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**SBCCOM BIOLOGICAL WARFARE
IMPROVED RESPONSE PROGRAM**



NDPO/DoD

Criminal and Epidemiological Investigation Report

Held on January 19-21, 2000

DTIC/SBCCOM
SPO700-00-D-3180

Public Release Version

FINAL REPORT

of the

Biological Warfare Improved Response Program (BW-IRP)
NDPO/DoD Criminal and Epidemiological Investigation Workshop
January 19-21, 2000

to

U.S. Army Soldier and Biological Chemical Command (SBCCOM)

December 2000

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1. INTRODUCTION

In response to growing concerns about domestic terrorism, the 104th Congress enacted legislation in Public Law 104-201, the National Defense Authorization Act for Fiscal Year 1997, to help prepare the United States for a potential terrorist incident. The legislation contained two principal provisions. First, it allocated funding to train first responders to respond to incidents involving weapons of mass destruction (WMD). Additionally, the legislation required that the Secretary of Defense develop and execute a program for testing and improving federal, state and local agency responses to incidents involving biological, chemical, and radiological weapons. As a result, the US Army Soldier and Biological Chemical Command (SBCCOM) was designated the lead agent for Department of Defense and was charged with establishing and implementing these programs. In response to the latter element of the legislation, SBCCOM established the Biological Warfare (BW) Improved Response Program (IRP) in partnership with other federal agencies.

The BW-IRP is a multi-year program designed to identify, evaluate, and demonstrate the best practical approaches to improving BW domestic preparedness. A multi-agency team consisting of over 60 experienced emergency responders, managers, and technical experts from federal, state, and local agencies from around the nation were assembled to execute the program. The primary products from the BW-IRP effort to date include a BW response plan (template), a decision tree, and a prioritized list of response gaps and improvement concepts. The template and the decision tree are being evaluated by a series of local workshops at three cities to determine their applicability and scalability to varying locations and demographics. Additionally, another set of workshops is being used to evaluate the most pressing gaps to determine ways to bridge requirements with technology and improve communications throughout the regulatory and response communities.

Local, state and federal officials will employ a variety of response activities following a bioterrorist incident. Many of the activities will occur in tandem and require large numbers of physical and personnel resources. Two such activities include the criminal and epidemiological investigations. The law enforcement community will conduct its criminal investigation with the intent of identifying, apprehending and prosecuting the perpetrator(s). Also, the medical/public health community will conduct its epidemiological investigation to identify and control the disease outbreak. While these investigations may occur simultaneously, the information is not necessarily shared between the two communities.

The BW-IRP participants determined that there is a gap in the coordination and cooperation between the criminal and epidemiological investigations that would take place following an actual bioterrorist incident. The law enforcement community and the medical/public health community typically conduct their investigations separately and independently. As a result, information that may benefit one or both investigations is not obtained or exchanged. In an effort to close this gap, SBCCOM teamed with the National Domestic Preparedness Office (NDPO) to sponsor a workshop in January 2000. The stated goal of the workshop was:

“To identify methods to establish information-sharing relationships between the law enforcement community and the medical/public health community, at all levels of government; to ensure the timely exchange of critical information; and to rapidly identify a terrorist incident involving biological agents. These relationships should build upon existing policies and procedures whenever possible and establish new mechanisms when necessary.”

Both SBCCOM and NDPO recognized that the need to improve coordination and information sharing between the two investigations is an area of concern for most jurisdictions. Therefore, they assembled a panel of law enforcement and medical/public health professionals to identify potential solutions to this problem. This report is a product of the panel’s discussions and is intended to assist the law enforcement and medical/public health communities in resolving the coordination problem. The contents of this report should not be viewed as policy directives for the law enforcement and medical/public health communities, but rather as recommendations and guidance. More importantly, NDPO and SBCCOM hope this report will help the two communities understand one another and foster a stronger working relationship, thereby improving a jurisdiction’s response to a variety of emergency situations, as well as biological incidents.

This report is divided into three primary sections. The first section discusses the process used to arrive at the conclusions in this report. The second section briefly discusses the core issues that drove the discussions among the respective panelists. The final section contains the panelists’ conclusions and suggestions to facilitate improved coordination between the law enforcement and the medical/public health communities. The conclusion addresses four key areas:

1. **WHAT** – What information is necessary for each investigation?
2. **WHO/WHEN** – Who gets this information? When should the individual or group get the information?
3. **HOW** – Understanding that there are barriers to free exchange of some information, how can the law enforcement and medical/public health communities work to improve the exchange?
4. **DECISIONS** – What are the critical decision points in each investigation?

2. WORKSHOP PROCESS

The Workshop convened a group of more than 40 law enforcement and medical/public health professionals (see [Appendix 1](#)) from across the country. To attempt to span the diverse perspectives within each community, individuals from local, state, and federal agencies were asked to participate in the workshop process. The medical/public health community representatives included emergency room physicians, nurses, public health directors, and epidemiologists. The law enforcement community included representatives from city and county police/sheriff's departments, as well as the Federal Bureau of Investigation (FBI) and the Capitol Police.

The Workshop process utilized two phases: briefings and breakout groups. First, the participants listened to a series of briefings concerning the investigative process for the law enforcement and the medical/public health communities, including local and federal perspectives. These briefings were intended to help foster an understanding of the unique aspects of the respective investigations, identify similarities, and enable the two groups of participants to approach the breakout groups from a common point of reference. Additionally, the participants were provided with a hypothetical biological incident scenario (see [Appendix 2](#)) that was designed to highlight potential issues with the coordination of the two investigations. The scenario provided a reference point for the workshop participants to discuss the coordination issues. It was not designed to exercise their response to the incident.

The Workshop used the breakout groups to identify potential solutions to resolving the complications of integrating criminal and epidemiological investigations. The breakout groups were first divided into integrated teams consisting of both law enforcement and medical/public health professionals. They were asked to address a series of objectives (see [Appendix 3](#)) in three principal areas: what, who/when, and how. The first group was asked to identify a basic list of questions that each community could ask, through the course of their investigations, to assist the other community. The second group provided insights into who should receive that information and when in the investigation they should receive it. The third group addressed issues involving "sensitive" information and how to foster an exchange of this information. Once the groups had completed these tasks, the participants reconvened as a single group to identify the key decision points in each of the investigations.

3. ISSUES OF CONCERN

Part of the solution to improving the coordination between the criminal and epidemiological investigations is recognizing that the goals of each investigation are different. The law enforcement community first seeks to prevent a criminal act and then apprehend and prosecute the offender(s). The medical/public health community seeks to prevent a disease outbreak and then limit mortality and morbidity and minimize the spread of the infectious agent. The processes that the law enforcement and medical/public health communities use to meet their goals are not unique. The barriers to effective coordination arise from the desired end goals and the types of information generated from the two investigations, an issue that will be discussed in greater detail later.

The breakout groups began their discussions assuming that some aspects of the two groups' investigations are similar even though their goals are different. Two key issues arose. First, the timely exchange of information was critical to both communities. Before a confirmed diagnosis or before the suspicion or confirmation of a criminal act, there was a great deal of contention over when the law enforcement community and the medical/public health community should provide information to one another. An early exchange of information may prevent the escape of a criminal or the additional spread of an infectious agent, thus achieving the goals of each group. Despite this fact, a greater exchange of information seemed likely only after a diagnosis or criminal act is confirmed. In one instance, the law enforcement community was concerned that the disclosure of information might reveal sources and methods, thus exposing confidential sources to bodily harm. Similarly, the medical/public health community was concerned that law enforcement access to individual medical records would jeopardize the reporting and sharing of confidential data between patients and physicians. Loss of this information would have a significant impact on the medical/public health community's ability to detect, respond, and control all diseases.

Related to the issue of when to exchange information is the concern of knowing what elements should prompt the law enforcement and the medical public/health communities to contact one another. Each community needs some guidance as to what would prompt it to provide information to the other. Without this guidance, the law enforcement and medical/public health communities could become inundated with data, and critical information would be missed and/or too little information would be exchanged. Regardless, both of these factors could lead to the failure of one or both of the investigations.

4. WHAT INFORMATION IS NEEDED – JOINT INVESTIGATIVE INFORMATION

Objectives

The effective use of all resources during a mass casualty incident will be critical to an efficient and appropriate response. The use of biological agents in a terrorist attack is likely to stretch a jurisdiction's resources to the limit. Both law enforcement and medical/public health communities will be tasked with a variety of duties, including their respective investigations. Accordingly, it is important to maximize the use of all available resources. The Workshop participants were asked to develop a list of the types of information or questions that each group could obtain for the other while conducting their respective investigations. Medical/public health personnel could obtain and provide information from their epidemiological investigation to benefit a criminal investigation. Conversely, the law enforcement community could provide data that would benefit an epidemiological investigation. The identified information may be data that is currently collected or may be additional information that must be collected.

It is acknowledged that both communities must conduct their own detailed interviews and investigations. The objective of this approach is to maximize the use of limited personnel resources without compromising either investigation. The recommended approach calls for providing each community with a list of general questions that they can ask to aid the other's investigation. This approach minimizes the need to interview the same people, at separate times, to obtain general information for the criminal and the epidemiological investigations. It is important to note that obtaining this information **does not** eliminate the need for either law enforcement or medical/public health personnel to conduct their own interviews with some of these subjects, especially detailed follow-up interviews. The intent is for each community to provide assistance to the other to narrow the focus of each investigation. As an example, the criminal and epidemiological investigators may have a pool of 100 people to interview and each group interviews 50 of the 100. The law enforcement personnel obtain information that indicates, to the medical/public health personnel, that 30 of the 50 require follow-up interviews to obtain more detailed information, while the remaining 20 provided information that is irrelevant or does not require follow-up. Also, assume that the same number of individuals is identified through the medical public health interviews for the law enforcement community. As a result, each group has provided information that eliminates 20 potential interviewees for the other group. Developing the joint list of information may help each group obtain data that allows the other to focus only on those individuals important to its own investigations.

Variations in Investigative Techniques

The law enforcement community and the medical public health community ask a variety of detailed questions to conduct their investigations. However, each community requires its own special set/type of questions to obtain the necessary information to conduct their respective investigations. More importantly, according to discussions in the Workshop, the process used in each investigation to arrive at specific conclusions requires different investigative techniques that are unique to the criminal or epidemiological investigation. Criminal investigators accumulate information from a variety of sources that could potentially develop into a lead. Law enforcement personnel use deductive reasoning based on individual data points to piece together

their investigation and arrive at their conclusions. Hence, any information from the medical/public health community could potentially be the piece that breaks open the investigation.

Conversely, the epidemiological investigation usually relies upon the accumulation and aggregate analysis of large quantities of data. No single data point is used to arrive at the conclusion of the investigation. Outbreak control depends upon the analysis of data derived from clinical evaluation and laboratory studies, contact studies with correlated clinical and/or laboratory studies and statistical analysis, and interventions designed to limit further exposure. These elements of outbreak control reduce the likelihood of illness from exposure and allow treatment of the disease early in the process. Trained medical/public health personnel must obtain most of the detailed data required by that community. However, the law enforcement community can help the medical/public health community focus its investigation with the information identified below.

Questions & Information: Medical/Public Health-Related Questions for Law Enforcement Personnel to Ask

[Table 1](#) lists information identified by the medical/public health community that could be obtained during a criminal investigation to aid the epidemiological investigation. The following paragraphs describe the general relevance of the questions contained in [Table 1](#).

Personal/Family Health Information. Information in this section may help the medical/public health community gain an initial impression about the extent of the outbreak.

Activities Information. These questions are designed to identify the potential point of origin for the infectious agent. Identifying victim or witness activities also provides information about the potential spread and dispersion of the infectious agent and the potential for secondary spread if the agent is communicable.

Agent Dissemination Information. Information in this section can assist investigators in determining whether or not illnesses are a product of a naturally occurring outbreak, or if they are the result of an intentional release. Identification of dissemination devices, affected animals, or unusual tastes and odors may aid in the identification of the agent.

Personnel Safety Information. This information helps ensure that criminal investigators take the necessary precautions to protect themselves while conducting their investigation.

Epidemiological Investigation Information. The answers to these questions are designed to ensure the law enforcement community is providing the epidemiological investigation information to the appropriate people.

