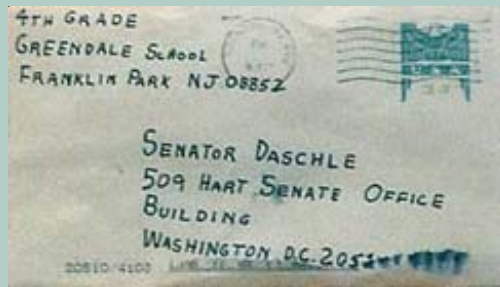


BIOTERRORISM: FEAR OR FACT

WHAT YOU NEED TO KNOW IN THE EVENT OF A BIOLOGICAL, CHEMICAL OR RADIOLOGICAL ATTACK



HazMat Technician on scene at an incident.



Anthrax contaminated letter sent to Senator Tom Daschle.

Smallpox Vaccine



Nuclear Explosion

Passaic County Department of Health Air Monitoring Van.



Audio version available. Call (973) 881-4396 for further information.

The 2003 Board of Chosen Freeholders



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Introduction



Passaic County is aware of the need to be prepared for bioterrorism. Post 911, the **Passaic County Department of Health (PCDH)** has committed to ongoing work with the local public health and medical community to increase the ability to detect and respond to a bioterrorist attack. The PCDH, in coordination with a Passaic County Bioterrorism Task Force planning committee, is in the process of co-developing a thorough bioterrorism response plan. In doing so, the PCDH is playing a critical role developing protocols to engage local, state and federal resources; educating and engaging community and government leaders; providing useful information to the public; and continuing an ongoing review and refinement of our bioterrorism planning.

The goal of public health in response to bioterrorism is to improve the public health community's preparedness to detect illness that may be related to a bioterrorism threat, and develop the appropriate public health structure and contingency plans to respond effectively in the event of a bioterrorism incident.

An improved public health infrastructure that can detect disease outbreaks early and provide treatment and disease control is important not only for issues related to bioterrorism but for all infectious diseases. For some infectious disease agents, we might have only a short window of opportunity — between the time the first cases are identified and a second wave of people become ill — to determine that an attack has occurred, to identify the organism, and to prevent further spread. Protection against bioterrorism requires a strong public health system at the local level.

Bioterrorism Preparedness Division

In response to this increased need for a stronger public health infrastructure, the New Jersey Department of Health and Human Services (NJDHSS) funded the ***Passaic County Department of Health Bioterrorism Preparedness Division*** to strengthen staffing infrastructure in six key areas:

Planning and Preparedness

Establish strategic leadership, direction, assessment, and coordination of activities (including National Pharmaceutical Stockpile response) to ensure statewide readiness, interagency collaboration, local and regional preparedness for bioterrorism, other outbreaks of infectious disease, and other public health threats and emergencies.

Introduction

Surveillance and Epidemiology

Enhance, design, and/or develop systems for rapid detection of unusual outbreaks of illness that may be the result of bioterrorism, other outbreaks of infectious disease, and other public health threats and emergencies. Assist state and local health departments in establishing expanded epidemiological capacity to investigate and mitigate such outbreaks of illness. Provide training and relevant educational material (e.g. interpretation of clinical and laboratory information on incoming infectious diseases or those conditions and syndromes that could indicate a terrorist event) to the health professionals and provide feedback to all reporting sources, including hospitals, laboratories, and veterinary clinics among others.



Information Technology Services

Establish and maintain a network that will (a) support exchange of key information and training over the Internet by linking public health and private partners on a 24/7 basis; (b) provide for rapid dissemination of public health advisories to the news media and the public at large; (c) ensure secure electronic data exchange between public health partners' computer systems; and (d) ensure protection of data, information, and systems, with adequate backup, organizational, and surge capacity to respond to bioterrorism and other public health threats and emergencies.

Risk Communications

Develop an effective risk communications capacity that provides for timely information dissemination to citizens during a bioterrorist attack, outbreak of infectious disease, or other public health threat or emergency. Such a capacity should include training for key individuals in communication skills, the identification of key spokespersons (particularly those who can deal with infectious diseases), printed materials, timely reporting of critical information, and effective interaction with the media.

Education and Training

Assess the training needs of key public health professionals, infectious disease specialists, emergency department personnel, and other healthcare providers related to preparedness for and response to bioterrorism, other outbreaks of infectious disease, and other public health threats and emergencies. Ensure effective provision of needed education and training to key target audiences through multiple channels, including academic institutions, healthcare professionals, and other sources.

LINCS Communications and Information Access

In the event of an intentional release of a biological, chemical or radiological agent, rapid and secure communications will be especially crucial to ensure a prompt and coordinated response. In the case of some infectious diseases, each hour's delay would increase the probability that another group of people will be exposed, and the outbreak could spread both in number and in geographical range.

Currently, the LINCS system (Local Information and Network Communication System) establishes broadcast email communications of urgent public health information for a new level of defense against bioterrorism and other health threats, linking all public health agencies at the local and state levels. Future capacities will include fax blast capabilities and reverse 911 communications capabilities.

