

# Preparing for and Responding to Bioterrorism

Information for the Public Health Workforce



## Consequence Management: for Public Health Leaders (Module A)

*Developed by*

Jennifer Brennan Braden, MD, MPH

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\*This manual and the accompanying MS Powerpoint® slides are current as of Dec 2002.  
Please refer to <http://nwcphp.org/btrain/> for updates to the material.

# Acknowledgements

This manual and the accompanying MS PowerPoint® slides were prepared for the purpose of educating the public health workforce in relevant aspects of bioterrorism preparedness and response. Instructors are encouraged to freely use portions or all of the material for its intended purpose.

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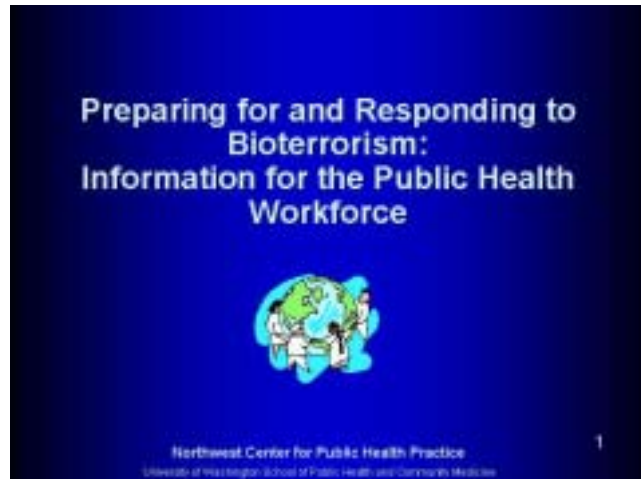
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## About This Course



*Preparing for and Responding to Bioterrorism: Information for the Public Health Workforce* is intended to provide public health employees with a basic understanding of bioterrorism preparedness and response and how their work fits into the overall response. The course was designed by the Northwest Center for Public Health Practice in Seattle, Washington, and Public Health—Seattle & King County’s Communicable Disease, Epidemiology & Immunization section. The target audience for the course includes public health leaders and medical examiners, clinical, communicable disease, environmental health, public information, technical and support staff, and other public health professional staff. Health officers may also want to review the more detailed modules on diseases of bioterrorism in *Preparing for and Responding to Bioterrorism: Information for Primary Care Clinicians*: Northwest Center for Public Health Practice (available at <http://nwcp.org/bttrain>). Public health workers are a very heterogeneous group, and the level of detailed knowledge needed in the different aspects of bioterrorism preparedness and response will vary by job description and community. Therefore, the curriculum is divided into modules, described in Appendix A.

The course incorporates information from a variety of sources, including the Centers for Disease Control and Prevention, the United States Army Medical Research Institute in Infectious Disease (USAMRIID), the Working Group on Civilian Biodefense, the Federal Emergency Management Agency, Public Health—Seattle & King County, and the Washington State Department of Health, among others (a complete list of references is given at the end of the manual). The curriculum reflects the core competencies and capacities outlined in the following documents:

CDC. Bioterrorism preparedness and response: core capacity project 2001 (draft), August 2001.

<http://www.bt.cdc.gov/Documents/CoreCapacity082801.pdf>

CDC. Cooperative Agreement U90/CCUXXXXXX-03-X Public Health Preparedness and Response for Bioterrorism.

<http://www.bt.cdc.gov/Planning/CoopAgreementAward/index.asp>

CDC. The public health response to biological and chemical terrorism: interim planning guidance for state public health officials, July 2001.

[www.bt.cdc.gov/Documents/Planning/PlanningGuidance.PDF](http://www.bt.cdc.gov/Documents/Planning/PlanningGuidance.PDF)

Center for Health Policy, Columbia University School of Nursing. Core public health worker competencies for emergency preparedness and response, April 2001: <http://cpmcnet.columbia.edu/dept/nursing/institute-centers/chphsr/>

Center for Health Policy, Columbia University School of Nursing. Bioterrorism and emergency readiness: competencies for all public health workers (preview version II), November 2002. <http://cpmcnet.columbia.edu/dept/nursing/institute-centers/chphsr/>

The course is not copyrighted and may be used freely for the education of public health employees and other biological emergency response partners.

Course materials will be updated on an as-needed basis with new information (e.g., guidelines and consensus statements, research study results) as it becomes available. For the most current version of the curriculum, please refer to: <http://nwcphp.org/bttrain>.

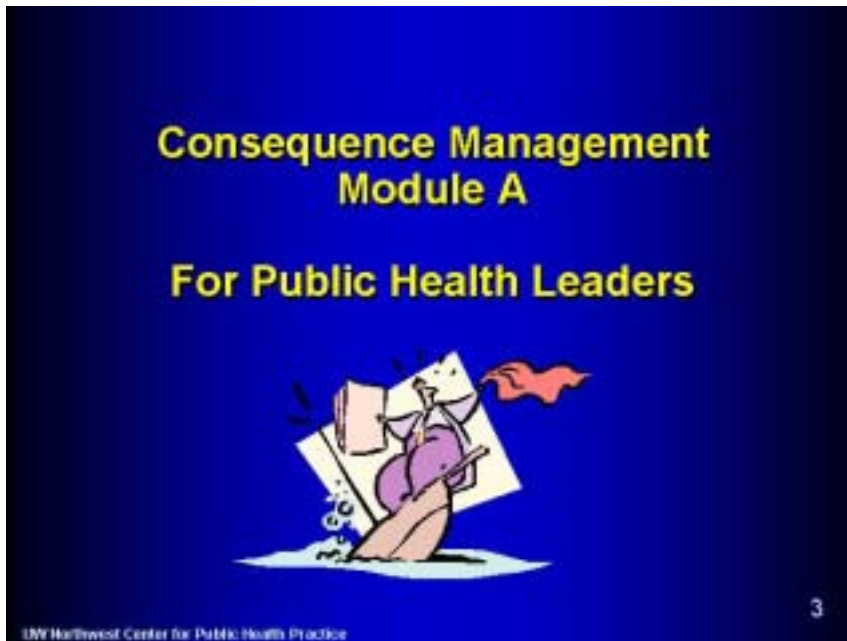
## How to Use This Manual

This manual provides the instructor with additional useful information related to the accompanying MS PowerPoint® slides. The manual and slides are divided into six topic areas: Introduction to Bioterrorism, Emergency Response Planning, Diseases of Bioterrorist Potential, Health Surveillance and Epidemiologic Investigation, Consequence Management, and Communications. Links to Web sites of interest are included in the lower right-hand corner of some slides and can be accessed by clicking the link while in the “Slide Show” view. Blocks of material in the manual are periodically summarized in the “Key Point” sections, to assist the instructor in deciding what material to include in a particular presentation. A Summary of Key Points is indicated in bold, at the beginning of each module.

The level of detailed knowledge required may vary for some topics by job duties. Therefore, less detailed custom shows are included in the Emergency Response Planning and Diseases of Bioterrorist Potential: Overview modules for those workers without planning oversight or health care responsibilities, respectively. In addition, there are three Consequence Management modules: for public health leaders, for public health professionals, and for other public health staff (see Appendix A).



