

# Summit: Improvised Nuclear Device (IND) Response Planning Workgroup

*May 29, 2019*

**GREATER NEW YORK HOSPITAL ASSOCIATION**

*Over 100 years of helping hospitals deliver the  
finest patient care in the most cost-effective way.*

# Today's Agenda

## Welcome and Project Overview

### Radiation 101

- Brett Cox, MD, Interim Chair, Department of Radiation Medicine, Lenox Hill Hospital Chief of Brachytherapy, Northwell Health, Associate Professor, Zucker School of Medicine

### Review of Key Strategies and Actions

- What we know about government messaging, actions and activities related to IND response
- Synopsis of hospital posture and actions from previous workgroup meetings

### Breakout Session – Seven separate groups – one for each major topic on the hospital key actions grid

- Objective 1: Achieve agreement on assumptions/posture for each zone
- Objective 2: Achieve agreement on the response actions in each Joint Commission critical area for each time period

### Group Debrief/Sharing

- Major findings from discussion of particular topic
- Any new requests for assistance from government response partners

### Looking Ahead

- Finalization of hospital key actions document
- July 31<sup>st</sup> meeting focused on government recommendations/considerations documents

# Workgroup Genesis and Objectives

- Led by New York City Emergency Management, NYC is developing an IND response plan for 0-72 hours post detonation.
  - Jointly led DOHMH-GNYHA workgroup is an opportunity to inform this larger plan.
- We designed the workgroup to advance health care sector planning AND inform government planning, by developing two products:
  1. Hospital Key Actions Grid – organized by Joint Commission six critical areas + incident command, for three time periods, for hospitals in three geographic zones
  2. Recommendations/Considerations Document to be shared with government response agencies, to inform ongoing planning

# Our Work Thus Far...

- August 7, 2018
  - Initial meeting – reviewed existing modeling, information from previous exercises, and broke into moderate damage, light damage and beyond damage zone groups
- October 1, 2018, November 5, 2018, and January 18, 2019
  - Held back-to-back zone-specific meetings to work through the post detonation time periods of 0-24, 24-48, and 48-72 hours
  - At each meeting, discussed likely actions being taken by government response agencies during this period
- Today's summit
  - Will focus on the hospital key actions grid document resulting from the previous workgroup meetings
- July 31<sup>st</sup>
  - Will be focused on recommendations/considerations document to be shared with government partners

# Existing Modeling: Impacts from an IND Detonation

---

*Section slides courtesy of:*

Brooke Buddemeier, MS,

Principal Investigator in the Global Security Directorate of Lawrence  
Livermore National Laboratory (LLNL)

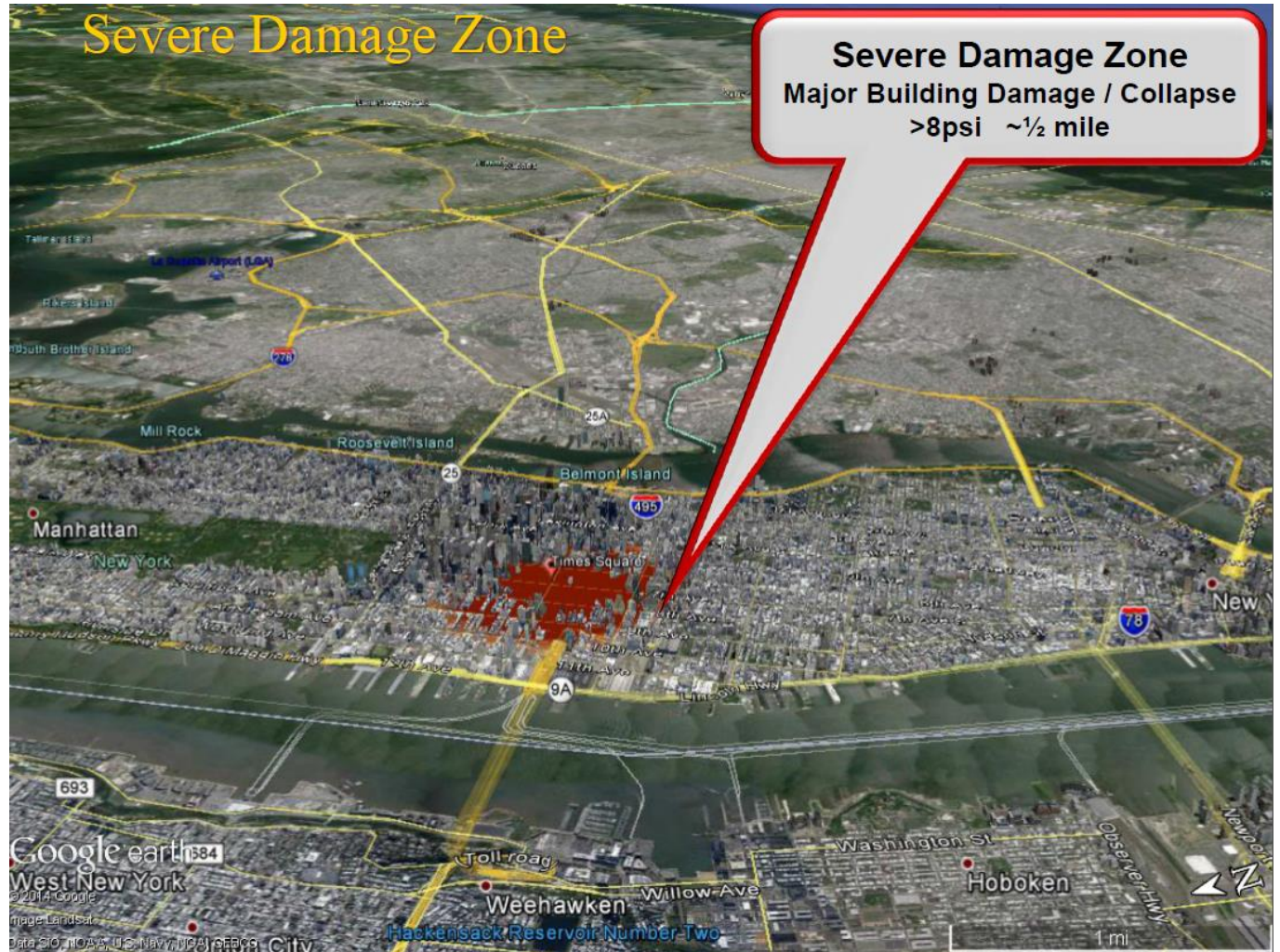
GREATER NEW YORK  
HOSPITAL ASSOCIATION

# NYC Example: Times Square 10 Kiloton Device

***\*\*This is an example ONLY. We are developing materials of use to member hospital no matter where in the region a detonation occurs.\*\****

## ***The Light of a Thousand Suns***

- Scenario Presumptions: 10kT Yield (equivalent to 5,000 Oklahoma City Truck Bombs)
- Ground Level Detonation at Times Square
- New York City workday
- Weather profile from August 14, 2009



