

ELEMENTS OF EFFECTIVE BIOTERRORISM PREPAREDNESS:

A Planning Primer
for Local Public
Health Agencies

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INTRODUCTION

Although the probability of a bioterrorist attack in most parts of the United States is thought to be low, bioterrorism has become one of the many complex public health threats facing the nation's public health system. While public health responsibility for responding to bioterrorism and other public health emergencies differs nationwide, almost all states rely to some extent upon local public health agencies to identify and respond to bioterrorism, and to protect the health of their communities.¹ If a bioterrorist event occurs in this country, it will unfold at the local level, and local public health officials will be accountable for the appropriate public health response in their communities.

As part of their planning activities, many local health officials have sought to determine the crucial elements of bioterrorism preparedness. *Elements of Effective Bioterrorism Preparedness* was developed to assist local public health officials and their partners in identifying their public health and safety roles when responding to bioterrorism. Although this document focuses on local public health agencies, it is important to note that the public health response to a bioterrorist event is part of a larger response that will involve criminal investigation and other emergency management authorities at the local, state, and federal levels. This publication was created to help local public health agencies begin to coordinate their piece of this larger response, and jointly plan response activities with partners in neighboring local and state public health systems.

This Primer purposely avoids developing specific instructions or lists of how to prepare for a bioterrorist event and focuses instead on general areas of preparedness at the local level. Due to the diversity of local public health agencies across the country, and the historical and political contingencies that influence emergency response at the local level, a "cook book" or "cookie cutter" approach will not adequately address the needs of local public health agencies. Instead, this document was developed to identify the crucial elements local public health agencies need to consider to develop their local plans. In this way, local jurisdictions can tailor the elements described in this document to fit their own circumstances while adhering to central elements of public health preparedness at the local level. In addition, jurisdictions should build upon response plans currently in place and modify these plans to include biological events, for example pandemic flu preparedness plans. Building upon what already exists is an efficient way to prepare for bioterrorism, and minimizes creating several different plans that could create confusion for emergency responders.

Currently there are numerous local, state, and federal activities relating to bioterrorism preparedness and the emergency response role of local public health agencies. For example, Center for Disease Control and Prevention's (CDC) the Bioterrorism Preparedness and Response Program is coordinating several CDC efforts to improve local and state bioterrorism preparedness and response capacity. This document has been designed to be used in conjunction with these national activities, including the CDC Bioterrorism Preparedness and Response Program and overall public health infrastructure improvement activities sponsored by the CDC National Public Health Performance Standards Program, the CDC's Health Alert Network Program, and the Department of Health and Human Services' Office of Emergency Preparedness Metropolitan Medical Response System. The document also features local, state, and federal resources, such as the National Pharmaceutical Stockpile, so that readers may identify sources of assistance and expertise outside of their jurisdiction.

This Primer will begin to answer the basic question asked by many local public health officials – "how should I begin to prepare for bioterrorism?" – and will point the reader to additional sources of information and more specific planning guidance for use in their jurisdictions.

Preparedness and Response at the Local Level

The covert release of a biological agent will almost certainly go initially undetected in most areas of the country. Infected persons will begin to present at doctors' offices, managed care clinics, and hospital emergency rooms days, and perhaps weeks, after the release of the biological agent. As cases of unexplained or unexpected illness increased, physician reporting and passive community health surveillance activities will eventually detect an outbreak, and public health officials would be called upon to investigate, identify, and implement control measures. In an overt release, officials will have advanced notice of the outbreak, but most local public health systems will be overwhelmed by community requests for information, prophylaxis, and treatment as soon as the threat was made public. In a biological release, there will most likely be no explosion, fire, or visible crime scene. Therefore, the first responders to a biological event will be alert physicians, emergency room personnel, and well-trained and prepared public health practitioners who detect the unusual event, and report it to their response partners.

Despite the central role of public health in responding to a bioterrorist event, recent dialogue between the National Association of County and City Health Officials (NACCHO) and local public health officials indicates that many local public health agencies have not participated in the development of bioterrorism response plans in their jurisdictions. Reasons for this are varied. Many current federal and state bioterrorism preparedness programs are oriented toward "traditional" public safety providers, such as law enforcement officials and fire departments, and not local public health agencies. Jurisdictions have added bioterrorism to existing Weapons of Mass Destruction (WMD) plans, so that response to nuclear, chemical, and biological events have been planned similarly. Nuclear and chemical plans often omit the role of the local public health agency, and biological events are sufficiently different from chemical and nuclear emergencies that separate, though coordinated, planning is warranted. Funding for bioterrorism response activities nationwide has come primarily from agencies with whom most public health officials have not traditionally collaborated: the Department of Justice, the Department of Defense or federal and state Emergency Management Offices. Another reason for the lack of local public health involvement in planning is that many local public health agencies may not realize the role they play in preparing and responding to a bioterrorist event, and therefore fail to take an active role in local preparedness efforts. All of these factors explain why many local public health officials have not participated fully in local bioterrorism planning efforts.

While many federal resources are being used to support state-level planning for bioterrorism response, a concurrent effort is needed at the local public health agency level. NACCHO believes it is important that planning is supported at the local level, and that state and federal plans clearly identify the contributions of local public health systems to a comprehensive local response plan. Several local jurisdictions have begun to develop plans to respond to bioterrorism and other public health emergencies, the most successful of which have been formulated collaboratively by the local public health agencies, and partners in local emergency response, fire departments, law enforcement, and the healthcare provider communities, which are then linked to state and federal plans. These collaborations identify the specific roles local public health agencies play in responding to a bioterrorism event, roles that law enforcement and medical providers are not necessarily equipped or have the expertise to perform.

The Centers for Disease Control and Prevention recently issued recommendations for planning for biological and chemical terrorism (CDC, 2000).² In these recommendations, the CDC identifies the key roles federal public health agencies play in preparing

jurisdictions for bioterrorism. These roles include:

- Enhance epidemiological capacity to detect and respond to biological attacks.
- Establish molecular surveillance for microbial strains, including unusual or drug-resistant strains.
- Establish communication programs to ensure delivery of accurate information.
- Enhance bioterrorism-related education and training for health-care professionals.
- Prepare education materials that will inform and reassure the public during and after a biological attack.
- Stockpile appropriate vaccines and drugs.
- Support the development of diagnostic tests.
- Supply diagnostic reagents to state and local public health agencies.
- Encourage research on antiviral drugs and vaccines.

At the state and local level, these roles are very similar, and may include:

- Rapidly detect an unusual health event in a community.
- Provide or coordinate laboratory services to diagnose a biological agent, and timely share these results with appropriate stakeholders.
- Develop and share treatment recommendations and protocols with medical providers in a community, including plans for mass prophylaxis of a community if warranted.
- Activate systems to identify potential secondary victims and contain additional spread of infection and disease.
- Identify local pharmaceutical inventories and stockpiles.
- Assure the coordination of healthcare services in a jurisdiction so that all members of a community have access to necessary healthcare services during an emergency, and adhere to appropriate follow-up activities afterwards.
- Reduce panic in a community, and relaying appropriate public health information on the emergency to first responders, healthcare providers, and the public through media and public relations activities.
- Serve as a link to resources by drawing upon relationships at the local, state, and federal level to provide needed resources to a community before, during, and after a public health emergency.

These roles highlight the important elements local public health agencies contribute to in preparing for and responding to bioterrorism and other public health emergencies in their communities.

Essential Public Health Services

- Monitor health status to identify community health problems
- Diagnose and investigate health problems and health hazards in the community
- Inform, educate, and empower people about health issues
- Mobilize community partnerships to identify and solve health problems
- Develop policies and plans that support individual and community health efforts
- Enforce laws and regulations that protect health and ensure safety
- Link people to needed personal health services and assure the provision of health care when otherwise unavailable
- Assure a competent public health and personal health care workforce
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services
- Research for new insights and innovative solutions to health problems

From "Public Health in America." Public Health Functions Steering Committee, 1994.

The Essential Public Health Services

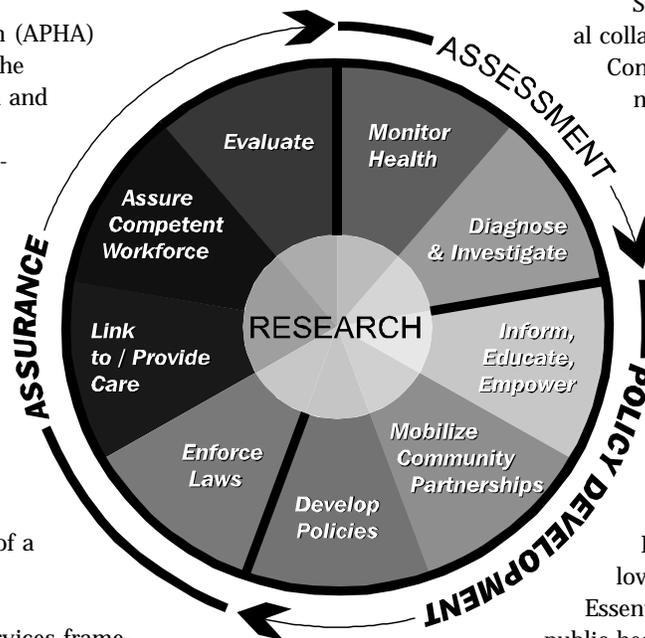
A useful way to conceptualize the elements of local public health agency response to a bioterrorist event is to consider preparedness activities in the context of the Essential Public Health Services (Essential Services) framework.³ The Essential Services were developed collaboratively by local, state, and federal public health organizations and agencies including the National Association of County and City Health Officials (NACCHO), the Association of State and Territorial Health Officials (ASTHO), the American Public Health Association (APHA) and public health agencies within the United States Department of Health and Human Services. Overall, the Essential Services provide a consensus statement on the basic functions of public health across the country (see Text Box 1). In the past, the core functions of public health have been summarized into three categories: assessment, policy development, and assurance activities.⁴ In Figure 1, these core functions are mapped out against the essential service areas to produce a comprehensive crosswalk describing the activities of a local public health system.

