

The Second National Emergency Management Summit

February 4, 2008

Washington, DC

WORLD TRADE CENTER ATTACK

Glenn Asaeda, MD
Medical Director

Fire Department of
the City of New York

New York City

Demographic

- Over 8 Million People
- Over 320 Square Miles
- Five Counties
 - Manhattan
 - Over 1 ½ million residents
 - Bronx
 - Over 1 million residents
 - Brooklyn
 - Nearly 2 ½ million residents
 - Queens
 - Over 2 million residents
 - Staten Island
 - Nearly ½ million residents



New York City Public Safety

- **Public Safety Components**

- Mayor's Office of Emergency Management
- Fire Department of New York (FDNY)
 - Fire & EMS Operations
- New York City Police Department (NYPD)

- **Communication Systems**

- OEM - NYPD
- EMS - FIRE
- Many Others



NYC EMS 911 System

- FDNY Municipal Ambulances
- 28 Voluntary Hospital Ambulances
- 40 Volunteer Community Ambulances
- 22 Private Ambulance Services
- 911 Ambulance Response provided by all of these resources

NYC EMS Statistics

- 3,000 to 3,500 calls to 911 per day for ambulance requests
- Equals 1.2 to 1.5 million calls per year
- 750,000 patients receive a transport to a 911 receiving hospital
- 63 participating 911 receiving emergency departments

NYC EMS Statistics - continued

- 11,000 firefighters of which 7,000 are trained to the level of CFR-D
- 2400 EMT-Ds, 700 paramedics
- 525 FDNY (municipal) ambulance 8-hour tours in a 24-hour period
- 347 Hospital ambulance tours in 24-hours
- A third of 911 Resources are ALS

NYC EMS is a Busy System

- The World Trade Center attack was one of 4,100 calls for September 11, 2001

NYC Response to Disaster

- NYC EMS has responded to many disasters in the past.....
 - 1992 La Guardia Aircraft crash
 - 1993 bombing of the WTC
 - 2000 Brooklyn subway train derailment
- Just not to the magnitude of this incident

Disaster Planning

- On Saturday September 8, 2001, FDNY EMS conducted an aircraft crash disaster at La Guardia Airport
- Scenario included approximately 100 passengers on a jet aircraft which crashed shortly after take-off
- Smoke and fire were included in the scenario, but no other hazardous conditions

WTC Attack Time Line

- 8:46 AM - First aircraft (a Boeing 767), American Airlines Flight 11 from Boston to Los Angeles, hits the North Tower between the 93rd and 98th floors

WTC Attack Time Line

- 9:03 AM - Second aircraft (a Boeing 767), United Airlines Flight 175 from Boston to Los Angeles, hits the South Tower between the 78th and 84th floors



AMERICA UNDER ATTACK
DEATH TOLL FROM ATTACKS
COULD CLIMB INTO THOUSANDS

CNN
LIVE

WTC Attack Time Line

- 9:58 AM - South Tower collapses









WTC Attack Time Line

- 10:28 AM - North Tower collapses















FIRE LINE DO NOT CROSS

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NEW YORK PRESBYTERIAN
EMERGENCY MEDICAL SERVICES



4222

GREST CITY RAY
COMPANIES
CR CONSTRUCTION
SERVICES, LLC
INTERSTATE
WORKS CORP.

WTC Attack Time Line

- 5:18 PM - WTC Building #7 fully collapses (partially collapsed initially after the South Tower collapsed)
 - 47 story building housed a new \$13 million Mayor's Office of Emergency Management Crisis Command Center



**NEW YORK CITY
CLOSED TO
ALL TRAFFIC**





Twin Towers Statistics

- 110 floors each
- North Tower 1 - 1,368 feet tall
- South Tower 2 - 1,362 feet tall
- 4 million square feet of space per tower
- 600,000 tons of steel each
- 425,000 cubic yards of concrete each
- 600,000 square feet of glass
- 43,000 windows total
- 254 elevators, 71 escalators total

EMS Response Resources

- First Hour
 - 23 Supervisors
 - 3 Logistical Support Units (LSUs)
 - 2 Mobile Emergency Response Vehicles (MERVs)
 - 29 ALS Units
 - 58 BLS Units