Passaic County Hazmat Response

Passaic County HAZMAT Response

The “Emergency Response and Cost Recovery Ordinance” identifies the Passaic County Department of Health as the lead agency responsible for coordination of emergency response to hazardous material (HAZMAT) incidents.

The Passaic County Department of Health has formed a Hazardous Materials Emergency Response Unit, which works in cooperation with local provider agencies such as the County Sheriff’s Department and local fire departments.

HAZMAT Structure in Passaic County

- **Passaic County Department of Health**
- **Passaic County Sheriff’s Department**
- **Clifton Fire Department**
- **Wayne Fire Department**

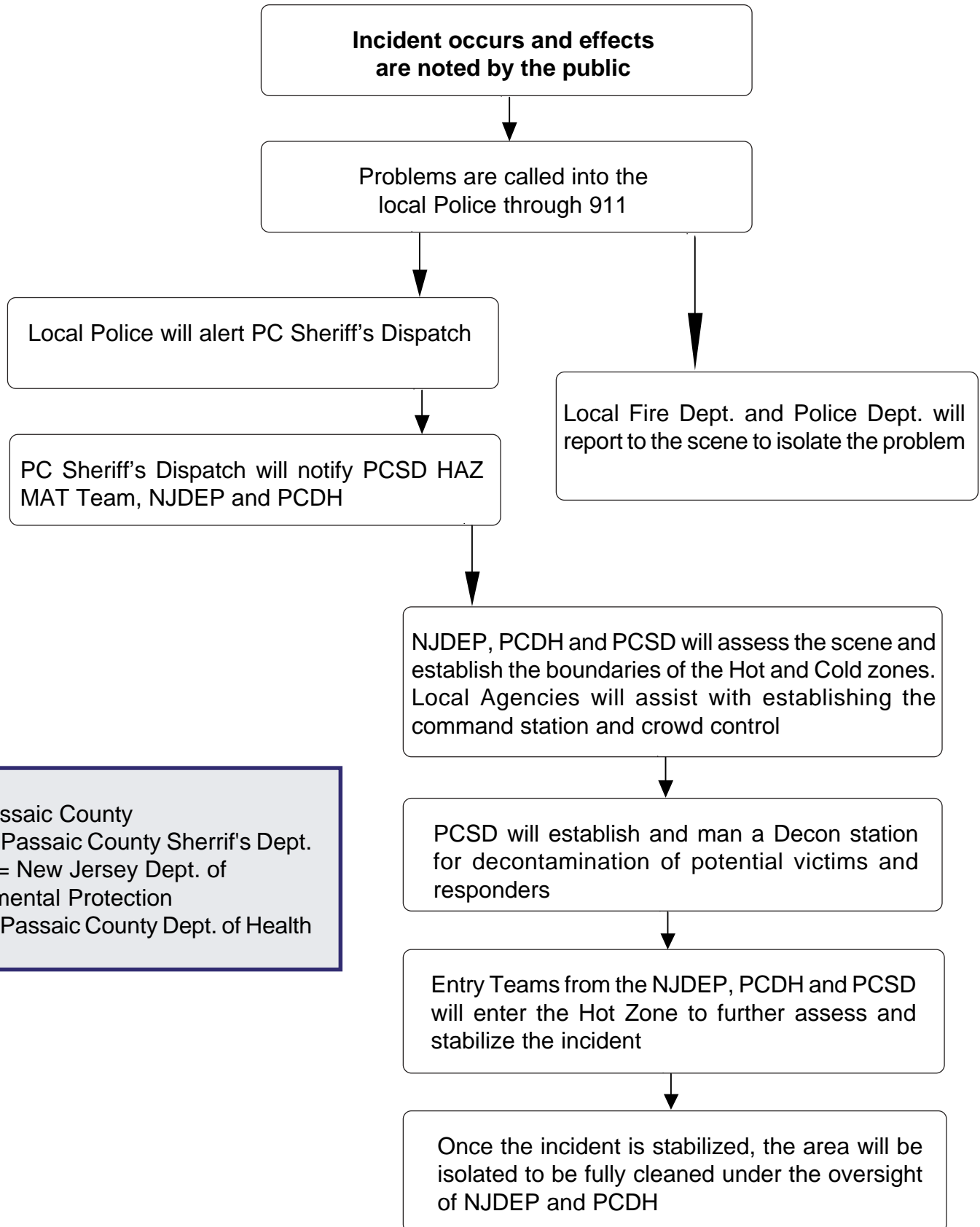
There are four agencies that address hazardous materials in Passaic County. The Passaic County Department of Health and Passaic County Sheriff’s Department work together to form the Passaic County Hazardous Materials Team. The Passaic County Department of Health provides oversight of activities on site and technical advice. The Passaic County Sheriff’s Department provides technicians to perform work in the incident. Clifton and Wayne each have Hazardous Materials Teams through their Fire Departments that address incidents in their own municipalities in conjunction with the Passaic County Department of Health and Passaic County Sheriff’s Department.