At the local level, the Essential Services framework illustrates the capacities required of a community's local public health system -- the collection of public and private organizations contributing to public health at the local level. In some communities the Essential Services are directly provided by the local governmental public health agency. In

other communities, the local public health agency assures the provision of these services but another agency or organization provides the direct service. For the purposes of this Primer, either directly providing or assuring the provision of each of the ten Essential Services is considered to be critical to the optimal performance of the local public health system.

The Essential Services provide a basis for continued local, state, and federal efforts to improve local public health infrastructure. The National Public Health Performance Standards Program (NPHSP), a national collaborative of the Centers for Disease Control and Prevention (CDC) and five national partners, has used the Essential Services to develop general performance standards for public health agencies. The NPHSP has also used the Essential Services to develop a performance assessment tool specific to bioterrorism preparedness and emergency response for local and state public health agencies. Many local and state health officials have been involved in completing the Department of Justice's Public Health Assessment, which uses the Essential Services framework. The following section presents each of the Essential Services, and then describes the public health functions required during a bioterrorist event or other public health emergency that fall within that service area. Each of the Essential Services is used to illustrate the elements of local public health system preparedness for bioterrorism and other public health emergencies. For an idea of the specific activities related to each Essential Service, we rec-

FIGURE 1: PUBLIC HEALTH IN AMERICA



ommend using this Primer in conjunction with the Department of Justice's Public Health Assessment and the bioterrorism preparedness and emergency response assessment module of the National Public Health Performance Standards Program (see Resources).

Each of the Essential Services comprehensively demonstrates the role that local public health agencies and their community partners play in emergency response activities for their jurisdiction. In communities where these services are not provided nor assured by the local public health agency, it is appropriate to identify who provides the service, and incorporate these groups in planning and response activities. Taken as a whole, the Essential Services framework provides a guide to identifying the necessary elements of local public health system preparedness. Local public health agencies and their response partners can use these services to assess their jurisdiction's preparedness, and collaborate to improve and enhance the provision of these services in the community.

FIGURE 2:
SAN DIEGO COUNTY EMERGENCY MEDICAL ALERT NETWORK [EMAN]
Detection, Alert and Effective Response

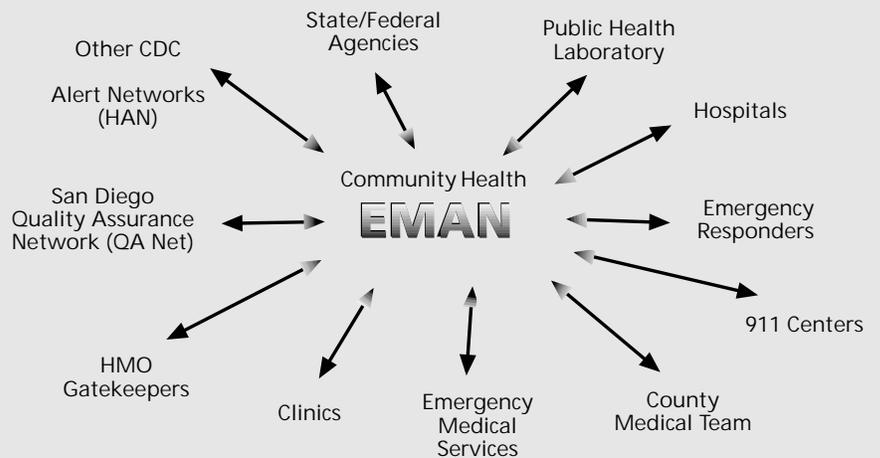


Figure 2 From San Diego Health and Human Services Agency, 2000.

ESSENTIAL SERVICE # 1:
Monitor health status to identify community health problems

This service identifies the unique surveillance role that many local public health agencies play in their jurisdictions. Rapid, early detection of adverse health events is essential for ensuring a prompt response to a biological attack, including the provision of prophylactic medications and vaccines. Potential terrorists utilizing biologic agents will not always threaten or notify authorities that an event has taken place. In these cases, detection will most likely occur by the recognition of an increased number of ill persons in a community, the unusual presence of dead or dying animals, or patterns of disease or death inconsistent with the natural course of a disease. Since disease surveillance is one of the major duties of local public health agencies, they are often the primary resource for detecting outbreaks in their community.

Local public health data come from a variety of sources.

Therefore, effective local public health agency surveillance activities must be integrated with hospitals, laboratories, managed care clinics, poison control centers, veterinary providers and other medical providers to enhance the detection and reporting of unexplained illnesses. For example, current surveillance efforts in New York City, New York involve daily reviews of key health data, such as ambulance runs, and unusual trends are analyzed for possible outbreaks or other emergencies. Monroe County, New York, and Denver Health, in Denver Colorado, have developed surveillance systems using data from emergency medical services and hospital reporting systems. The Kansas City Health Department (Missouri) is developing similar surveillance technology that will alert health department staff when certain indicators reach unexpected levels. In addition, San Diego County, California, has developed the Emergency Medical Alert Network (EMAN) to aid in the detection of adverse health events and the dissemination of health information. EMAN is an early warning computer network, which is be used to gather disease information and disseminate treatment and personal protective information to participatory members. EMAN was developed using the CDC's Health Alert Network architectural standards, but funded

through state and local resources. Membership in EMAN includes directors of hospital emergency departments, directors of clinical microbiology laboratories and physicians specializing in infectious disease. It also includes the Medical Examiners Office, Emergency Medical Services (EMS) Office and 9-1-1 Center, San Diego County Department of Environmental Health Services, and the San Diego County Veterinarian's office (see Figure 2). In addition, EMAN is linked to the San Diego Quality Assurance Network (QANET). QANET is a live, real-time Wide-Area-Network hospital resource status indicator showing Emergency Department and Intensive Care Unit saturation as well as available hospital beds in local hospitals.

The effort to develop rapid data review and notification procedures is a critical piece of public health preparedness. Monitoring community health status and the early detection of a possible bioterrorist event is crucial to minimizing the impact of the event, and subsequent morbidity and mortality. In planning activities related to monitoring health status, local public health officials may want to consider:

- Do our local public health agency and its partners in the local public health system monitor indicators that may signal a public health emergency?
- Is reporting and analysis of health indicators sufficiently timely for emergency situations?
- Do our local public health agency and its partners have a protocol for initiating local, state, and federal emergency response systems based on information received by local surveillance activities?
- Do our local public health agency and its partners in the local public health system have access to information on health hazards in our community, and an accurate assessment of the risk they pose to the public's health?

ESSENTIAL SERVICE # 2 :

Diagnose and investigate health problems and health hazards in the community

In addition to monitoring health status, most local public health agencies have the responsibility of diagnosing and investigating health problems in their communities. Identification and diagnosis of potential bioterrorism agents is critical to ensure prevention and treatment measures can be implemented quickly. As above,

effective response is enhanced by effective epidemiological surveillance systems and access to information on emerging outbreaks. Planning should also include access to the technology needed to diagnose and investigate health problems and hazards, such as personal computers with Internet and World Wide Web access, and the ability to connect to the Internet via a high-speed connection. These tools greatly enhance the ability of the local public health official to obtain and share information on emerging health threats, and rapidly connect to state, national, and international resources and expertise. Local public health agencies may want to work with local emergency management agencies to identify potential risks and hazards in their communities, including chemical storage areas, nuclear facilities, and other possible terrorist targets.

To diagnose and investigate health problems and hazards in a community, the local public health system will depend upon personnel trained to identify potential bioterrorism events. Currently, most public health workers and primary care providers have very little training on how to identify and manage cases of anthrax, plague, or smallpox. Public health agencies have a role in supporting the local public health system's ability to diagnose and investigate health hazards, including laboratory work and the provision of epidemiological expertise in order to recognize an outbreak. Planning efforts should include workforce training and educational sessions using up-to-date materials on potential bioterrorism agents such as anthrax or plague to enhance provider recognition of potential health threats (see Resources). Much of the activity supported through the CDC's Health Alert Network Program is directed toward improving local public health agency information technology capacity, as well as developing bioterrorism-specific training materials for public health providers. The CDC selected three local public health agencies as Centers for Public Health Preparedness sites (DeKalb County, Georgia; Denver Health, Colorado; Monroe County, New York) in October 1999. These sites serve as learning laboratories for information technology and training improvements related to bioterrorism preparedness. The lessons learned by these Centers provide important information for local public health system development in this Essential Service area (see Resources). For example, the Centers project found that enhancements to public health capacity for bioterrorism have the potential to pay off in improvements to overall public health infrastructure. Nowhere was this more evident than New York City's response to the West Nile Virus outbreak that occurred in the fall of 1999 (see Resources). The joint bioterrorism planning efforts between the health department and the Office of Emergency Management facilitated the rapid mobilization of emergency mosquito control measures, establishment of a public information hotline, coordi-

nation of the daily communications with the media, and the rapid mobilization of health department staff. In addition, Centers sites demonstrated that "tabletop" exercises and simulations provide excellent opportunities to formulate and test a plan, identify gaps and areas of need in existing plans, and demonstrate the role of local public health agencies in responding to a public health emergency. Tabletops can also be effective in establishing and cultivating the relationships necessary for effective emergency response.

In addition to the CDC's Centers for Public Health Preparedness project, several other resources are available to local public health agencies for diagnosing and investigating health problems and hazards in their communities. The National Electronic Disease Surveillance System (NEDSS) is developing standard electronic reporting categories for disease data as well as defining basic computer architecture and security standards for the transmission of surveillance data between locals, states and the CDC. The long-term vision of NEDSS is that of complementary electronic information systems that gather health data from a variety of sources on a real-time basis; facilitate the monitoring of health in communities; assist in the on-going analysis of trends and detection of emerging public health problems; and provide information for setting health policy (see Resources). Epi-X, a web-based epidemic information exchange service, is another CDC resource being developed to promote the exchange of news and information on outbreaks between public health officials at the local, state, and federal levels. The Epi-X system is available for use by a variety of programs including infectious disease epidemiology, immunization, poison control, environmental health, and bioterrorism preparedness (see Resources).