## Consequence Management



### Summary of Key Points (Slides 47-49)

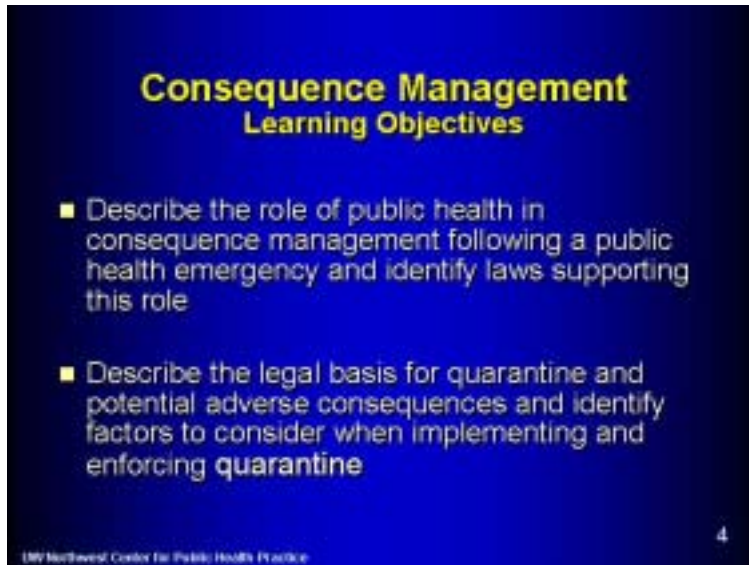
1. The initial and primary response to the consequences of a terrorist event occurs at the local level.
2. ESF 8 provides for federal assistance to supplement state and local efforts in response to a public health emergency.
3. Medical, practical, and feasibility considerations are important in the decision to implement quarantine.
4. Individual, community, and event-specific factors influence the psychological response to a public health emergency.
5. Most individuals will function adequately following a traumatic event, but a few will need psychological or medical intervention.
6. Many emotional reactions of disaster survivors stem from living problems brought about by the disaster.
7. Anxiety responses are most likely following a biological attack, but depression, physical symptoms, and substance use may also occur.

**Slide 1:** Curriculum Title

**Slide 2:** Acknowledgements

**Slide 3:** Module Title

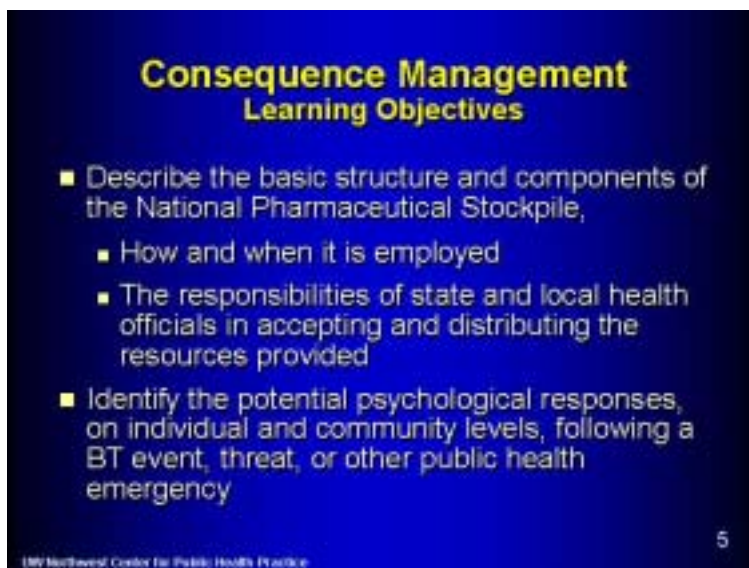
## Learning Objectives (Slides 4-5)



**Consequence Management  
Learning Objectives**

- Describe the role of public health in consequence management following a public health emergency and identify laws supporting this role
- Describe the legal basis for quarantine and potential adverse consequences and identify factors to consider when implementing and enforcing quarantine

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**Consequence Management  
Learning Objectives**

- Describe the basic structure and components of the National Pharmaceutical Stockpile,
  - How and when it is employed
  - The responsibilities of state and local health officials in accepting and distributing the resources provided
- Identify the potential psychological responses, on individual and community levels, following a BT event, threat, or other public health emergency

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The learning objectives for this module are:

1. Describe the role of public health in consequence management following a public health emergency, and identify laws supporting this role
2. Describe the legal basis for quarantine and potential adverse consequences, and identify factors to consider when implementing and enforcing quarantine

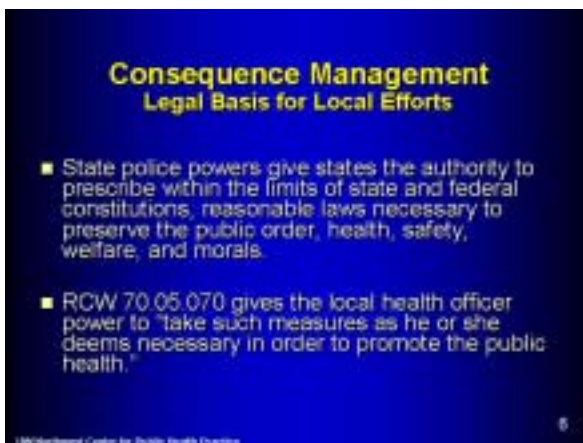
## Learning Objectives, continued:

3. Describe the basic structure and components of the National Pharmaceutical Stockpile,
  - How and when it is employed
  - The responsibilities of state and local health officials in accepting and distributing the resources provided
4. Identify the potential psychological responses, on individual and community levels, following a BT event, threat, or other public health emergency

## Legal Basis and Policy Development (Slides 6-11)

### Key Points

1. States have the primary responsibility for managing the consequences of terrorism.
2. CDC, in coordination with FEMA, provides federal assistance to states in response to medical and health needs following a public health emergency.
3. Effective consequence management requires the pre-event establishment of protocols for:
  - Resource use and allocation
  - Communication
  - Public health control measures



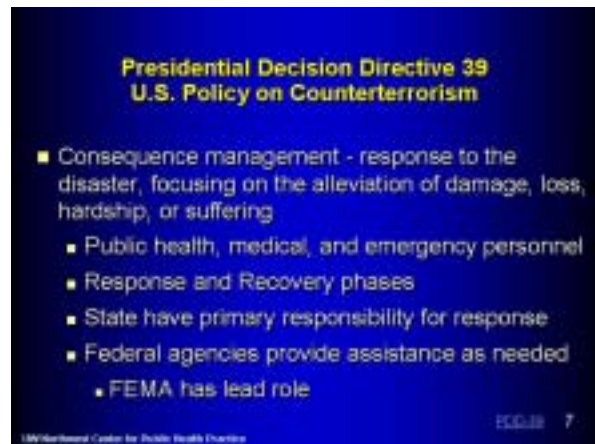
Slide 6 summarizes the legal basis behind public health efforts to address the health consequences of an event and describes the powers of the health officer in Washington State. State police powers are included in the 10<sup>th</sup> amendment of the U.S. Constitution.

Slide 7: Presidential Decision Directive 39 (PDD-39; United States Policy on Counterterrorism) describes the overall response to an act of terrorism in terms of two steps:

**Crisis management** is the law enforcement response. It focuses on the criminal aspects of the incident. The Federal Bureau of Investigation is the lead federal agency in crisis management.