First 8 Hours

- 31 Supervisors
- 47 ALS Units (28 Voluntary Hospital Units)
- 98 BLS Units (23 Voluntary Hospital Units)
- Approximately 400 EMS personnel directly involved with the WTC Operations on scene

Mutual Aid Response - within NYC (9/11 and 12)

- Volunteer ambulances
 - 24 ALS
 - 23 BLS
- Proprietary
 - 28 ALS
 - 140 BLS





N.Y. CRANE & EQUIPMENT

TOWER LADDER 15

CHANNEL

Metro

FLUSHING

Mutual Aid Response - Outside NYC (9/11 and 12)

- New York State
 - 151 ambulances
- New Jersey
 - 5 ALS
 - 38 BLS

EMS Plan of Attack

- Phase 1 (8:46 AM to 9:03 AM)
 - first aircraft crashes into Tower 1
 - Incident Command Post established (across the street from the North Tower)
 - 4 separate START triage areas at the North, South, West, and East ends of the WTC complex established
 - ambulances staged at WTC complex
 - initial patients treated and transported

Phase 2 EMS Response (9:03 AM to 9:58 AM) -Second Aircraft into Tower 2

- Terrorist Attack confirmed
- Incident Command Post - mobilized to the lobby of Tower 1
- Triage areas concentrated to North and South sites
- on-going care of initial patients

Phase 3 (9:58 AM to 10:28 AM) - First Tower Collapses

- Mayday evacuation of all sites
- Initial rescuer casualties
- Attempts at re-organization of command post and triage areas

Phase 4 (10:28 AM) - Collapse of Second Tower

- Incident Command Post re-established away from immediate WTC site
- Triage areas moved further North and South
- Mutual Aid Response System (MARS) activated

Organizational Structure After Collapse

Manhattan the Day After

Lower Manhattan remained shut down yesterday with businesses closed and cars blocked from entry below 14th Street. Bridges and tunnels remained blocked. Emergency shelters were set up around the city, and workers began to cart out rubble and sort out the dead.



Medical Branch Operations

Communications

Police Plaza
Command & Control

Ferry Terminal

Chambers Street

Chelsea Pier

Phase 5 (Second Tower collapse to first 24 hour time period)

- Ambulances re-staged away from WTC complex
- Mutual Aid Response System (MARS) ambulances staged at North Sports complex and at Shea Stadium
- Rescue efforts on-going
- Contact with local hospitals for status of bed and staff availability

