

After the Storm: Protecting the Health and Safety of Clean-Up Workers, Volunteers, and Residents



March 28, 2019

Thomas Estabrook, Ph.D.

The New England Consortium – Civil Service Employees Assoc.

University of Massachusetts Lowell



National Institute of
Environmental Health Sciences
Worker Training Program

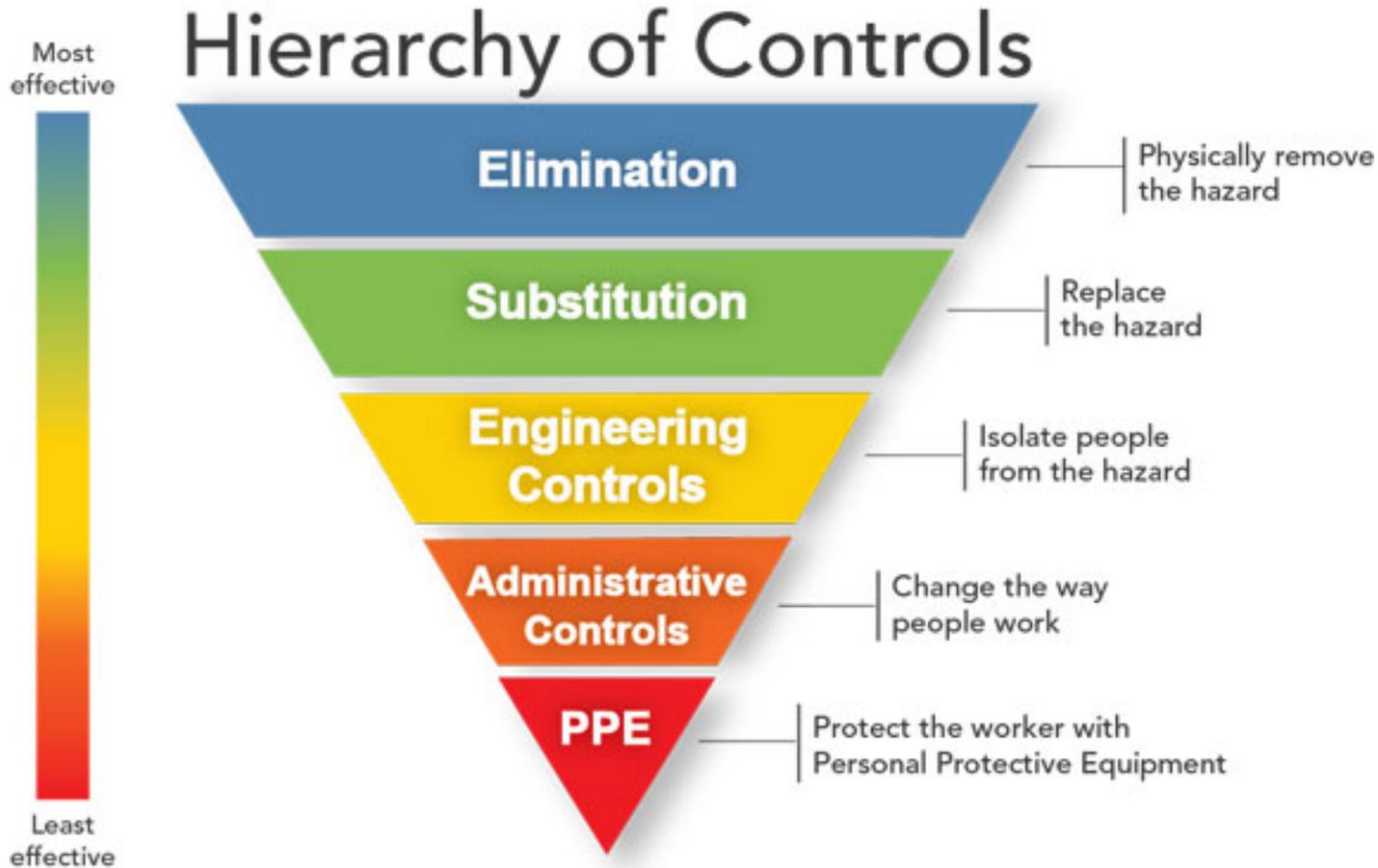
- NIEHS was given responsibility by Superfund Amendment and Reauthorization Act (SARA, 1986) to start training grants program.
- Worker Training Program started in 1987, funding hazardous waste worker training organizations across the country.
- The New England Consortium started in 1987.
- Currently there are 22 awardee organizations training in:
hazardous waste worker training; hazmat disaster preparedness;
DOE nuclear worker training; infectious disease preparedness;
environmental career worker training.
- Awardee organizations have assisted in training cleanup personnel at World Trade Center, BP gulf oil spill, Hurricanes Katrina, Sandy, Harvey, and Maria cleanups, and other disasters.