**Consequence management** is the response to the disaster. It focuses on alleviating damage, loss, hardship, or suffering. States have primary responsibility to respond to the consequences of terrorism, with federal assistance as needed. The Federal Emergency Management Agency (FEMA) is the lead federal agency in consequence management.

Consequence management can be divided into two phases: the response phase and the recovery phase. The *response phase* consists of the initial actions taken following an event (or suspected event) and includes interventions to eliminate the source of exposure, prevent further exposure, treat those infected, and provide prophylaxis to those exposed. The *recovery phase* consists of actions taken to address longer-term effects of the event and lasts until normal operations resume without restrictions stemming from the event. Examples of recovery phase activities include long-term follow-up of cases and exposed persons, clean-up of contaminated areas, and evaluation of morbidity and mortality related to an event.



**Consequence Management  
Federal Support**

- Federal Response Plan, Emergency Support Function #8
  - Provides "federal assistance to supplement state and local resources in response to public health and medical needs following a major disaster or emergency, or during a developing potential medical situation"
  - Directed by DHHS
    - CDC lead for protecting health and safety

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Involvement of other agencies depends on the nature of the terrorist incident (slide 8). In the case of biological terrorism, the Department of Health and Human Services will activate the Health and Medical Services Support Plan for the Federal Response to Acts of Chemical/Biological Terrorism (through Emergency Support Function #8), in coordination with FEMA. State and local corollaries to ESF 8 do exist. The Washington Department of Health is the lead agency in Washington's State ESF 8 and provides assistance to local jurisdictions when requested.

**Consequence Management  
Other Emergency Support Functions**

ESF	Function	Lead Agency
5	Information and planning	FEMA
6	Mass care	American Red Cross
10	Hazardous materials	EPA
11	Food	USDA

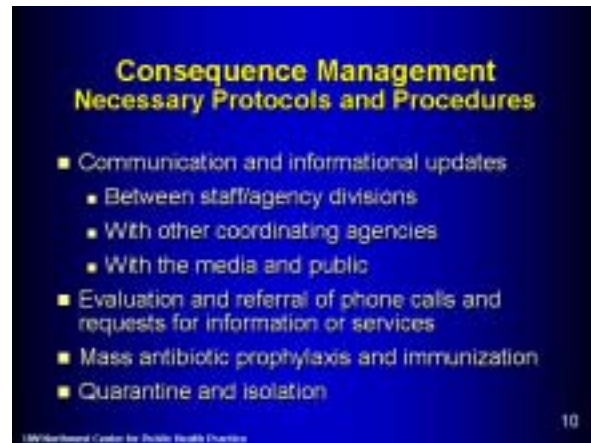
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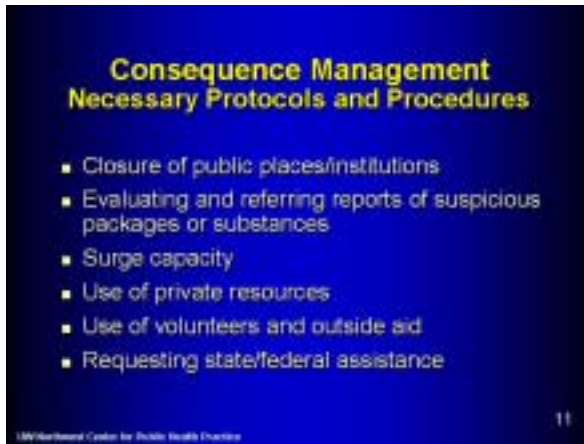
Slide 9 lists other emergency support functions and the designated lead agencies that may be activated in a biological or chemical incident.

## Consequence Management: Protocols and Procedures

(Slides 10-11)

The next two slides are designed to encourage thinking about what protocols, policies, and procedures need to be developed or updated in one's jurisdiction in order to ensure efficient and effective management of consequences stemming from a public health emergency. Communication is particularly important in situations calling for coordination between multiple agencies and in high-concern situations. All involved parties should be updated regularly on the course of events. Communication issues will be discussed more thoroughly in the "Communication and Informatics" module. The health department will likely be inundated with calls following an event. Many of the questions and requests will not be answerable by the individual receiving the call, and thus, protocols for initial assessment and referral will need to be established. Any large illness or disease outbreak will tax the resources of the health department and the community. Pre-event planning for mass antibiotic prophylaxis, immunization, quarantine, and isolation is discussed in slides 21, 22, and 33.





Provisions should be made for surge capacity. What additional resources are available, for example, for providing prophylaxis, delivering samples and supplies, answering phone calls, and for case contact identification, interviewing, and follow-up?

Following any public health emergency, the health department is likely to receive offers for donations and help from volunteers. The general public represents a potentially valuable resource to responders after an event. Some of the ways in which members of the general public could be enlisted as response partners include home-based care of patients in recovery but no longer in need of hospitalization and distribution of information and resources (i.e., through community centers and other local organizations). A plan for using and deferring use of donations should be established. All items offered may not be needed initially and storage space may be limited. One option for addressing this potential surge in donations may be to write down the name, phone number, and available items of the individual or organization wishing to donate, and to call when the items are needed. Another issue to consider is whether special certification or qualifications are needed for volunteers from within and outside of the state; this will depend on local and state laws and the nature of the volunteer activity.

## Quarantine and Isolation (Slides 12-27)

### Key Points

1. When confined to a specific locale, the legal authority for quarantine rests with state and local health authorities.
2. The federal government provides assistance to states in enforcing quarantine and can enact quarantine if the risk of disease transmission crosses state lines.
3. The decision to quarantine should take into consideration
  - The risk of disease transmission
  - The ability to maintain the quarantine
  - The potential effectiveness and consequences of the quarantine
4. Pre-event planning for quarantine and isolation includes the identification of necessary human and material resources and infection and access control measures.

*Quarantine* has a broader definition today than it did in the 13<sup>th</sup> century when the word was first coined (slide 12). Slide 13 lists CDC definitions for isolation and quarantine.

**Isolation**—the *separation* of a *contagious* individual or small group *from everyone else*—is much easier to implement and more positively received than quarantine.

**Quarantine**—the *restriction in activities* of *exposed* individuals (only a portion of whom may actually be contagious) from those not exposed—may be difficult to implement and maintain and may be received negatively by those affected.

**Quarantine**

- Comes from Italian *quarante* – refers to the 40 day sequestration imposed on arriving merchant ships during plague outbreaks of the 13<sup>th</sup> century
- Today – broader definition
  - Restriction of movement of persons, animals, and things that might otherwise spread a contagious disease
  - Usually refers to population-wide measures
  - Time period not specified

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**CDC Definition: Quarantine vs. Isolation**

- **Isolation**
  - The separation of a person or group of persons from other people to prevent the spread of infection
- **Quarantine**
  - Restriction of activities or limitation of freedom of movement of those presumed exposed to a communicable disease in such a manner as to prevent effective contact with those not so exposed

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**CDC Definition: Quarantine vs. Isolation**

- Quarantine measures may include:
  - Suspension of public gatherings
  - Closure of public places
  - Restriction of travel
  - *Cordon sanitaire*

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**Quarantine**  
**Legal authority – Local Level**

- When confined to a specific locale (community, state) – rests with local and/or state health authorities (police power)
- Few states have specific policies/procedures for deciding whether quarantine is warranted in a specific situation
- Be familiar with the laws pertaining to quarantine or that might be interpreted as applying to quarantine, existing in your state

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Population-wide quarantine measures may include suspension of large public gatherings, closure of public places, restriction of travel (air, rail, water, motor vehicle, and pedestrian), and *cordon sanitaire* (a line around a quarantined area guarded to prevent spread of disease by restricting passage into and out of the area).


