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The Role of LAW ENFORCEMENT in Public Health Emergencies

SPECIAL CONSIDERATIONS FOR AN ALL-HAZARDS APPROACH

BJA Bureau of Justice Assistance

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U.S. Department of Justice
Office of Justice Programs
810 Seventh Street NW.
Washington, DC 20531

Alberto R. Gonzales
Attorney General

Regina B. Schofield
Assistant Attorney General

Domingo S. Herraiz
Director, Bureau of Justice Assistance

Office of Justice Programs
Partnerships for Safer Communities
www.ojp.usdoj.gov

Bureau of Justice Assistance
www.ojp.usdoj.gov/BJA

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Written by
Edward P. Richards, Katherine C. Rathbun,
Corina Solé Brito, and Andrea Luna

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Special Considerations for an All-Hazards Approach

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Introduction

Recently, increases in cases of avian flu in both humans and animals have raised concern about the threat of another flu pandemic. The Centers for Disease Control and Prevention (CDC) characterizes a flu pandemic as the emergence of a virus for which most people have little or no immunity, causes serious illness, and then spreads easily person-to-person worldwide. The CDC states that a pandemic may come and go in waves (lasting 6–8 weeks each—perhaps longer), which could lead to high levels of illness, death, social disruption, and economic loss. The death toll of the 1968–1969 flu pandemic was more than 700,000 worldwide.[1]

On May 2, 2006, the White House released the *Implementation Plan for the National Strategy for Pandemic Influenza,* which reiterates the importance of state and local preparedness; clarifies roles and responsibilities; and includes information, guidance, and recommendations for preparedness. While preparedness may seem largely a public health responsibility, law enforcement has a very critical role in the response to these incidents. Chapter 8 of the *Implementation Plan* ("Law Enforcement, Public Safety, and Security") states:

> "If a pandemic influenza outbreak occurs in the United States, it is essential that governmental entities at all levels continue to provide essential public safety services and maintain public order. It is critical that all stakeholders in State and local law enforcement and public safety agencies, whose primary responsibility this is, be fully prepared to support public health efforts and to address the additional challenges they may face during such an outbreak."[2]

The Role of Law Enforcement[3]

Public health emergencies pose special challenges for law enforcement, whether the threat is manmade (e.g., the anthrax

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1. U.S. Department of Health and Human Services, www.pandemicflu.gov/general/#impact.

2. www.whitehouse.gov/homeland/nspi_implementation.pdf, p. 153.

3. For the purposes of this document, the term "law enforcement" refers generally to sworn personnel serving state, city, and county jurisdictions (e.g., police officers, sheriffs' deputies, and state troopers). Specific references to other types of law enforcement officials, such as federal agents, park rangers, animal control officers, and others will be noted.

terrorist attacks) or naturally occurring (e.g., flu pandemics). Policing strategies will vary depending on the cause and level of the threat, as will the potential risk to the responding officers. In a public health emergency, law enforcement will need to quickly coordinate its response with public health and medical officials, many of whom they may not have worked with previously.

Depending on the threat, law enforcement's role may include enforcing public health orders (e.g., quarantines or travel restrictions), securing the perimeter of contaminated areas, securing health care facilities, controlling crowds, investigating scenes of suspected biological terrorism, and protecting national stockpiles of vaccines or other medicines.

In a large-scale incident, such as a pandemic, law enforcement resources will quickly become overwhelmed, and law enforcement officials will have to balance their resources and efforts between these new responsibilities and everyday service demands. All of this may have to be accomplished with a greatly diminished workforce, as officers and their families may become infected and ill, and some personnel may determine that the risk of continuing to report to work is just too great to themselves or their families. A department's ability to respond effectively to any emergency—public health or otherwise—greatly depends on its preparedness, and this is directly linked to the law enforcement agency's planning and its partnerships.

This document will help state and local law enforcement officials and policymakers to understand communicable diseases (including terminology and methods of transmission) and the threat they pose to public health and safety.[4] The document outlines key concerns that law enforcement officials must address in preparation for a virus-caused pandemic and other public health emergencies and identifies issues that may arise in the department's "all-hazards" approach. The document has three main sections:

- Preparing the department (e.g., maintaining operational continuity).
- Protecting the officers (e.g., educating them about transmission, vaccination, and treatment).
- Protecting the community (e.g., maintaining public order).

In addition, five appendixes provide background information and additional resources.