HAZMAT Activities

There are three objectives at a hazardous materials incident. Isolation, Stabilization and Remediation, in that order. The first action is to isolate the contaminated area to prevent the incident from spreading. This would include establishing a perimeter, securing the site and possibly evacuating the area. This function is primarily handled by Office of Emergency Management and Fire and Police Departments. The next two steps require offensive action and would revolve around Passaic County Department of Health and Passaic County Sheriff’s Department taking actions to stop the incident and clean up the scene.

Passaic County Hazmat Response

HAZMAT Response to a Bioterrorism Event



PC = Passaic County
PCSD = Passaic County Sherrif's Dept.
NJDEP = New Jersey Dept. of Environmental Protection
PCDH = Passaic County Dept. of Health

Household Emergency Planning

Household Emergency Planning

Immediately after an emergency, essential services may be cut-off, knowing what to do to protect yourself and your household is essential.

Creating a household disaster preparedness plan

One of the most important steps you can take in preparing for emergencies is to develop a household disaster plan.

1. Talk with employers and school officials about their emergency response plans.
2. Talk with your household about potential emergencies and how to respond to each. Talk about what you would need to do in an evacuation.
3. Plan how your household would stay in contact if you were separated. Develop a family communications plan.
4. Identify two meeting places: the first should be near your home -- in case of fire, perhaps a tree or telephone pole; the second should be away from your neighborhood in case you cannot return home.
5. Pick a friend or relative who lives out of the area for household members to call to say they are okay.
6. Draw a floor plan of your home. Mark two escape routes from each room.
7. Post emergency telephone numbers by telephones. Teach children how and when to call 911.
8. Take a first aid and CPR class.
9. Make arrangements for pets. Pets are not allowed in public shelters. Service animals for those who depend on them are allowed.

Emergency Supplies

Assemble supply kits for home, work and your car with essential food, water and supplies for at least three days. This kit should be kept in a designated place and be ready to "grab and go" in case you have to leave quickly because of a disaster such as a terrorist attack or other unforeseen event.

The basic items that should be in a disaster supply kit are water, food, first-aid supplies, tools and emergency supplies, clothing and bedding, and specialty items.

You will need to change the stored water and food supplies every six months, so be sure to write the date you store it on all containers. Keep items in airtight plastic bags and put your entire disaster supply kit in one or two easy-to-carry containers such as an unused trash can, camping backpack or duffel bag.

Household Emergency Planning

Water

Stocking water reserves should be a top priority. Drinking water in emergency situations should not be rationed. Therefore it is critical to store adequate amounts of water for your household.

Because you will need water for sanitary purposes and possibly, for cooking, you should store at least one gallon of water per person per day.

Food

If activity is reduced, healthy people can survive on half their usual food intake for an extended period without any food for many days. Food, unlike water, may be rationed safely, except for children and pregnant women.

You don't need to go out and buy unfamiliar foods to prepare an emergency food supply. You can use the canned foods, dry mixes and other staples on your cupboard shelves. Canned foods do not require cooking, water or special preparation. Be sure to include a manual can opener.

Tools and Emergency Supplies

It will be important to assemble these items in a disaster supply kit in case you have to leave your home quickly. Even if you don't have to leave your home, if you lose power it will be easier to have these items already assembled.

1. A portable, battery-powered radio or television and extra batteries (also have a NOAA weather radio, if appropriate for your area).
2. Flashlight and extra batteries.
3. Signal flare.
4. Matches in a waterproof container (or waterproof matches).
5. Shut-off wrench, pliers, shovel and other tools.
6. Duct-tape and scissors.
7. Plastic sheeting.
8. Whistle.
9. Small canister, A-B-C-type fire extinguisher.
10. Tube tent.
11. Compass.
12. Work gloves.
13. Paper, pens, and pencils.
14. Needles and thread.
15. Battery-operated travel alarm clock.
16. Manual can opener.

17. Mess kits or paper cups, plates, and plastic utensils.
18. All-purpose knife.
19. Sugar, salt, pepper.
20. Aluminum foil and plastic wrap.
21. Re-sealing plastic bags.
22. If food must be cooked, small cooking stove and a can of cooking fuel.

First Aid Supplies

1. First aid manual.
2. Sterile adhesive bandages in assorted sizes.
3. Assorted sizes of safety pins.
4. Cleaning agents (isopropyl alcohol, hydrogen peroxide)/soap/germicide.
5. Antibiotic ointment.
6. Latex gloves (2 pairs).
7. Petroleum jelly.
8. 2" and 4" sterile gauze pads (4-6 each).
9. Triangular bandages (3).
10. 2" and 3" sterile roller bandages (3 rolls each).
11. Cotton balls.
12. Scissors.
13. Tweezers.
14. Needle.
15. Moistened towelettes.
16. Antiseptic.
17. Thermometer.
18. Tongue depressor blades (2).
19. Sunscreen.

note: It may be difficult to obtain prescription medications during a disaster because stores may be closed or supplies may be limited. Ask your physician or pharmacist about storing prescription medications. Be sure they are stored to meet instructions on the label and be mindful of expiration dates.

-Extra pair of prescription glasses or contact lenses.