When planning for activities related to diagnosing and investigating health problems and health hazards in a community, local public health officials may want to consider:

- Is our local public health agency's information system capacity sufficient for rapid, secure communication and dissemination of important health information to others in the local public health system?
- Do our local public health agency and its partners in the local public health system have access to epidemiologic expertise that can assess, investigate, and analyze information about a public health emergency?
- Do our local public health agency and its partners in the local public health system have access to public and commercial laboratories to investigate and identify the causes of a public health emergency?

ESSENTIAL SERVICE # 3 :

Inform, educate, and empower people about health issues

When data about an outbreak are gathered and analyzed, there is a need to rapidly disseminate this information to other public health departments, healthcare agencies, hospitals, clinics, independent physicians, and other providers. In a bioterrorist event, this information also needs to be shared with law enforcement agencies and the broad array of groups responsible for protecting the public. Use of public and secure websites will assist in the rapid dissemination of information and education materials, such as the CDC's Bioterrorism website and state and local health alert websites (see Resources).

When informing and educating the public, public health agencies need to rely upon their local news media. This requires the effective use of a county's press officer or other public health agency spokesperson. In planning an effective response, local public health agencies should draw upon existing relationships with the local media, and cultivate new relationships as needed. Lessons learned from the rash of anthrax hoaxes which occurred in 1999 and 2000 demonstrate that the press is the most common source of information for the general public during an emergency, highlighting the importance of working with the local media to build confidence within the community, and reduce fear and panic.

The Association of State and Territorial Directors of Health Promotion and Public Health Education (ASTDHPPE) has developed the Model Emergency Response Communications Plan for Infectious Disease Outbreaks and Bioterrorist Events to aid communications among public health officials, between health officials and other emergency response partners and directly to the public and media. Community education by local health officials and accurate and responsible media coverage can de-escalate a crisis situation and put potential victims and the "worried well" at ease.

Because every local public health system is made up of different groups and stakeholders, every community will require a different set of notification protocols and procedures to follow in the event of a threatened or real bioterrorist incident. However, general notification protocols have been formulated to give local, state, and federal agencies some guidance on how they might develop protocols for bioterrorism. The CDC's "Interim Recommended Notification Procedures for Local and State Public Health Department Leaders in the Event of a Bioterrorist Incident" is one such guidance resource (see Resources). Shown in Figure

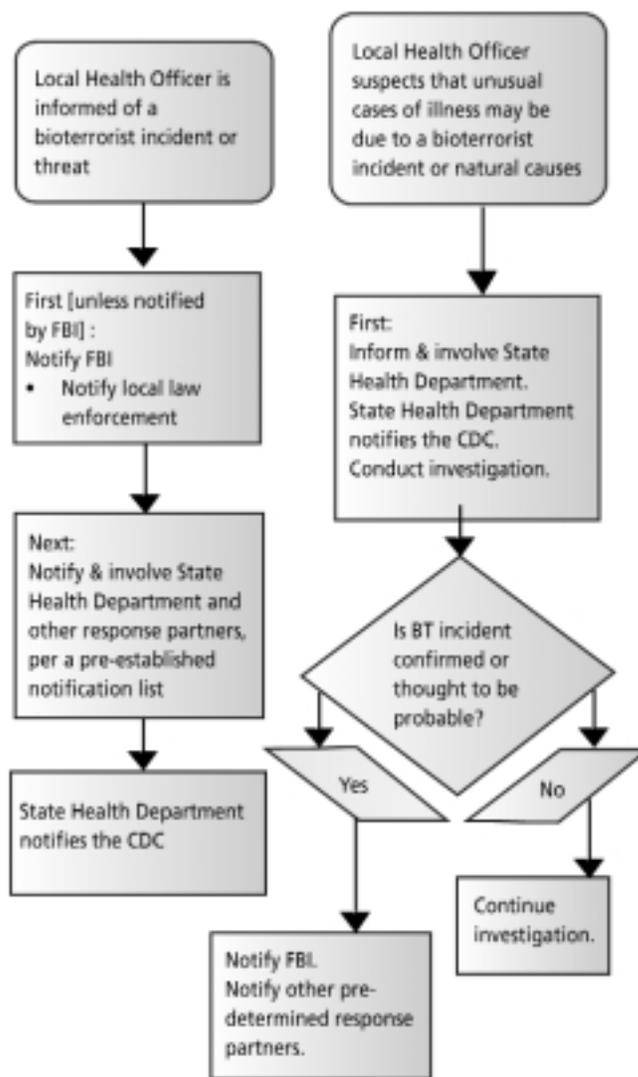
3, this protocol moves from initial recognition of an event through the state and federal response partners that may be involved in the incident.

The goal of any terrorist attack is to induce widespread fear and panic. Effective education and communication, consisting of clear and concise information, will help assure the public that the situation is being addressed competently and quickly. Some local public health agencies have developed information fact sheets that can be distributed to healthcare providers, as well as the general public, after a bioterrorist event. Fact sheets distributed to healthcare providers may contain information explaining the signs, symptoms, and treatment protocols for the biological agents considered most likely to be used in an attack. These fact sheets may also contain information on transmission, exposure, and prevention strategies. When working with the general public, health agencies may want to use the CDC's "Threatened Bioterrorism Incident Information Sheet for Potentially Exposed Persons" fact sheet as a model for the kind of information that could be shared with community members (see Resources). Fact sheets should answer basic questions and provide general information needed during an emergency, and this information should be accessible in the primary languages spoken within the jurisdiction. Partners in the local public health system may want to share resources to develop a common set of informational pamphlets that can be used in the community. In addition, the local public health agency may want to consult with its media relations or public health information section to develop a specific public information plan for a public health emergency. The Association of State and Territorial Directors of Health Promotion and Public Health Education (ASTDHPPE) recently released a helpful guidance document on public health information planning for emergency response (see Resources).

Several health departments have begun to educate providers about bioterrorism and the way that patients may present if infected with a bioterrorism agent. The CDC has a variety of educational and training materials available for use in informing provider communities and the general public about bioterrorism (see Resources). The U.S. Army's Soldier Biological Chemical Command (SBCCOM) also has several training courses for emergency responders (see Resources). The Kansas City Health Department developed an awareness raising campaign for hospital providers and posted signs in emergency rooms to remind physicians and other healthcare providers to contact the Health Department if they see a patient with an unusual disease (see Figure 4). Awareness raising and provider education may heighten attention to unusual diseases, thereby allowing for the early detection of an emergency situation.

FIGURE 3. RECOMMENDED NOTIFICATION PROCEDURES FOR LOCAL AND STATE HEALTH DEPARTMENT LEADERS IN THE EVENT OF BIOTERRORIST INCIDENT

Note: For purposes of clarity, only communications by local and state health officials are diagrammed. This Notification will be linked to and coordinated with other federal guidance. From the health officer's point of view, the notification algorithm starts as follows:

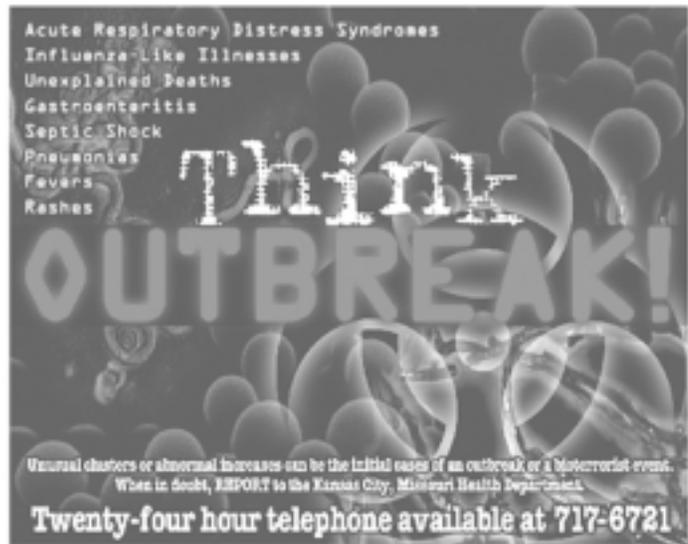


From Centers for Disease Control and Prevention, Bioterrorism Preparedness and Response Program, on-line copy and information available at www.bt.cdc.gov/protocols.asp. Please see website for complete description and explanation of the diagram.

When informing, educating and empowering people about health issues related to bioterrorism and emergency response, local public health officials may want to consider:

- Has our local public health agency developed protocols for releasing information to the community and local media about bioterrorism and other public health emergencies? Have these protocols been developed with input from others in the local public health system, and the community?
- Does our local public health agency have a protocol for contacting other community partners responsible for emergency response, including fire departments, law enforcement, FBI, and others, to ensure their knowledge of the event and assistance in managing the non-public health components of the emergency?
- Can our local public health agency rapidly inform and educate the local public health system and community members about a public health emergency?
- Do community members and our partners in the local public health system have the capacity to rapidly inform and educate our local public health agency about a public health emergency?

FIGURE 4



From Kansas City Department of Public Health, 2000.