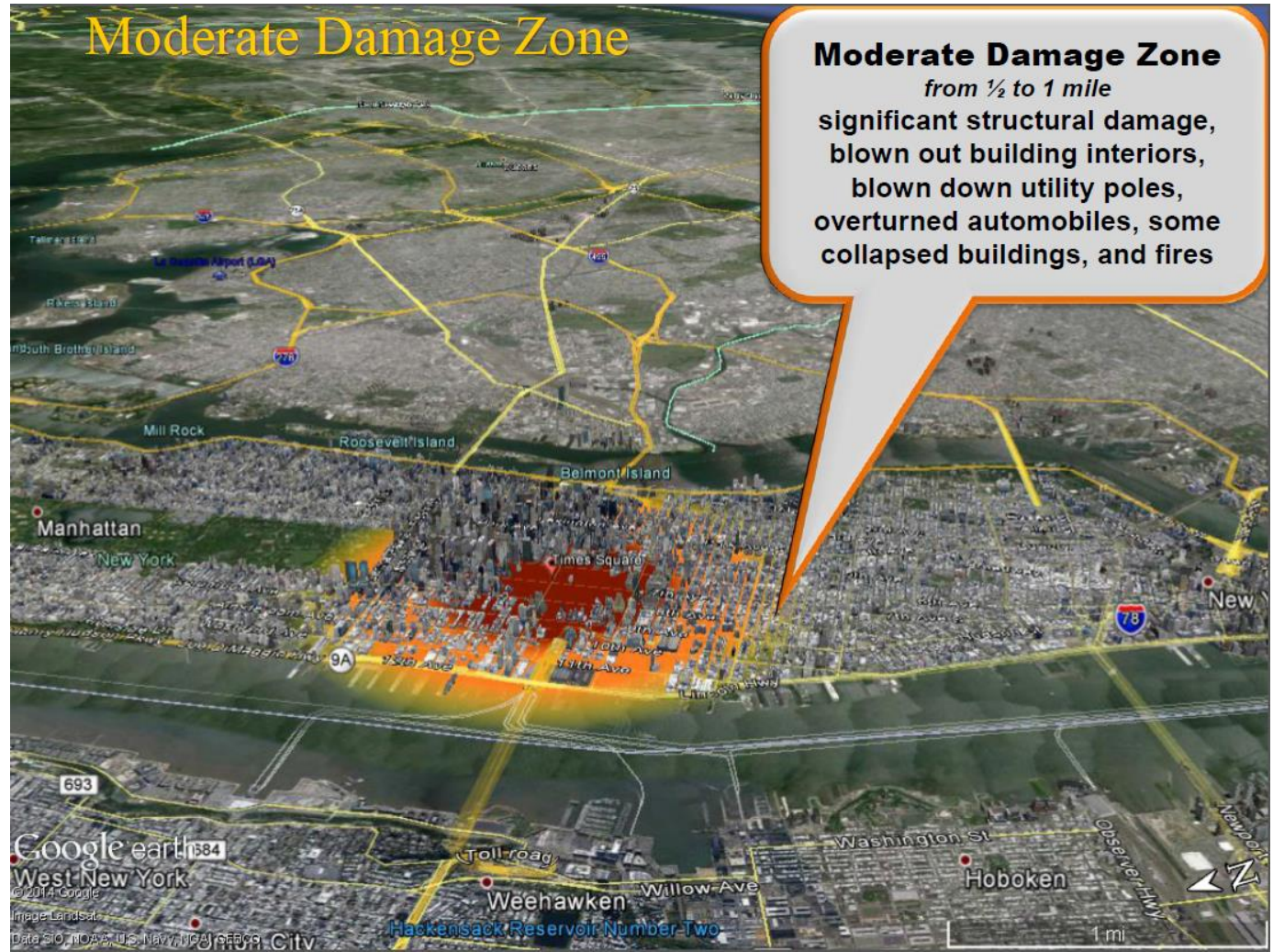
Source:  
Lawrence Livermore  
National Laboratory



## Moderate Damage Zone

### Moderate Damage Zone from $\frac{1}{2}$ to 1 mile

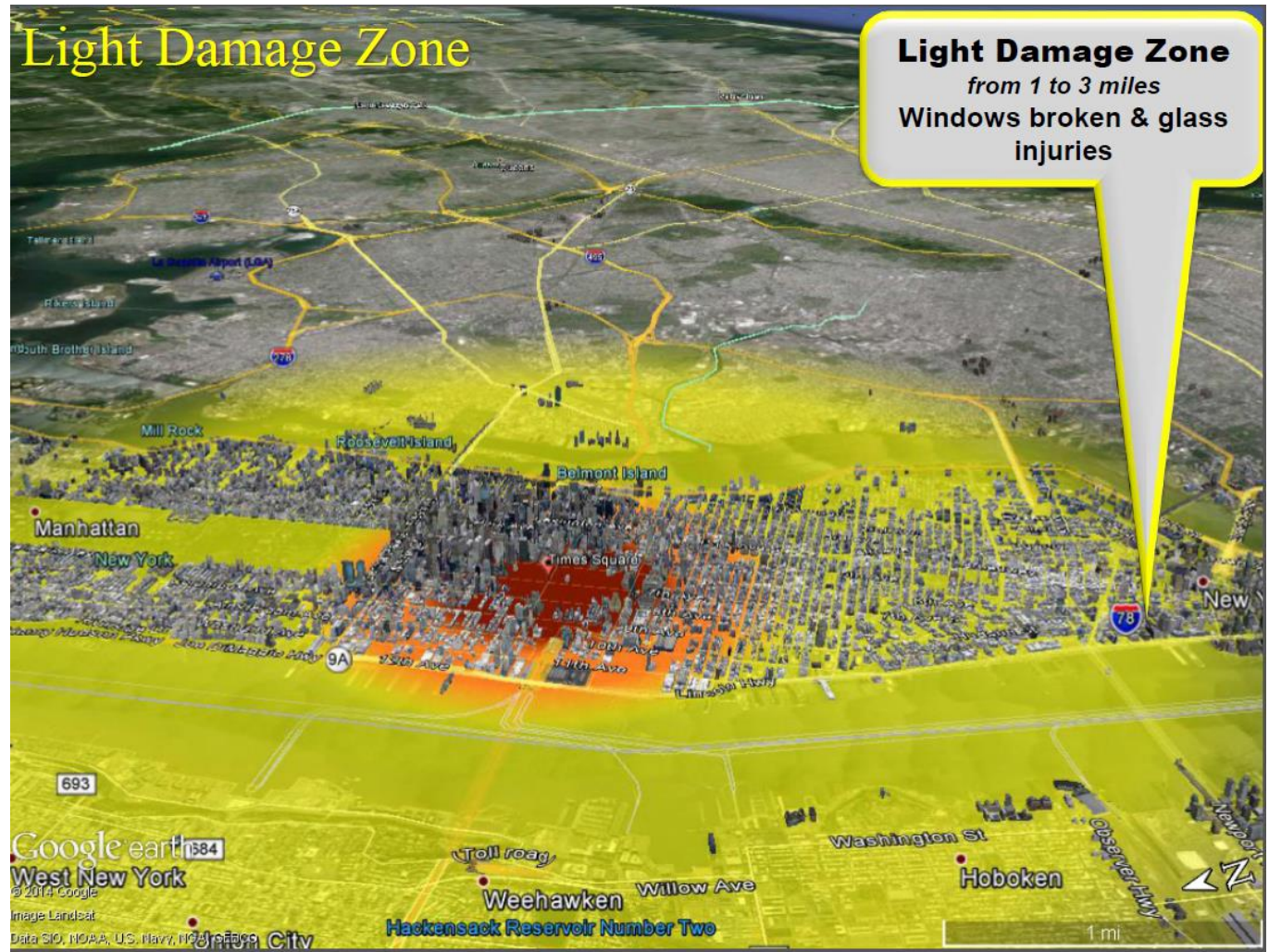
significant structural damage,  
blown out building interiors,  
blown down utility poles,  
overturned automobiles, some  
collapsed buildings, and fires



Source:  
Lawrence Livermore  
National Laboratory



# Light Damage Zone



Source:  
Lawrence Livermore  
National Laboratory

# Electromagnetic Pulse (EMP)

- Effect varies greatly with burst location, building location, and type of equipment
- Range: ground zero to 0.8 mil (Severe Damage Zone into Moderate Damage Zone)
- Hand held radios will function if not damaged by other effect (blast damage)
- Point-to-point communication most likely function (e.g., a land-line telephone call)
- EMP in LDZ can trip breakers & fuses and upset solid state equipment (Remedy: reset breakers, replace fuses, reboot)
- Given this, EMP effects are not a “given.” Some forms of communication may be spotty or may survive if unaffected by blast damage

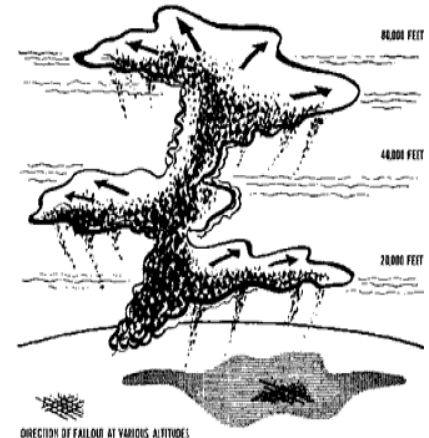
# Infrastructure Damage

- NYC will lose electric power. Perhaps the surrounding region will also lose electric power, but the effect may diminish with distance.
  - This is likely to have a cascading effect on other assets...
- Communications may survive in various forms but may not be fully operational due to power loss and damage.
  - Cell phones
  - Land lines?
  - Commercial Radio?
  - What else? Not known.
- Subway is likely to be non-operational
- Airports are likely to be shut down
- City roads and highways impassable due to numerous accidents and building collapse
- Outside the Light Damage Zone, damaging effects and injuries will be less significant, however may have to contend with fallout