Keeping cleanup workers and community residents safe

- Variety of workers engaged in post-storm cleanup:
 - emergency management
 - public works
 - public safety
 - private contractors
 - day laborers
 - community and non-profit organization volunteers.
- Training necessary on working around a multitude of hazards.
- Safety plan and procedures for different response entities is important.
- Education and training before the event is the goal, but takes planning and resources.



Personal Protective Equipment (PPE) is the lowest level of protection



Training of Cleanup Personnel



Clean-up Safety: 5 Key Things to Remember



1. Stay out of flood water.
2. Protect your body. Respirator, skin protection, proper lifting, sturdy boots, gloves, eye protection, proper washing of clothes.
3. Watch out for active utilities including power lines and natural gas lines.
4. Do not let children participate in clean-up.
5. Do not operate equipment, especially chain saws, without training and proper protective equipment.

Post-Storm Cleanup Hazards



- Unstable structures
- Confined Spaces
- Energized utilities
- Debris removal
- Carbon monoxide
- Hazardous chemicals
- Traumatic stress and fatigue
- Hand and power tools
- Harmful dusts
- Heat and cold stress
- Contaminated flood waters
- Slips, trips and falls
- Working near heavy equipment
- Animals, insects, harmful plants
- Infectious diseases
- Lifting and straining (ergonomic hazards)

Unstable Structures

- Use extreme caution before entering homes and buildings.
- Assume all stairs, floors and roofs are unsafe until inspected.
- Look up and be aware of hidden and overhead falling hazards.
- Watch out for unstable ground or flooring that could collapse.
- Be aware of FEMA search marking system and structural integrity inspection postings. If no posting, it is not safe to enter.
- Do not try to stabilize a structure. Only properly trained personnel should do so.



Flood water

- It is contaminated – a mixture of hazardous substances and debris.
- Stay out of it and do not drive through water where depth is unknown.
- When working around grey or black water, avoid direct contact with skin and eyes. Use PPE to minimize contact.



Harmful Dusts

- Dusts may have asbestos, heavy metals, silica, other toxic materials.
- Avoid driving, walking or working in dusty areas.
- Respirator use may be required. Requires training, fit testing.
- N-95 or greater respirator is acceptable for most activities.



Electrical utilities/ natural gas

- Stay away from downed or overhead power lines and cables. Assume they are energized until proven otherwise.
- Contact utilities for buried power line locations.
- Report damaged utilities – call 911.
- Before removing debris, make sure there are no live wires or fuel lines.
- Stay at least 10 feet away from overhead power lines.



Debris Piles and Unstable Walking Surfaces

- Injuries are often result of falling materials and debris related to unstable structures.
- Overhead falling hazards: loose debris, building components and contents.
- Look for fire or smoldering material on or beneath surface.
- Look out for hazardous materials.
- Walk and work on surfaces you know to be stable.
- Watch for fall hazards to other levels.
- Follow safe work practices and wear appropriate PPE: hard hat, work clothes, safety shoes with slip resistant soles, gloves, safety glasses, respirator.