Table 1: Questions and Information – Medical/Public Health-Related Questions for Law Enforcement Personnel to Ask

<p><u>Personal/Family Health Information*</u></p> <ul style="list-style-type: none"> • What do you think made you ill? • When (date/time of onset) did you start feeling sick? • Do you know of anyone else who has become ill or died – e.g., family, coworkers, etc.? • Have you had any medical treatment in the last month? What is the name of the healthcare provider? Where were you treated? • Do you have any allergies to medications?
<p><u>Activities Information*</u></p> <ul style="list-style-type: none"> • Where do you live and work/go to school? • Did you attend a public event – i.e., sporting event, social function, visit a restaurant, etc.? • Have you or your family members traveled more than 50 miles in the last 30 days? • Have you or your family members had any contact with individuals who had been in another country in the last 30 days?
<p><u>Agent Dissemination Information*</u></p> <ul style="list-style-type: none"> • Did you see an unusual device or anyone spraying something? • Have you detected any unusual odors or tastes? • Have you noticed any sick or dead animals? • Was there any potential dispersal devices/laboratory equipment/suspicious activities?
<p><u>Medical Information†</u></p> <ul style="list-style-type: none"> • Is the victim's disease contagious? • When did the victim first seek treatment for the illness? • What are the laboratory results? • Who collected, tested, analyzed, and had access to the samples?
<p><u>Personnel Safety Information†</u></p> <ul style="list-style-type: none"> • What precautions should criminal investigators take? • What physical protection from the disease/agent is needed? • Is the agent communicable by person-to-person exposure? How is the disease spread?
<p><u>Epidemiological Investigation Information†</u></p> <ul style="list-style-type: none"> • Who is the point of contact in the medical/public health community? • Where should the sick be referred? • What makes this case suspect? • What is the spectrum of illness the law enforcement community could be seeing – case definition?

*Questions the law enforcement investigator would ask potential victims and witnesses.

†Questions the law enforcement investigator would ask medical/public health personnel.

Questions & Information: Law Enforcement-Related Questions for Medical/Public Health Personnel to Ask

Table 2 lists information identified by the law enforcement community that the medical/public health community could obtain during its epidemiological investigation to help with the criminal investigation. The following paragraphs generally describe the pertinence of the questions contained in Table 2.

Personal Information. The victim and witness information obtained from these questions helps the law enforcement community identify a possible target community for the attack. This information can uncover common links between victims and help law enforcement officials

determine if they are the victims of hate crime due to their race, ethnicity, beliefs, or other factors. This information can then be used to identify possible suspects. Personal property may contain critical information leading to personal contacts that would not be readily discovered in an interview.

Travel Information. These questions provide information about the spread of the agent and the potential point of release.

Medical Information. This information may provide common links concerning how, when, or why the attack occurred. The law enforcement community identified these issues to ensure that proper documentation of the statements and laboratory evidence has occurred.

Safety Information. The medical/public health community believes this information will help put their personnel on alert to watch for evidence of a potential disease outbreak. If the law enforcement community has information that indicates someone may release a particular biological agent, the medical/public health community can identify specific symptoms and medical countermeasures that are of concern with that agent. Since the perpetrators may become victims, intelligence data may help to protect the medical/public health personnel and provide an early alert to the law enforcement community if individuals with the targeted symptoms are seen by the medical community.

Criminal Investigation Information. These questions help ensure that the medical/public health community obtains the appropriate information for the law enforcement community. More importantly, the law enforcement community needs to ensure the medical/public health community handles evidentiary items according to the proper chain of custody.

Table 2: Questions and Information – Law Enforcement-Related Questions for Medical/Public Health Personnel to Ask

<p><u>Personal Information*</u></p> <ul style="list-style-type: none"> • What is the victim's name? • What is the victim's age/date of birth? • What is the victim's sex? • What is the victim's address? • What is the victim's social security number? • What is the victim's driver's license number? • What is the victim's occupation/employer? • What is the victim's religious affiliation? • What is the victim's level of education? • What is the victim's ethnicity/nationality? • Record any personal property (bag & tag). • Are there any common denominators among victims/patients – i.e., race, socio-economic status, socio-political groups & associations, locations, events, travel, religion, etc.?
<p><u>Travel Information*</u></p> <ul style="list-style-type: none"> • Have you traveled outside of the United States in the last 30 days? • Have you traveled away from home in the last 30 days? • What is your normal mode of transportation and route to and from work everyday? • What have been your activities for the last 30 days?
<p><u>Incident Information†</u></p> <ul style="list-style-type: none"> • Has the interviewer heard any unusual statements – i.e., threatening statements, biological agents? • What is the agent? Is the agent's identity suspected, presumed, or confirmed? • What is the victim's account of what happened or how he/she might have gotten sick? • What is the time/date of exposure? Is the time/date suspected, presumed, or confirmed? • What is the number of victims? Is the number suspected, presumed, or confirmed? • What, if any, is the cluster of casualties? Is the cluster suspected, presumed, or confirmed? • What are the potential methods of exposure – e.g., ingested, inhaled, skin contact? • Where is the exact location of the incident? Is this location suspected, presumed, or confirmed? • Was this a single or multiple release incident? Is this suspected, presumed, or confirmed? • What is the case distribution? What are the names, dates of birth, and addresses of the cases? • What physical evidence should we seek? • Did anyone witness a suspicious incident? What are their names, dates of birth, and addresses?
<p><u>Safety Information†</u></p> <ul style="list-style-type: none"> • What makes this case suspect? • Is there any information that would indicate a suspicious event? • Are there safety or security issues for the medical/public health personnel?
<p><u>Criminal Investigation Information†</u></p> <ul style="list-style-type: none"> • Who is the point of contact in the law enforcement community? • To whom should we refer any potential witnesses? • What are the chain of custody needs?

*Questions the medical/public health investigator would ask potential victims and witnesses.

†Questions the medical/public health investigator would ask law enforcement personnel.

5. WHO NEEDS THE INFORMATION AND WHEN – CRITICAL COMMUNICATION POINTS

Objectives

It is essential to establish key communication points and mechanisms between the law enforcement and the medical/public health communities. This communication is especially important for the expeditious exchange of information in a biological incident. Both the law enforcement and medical/public health communities are keenly interested in obtaining the information identified in the previous section to ensure that an appropriate response is initiated as soon as possible. The law enforcement community needs to initiate its criminal investigation as soon as possible to preclude the loss of critical evidence or disturbance of the crime scene. Similarly, the medical/public health community wants to positively identify the agent in order to provide the best treatment and to safeguard the remainder of the community with appropriate prophylaxis or treatment. **These goals can be reached only by sharing information at the earliest possible point as the incident evolves.**

Specific objectives must be met in order to achieve these goals. First, key information exchange points must be identified and described, including how an organization fits into the response, the mechanism of communicating with this organization, and the appropriate time for the exchange to take place. Next, law enforcement and medical/public health personnel must determine the appropriate person to receive this information. The timing of this information exchange is also critical. Personnel must determine the appropriate point in their investigations to share specific pieces of information with each of the recipients. Identifying what information to share and when to share it can have significant effects on both the epidemiological and criminal investigations.

One of the most difficult decisions in any incident is determining what events or information should trigger the exchange of information between the law enforcement and the medical/public health communities. For example, the law enforcement community conducts criminal investigations every day. In recent years, there have been numerous biological incident hoaxes. What should prompt the law enforcement community to contact the public health community and involve them in the investigation of such an event? Similarly, epidemiological investigations take place routinely. Most epidemiological investigations will have nothing to do with a terrorist event. At what point in an investigation should the medical/public health community be prompted to contact law enforcement? Both communities are legitimately concerned about overreacting and further stretching their already over-burdened infrastructure. Therefore, it is important to try to determine the key occurrences that would signal a need to notify the other group.

Information Flow

One of the first things both communities must know is that an incident is actually occurring. This means that as the law enforcement community obtains information that points to a possible biological incident – i.e., an anonymous tip, they must somehow communicate this to the medical/public health community so that the appropriate personnel can prepare to look for a

biological agent. In a similar vein, the medical/public health community must intensify its efforts to identify unusual illnesses in the community and keep the law enforcement community informed as these diseases emerge so the law enforcement community can initiate a criminal investigation once a biological incident is suspected or identified. Each of the two communities has established procedures for pursuing their respective investigations. The intent is not to change these procedures but find the appropriate point and the best mechanism to involve the other community.

The Workshop participants recognized that even within law enforcement and medical/public health communities, each jurisdiction is different. Consequently, roles and responsibilities within and between the law enforcement community and the medical/public health community will vary by jurisdiction. In fact, some departments, positions, or functions may not even exist in some jurisdictions. With respect to these differences, this section provides general guidance for the law enforcement and medical/public health communities and a foundation whereby each jurisdiction can establish a structure for communication exchange and individually determine who should get what information and when.

In order to determine the appropriate points at which information should be exchanged, it is necessary to understand the way information currently flows in both the law enforcement and the medical/public health communities. This flow is described in an abbreviated form in subsequent sections and only major nodes are discussed. Additional contact is likely among all the agencies involved in the process.

Law Enforcement. If the law enforcement community identifies a biological incident, the information exchange will include the Federal Bureau of Investigation (FBI) headquarters, FBI Field Office, and local law enforcement agencies. The FBI is a critical element in this information flow because they have been designated the lead agency for the crisis management in all WMD incidents. No matter where the initial criminal investigation of a biological incident may begin, the FBI will ultimately be included. Furthermore, it is recognized that state law enforcement agencies exist, but the Workshop participants felt that these agencies are not normally information conduits between the FBI and local law enforcement agencies. Therefore, for purposes of this discussion, state and local law enforcement agencies are combined. For purposes of simplicity, discussion of the process begins at the top of the hierarchy, moves down, and then elaborates on how the system would work if information entered the system at another level.

When FBI headquarters receives intelligence from some source that a biological incident has occurred or may occur, it must first determine if this is a credible event. Normally, headquarters will ask the local FBI Field Office to conduct a preliminary investigation. Simultaneously, the FBI will evaluate the information at headquarters to assess its credibility. If the FBI Field Office determines that the threat is credible, it will notify FBI headquarters and initiate a full investigation. While the FBI headquarters initiates an interagency conference call to discuss the information developed by the FBI Field Office, the Field Office will continue its investigation. It should be noted that typically, the Centers for Disease Control and Prevention (CDC) is a member of the interagency conference call. If the threat is deemed credible, CDC may notify the state health department, which in turn could initiate a state response by contacting local health

departments or directly notifying health care facilities or practitioners. At this point, the FBI Field Office may involve local law enforcement and leverage additional manpower for the investigation. The law enforcement resources used at the local level may or may not be given the freedom to further disseminate the information provided by the FBI Field Office. Ideally, the investigation will continue until the terrorist is apprehended.

If intelligence about a prospective crime is developed at a lower level in the hierarchy, once it is determined to be a potential WMD incident, the FBI Field Office would be notified and much of the same coordination and communication with FBI headquarters would occur. In this scenario, it is possible that the initial investigation would have been conducted by the local agency, and the FBI Field Office would then make a decision about the event based on that investigation.

Medical Care Provider/Public Health. The medical/public health community typically works from the bottom up. Health care practitioners see patients, observe symptoms, develop preliminary diagnoses, and treat the suspected disease cases. Most of the diseases associated with the major bioterrorism threat agents appear clinically similar to influenza or other common viral illnesses in their early stages. Therefore, it is unlikely that a specific bioterrorism-associated disease will be immediately identified. If an incident occurs during the time of year when common diseases are normally seen, i.e. flu season, the agent will be difficult to diagnose. Only later, when unusual signs and symptoms begin to appear, when a diagnosis is laboratory-confirmed, or when a number of unexplained deaths occur will the medical/public health community begin to recognize a biological incident. At some point as these phenomena occur, the public health department will become cognizant of the evolving event. Depending on the location, this cognizance may result from ongoing routine medical surveillance or from an observant health care practitioner. Whatever the trigger, this is the first juncture of communication between the medical care provider and public health agencies. At this point, an epidemiological investigation will be initiated to determine the source of the illness and to identify the disease agent if a positive identification has not already been made. Once a positive identification of the agent is made, or if no identification is possible, the State Public Health Department and possibly the CDC may be invited to join the investigation.

The preceding paragraph describes how the two respective communities would likely operate as they are organized today. The pivotal question is how can the law enforcement and medical/public health communities operate to ensure early communication of emerging issues involving bioterrorist weapons, save lives, and apprehend the perpetrators of bioterrorism?

First, the interaction must be coordinated within each community before any information is exchanged. Individual health care practitioners rarely interface with law enforcement; rather, local health department representatives provide this interface. However, the health department should be the interface point with law enforcement because this is the first point within the medical/public health community that a governmental agency is involved.

WMD Work Group. The Workgroup participants spent a considerable amount of the allocated time looking at information requirements and discussing how the two communities would work through their respective processes. It became apparent that there are few opportunities to share information as the two communities operate today. One forum does exist where law

enforcement is always present and, in most cases, public health is represented: the emergency management operations center (EOC). Although not subordinate to the emergency management agency, both public health and law enforcement are usually represented at the EOC. When activated by the local convening authority, the EOC brings together all the elements needed to respond to an emergency. The purpose of the EOC is to coordinate activities in response to the emergency and provide appropriate public assistance, at the right time, with available resources. Jurisdictions use this mechanism routinely to respond to floods, tornadoes, and other natural disasters.