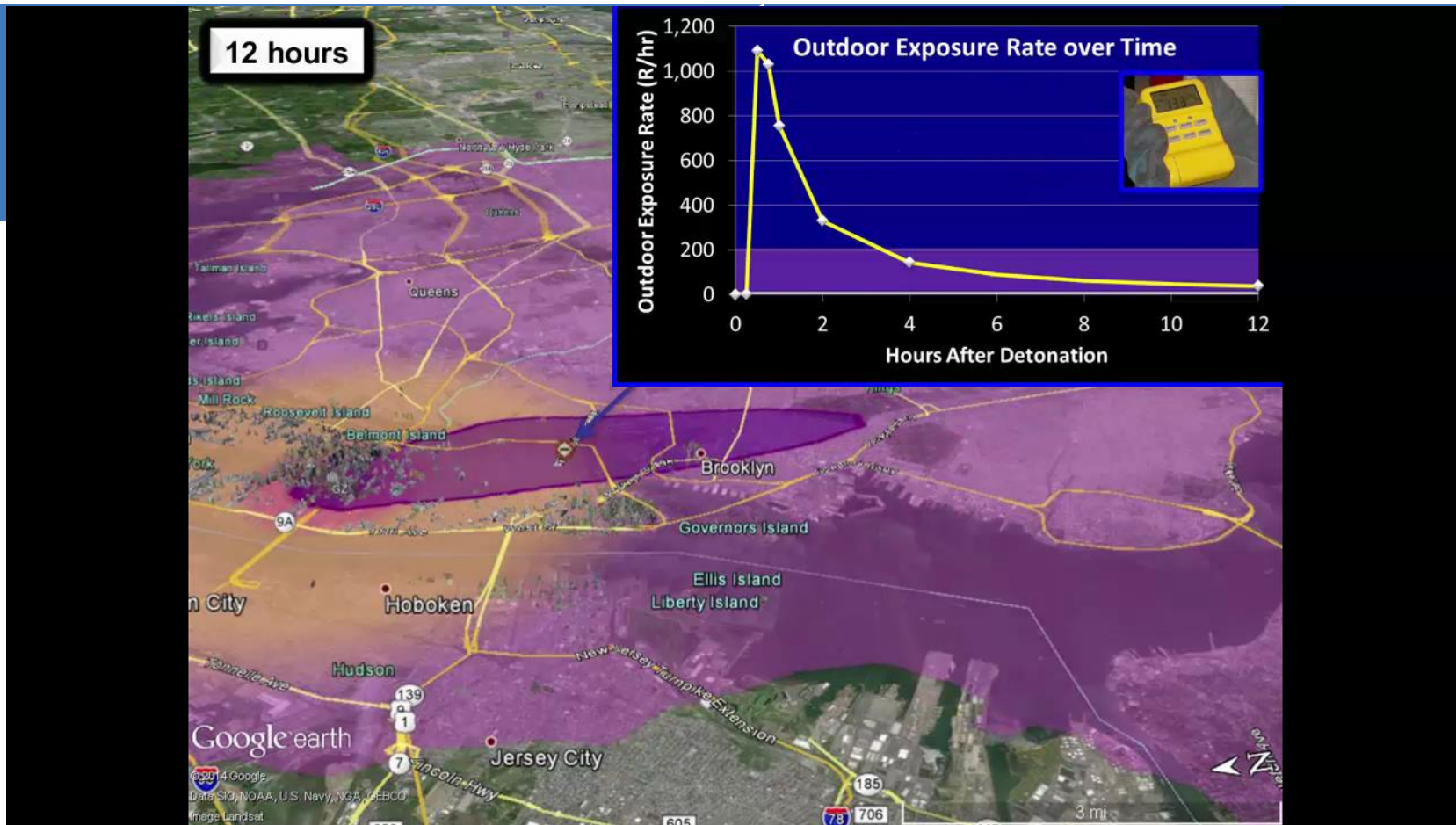
# FALLOUT

- If the detonation occurs close to the ground, radioactive fallout can be created
- The **Fireball rises** at speeds greater than 100 mph, drawing **thousands of tons of dust and debris** upward that mix with the fission products.
- The fallout cloud rises several miles into the atmosphere before the particles fall back to earth **contaminating surfaces**
- Dangerous levels of fallout creates visible dust and debris. These particles give off **penetrating radiation** that can injure people (even in cars or inadequate shelter)

Source:  
Lawrence Livermore  
National Laboratory







Source: Lawrence Livermore National Laboratory



### I. Severe Damage Zone (SDZ)

Low Priority, avoid area initially

### \* Dangerous Fallout Zone (DFZ)

Shelter in Place Zone: 10 – 20 mi downwind

Defined as areas >10 R/h

Reaches Max Extent in 1 hour

### III. Light Damage Zone Secondary Priority

Injuries expected to be less severe.  
Control fires hazards & direct public  
away from DFZ

### II. Moderate Damage Zone

#### Initial Priority

Fire Fighting and injured extraction provides  
the greatest life saving/sustaining  
opportunity

### \* Hot Zone

Extends 150 mi  
Max extent in 1 day  
0.01 – 10 R/h  
Can be worked in w/  
controls