The Model State Emergency Health Powers Act is a draft discussion document prepared by The Center for Law and the Public's Health at Georgetown and Johns Hopkins Universities. The Centers for Disease Control and Prevention has encouraged states to adopt this Act as official statute. Within the proposed Act are provisions allowing the public health authority, in a public health emergency, to implement isolation or quarantine "by the least restrictive means necessary to prevent the spread of a contagious or possibly contagious disease to others." At the present time, however, the independence of each state authority has resulted in a diverse group of regulations pertaining to quarantine (slide 15).

The authority for quarantine usually rests with the local jurisdiction or state (the latter if an infectious disease affects more than one community or has the potential to spread to other jurisdictions). The federal government can provide assistance to state and local authorities in enforcing quarantine, when requested (slide 16).

The federal government can also enact quarantine by executive decision if a risk of transmission of disease across state lines exists or when the risk pertains to persons arriving in the United States from outside the country. Once the president decides to enact quarantine, the Centers for Disease Control and Prevention are given authority to manage the quarantine (slide 17).

**Quarantine  
Legal Authority - Federal**

- Section 311 of Public Health Service Act
  - Allows for federal assistance to state and local authorities in enforcing quarantine and other health regulations



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**Quarantine  
Legal Authority - Federal**

- 42 CFR Part 70 - authorizes the apprehension, detention or conditional release of people to prevent the spread of specified communicable diseases, and federal action if state efforts insufficient
- 42 CFR Part 71 - authorizes CDC to detain, isolate or place under surveillance, people arriving in the US who are reasonably believed to be infected w/ or been exposed to certain communicable diseases, if necessary to prevent the introduction, transmission, or spread of those diseases

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## Quarantine and Isolation: Factors to Consider (Slides 18-20)

**Quarantine and Isolation  
Factors to Consider**

- Is there a scientific basis?
  - Among Category A agents, only smallpox, pneumonic plague, and some VHFs transmitted person-to-person
- Is it practical and feasible?
  - Defined geographic area of risk
  - Resources to enforce and maintain
  - Time period required
- Do the potential benefits outweigh the risks?

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**Medical Reasons for Isolation or Quarantine**

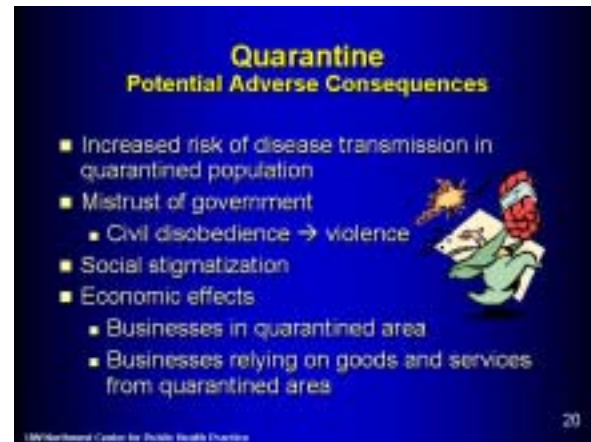
- Isolation
  - Disease transmitted person-to-person
    - i.e., plague pneumonia, smallpox, viral hemorrhagic fevers
    - Degree of isolation appropriate for mode of transmission (e.g., respiratory vs. direct contact)
- Quarantine
  - Disease may be transmitted by exposed persons prior to recognition of symptoms or diagnosis
    - Smallpox infectious at rash onset, but rash may be overlooked in early stages

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Neither isolation nor quarantine is warranted if the disease is not transmitted person-to-person. If the disease is transmitted person-to-person, isolation during the infectious period is usually sufficient. The decision to quarantine depends on a combination of factors, including the presence of an asymptomatic infectious period (i.e., the person is contagious to others before symptoms are recognized or a diagnosis has been established). Other medical issues that may be considered by the health officer or medical epidemiologist include the infectious dose (i.e., how contagious is it?), the extent of the outbreak, the amount of contact and closeness required to spread illness (i.e., are only close contacts at risk?), the susceptibility of the population (i.e., how many people are already immune to the disease?), and the mode of transmission (e.g., airborne transmission can reach more people, more “covertly” than direct contact; the latter can be avoided without strict isolation of the infected individual).

Beyond the medical indications, quarantine also needs to be practical and feasible to implement. The basic concept behind a quarantine is preventing unexposed individuals from becoming exposed. If a geographic area of risk for exposure cannot be defined, the boundaries of the quarantine cannot be accurately established, and it will not be successful. The concept of quarantine may carry negative connotations, making enforcement and maintenance potentially difficult.



Quarantine restricts the freedom of movement of healthy, as well as ill, individuals, disrupts their normal routine, and may separate them from family members and loved ones. Businesses located in the quarantine area may suffer due to lack of customers and resources; and businesses outside of the quarantined area may suffer if they rely on supplies from locations within the quarantined area. If the reasons given by public health officials for implementing a quarantine are not accepted by members of the general public, civil disobedience or social unrest may result, and law enforcement may be called on to enforce the quarantine. The quarantine will not be successful if it is not maintained for the full period of infectiousness.

In addition, provisions for basic needs such as food, bathing, and laundry will need to be established and maintained at the quarantine site. Besides the risks already mentioned, quarantine also poses a risk for disease transmission within the quarantined area. Persons presumed exposed, but not actually infected, are at risk for acquiring infection.

### Quarantine and Isolation Pre-Event Planning


- Identify community facilities appropriate for use as quarantine sites
- Identify non-infected personnel to administer services at quarantine/isolation site
  - Health care providers
  - Laundry and waste disposal personnel
  - Enforcers/access control

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Planning issues to consider in regard to quarantine are listed in slides 21-23. Provisions should be established to prevent the transmission of disease from both the quarantined area to areas outside the quarantine and from infectious patients to non-infected individuals (e.g., staff, visitors) within the quarantined area.