The EOC forum can be used to respond to a potential biological incident. This does not mean jurisdictions should maintain a full-time EOC to guard against any potential incident. However, the idea of an EOC provides a framework within which to build a communication capability that bridges the two communities and, as a backdrop, has all the resources needed to coordinate a response to a mass casualty incident. One way to use this framework is to form a WMD Work Group from the agencies that are a part of the EOC. The emergency management official can serve as the focal point or executive officer for the Work Group activities. As a result, someone is available who can coordinate the activities of the work group, especially routine meetings. The critical value of the Work Group is that ongoing relationships are developed between the medical/public health community and the law enforcement community. Additionally, the Work Group enables a jurisdiction to identify what information will be exchanged, when it will be exchanged, and with whom it will be exchanged based on individual characteristics and needs. Ideally, the WMD Work Group would conduct regularly scheduled meetings.

This structure could be replicated at all levels of government: state, regional/county, and local. Although the FBI Field Offices have limited resources, they should be invited to participate and clearly should be involved if the WMD Work Group feels there is a potential incident. Meetings could be conducted in person or by conference calls, since the key purpose of the meetings would be to exchange any law enforcement information on intelligence that might indicate an increased potential for bioterrorist threats. Conversely, the medical/public health community could share information on illnesses and fatalities that might indicate an emerging event. Additional indicators can be discussed if the jurisdiction operates a more sophisticated medical surveillance system (i.e., EMT runs, hospitalization rates, etc.).

The Workshop participants developed a recommended information flow for two scenarios that could be used by a WMD Working Group. The first scenario describes the recommended information flow if the law enforcement community is the first to identify a biological incident. The second scenario provides guidance should the medical/public health community be the first to suspect a biological incident. The Workshop participants designed this process to provide maximum flexibility in their guidance for jurisdictions.

It is critical that the investigators in both law enforcement and medical/public health communities cooperate and share information frequently so that both investigations can profit. It should be noted that regardless of where the suspicious information enters the system, the information flow moves up the information chain. Additionally, each group identified in [Figures 1 and 2](#) should be a conduit for information to the group immediately above and below it.

Scenario 1: Law Enforcement Has Intelligence of Threat to Release Biological Agent (See [Figure 1](#))

The FBI headquarters develops intelligence to indicate that a bioterrorist event is likely in a major city. FBI headquarters then directs the local Field Office to conduct a preliminary investigation to validate the intelligence.

The Field Office concludes there is a potential threat and responds to FBI headquarters with that information. FBI headquarters initiates a full-scale investigation and concurrently, convenes the interagency workgroup via conference call to evaluate the credibility of the threat. The CDC is part of the interagency workgroup.

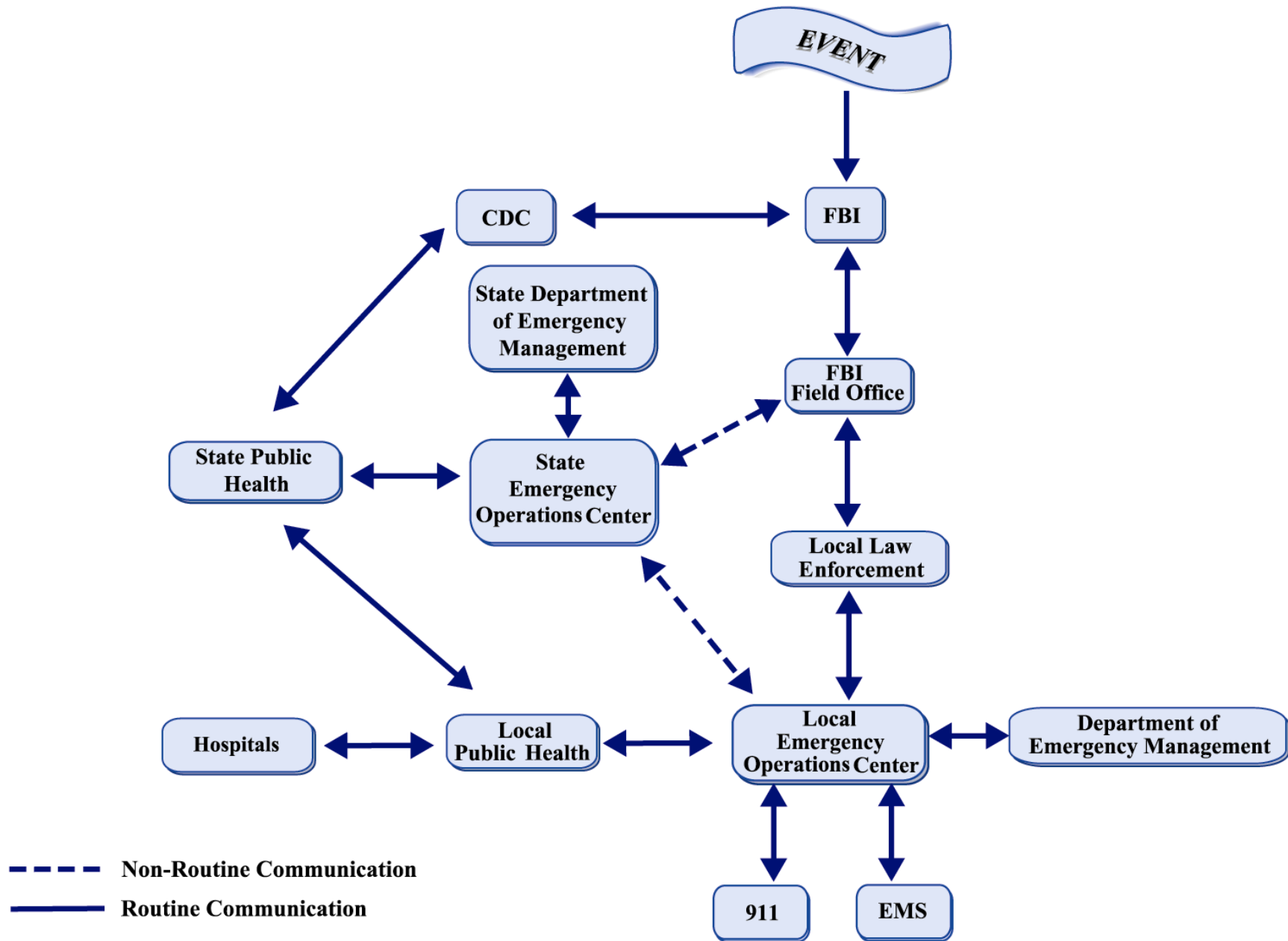
At this point, the Field Office would coordinate with the state or local emergency management agency to convene their WMD Working Group and begin to exchange pertinent information. Depending on the extent and quality of the intelligence or investigation results, the information may be held at this level (i.e., not disseminated to local health care providers), pending further developments. If the threat is determined to be credible by the interagency working group and CDC, the CDC will likely pass that information to the state health departments. Again, depending on the quality of the information and the timing of the suspected event, this information may be retained in the organization and not forwarded. Once the Working Group has convened, the remainder of the process will be situation-dependent, but the forum for exchange of pertinent information will have been established.

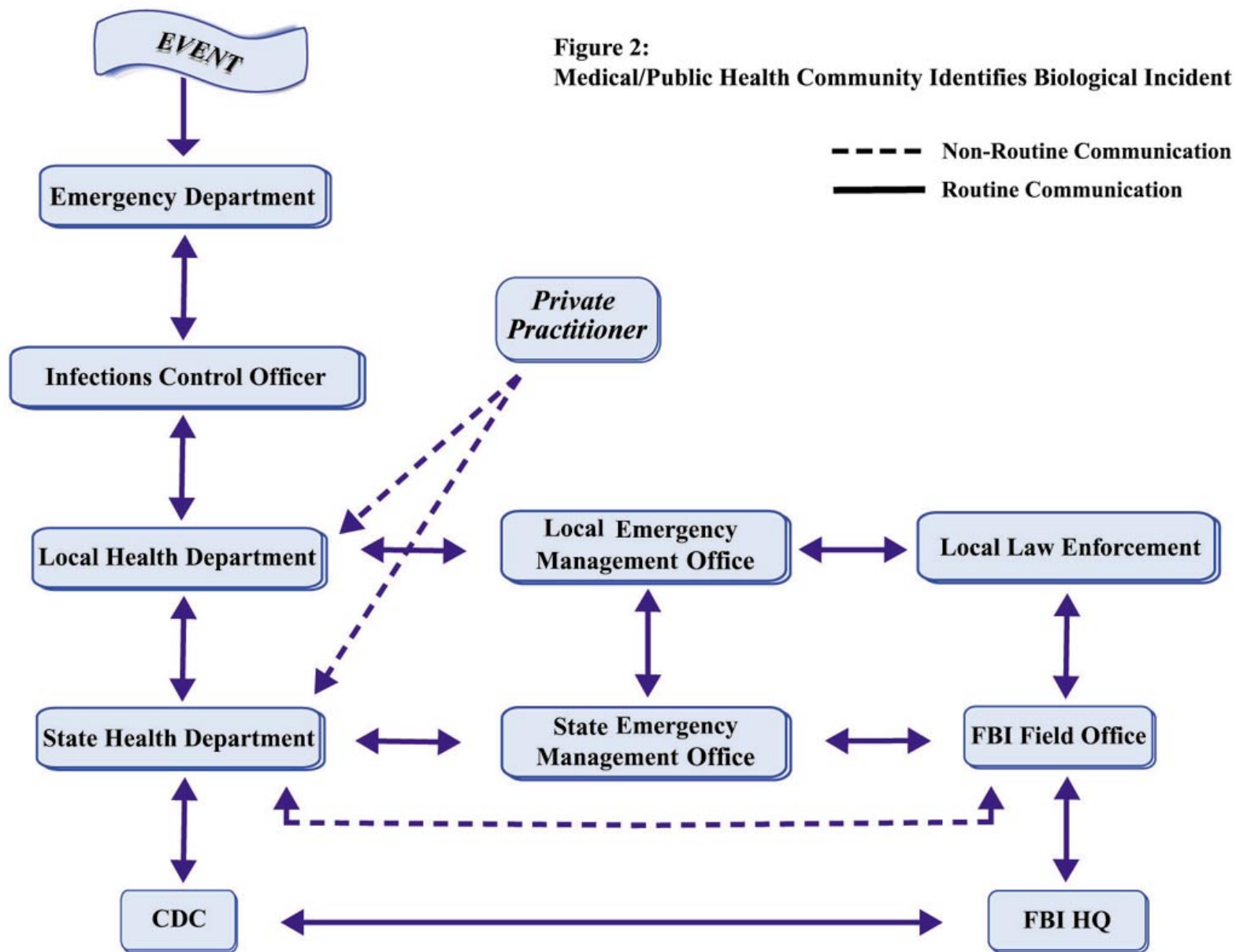
Scenario 2: Disease Emerges and is Identified Through the Medical/Public Health Community (See [Figure 2](#))

Local hospitals/practitioners observe unusual symptoms in their patients. Based on a preliminary diagnosis, physicians begin to treat the patients. Once the public health officials receive and analyze the patient medical data, they can determine if there are any triggers suggestive of a potential biological incident. When local health officials observe these triggers that indicate a potential bioterrorist incident, they should coordinate with the emergency management agency to activate the WMD Working Group.

Once the Working Group has been assembled (virtually or in person), information will be exchanged concerning the potential threat or the unusual phenomenon observed in the health system. Depending on the information available to law enforcement, a decision will be made on whether to pursue a criminal investigation at that point. If the decision is to pursue a criminal investigation, or if there is a potential that the incident was a terrorist event, the FBI Field Office will be notified. In most cases, an epidemiological investigation will be initiated to determine the source of the unusual circumstance observed in the health system.

Figure 1: Law Enforcement Community Identifies Biological Incident





Identification of Triggers

Many factors could lend clues to a potential use of biological weapons. The difficulty of trying to use definitive criteria is that almost all bioterrorist agents mimic other diseases in their early presentation. Furthermore, many classic bioterrorist agents are rare, non-endemic, or eradicated diseases; general practitioners may not recognize the disease until it has progressed to the more serious and unique symptoms. In some cases, there may be a reluctance to report this “unknown” illness until a diagnosis is made. The following tables provide a preliminary list of factors that could trigger law enforcement (Table 3) or medical/public health (Table 4) communities to exchange information. These are not intended to be comprehensive lists of all the potential triggers. Each jurisdiction may want to mutually add or remove triggers to suit their individual needs, but these lists are intended to provide a starting point.