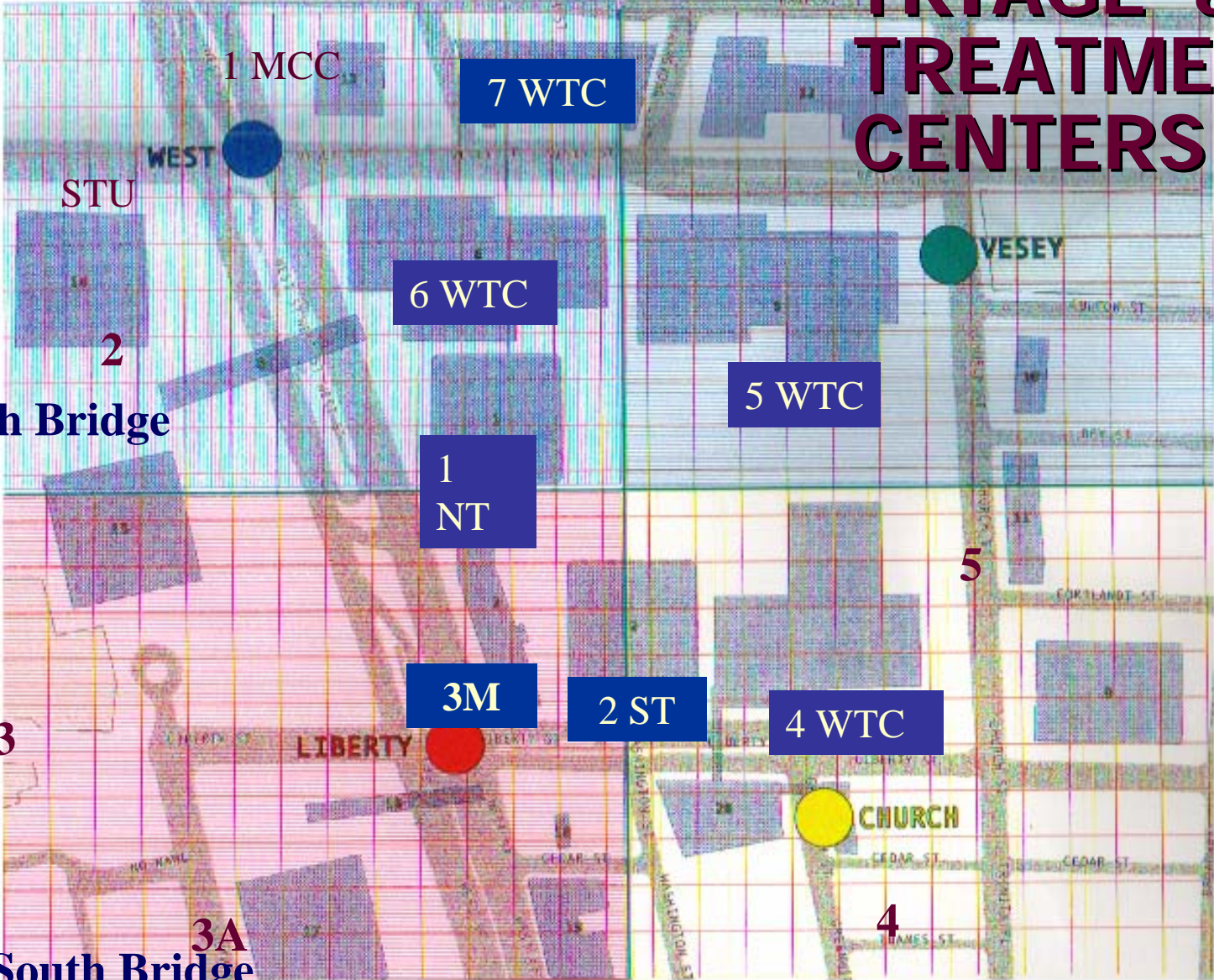
Phase 5 - Continued

- Field hospital set-ups begin a quarter mile south at the ferry terminal area and a mile north at Sports Center Complex
- FDNY/NYPD confined space rescue teams searching for victims
- NYC OEM coordinates Local/State/Federal assistance and resources (Dept of Health, Environmental Protection Agency, FEMA, etc)
- FDNY OMA coordinates all EMS and Medical Care in area

Phase 6 (24 hours and beyond)

- 28 hours
 - first FEMA Urban Search and Rescue teams arrive
- 36 hours
 - first DMAT teams arrive and begin set-up
- 44 hours
 - FDNY transfers all field hospital functions to DMAT teams

TRIAGE & TREATMENT CENTERS



North Bridge

South Bridge

1 MCC

7 WTC

STU

WEST

VESEY

6 WTC

2

5 WTC

1

NT

5

3

3M

2 ST

4 WTC

LIBERTY

4

CHURCH

3A

Federal Assets

- 20 Urban Search and Rescue Teams
- 14 DMAT Teams
- USS Comfort (700 bed floating hospital)
- 3 DMORT Teams





Rapid Assessment of Injuries Among Survivors of the Terrorist Attack on the World Trade Center --- New York City, September 2001

On September 11, 2001, a jet aircraft crashed into the north tower of the World Trade Center (WTC) in lower Manhattan. Minutes later, a second aircraft crashed into the south tower. The impact, fires, and subsequent collapse of the buildings resulted in the deaths of thousands of persons. The precise number and causes of deaths could not be assessed in the immediate aftermath of the attack; however, data were available on the frequency and type of injuries among survivors ([Figure 1](#)). In previous disasters, such information assisted in characterizing type and severity of injuries and the health-care services needed by survivors (*1*). To assess injuries and use of health-care services by survivors, the New York City Department of Health (NYCDOH) conducted a field investigation to review emergency department (ED) and inpatient medical records at the four hospitals closest to the crash site and a fifth hospital that served as a burn referral center. This report summarizes findings of that assessment, which indicated that the arrival of injured persons to this sample of hospitals began within minutes of the attack and peaked 2 to 3 hours later. Among 790 injured survivors treated within 48 hours, approximately 50% received care within 7 hours of the attack, most for inhalation or ocular injuries; 18% were hospitalized. Comprehensive surveillance of disaster-related health effects is an integral part of effective disaster planning and response.