-Have the following nonprescription drugs in your disaster supply kit:

1. Aspirin and nonaspirin pain reliever.
2. Antidiarrheal medication.
3. Antacid (for stomach upset).
4. Syrup of ipecac (use to induce vomiting if advised by the poison control center).
5. Laxative.
6. Vitamins.

Sanitation and Hygiene Items

1. Washcloth and towel.
2. Towelettes, soap, hand sanitizer, liquid detergent.
3. Tooth paste, toothbrushes, shampoo, deodorants, comb and brush, razor, shaving cream, lip balm, sunscreen, insect repellent, contact lens solutions, mirror, feminine supplies.
4. Heavy-duty plastic garbage bags and ties -- for personal sanitation uses -- and toilet paper.
5. Medium-sized plastic bucket with tight lid.
6. Disinfectant and household chlorine bleach.
7. Consider including a small shovel for digging a latrine.

Household Documents and Contacts

1. Personal ID, cash (including change) or traveler's checks, and a credit card.
2. Copies of important documents: birth certificate, marriage certificate, driver's license, social security cards, passport, wills, deeds, inventory of household goods, insurance papers, immunization records, bank and credit card account numbers, stocks and bonds. Be sure to keep these in a watertight container.
3. Emergency contact list and phone numbers.
4. Map of the area and phone numbers of places you could go.
5. An extra set of car and house keys.

Clothes and Bedding

1. One complete change of clothing and footwear for each household member. Shoes should be sturdy work shoes or boots. Rain gear, hat and gloves, extra socks, extra underwear, thermal underwear, sunglasses.
2. Blankets or a sleeping bag for each household member, pillows.

Specialty Items

Remember to consider the needs of infants, elderly persons, disabled persons, and pets and to include entertainment and comfort items for children.

Disaster Preparedness for People With Disabilities

Disability Preparedness

Being prepared for emergencies can reduce the fear, panic, and inconvenience that surrounds a disaster.

Check for hazards in the home.

During and right after a disaster, ordinary items in the home can cause injury or damage. Anything that can move, fall, break or cause fire is a home hazard. Check for items such as bookcases, hanging pictures, or overhead lights that could fall in an earthquake or a flood and block an escape path.

Be ready to evacuate.

Have a plan for getting out of your home or building (ask your family or friends for assistance, if necessary). Also, plan two evacuation routes because some roads may be closed or blocked in a disaster.

Maintain a list of the following important items and store it with the emergency supplies. Give a copy to another family member and a friend or neighbor.

- Special equipment and supplies, e.g., hearing aid batteries
- Current prescriptions names and dosages
- Names, addresses, and telephone numbers of doctors and pharmacist
- Detailed information about the specifications of your medication regime

Create a self-help network of relatives, friends or co-workers to assist in an emergency.

If you think you may need assistance in a disaster, discuss your disability with relatives, friends, and co-workers and ask for their help. For example, if you need help moving or require special arrangements to receive emergency messages, make a plan with friends. Make sure they know where you keep emergency supplies. Give a key to a neighbor or friend who may be able to assist you in a disaster.

Contact your local emergency information management office now.

Many local emergency management offices maintain registers of people with disabilities so they can be located and assisted quickly in a disaster.

Wearing medical alert tags or bracelets to identify your disability may help in case of an emergency.

Know the location and availability of more than one facility if you are dependent on a dialysis machine or other life-sustaining equipment or treatment.

If you have a severe speech, language, or hearing disability:

- When you dial 9-1-1, tap space bar to indicate tdD call.
- Store a writing pad and pencils to communicate with others.
- Keep a flashlight handy to signal whereabouts to other people and for illumination to aid in communication.
- Remind friends that you cannot completely hear warnings or emergency instructions. Ask them to be your source of emergency information as it comes over their radio.
- If you have a hearing ear dog, be aware that the dog may become confused or disoriented in an emergency. Store extra food, water and supplies for your dog.

Disaster Preparedness for People With Disabilities

Planning for Evacuation

People with disabilities have the same choices as other community residents about whether to evacuate their homes and where to go when an emergency threatens. Listen to the advice of local officials. Decide whether it is better to leave the area, stay with a friend or go to a public shelter. Each of these decisions requires planning and preparation.

If you need a wheelchair:

Show friends how to operate your wheelchair so they can move you if necessary. Make sure your friends know the size of your wheelchair in case it has to be transported.

Related websites for further information:

- <http://www.redcross.org/services/disaster/beprepared/disability.html>, Disaster Preparedness for People With Disabilities - from the Red Cross.
- <http://www.disabilitypreparedness.org/>, The National Center on Emergency Preparedness for People with Disabilities

Household Emergency Planning

Evacuation

When community evacuations become necessary, local officials provide information to the public through the media. In some circumstances other warning methods, such as sirens or telephone calls, are also used.

The amount of time you have to evacuate will depend on the disaster. Many disasters allow no time for people to gather even the most basic necessities. This is why you should prepare now.

Disaster situations can be intense, stressful and confusing. Should an evacuation be necessary, local authorities will do their best to notify the public, but do not depend entirely on this.