Table 3: Law Enforcement Triggers

- Any intelligence indicating that disease agents are intentionally used to harm someone
- Any indication that a criminal/terrorist element is involved with a serious illness or death
- Seizure of any bioprocessing equipment from any individual, group, or organization
- Seizure of any potential dissemination devices from any individual, group, or organization
- Identification or seizure of literature pertaining to the development or dissemination of biological agents
- Any assessments that indicate a credible biological threat in an area

Table 4: Medical/Public Health Triggers

- Large numbers of patients with similar symptoms or disease
- Large numbers of unexplained symptoms, diseases, or deaths
- Higher than expected morbidity and mortality associated with a common disease and/or failure to respond to traditional therapy
- Single case of disease caused by an uncommon agent – i.e., *Burkholderia mallei* or *B. pseudomallei*, smallpox, viral hemorrhagic fever, anthrax
- Multiple unusual or unexplained disease entities in the same patient
- Disease with an unusual geographic or seasonal distribution – i.e., tularemia in a non-endemic area or influenza in the summer
- Unusual “typical patient” distribution – i.e., several adults with an unexplained rash
- Unusual disease presentation – i.e., inhalational vs. cutaneous anthrax
- Similar genetic type among agents from temporally or spatially distinct sources
- Unusual, atypical, genetically engineered, or antiquated strain of agent
- Endemic disease with unexplained increase in incidence – i.e., tularemia, plague
- Simultaneous clusters of similar illness in non-contiguous areas, domestic or foreign
- Disease agents transmitted through aerosol, food, or water, suggestive of sabotage
- Ill persons presenting near the same time; point source with compressed epidemic curve
- No illness in persons not exposed to common ventilation systems (have separate closed ventilation systems) where illness is seen in those persons in close proximity
- Death or illness among animals that may be unexplained or attributed to an agent of bioterrorism that precedes or accompanies illness or death in humans

6. HOW IS INFORMATION EXCHANGED – SHARING SENSITIVE INFORMATION

Objectives

As previously noted, the timely exchange of information is critical to effectively respond to a biological incident. Yet, there are concerns within law enforcement and medical/public health communities about the types of information that each will freely exchange. This is especially true for such things as patient information and/or informant or suspect information. Both communities feel that there are circumstances that necessitate withholding this type of information from the other.

Although the Workshop participants did not reach a consensus on this issue, they provided some information and guidance that may assist law enforcement and medical/public health personnel nationwide in addressing this problem. In order to provide guidance, the participants addressed the following objectives:

1. Identify the barriers to the free exchange of information
2. Identify the general types of information each may **have** during an incident
3. Identify the general types of information each may **need** during an incident
4. Identify how each community can obtain the information from the other
5. Identify what information should be given to the public and media during an incident
6. Identify activities that may foster the exchange of information

These objectives are addressed in the four sections that follow. The first section provides insights as to why the exchange of information is such a contentious issue between the two communities. The next section provides a series of matrices to identify the information “haves,” the information “needs,” and how to obtain the information. This section is followed by recommendations about what information should be provided to the media and public and by whom. The final section provides general recommendations for enhancing and fostering the free flow of information.

Information Barriers

It was evident that the first step to resolving this issue was identifying each community’s rationale for withholding information from the other. Offering an explanation of why the information cannot be shared helps provide a common understanding of the other community’s position, which is a first step to resolving the issue.

Medical/Public Health Barriers. The medical/public health community identified two principal reasons why patient information should be withheld. The first involves legal concerns about patient confidentiality that affect the medical/public health community as well as the law enforcement community. The medical/public health community is concerned that it will be held legally liable for the release of patient information without consent. Some confidentiality issues raised by the participants are contained in Table 5. Workshop participants were not prepared to answer these issues.

A second reason to withhold patient information is based on issues of ethics and trust. Patients provide detailed information with the tacit understanding that physicians and public health professionals will hold that information in confidence. The medical/public health community is concerned that providing confidential patient information to the law enforcement community, regardless of reason or intent, would jeopardize their ability to obtain data that is critical to identify and control diseases of any type. They feel that a breach of the patient's trust is unethical and could cause greater harm when attempting to effectively respond to a bioterrorist incident.

Table 5: Potential Legal Issues Prohibiting the Exchange of Patient Information

1. Public health officials would want to obtain patient information from medical practitioners, who would then assert that the information was confidential and legally "privileged."
2. Public health officials might wish to take blood samples from patients to identify the magnitude of the affected population. Could these samples be taken without consent?
3. Law enforcement officials might want to obtain health records from hospitals, HMOs, or the Health Care Financing administration. Are they prevented from doing so by federal privacy statutes?
4. Law enforcement officials might wish to obtain patient information from individual health care providers. Could individual practitioners refuse to provide that information on the basis of patient-physician privilege? If the information is provided, might the physician be liable to the patient?
5. Law enforcement officials might wish to obtain blood samples from suspects or other individuals as part of their investigation. Could they do so against an individual's consent?

An initial review of the patient confidentiality issue suggests that the patient-physician privilege is a statutory, not common-law privilege, and varies from state to state. It is the privilege of the **patient**, not the physician to assert. In general, the three elements below must be present for the privilege to exist. In the opinion of an attorney-physician Workshop member, the last element would clearly not be present where the public interest was the prevention of an epidemic with multiple deaths or injuries. Disclosure of patient information in response to a subpoena will insulate a physician from legal liability for the disclosure.

1. The information must be given with the expectation that it will not be disclosed and be given in the usual context of a professional relationship.
2. The maintenance of confidentiality must be essential to achieving the purpose of the professional relationship.
3. The possible injury to the relationship from the disclosure must be greater than the expected benefit to justice or the public in obtaining the information.

There seems to be adequate legal authority to handle most of the concerns raised in the workshop. However, the lack of specific knowledge among the participants suggests that careful legal research should be done on these issues so that a memorandum is in place before these issues arise. Effort should also be made to educate the personnel involved in a possible bioterrorism response as to the questions and answers concerning legal issues.

In addition to the legal issues, the medical/public health participants stated that withholding patient information is an issue of ethics, and that the physician/patient relationship is based on a mutual trust. The patient provides information freely with the understanding that the physician will keep the information in confidence. Medical/public health personnel are concerned that they will jeopardize patient trust if they start releasing confidential information. As a result of this loss of trust, the medical/public health community may not receive critical information in the future that may help avert a disease outbreak. Moreover, the medical/public health professionals indicated that divulging patient information would be unethical and would go against their principles. However, it was stated that aggregate data (i.e., data devoid of patient identifiers) could be freely provided.

Law Enforcement Barriers. The law enforcement community also has two primary concerns regarding the exchange of investigative information. First, they are reluctant to provide information that may jeopardize the safety of confidential informants. Information that law enforcement personnel obtain from informants is frequently so sensitive that the criminals would be able to determine exactly who had informed law enforcement officials if the information is exposed. As a result, the more people who know this information, the greater the possibility that the information source would be exposed.

Second, the law enforcement community is concerned that the suspects may escape as a result of the exchange of sensitive information. If law enforcement personnel inform the medical/public health community to look for a specific individual or group, law enforcement personnel are concerned that this information may get back to the perpetrators, thus giving them the advanced warning needed to escape. Again, the law enforcement community is concerned that the more individuals who know the specifics of a case, the greater the opportunity for sensitive information to leak out.

Information Matrices

In order to help lower barriers to the free exchange of information, Workshop participants developed matrices to assist members of the law enforcement and medical/public health communities in tying together the information in all sections with recommendations for obtaining that information from one another. Each of the categories in the matrices is defined below.

- **Information Haves** – Information that each group has during the specific phase of the biological incident.
- **Information Needs** – Information that each group needs to obtain to effectively conduct its investigation during the specific phase of the biological incident. It is the information that the medical/public health community would need from the law enforcement community or the law enforcement community would need from the medical/public health community.
- **Requirements to Obtain Information** – Steps that should be taken by each community to obtain the information or to identify what information can be readily

obtained (i.e., medical/public health to obtain law enforcement information). In the stated example, the law enforcement community identifies requirements for the medical/public health community to obtain the information from the criminal investigation.

The law enforcement and medical/public health personnel were asked to identify the information they would have and need according to the five different phases listed below.

- **Pre-Suspicion** – Both communities may be receiving unusual information, but there is nothing to raise suspicion of a criminal act or a disease outbreak.
- **Suspicion** – The law enforcement community has information that leads it to believe a criminal act has been committed or the medical/public health community suspects an outbreak of biological agent.
- **Crisis Management** – Measures to identify, acquire, and plan the use of resources needed to anticipate, prevent, and/or resolve a threat or act of terrorism.[†]
- **Consequence Management** – Measures to protect public health and safety, restore essential government services, and provide emergency relief to governments, businesses, and individuals affected by the consequences of terrorism.[†]
- **Recovery** – Gradual return to normal operations.

In general, law enforcement and medical/public health communities appear to be more reluctant to share information in the early stages (Pre-Suspicion and Suspicion) of the incident than they are in the latter stages (Crisis Management, Consequence Management, and Recovery). In most instances, each community is unwilling to exchange sensitive information based solely on the incomplete criminal or epidemiological investigative information it would have in the first two phases. Because of this, there appear to be two general phases: 1) pre-confirmation of a criminal act or diagnosis of a bioterrorist incident and 2) confirmation of a criminal act or diagnosis a bioterrorist incident. Once the medical/public health community has made a diagnosis or the law enforcement community has confirmed a criminal act, both groups appear to be more willing to exchange information. The results of the Workshop participants' discussions can be found in [Tables 6-8](#).

[†] As defined in the Federal Response Plan.

Table 6: Law Enforcement Information Exchange

Phase	Information “Haves”	Information “Needs”	Requirements to Obtain Information
Pre-Suspicion of a Biological Incident	<ul style="list-style-type: none"> • General information (white noise) • Data concerning potential terrorist groups • Data concerning potential biological agents 	<ul style="list-style-type: none"> • Information regarding a “normal day” in the medical community – i.e., number of ER patients, number of EMS runs, etc. • Information about any unusual diseases • Patient information 	<ul style="list-style-type: none"> • Law enforcement will openly reveal general information • No specific case information will be revealed
Suspicion of a Biological Incident	<ul style="list-style-type: none"> • Specific case data • Suspect name(s), location(s) • Group names(s), capability(ies) • Sources of threat • Methods of attack 	<ul style="list-style-type: none"> • Patients are potential victims of a biological incident • Personal information – i.e., name, address, social security number of victim/patient • Agent type and strain • Agent symptomology 	<ul style="list-style-type: none"> • The FBI will provide a non-specific Terrorist Advisory to the medical/public health community; will be FOUO and not released to the public unless specified by FBI • Under advisement of CDC risk analysis, law enforcement will release all pertinent information
Crisis Management	<ul style="list-style-type: none"> • Specific case data with more detailed information • Investigation methods and source data • Potentially have suspect in custody 	<ul style="list-style-type: none"> • SAME AS ABOVE, plus • Location of victims • Medical threat assessment • Special and routine lab information for prosecution • Epidemiological data – contact lists 	<ul style="list-style-type: none"> • SAME AS ABOVE
Consequence Management	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE
Recovery from the Biological Incident	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • All potential suspects • On-going victim report, list of victims, patient information, regular release of information • Any information on any criminal activity, regardless of timeframe 	<ul style="list-style-type: none"> • Provide threat information after CDC review

Table 7: Medical (Hospital/EMS) Information Exchange

Phase	Information “Haves”	Information “Needs”	Requirements to Obtain Information
Pre-Suspicion of a Biological Incident	<ul style="list-style-type: none"> • Unusual symptoms • All personal information • Patient health data • Potential recognition of 10 suspect agents • Nursing home aggregate data 	<ul style="list-style-type: none"> • Potential biological agents being cultured in the area • Potential disease agents; list of 10 suspect agents • National Alert list of groups and agents 	<ul style="list-style-type: none"> • No specific case data released • Hospital/EMS does not report to law directly; immediately report up the chain to public health • Follow state laws for reporting diseases
Suspicion of a Biological Incident	<ul style="list-style-type: none"> • SAME AS ABOVE • Clinical data/confirmation and data on disease • Contact information on other potential cases via interviews 	<ul style="list-style-type: none"> • Any information on the biological agent 	<ul style="list-style-type: none"> • Information is reported to CDC • Report to local health department • Information is kept confidential unless they are subpoenaed or receive patient release • Require patient permission for additional lab testing
Crisis Management	<ul style="list-style-type: none"> • SAME AS ABOVE IN GREATER DETAIL 	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE
Consequence Management	<ul style="list-style-type: none"> • SAME AS ABOVE IN GREATER DETAIL 	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE
Recovery from the Biological Incident	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • Update on the outbreak 	<ul style="list-style-type: none"> • SAME AS ABOVE

