incident* |
| Description An incident involving vehicular, rail, or marine transportation or an occurrence on or in a roadway, railway system, or waterway that impacts the region | |
| Greatest Estimated Impact: An incident involving vehicular, rail, or marine transportation or an occurrence on or in a roadway, railway system, or waterway that impacts the region for more than 8 hours | |
| *Technological Events* | *Water Supply Failure* |
| Description A disruption, failure, or loss of primary water service to a town or community affecting healthcare facilities (potable or non-potable). | |
| Greatest Estimated Impact: A localized loss of services or contamination of supply lasting longer than eight hours | |
| *Technological Events* | *Urban Conflagration* |
| Description An uncontrolled fire requiring suppression activity in proximity to, or affecting, the healthcare community from outside. | |
| Greatest Estimated Impact: Extreme fire event affecting a small community | |

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| **Threat / Hazard Group** | **Threat / Hazard Type** |
| *Human Caused* | *Civil Disturbance* |
| Description A public disturbance affecting the facility involving acts of violence and disorder by a group of three or more persons threatening or causing immediate danger, damage, or injury to people or property. | |
| Greatest Estimated Impact: Focused, localized disturbances; or widespread major disturbance due to a trigger event, sustained for 12 hours or less | |
| *Human Caused* | *Haz Mat Incident – External* |
| Description: An incident that affects the facility involving a substance (solid, liquid, or gas) that when released is capable of creating harm to people, the environment, and property | |
| Greatest Estimated Impact: Release of or exposure to a toxic substance for a sustained period | |
| *Human Caused* | *Labor Action* |
| Description: Activity impacting the facility that is indicative of workforce unrest | |
| Greatest Estimated Impact: Organized labor strike at more than one facility simultaneously | |
| *Human Caused* | *MCI* |
| Description: An incident (regardless of cause) resulting in an influx of casualties to the facility in excess of usual volume, capacity, or capability. | |
| Greatest Estimated Impact: Greater than 100 patients from a single event with serious injuries and requiring critical care admissions, or more than 300 patients overall | |
| *Human Caused* | *MCI with Haz Mat – Decon Required* |
| Description: An incident resulting in an influx of casualties to the facility who have been contaminated by or exposed to hazardous materials. | |
| Greatest Estimated Impact: Greater than 100 patients from a single event requiring decontamination, or more than 100 patients overall. | |
| *Human Caused* | *Mass Fatality Incident* |
| Description: An incident involving more dead bodies and/or body parts than can be located, identified, and processed for final disposition by available regional resources. | |
| Greatest Estimated: Greater than 500 patients per day from across the region | |
| *Human Caused* | *Medical Facility Evacuation* |
| Description: Movement of patients from within the facility or campus to a holding area or safe alternate location in another medical facility. | |
| Greatest Estimated: Full campus evacuation of (2 or more) healthcare facilities evacuating at the same time | |
| *Human Caused* | *Patient Surge* |
| Description: A sustained influx of patients over time that exceeds the facility's capacity or capabilities to manage, as may result from a disease outbreak. | |
| Greatest Estimated: Greater than 500 patients per day from across the region | |
| *Human Caused* | *Terrorism, Biological* |
| Description: Act of terrorism by intentional release or dissemination of biological agents (bacteria, viruses or toxins) affecting the facility or the community it serves. | |
| Greatest Estimated: Covert event with high mortality and morbidity, and use of a highly communicable disease agent; or catastrophic breach of BSL-3 containment and release of contents | |
| *Human Caused* | *Terrorism, Chemical* |
| Description: Act of terrorism by intentional release or dissemination of chemical agents or chemical weapons affecting the facility or the community it serves. | |
| Greatest Estimated: Airborne release of a highly toxic, highly persistent product over a large area | |
| *Human Caused:* | *Terrorism, Radiological* |
| Description: Act of terrorism involving use, or threat of the use, of radiological weapons, including attacks against facilities where radioactive materials are present. May include use of use of a radiological weapon or dirty bomb against a target, or an attack against a nuclear power plant. | |
| Greatest Estimated: NEED TO DEFINE | |
| *Human Caused* | *Haz Mat - Pediatric Patients* |
| Description: Haz Mat incident that involves pediatric patients where some or all require decontamination and / or medical evaluation | |
| Greatest Estimated: Incident involving a large population of pediatric patients from a pediatric mass gathering location | |
| *Human Caused* | *Mass Casualty Incident Pediatric Patients* |
| Description: Haz Mat incident that involves pediatric patients where some or all require decontamination and / or medical evaluation | |
| Greatest Estimated: Incident involving a large population of pediatric patients from a pediatric mass gathering location | |
| *Human Caused* | *Medical Surge Pediatric Patients* |
| Description: An incident (regardless of cause) resulting in an influx of casualties to the facility in excess of usual volume, capacity, or capability. | |
| Greatest Estimated: Increase of 20% of the daily pediatric ED volume or the lack of normal everyday pediatric capability | |
| *Human Caused* | *Burn Surge - Pediatric Patients* |
| Description: A sustained influx of patients over time that exceeds the facility's capacity or capabilities to manage pediatric patients | |
| Greatest Estimated: 10 patients with 50% of body surface burned requiring the patient remain in the "non" burn center facility for 24 hours or more. | |