Within 6 hours of the WTC attack, a NYCDOH rapid assessment team began collecting demographic and clinical data on all persons who sought emergency care from 8 a.m. September 11 to 8 a.m. September 13 at the five Manhattan hospitals. Information about each person included sex, age, mode of arrival at the hospital, date and time of registration or initial assessment, type and anatomic location of injury or illness, whether the injury or illness was attributable to the attack, and whether the person was admitted for additional treatment or was discharged from the ED. Among the 1,688 ED patients who received care at the sampled hospitals during the assessment period, 1,103 (65%) were survivors treated for injuries or illnesses related to the attack. A link between injury or illness and the attack was not established for 96 (6%) patients because of incomplete documentation; specific injury or illness was missing for 161 (15%), and admission and discharge data were not documented for 108 (10%). The median age of 1,103 survivors was 39 years (range: <1--95 years), 729 (66%) were male, 282 (26%) arrived by emergency medical vehicle, and 320 (29%) were rescue workers (e.g., firefighters, police officers, and emergency medical services personnel). A total of 810

Patient Statistics

- “Ground Zero” Hospitals - 6 Facilities:
 - Bellevue Hospital
 - Beth Israel Medical Center
 - Cabrini Hospital
 - New York Downtown Hospital
 - NYU Medical Center
 - St. Vincent’s Hospital



American
and Don

WIFE SHOOTER

1
2
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Burn Patients

- Burn criteria patients were transported to the New York Cornell Burn Facility (not a “ground zero” hospital)

Initial Patient Count - First Several Hours

- Not all data at the hospital and ambulance level accounted for
- Several hundred patients initially seen at the 6 ground zero hospitals and the 1 Burn Center facility

Injury Data

- New York Cornell Burn Center admitted 11
- Ground Zero Hospitals treated 2,128 patients and admitted 243
- 73 New York City Hospitals treated 5,830 and admitted 454
- Field Hospitals:
 - Sports Complex site (North) treated 243
 - Ferry Terminal site (South) unknown

Injury Data - continued

- New York Region Hospitals (104 facilities surveyed) treated 6,538 and admitted 477
- New Jersey Hospitals (49 surveyed) treated 826 and admitted 52

Injury Data - Continued

- New York Region Hospitals deaths related to WTC as of 9/19 - 16
- New Jersey Hospitals death related to WTC as of 9/19 - 6

WTC Survival Statistics

- 5 victims within the buildings complex rescued
- the last victim pulled out approximately 36 hours after the initial attack

WTC Death Statistics

- 2,749 total victims reported from WTC disaster - including those within the buildings, rescue workers, and those victims on the two aircraft
- On 7/20/07, another victim was added to the total death toll
- 1,133 still unidentified

Rescue Worker Fatalities

- FDNY - 341 firefighters, 2 paramedics
- NYPD - 23 officers
- PAPD - 37 officers
- other EMS agencies
 - NY Presbyterian Hospital - 2 EMTs
 - Cabrini Hospital - 1 EMT
 - MetroCare/Montefiore Hospital - 1 EMT
 - Hunter Ambulance - 1 EMT
 - Forrest Hills Volunteer - 1 EMT

Potential Hazardous Materials

- Asbestos
- Freon
- Fuel oil
- Gasoline
- Compressed bases
- Silica

Post Response Care

- Crisis Intervention and Stress Management (CISM)
- Physical examinations of involved personnel - coordinated by the FDNY Bureau of Health Services (BHS)
- Long Term Psychological Counseling



Dawning of a New Health Care System

- EMS
 - Mutual Aid
- Allied Health Care
 - DMAT
- Mental Health
 - Rehabilitation
- Medical Examiner
 - DMORT
- Logistics
- Public Health
- Environmental Health
- Occupational Health

EMS Mutual Aid

- From New York through NY State
 - Resources from 42 counties, 350 agencies over a three week period
 - BLS and ALS resources, one protocol
- From New Jersey through UMDNJ
 - 350 BLS and ALS resources over the three week period
- Permitted FDNY to maintain 911