Google earth

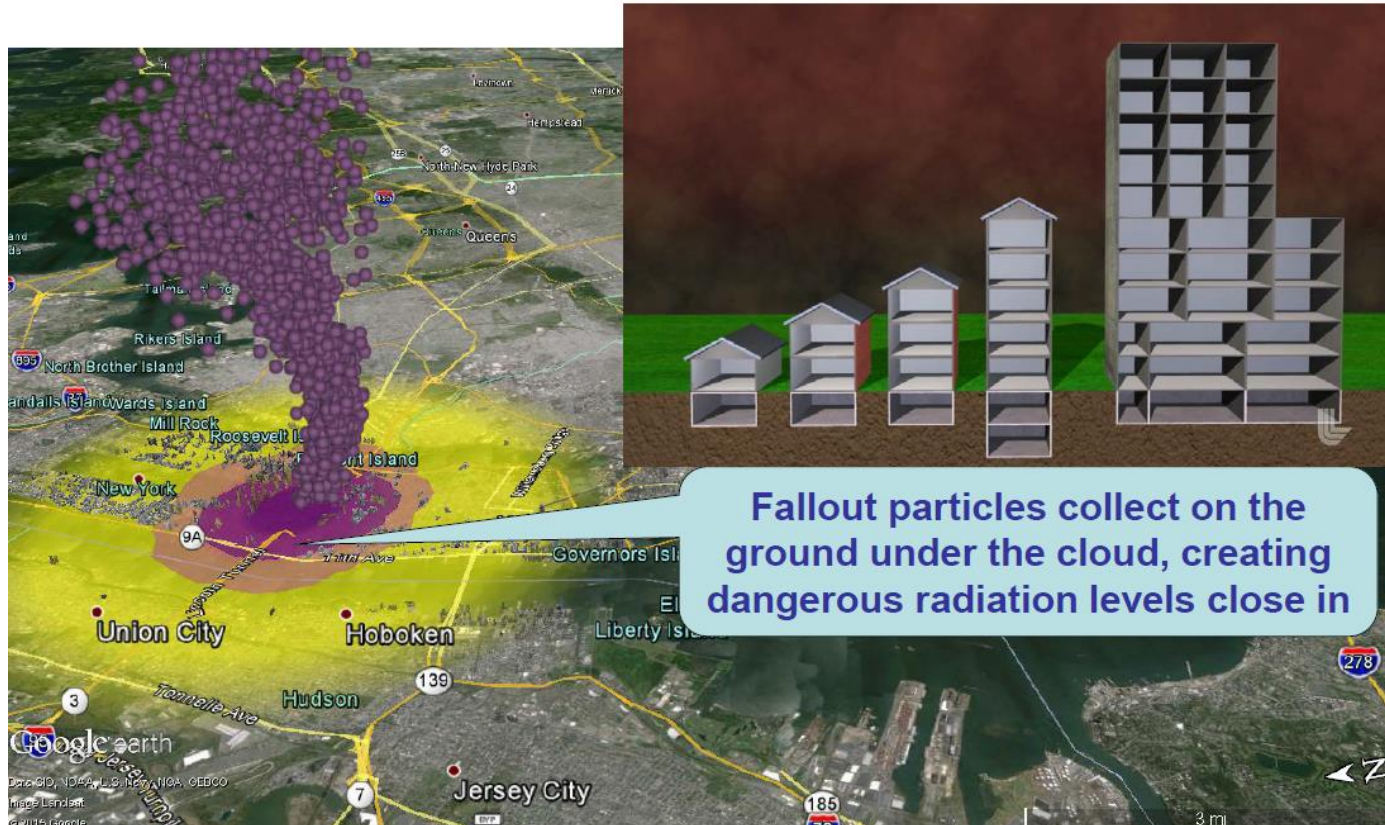
Data SIO, NOAA, U.S. Navy, MSA, GEBCO

© 2014 Google

3 mi



# Fallout Creates Ground Level Radiation

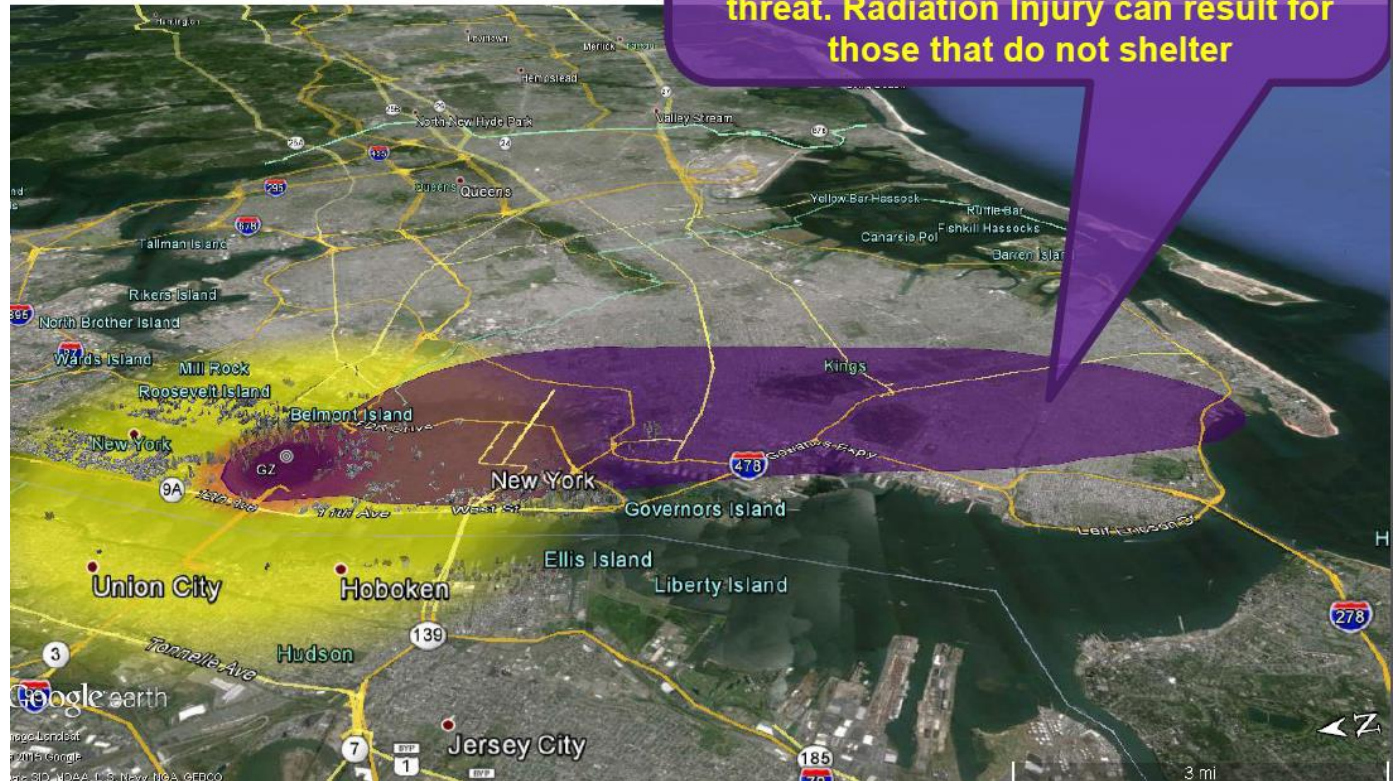




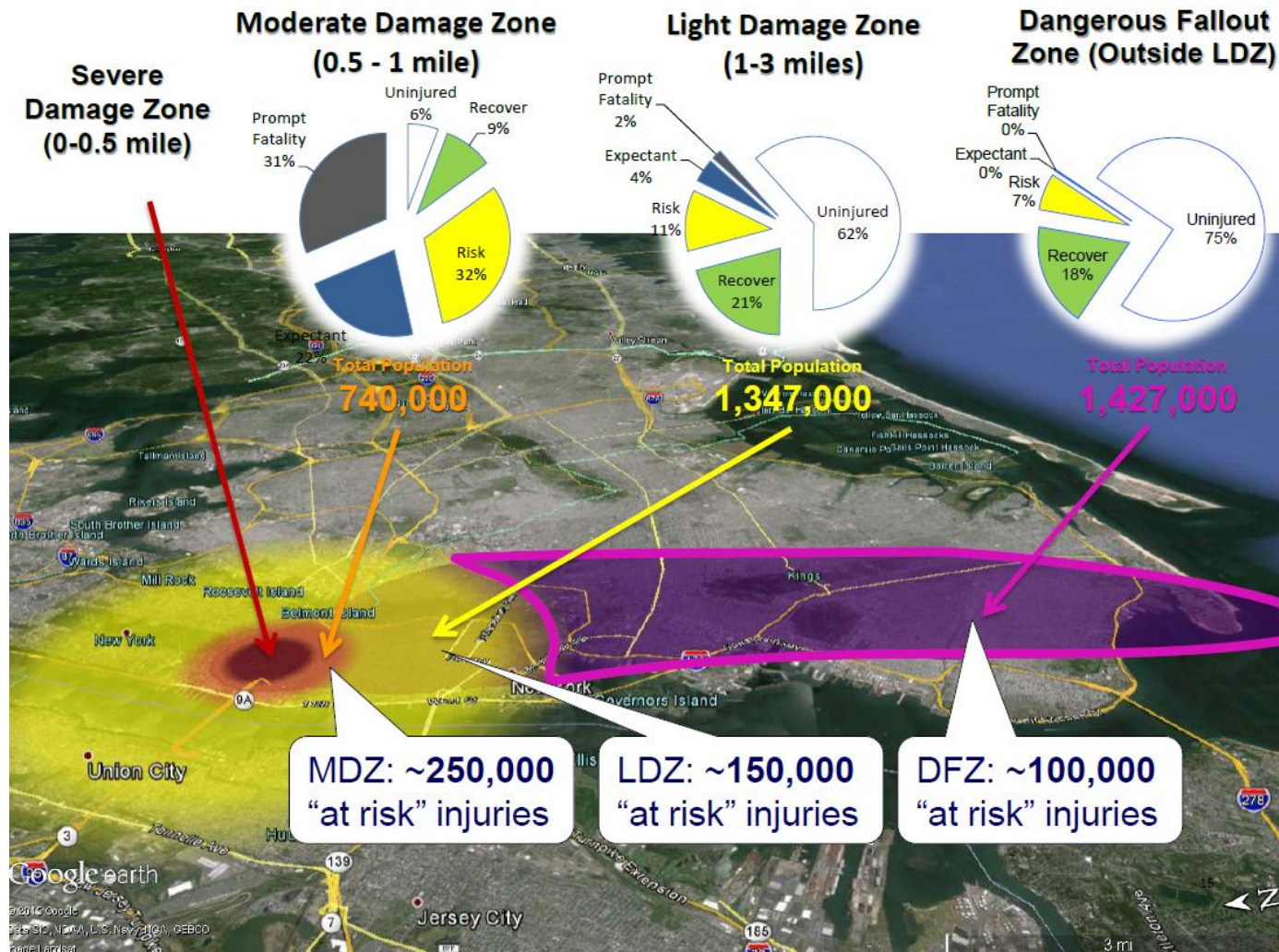
# Fallout Extent at 2 Hours

**Dangerous Fallout Zone  
>10 R/h**

**Radiation represents a direct health  
threat. Radiation Injury can result for  
those that do not shelter**



Source:  
Lawrence Livermore  
National Laboratory



Source:  
Lawrence Livermore  
National Laboratory

# Injury Summary (NYC Scenario)

- Acute Radiation Syndrome often progresses over weeks, allowing extended opportunity for medical intervention
- **Over 1 million injuries\***
  - ~ 400,000 in Recover category (low exposure) category
  - ~ 450,000 in **Risk** (significant exposure) category
  - ~ 100,000 in Expectant (ultimately fatal exposure) category
- At **Risk** radiation injuries may not be readily apparent
- Without medical care, more than half (~60%) of those in **Risk** will succumb to their injuries
- With medical care, more than 100,000 potential **Risk** fatalities can be avoided.

\* Presumes prompt effects & 2 hours of outdoor fallout exposure

Source:  
Lawrence Livermore National Laboratory



# Acute Radiation Syndrome, NYC Scenario

**Table 4 – 10 kT NYC Scenario Casualty Estimate<sup>3</sup>**

| Exposure Range (rad) | Exposure Range (Gray) | Symptoms                         | Latency Period to Symptoms | Initial Survivors* | Untreated Fatalities | Treatment can save... |
|----------------------|-----------------------|----------------------------------|----------------------------|--------------------|----------------------|-----------------------|
| 50 – 70              | 0.5 – 0.7             | Asymptomatic                     | No manifest phase          | 200,000            | -                    |                       |
| 70- 125              | 0.7 – 1.25            | Minor transient effects – if any | ~ 1 month                  | 200,000            | 200                  | 200                   |
| 125 – 300            | 1.25 – 5              | Mild to moderate                 | 3-4 weeks                  | 300,000            | 75,000               | 51,000                |
| 300 – 530            | 3 – 5.3               | Moderate                         | ~ 2 weeks                  | 150,000            | 109,500              | 42,000                |
| 530 – 830            | 5.3 – 8.3             | Moderate to severe               | < 1 week                   | 100,000            | 98,000               | 11,000                |
| 830 – 1500           | 8.3 - 15              | Severe – fatality in weeks       | None                       | 100,000            | 99,000               | 1,000                 |
| <b>Total</b>         |                       |                                  |                            | <b>1,050,000</b>   | <b>381,700</b>       | <b>105,200</b>        |

\*The number of initial survivors was modeled using estimated trauma from each zone that included a radiation exposure obtained from 2 hours of unprotected exposure to fallout radiation. These approximately 1 million survivors are estimated to result in about 380,000 fatalities that go untreated. Treatment, including the recognition of acute radiation syndrome or its potential can save about 105,000 people. Modeling indicates that if the public were educated to quickly SIP post detonation, preventable casualties from fallout could potentially number in the hundreds of thousands or more due the protection afforded by the varied NYC building stock<sup>4</sup>. That estimate assumes an outdoor fallout exposure of 24 hours.