Table 8: Public Health Information Exchange

Phase	Information “Haves”	Information “Needs”	Requirements to Obtain Information
Pre-Suspicion of a Biological Incident	<ul style="list-style-type: none"> • Surveillance data regarding reportable diseases • Aggregate information about the individual cases • Medical findings 	<ul style="list-style-type: none"> • Biological agents being cultured in the area • Potential biological agents being cultured in the area • Potential disease agents; list of 10 suspect agents • National Alert list of groups and agents • Agreement about what information can be released 	<ul style="list-style-type: none"> • Subpoena required for specific patient information • Can freely provide aggregate data; numbers and types • Can freely provide assessments and analysis without personal information • Medical examiner provides data on fatalities to prosecutor; no subpoena necessary • Prosecutor can request post-mortem; no subpoena necessary
Suspicion of a Biological Incident	<ul style="list-style-type: none"> • Analysis of the incident • Aggregate patient data; state public health lab results • Contact lists • Medical examiner findings 	<ul style="list-style-type: none"> • Medical community information • Threat assessments • Agent dissemination method • Specific case data – i.e., potential targets, agent characteristics 	<ul style="list-style-type: none"> • Analysis freely provided to all response groups • Public health will take steps to ensure release of information • A subpoena ensures the release of information and legally protects public health from prosecution • Prosecutors can obtain medical examiner information
Crisis Management	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • Quarantine legal issues • Extent and nature of outbreak 	<ul style="list-style-type: none"> • SAME AS ABOVE
Consequence Management	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE
Recovery from the Biological Incident	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE 	<ul style="list-style-type: none"> • SAME AS ABOVE

Media/Public Information Release

Both the law enforcement and the medical/public health participants agreed that the media will have a significant impact on the response and the public reaction to a biological incident. As a result, each community should ensure that the appropriate information is released to the media at the proper time, especially sensitive information. The participants provided some guidance in [Table 9](#) as to what information should be provided in each of the five phases discussed above. In general, they agreed that the response should be coordinated and come from a single point of contact (spokesperson), to be identified by each jurisdiction, to ensure the right information is provided at the appropriate time. The matrix below provides general guidance concerning a jurisdiction’s interaction with the media.

Table 9: Release of Information to the Media/Public

Phase	Information for the Media	Who Releases the Information
Pre-Suspicion of a Biological Incident	<ul style="list-style-type: none"> Limit information to statement of “something unusual” if asked 	<ul style="list-style-type: none"> Designate a single point of contact for the law enforcement and for the medical public health to coordinate between them
Suspicion of a Biological Incident	<ul style="list-style-type: none"> Confirm “something unusual” Need to provide rumor control Prepare to respond to inquiries Do not provide the FBI’s Terrorist Advisory referenced in Table 6; it is for official use only; however, do not deny existence of Advisory Do not release any threat assessments 	<ul style="list-style-type: none"> Points of contact work together on any response to query Develop agreed-upon rules of public release
Crisis Management	<ul style="list-style-type: none"> Alert media to the communicability of the biological agent (if known or suspected) Confirm and announce any protective actions Provide rumor control 	<ul style="list-style-type: none"> SAME AS ABOVE FBI and local public health coordinate response; develop a joint public health and a law enforcement press release
Consequence Management	<ul style="list-style-type: none"> SAME AS ABOVE Use risk/crisis communication to address the psychological issues of bioterrorism 	<ul style="list-style-type: none"> SAME AS ABOVE
Recovery from the Biological Incident	<ul style="list-style-type: none"> Focus on closure issues Media/public needs reassurance things are back to “normal” 	<ul style="list-style-type: none"> Emphasis on local law enforcement and medical/public health actions in support of the community

Recommendations to Improve the Information Exchange

As noted above, the law enforcement and medical/public health communities are more willing to exchange information once they have confirmed the existence of a criminal act or a biological agent. However, an exchange of available information in the early stages of a biological incident is critical to effectively apprehend the perpetrators and limit the outbreak. Although the Workshop participants identified some "rules" for obtaining information, these rules can cause both communities to lose valuable time in their investigations. As a result, the Workshop participants provided some guidance about how individual jurisdictions can improve information sharing. The participants recognized the responders and procedures would vary by jurisdiction across the United States. The recommendations in [Table 10](#) are intended to be general enough that any jurisdiction can tailor them based on local needs.

Table 10: Information Exchange Recommendations

1. **Establish an Information Exchange Group** – This group can be created from an existing group, such as the WMD Working Group, and consists of all the potential players that may be involved in a response to a biological incident. This forum permits each response group to identify who can provide what information to them and to whom they should provide information. Moreover, this group helps foster personal ties between response officials, facilitating less formal information-exchange relationships.
2. **Develop Close Personal Relationships** – Strong personal ties between the law enforcement personnel and the medical/public health personnel tend to foster more information exchange. Several of the Workshop participants indicated that they would be more likely to provide information to their counterparts early in process if they have worked, talked, or met with them on a regular basis and trusted them.
3. **Include an Epidemiologist in the Criminal Investigation** – This individual could be a member of the law enforcement staff or someone detailed to the law enforcement staff on a part-time basis. The Workshop participants felt that this liaison could help identify criminal information needed by the medical/public health community and provide the necessary information to the law enforcement community.
4. **Enhance the Biological Incident Awareness of the Emergency Response Community** – This can be done through training courses or professional associations. Building this awareness helps to heighten the community awareness of the potential triggers that would prompt the exchange of information early in an incident.
5. **Pre-Establish Agreements on Sensitive Information** – Establishing agreements that identify the rules for the exchange and release of information could alleviate some of the concerns raised by both communities. These agreements should identify what information will be shared and how it will be restricted to limit accidental release to unauthorized personnel.
6. **Pre-Establish Lab Test Agreements** – These agreements provide guidance as to how the medical/public health community should conduct lab testing for the prosecution of the suspects. These agreements would establish what circumstances would necessitate specific lab tests for criminal investigation.
7. **Conduct Chain of Custody Training** – This training should be designed to inform the medical/public health community to identify **when** they need to initiate the chain of custody for evidence in a biological incident. This helps to ensure evidence has been handled properly for the eventual prosecution.

7. WHAT IS THE PROBABLE RESPONSE – DECISION TREE

As noted, each jurisdiction's response capabilities differ; hence responses to a biological incident will vary. There are common, key decisions, however, that each jurisdiction is likely to make when confronted with a biological incident. The Workshop participants were asked to identify each of the decision points for the law enforcement community and the medical/public health community. The decision points that have been identified are general ones intended to assist law enforcement and medical/public health personnel in responding to a biological incident in a consistent manner. The decision trees that follow help ensure that critical decisions, actions, or steps are not omitted in a jurisdiction's response. Additionally, the decision trees help direct where and when the law enforcement and medical/public health communities should integrate their investigations.

A decision tree relating to the integrated response to a biological incident/threat is being developed under the BW-IRP. During this Workshop, the law enforcement and medical/public health communities refined the decision tree sections relating to their disciplines. The Decision Tree Report with the Decision Tree can be found in Appendix 4. The following charts consist of the criminal and epidemiological investigation decision trees as developed by the Workshop participants. The items that are framed by dotted lines in each of the decision trees are elements that exist in the April 1999 version of the SBCCOM Decision Tree.

Law Enforcement Decision Tree – Criminal Investigation

Law enforcement participants focused their efforts on identifying how they would respond to an announced biological incident instead of an unannounced incident (see [Figure 3](#)). They and the medical/public health personnel agreed that the medical/public health community would be the likely source to identify and trigger investigations during an unannounced incident. Once the medical/public health community triggers the investigations, activities would be the same or similar to those that would occur during an announced incident.

These are the basic steps for the law enforcement decision tree:

1. **Threat Assessment/Preliminary Investigation.** Once the announcement is received, the law enforcement community (FBI) conducts a threat assessment and begins a preliminary investigation. Local law enforcement assists in the investigation as needed by the FBI.
2. **Credible Threat.** The FBI then determines the credibility of the threat. Regardless of whether the threat is deemed credible or not, the law enforcement community conducts an investigation with the aim of apprehending and prosecuting the individual(s) for the hoax or for perpetrating an attack.
3. **Provide Information to Public Health.** If the announcement is viewed as credible, the law enforcement community provides information to the medical/public health community to alert them to the possibility of an attack or to determine if an attack has taken place. The medical/public health community reviews data obtained from its continuous medical surveillance to determine if there are any biological incident triggers or if an unusual event is occurring.

4. **Major Medical Event.** If the medical/public health community concludes that a major medical event is occurring, it notifies the law enforcement community that this is a legitimate attack. The medical/public health community then conducts an epidemiological investigation to identify the agent and minimize the mortality, morbidity, and the spread of the agent.
5. **Criminal Investigation.** Based on the credible threat assessment and the confirmation of a major medical event, the law enforcement community has sufficient information to conduct a full investigation. This investigation is led by the FBI and conducted in the same manner as any other criminal investigation.

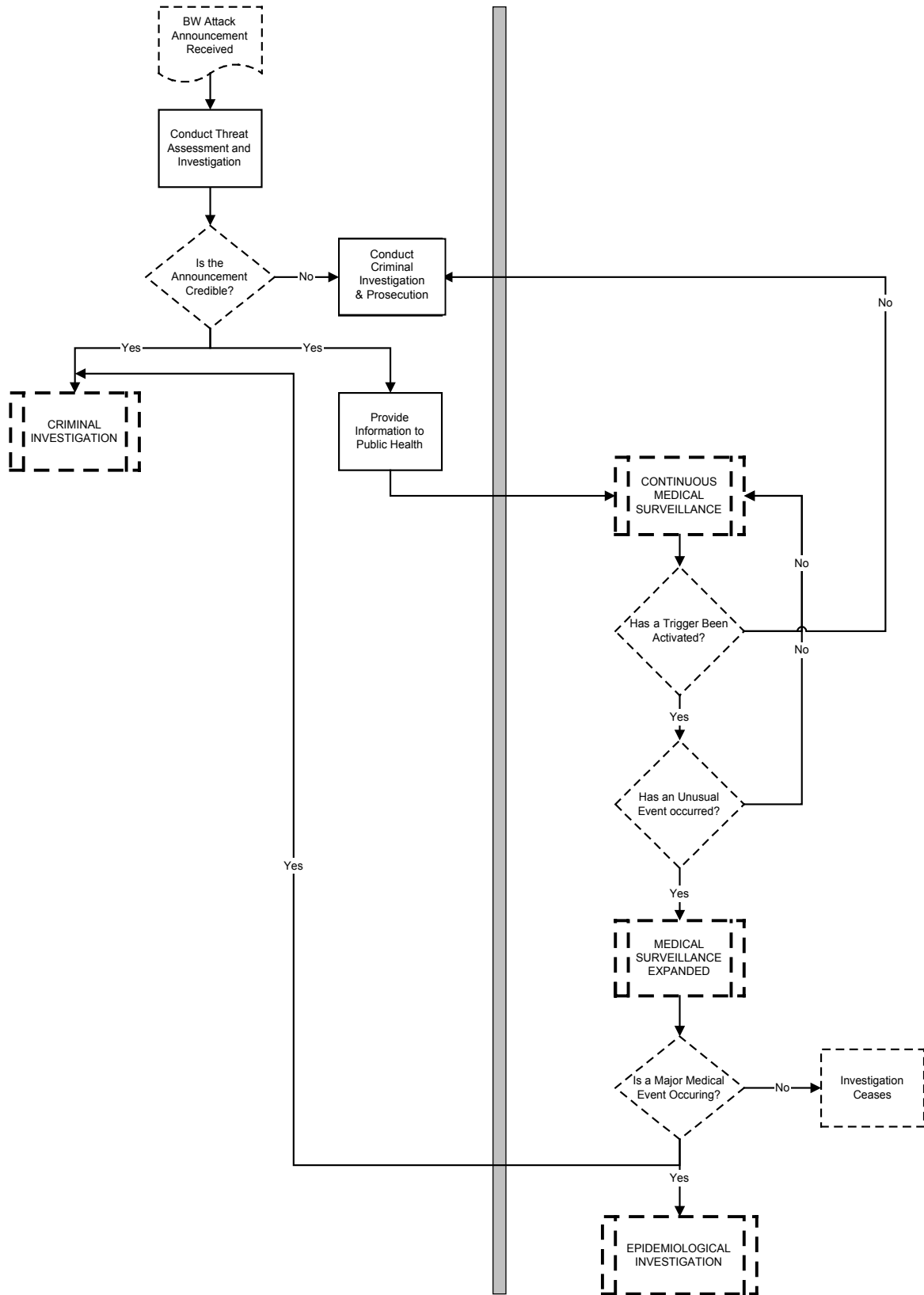


Figure 3: Law Enforcement Decision Tree

Medical/Public Health Decision Tree – Epidemiological Investigation

The medical/public health participants expanded their decision tree elements (see [Figure 4](#)) into three general areas.