4. This document does not deal with law enforcement's role in controlling disease outbreaks in crops and farm animals.

Preparing the Department

Law enforcement plans for a large-scale public health emergency must be applicable to all types of public health hazards. The value of developing an all-hazards plan is that it can be activated regardless of whether the public health emergency is intentional (e.g., an act of biological terrorism) or naturally occurring (e.g., avian flu). More important, an all-hazards plan provides a basis for better protection of officers from the risks that arise in routine policing. By incorporating an all-hazards approach into routine activities, and developing the needed partnerships with key stakeholders now, a department can move seamlessly into higher states of readiness as risks change, rather than having to shift into an emergency mode that has different operating parameters than routine police work.

An important objective of this all-hazards planning is to facilitate informed discussion on the issues and to encourage law enforcement officials to think about the implications of a public health emergency, how the necessary response fits into their existing emergency operations plans, and additional partnerships that may be needed.

In short, what law enforcement should have in place, *before* a major outbreak of illness or chemical contamination occurs, is an all-hazards control plan, which encompasses every aspect of what must be done as soon as an event that threatens major loss of life looms on the horizon.

Responding to and Managing Incidents

Both the National Incident Management System (NIMS) and the National Response Plan (NRP)[5] have had a significant impact on how state and local entities are updating their emergency response plans. Many cities have opted to model their emergency response plans after the NRP. The NRP is effectively an all-hazards plan composed of 15 Emergency Support Function (ESF) annexes that spell out the response roles of primary and secondary agencies (e.g., the U.S. Department of Justice (DOJ), the American Red Cross). Although many plans were written with input from local law enforcement representatives, some may not have been, and it is critical that law enforcement personnel review their planned roles to be familiar with local government's expectations in the case of a critical incident.

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5. Available at www.dhs.gov/dhspublic/interapp/editorial/editorial_0566.xml.

ESF #8 of the NRP, titled "Public Health and Medical Services Annex," discusses the elements involved in providing for "public health and medical care needs (to include veterinary and/or animal health issues when appropriate) for potential or actual Incidents of National Significance and/or during a developing potential health and medical situation."[6]

This ESF details how to provide support in these areas:

- Assessment of public health/medical needs (including behavioral health).
- Public health surveillance.
- Provision of medical care personnel.
- Acquisition of medical equipment and supplies.

The primary agency for this ESF is the U.S. Department of Health and Human Services (HHS); DOJ is listed as one support agency. Under the Concept of Operations, the plan states, "Personnel representing an ESF #8 organization are expected to have extensive knowledge of the resources and capabilities of their respective organization and have access to the appropriate authority for committing such resources during the activation."[7]

The support roles listed for DOJ, which may be passed on to local law enforcement as state and local agencies plan, include:

- Assist in victim identification, coordinated through the Federal Bureau of Investigation (FBI).
- Provide state, local, and tribal governments with legal advice concerning identification of the dead.
- Provide HHS with relevant information of any credible threat or other situation that could threaten public health.
- Provide communication, transportation, and other logistical support.
- Provide security for the strategic national stockpile and quarantine enforcement assistance, if required.

Local law enforcement agencies should help devise their jurisdiction's plans. If officers have an opportunity to take part in the planning, it is more likely that the expectations set for the department will be met—in any type of emergency. For example, ESF #8 states that in a public health emergency, the U.S. Postal Service will assist "in the distribution

6. U.S. Department of Homeland Security. (2004). *National Response Plan*. ESF #8-1.

7. U.S. Department of Homeland Security. (2004). *National Response Plan*. ESF #8-3.

and transportation of medicine and pharmaceuticals and medical information to the general public affected by a major disaster or emergency as needed."[8] Here, for example, there may be an underlying expectation that local law enforcement will help the Postal Service with this task in some communities. This is just one of the many expectations that law enforcement agencies need to be aware of when preparing an all-hazards plan.

Continuity of Operations

The second component of an all-hazards disease control plan for law enforcement agencies to consider is how to protect the department and ensure operational continuity. All agencies need to prepare to work with a significantly reduced workforce—with estimates of possible workforce reductions from 10 to 40 percent—or more—as employees will either be caring for others, sick with the disease, or in some cases may be too concerned to report to work.

In planning for staff reductions, departments will have to reconsider the types of calls that usually require dispatching officers, identifying which responsibilities and functions receive priority, and how other, lower priority tasks will be handled. For example, departments may consider taking reports of property destruction or other property crimes over the phone or through the Internet, or employees in quarantine may be able to work from home, taking incident reports over the telephone, if allowed by department policy.

There should be contingency planning within the department, especially in units that are essential to maintaining core operations (e.g., dispatch, executive office, and patrol). Some departments have begun such planning by conducting assessments to determine from where personnel will be drawn to maintain core functions. Support staff—including human resources and benefits, payroll, and personnel and materials acquisition staff—must be maintained even at the height of an event. Cross training of support staff to fill key functions within payroll and materials management will ensure the availability of resources for primary response personnel, including, for example, fuel for police vehicles.