# IND Planning: New York City's Approach

---

GREATER NEW YORK  
HOSPITAL ASSOCIATION

# NYC Nuclear Detonation Plan Design

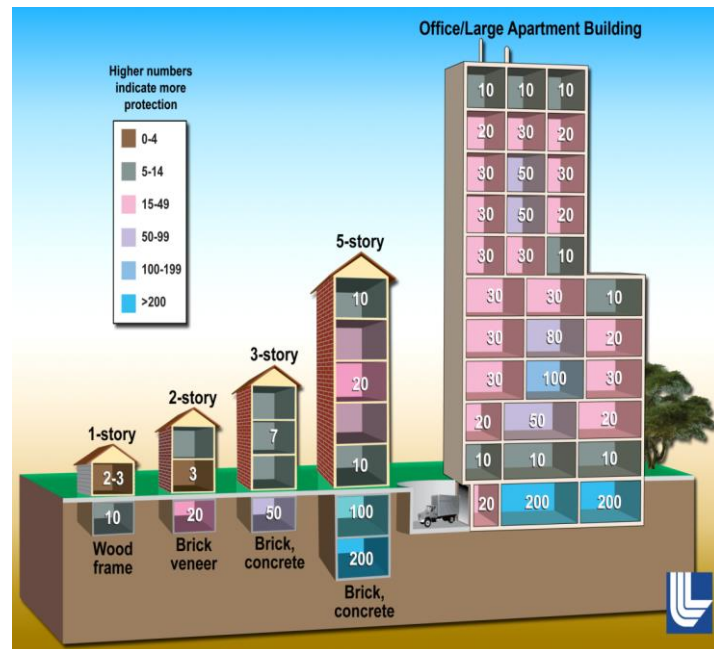
## Planning Priorities:

- Prioritize immediate 1<sup>st</sup>-responder life-safety actions
- Establish a citywide response coordination structure

## Pre-existing Plans & Familiar Concepts used...

## Planning Assumptions and Consequences:

- Reduced response workforce
- Limited communications
- Limited access
- Supply chain disruptions
- Delegation and decentralization of command



# NYC Nuclear Detonation Plan Objectives

## Objectives:

- Respond to Advance Notice
- Warn the Public
- Establish a Command Structure
- Develop a Common Operating Picture
- Restore Interoperable Communications
- Protect Responder Health and Safety
- **Support Public Health & Safety**
- Maintain Continuity of City Government
- Integrate Federal Resources



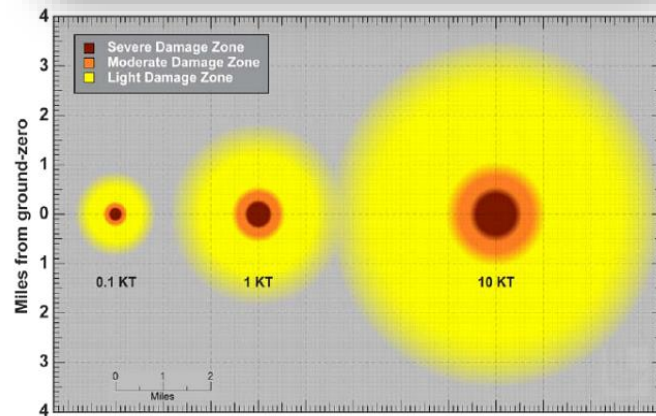
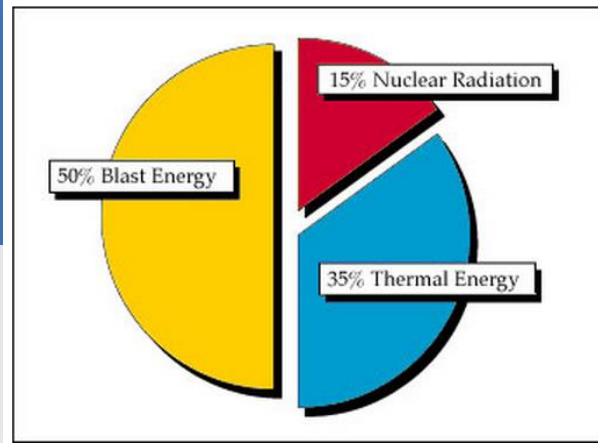
# NYC Nuclear Detonation Plan Scope

**Plan Currently Covers First 72 Hours accounting for:**

**Non-Specific Scenario:** Threat of or actual detonation in/near NYC, or in northeast region, and of any yield (does not mean a it works with a massive yield)...The impact is dependent on yield, location, height of burst, and the current meteorological conditions

**Nuclear Fallout:** Nuclear fallout will begin to spread immediately, with a majority of the material landing down-wind of the detonation point within the first 12-24 hours.

**Federal Support Timeline:** The Command Element should assume NYC is not the only jurisdiction receiving federal support and that NYC is largely limited to local and regional resources for the first few days, at least.



<http://www.atomicarchive.com/Effects/effects1.shtml>

Source: Planning Guidance for Response to a Nuclear Detonation. Second edition, 6/2010



# Public Messaging

---

GREATER NEW YORK  
HOSPITAL ASSOCIATION

# Planned Public Messaging

- Likely NYC messaging:
  - Pre-event public education – this is being explored by DOHMH along with its Radiological Advisory Committee
    - Pre-event messaging likely to be more effective than during event
  - Immediate aftermath - Go Inside, Stay Inside, Stay tuned
  - Not currently know what the messaging will be related to self-decontamination or decontamination sites
  
- *Important to remember that communication modes may not work in Severe and Moderate Damage Zones, therefore those most impacted may not know what has happened.*

# Improvised Nuclear Device Response and Recovery

Communicating in the Immediate  
Aftermath

June 2013



## Federal Guidance

- Immediate areas of focus:
  - Get inside, stay inside, stay tuned, stay calm and help others.
  - Self-decontamination
- Other topics:
  - Exposure, contamination and decontamination
  - Population monitoring
  - Health effects

# Information from Conversation with EPA Communications Lead

- Unlike in other scenarios, feds will act immediately -- pushing out messages within first 15 minutes; will then work to make contact with local and federal officials.
  - Will use public alert and warning systems, CDC and HHS networks to reach providers, as well as first responder radio networks
- Intermediate messages will include phrases like – “if you are not in a life threatening situation DO NOT go the hospital, other people need these resources more”;
  - This message will be coupled with actions for individuals to take like self-decontamination, staying calm, and checking on others
- Feds prefer term “concerned survivors” over worried well. Encourage hospitals in the preparedness phase to work with local partners to determine what would be local gathering locations and how mental health resources could be surged to those locations. This type of planning could keep these folks out of the hospitals.

