

***World Trade Center...  
& Exxon Valdez & Katrina & BP & ...***

***Emergency Responder  
Health Monitoring & Surveillance:  
LESSONS (not yet?) LEARNED***

# NIOSH Emergency Responder Health Monitoring & Surveillance (ERHMS) document



- Targets “gaps & deficiencies” re **rostering, monitoring, & surveillance** within context of Incident Command System (ICS).
- Would benefit from additional attention to gaps & deficiencies re ID & control of **risk factors** that contribute to causing harm.

# 3-Stage ERHMS

## Disaster Response Model



- Pre-deployment, deployment, post-deployment
- Anticipates rapidly implemented professionalized response force
- Would benefit from consideration of additional populations engaged in disaster response.
- “Non-traditional” responders operate outside ICS but encounter similar risk factors, exposure scenarios, & health impacts.

# Exposure Assessment: WTC Experience



- **Sampling results do not tell the whole story.**
- Disconnect between reassuring assessments based on sampling results & persistent respiratory & other illnesses among tens of thousands of WTC responders, area workers, & residents.
- These exposures were largely avoidable & unnecessary.

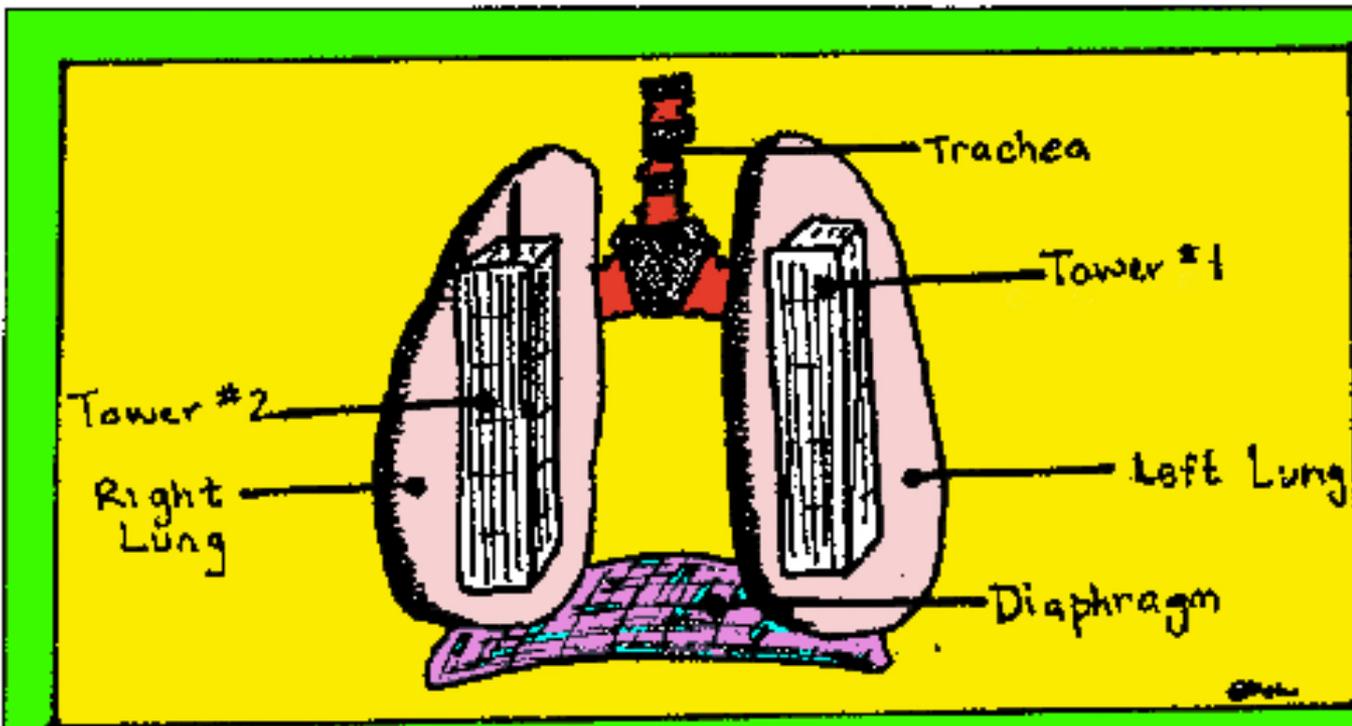
# Exposure Assessment: WTC Lessons

- Exposure assessments should be *narratives informed by data*, not just data.
- Sampling results must be supplemented by industrial hygiene assessments.
- **Exposure assessments should ID:**
  - substances of concern & their hazards
  - tasks performed & equipment & tools utilized
  - disturbance activities
  - typical & worst-case exposure scenarios
  - protective measures & hierarchy of controls.