ESSENTIAL SERVICE # 4 :

Mobilize community partnerships to identify and solve health problems

A comprehensive public health response to a biological terrorist event involves epidemiologic investigation, medical treatment and prophylaxis for affected individuals, and the initiation of disease prevention measures. This response will require local public health agencies to collaborate with many organizations, including those not traditionally considered parts of the public health sys-

tem. If the event is a real bioterrorist attack, the Federal Bureau of Investigation (FBI) will most likely coordinate and control the federal response to the situation. Local public health officials need to work effectively with the FBI and other law enforcement partners to understand the different responsibilities of various response partners prior to an event. Part of this understanding involves examining federal guidelines for emergency response, such as Presidential Decision Directive #39, which outlines the authority given to the FBI and the Federal Emergency Management Agency (FEMA) during an emergency (see Resources). As stated previously, the time to understand which law enforcement agency has what responsibility in a bioterrorist event is not during the emergency. Careful planning and mobilization of partners prior to an event is the most effective planning strategy.

The practice of public health involves partnerships and collaboration, and preparation for bioterrorism or another public health emergency is no exception. In most local areas, federal resources can be acquired by contacting regional or field offices of each agency. Identifying these field offices and regional representatives is part of comprehensive emergency response and prepared-

ness planning. Local public health agencies may want to engage the following partners in their preparedness and response planning, where applicable:

Local

- Neighboring local public health agencies
- Local environmental health agencies
- Local veterinarians
- Local emergency management officials
- Local Emergency Planning Commissions
- Fire, police, and EMS
- Local 9-1-1 Centers
- Local Metropolitan Medical Response System teams
- Hospitals and Health Plans
- Managed Care Organizations
- Infectious disease physicians
- Other healthcare providers
- Local laboratories
- Poison Control Centers
- School officials
- Elected officials
- Local news media
- Area Businesses
- Agricultural and food processing facilities.

State

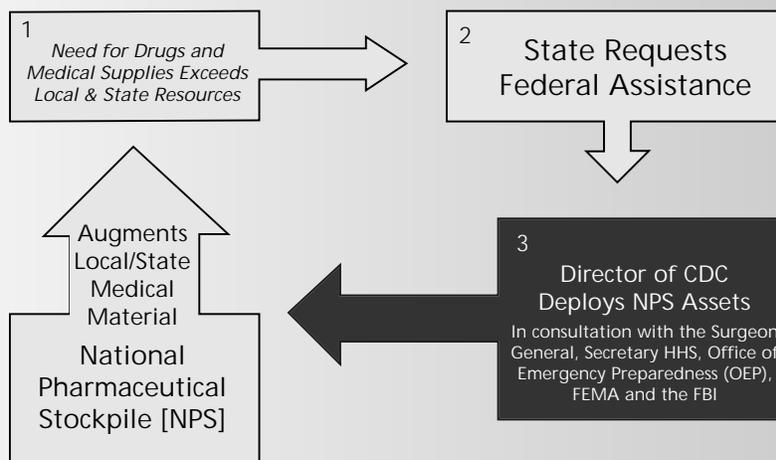
- State Public Health Department
- State veterinarians
- State emergency management officials
- National Guard
- State laboratories
- The American Red Cross
- Other volunteer groups

Federal

- Department of Health and Human Services
- Centers for Disease Control and Prevention
- Office of Emergency Preparedness
- Food and Drug Administration
- Department of Justice, including the Federal Bureau of Investigation
- Federal Emergency Management Agency
- Department of Agriculture
- Environmental Protection Agency
- Department of Defense
- Department of Veteran's Affairs

A number of successful bioterrorism preparedness plans have been developed that identify key partners and their role in

FIGURE 5
HOW NATIONAL PHARMACEUTICAL STOCKPILE ASSETS ARE DEPLOYED



Source: National Pharmaceutical Stockpile, Centers for Disease Control and Prevention, 2000

responding to a public health emergency. “Tabletop” exercises and simulations in several jurisdictions have allowed communities to test their plans, and assure that all essential partners are aware of the responsibilities and have the capacities needed to respond effectively to a biological event. The lessons learned from these tabletop exercises are critical to improving a jurisdiction’s preparedness and response. For example the Top Officials (TOPOFF) exercise held May 17th through 24th, 2000, in the Denver, Colorado, metropolitan area involved many of the stakeholders listed above. This exercise was a full-scale demonstration of what could happen if pneumonic plague was intentionally released in the Denver, Colorado, metropolitan area. TOPOFF provided local, state, and federal public health and safety officials with an opportunity to practice an established plan, and identify its strengths and weaknesses. Subsequent post-TOPOFF debriefings have provided the opportunity for local, state, and federal officials to enhance their existing capacities to protect the public’s health. Smaller scale tabletop scenarios also provide an opportunity to practice a local or state response plan. Additionally, the tabletop scenarios provide a training opportunity for local public health system personnel, and may aid in identifying partners for inclusion in future planning efforts and in building critical relationships.

The National Pharmaceutical Stockpile Program is an important asset to incorporate in local emergency response planning. The aim of the Stockpile program is to ensure the availability and rapid deployment of life-saving pharmaceuticals and medical material after local and state supplies have been depleted. The Stockpile includes antibiotics, chemical antidotes, antitoxins, life-support medications, intravenous administration and airway maintenance supplies and other medical or surgical items. The way in which National Pharmaceutical Stockpile supplies are requested is described in Figure 5. Once requested, the Stockpile’s first supplies are designed to be able to reach the requesting state within 12 hours. When the Stockpile supplies reach a state, state and local authorities will have to work in partnership to distribute supplies to communities.

In preparing to mobilize community partnerships, local public health officials may want to consider:

- Has our local public health agency identified and contacted all necessary local, state and federal partners that address emergency preparedness and response issues?
- Is our local public health agency’s response plan informed by and integrated with other community emergency response plans? With our state’s plan?

- Does our local public health agency collaborate with all necessary community partners that address emergency preparedness and response issues?

ESSENTIAL SERVICE # 5 :

Develop policies and plans that support individual and community health efforts

Understanding and building upon existing plans, protocols and procedures within the community is essential. Local public health agency preparedness activities should involve a careful review of local, state and federal policies that guide its response to a public health emergency. Often, many policies are informal understandings between agencies. To ensure the plan is comprehensive and executable, these understandings should be written out and tested as part of a formal preparedness plan. For example, the differing roles of the local public health agency and the state health department should be agreed to in a written policy. Mutual aid agreements between the local public health agency and other partners should be reviewed and updated if necessary. Protocols may be needed to outline the responsibilities of the local, state, and federal response agencies during an emergency as they pertain to a specific local jurisdiction.

Policies governing the use of local assets, such as hospitals, will help clarify what can be expected of response stakeholders during an emergency. In an actual event, local medical resources will be quickly overwhelmed and policies for mutual aid need to be in place prior to obtaining assistance from state and federal assets. Additional policy development may include issuing guidelines for worker safety to protect first responders from contamination when responding to a biological event, or other workforce protections for first responders, such as recommendations from the National Institute for Occupational Safety and Health (see Resources).

It is vital that local public health officials identify how they will use the National Pharmaceutical Stockpile during an emergency and incorporate the Stockpile in state and local plans. The distribution of these supplies is a logistical challenge that cannot be dealt with as an emergency unfolds. Rather, the use of the Stockpile needs to be incorporated into existing local and state bioterrorism response plans prior to an event (see Resources). In the event of a bioterrorist attack, plans must include procedures for handling mass casualties. In many localities funeral directors or the county’s medical examiner are good sources of information on existing plans and guidance regarding mass casu-

alties. Many funeral directors and medical examiner's offices already have plans in place, primarily to handle mass numbers of casualties resulting from airplane crashes or other disastrous events, such as tornadoes, earthquakes or floods. Plans should include guidelines for expanding existing morgue facilities, transporting and decontamination of casualties, and record keeping of the deceased, including victim identification, and guidelines for accessing additional resources, primarily from neighboring regions and states.

Once developed, these policies should be reviewed during "tabletop" simulations or other field exercises. Many localities initially responded to the need for developing policies by adding biological response to already written emergency response plans, such as natural disaster plans, or chemical response plans. When tested in scenarios or field exercises, these plans are often found to be deficient, since biological events call for responses that may differ from existing "HAZMAT" or other disaster plans. Policies regarding when state and federal assets should be requested are important components of bioterrorism preparedness, and can also be tested during these simulations and exercises.

Recent anthrax hoaxes provided many local public health agencies with the opportunity to review current policies and develop new ones. Policies for responding to anthrax hoaxes can standardize local response activities, provide basic guidelines for responders to follow during an emergency, and minimize panic during an event. Such policies include appropriate decontamination procedures to be used by response personnel, as well as information that can be shared with the media and affected individuals.

In developing policies and response plans, local public health officials may want to consider:

- Does our local public health agency response plan formally identify what will be expected of our agency and our partners during a public health emergency?
- Does our local public health agency response plan link with our partner's plans and broader emergency plans for our jurisdiction? Are our partners aware of the connections between our agency's plan and plans they have developed?
- Does our local public health agency response plan include rosters and inventories for identifying local personnel and resources that may be deployed during a public health emergency?

- Does our local public health agency have a response plan that includes all appropriate protocols and guidance that would be needed in responding to a public health emergency?
- Does our local public health agency response plan include how our agency and its emergency response partners will integrate, organize and utilize National Pharmaceutical Stockpile resources if requested?
- Has our local response plan been tested through tabletop simulations or field exercises?

ESSENTIAL SERVICE # 6 :

Enforce laws and regulations that protect health and ensure safety

A crucial part of preparedness planning involves reviewing local, state, and federal laws and regulations involving public health emergencies. Many public health laws are outdated or irrelevant because they have not been changed to reflect contemporary public health practice. Other relevant laws may need clarification and interpretation given the specific conditions related to a biological event. Local and state public health agencies should collaborate to recommend changes to public health authorities and clearly delineate what local and state policies will be during an emergency. Examples of the types of authority that may be required during a bioterrorist event include the ability to: Declare a public health emergency.

- Request out-of-state medical personnel to provide medical care.
- Receive pharmaceutical or vaccine stockpiles, including the National Pharmaceutical Stockpile.
- Quarantine individuals.
- Evacuate an area.
- Commandeer or seize private, commercial or other facilities for public health purposes.
- Embargo products.
- Handle contaminated remains and dispose of contaminated products.