### Quarantine and Isolation Pre-Event Planning


- Identify means of food and supply provision to quarantine/isolation site
- Ensure means of communication with outside community



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### Quarantine and Isolation Policies and Procedures

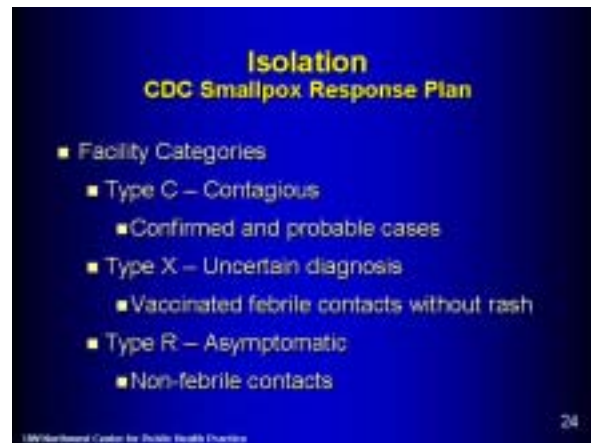
- When to institute
- Who is allowed access to site
- Infection control policies
  - Transportation of people to site
  - Within site
- Criteria for entry and departure
- When to discontinue

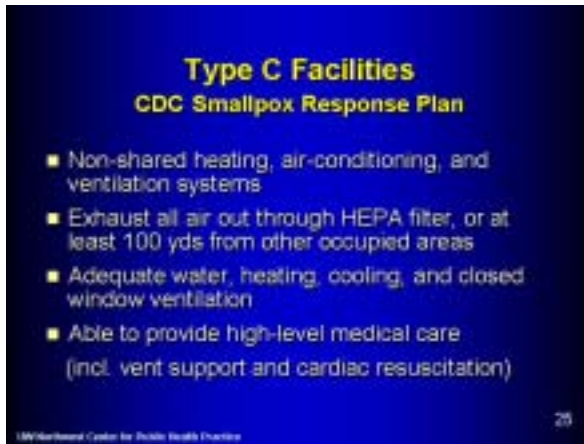


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## Smallpox Isolation (Slides 24-27)

The next four slides describe the proposed plans for quarantine and isolation facilities/locations in a smallpox outbreak, as outlined in CDC's Smallpox Response Plan. The establishment of three types of facilities, based on case status, will help to minimize transmission of smallpox from infected individuals to those exposed but not necessarily infected (i.e., individuals being monitored for the development of smallpox). Non-febrile contacts of cases (i.e., persons who have had contact with individuals confirmed or suspected of having smallpox) will be monitored for fever and transferred to a Type X facility should fever develop. All individuals entering a Type X or Type C facility (including staff) will be vaccinated for smallpox at the time of entry. The following slides summarize the requirements of the Type C, X, and R facilities. Please refer to the CDC Smallpox Response Plan and Guidelines for more details on preparation of the facilities and the transportation of confirmed or suspected cases of smallpox to the facilities. ([www.bt.cdc.gov/agent/smallpox/response-plan/index.asp](http://www.bt.cdc.gov/agent/smallpox/response-plan/index.asp))



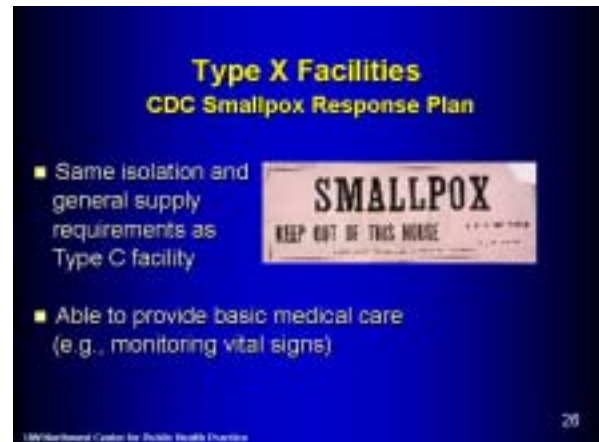


The purpose of a Type C facility is to house individuals with smallpox and thus minimize the exposure of susceptible individuals to contagious individuals. Anyone entering or admitted to a Type C facility must be vaccinated, including confirmed, probable, and suspected smallpox cases and facility staff (e.g., health care, environmental services).

The requirements for a Type C facility are listed in slide 25. Type C facilities must be able to provide the following medical services: supportive care with IV fluids, antibiotics, and so on, skin care, oxygen monitoring and oxygen, medical vital signs monitoring, cardiac and respiratory resuscitation, and ventilatory support.

Prior to confirmation of a smallpox outbreak or activation of the designated Type C facility, confirmed or suspected smallpox patients may be admitted to a hospital facility that also houses non-smallpox patients if the facility has negative pressure isolation rooms with 1) negative air pressure in relation to the corridor and surrounding areas and all exhaust externally vented away from air intakes or where people may pass and 2) a toilet, sink, bath, and shower for the patient. Air exhaust should be separated by more than 25 feet from the air intake. Unless the number of smallpox patients is sufficiently low to allow for appropriate strict isolation precautions in the hospital facility, the smallpox patients should be transferred to a Type C facility as soon as possible, and the room, equipment, and other materials decontaminated as outlined in CDC's Smallpox Response Plan.

The purpose of a Type X facility is to house a febrile contact during the observation period for further development of symptoms of smallpox (i.e., rash). If rash develops during the observation period, the individual should be moved to a Type C facility. Type X facilities need to supply only basic medical care functions, such as monitoring vital signs.



**Type X Facilities**  
**CDC Smallpox Response Plan**

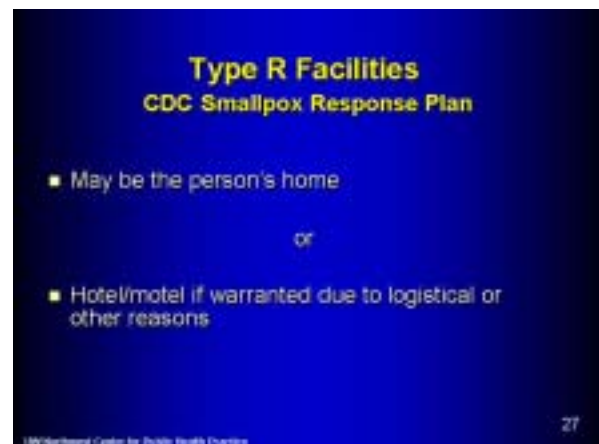
- Same isolation and general supply requirements as Type C facility
- Able to provide basic medical care (e.g., monitoring vital signs)

**SMALLPOX**  
KEEP OUT OF THIS HOUSE

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US Department of Health and Human Services

Asymptomatic contacts are not considered infectious and thus may remain in their own homes. They may continue routine daily activities as long as they remain within 20 miles of their city of residence and monitor their temperatures twice daily. If asymptomatic contacts develop two successive fevers  $\geq 101^{\circ}\text{F}$ , they should be transported from their home to a Type X or Type C facility, as appropriate.



**Type R Facilities**  
**CDC Smallpox Response Plan**

- May be the person's home

or

- Hotel/motel if warranted due to logistical or other reasons

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US Department of Health and Human Services



## The National Pharmaceutical Stockpile

### Key Points (Slides 28-33)

1. The National Pharmaceutical Stockpile is a national resource that will provide antibiotics and medical supplies to communities in the event of a biological or chemical attack.
2. Planning for mass antibiotic prophylaxis or immunization includes the identification of human and material resources, development of record-keeping systems, and the establishment of protocols for client follow-up.



The National Pharmaceutical Stockpile (NPS) (slides 28-32) provides resources for management of a biological or chemical attack. The NPS is managed by CDC and is deployed in response to a request from a state's governor, in consultation with CDC, for federal assistance. State and local health jurisdictions must have plans to efficiently manage and distribute the contents of the NPS at the local level.