**Special Population / Circumstances**

* Tribal Nations
* Shinnecock Reservation
* Poospotuck Reservation
* Undocumented Immigrant Workers
* Migrant Worker
* # of public schools 662
* # of students 468,776
* Language barriers
* Vulnerable/special needs populations
* Community dwelling older adults (250-300,000 in Suffolk)

**National Protected Areas/Known Areas of Risk / Areas of Special Concern**

* Hospitals
* Nassau Coliseum
* Belmonte Park – Raceway
* Nassau Community College
* Adelphi
* Molloy College
* Briarcliff’s College
* Hofstra University
* NYIT
* SUNY Old Westbury
* LIU CW Post
* Tilles Center
* Suffolk Community College
* Stony Brook University
* Staller Center for the Arts – Stony Brook
* Farmingdale
* Dowling college
* Touro College
* St. Joseph’s College
* Roosevelt Field Mall
* Smith Haven Mall
* Belmonte State Park
* Jones Beach
* Eisenhower Park and Golf Course
* Bethpage State Park and Golf Courses (Bethpage Black PGA)
* Sunken Meadow State Park
* Wildwood State Park
* Robert Moses State Park
* Heckscher State Park
* Long Island MacArthur Airport
* Republic Airport
* Francis S. Gabreski Airport
* LIRR
* Ferries
* Bethpage Park – Ducks Ball Games
* Adventureland
* Splish Splash
* Long Island Aquarium and Exhibition Center
* Multiplex Type Theaters
* Mitchel Athletic Complex
* Oyster Bay National Wildlife Refuge;
* Sagamore Hill National Historic Site
* Courts
* Houses of Worship
* Mass Gathering Event Locations (Part 18 Event)
* Baiting Hollow Scout Camp
* Schiff Scout Camp
* Girl Scout Camps
* 4H Camps
  + Southold
  + Northport
  + Riverhead
* Isolated areas such as Fire Island, Fisher’s Island, and Shelter Island

**Top 10 Risk Events 2014**

Nassau County Suffolk County

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| Medical Facility Evacuation | Hurricane  (tropical cyclones, including tropical storms and  depressions) |
| Pandemic Influenza | Medical Facility Evacuation |
| Nor'Easters  (extra-tropical cyclones; severe winter low pressure  systems) | Terrorism, Biological |
| Severe Winter Storm  (heavy snow, blizzards, ice storms) | Pandemic Influenza |
| Electrical Power Failure | Terrorism, Radiological |
| Heat Wave | Patient Surge |
| Terrorism, Nuclear or Radiological | Nor'Easters  (extra-tropical cyclones; severe winter low pressure  systems) |
| Severe Storm  (windstorms; thunderstorms; hail; tornados) | Severe Winter Storm  (heavy snow, blizzards, ice storms) |
| Radiological Spill/Exposure | Heat Wave |
| Patient Surge | Electrical Power Failure |

2015 Additions

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| Emerging Infectious Diseases |
| Large Area Flash Flooding |