Photo: D. Newman

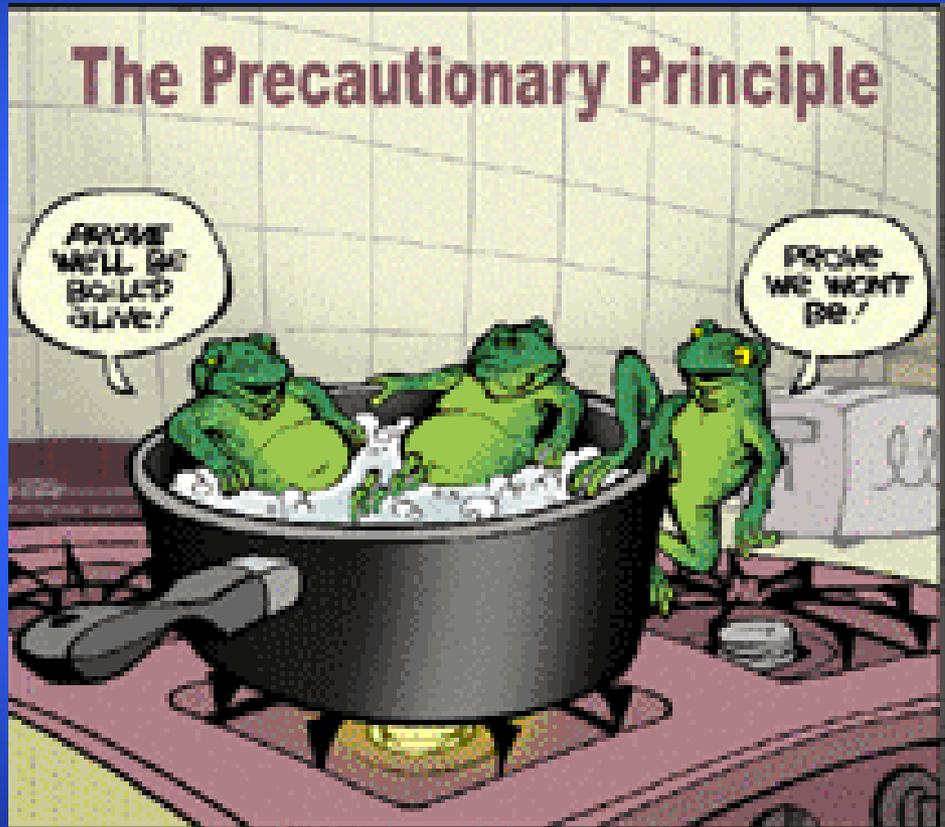
# WTC Exposure Assessment - Simplified



X-RAY VISION By Alison Shapiro

© Alison Shapiro

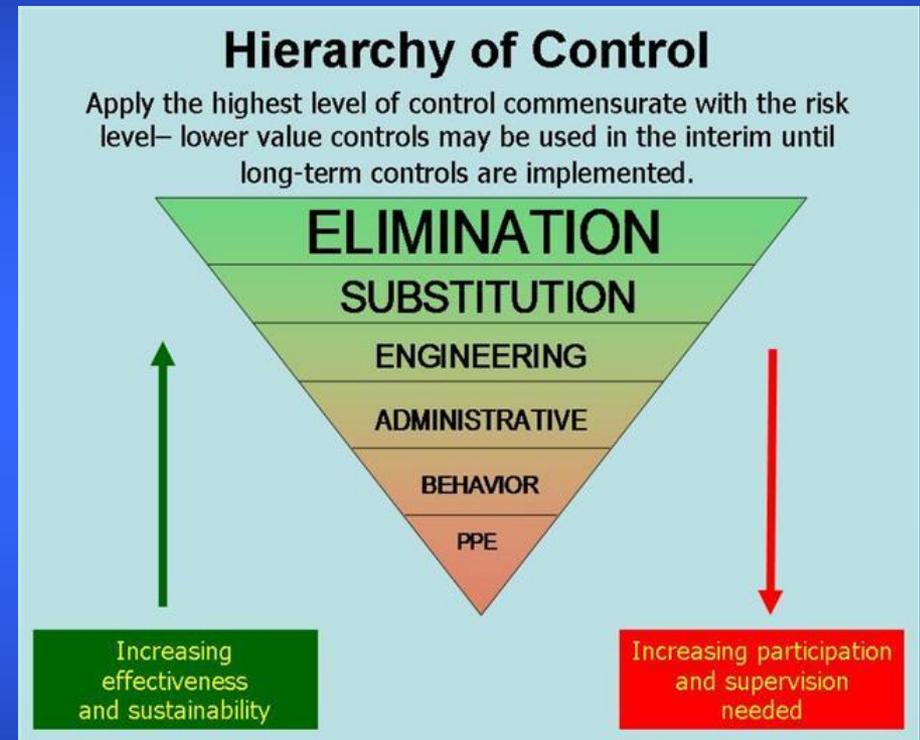
# Utilize the Precautionary Principle



- “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause & effect relationships are not fully established scientifically...”
- Assume risk & take protective measures appropriate for worst case scenarios until evidence indicates protective measures may be scaled back.

# Hierarchy of Controls of Hazards

- Goal of ERHMS document is to “raise the bar” re health monitoring & surveillance.
- Goal should also be to raise the bar re more rapid & effective use of the hierarchy of controls.
- Need to move up toward high end of hierarchy as quickly as possible, with emphasis on hazard elimination, where practical.



Credit: Innovative Occupational Hygiene Solutions

# Respiratory Protection



Photo: AP

- **Weak link in disaster response worker protection.**
- PPE, including respirators, is least effective component of hierarchy of controls because:
  - hazard remains in place
  - potential for human error is high; may compromise protection.

# Work Shifts

- At Ground Zero, 12-hour shifts & 7-day work weeks were the norm.
- Respirator use unlikely to remain effective over such long work shifts & under such physically demanding conditions.
- **Tours of duty should be limited in length & number to:**
  - minimize fatigue & stress
  - promote safe work practices
  - increase productivity, &
  - facilitate effective utilization of respiratory protection.



# Rostering, Monitoring, Surveillance (& Treatment?)



Credit: WTC Medical Monitoring & Treatment Program

- **Responders must be afforded access to expert and long-term medical care, if necessary.**
- **In catastrophic disasters, responder health issues may deplete the financial or medical resources of union- or employer-funded medical insurance plans or clinics.**