The NPS consists of several identical 12-hour “Push Packages” located at distribution centers throughout the U.S. (slides 29-31). The Push Packages contain pharmaceuticals, intravenous and airway supplies, emergency medications, bandages, and dressings. Medications are rotated to ensure they do not become outdated.

**National Pharmaceutical Stockpile**  
Push Packages

- 12-hour “Push Packages” in cargo-sized containers weighing approximately 37 tons each
- Located around the country at strategic locations
- Held in environmentally controlled and secured warehouses
- Can reach a destination within 12 hours of being requested

MINUTES... 28

**National Pharmaceutical Stockpile**  
Push Packages



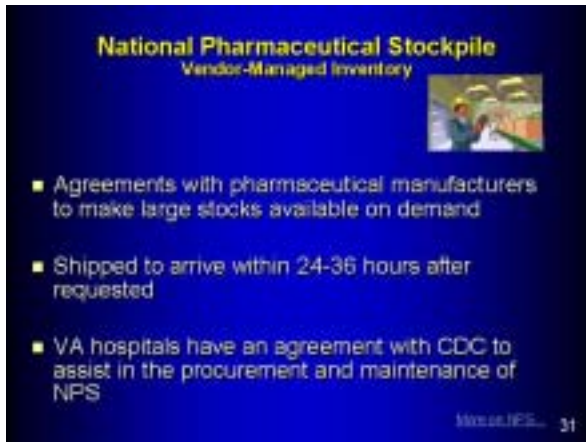
- Contain color-coded inventory
- Pharmaceuticals - stock rotated before expiration
- IV supplies, airway supplies, ventilators
- Bandages and personal protective equipment

MINUTES... 29

**National Pharmaceutical Stockpile**  
Push Packages

- Materials pre-packaged for immediate dispensing
- Support staff will accompany the package
- Receiving state responsible for logistics of repackaging and distribution

MINUTES... 30



Additional medications and supplies specific to the event would be available within 24-36 hours of request through Vendor-Managed Inventory (VMI), a system of rapidly mobilizing medications and supplies with the cooperation of the manufacturers and distributors of pharmaceuticals and other supplies (slide 32).

## Pre-event Planning: Mass Prophylaxis and Treatment (Slide 33)

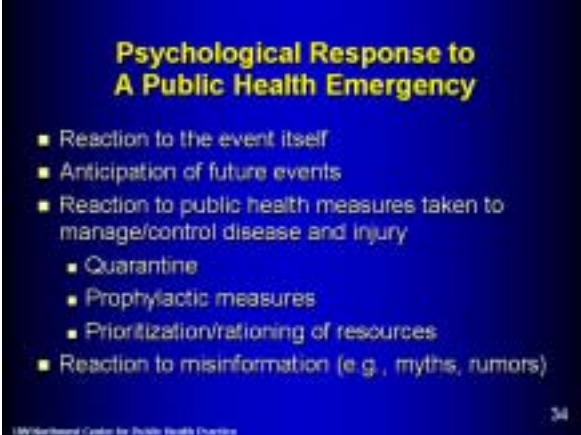


Any large illness or disease outbreak will tax the resources of the health department and the community. Sites should be identified for the delivery of mass antibiotic prophylaxis and immunizations, and protocols developed for managing the flow of clients, staff, and the media. Also, provisions should be made for surge capacity. What additional resources are available for providing prophylaxis and for case contact identification, interviewing, and follow-up?

Public health workers conducting case interviews or collecting samples are potentially at risk for contact with an infected patient. When the presence or identity of a bioterrorism agent is unknown, workers should adhere to standard precautions (i.e., disposable non-sterile gloves with handwashing immediately after removal, disposable gown or apron, face shield if splashing anticipated) whenever there is contact with broken or moist skin, blood, or body fluids. Protective gear should be changed between patients. If the agent is known or there is high suspicion for a particular agent, the appropriate additional precautions (if any) should be implemented.

## Psychological Response to a Public Health Emergency (Slides 34-46)

The psychological response to a public health emergency is not limited solely to a reaction to the event. Community members may feel vulnerable and unsafe, concerned that the event will be repeated. Public health interventions intended to manage current, and prevent future, health consequences of the event may elicit a negative response from community members, especially if the interventions are perceived as infringing on individual rights. Consistent and accurate communication is important in an emergency; myths and rumors spread quickly and may result in unwarranted anxiety and panic. Slides 35-46 describe the psychological aspects of a public health disaster, emergency, or other traumatic event. The role of public health in addressing the psychological consequences of a traumatic event is summarized in slide 35.

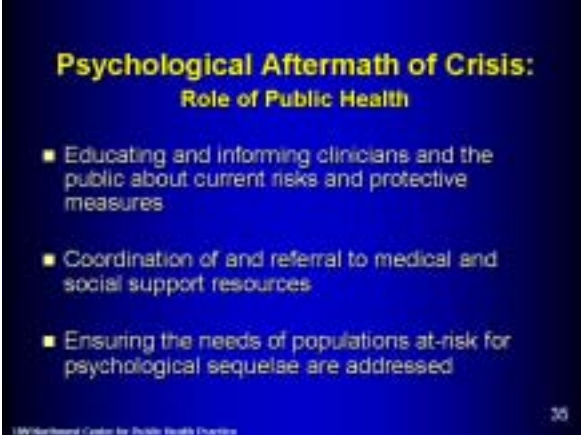


**Psychological Response to A Public Health Emergency**

- Reaction to the event itself
- Anticipation of future events
- Reaction to public health measures taken to manage/control disease and injury
  - Quarantine
  - Prophylactic measures
  - Prioritization/rationing of resources
- Reaction to misinformation (e.g., myths, rumors)

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**Psychological Aftermath of Crisis:  
Role of Public Health**

- Educating and informing clinicians and the public about current risks and protective measures
- Coordination of and referral to medical and social support resources
- Ensuring the needs of populations at-risk for psychological sequelae are addressed

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## Key Concepts of Disaster Mental Health (Slides 36-37)

### Key Point

Psychological effects following a disaster extend beyond the injured individuals and, to a certain degree, are normal and expected.

**Key Concepts of Disaster Mental Health**

- Two types of disaster trauma
  - Individual
  - Community
- Most people pull together and function during and after a disaster, but their effectiveness is diminished
- Social support systems are crucial to recovery

Source: CDC/PHS, Key Concepts of Disaster Mental Health, 36

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**Key Concepts of Disaster Mental Health**

- Disaster stress and grief reactions are normal responses to an abnormal situation.
- Many emotional reactions of disaster survivors stem from living problems brought about by the disaster.
- Most people do not see themselves as needing mental health services following disaster and will not seek such services.

Source: CDC/PHS, Key Concepts of Disaster Mental Health, 37

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There are two aspects to disaster trauma—the effects on the individual and the effects on the community as a whole. Individual effects of disaster trauma include the physical and psychological consequences for those injured (or infected, in the case of a biological attack), as well as psychological consequences for the injured person’s loved ones. Individuals with no direct connection to the trauma other than awareness can experience psychological symptoms as well, especially in the case of terrorism, where events often occur without warning and thus leave people anticipating future events. Disasters can affect the physical resources—human and material—of a community, as well as the behavior and cohesion of the community. Disasters stress the physical and emotional resources of people, but most people function adequately and may need only temporary assistance with living problems brought about by the disaster (for example, the need for financial assistance, temporary accommodations, etc.).