Often, a disaster can strike with little or no warning, providing local authorities scant time to issue an evacuation order. Also, it is possible that you may not hear of an evacuation order due to communications or power failure or not listening to your battery powered radio.

In the absence of evacuation instructions from local authorities, you should evacuate if you feel you and your household are threatened or endangered. Use pre-designated evacuation routes and let others know what you are doing and your destination.

Evacuation Planning Steps to Take in Advance

1. Ask your local emergency management office about community evacuation plans. Learn evacuation routes. If you do not own a car, make transportation arrangements with friends or your local government.
2. Talk with your household about the possibility of evacuation. Plan where you would go if you had to leave the community.
3. Plan a place to meet your household in case you are separated from one another in a disaster.
4. Find out where children will be sent if schools are evacuated.
5. Assemble your disaster supply kits (home, car, office).
6. Keep fuel in your car if an evacuation seems likely.
7. Know how to shut off your home's electricity, gas and water supplies at main switches and valves.

Chemical and Biological Weapons

In case of a chemical or biological weapon attack near you, authorities will instruct you on the best course of action. This may be to evacuate the area immediately, to seek shelter at a designated location, or to take immediate shelter where you are and seal the premises. The best way to protect yourself is to take emergency preparedness measures ahead of time and to get medical attention as soon as possible, if needed.

Chemical

Chemical warfare agents are poisonous vapors, aerosols, liquids or solids that have toxic effects on people, animals or plants. They can be released by bombs, sprayed from aircraft, boats, or vehicles, or used as a liquid to create a hazard to people and the environment. Some chemical agents may be odorless and tasteless. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days). While potentially lethal, chemical agents are difficult to deliver in lethal concentrations. Outdoors, the agents often dissipate rapidly. Chemical agents are also difficult to produce.

There are six types of agents:

- Lung-damaging (pulmonary) agents such as phosgene,
- Cyanide,
- Vesicants or blister agents such as mustard,
- Nerve agents such as GA (tabun), GB (sarin), GD (soman), GF, and VX,
- Incapacitating agents such as BZ, and
- Riot-control agents (similar to MACE).

Biological

Biological agents are organisms or toxins that can kill or incapacitate people, livestock and crops. The three basic groups of biological agents which would likely be used as weapons are bacteria, viruses, and toxins.

1. **Bacteria.** Bacteria are small free-living organisms that reproduce by simple division and are easy to grow. The diseases they produce often respond to treatment with antibiotics.
2. **Viruses.** Viruses are organisms which require living cells in which to reproduce and are intimately dependent upon the body they infect. Viruses produce diseases which generally do not respond to antibiotics. However, antiviral drugs are sometimes effective.
3. **Toxins.** Toxins are poisonous substances found in, and extracted from, living plants, animals, or microorganisms; some toxins can be produced or altered by chemical means. Some toxins can be treated with specific antitoxins and selected drugs.

Most biological agents are difficult to grow and maintain. Many break down quickly when exposed to sunlight and other environmental factors, while others such as anthrax spores are very long lived. They can be dispersed by spraying them in the air, or infecting animals which carry the disease to humans as well through food and water contamination.

- Aerosols—Biological agents are dispersed into the air, forming a fine mist that may drift for miles.

Inhaling the agent may cause disease in people or animals.

- Animals—Some diseases are spread by insects and animals, such as fleas, mice, flies, and mosquitoes. Deliberately spreading diseases through livestock is also referred to as agroterrorism.
- Food and water contamination—Some pathogenic organisms and toxins may persist in food and water supplies. Most microbes can be killed, and toxins deactivated, by cooking food and boiling water.

Anthrax spores formulated as a white powder were mailed to individuals in the government and media in the fall of 2001. Postal sorting machines and the opening of letters dispersed the spores as aerosols. Several deaths resulted. The effect was to disrupt mail service and to cause a widespread fear of handling delivered mail among the public.

Person-to-person spread of a few infectious agents is also possible. Humans have been the source of infection for smallpox, plague, and the Lassa viruses.

What to do to prepare for a chemical or biological attack

Assemble a disaster supply kit and be sure to include:

- Battery-powered commercial radio with extra batteries.
- Non-perishable food and drinking water.
- Stash away duct tape and pre-measured plastic sheeting for future use. Experts tell us that a safe room inside your house or apartment can help protect you from airborne contaminants for approximately five hours - that could be just enough time for a chemical agent to blow away.
- First aid kit.
- Sanitation supplies including soap, water and bleach.

What to do during a chemical or biological attack

1. Listen to your radio for instructions from authorities such as whether to remain inside or to evacuate.
2. If you are instructed to remain in your home, the building where you are, or other shelter during a chemical or biological attack:
 - Turn off all ventilation, including furnaces, air conditioners, vents and fans.
 - Seek shelter in an internal room, preferably one without windows. Seal the room with duct tape and plastic sheeting. Ten square feet of floor space per person will provide sufficient air to prevent carbon dioxide build-up for up to five hours.
 - Remain in protected areas where toxic vapors are reduced or eliminated, and be sure to take your battery-operated radio with you.
3. If you are caught in an unprotected area, you should:
 - Attempt to get up-wind of the contaminated area.
 - Attempt to find shelter as quickly as possible.
 - Listen to your radio for official instructions.