The basic process for the medical/public health decision tree is described below:

1. **Identify an Outbreak.** The public health community analyzes information from medical community to determine the existence of an outbreak. Throughout the course of this analysis, it looks at several factors, including the background rate of the disease, the population at risk, signs and symptoms, who says there is a problem, and what the basis is for that claim.
2. **Verify the Diagnosis.** Once a tentative diagnosis has been made, the medical/public health community verifies the diagnosis based on the signs and symptoms and the laboratory results available. The medical/public health community analyzes the validity of the lab data by examining how the samples were collected, the integrity of the sample, where the analyses were performed, and what the best sample is to use.
3. **Establish Case Definition.** Next, the medical/public health community describes the cases using simple objective criteria and uses those criteria to establish a case definition. At this point in the investigation, they identify patients by starting with a broad definition and narrows the focus as the investigation progresses.
4. **Identify and Count the Cases.** This step identifies who is incubating the disease or who is possible exposed, who should be aware of these findings (media, government, public, etc.), and whether the release of this information will cause a panic. The medical/public health community also establishes a list of the cases.
5. **Conduct Descriptive Epidemiology.** At this point, the medical/public health community starts collecting and aggregating the individual patient data. The information includes demographics (name, address, sex, etc.), the date of onset of the illness, and the potential time of exposure. The data enables the medical/public health community to track the outbreak curve.
6. **Develop a Hypothesis.** During this step, the medical/public health community further defines the biological incident. They attempt to explain how and why the outbreak took place, as well as why certain individuals became ill and others did not. This information helps to determine if the outbreak is natural or unnatural. Other factors that take place in this step include considering early control measures, identifying the population at risk, determining the method and point of dissemination, and evaluating the environmental risk.
7. **Test the Hypothesis.** The hypothesis is tested by examining if it fits with the established facts. Additionally, the medical/public health community determines whether the intervals for incubation are appropriate for the diagnosed illness.
8. **Formulate Conclusions.** The medical/public health community develops a final conclusion that becomes the basis for action. The conclusion may be modified if additional information that affects the outbreak is discovered as a result of the continuing epidemiological investigation.
9. **Implement Control Measures.** Medical and public health personnel administer prophylaxis and potentially implement quarantine, isolation measures, or any other actions that could potentially improve the outcome of the outbreak.

10. **Evaluate Control Measures.** At this point, the medical/public health community should see a decline in the number of ill and there should be visible signs that the control measures are working. If the control measures are not working, then the medical/public health community needs to re-evaluate their hypothesis and re-assess the assumptions and conclusions.

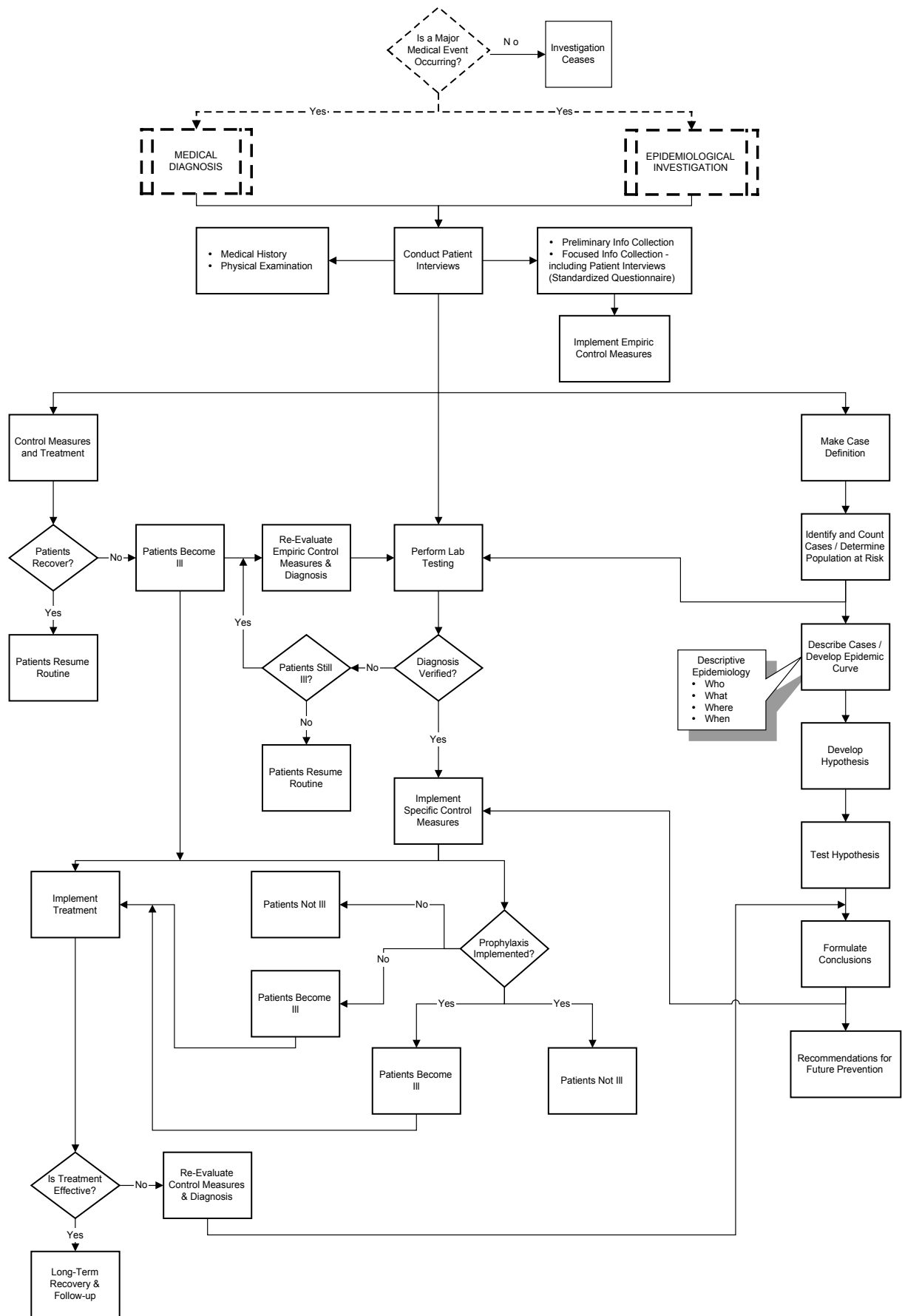


Figure 4: Medical/Public Health Decision Tree – Epidemiological Investigation

8. SUMMARY

Relationships, responsibilities, capabilities, and procedures vary from jurisdiction to jurisdiction in the law enforcement and medical/public health communities. Additionally, the information needs and responses for the criminal and epidemiological investigations will differ from one biological incident to another. Consequently, it is virtually impossible to develop one specific set of recommendations to effectively integrate the criminal and epidemiological investigations into a bioterrorism event.

However, the recommendations contained in this report will provide a starting point for jurisdictions to help increase the cooperation between the law enforcement and medical/public health communities. Knowing the types of information each group requires to effectively conduct their investigation is important to build this cooperation. The Workshop participants identified a checklist of questions that will be beneficial to each community's investigations. Either community can ask these questions, and the information can be shared should one community already be involved with their criminal or epidemiological investigation, limiting their availability to conduct interviews.

Another issue of concern is the timely exchange of information once it has been obtained. As seen in [Figures 1 and 2](#), there are a variety of agencies from local, state, and federal governments that will be a part of the criminal and epidemiological investigations following a biological incident. The multiple agencies and personnel involved in the respective investigations increases the potential that information will either go to the wrong point of contact or will not be shared because an individual may not know who should receive the information. The Workshop participants proposed an information sharing process with the emergency operations center as the hub for all involved agencies to exchange information. While this may not be effective for all jurisdictions, the participants stated that it is important to have a central body to ensure the response agencies can meet and share information.

A corollary to the timely exchange of information is the sharing of sensitive information between criminal and epidemiological investigators. Of the issues addressed by the Workshop participants, this issue proved to be the most contentious. The law enforcement community is concerned about releasing case-specific information that may alert potential suspects about the investigation. The medical/public health community is concerned that if they share patient-specific data that they will breach patient trust and violate ethical standards. While several obstacles must be overcome to the exchange of sensitive information, the participants provided recommendations to the types of sensitive information each community (law and medical/public health) may possess and what must be done for the other community to obtain the previously restricted information. In short, each community must be able to assure that the sharing of sensitive information will not compromise an investigation or damage the relationship with the witnesses/victims.

NDPO and SBCCOM recognized that state, county, and local jurisdictions across the country are attempting to address the issues of coordinating an effective response to bioterrorism. In response, these two organizations sought to assemble representatives from all levels of law enforcement and medical/public health agencies to provide jurisdictions with some assistance in

planning their response to a biological event. They obtained perspectives from federal, state, and local representatives on how to address the who, what, when, and how issues of integrating the criminal and epidemiological investigations. The Workshop participants sought to identify methods to establish information-sharing relationships between the law enforcement community and the medical/public health community at all levels of government. As a result, both communities have gained insights into the needs of their contemporaries and developed recommendations to aid in the timely exchange of critical information and the rapid identification of a bioterrorist event. These relationships should build upon existing policies and procedures whenever possible and establish new mechanisms when necessary.

This report provides general recommendations and is intended to raise general awareness of issues surrounding the effective coordination of the two investigations. Jurisdictions **should** modify this guidance to accommodate their individual needs and the special characteristics of their emergency response procedures. These recommendations **should not** be viewed as policy directives from the federal government for immediate implementation. While the Workshop participants disagreed on what information should be shared and when it should be exchanged, they believe the recommendations contained in this report will help jurisdictions individually establish the structure and relationships necessary to establish an effective information exchange.

APPENDIX 1

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January 19-21, 2000

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APPENDIX 2

WORKSHOP SCENARIO

NDPO/DoD BW IRP Workshop Scenario January 19-21, 2000

NOTE: The attached scenario will be used as a reference point for discussion in the breakout groups and to help facilitate discussion. It will not be used to test or evaluate responses to the events described.

Scenario Summary

The proposed scenario involves a terrorist group located in the United States that is composed of members from a fictional country. The group plans to manufacture Bolivian Hemorrhagic Fever virus to attack an exiled dictator from their native country. They plan to produce and cultivate the virus in a pet shop that is owned by members of the terrorist group. While preparing for the attack, a member of the terrorist group and six bystanders are accidentally infected with the virus. The scenario will include a tip from a confidential informant that someone plans to use a biological agent to attack the exiled dictator. The name of the group and the biological agent are unknown to the informant. This part of the scenario can be used to help develop procedures to share sensitive information between local, state and federal agencies.

Planning factors for the scenario include:

1. The terrorists plan to attack the exiled dictator in his hotel.
2. The terrorists use rodents normally found in pet shops to cultivate the virus.
3. The scenario will end once an arrest has been made, the population at risk has been identified, and the spread of the disease has been stopped.
4. The pet shop casualties should consist of 3-5 individuals.
5. The hotel casualties should consist of ~100 individuals.
6. The worried well should be factored at 5 times the number of casualties, once the word of the disease becomes public.

Scenario Background

During the 1980s, the Spanish-speaking country of San Esteban was ruled by a military junta lead by General Juan Murillo. General Murillo was known to his followers as “El Fuerte,” the strong one. El Fuerte and the Junta maintained a repressive anti-Communist regime aided by a strong military and the extensive use of death squads. Many opponents of the dictator vanished and became known as “the disappeared ones.”

During the period of the junta’s rule, many middle class professionals and intellectuals fled and took refuge in the United States. There are ethnic enclaves of San Estebanese in several of the major cities of the United States. They have a strong antipathy toward El Fuerte and his adherents. Many of them are resentful of what they perceive as the role of the United States in supporting El Fuerte’s regime, and suspicious of the U.S. Military, the CIA, and federal officials in general. A few of these exiles have formed a covert group called the “ADD”, an acronym from the initial letters of the Spanish phrase “Friends of the Disappeared Ones.”

Partially due to U.S. political pressure, a democratic government peacefully replaced the junta in 1991. In return for relinquishing power, El Fuerte was allowed to come to the United States where he now lives comfortably in a heavily guarded villa in Florida.

El Fuerte rarely leaves his Florida villa. However, some months ago he was sued by a group of San Esteban exiles claiming that their assets were wrongfully expropriated and laundered through a Swiss bank by El Fuerte. The case is being tried in US District Court in the city of Metropolis. Since this lawsuit enables some members of an ADD cell to predict when El Fuerte will travel to Metropolis, they see an opportunity to avenge the wrongs perpetrated by El Fuerte and his adherents and make them suffer for their crimes.