## Psychological Responses to Disaster and Trauma (Slides 38-42)

### Key Points

1. Normal responses to trauma and disaster include depression, anxiety, and behavioral changes.
2. Anxiety and uncertainty predominate following a biological attack.
3. Talking openly with a trusted individual about feelings and concerns and seeking help when feelings become overwhelming are important parts of recovery following a traumatic event.

Some of the possible psychological and behavioral responses to disaster and trauma are listed in slides 38-42. Note that depression, physical symptoms, and anxiety are **normal** reactions following trauma and disaster. These normal reactions can become abnormal, however, when they overwhelm or interfere with one's ability to function in daily activities.

**Psychological and Behavioral Responses to Trauma and Disaster**

- **Depression**
  - Sadness
  - Demoralization
  - Isolation/withdrawal
  - Difficulty concentrating
  - Sleep and appetite disturbances
- **Physical Complaints**
  - Fatigue
  - Aches and pains
  - Stomach and intestinal complaints
  - Headache
  - Skin rashes

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**Psychological and Behavioral Responses to Trauma and Disaster**


- **Anxiety**
  - Re-experiencing
  - Numbing
  - Hyperarousal
    - Shock and disbelief
    - Fear
    - Panic
    - Anger
    - Irritability
- **Behavioral**
  - ↑ substance use
    - alcohol, caffeine, tobacco
  - Interpersonal conflict
  - Impaired work/school performance

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## Children (Slides 40-41)

**Responses to Trauma - Children**

- After any disaster, children are most afraid that:
  - The event will happen again
  - Someone will be injured or killed
  - They will be separated from the family
  - They will be left alone



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Children are particularly vulnerable following a traumatic event. They have fewer skills and less life experience than adults. They have had fewer opportunities and time to develop coping mechanisms, and must rely on their parents or care givers to keep them safe. Slide 41 gives advice to parents for helping children cope after trauma. It is important that both adults and children are able to talk openly about their feelings and concerns with someone they trust, following a traumatic event.

**Helping Children Cope After Trauma**

- Assume they know a disaster has occurred
- Talk with them calmly and openly at their level
- Ask what they think has happened, and about their fears
- Share your own fears and reassure
- Emphasize the normal routine
- Limit media re-exposure
- Allow expression in private ways (i. e., drawing)

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## Psychological Responses Following a Biological Terrorist Attack (Slide 42)

**Psychological Responses Following a Biological Terrorist Attack**

- Magical thinking about microbes and viruses
- Fear of invisible agents
- Fear of contagion
- Attribution of arousal symptoms to infection
- Scapegoating
- Panic and paranoia
- Loss of faith in social institutions

Source: Bellows et al. JAMA 1997;278(5):625-7

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Many of the psychological responses following a bioterrorist attack will be similar to those following other disasters and traumas. Individuals and communities will grieve over the loss of loved ones and may feel a loss of safety in their community. Fear and anxiety are likely to be predominant emotions, however.

## At-Risk Populations for Psychiatric Sequelae Following a Traumatic Event (Slides 43-44)

The next two slides list populations with increased risk for psychiatric sequelae or other problems following a disaster or other traumatic stress. Public health officials should be alert to the presence of vulnerable populations in their community and ensure the availability and access to needed care and assistance.

**At-risk Populations for Psychiatric Sequelae Following Traumatic Stress**

- Those exposed to the dead and injured
  - Eye witnesses and those endangered by event
  - Emergency first-responders
  - Medical personnel caring for victims
- The elderly
- The very young



Source: Howard et al., Community Disaster Preparedness  
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**At-risk Populations for Psychiatric Sequelae Following Traumatic Stress**

- Those with a history of exposure to other traumas or with recent or subsequent major life stressors or emotional strain
- Chronic poverty, homelessness, unemployment, or discrimination
- Those with chronic medical or psychological disorders



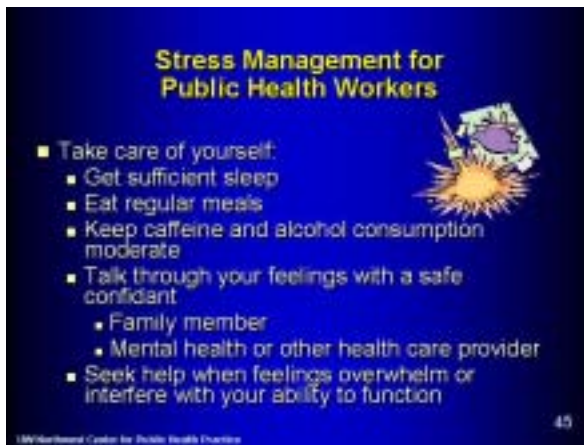
Source: Howard et al., Community Disaster Preparedness  
UMinnHealth Center for Public Health Practice

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## Stress Management for Public Health Workers

(Slides 45-46)



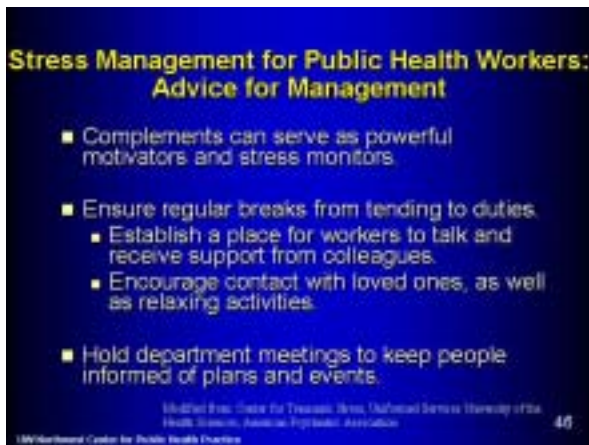
**Stress Management for Public Health Workers**

- Take care of yourself:
  - Get sufficient sleep
  - Eat regular meals
  - Keep caffeine and alcohol consumption moderate
  - Talk through your feelings with a safe confidant
    - Family member
    - Mental health or other health care provider
  - Seek help when feelings overwhelm or interfere with your ability to function

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Public health workers must also be aware of their own emotions and needs, particularly when their work places them close to the effects of the traumatic event.



**Stress Management for Public Health Workers: Advice for Management**

- Compliments can serve as powerful motivators and stress monitors.
- Ensure regular breaks from tending to duties.
  - Establish a place for workers to talk and receive support from colleagues.
  - Encourage contact with loved ones, as well as relaxing activities.
- Hold department meetings to keep people informed of plans and events.

Modified from Guide for Treating Stress, National Service University of the Health Sciences, American Psychological Association

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## Summary of Key Points (Slides 47-49)

**Summary of Key Points**

- The initial and primary response to the consequences of a terrorist event occurs at the local level.
- ESF 6 provides for federal assistance to supplement state and local efforts in response to a public health emergency.
- Medical, practical, and feasibility considerations are important in the decision to implement quarantine.

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**Summary of Key Points**

- Individual, community, and event-specific factors influence the psychological response to a public health emergency.
- Most individuals will function adequately following a traumatic event, but a few will need psychological or medical intervention.
- Many emotional reactions of disaster survivors stem from living problems brought about by the disaster.