What to do after a chemical attack

Immediate symptoms of exposure to chemical agents may include blurred vision, eye irritation, difficulty breathing and nausea. A person affected by a chemical or biological agent requires immediate attention by professional medical personnel. If medical help is not immediately available, decontaminate yourself and assist in decontaminating others. Decontamination is needed within minutes of exposure to minimize health consequences. (However, you should not leave the safety of a shelter to go outdoors to help others until authorities announce it is safe to do so.)

1. Use extreme caution when helping others who have been exposed to chemical agents:
 - Remove all clothing and other items in contact with the body. Contaminated clothing normally removed over the head should be cut off to avoid contact with the eyes, nose, and mouth. Put into a plastic bag if possible. Decontaminate hands using soap and water. Remove eyeglasses or contact lenses. Put glasses in a pan of household bleach to decontaminate.
2. Remove all items in contact with the body.
3. Flush eyes with lots of water.
4. Gently wash face and hair with soap and water; then thoroughly rinse with water.
5. Decontaminate other body areas likely to have been contaminated. Blot (do not swab or scrape) with a cloth soaked in soapy water and rinse with clear water.
6. Change into uncontaminated clothes. Clothing stored in drawers or closets is likely to be uncontaminated.
7. If possible, proceed to a medical facility for screening.

What to do after a biological attack

In many biological attacks, people will not know they have been exposed to an agent. In such situations, the first evidence of an attack may be when you notice symptoms of the disease caused by an agent exposure, and you should seek immediate medical attention for treatment.

In some situations, like the anthrax letters sent in 2001, people may be alerted to a potential exposure. If this is the case, pay close attention to all official warnings and instructions on how to proceed. The delivery of medical services for a biological event may be handled differently to respond to increased demand. Again, it will be important for you to pay attention to official instructions via radio, television, and emergency alert systems.

If your skin or clothing comes in contact with a visible, potentially infectious substance, you should remove and bag your clothes and personal items and wash yourself with warm soapy water immediately. Put on clean clothes and seek medical assistance.

For more information, visit the website for the Centers for Disease Control and Prevention, www.bt.cdc.gov.

Nuclear and Radiological Weapons

Nuclear explosions can cause deadly effects—blinding light, intense heat (thermal radiation), initial nuclear radiation, blast, fires started by the heat pulse, and secondary fires caused by the destruction. They also produce radioactive particles called fallout that can be carried by wind for hundreds of miles.

Terrorist use of a radiological dispersion device (RDD)—often called “dirty nuke” or “dirty bomb”—is considered far more likely than use of a nuclear device. These radiological weapons are a combination of conventional explosives and radioactive material designed to scatter dangerous and sub-lethal amounts of radioactive material over a general area. Such radiological weapons appeal to terrorists because they require very little technical knowledge to build and deploy compared to that of a nuclear device. Also, these radioactive materials, used widely in medicine, agriculture, industry and research, are much more readily available and easy to obtain compared to weapons grade uranium or plutonium.

Terrorist use of a nuclear device would probably be limited to a single smaller “suitcase” weapon. The strength of such a weapon would be in the range of the bombs used during World War II. The nature of the effects would be the same as a weapon delivered by an inter-continental missile, but the area and severity of the effects would be significantly more limited.

There is no way of knowing how much warning time there would be before an attack by a terrorist using a nuclear or radiological weapon. A surprise attack remains a possibility.

The danger of a massive strategic nuclear attack on the United States involving many weapons receded with the end of the Cold War. However, some terrorists have been supported by nations that have nuclear weapons programs.

If there were threat of an attack from a hostile nation, people living near potential targets could be advised to evacuate or they could decide on their own to evacuate to an area not considered a likely target. Protection from radioactive fallout would require taking shelter in an underground area, or in the middle of a large building. In general, potential targets include:

- Strategic missile sites and military bases.
- Centers of government such as Washington, D.C., and state capitals.
- Important transportation and communication centers.
- Manufacturing, industrial, technology and financial centers.
- Petroleum refineries, electrical power plants and chemical plants.
- Major ports and airfields.

Taking shelter during a nuclear attack is absolutely necessary. There are two kinds of shelters—blast and fallout.

Blast shelters offer some protection against blast pressure, initial radiation, heat and fire, but even a blast shelter could not withstand a direct hit from a nuclear detonation.

Fallout shelters do not need to be specially constructed for that purpose. They can be any protected space, provided that the walls and roof are thick and dense enough to absorb the radiation given off by fallout particles. The three protective factors of a fallout shelter are *shielding*, *distance*, and *time*.

- *Shielding*. The more heavy, dense materials—thick walls, concrete, bricks, books and earth—between you and the fallout particles, the better.