- **Many workers, especially immigrant day laborers, may be under-insured or uninsured, and have little or no effective access to the health care system.**

# Medical Centers of Excellence



- Neither the existing market-based, fee-for-service health care model nor the workers compensation system has proved effective at providing adequate access, screening, or treatment for adverse health outcomes associated with 9/11-environmental exposures.
- Health care providers in general do not possess the expertise to identify environmentally induced symptoms and illnesses, to associate them with disaster-related exposures, or to render effective treatment or appropriate referrals. They provide, at best, “fragmented treatment by non-experts.” (Dr. David Prezant, FDNY)
- Catastrophic disasters may require clinic- or hospital-based “centers of excellence” to engage in targeted outreach & public health education, medical monitoring & treatment, ID of late-emerging disease, & collection & sharing of data to inform clinical & public health policy.



# Enforcement



- OSHA disaster response policy:

OSHA Directive HSO  
01-00-001, December 18,  
2003.

**non-enforcement**

consultation, guidance,  
technical assistance.

- At WTC, non-enforcement facilitated rapid debris removal at expense of protection of worker health.

# Current Exposure Limits

- Major gaps in regulatory protection against inhalational hazards.
- OSHA permissible exposure limits (PELs) for **chronic inhalational exposure** based on outdated 1960s data.
- Many of these substances are known or presumed **carcinogens**. PELs not adequately protective because based only on less hazardous, non-cancer effects.
- Many known carcinogens (dioxins, diesel exhaust, etc.), & other substances known to be hazardous, not regulated at all.

# Alternative Exposure Limits?



- Need to **update PELs**.
- Need to develop **acute & sub-chronic** inhalational exposure guidelines.
- Consider use of **alternative occupational exposure limits (OELs)** such as RELS, TLVs, etc.