# Information from Conversation with EPA Communications Lead

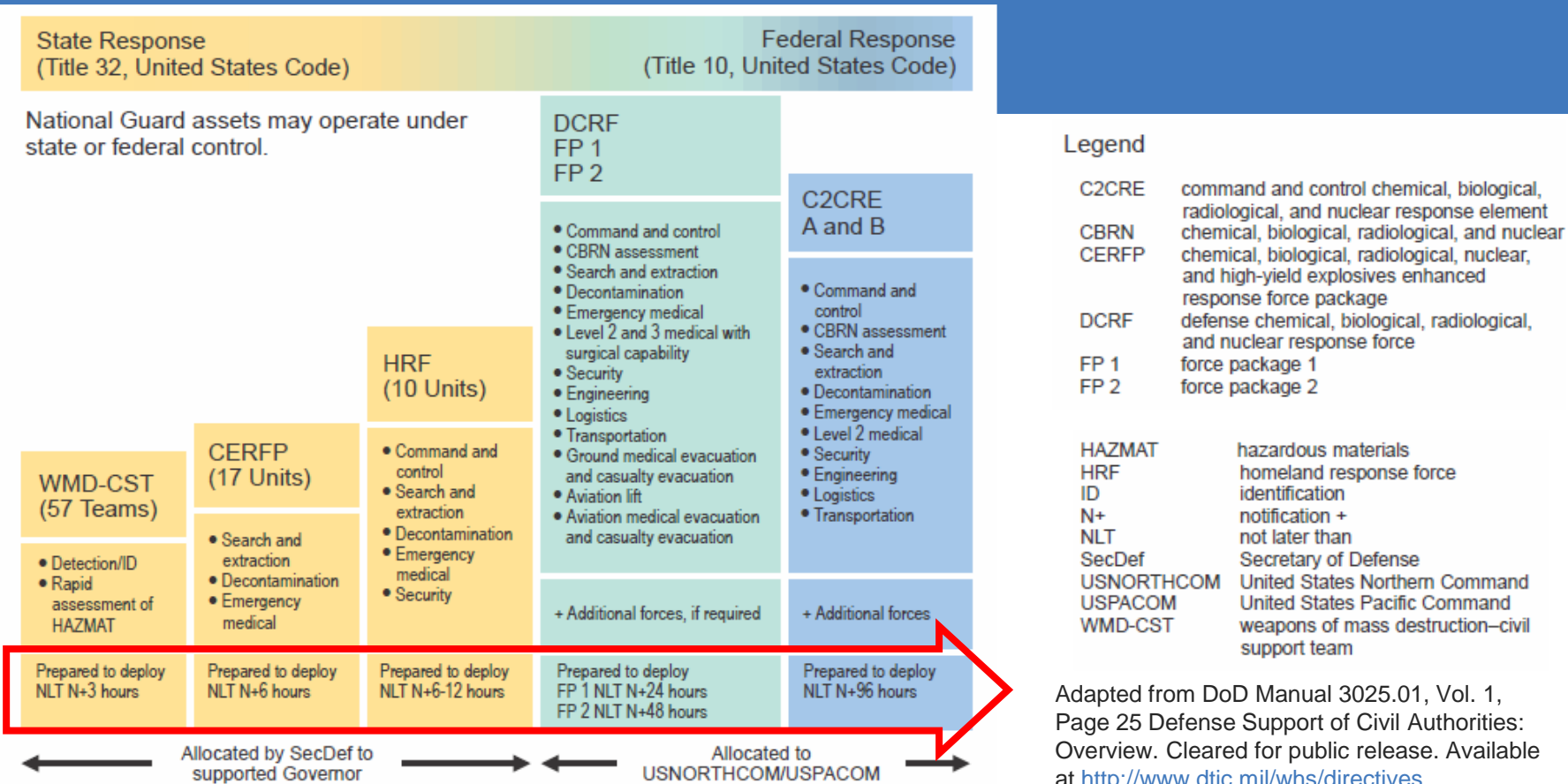
- Advice for hospitals:
  - PIO function is critical.
  - Evidence that hospital staff will stay and treat patients especially if there is strong and credible messaging about the need to stay for their own safety, and the messaging provided reduces fears about the safety of their families.
  - Recommend using internal radiologists and radiation experts to communicate safety information internally to staff; they have credibility due to their expertise.



# IND Planning: What We Know About State & Federal Plans and Concepts

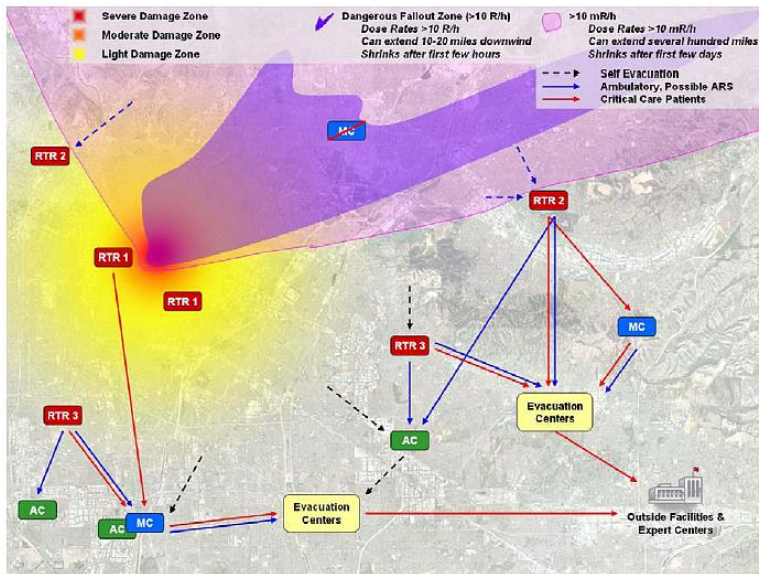
---

# State (National Guard) / Federal Response (DoD)



# Federal Draft “Plan” / Assumptions

## Radiation Triage, Treat, and Transport System (RTR)



Planning Guidance for Response to a Nuclear Detonation, Second edition, 6/2010 (PDF - 2.62 MB) (National Security Staff, Interagency Policy Coordination Subcommittee for Preparedness & Response to Radiological and Nuclear Threats, Figure 4.1) – available at <https://www.remm.nlm.gov/PlanningGuidanceNuclearDetonation.pdf>

| Type                                  | Location                                      | Operator                      | Time         | Function  |
|---------------------------------------|---|-------------------------------|--------------|---|
| <b>RTR1</b>                           | Damage zones and around blast area            | Local                         | < 48 hrs     | Trauma assessment, triage, stabilization                      |
| <b>RTR2</b>                           | Edge of the fallout zones                     | Local                         | < 48 hrs     | Trauma assessment, triage, stabilization (decon if possible)  |
| <b>RTR3</b>                           | Outside damage and fallout zones              | Local                         | < 48 hrs     | Trauma assessment, triage, stabilization (decon if possible)  |
| <b>Assembly / Screening Centers</b>   | In local area and region outside danger zones | Local, NGOs, MRC              | 1 day – 1 wk | Radiation screening, gross decon, initial assessment          |
| <b>Medical Centers</b>                | In local area and region                      | Local, NGOs, (VHA, NDMS, FMS) | 1 day – 1 mo | Radiation screening, decon, triage, trauma and emergency care |
| <b>Local / Distant ESF#6 Shelters</b> | In local area and region / outside region     | ESF #6                        | 1 day – mos  | Mass care, routine medical, hematology, outpatient (distant)  |
| <b>Evac Centers</b>                   | In local area and region                      | LSTTF, DOD, NDMS              | < 1 wk       | Staging for casualty or patient transport                     |

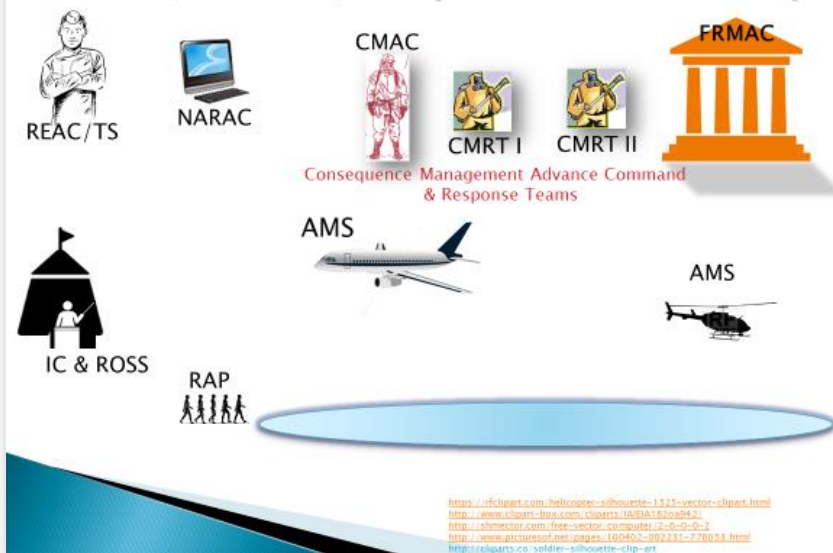
# Federal Response Plans

- Support movement of patients to outlying facilities
  - Trauma Centers for those with trauma/medical non-ARS
  - RITN facilities for survivable radiation syndrome (non-trauma)
- Air Mobility Command – Aeromedical Evacuation
  - C-17 and KC-135
  - Other (train, bus, etc. for ambulatory at risk for ARS – may be treated as outpatient through RITN)

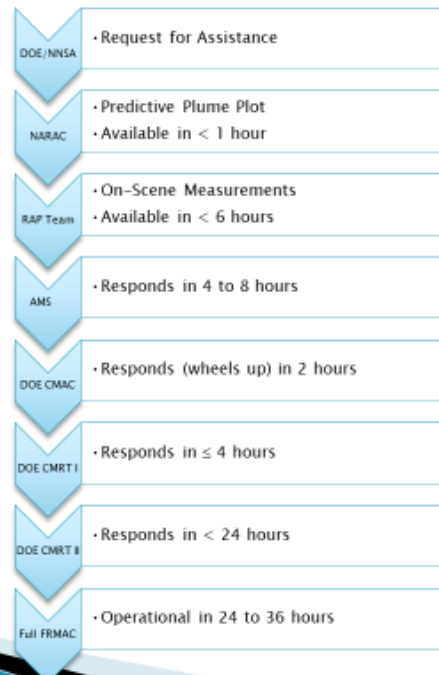


# Department of Energy Response

## DOE (Civilian) Response – Summary



## DOE (Civilian) Response – Time Line



Source: Maiello, ML and Groves, KL. Resources for nuclear and radiation disaster response. Nuclear News, September 2006.