Updating public health laws is important to assure public health has the tools needed to manage an outbreak or other public health emergency. Every jurisdiction will have different legal authorities, but all should attempt to address the types of authority listed above. Careful review of local, state, and federal author-

ity will identify areas for the clarification or expansion of local response plans. It is important to obtain guidance from departmental attorneys regarding the application of existing laws in an event related to biological terrorism before an event takes place.

Legislative action to enhance existing statutes or review outdated laws should be undertaken so that public health authority is clearly based in local and state statute.

For example, in the state of Colorado, Emergency Management Officials introduced a bill, which was passed into legislation in 2000 to develop the Governor's Expert Emergency Epidemic Response Committee (see Resources). The committee is responsible for developing a supplement to the state disaster plan that addresses the public health response to bioterrorism, pandemic influenza, and epidemics caused by highly fatal infectious agents. The committee is also responsible for providing expert public health advice to the governor in the event of an emergency epidemic. The committee is chaired by the Director of the state health department and includes representation from the state health department, a local health department, the Office of Emergency Management, the State Board of Health, the Attorney General's Office, and private physicians, specializing in emergency medicine and infectious disease. Other states and local jurisdictions may seek to achieve similar legislative support for preparedness and response efforts in ways that make sense for their particular state and local public health structure.

In preparing for bioterrorism and emergency response, local health officials may want to review the authority they have to enforce laws and regulations that protect health and ensure safety in their communities. Questions to consider include:

- Has our local public health agency and its partners in the local public health system reviewed and evaluated laws and regulations regarding emergency preparedness and response in a public health emergency?
- Has our local public health agency updated regulations or recommended legislative changes to existing statutes to insure the agency has appropriate authority in a public health emergency?

ESSENTIAL SERVICE #7:

Link people to needed personal health services and assure the provision of healthcare when otherwise unavailable

One of the core functions of local public health agencies is to assure that all members of a community can access needed healthcare services. In many cities and counties across the country, local public health agencies are the primary healthcare provider for many individuals without a regular source of medical care. Assuring the ability of the healthcare system to increase its capacity during a substantial influx of patients is a vital element of local public health preparedness. This includes providing services to individuals infected during an event, as well as those who have chronic healthcare needs such as the need for dialysis or other aspects of chronic care.

Linking people to services during an emergency will only be completed in coordination with area hospitals, clinics, urgent care facilities, and private healthcare facilities. As both an assessor and provider of care, many local public health agencies will be particularly challenged to deal with the surge of people seeking treatment or prophylaxis. Recent changes to the way hospitals do business, including reducing the number of hospital beds and using "just-in-time" staffing procedures to reduce costs, mean that most communities have very few extra primary care resources, such as hospital beds, in their jurisdictions. Shrinking profit margins mean that many hospitals are hesitant to financially support infrastructure improvements for an event such as a bioterrorist attack, which has a low probability of taking place in their community. When faced with staffing shortages, local competition, and changes in the national healthcare environment, many hospital administrators and medical staff are hesitant to take on the additional challenge of preparing for bioterrorism.

Successful arrangements between local public health agencies and the medical communities within their jurisdictions have been developed. One strategy to engage hospitals in local preparedness activities has been to demonstrate the dual-use of preparing for bioterrorism. By addressing the surge capacity requirements and decontamination issues involved in a public health emergency, hospitals are better prepared for many health events, not just bioterrorism. For example, contingency plans for opening additional beds can be utilized during an unusually severe flu season, and decontamination facilities can be used for industrial accidents or other disasters. Agreements between the local public health agency and the hospitals within a community are vital to both identifying and controlling an outbreak. While public

health and primary healthcare systems differ across the country, a common preparedness need is the integration of population-based and personal healthcare to mediate the adverse effect of an epidemic. The Monroe County Health Department (New York) has a unique relationship with its area hospitals, one in which the health department and seven area hospitals communicate through radio, cellular, and landline telephones and fax, as well as a secure, wide area network called the Rochester Area Community Healthcare Information System (RACHIS). The Monroe County Health Department also posts a status board for hospital bed availability on their website.

A critical piece of public health is the “linking” function to assure healthcare for those that experience barriers due to language differences or lack of insurance. These issues are equally important during an emergency situation. Local preparedness planning should include providing services to individuals that may not have insurance or do not understand English. Providing or assuring services to these groups within a community is an expertise that many local public health agencies can contribute to preparedness efforts within their jurisdiction.

In considering the "linking" role of local public health agencies, local public health officials may consider:

- Will our local public health agency and our partners in the local public health system assure community access to critical health services during a public health emergency?
- Do our local public health agency and its partners have plans for expanding our emergency medical system to include other community resources (e.g., health centers, doctor's offices) when the demand surpasses existing capacity and mutual aid agreements?
- Will our local public health agency and our partners in the local public health system assure effective medical management of patients and the "worried well" during a public health emergency?

Essential Service #8:

Assure a competent public health and personal health care workforce

In order to effectively respond to bioterrorism, the entire local public health system must be composed of competent personnel who have undergone training in emergency preparedness and

response procedures. In most communities, it is the role of the local public health agency to make sure that the public health workforce is trained in how to respond to an infectious disease emergency or other public health crisis. However, a 1999 study of local public health officials conducted by NACCHO found that only 5% of local public health agency directors that were surveyed indicated that all appropriate members of their staff had received comprehensive bioterrorism training.⁵ Clearly, there is a need to provide public health workers with information that they will use during a public health emergency. For a bioterrorist event, this information could include background on the local emergency response system, or topical courses on biological agents, symptoms, treatment and containment.

The busy schedules of many involved in the daily practice of public health may preclude an individual's ability to take time to participate in a bioterrorism preparedness training program. However, a number of training programs have been made available through local, state, and federal agencies. Biological response trainings are now offered by many different groups such as the Department of Defense, the Centers for Disease Control and Prevention, some state health departments (often with satellite broadcasts or Webcasts), as well as through in person training sessions in local public health agencies and at professional conferences (see Resources). These are important opportunities for frontline providers of public health services to obtain current information on how to respond to biological events. These trainings are also useful for other public safety providers, such as fire fighters and police officers, who may not be familiar with the functions of their local public health agency during an emergency. Many training opportunities are provided via "distance learning" modalities, such as video and satellite broadcasts and computer-based training (see Resources).

One often neglected aspect of workforce training and competency is the need for emergency responders to make sure that their families will not be exposed to danger while they are at work. Trainings for public health workers should include explicit guidance for assuring staff that their families will be safe before they are required to perform work related activities. In addition, fatigue and exhaustion will most likely hinder the response effort in a jurisdiction experiencing a bioterrorist event. Local preparedness plans should consider including provisions for obtaining back-up personnel, including both public health and medical staff. Adequate response to a public health emergency will require back-up epidemiological staff in addition to back-up healthcare providers. Local plans may consider training staff from neighboring jurisdictions who could be called up to respond to an emergency. Public health officials may need to be creative in how they utilize other first responders, such as police officers

or fire fighters, during a biological event. With their intimate knowledge of a community, police and fire officials may be able to distribute information, assist with door-to-door case investigations, or work with community members who are “worried well.” In addition to paid staff, many communities have lists of volunteers who are willing to help in an emergency situation. Local public health agencies need to consider how or if volunteers can be used and what type of training they may need. Local authorities may consider gathering data on local personnel that may be called as part of a federal or state emergency response (such as National Guard, military reservists, and other response teams).

Enhanced workforce training and the development of specific bioterrorism preparedness competencies are a large part of current federal efforts to improve local public health response capacity. The CDC offers a variety of training and planning materials to support state and local public health agencies for use in bioterrorism preparedness and response efforts. National associations, such as NACCHO and the National Environmental Health Association (NEHA), offer continuing education programs on bioterrorism for public health professionals (see Resources). These efforts, as well as additional program development, will assist in assuring a competent public health workforce that is able to respond effectively during a public health emergency.

In assuring a competent public and personal health care workforce, local public health officials may want to consider:

- Has our agency conducted an assessment of the competencies and training needs of our workforce as they relate to bioterrorism and other public health emergencies? Have our partners in the local public health system conducted an assessment of the competencies and training needs of their workforce?
- Do our agency and its partners have access to training and continuing education opportunities for response personnel? Does our workforce participate?

Essential Service #9:
Evaluate effectiveness, accessibility, and quality of personal and population-based health services

An essential element of bioterrorism preparedness includes an evaluation of the effectiveness, accessibility, and quality of the services described above. Several local public health agencies have undertaken tabletop simulations and field exercises to evalu-

ate their response capacity, and identify needs for capacity improvements. Local public health agencies may want to consider linking their tabletop exercises with local hospital exercises that are required for the Joint Commission on Accreditation of Healthcare Organizations' (JCAHO) hospital accreditation (see Resources). As mentioned in Essential Service #4 and #5 "mobilizing community partnerships to identify and solve health problems," above, these scenarios and tabletops provide the opportunity to not only test readiness plans, they provide the opportunity to work with community partners to clarify expectations and improve working relationships between responders. The DeKalb County Board of Health (Georgia) conducted a successful tabletop exercise in January 2000 that was educational in nature, and was meant to demonstrate the role of public health in responding to a biological event to first responders and the medical community. DeKalb reports that their tabletop exercise led to greater involvement in partnership activities between the Board of Health and local emergency responders.

In addition to conducting tabletop exercises, many local public health agencies have recently completed the Department of Justice's Public Health Performance Assessment for Emergency Preparedness to evaluate their bioterrorism preparedness. For example, the entire state of Tennessee completed the instrument at the county level between July and August 2000. Local teams made up of the Local Emergency Planning Committee from each county and others identified by the county Health Director and the Director of Emergency Management were responsible for completing the instrument. One Tennessee local health district, the East Tennessee Regional Health Office, is currently compiling the assessments from its 15 counties and using their responses to develop a comprehensive response plan.