The ADD cell is headed by a physician named Dr. Pedro. Dr. Pedro is a San Estebanese exile whose brother was killed by the former secret police. He now teaches and attends patients as a member of the Metropolitan Medical School staff. During his medical training in San Esteban, Dr. Pedro worked with an outbreak of the Machupo virus that causes Bolivian Hemorrhagic Fever and is endemic to San Esteban where periodic outbreaks occur. Dr. Pedro conceives a plan that will use the virus to attack El Fuerte and his accompanying supporters in their hotel. Dr. Pedro is aware that Bolivian Hemorrhagic Fever is not as lethal as some other potential biological agents, however he has colleagues in San Esteban who can transport a sample of the virus into the United States. His clinical experience with the disease convinces him that a large enough dose of virus can be delivered to be fatal to El Fuerte. Dr Pedro uses the medical school laboratory facilities to develop stabilizing factors that will increase the biological half-life of the virus. The potential for successfully cultivating the virus is reinforced by the fact that a member of the group contracted and recovered from the disease. As a result this individual can work with the virus with some degree of immunity. Further, another member of the group owns a pet shop specializing in exotic animals such as South American parrots. However, it can easily accommodate the rodents (gerbils, hamsters and mice) used to propagate the virus. Finally, several San Estebanese work in many of the Metropolis hotels. The ADD cell is confident that they can identify the hotel in advance from the preparations that will be made; and they believe that they can recruit a hotel employee to actually release the agent.

The ADD cell proceeds with its plans to collect the virus from the rodents. The collection and storage process is not without risk. During a power outage, one of the agent handlers panics and rushes to the front area of the store, holding a vial of the agent. In the dark, the handler accidentally trips and smashes the glass container filled with agent exposing a family of four, a member of the conspiracy and two other people who happen to be in the pet shop delivering supplies. All notice the glass container and the unusual clothing and equipment the agent handler is wearing. Seven days later, one of the individuals making deliveries visits his HMO health care provider with symptoms. This encounter with the health care system marks day one of the scenario.

Scenario Time Line – Part 1

Day 1:

John Smith visits his HMO physician with fever of 102° F and malaise that he has been experiencing for two days. During the examination, the physician detects some flushing of the skin and palatal hyperemia. He is diagnosed with viral exanthema, sent home and told to return if symptoms worsen. John is a college student at Metropolitan University, where he lives in the dormitory. He works part-time delivering for the morning Metropolitan newspaper the “Daily Satellite” and the afternoon Metropolitan newspaper, the “Chronic Conservative.” He also delivers packages in the area of the pet shop for Amalgamated Delivery Systems.

El Fuerte’s impending visit to Metropolis has attracted the attention of the Collegiates Hoping for Utopian Measures for the Planet (CHUMPs) and other campus and student organizations. Prior to day one at a CHUMP rally planing anti-Fuerte protests, a student who understands a little Spanish overhears two individuals speaking in Spanish in a university restroom. The student understands that they are talking about El Fuerte’s impending visit and hears the statement that he believes translates as “we are going to make him so sick he will die.” He also hears the word “Bolivia.” The student is not sure he translated the words correctly, but he reports the remark to the local law enforcement.

Day 2:

Juan Tejada presents to the General Hospital Emergency Department with a four-day history of fever, malaise, headaches and muscular pains. Petechiae are on his upper trunk, a frank purpuric area is on his buttocks and he is bleeding from his gums. The Emergency Department physician is concerned about the purpuric area and admits Juan to the hospital. The attending physician in the Internal Medicine department is also concerned about Juan’s symptoms. The patient is placed in isolation in the Intensive Care Unit (ICU), and numerous laboratory studies and intravenous medications are begun emergently. Infectious disease consult is requested.

Juan works for a building cleaning company, which services a number of local shops in the community, the pet shop being one of his six assigned shops. He lives in the Hispanic section of the city and usually remains in that community. He has no recent history of travel to San Esteban, but his cousin returned from San Esteban two weeks ago. General Hospital is county supported and serves many of the uninsured and inner city population of Metropolis.

In addition to Juan, Ed and Maria Lopez bring their two young children (the family of four in the pet shop) to the General Hospital Emergency Department. Philip, 7, and Marissa, 5, are both exhibiting symptoms similar to Juan Tejada and are admitted to the ICU.

Day 3:

John Smith returns to his doctor with increasing symptoms including some purpura and a borderline ataxia. He has melanotic stools and is mildly hypotensive. He is admitted to Our Lady of the Suburbs, the HMO hospital of choice for its patients.

Day 4:

Roberto Martinez presents to General Hospital Emergency Department with fever, malaise, and petechiae. He has gingival bleeding. He states he has been sick for one day, but he has actually been sick for four days. Dr. Pedro has secretly given Ribavirin to Roberto in an effort to treat the disease without notifying the authorities. Roberto is an active member of the conspiracy and does not admit to having been in or near the pet shop. He states that he is a translator and notes that he recently did some work for a businessman from San Esteban, named Manuel Cortez whom he believes entered the US through Mexico and has returned to Mexico by car. This cover story and treatment plan is one that was adopted as a contingency plan when the ADD cell began its conspiracy. Roberto is admitted to the General Hospital ICU.

In addition to Roberto, Ed and Maria Lopez begin to exhibit symptoms similar to their children and are admitted to the General Hospital ICU.

Day 5:

The medical/public health community begins the epidemiological investigation into Juan Tejada's illness. On the same day, Roberto Martinez and Philip Lopez die as a result of the virus. Roberto received such a high dose of the virus that the early intervention by Dr. Pedro was ineffectual.

Day 8:

An additional case of Bolivian Hemorrhagic Fever presents to the General Hospital. Interviews with the patient reveal that eight days previously, the patient was in back of the pet store when a large number of rodents were removed and a large clean up occurred. He is able to provide a composite sketch of Dr. Pedro, as one of those present, and confirm that the man was addressed as "Doctor".

Day 9:

The medical/public health community confirms that Roberto Martinez died from Bolivian Hemorrhagic Fever.

Scenario Facts – Part 1

- Dr. Pedro entered the United States as a political refugee. His anti-Fuerte background is noted in the records of the INS investigation that gave him that status. Dr. Pedro is the author of a ten-year-old article on Bolivian Hemorrhagic Fever and a medline search would reveal this.
- INS has no record of a Manuel Cortez recently leaving or entering the United States through any of the Mexican Border immigration posts.
- When Roberto Martinez becomes sick, the rodents are moved out of the pet shop, ventilation hoods and other specialized equipment are moved, and an extensive cleaning takes place. Local residents note some of this unusual activity, but they do not volunteer this evidence and are reluctant to talk to law enforcement officials if questioned.

- When the pet shop is visited, some unusual things may be noticed. The pet shop has an unusually large number of rodents. Some of the windows in the non-public areas have glare screens, which were placed to filter out UV light. The non-public areas are large in comparison with a typical pet shop and they contain independent ventilation filters. This is not apparent except on detailed inspection. The non-public area has double doors going into that area of the shop with mild negative pressure. If asked about this, the owner will say that this is to avoid offending the neighbors with animal odors.
- A thorough check of the finances of the pet shop will show that equipment and supply expense far exceed the store's income, especially for rodent expenses.
- The pet shop operation involves the use of some unusual personal protective equipment. The conspirators either bought the equipment from a HAZMAT equipment supplier or Dr. Pedro took it from the Metropolitan University laboratories.
- Law enforcement contacts have learned that the supply of ribavirin in the hospital pharmacy does not match the inventory.
- Initial interviews by medical investigators with family members and others in the Hispanic neighborhood will be difficult. Members of the community are suspicious of U.S. Officials and there are language barriers. Dr. Maria Ramirez, who staffs a "free" clinic in the poorer areas of the Hispanic neighborhood, will assist with the investigation. Dr. Ramirez will be reluctant to turn over any records because of patient confidentiality.

Scenario Timeline – Part 2

If the workshop participants wish, the scenario can be played out to examine the events that would occur if the conspirators were to proceed with their plan. In this continuation of the scenario, the hypothesis is that the conspirators are not identified from the three or four early cases.

Day 18:

During his visit to Metropolis, El Fuerte holds a party at the Excelsior Hotel for more than a hundred of his supporters. The ADD has several members that work at the Excelsior Hotel, so they release the virus during the party in the room's HVAC system. Prior to the attack, one of the ADD members tells the Hotel support staff not to enter the room after 10:00 PM.

Day 21-30:

An additional 100 people present with Bolivian Hemorrhagic Fever. The cases fall into a normal distribution with the maximum number of new cases (30) presenting on day 26. Because of the earlier cases, the identity of the disease will be quickly apparent. With El Fuerte present at the hotel, law enforcement should quickly suspect a deliberate attack aimed at him.

APPENDIX 3

WORKSHOP OBJECTIVES

NDPO/DoD Workshop: Goals and Breakout Group Objectives/Tasks

WORKSHOP GOAL

The Workshop will identify methods to establish information-sharing relationships between the law enforcement community and the medical/public health community, at all levels of government; to ensure the timely exchange of critical information; and to rapidly identify a terrorist incident involving biological agents. These relationships should build upon existing policies and procedures whenever possible and establish new mechanisms when necessary.

BREAKOUT GROUPS

Group 1 – Question Development

Objective: To develop a joint list of the types of questions that are necessary to conduct law enforcement and medical/public health investigations.

Tasks:

1. Identify the general questions that each investigation seeks to answer – i.e., natural v. unnatural, agent type, dissemination point, etc.
2. Identify the types of questions and information that is necessary for the law enforcement community to conduct an investigation.
3. Identify the types of questions and information that is necessary for the medical/public health community to conduct an investigation.
4. Identify any time phasing of the questions – i.e., are there questions that should be asked at different stages of an investigation?

Group 2 – Communication of Information

Objective: To identify and/or establish key communication points and mechanisms between the law enforcement community and the medical/public health community to expedite the information exchange.

Tasks:

1. Identify the types of information the law enforcement community and the medical/public health community require.
2. Identify the critical communication points – e.g., personnel or departments – to provide information to the law enforcement community.
3. Identify the critical communication points – e.g., personnel or departments – to provide information to the medical community.
4. Identify what type of information should be provided to each communication point and what the best mechanism is to deliver the information.

5. Identify how information obtained by the law enforcement community may require modification so the medical/public health community can use it.
6. Identify how information obtained by the medical/public health community may require modification so the law enforcement health community can use it.

Group 3 – Information Integration

Objective: To identify procedures or mechanisms to integrate sensitive and information that is being collected for different purposes, while maintaining the integrity of the information – i.e., the meaning behind the information is not lost in the transfer. Also identify the types of information to be released to the media and the public.

Tasks:

1. Identify the types of sensitive information – i.e., secret informant or patient confidential information – that can and should be exchanged between the law enforcement community and the medical/public health community.
2. Identify how sensitive information can be used by the law enforcement community and the medical/public health community.
3. Identify potential problem areas in the exchange of information between the law enforcement community and the medical/public health community.
4. Identify mechanisms to integrate information so that the integrity is not lost.
5. Identify what information should be shared with the media/public without compromising the investigations or creating a panic.
6. Identify how to coordinate the media interaction between the law enforcement community and the medical public health community to speak with one voice.

Decision Tree and Response Template Groups

Objective: To identify critical decision points in the law enforcement and medical/public health investigation with the intent of developing an integrated response matrix to be used by responders across the country and use this information to modify and enhance the BW Response Template.

Tasks:

1. Identify the critical decision points for the law enforcement investigation – i.e. if/then statements or questions – and the associated actions for the decision point.
2. Identify the critical decision points for the medical/public health investigation – i.e. if/then statements – and the associated actions for the decision point.
3. Identify how these decision points interrelate and will integrate in the overall decision making process.
4. Update the epidemiological and criminal investigation portions of the BW Response Template base upon the Workshop results.

APPENDIX 4

BW IRP DECISION TREE WORKSHOP REPORT

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**Report of the
Biological Warfare Improved Response Program
Response Decision Tree Workshop
April 29 and 30, 1999**

1. INTRODUCTION

Based on PL 104-201, the Biological Warfare Improved Response Program (BW-IRP) was established in 1998 to identify, evaluate, and demonstrate the best practical approaches to improve domestic preparedness for incidents of biological warfare (BW). The BW-IRP is a multi-year program under the auspices of the Department of Defense and operated by the US Army Soldier Biological and Chemical Command (SBCCOM). During its first year of operation, the BW-IRP assembled an experienced, multi-agency team from the medical and responder communities to develop two primary products: a BW Response Template summarized in [Figure 1](#) and a prioritized list of response gaps and improvements that would be the basis for additional study.

2. PURPOSE

The purpose of this workshop was to continue the process of improving the BW Response Template (hereafter, the template) by focusing on the decision-makers' thought processes as a hypothetical biological emergency unfolds. Specific objectives included the following:

- a. To better define the key decisions that must be made to respond to a potential biological terrorist incident.
- b. To identify 'triggers' or 'flags' that can be used to guide decision-makers in determining if an unannounced BW response has occurred.
- c. To determine how a response would differ for an announced vs. unannounced attack scenario.
- d. To attempt to validate the generic nature of the template.