# Strategic National Stockpile (SNS)

---

GREATER NEW YORK  
HOSPITAL ASSOCIATION

# Strategic National Stockpile

- Push Pack (12 hrs) vs. Managed Inventory (24-36 hrs)
  - Arrival ≠ Distributed – may take longer with IND
- Ancillary and Supportive Care Items for Radiation
  - Antimicrobials, narcotics, anti-emetics, PPE, general supplies, IVFs
  - Burn blast supplies – similar to burn carts + vents, eye meds
- Acute Radiation Syndrome Medication
  - Cytokines – distributed to outlying RITN sites
- Treatment for Specific Isotope Exposures
  - Chelating agents – can be ordered to arrive <48hrs
  - Unclear if brought into area or sent to RITN sites
- Laboratory Supplies for serial Lymphocyte Testing
  - NOT included



Source: CDC Public Health Image Library  
(<https://phil.cdc.gov/Details.aspx?pid=22713>), Image #22713, accessed December 30, 2019

# Federal RITN Facilities

---

GREATER NEW YORK  
HOSPITAL ASSOCIATION

# Radiation Injury Treatment Network

**The Radiation Injury Treatment Network (RITN) is a group of voluntary hospitals focused on preparing to respond to a large-scale radiological incident that results in casualties with acute radiation syndrome (ARS), that occurs distant to their location.**

The underlying idea is to move patients who will benefit from medical intervention to other parts of the country

- Challenge is identifying the right patients and organizing transport in a timely manner; not appropriate for:
  - Patients with significant trauma
  - Patients who are expectant due to higher radiation exposure

# Radiation Injury Treatment Network

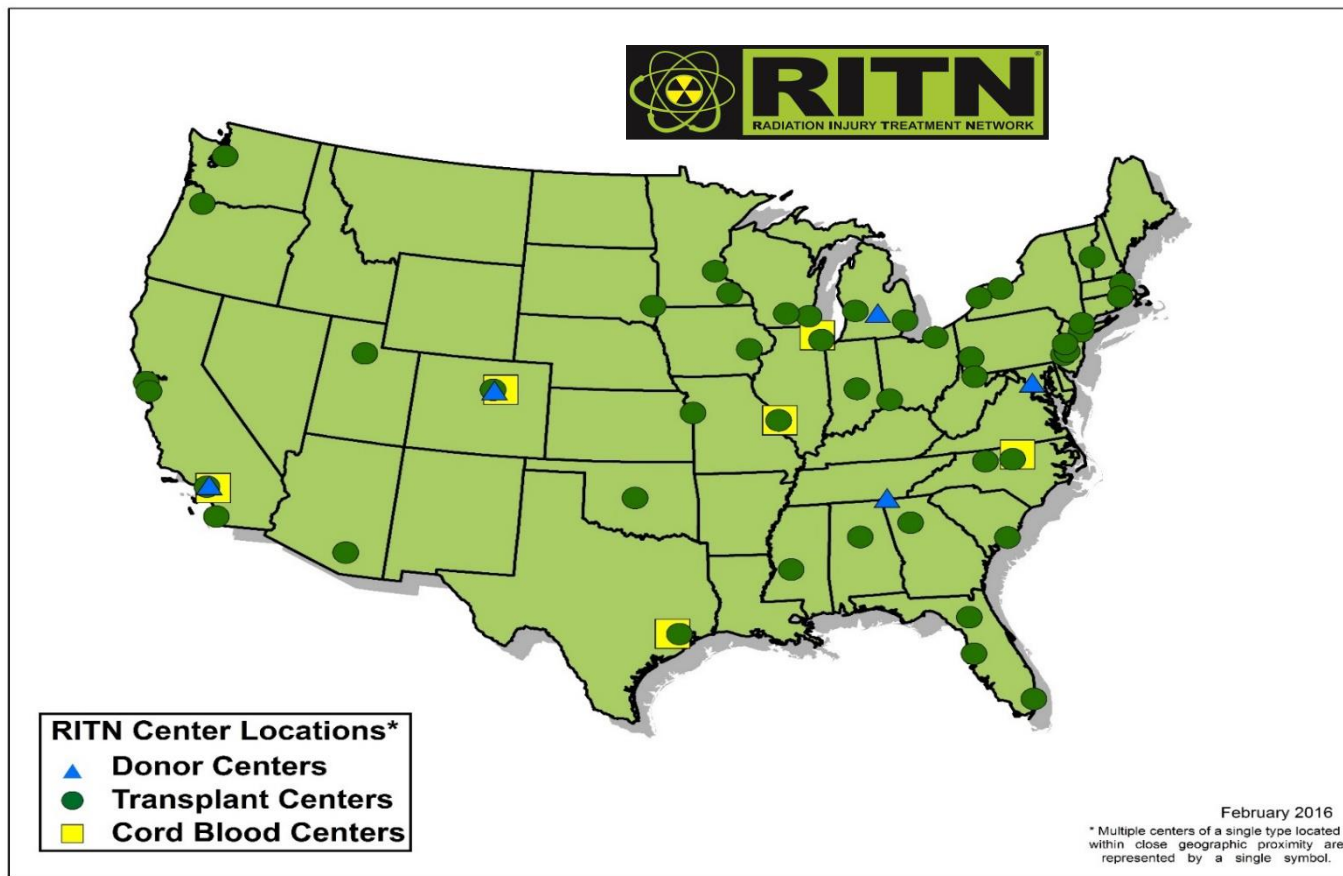
## Conceptual Flow of Casualties to a RITN Center



This is going to take time.... a week or more for casualties with radiation only exposure to arrive at RITN hospitals.

Source: RITN Training Materials, RITN Medical Grand Rounds <https://ritn.net/WorkArea/DownloadAsset.aspx?id=2147484236>





# Aligning Regional Hospital Actions to Support the RITN Concept of Operations

---

GREATER NEW YORK  
HOSPITAL ASSOCIATION

# Local/Regional Hospital Posture

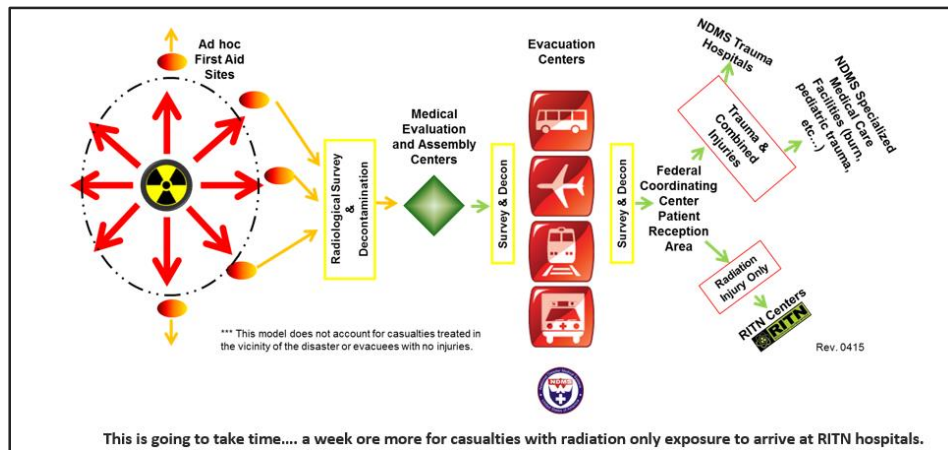


*Note: This is uncharted territory; we are trying to match local actions to broader plans that are largely conceptual.*

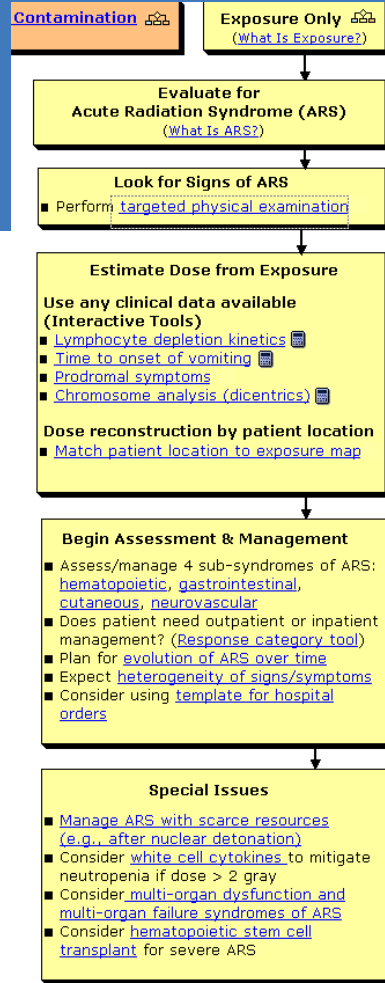
- At each point, and as resources and the security situation allows, hospitals should focus on:
  1. For sickest patients – providing trauma and palliative care; then transferring patients to better resourced facilities if possible
  2. For patients with suspected ARS, documenting potential contamination and symptoms and then moving them outward to healthcare or non-healthcare facilities as information about these locations is known
  3. Redirecting (post shelter-in place-period) those who do not need care to other locations for appropriate services

# Working to Document Exposure & Contamination

As time and resources allow, it will be important for healthcare facilities (if able) to begin to document contamination and exposure information, as this will support later triage and transport activities.