In planning evaluation and effectiveness activities, local public health officials may consider:

- Has our local public health agency recently organized or participated in a tabletop scenario to assess response readiness and plans? Were our partners in the local public health system involved?
- Does our local public health agency have a plan to continually improve its response plan, and work with our partners in the local public health system to continually improve its effectiveness?

Essential Service #10:

Research for new insights and innovative solutions to health problems

Engaging in research activities is often one of the lower priorities of a busy local public health agency. However, many important innovations to responding to bioterrorism can be developed through research on local public health preparedness activities. Within this service area, local public health agencies may wish to partner with local academic centers, schools of public health, or other associations or organizations conducting research on public health response and preparedness. Local public health agency participation in local, state, regional, and federal research projects assure that local input will be considered and analyzed when research findings are presented and information analyzed.

Including local perspective in research projects is critical to assuring research results are relevant to local public health agencies, and can be used to improve local public health practice. For example an initiative at Columbia University's School of Nursing Center for Health Policy is currently identifying the competencies needed by local public health workers responding to public health emergencies, including bioterrorism. This research initiative is also evaluating the level of staff achievement of the identified competencies in a sample of local public health agencies (See Resources). By participating in this research project, local public health agency directors are helping shape future programs to develop and enhance the existing public health workforce with regards to bioterrorism preparedness. Gathering data on prior public health emergencies will improve local public health agencies' ability to recognize and respond to future events.

In reviewing this Essential Service area, local public health officials may consider:

- Do our local public health agency and our partners in the local public health system conduct or participate in research relating to bioterrorism and other public health emergencies?
- Do our local public health agency and our partners in the local public health system access and share innovative research on public health emergencies?

**Putting the Services into Action:
 Elements of an Effective
 Response Plan**

A comprehensive public health response to a bioterrorist event involves many different parts of the local public health system. Response will require LPHAs to collaborate with many organizations, including those not traditionally considered part of the public health system. Careful consideration of the Essential Services above will allow a local public health system to comprehensively identify local resources and develop effective response plans for their jurisdiction. While not all local public health agencies perform each of the Essential Services, it is important that they assure these services are performed in their jurisdiction. One major lesson learned from reviewing planning documents and gathering the input of many local public health officials is that the time to begin preparing for a bioterrorist event is not during the event itself. Reviewing the Essential Services described herein and using the CDC's Emergency Preparedness assessment tool are useful ways for a local public health agency to prepare their jurisdiction for bioterrorism. In addition, working with community members and other partners in the public health system, such as hospitals, is fundamental to preparing for and responding to a public health emergency, such as bioterrorism. Collaboration will go a long way in preparing for bioterrorism, as well as other public health emergencies.

Preparedness for bioterrorism is not something local public health agencies are used to addressing in their daily practice of public health. However, changing times and new threats require that bioterrorism preparedness become a part of local public health agencies' capacities to keep the communities healthy. While the threat of bioterrorism may be low in a specific jurisdiction, using the Essential Services framework to assess a jurisdiction's preparedness will go a long way in preparing for bioterrorism and other, more routine, public health emergencies such as an unusually bad influenza season, or the public health consequences of a hurricane, flood, or earthquake. The assessment of a jurisdiction's readiness and response capacities is a first step in assuring that all communities are prepared for public health threats of any kind, and that the local public health agency is aware of the major role it will play by protecting and improving the health of the community it serves.

REFERENCES

1. National Association of County and City Health Officials (NACCHO), 1997. *The 1996-1997 National Profile of Local Health Departments Datafile*. NACCHO: Washington, DC.
2. Centers for Disease Control and Prevention, 2000. "Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response. Recommendations of the CDC Strategic Planning Workgroup." *Morbidity and Mortality Weekly Report* (49/RR-4), April 21, 2000.
3. Essential Public Health Services Work Group of the Core Public Health Functions Steering Committee, 1994. "Public Health in America." Washington, DC: U.S. Public Health Service.
4. Institute of Medicine, 1988. *The Future of Public Health*. National Academy Press: Washington, DC.
5. NACCHO, 1998. *Survey of Local Public Health Department's Information Technology Capacity and Bioterrorism Preparedness Dataset*. NACCHO: Washington, DC.

RESOURCE LISTING

General

Centers for Disease Control and Prevention, Bioterrorism Preparedness and Response Program website (www.bt.cdc.gov). The Bioterrorism Preparedness and Response Program website provides information about biological agents, press releases, training, contacts, and other important information dealing with the public health aspects of bioterrorism preparedness and response.

Centers for Disease Control and Prevention. Public Health Emergency Preparedness Assessment Instrument. CDC, Atlanta, GA: 1999. (www.phppo.cdc.gov/dphs/nphpsp/the_instrument.asp). The Public Health Emergency Preparedness Assessment Instrument was developed by the CDC, in collaboration with public health partners, in order to assess the baseline of readiness to respond to the threat of biological, chemical and radiological emergencies. This tool is integrated with the threat assessment tool developed by the FBI and the risk, capabilities, and needs assessment instruments developed for the US Department of Justice. These instruments together form an integrated assessment instrument for state and local jurisdictions.

National Public Health Performance Standards Program (www.phppo.cdc.gov/dphs/nphpsp/). The National Public Health Performance Standards Program (NPHSP) is a partnership effort to: 1) develop performance standards for public health practice as defined by the Essential Services of Public Health, 2) collect and analyze performance data, and 3) improve system-wide performance. Comprehensive performance measurement tools for the assessment of public health practice at both the state and local levels are being designed in partnership with other national public health organizations.

ESSENTIAL SERVICE # 1 :

Monitor health status to identify community health problems

Health Alert Network

(www.phppo.gov/han/). The Health Alert Network is a nationwide, integrated information and communications system serving as a platform for national disease surveillance, epidemiologic investigation, training, electronic laboratory reporting and rapid communication.

New York City West Nile Virus Surveillance and Control Program

(www.ci.nyc.ny.us/html/doh/html/wnv/wnvhome.html). This document details the City's plan to detect arthropod-borne diseases before human infections occur so that control efforts can be targeted, effective, and limited in scope. The DOH has worked closely with the CDC, and New York City agencies, including the Mayor's Office of Emergency Management and the Departments of Environmental Protection, Parks and Recreation, and Sanitation, along with other partners, to develop a plan that meets the specific needs of New York City.

Centers for Disease Control and Prevention, Epidemiology Program Office

(www.cdc.gov/epo). The role of the Epidemiology Program Office is to strengthen the public health system by coordinating public health surveillance at CDC and providing domestic and international support through scientific communications, statistical and epidemiologic consultation, and training of experts in surveillance, epidemiology, applied public health, and prevention effectiveness.

Texas Department of Health Investigation and Differential Diagnosis Tool

(www.tdh.state.tx.us/bioterrorism/tools.htm). The Texas Department of Health has created an Investigation of Air-dispersed Pulmonary Agents worksheet, which can be used to aid in the determination of possibly expose to those biological exposures most likely to be used in a bioterrorist attack. The worksheet includes a section on patient signs and symptoms, lab results, epidemiology and patient activities, such as work location and travel history.

ESSENTIAL SERVICE # 2 :

Diagnose and investigate health problems and health hazards in the community

Association of Public Health Laboratories

(www.aphl.org). The mission of APHL is to promote the role of public health laboratories in support of national and global objectives, and to promote policies and programs that assure continuous improvement in the quality of laboratory practices.

Chin, James. Control of Communicable Diseases Manual. American Public Health Association: 2000.

(www.apha.org/media/science.htm). The most recent 17th edition consists of up-to-date information on infectious disease and

epidemiologic data as well as measures for control and prevention of most contagious diseases. With this edition, bioterrorism measures have been added to enhance the discussion of disaster implications and international measures. This book is truly a resource to be utilized by many interested in public health, including disaster management personnel, law enforcement and healthcare personnel who have the potential to deal with bioterrorism, and those healthcare providers who must comply with surveillance and reporting requirements for notifiable, communicable diseases.

Fraser, Michael R. and Zarnaaz Rauf. Centers for Public Health Preparedness Year One Report. NACCHO: 2000. (www.naccho.org/PROJECT63.htm). The Centers for Public Health Preparedness project was developed to create models for implementing information technology and training in support of bioterrorism preparedness and emergency response. The three Centers include the DeKalb County Board of Health (Georgia), the Denver Public Health Department/Denver Health (Colorado), and the Monroe County Health Department (New York).

The Journal of the American Medical Society (www.jama.ama-assn.org/). The Journal of the American Medical Society contains three consensus-based recommendations for measures to be taken by medical and public health professionals following the use of anthrax, plague, or smallpox as a biological weapon against a civilian population, including "Smallpox as a Biological Weapon: Medical and Public Health Management," "Anthrax as a Biological Weapon: Medical and Public Health Management," and "Plague as a Biological Weapon: Medical and Public Health Management."

Kumar, C. Firepower in the Lab: Automation in the Fight Against Infectious Diseases and Bioterrorism. Washington, DC: National Academy Press, 2000.

(www.nationalacademies.org/publications/). Firepower in the Lab examines how the nation can combat infectious diseases, contamination of food and water, and bioattacks (biowarfare or bioterrorism) by improving our ability to detect, measure, and monitor harmful biological agents.

National Electronic Disease Surveillance System (NEDSS). (www.cdc.gov/od/hissb/act_int.htm). The vision of NEDSS is a complementary electronic information systems that automatically gathers health data from a variety of sources on a real-time basis; facilitate the monitoring of the health of communities; assist in the ongoing analysis of trends and detection of emerging public health problems; and, provide information for setting public

health policy. For more information on the current state of NEDSS, contact NACCHO's NEDSS Program Associate at (202) 783-5550.