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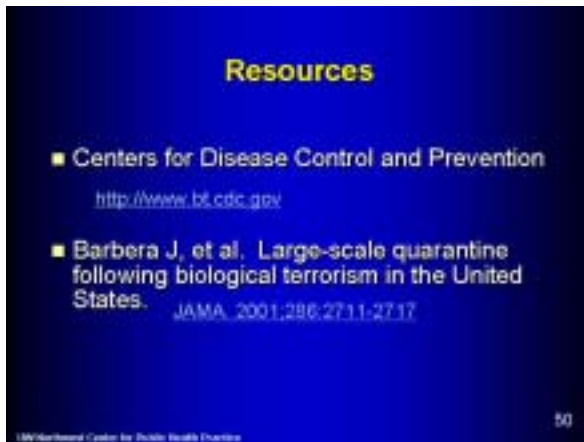
**Summary of Key Points**

- Anxiety responses are most likely following a biological attack but depression, physical symptoms, and substance use may also occur.

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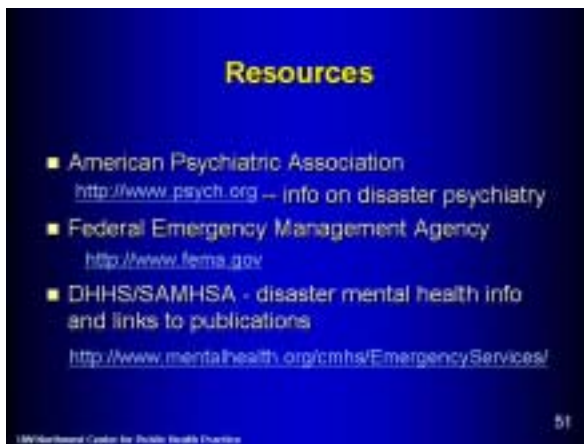
## Resources (Slides 50-51)



**Resources**

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<http://www.bt.cdc.gov>
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**Resources**

- American Psychiatric Association  
<http://www.psych.org> -- info on disaster psychiatry
- Federal Emergency Management Agency  
<http://www.fema.gov>
- DHHS/SAMHSA - disaster mental health info and links to publications  
<http://www.mentalhealth.org/cmhs/EmergencyServices/>

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## Appendix A: Modules (MS<sup>®</sup> Powerpoint files)

### **Introduction to Bioterrorism**

One module (33 slides)

### **Emergency Response Planning**

One module, with one custom show for personnel without planning oversight responsibilities

- Public health leaders (36 slides)

- Other public health staff (24 slides)

### **Diseases of Bioterrorist Potential**

Six modules

- Overview (25 slides, with 20-slide custom show for staff without health care responsibilities)

- Anthrax (29 slides)

- Smallpox (44 slides)

- Plague and Botulism (33 slides)

- Tularemia and VHF (38 slides)

- Environmental Sampling and Decontamination (43 slides)

### **Health Surveillance & Epidemiologic Investigation**

One module (32 slides)

### **Consequence Management**

Three modules

- Public health leaders (51 slides)

- Public health professional staff (51 slides)

- Other public health staff (30 slides)

### **Communication & Informatics**

One module (42 slides)

## Appendix B: Glossary

**Bulbar:** Referring to the cranial nerves

**Coagulopathy:** A disease affecting the coagulability (clotting) of the blood

**Confluent:** Joining, running together

**Conjunctivitis:** Inflammation of the conjunctiva; “red eye”

**Depigmentation:** Loss of pigmentation (color)

**Diplopia:** Double vision

**Dyspnea:** Shortness of breath

**Edema:** An accumulation of an excessive amount of watery fluid in cells or tissues

**Enanthem:** A mucous membrane eruption (rash)

**Epistaxis:** Nose bleed

**Erythema:** Redness

**Eschar:** A thick, coagulated crust or slough

**Exanthem:** A skin eruption (rash) occurring as a symptom of an acute viral or coccal disease

**HAZMAT:** Hazardous materials management; HAZMAT workers respond to discharges and/or releases of oil, chemical, biological, radiological, or other hazardous substances .

**Hematemesis:** Vomiting of blood

**Hemoptysis:** Coughing up blood

**Hemorrhagic mediastinitis:** Bloody inflammation in the chest cavity

**Hypotension:** Low blood pressure

**Indolent ulcer:** Chronic ulcer, showing no tendency to heal

**Leukocytosis:** Elevated white blood cell count

**Lymphadenitis:** Inflammation of a lymph node or lymph nodes

**Lymphadenopathy:** A disease process (e.g., swelling) affecting a lymph node or nodes

**Macule:** A small, discolored patch or spot on the skin, neither elevated above nor depressed below the skin's surface

**Malaise:** General ill feeling

**Myalgia:** Muscle aches

**Papule:** A small, circumscribed solid elevation on the skin

**Percutaneous:** Denoting the passage of substances through unbroken skin; passage through the skin by needle puncture

**Petechiae:** Pin-head sized hemorrhagic spots in the skin

**Pharyngitis:** Inflammation of the tissues of the pharynx; "Sore throat"

**Pleuropulmonary:** Relating to the pleura and the lungs

**Preauricular:** Anterior to the auricle of the ear

**Prodrome:** An early or premonitory symptom of a disease

**Prophylaxis:** Prevention of a disease, or of a process that can lead to disease

**Prostration:** A marked loss of strength, as in exhaustion

**Pustule:** A small circumscribed elevation of the skin, containing purulent material

**Sepsis:** The presence of various pus-forming and other pathogenic organisms, or their toxins, in the blood or tissues

**Stomatitis:** Inflammation of the mucous membrane of the mouth

**Vesicle:** A small, circumscribed elevation on the skin containing fluid (I.e., blister)

\*Reference: Stedman's Medical Dictionary, 26<sup>th</sup> Ed.



# Preparing for and Responding to Bioterrorism Instructor's Manual Series

In the wake of the 2001 anthrax attacks, thousands of people and organizations across the country have scrambled for information on how to protect themselves, their families, and their employees from anthrax and other potential agents of bioterrorism. Health officials have been flooded with requests to deliver presentations on bioterrorism preparedness and response at community forums, clinical conferences, business meetings, and other public venues. Potential instructors and trainers, however, have been handicapped by the lack of up-to-date, basic orientation resources on bioterrorism preparedness and response.

*Preparing for and Responding to Bioterrorism: Information for the Public Health Workforce* is a series of train-the-trainer resources that addresses the public health aspects of bioterrorism. It is scientifically accurate, up-to-date (as of the date of publication), and immediately relevant to the public health workforce. The series consists of thirteen PowerPoint™ slide sets, each accompanied by a detailed instructor's manual. The slide sets cover emergency response planning, surveillance and epidemiologic response, diseases of bioterrorist potential, consequence management, and communication and informatics. They are flexible and can be customized for local community needs. Included in each slide set and instructor's manual is a list of resources, references, and contacts for further information on bioterrorism preparedness and response—before, during, and after an incident.

We hope these resources will help the public health workforce to plan for and respond to public health emergencies, including a bioterrorist attack, and facilitate coordination between public health and other emergency responders.

Cover image: Medicine vials

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