# The Rescue Phase



Photo: CNN

- Ground Zero rescue phase artificially prolonged for 9 months.
- Obstacle to implementing safe work practices, compliance with regulatory requirements, & enforcement.
- Building-collapse victims not extricated within 12-48 hours have low survival rate, declining to virtually zero after 4 days
- **Duration of rescue phase must be informed by science - not politics or emotions. Must have realistic time limit, determined by site-specific conditions & nature of disaster event.**
- ***Rescue is no excuse not to protect health & safety of rescue workers.***

# Training

## Training should cover:

hazards & hierarchy  
of controls of hazards  
site characterization &  
job hazard analysis  
applicable OSHA  
standards, including:

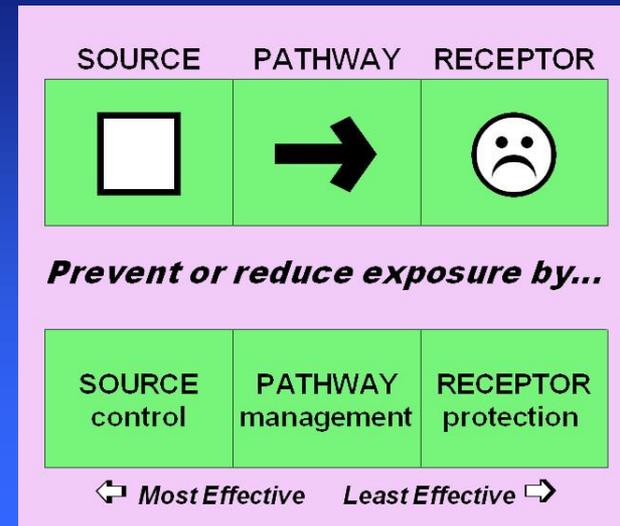
HazCom

Respiratory  
Protection

PPE

Hazwoper

Access to Employee  
Exposure & Medical  
Records



Credit:  
NYCOSH

## Training should emphasize:

worker rights

Precautionary Principle

## Training should be:

in understandable  
language

at appropriate literacy  
level

hands-on.

# Training Challenges



- Provide training in advance to *expanded population* of designated & potential responders.
- Provide periodic refresher training.
- Provide last-minute, site-specific training to reinforce concepts already learned.
- Overcome employer resistance.
- Finance costs, including lost work time.

# Immigrant Workers



Photo: Allan Tannenbaum

- Immigrant workers recruited for disaster cleanup require additional attention & protection.
- In 9/11 response efforts, immigrant workers were the least likely to receive proper training & respiratory protection or to have medical insurance.
- As result, incurred high rates of illness without early access to medical surveillance & treatment.
- In addition, were often victims of wage & hour crimes.

# Risk Communication

- Trust cannot be achieved unless all data are made publicly available without restriction. Unfiltered data should be posted on the web in a timely manner.
- Workers & unions must retain legal right to access to all sampling data per 29 CFR 1910.1020.



Credit: Praxis Foundation

## From 7 Cardinal Risks of Risk Communication (EPA):

- Accept & involve public as a legitimate partner...
- People & communities have right to participate in decisions that affect their lives...
- Goal of risk communication in a democracy should be to produce an informed public that is involved, interested, reasonable, thoughtful, solution-oriented, & collaborative; it should not be to diffuse concerns or replace public action...
- Communication is a 2-way activity. If you do not listen to people you cannot expect them to listen to you.

# Public Participation



Photo: D. Newman

- Impacted communities can rapidly build broad-based coalitions & develop high levels of technical expertise.
- Frank, timely, accessible risk communication & other information are essential but not sufficient.
- Response organizations & agencies must formalize a **participatory, transparent process for active community involvement.**
- Process should provide for open, meaningful participation by all impacted stakeholders, including labor, business, & community.
- May include regular, open, participatory public meetings, oversight panels, advisory boards, or task forces, with experts & representatives chosen by or from impacted communities, as well as public hearings hosted by government agencies or elected officials.

# Goals in disaster response?

1. ***Do no additional harm*** - protect the health & safety of rescue, recovery, & cleanup workers.
2. Rescue of trapped, injured, & at risk live victims.
3. Site characterization & hazard assessment, with initial (but not exclusive) emphasis on known and potential IDLH hazards.
4. Protect worker health, public health, & the environment through hazard mitigation, including effective removal of environmental contaminants.
5. Retrieval of deceased victims.
6. Reorganization of essential services, debris removal, & return to normalcy.

# REMEMBER



**WORKERS ARE THE CANARIES  
FOR THE COMMUNITY  
& THE ENVIRONMENT**



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