Epi-X – The Epidemic Information Exchange. Contact: The Epi-X Program at the CDC's Epidemiology Program Office, Office of Scientific and Health Communications, (404) 639-3636. The development of Epi-X began in October 1999 as a web-based communication tool to rapidly notify federal, state, and local health officials about emerging health threats as they were identified, investigated, and reported. The system also functions as a news source for health officials about public health emergencies and outbreaks. Contact the Epi-X Program for the latest information.

ESSENTIAL SERVICE # 3 :
Inform, educate, and empower people about health issues

Association of State and Territorial Directors of Health Promotion and Public Health Education. Model emergency Response Communications Plan for Infectious Disease Outbreaks and Bioterrorist Events. ASTDHPPE, Washington, DC: 2000.

(www.astdhppe.org). The Model Emergency Response Communications Plan was developed by a group of state and national experts, all in engaged in promoting or preserving the public health. The Plan provides a framework for communications among public health officials, between health officials and other emergency response players, and directly to the public and media.

Centers for Disease Control and Prevention Biological Agents (www.bt.cdc.gov/bioagents.asp). This site provides case definitions and fact sheets, developed by the Centers for Disease Control and Prevention, for specific biological agents, including Anthrax, Botulinum Toxins, Brucellosis, Plague, Tularemia, and agents causing viral hemorrhagic fevers.

Interim Recommended Notification Procedures for Local and State Public Health Department Leaders in the Event of a Bioterrorist Incident

(www.bt.cdc.gov/protocols.asp) The Interim Recommended Notification Procedures for Local and State Public Health Department Leaders in the Event of a Bioterrorist Incident is a schema meant for use by local public health leaders who identify or suspect a bioterrorist incident in their community. It should be incorporated into a local communications plan for bioterrorism. For simplicity, the term "Local Health Officer" is used in this

schema. However, depending on the structure, size, and complexity of the local public health agency, this person might be the Administrator, Environmental Health Director, Chief Epidemiologist, or some other professional in an officially designated leadership role.

John Hopkins University School for Public Health and Hygiene, Center for Civilian Biodefense Studies

(www.hopkins-biodefense.org). The Centers role is to increase national and international awareness of the medical and public health threats posed by biological weapons, thereby augmenting the potential legal, political and moral prohibitions against their use.

Centers for Disease Control, National Center for Infectious Diseases (www.cdc.gov/ncidod/index.htm). The mission of NCID is to prevent illness, disability, and death caused by infectious diseases in the United States and around the world. NCID accomplishes its mission by conducting surveillance, epidemic investigations, epidemiologic and laboratory research, training, and public education programs to develop, evaluate, and promote prevention and control strategies for infectious diseases.

United States Army Institute of Infectious Disease. Biological Informational Papers.

(www.nbcmed.org/SiteContent/MedRef/OnlineRef/GovDocs/BioAgents.html). Presented by the US Army Institute of Infectious Diseases. Contains information on potential BW agents, including Agent Description, Signs and Symptoms, Diagnosis, Treatment, Prophylaxis, Decontamination and Isolation, and Outbreak Control.

United States Army Solider and Biological Chemical Command (SBCCOM).

(www.dp.sbccom.army.mil). The U.S. Army Soldier and Biological Chemical Command provides support in three main areas of defense: research, development and acquisition; emergency preparedness and response; and safe, secure chemical weapons storage, remediation and demilitarization. SBCCOM provides defense capabilities by fostering partnerships with communities, industry and other government agencies in developing and implementing soldier, chemical, and biological defense systems to ensure maximum protection for the United States. Training and background materials are available on the SBCCOM website.

ESSENTIAL SERVICE # 4 :

Mobilize community partnerships to identify and solve health problems

The Federal Response Plan

(www.fema.gov/r-n-r/frp/). The Federal Response Plan (FRP) provides the mechanism for coordinating delivery of Federal assistance and resources to augment efforts of State and local governments overwhelmed by a major disaster or emergency. The plan also includes a terrorism annex. The purpose of this annex is to ensure that the FRP is adequate to respond to the consequences of terrorism within the United States, including terrorism involving weapons of mass destruction (WMD). Disaster Response – Principles of Preparation and Collaboration (<http://www.coe.dhma.org/dr/flash.htm>). This website is based on the book of the same name written by Erik Auf der Heide, which shows the recurrent problems that exist with the delivery of disaster care. This website will be updated frequently and new chapters added to cover many of the important topics that were not included in the original version.

Metropolitan Washington Council of Governments

(www.mwcog.org). The Metropolitan Council of Governments is a regional organization of Washington area local governments. COG is composed of 17 local governments surrounding our nation's capital, plus area members of the Maryland and Virginia legislatures, the U.S. Senate, and the U.S. House of Representatives. COG provides a focus for action and develops sound regional responses to such issues as the environment, affordable housing, economic development, health and family concerns, human services, population growth, public safety, and transportation.

Department of Justice, National Domestic Preparedness Office

(www.ndpo.gov). The National Domestic Preparedness Office coordinates all federal efforts, including those of the Department of Defense, Federal Emergency Management Agency, Department of Health and Human Services, Department of Energy, and the Environmental Protection Agency, to assist state and local first responders with planning, training, equipment, and exercise necessary to respond to a conventional or non-conventional WMD incident.

Presidential Decision Directive 39

(www.fas.org/irp/offdocs/pdd39_frp.htm). In June 1995, the White House issued Presidential Decision Directive 39 (PDD-39), "United States Policy on Counterterrorism." PDD-39 directed a

number of measures to reduce the Nation's vulnerability to terrorism, to deter and respond to terrorist acts, and to strengthen capabilities to prevent and manage the consequences of terrorist use of nuclear, biological, and chemical (NBC) weapons including weapons of mass destruction (WMD). PDD-39 discusses crisis management and consequence management.

ESSENTIAL SERVICE # 5 :

Develop policies and plans that support individual and community health efforts

Centers for Disease Control and Prevention. National Pharmaceutical Stockpile (NPS) Program.

Contact: The National Pharmaceutical Stockpile Program, (770) 488-7516. The mission of CDC's National Pharmaceutical Stockpile (NPS) Program is to ensure the availability of life-saving pharmaceuticals, antidotes and other medical supplies and equipment necessary to counter the effects of nerve agents, biological pathogens and chemical agents. It is important that local public health officials integrate their Stockpile planning with their state health department to identify how they will receive, organize and use the Stockpile resources during an emergency. The NPS Program stands ready for immediate deployment to any U.S. location in the event of a terrorist attack using a biological, toxin or chemical agent directed against a civilian population.

Centers for Disease Control. Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response. Morbidity, Mortality Weekly Report 49(RR04): 1-14.

(www.cdc.gov/epo/mmwr/preview/mmwrhtml/rr4904a1.htm). In partnership with representatives from local and state health departments, other federal agencies, and medical and public health professional associations, CDC has developed a strategic plan to address the deliberate dissemination of biological or chemical agents. The plan contains recommendations to reduce U.S. vulnerability to biological and chemical terrorism—preparedness planning, detection and surveillance, laboratory analysis, emergency response, and communication systems.

English J, Cundiff M, Malone J, Pfeiffer J, Bell M, Stelle L, and Miller J. Bioterrorism Readiness Plan: A Template for Healthcare Facilities. Association of Professionals in Infection Control, Washington, DC: 1999.

(www.apic.org/html/resc/biomain.html). The Bioterrorism Readiness Plan: A Template for Healthcare Facilities outlines the steps necessary for responding to the biological agents most like-

ly to be employed in any future biological attack: smallpox, botulism toxin, anthrax, and plague. The Bioterrorism Readiness Plan provides information on the unique characteristics, specific recommendations, management, and follow-up appropriate for each of these biological agents.

Florida Department of Health Emergency Plan

(www.doh.state.fl.us). The Florida Department of Health (DOH) has been designated as the lead state agency for ESF8 and, in this capacity coordinates the State's health, medical and limited social service assets in the event of a major natural (or man-made) disaster. To accomplish this goal ESF8 oversees the emergency management functions of preparedness, recovery, mitigation and response with all agencies and organizations that carry out health or medical services.

Metropolitan Washington Council of Governments. West Nile Virus Response Plan. MWCOG: June, 2000.

(www.mwcog.org/hspps/westnile.pdf). This plan outlines activities and resources suitable for implementing a response to the threat of a West Nile Virus outbreak in a locality. It supplements the state response plans developed in Maryland and Virginia and is closely dependent upon the central coordination of the state procedures and resources defined in those documents. Where those plans may be viewed as more global in nature, this plan may be seen as a day-to-day working document that identifies various specific programs of monitoring, vector elimination, education, and local coordination.

National Emergency Management Association

(www.nemaweb.org). NEMA is the professional association of state and pacific Caribbean insular state emergency management directors committed to providing national leadership and expertise in comprehensive emergency management, serving as a vital information and assistance resource for state and territorial directors and their governors, and forging strategic partnerships to advance continuous improvements in emergency management.

Centers for Disease Control and Prevention, National Center for Environmental Health

(www.cdc.gov/nceh). The NCEH conducts research in the laboratory and in the field to investigate the effects of the environment on health. NCEH staff tracks and evaluates environment-related health problems through surveillance systems. The NCEH also helps domestic and international agencies and organizations prepare for and respond to natural, technologic, humanitarian, and terrorism-related environmental emergencies.

Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health

(www.cdc.gov/niosh/homepage.html). NIOSH is responsible for conducting research on the full scope of occupational disease and injury ranging from lung disease in miners to carpal tunnel syndrome in computer users. In addition to conducting research, NIOSH investigates potentially hazardous working conditions when requested by employers or employees, makes recommendations and disseminates information on preventing workplace disease, injury, and disability, and provides training to occupational safety and health professionals.

Ohio Department of Health Guidelines: Threatened Human Biologic Incident.