- *Distance*. The more distance between you and the fallout particles, the better. An underground area, such as a home or office building basement, offers more protection than the first floor of a building. A floor near the middle of a high-rise may be better, depending on what is nearby at that level on which significant fallout particles would collect. Flat roofs collect fallout particles so the top floor is not a good choice, nor is a floor adjacent to a neighboring flat roof.

- *Time*. Fallout radiation loses its intensity fairly rapidly. In time, you will be able to leave the fallout shelter. Radioactive fallout poses the greatest threat to people during the first two weeks, by which time it has declined to about 1% of its initial radiation level.

Remember that any protection, however temporary, is better than none at all, and the more shielding, distance and time you can take advantage of, the better.

Electromagnetic pulse

In addition to other effects, a nuclear weapon detonated in or above the earth's atmosphere can create an electromagnetic pulse (EMP), a high-density electrical field. EMP acts like a stroke of lightning but is stronger, faster and briefer. EMP can seriously damage electronic devices connected to power sources or antennas. This include communication systems, computers, electrical appliances, and automobile or aircraft ignition systems. The damage could range from a minor interruption to actual burnout of components. Most electronic equipment within 1,000 miles of a high-altitude nuclear detonation could be affected. Battery powered radios with short antennas generally would not be affected.

Although EMP is unlikely to harm most people, it could harm those with pacemakers or other implanted electronic devices.

What to do before a nuclear or radiological attack

1. Learn the warning signals and all sources of warning used in your community. Make sure you know what the signals are, what they mean, how they will be used, and what you should do if you hear them.
2. Assemble and maintain a disaster supply kit with food, water, medications, fuel and personal items.
3. Find out what public buildings in your community may have been designated as fallout shelters. It may have been years ago, but start there, and learn which buildings are still in use and could be designated as shelters again.
 - Call your local emergency management office.
 - Look for yellow and black fallout shelter signs on public buildings. Note: With the end of the Cold War, many of the signs have been removed from the buildings previously designated.
 - If no noticeable or official designations have been made, make your own list of potential shelters near your home, workplace and school: basements, or the windowless center area of middle floors in high-rise buildings, as well as subways and tunnels.
 - Give your household clear instructions about where fallout shelters are located and what actions to take in case of attack.
4. If you live in an apartment building or high-rise, talk to the manager about the safest place in the building for sheltering, and about providing for building occupants until it is safe to go out.
5. There are few public shelters in many suburban and rural areas. If you are considering building a fallout shelter at home, keep the following in mind.
 - A basement, or any underground area, is the best place to shelter from fallout. Often, few major changes are needed, especially if the structure has two or more stories and its basement—or one corner of it—is below ground.
 - Fallout shelters can be used for storage during non-emergency periods, but only store things there that can be very quickly removed.
 - All the items you will need for your stay need not be stocked inside the shelter itself but can be stored elsewhere, as long as you can move them quickly to the shelter.
6. Learn about your community's evacuation plans. Such plans may include evacuation routes, relocation sites, how the public will be notified and transportation options for people who do not own cars and those who have special needs.
7. Acquire other emergency preparedness booklets that you may need.

What to do during a nuclear or radiological attack

1. Do not look at the flash or fireball—it can blind you.
2. If you hear an attack warning:
 - Take cover as quickly as you can, **BELOW GROUND IF POSSIBLE**, and stay there unless instructed to do otherwise.
 - If you are caught outside, unable to get inside immediately, take cover behind anything that might offer protection. Lie flat on the ground and cover your head.
 - If the explosion is some distance away, it could take 30 seconds or more for the blast wave to hit.
3. Protect yourself from radioactive fallout. If you are close enough to see the brilliant flash of a nuclear explosion, the fallout will arrive in about 20 minutes. Take shelter, even if you are many miles from ground zero—radioactive fallout can be carried by the winds for hundreds of miles. Remember the three protective factors: *shielding*, *distance* and *time*.
4. Keep a battery-powered radio with you, and listen for official information. Follow the instructions given. Local instructions should always take precedence: officials on the ground know the local situation best.

What to do after a nuclear or radiological attack

In a public or home shelter:

1. Do not leave the shelter until officials say it is safe. Follow their instructions when leaving.
2. If in a fallout shelter, stay in your shelter until local authorities tell you it is permissible or advisable to leave. The length of your stay can range from a day or two to four weeks.
 - Contamination from a radiological dispersion device could affect a wide area, depending on the amount of conventional explosives used, the quantity of radioactive material and atmospheric conditions.
 - A “suitcase” terrorist nuclear device detonated at or near ground level would produce heavy fallout from the dirt and debris sucked up into the mushroom cloud.
 - A missile-delivered nuclear weapon from a hostile nation would probably cause an explosion many times more powerful than a suitcase bomb, and provide a greater cloud of radioactive fallout.
 - The decay rate of the radioactive fallout would be the same, making it necessary for those in the areas with highest radiation levels to remain in shelter for up to a month.
 - The heaviest fallout would be limited to the area at or downwind from the explosion, and 80% of the fallout would occur during the first 24 hours.
 - Because of these facts and the very limited number of weapons terrorists could detonate, most of the country would not be affected by fallout.
 - People in most of the areas that would be affected could be allowed to come out of shelter and, if necessary, evacuate to unaffected areas within a few days.
3. Although it may be difficult, make every effort to maintain sanitary conditions in your shelter space.
4. Water and food may be scarce. Use them prudently but do not impose severe rationing, especially for children, the ill or elderly.
5. Cooperate with shelter managers. Living with many people in confined space can be difficult and unpleasant.