Source: RITN Training Materials, RITN Medical Grand Rounds  
<https://ritn.net/WorkArea/DownloadAsset.aspx?id=2147484236>



Source:  
 Radiation  
 Emergency  
 Medical  
 Management  
 (REMM),  
 Radiation  
 Exposure:  
 Diagnosis and  
 Manage Acute  
 Radiation  
 Syndrome  
 (ARS).

# Can We Leverage Local Community Reception Center (CRC) Capabilities to Help with ARS Triage?

---



# Not really. CRC Capabilities in NYC and Collar Counties are Limited, and not designed for INDs.

- ❑ CRCs are designed for dirty bomb (i.e. Rad Dispersal Device) incidents with relatively smaller impacted populations (i.e. 800,000)
- ❑ Some CRC capabilities exist, but would likely not be available if host community is directly affected by the IND.
  - ❑ FDNY is a DOHMH partner for CRC operations and will be pre-occupied with assessing staffing and operational capabilities
    - ❑ FDNY will focus on life-saving and fire-suppression capabilities (after assessing fallout and radiation exposure issues)
  - ❑ Rockland, Putnam, Orange and Westchester (NY) and Middlesex County (NJ) maintain CRC operations mainly for nuclear reactor accidents (NY) or dirty bombs (NJ)
    - ❑ Can assume that if IND detonation did not occur in these counties, they would be in a position to provide limited screening

# General Concepts to Keep in Mind

---

# A Note About Scope and Approach

- This is a very difficult scenario for which there are a tremendous amount of unknowns.
- The workgroup has concentrated on the initial 72-hour period given the assumption that no/little external assistance will be available.
- Anticipated impacts and challenges differ significantly based on geographic proximity to the site of detonation.
  - This has driven our zone-based approach!

# Behavior and Planning Assumptions

| Behavior  | Communications   | Patient Triage and Transport  |
|---|--|---|
| <ul style="list-style-type: none"><li>• Hope is that individuals will heed “get inside, stay inside” messaging</li><li>• Post shelter-in-place period, individuals who are able to will move outward seeking help and safety</li><li>• Anticipate enormous volume of worried well</li></ul> | <ul style="list-style-type: none"><li>• Hospitals in moderate and light damage zones may not receive official communication about the IND detonation</li><li>• Will be little (if any) communications and information from government sources in the first few days</li><li>• In impacted jurisdictions first responder personnel will be operating in a decentralized fashion</li></ul> | <ul style="list-style-type: none"><li>• Government planning concepts predicated on spontaneous assembly and medical centers</li><li>• From these locations individuals will be triaged and moved toward definitive care outside of region</li><li>• Calculating radiation exposure to prioritize patients will be extremely challenging</li></ul> |

# Workgroup Products

---



# Hospital Key Actions Grid

- 3 zone-based worksheets (moderate, light, beyond damage zones)
- Uses Joint Commission 6 Critical Areas + Incident Command as organizing principle
- Key Actions within each area for each of three time periods
- **Focus of today's session!**

## IND Planning: Healthcare Component

### MODERATE DAMAGE ZONE

[Updated 3.11.19]

Objective: Develop a grid of key response strategies for each of three geographically based zones (i.e., moderate, light and beyond damage zone) for three time periods (i.e., 0-24 hours post detonation, 24-48 hours post detonation, and 48-72 hours post detonation). Hospitals and health systems can use this document to develop and improve internal response plans. Additionally, response partners at all levels of government can gain a clearer understanding of likely hospital sector actions.

- Key Response Strategies = Joint Commission Six Critical Areas
- Moderate Damage Zone is one-half mile to one mile from point of a ground detonation of a 10kT improvised nuclear device
- Moderate Damage Zone assumptions:
  - May not receive notification of the IND detonation; must be prepared to recognize what happened based on EMP, bright light, destruction and fires.
  - Federal government will begin pushing out public messaging within 15 minutes of detonation. Initial messages will be "get inside, stay inside, stay tuned. Intermediate messages will provide self-decontamination information, urge those with non-life threatening situations to avoid hospitals, and direct individuals to areas of assistance as they are established and known.
  - Will be significant structural damage, blown out building interiors, fires, overturned automobiles, some collapsed buildings
  - Likely to receive an influx of individuals seeking shelter, protection and care in the immediate moments after the detonation, with a second surge after the shelter in place order is lifted at ~24 hours.
  - Due to risk of fallout, all in hospital should shelter in place, if safe to do so, during first 24 hours.
  - Hospital should anticipate activation of crisis standards of care coupled with self-degradation of services (see TJC guidance)
  - Hospital will work to maintain the facility until evacuation can be achieved; may leave behind a "Stay Team" post evacuation to meet acute needs of surrounding community until told to pull those staff out by government authorities. Stay Team would include ED, behavioral health and other available services.
  - The facility will become contaminated.

| Key Response Strategy Area<br>THEME for Time Period | Zero to 24 Hours Post Detonation<br>SURVIVING AND SORTING  | 24-48 Hours Post Detonation<br>SURVIVING/GATHERING<br>INFORMATION/PREPARING TO<br>LEAVE   | 48-72 Hours Post Detonation<br>EVACUATING  |
|---|--|---|--|
| Incident Command                                    | <ul style="list-style-type: none"> <li>• Activate HICS; fill roles with individuals onsite. Stand up EOC.</li> <li>• Establish forward planning team.</li> </ul> | <ul style="list-style-type: none"> <li>• Though SIP order is likely to be lifted at ~24 hours, will likely shelter in place for safety and security reasons.</li> </ul> | <ul style="list-style-type: none"> <li>• Continue use of brief operational periods where needs and approaches can be continuously reassessed; use Sit Reps to drive</li> </ul> |

# General Posture/Assumptions by Zone

- Fallout zone will not be established for some time, therefore ALL hospitals should assume their facility is IN the fallout zone and act accordingly.
  
- Hospitals in **Moderate Damage Zone** will not be able to maintain services due to infrastructure and security challenges; foci during initial 72 hours will be:
  - Maintaining safety of staff and patients in facility;
  - Working to limit incoming patients to those who are critically ill/injured;
  - Working toward evacuation of patients to outlying areas;
  - Working toward closure/partial closure of hospital

# General Posture/Assumptions by Zone

## □ Hospitals in **Light Damage Zone** –

- Large zone (1-3 miles from detonation) – situation may vary considerably within zone. If security and infrastructure is significantly compromised, will act more like moderate zone facilities.
- If situation is more stable, will likely serve as a way station both for evacuating patients from moderate damage zone hospitals and individuals injured from the IND
  - Will focus on stabilization and forward movement
  - Will be critical to gain situational awareness about assembly points, and medical capabilities in beyond damage zone

## □ Hospitals in **Beyond Damage Zone**

- Largest initial challenge will be managing worried well and preserving limited resources for critically ill coming from moderate and light damage zones
- Huge focus will be on maintaining staffing and supplies
- Linchpin to the success of broader state and federal patient evacuation plans

# Exploring Medical and Public Health Preparedness for a Nuclear Incident – Workshop held August 22-23, 2018

*The National Academies of Sciences, Engineering and Medicine*

Most pressing healthcare challenges related to response to a nuclear incident:

- Lack of burn care capacity (*only 0.1% of the nursing workforce has burn care experience*)
- Bio-dosimetry testing capacity
- Limited medical toxicologists
- Healthcare workers willingness and readiness to respond
- Significant issues related to crisis standards of care

Areas of potential:

- BARDA working on burn countermeasures and rapid bio-dosimetry
- Veterans Affairs has Medical Emergency Radiological Response Teams
  - Can be deployed to advise and assist with treatment of radiation injuries -- working to increase overall number of teams

# *Draft Government Considerations Document*

- Briefing paper from DOHMH, GNYHA and workshop participants with:
  1. Purpose of the workshops (perceived gap coupling federal response to hospital post-IND strategies)
  2. Structure of the workshops (use of Joint Commission critical areas; time periods and damage zones)
  3. Participant conclusions for IND response & Requests for federal assistance
  4. Recommendation to continue planning with appropriate federal and state partners to better couple hospital strategy to overall government response