Fatigue and Traumatic Stress



- Traumatic stress is emotionally overwhelming situation that affects many people during and after a disaster.
- Common to experience shock, numbness, disconnection.
- Those experiencing prolonged traumatic stress should consult a mental health professional.
- Tips for minimizing traumatic stress include: pace yourself; take frequent breaks; maintain as normal a schedule as possible; drink plenty of fluids; take breaks away from work area; accept what you cannot change; communicate with loved ones at home.

Hazardous Materials

- A wide variety of hazardous materials are often found in commercial and residential debris: hazardous chemicals, asbestos, fuel, lead batteries, paints, PCBs, electrical transformers, large appliances, etc.
- Do not handle: damaged chemical containers, containers with unknown contents, industrial chemical containers.
- Use proper PPE when handling.
- Report unidentified or damaged containers, or hazardous building materials, to local authorities.



Protection from Mold

- Mold presence can greatly increase after a storm.
- It can grow on almost any building material and can cause significant health issues.
- “Mucking and gutting” are common post-storm activities that expose workers and residents to mold.
- If handling mold-containing materials, best to wear an N-95 NIOSH approved respirator, goggles, protective gloves (nitrile, pvc, natural rubber) and coveralls.
- Training on mold for work crews – including day laborers and volunteers – and contractors is essential.



Determining appropriate Personal Protective Equipment



Hazards for Day Laborers

- Wage theft can be rampant. First four weeks after Hurricane Harvey in Houston, 26% of day laborers were victims of wage theft.
- Major obstacle to reducing wage theft and recover of wages → day laborers do not know where to report violations.
- Lack of training for day laborers → 85% of day laborers working in hurricane-affected areas reported no training for worksites they entered.
- Most day laborers do not have PPE they need.
- 34% of day laborers reported getting hurt on job.
- Day laborers and worker centers may become first responders in disaster relief, without adequate training or resources.





Volunteer challenges

- Volunteer have mainly little to no experience in cleaning up hazardous materials.
- Most are organized by non-governmental organizations
- Most have poor access to protective equipment, respirators, information about hazards, training.
- Often they volunteer one day on weekends.
- Training and tracking are difficult.

Conclusions

- Best to provide disaster preparation trainings, including to worker centers, day laborers.
- Volunteers, residents, and day laborers are especially at risk due to lack of safety procedures, training and proper equipment.
- Incorporate important role of day laborers and worker centers in relief and reconstruction.
- Protect workers' rights during cleanup and reconstruction.
- Expand and fund worker centers before disaster response.
- Government and private sector must ensure that protective equipment is provided on emergency basis.



Resources

- National Institute for Environmental Health Sciences – Worker Training Program (NIEHS WTP) – <https://tools.niehs.nih.gov/wetp/>
- US EPA -- <https://www.epa.gov/natural-disasters/hurricanes>
- Improving Safety and Health Training for Disaster Cleanup Workers: Lessons Learned from the 2010 Deepwater Horizon Oil Spill
 - https://www.niehs.nih.gov/news/events/pastmtg/hazmat/assets/2011/wtp_workshop_report_spring_2011_training_disaster_cleanup_workers_508.pdf
- Day Labor, Worker Centers & Disaster Relief Work in the Aftermath of Hurricane Sandy
 - https://www.gc.cuny.edu/CUNY_GC/media/365-Images/Aftermath-of-Hurricane-Sandy-Report-FINAL-11-4-13.pdf
- Sandy to Harvey: will lessons from day laborers be learned or forgotten?
 - <http://www.thepumphandle.org/2017/08/31/sandy-to-harvey-will-lessons-from-day-laborers-be-learned-or-forgotten/#.XJpDCqBReUk>

Thomas Estabrook, Ph.D.

The New England Consortium – University of
Massachusetts Lowell

Thomas_Estabrook@uml.edu

600 Suffolk St., Suite 513

Lowell, MA 01854

978-934-3397