Returning to your home:

1. Keep listening to the radio for news about what to do, where to go, and places to avoid.
2. If your home was within the range of a bomb's shock wave, or you live in a high-rise or other apartment building that experienced a non-nuclear explosion, check first for any sign of collapse or damage, such as:
 - toppling chimneys, falling bricks, collapsing walls, plaster falling from ceilings.
 - fallen light fixtures, pictures and mirrors.
 - broken glass from windows.
 - overturned bookcases, wall units or other fixtures.
 - fires from broken chimneys.
 - ruptured gas and electric lines.
3. Immediately clean up spilled medicines, drugs, flammable liquids, and other potentially hazardous materials.
4. Listen to your battery-powered radio for instructions and information about community services.
5. Monitor the radio and your television for information on assistance that may be provided. Local, state and federal governments and other organizations will help meet emergency needs and help you recover from damage and losses.
6. The danger may be aggravated by broken water mains and fallen power lines.
7. If you turned gas, water and electricity off at the main valves and switch before you went to shelter:
 - Do not turn the gas back on. The gas company will turn it back on for you or you will receive other instructions.
 - Turn the water back on at the main valve only after you know the water system is working and water is not contaminated.
 - Turn electricity back on at the main switch only after you know the wiring is undamaged in your home and the community electrical system is functioning.
 - Check to see that sewage lines are intact before using sanitary facilities.
8. Stay away from damaged areas.
9. Stay away from areas marked "radiation hazard" or "HAZMAT."

Works Cited

- *Passaic County Sheriff's Department Family Disaster Preparedness Template*
- *Federal Emergency Management Agency: Are You Ready? A Guide to Citizen Preparedness*
- *Federal Emergency Management Agency: Disaster Preparedness For People With Disabilities*
- *Department of Homeland Security, Citizen Preparedness Campaign*



Passaic County Department of Health

(973) 881-4396

Hours: 8:30 a.m. to 4:30 p.m., M-F

Website: <http://www.pcdh.org>

For emergency assistance call:

**Emergencies
911**

Local Public Health Departments

- **BLOOMINGDALE** 34-A Main Street, Bloomingdale, NJ 07403 (973) 838-7711
- **CLIFTON** 900 Clifton Avenue, City Hall Annex, Clifton, NJ 07013 (973) 470-5763
- **HALEDON** 407 Belmont Avenue, Haledon, NJ 07508 (973) 595-5024
- **HAWTHORNE** 445 Lafayette Avenue, Hawthorne, NJ 07506 (973) 427-4011
- **LITTLE FALLS** 49 Stevens Avenue, Little Falls, NJ 07424 (973) 256-0170
- **NORTH HALEDON** 103 Overlook Avenue, N. Haledon, NJ 07508 (973) 427-0543
- **PASSAIC** 330 Passaic Street, Passaic NJ 07055 (973) 365-5606
- **PATERSON** 176 Broadway, Paterson, NJ 07505 (973) 321-1277
- **POMPTON LAKES** 25 Lenox Avenue, Pompton Lakes, NJ 07442 (973) 616-5910 ext. 226
- **PROSPECT PARK** 106 Brown Avenue, Prospect Park, NJ 07508 (973) 790-8133
- **RINGWOOD** 60 Margaret King Avenue, Ringwood, NJ 07456 (973) 962-7079
- **TOTOWA** 537 Totowa Road, Totowa, NJ 07512 (973) 956-1008
- **WANAQUE** 579 Ringwood Avenue, Wanaque, NJ 07465 (973) 839-3000 ext. 7122
- **WAYNE** 475 Valley Road, Wayne, NJ 07470 (973) 694-1800 ext. 3241
- **WEST MILFORD** 1480 Union Valley Road, West Milford, NJ 07480 (973) 728-2720
- **WEST PATERSON** 5 Brophy Lane, West Paterson, NJ 07424 (973) 345-8100

Local Hospitals

- **BARNERT HOSPITAL** 680 Martin Luther King Jr. Way, Paterson, NJ 07514 (973) 977-6600
- **CHILTON** 97 W Pkwy Pompton Plains, NJ 07444 973-831-5000
- **PASSAIC BETH ISRAEL HOSPITAL** 70 Parker Avenue, Passaic, NJ 07055 (973) 365-5000
- **THE GENERAL HOSPITAL CENTER AT PASSAIC** 350 Boulevard Passaic, NJ 07055 (973) 365-4300
- **ST. JOSEPH'S HOSPITAL AND MEDICAL CENTER** 703 Main Street, Paterson, NJ 07503 (973) 754-2000
- **ST. MARY'S HOSPITAL** 211 Pennington Avenue, Passaic, NJ 07055 (973) 470-3000