A basic assumption of the workshop was that the municipality would agree to implement the template, would have established reliable baseline values for the monitored information, and would have an active continuous medical surveillance program.

3. KEY DECISIONS DURING AN UNANNOUNCED ATTACK (See [Figure 1](#))

A. An unusual event has occurred. The critical issue during continuous medical surveillance is whether or not monitored information is above the trigger level for response. The group discussed the following issues:

- 1) The majority of the larger cities probably have most of this information available, but it may not be in a system that makes it readily available for monitoring. Cities must ensure that the information is accessible and appropriately monitored.
- 2) The 911 emergency call system provides a wealth of information, but cities have to determine what information is important to monitor, categorize this data, and develop the required baselines and reporting system.

- 3) The frequency of EMS runs is another source of valuable information, but again the locality has to categorize the information and set up an appropriate reporting system.
- 4) Adjunct to the EMS runs is the number of daily ER/local clinic visits and hospital admissions. These numbers will be different from the EMS runs due to self-referrals to the ER. Again, these numbers should be appropriately monitored and reported.
- 5) The number of deaths, particularly unusual deaths, was felt to be a particularly useful indicator of unusual medical activity. A potential problem with this indicator is the varying frequency with which deaths are reported to the Department of Health (DOH). If this trigger were used, the trigger value would have to be very low and could result in some false initiation of expanded surveillance.
- 6) One of the problems discussed was how to gather data from facilities that are not publicly funded, since these organizations consider all patient information, including statistical summaries, to be proprietary. The group agreed that in the absence of a declared emergency, the only way to gather monitoring data would be to rely on the data from municipal organizations.
- 7) The group decided that the monitoring of retail and pharmacy purchases would be futile, since not only would there be privacy concerns, but the mechanism to collect this information in a timely fashion does not exist and would be very expensive to implement. The same reasoning applies to the monitoring of laboratory test results in the absence of an emergency.
- 8) Given the diversity of municipal organizations in the country, the group recommended that it would be inappropriate to specify who should make the decisions required by the BW response template. All that could be done would be to suggest where the decision should be made, and to let the individual municipalities fit the recommendation within their current reporting chain.
- 9) Regardless of where the decisions are made, the group recommended that there be a definite monitoring and reporting procedure in place to alert officials when indicators suggest a potential BW attack on the country's cities.

B. A major health event is occurring. After it is decided that an unusual medical event has occurred, expanded medical surveillance must be initiated. The group recommended that the DOH (or equivalent) be the organization responsible for conducting the expanded Medical Surveillance and making the decision that a major medical event is occurring. Once the decision is made, the DOH should inform the mayor or equivalent. The following items were concluded by the group to be necessary to support the decision that a major health event is occurring:

- 1) All data from all sources should be integrated and reviewed by a single individual so as to form a coherent picture of the event.

- 2) The decision that an unusual event has occurred should trigger active two-way communication between DOH and health organizations such as poison control centers, hospitals, other local DOHs, morgues and medical examiners, local clinics and HMOs, private ambulance services, and the state DOH.
- 3) The DOH must try to define the initial population at risk. Working relationships should be developed that facilitate an exchange of information between the DOH and law enforcement elements so that this determination can be a joint effort.
- 4) Since a single case of an unusual medical condition may be sufficient to declare a major medical event (e.g., a death attributed to inhalation anthrax), the DOH should ensure that such conditions are known by the appropriate medical community and are reportable.

C. Potential cause and population at risk. When the DOH informs the mayor that a major medical event is occurring, in all likelihood the mayor will issue a press release. Therefore, the DOH must be prepared to answer questions from the press, or the press liaison, which will not interfere with the investigation. The following points should be considered during this phase of the event:

- 1) Should initial prophylaxis be administered? If so, to whom? What are the consequences if all the local prophylaxis supplies are exhausted on the wrong population?
- 2) It is essential for the medical team to develop a presumptive (or definitive) diagnosis as rapidly as possible.
- 3) If bioterrorism is suspected, the epidemiological team should determine the most likely release point and the associated population at risk. This determination may be facilitated with relational mapping software like GIS. Since this investigation is critical in determining the population at risk and the overall size of the emergency, all organizations should provide priority support to the team performing the epidemiological investigation. Preliminary answers should be available within 24 hours.
- 4) The mayor may activate law enforcement to begin a criminal investigation. Medical and health assets should work cooperatively to preserve evidence while assessing risk.
- 5) Local and state elements may request the involvement of the FBI and CDC if bioterrorism is suspected.
- 6) Personnel developing this information should be cognizant of the fact that weaponized BW agents are not the only agents that could be used on an unsuspecting and unprotected civilian population.
- 7) Release of accurate information to the media is critical in maintaining control of the situation. If the media do not believe they are obtaining accurate and timely data from the official sources, they will develop their own sources of information, which may be counterproductive to the official effort.
- 8) The emergency response official must know who should be prophylaxed, where to transport potentially exposed personnel, and what to tell the responders.

D. Medical prophylaxis and treatment measures, and appropriate activation of the modular emergency medical system. Once the probable cause and potential population at risk is known, the mayor (with advice from DOH) must decide what prophylaxis to administer and to whom and what

level of the modular emergency medical system to activate. If it has not been done already, the mayor will activate the EOC and attempt to determine what assistance is required from state, regional, and federal authorities. Other factors that must be considered when the modular emergency medical system is activated are:

- 1) To what degree is regular medical treatment affected?
- 2) To what extent are volunteers or other medical extenders used in the various modules, and what credentialing will be required?
- 3) Are hospital disaster plans activated (with the definition of a disaster being a mismatch of needs & resources)?
- 4) How will medical personnel arriving from other locations be accredited/credentialed?
- 5) To what extent should mutual aid be activated?
- 6) Can the media be used to direct the flow of potential patients?
- 7) If the goal is to stay ahead of the “tidal wave” of patients, how fast should the modules be opened?
- 8) Can the modules respond adequately to the use of multiple BW agents?

4. KEY DECISIONS DURING AN ANNOUNCED ATTACK

The next topic of discussion was how an announced BW attack would change the decision path leading to the declaration of a medical emergency. The group concluded that regardless of how the BW attack was announced, law enforcement would have to decide if the attack was credible. If the attack was not credible, the mayor would issue a media release and continue routine medical surveillance. If the attack was credible, then there would be two available options. The first option is that the release would be confirmed. At this point the mayor would activate the EOC and the modular emergency medical system while law enforcement is conducting a criminal investigation and the medical community is conducting an epidemiological investigation. The second option is that no definitive determination could be made concerning the validity of the announced attack. The expanded medical surveillance, epidemiological investigation, and criminal investigation portions of the BW response template would be activated and a media release would be made concerning the actions taken by public officials. These actions would continue until the determination could be made as to the validity of the announcement.

5. BW RESPONSE DECISION TREE

A. The BW Response Decision Tree is presented in Figure 2. The Decision Tree is designed for use with the Biological Warfare (BW) Response Template. The purpose of the Decision Tree is to address who makes the decisions, the sequencing of the decisions, and the types of information that need to be developed and considered when making the decisions. The starting point for this decision tree is the assumption that the local jurisdiction has a functional medical surveillance program and has incorporated the BW Response Template into their Emergency Response System. Medical surveillance should operate continuously and provide non-specific detection of medical activities above established baselines in order to improve the chances of detecting unusual medical events sooner rather than later. In order for medical surveillance to be effective, specific medical activities, i.e., volume of 911 calls, categorized EMS runs, or unusual deaths, must be monitored. Once the monitored values pass a trigger threshold, this activity must be reported to an individual within the DOH or equivalent agency for action.

B. When the DOH individual is notified, an informal investigation must be conducted to determine if there is a known cause for the trigger value. If the person determines there is a known cause, such as a major accident or a natural disaster, this result is logged and the system returns to routine medical surveillance. If there is no apparent cause for the unusual value and the individual decides that an **unusual event has occurred**, then the Office of Emergency Management (OEM) is notified to alert these personnel that an unusual event has occurred and that the DOH is initiating **expanded medical surveillance**.

C. **Expanded medical surveillance** would initiate a more active gathering of medical information to support the decision that a **major health event is occurring**. This information is gathered by the DOH. The DOH would actively poll hospital emergency rooms, poison control centers, morgues, and other local health officers to try and determine if these organizations are experiencing an unusual number of persons contacting them with similar complaints/symptoms. Once the DOH determines that a **major health event is occurring**, the mayor (or other appropriate elected official) would be notified and **medical diagnosis, epidemiological investigation, and criminal investigation** would be activated or intensified.

D. The DOH personnel performing the **medical diagnosis** must concentrate on obtaining a presumptive diagnosis as rapidly as possible so that they can make a decision as to what **medical prophylaxis and treatment measures** are appropriate. Simultaneously, DOH must perform a rapid **epidemiological investigation** to support a decision as to what segment of the **population is at risk** and the **probable cause** of the major health event. Additionally, law enforcement would initiate a **criminal investigation** based on risk factors, such as identified threats and dates of special significance, and try to determine if **criminal activity** initiated the major health event and if there is a crime scene to investigate. Once any of these activities uncovers new information, or at a previously set time, the mayor must be updated.

E. After receiving the update, the mayor must decide if the available information warrants the partial or full activation of **the modular emergency medical system** and activation of the government's EOC. Additionally, the mayor must decide if a medical emergency declaration is required and if state and federal assistance is required. Additional points to consider at this time are the availability of medical supplies, if access to and egress from the community is warranted, and if a curfew is warranted. Finally, once a definitive diagnosis is obtained, DOH must decide what medication to provide to the victims, particularly since the initial medication, if appropriate, may be in short supply.

6. EXERCISE OF THE BW RESPONSE DECISION TREE

A. To validate the BW Response Decision Tree, the group conducted a tabletop exercise of an unannounced anthrax attack on Baltimore City, which resulted in 10,000 infected people. The anthrax casualty projections from the model were used to determine the number of victims requiring medical assistance. A day-to-day summary of the decision-maker's actions follows:

Day Zero: The attack occurs and is undetected.

Day One: Even though there are 10,000 infected people within the city, the disease is in its incubation period, so there are no personnel requiring medical assistance this day. The city conducts normal daily operations.

Day Two: During the course of the day, 700 people present themselves to medical facilities seeking aid. They are experiencing flu-like symptoms. These personnel are treated and released by the local medical community. The city conducts normal daily operations.

Day Three: There are an additional 2700 personnel with flu-like symptoms seeking medical aid today, 600 repeat personnel with upper respiratory infection symptoms, and 100 fatalities. This volume of cases triggers the initiation of the expanded medical surveillance program. The mayor is also briefed about the developing situation at about 11:30pm. During this meeting, the mayor wants to ensure that all actions are coordinated with the city's key organizational elements; that the State DOH will be notified; and that a further update meeting has been scheduled in six hours to further update the situation.

Day Four: Based on a presumptive diagnosis of inhalation anthrax from an autopsy of two individuals and the large number of personnel requiring medical assistance, the decision is made to update the mayor at 2:00am. During this update meeting, the mayor is informed that there have been 2 presumptive anthrax fatalities, the state DOH has notified the CDC, a criminal investigation has been initiated by law enforcement, and an extensive epidemiological survey has been initiated to define the population at risk. The mayor wants to know how much prophylaxis is available locally and who is going to get it, what he should tell the media, and when the worst would be over. The mayor also wants to know if a curfew should be declared and the city closed. He also decides to declare an emergency, open the EOC, activate the modular emergency medical system, and request state and federal emergency assistance.

B. Points for consideration that resulted from the scenario included:

- 1) A case definition or objective indicator of inhalation anthrax is needed to facilitate separation of the worried well from those actually ill with the disease. This was identified as a critical need, since the amount of readily available prophylaxis is not sufficient to be able to treat large numbers of people.
- 2) Distribution plans should be developed for daily (or less frequent) distribution of the prophylaxis so it is not unnecessarily distributed; the medication may be quickly changed as the clinical diagnosis is developed and the population at risk is better defined or narrowed.

C. Finally, the group discussed methods to disseminate the results of the BW response template and this workshop. Possible techniques discussed were specific classes to train personnel on the template, with various scenarios to emphasize how it works; preparation of a training film, in conjunction with the CDC; and presentation during the USAMRIID/CDC Satellite courses.

7. CONCLUSIONS

The workshop participants concluded that development of the BW Decision Tree was a significant aid in identifying and tracking the difficult but necessary decisions that must be made during an ongoing large-scale medical emergency. Additionally, the participants concluded that the BW Decision Tree is extremely helpful in providing a quick overview of the BW Response Template, facilitating its use, and understanding the rationale for why it is needed.

FIGURE 1:
BW Response Template Components and Key Decisions