UNION FIRE & RESCUE

HOPEWELL VALLEY EMERGENCY SERVICES

HOPEWELL TOWNSHIP

AMBULANCE

FIRE DISTRICT

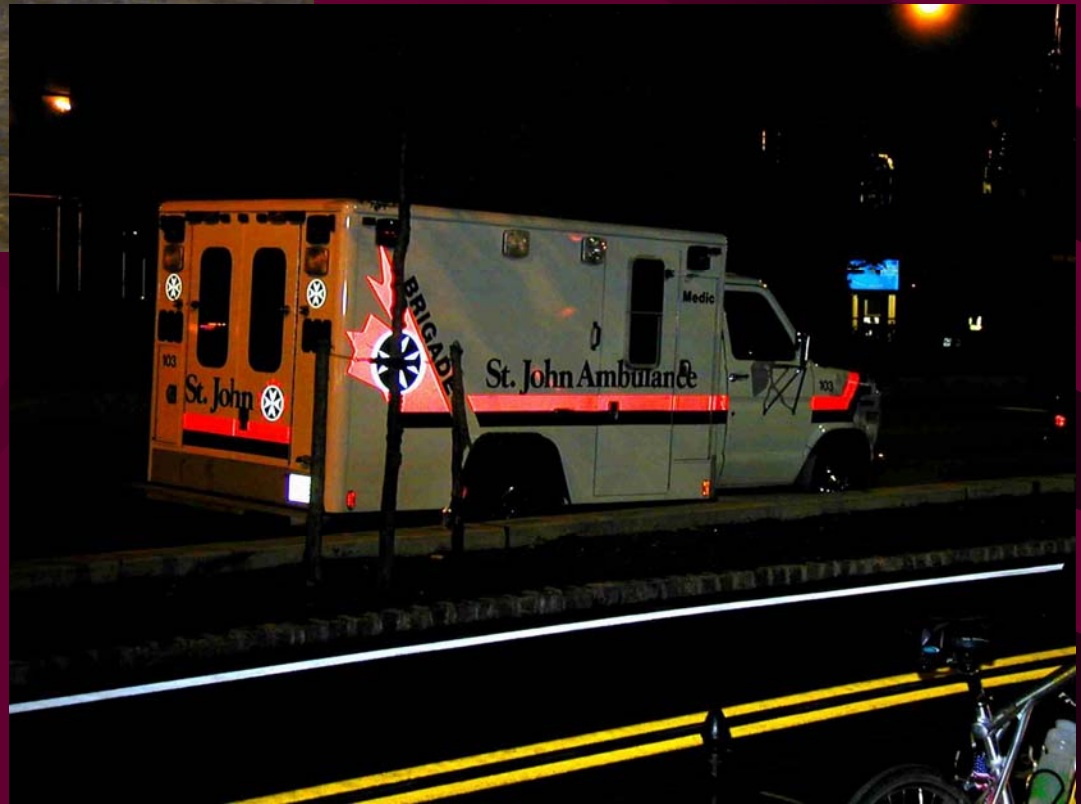
EMERGENCY SERVICES

CHS3

LIFE 6

AMBULANCE

Capital Health System
HOPEWELL TOWNSHIP





Disaster Medical Assistance Teams

- Arrival & briefing Wednesday evening
- Operational Thursday morning
 - MCC and one treatment area
 - 4 Additional treatment areas by Friday
- Unified Command and Control
- Seamless integration into FDNY ICS plan
- Relieved FDNY of direct medical care