Further, personnel performing functions that may be deemed non-essential during a public health incident (e.g., training and recruiting) may have to perform primary response tasks. Reprioritizing calls for service may have to occur, and smaller agencies may have to partner with larger agencies to provide service during periods of staff reduction. Mutual aid agreements that provide for agency interoperability and increase staff understanding of specific challenges or hazards present in the workplace should be established in advance.

8. U.S. Department of Homeland Security. (2004). *National Response Plan*. ESF #8-13.

Protecting Law Enforcement Officers

To prepare a law enforcement agency for any type of public health emergency (e.g., an epidemic or bioterrorist attack), education about and plans for infectious disease control need to be a regular part of the department's activities. Officers need basic education about infectious disease biology, modes of transmission (such as person-to-person and vector borne), and routes of entry of communicable diseases (eyes, nose, and so forth). Ways to provide this education include forming a partnership with a local hospital or an occupational health and safety program.[9] Departments also could include a substantial short course in preventing on-the-job exposure to infectious diseases through basic precautionary measures and the proper use of personal protective equipment. In time, the use of antimicrobial gloves during close personal contact, frequent hand washing, and proven disinfection and decontamination strategies will become second nature through repeated exposure to the teaching points.

Further considerations in regard to education—and all the other forms of protection for officers—appear in appendix 1.

Risks to Law Enforcement From Disease

Casual Contact

The diseases that should most concern law enforcement are those that are spread by casual contact between individuals. If a respiratory disease, such as influenza or measles, is spreading throughout the community, officers will be exposed repeatedly. As the incidence of a disease increases in the community, it also will increase among law enforcement officers, unless specific measures are taken to prevent infection.

In the simple act of stopping and speaking with someone, an officer may inhale pathogens or handle an infected item (e.g., a car registration). Physical contact and altercations dramatically increase the risk of infection. In addition, officers will face work-specific risks, such as controlling crowds at large events, transporting prisoners to jails

9. For more information on occupational health and safety programs, visit the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) web site at www.osha.gov.

(where respiratory diseases spread quickly), and working closely with health care workers who are also at heightened risk for exposure, such as ambulance personnel.

In some situations, public health officials may ask law enforcement personnel to locate an infected person who is either knowingly or unknowingly spreading a disease. For example, several people have recklessly or intentionally spread sexually transmitted diseases (typically HIV).[10]

Diseases that spread rapidly by direct respiratory contact or other means and cause death or severe aftereffects may compel restricted movement of individuals. If left unchecked, such high-mortality diseases can lead to pandemics, social disorder, and the need for major assistance from law enforcement. If not segregated, a single individual could infect and cause the death of thousands. In these circumstances, the designated officials would decide whether quarantine or isolation is needed. Law enforcement and public health officials will need to work closely together to decide when to move from voluntary to mandatory orders, how quarantine and isolation orders will be enforced, and, if necessary, maintained by legitimate instruments of force (the roles of law enforcement agencies during quarantines and isolations are discussed in a subsequent section).[11]

Food- and Water-Borne Diseases

Generally, the risk of food- and water-borne diseases (spread through bacterial contamination of food or drinking water) is the same for law enforcement personnel as for the general population. The risk of contracting these diseases, however, may increase in situations where the civil and social infrastructures have been heavily damaged, as in the areas ravaged by Hurricane Katrina and its aftermath. As first responders, law enforcement personnel may face more food- and water-borne disease than the general population while they are assisting in evacuation or rescue and recovery.

The spread of food- and water-borne infections can be limited if infected individuals and the people with whom they have been in close contact are prevented from working in food preparation until tests indicate they are no longer contagious. Even when infected persons have been physically isolated, it is still important that they be prevented from preparing food, even for their own families, and from working with especially vulnerable populations, such as the elderly or very young. In an outbreak of diseases such as typhoid or cholera, law

10. *State* v. *Gamberella*, 633 So.2d 595 (La.App. 1 Cir. Dec 29, 1993).

11. The official authorized to implement quarantine and isolation measures is usually a public health official, but this varies by state. The necessity of issuing mandatory quarantine and isolation orders depends on the level of threat.

enforcement might be asked to help public health and park authorities close—and then enforce closure of—recreational areas such as pools, water parks, and beaches to prevent the spread of infection.

As long as the basic public health infrastructure for water and food sanitation is intact, food- and water-borne illnesses do not pose a major threat in the United States. If bioterrorists contaminated the water supply, flushing extra chlorine through the water supply system would easily eliminate the contamination. In the event of a biological terrorist attack on the food supply, law enforcement would head up the investigation in partnership with public health authorities to identify the source and extent of the contamination.