(www.odh.state.oh.us/resources/facts1.htm). Ohio has seen a range of responses to biologic incidents. While capabilities and responsibilities of agencies differ across localities, some minimum responsibilities are definable. This document provides recommended guidance and minimum responsibilities in responding to an overt human biologic incident.

Office of Emergency Preparedness

(www.ndms.dhhs.gov/). OEP is an office within the U.S. Department of Health and Human Services and has the Departmental responsibility for managing and coordinating Federal health, medical, and health related social services and recovery to major emergencies and Federally declared disasters including natural disasters, technological disasters, major transportation accidents, and terrorism.

Sherburne County Public Health Tri-county Public Health Disasters Annex

(www.co.sherburne.mn.us/publichealth/health.htm). The Tri-county Public Health Disasters Annex provides an overview of how the public health care needs of the Stearns, Sherburne and Benton County residents would be met in case of a major public health disaster.

United States Army Medical Research Institute of Infectious Disease. Medical Management of Biological Casualties Handbook, July 1998.

(www.nbcmed.org/SiteContent/MedRef/OnlineRef/FieldManuals/medman/Handbook.htm). Includes an overview and information on the history and significance, clinical features, diagnosis, medical management, and prophylaxis of various biological weapons agents. Also, comparative lethality of selected toxins, aerosol toxicity, biological weapons agent characteristics and medical sample collection for biological threat agents.

United States Department of Health and Human Services. Metropolitan Medical Response System Field Operations Guide. DHHS, Washington, DC: 1998. (www.ndms.dhhs.gov/CT_Program/Response_Planning/response_planning.html). The Field Guide is designed for first responders to assist in preparing for a medical response to a WMD incident. This book contains position descriptions and duties for each of the major sectors in a WMD response including: field medical operations, hazardous materials operations, hospital operations, medical information, law enforcement, logistics and equipment.

Department of Defense. Interim Planning Guide: Improving Local and State Agency Response to Terrorist Incidents Involving Biological Weapons. Nunn-Lugar-Domenici Domestic Preparedness Program, Washington, D.C.: August 2000. This document presents an integrated, multi-agency, local, state, and federal effort to improve domestic preparedness for a bioterrorist event. For planning and other assistance, contact the Domestic Preparedness helpline at (800) 368-6498.

ESSENTIAL SERVICE # 6 :
 Enforce laws and regulations that protect health and ensure safety

Grad, Frank. The Public Health Law Manual (Second Edition). Washington, DC: American Public Health Association, 1990. **Colorado House Bill 1077 – the Governor’s Expert Emergency Epidemic Response Committee** (www.leg.state.co.us/pubhome.nsf). The bill outlines the creation of the Governor’s Expert Emergency Epidemic Response Committee, including its members, duties, responsibilities, and circumstances under which the committee convenes. Tucker, Jonathan. *Policy Approaches to Chemical and Biological Terrorism*, in Brad Roberts, ed., *Terrorism with Chemical and Biological Weapons*. Alexandria, VA: Chemical and Biological Arms Control Institute, 1997.

Biological Weapons Anti-Terrorism Act of 1989. (www.fas.org/bwc/bwc.htm). The act states: Whoever knowingly develops, produces, stockpiles, transfers, acquires, retains, or possesses any biological agent, toxin, or delivery system for use as a weapon, or knowingly assists a foreign state or any organization to do so, shall be fined under this title or imprisoned for life or any terms of years, or both.

ESSENTIAL SERVICE # 7 :
 Link people to needed personal health services and assure the provision of healthcare when otherwise unavailable.

American Hospital Association (www.aha.org). The American Hospital Association (AHA) is the national organization that represents and serves all types of hospitals, health care networks, and their patients and communities. AHA leads, represents, and serves health care provider organizations that are accountable to the community and committed to health improvement.

American Medical Association (www.ama-assn.org). The AMA's work includes the development and promotion of standards in medical practice, research, and education; strong advocacy agenda on behalf of patients and physicians; and the commitment to providing timely information on matters important to the health of America

American Red Cross Disaster Services (www.redcross.org/disaster/overview). The mission of American Red Cross Disaster Services is to ensure nationwide disaster planning, preparedness, community disaster education, mitigation, and response that will provide the American people with quality services. The American Red Cross responds to disasters such as hurricanes, floods, earthquakes, and fires or other situations that cause human suffering or create human needs that those affected cannot alleviate without assistance.

U.S. Army Medical Research Institute of Infectious Disease. *Medical Management of Biological Casualties Handbook*, July 1998. (www.vnh.org/BIOCASU/toc.html). The purpose for this handbook is to serve as a small and concise manual for medical personnel. It is to be used as a guide to medical prophylaxis and management of biological casualties. It is designed as a quick reference and overview, and is not intended as a definitive text on the medical management of biological casualties.

Essential Service #8:

Assure a competent public health and personal health care workforce.

American Public Health Association

(www.apha.org). APHA actively serves the public, its members, and the public health profession through its scientific and practice programs, publications, annual meeting, awards programs, educational services, and advocacy efforts.

Association of School of Public Health

(www.asph.org). The Association of Schools of Public Health (ASPH) is the only national organization representing the deans, faculty and students of the accredited member schools of public health and other programs seeking accreditation as schools of public health. ASPH assumes a variety of functions, including: providing a focus and a platform for the enhancement of existing and emerging academic public health programs; working with various agencies of the federal government on projects aimed at strengthening public health education and the public health profession.

Local Public Health Competency for Emergency Response.

Columbia University School of Nursing Center for Health Policy (www.cpmcnet.columbia.edu/dept/nursing/chpshr/ERMain.html). The purpose of this effort is to demonstrate a model approach that can be used to identify essential public health service competencies needed in any single program area. The specific program area being used in this demonstration is public health emergency response (including response to bio-terrorism). The project involves two major aims, identification of competencies and measurement of competency level in public health agencies.

National Association of County and City Health Officials

(www.naccho.org). NACCHO is a nonprofit membership organization serving all of the nearly 3,000 local health departments nationwide. NACCHO provides education, information, research, and technical assistance to local health departments and facilitates partnerships among local, state, and federal agencies in order to promote and strengthen public health.

National Environmental Health Association

(www.neha.org). The mission of the National Environmental Health Association is to advance the environmental health and protection professional for the purpose of providing a healthful environment for all. NEHA offers a variety of programs, including continuing education credits.

Public Health Training Network

(www.cdc.gov/phtn/). The Public Health Training Network (PHTN) is a distance learning system, which uses a variety of instructional media ranging from print-based to videotape and multimedia to meet the training needs of the public health workforce nationwide.

TrainingFinder.org

(www.trainingfinder.org). This site allows public health professionals of all disciplines can search the most comprehensive database of distance learning opportunities. The site provides information to assess and meet the development needs of the public health workforce, while further advancing state-of-the-art training and utilization of public health competencies.

Essential Service #9:

Evaluate effectiveness, accessibility, and quality of personal and population-based health services

Centers for Disease Control and Prevention. Public Health Performance Assessment Instrument for Emergency Preparedness. CDC, Atlanta, GA: 1999.

(www.phppo.cdc.gov/dphs/nphpsp/the_instrument.asp). The Public Health Emergency Preparedness Assessment Instrument was developed by the CDC, in collaboration with public health partners, in order to assess the baseline of readiness to respond to the threat of biological, chemical and radiological emergencies. This tool is integrated with the threat assessment tool developed by the FBI and the risk, capabilities, and needs assessment instruments developed for the US Department of Justice. These instruments together form an integrated assessment instrument for state and local jurisdictions.

Centers for Disease Control and Prevention. Framework for Program Evaluation in Public Health. CDC, Atlanta, GA: 1999

(www.cdc.gov/epo/mmwr/preview/mmwrhtml/rr4811a1.htm). The framework guides public health professionals in their use of program evaluation. It is a practical, nonprescriptive tool, designed to summarize and organize essential elements of program evaluation. The framework comprises steps in program evaluation practice and standards for effective program evaluation. Adhering to the steps and standards of this framework will allow an understanding of each program's context and will improve how program evaluations are conceived and conducted.

The Joint Commission for Accreditation of Healthcare Organizations.

(<http://www.jcaho.org>). The Joint Commission is committed to improving safety for patients in health care organizations. This commitment is inherent in its mission to continuously improve the safety and quality of care provided to the public through the provision of health care accreditation and related services that support performance improvement in health care organizations.

University of Ottawa, Program Evaluation Toolkit.

(www.uottawa.ca/academic/med/epid/toolkit.htm). The Tool Kit is a practical, five-step guide to planning, doing, and using evaluation. It is presented in a series of short modules with simple explanations and specific tools. The Program Evaluation Tool Kit is tailored specifically to the information and decision-making needs of managers of public health programs. It will also be useful for front-line field staff, medical officers of health and other senior managers, plus anyone assisting with evaluation, such as health unit program evaluation specialists, epidemiologists, community nurse specialists, health planners, information analysts or outside consultants.

Essential Service #10:

Research for new insights and innovative solutions to health problems

Centers for Disease Control and Prevention. Public Health Emergency Preparedness Assessment Instrument. CDC, Atlanta, GA: 1999.

(www.phppo.cdc.gov/dphs/nphpsp/the_instrument.asp). The Public Health Emergency Preparedness Assessment Instrument was developed by the CDC, in collaboration with public health partners, in order to assess the baseline of readiness to respond to the threat of biological, chemical and radiological emergencies. This tool is integrated with the threat assessment tool developed by the FBI and the risk, capabilities, and needs assessment instruments developed for the US Department of Justice. These instruments together form an integrated assessment instrument for state and local jurisdictions.

Centers for Disease Control and Prevention/Agency for Toxic Substances Disease Registry Workforce Development Initiative.

Current efforts to develop a national action agenda for public health workforce development are being coordinated by CDC/ATSDR. For more information, contact the Center for Disease Control and Prevention's Public Health Practice Office, Office of Workforce Development at (770) 488-2480.

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