DMAT
EVACUATION →
3 SHORT BLASTS
EVACUATE
1 BLAST SILENT

~~N.W. STATE~~ APEX
SECTOR
TRIAGE





Other Activities with EMS Involvement

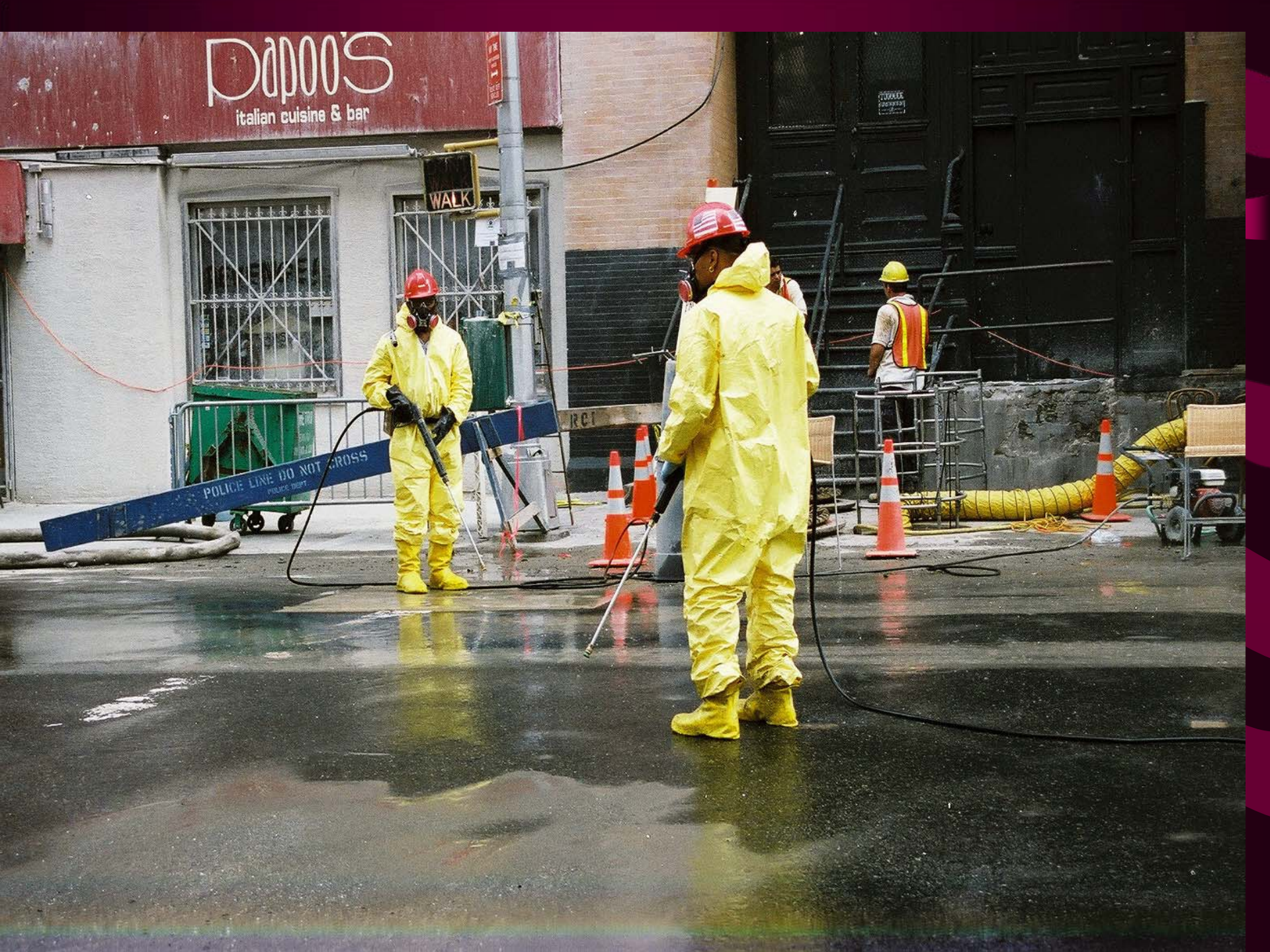
- Health and Safety for all personnel at Site
- Personal protective equipment
- Patient care for rescuers and site construction workers
- Assistance with body recovery and removal
- Cleanup and Decontamination



DADOO'S
italian cuisine & bar

WALK

POLICE LINE DO NOT CROSS
POLICE TRUST



EMS Highlights

- Incident Command System
- Mutual Aid Response
 - Over three weeks
- DMAT teams
- EMS Command and Control permitted overall coordination of medical care

EMS Difficulties

- Initial loss of communications after collapse of towers
- Difficulty with re-organizing within “war zone”
- Caring for patients became “preservation of self”
- Deception of building stability with 1993 bombing from below

EMS Difficulties - Continued

- Emotional involvement with so many rescue personnel lost
- Loss of patient tracking information
 - First 24 hours
 - at “unauthorized” treatment areas

EMS Difficulties - Continued

- Well intended “volunteer” health care providers - physicians, nurses, paramedics, EMTs
- Uncoordinated with system, difficult to credential, improper protective equipment, no supervision

The Community Came Together



Questions?



***THANK
YOU***