Blood-Borne Diseases

In the instance of blood-borne diseases, hepatitis B is in fact more infectious than HIV and thus poses the greater threat to law enforcement officers—especially if they work in correctional settings or are in close contact with intravenous drug users. Minor injuries often occur to both suspects and officers during altercations, leading to potential exposure to blood-borne pathogens. The risks of hepatitis C transmission are not well understood, but they are thought to be limited in these situations.[12]

However, officers are first on the scene in many traffic accidents—another opportunity for exposure to blood-borne pathogens. Investigating crime scenes, especially if drugs are involved, can also pose particular hazards (e.g., needles that have not been disposed of properly or exposure to body fluids).

Immunization and Personal Protective Equipment

Immunization

One important protective measure for law enforcement officers and support staff is immunization against the basic diseases that might pose a threat to their health and to the health of their community.[13] However, there may be some who question mandatory immunization.

12. Centers for Disease Control and Prevention. 2000, July 28. "Hepatitis C Virus Infection Among Firefighters, Emergency Medical Technicians, and Paramedics—Selected Locations, United States, 1991–2000." *MMWR Weekly* 49(29): 660–665. Available at www.cdc.gov/mmwr/preview/mmwrhtml/mm4929a3.htm. Datta, D.S., Armstrong, G.L., Roome, A.J., Alter, M.J. 2003. "Blood Exposures and Hepatitis C Virus Infections Among Emergency Responders." *Archives of Internal Medicine* 163(21): 2605–2610. Available at http://archinte.ama-assn.org/cgi/content/abstract/163/21/2605.

13. Centers for Disease Control and Prevention, www.cdc.gov/nip/recs/adult-schedule.htm.

The department cannot assume that this resistance will disappear when there is a public health emergency. In fact, objections to vaccination are likely to increase because personnel may need to be vaccinated before there is a clear threat, and the vaccine to be used may not have been proved safe or effective.

The starting point is encouraging employees to be fully immunized against common diseases. Offering a voluntary flu vaccine program is an example of this type of benefit. It often helps to present the risk factors in clear terms: the probabilities associated with taking and not taking the preventive treatment, windows of opportunity for getting vaccinated once there is exposure, and the downside effects of complications that could occur in rare circumstances. This topic should also be covered in any educational programs the department may offer.

Several types of vaccines are used only in special situations. One is the smallpox vaccine, which is only available through the federal government. This vaccine is used to prevent the spread of smallpox by a bioterrorist.[14] Unlike other immunizations, the smallpox vaccine is a disease agent itself and can be very dangerous for a defined period of time, during which those immunized may be contagious to their close contacts. A number of other vaccines are required for traveling (e.g., yellow fever, cholera, and typhoid) or for certain occupational exposures. These immunizations might be used during an epidemic, but they are not widely used in the United States. The anthrax vaccine is traditionally administered to people who work with animals that may carry anthrax or in laboratories that work with this bacterium. It may, however, be needed by law enforcement in special situations (e.g., terrorist dispersal). None of these vaccines are routinely administered to law enforcement personnel, but any might be used for a preventive purpose in an epidemic situation.

As an option, departments can mandate inoculation against specific diseases (e.g., measles, mumps, rubella, chickenpox, polio, and diphtheria) pre-employment for all officers who will come in contact with the public. Immunization against most of these diseases is required (with few exceptions) for students starting school in every state, so most officers born in the United States have some residual immunity. Some of these diseases, such as chickenpox, are still common and pose a serious threat to adults who are not immune. Others, such as rubella, are rarer but are particularly dangerous for pregnant women. Without up-to-date immunizations, officers might easily spread these diseases.[15]

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14. Wild smallpox was eradicated worldwide in the 1970s (www.bt.cdc.gov/agent/smallpox/overview/disease-facts.asp).

15. See appendix 3 for diseases officers may be exposed to while on the job and for which vaccinations are available.

Recently, there has been much debate about the concept of "tiers of vaccination" or determining who should be given priority in receiving vaccines during an outbreak of a potentially fatal disease. Operating under the assumption that the disease causing the outbreak is new (e.g., avian flu) and a vaccine does not yet exist, state and local decisionmakers are being tasked with identifying the "priority groups" that would comprise the first recipients of these vaccines once they have been developed. In most jurisdictions, medical professionals are first on the list of recipients (e.g., doctors, nurses, and emergency medical service providers) and law enforcement personnel are either second or third.

The vaccine priority given to law enforcement officers may depend on their role during public health emergencies, as outlined in local and state plans. In jurisdictions where law enforcement officers are expected to work side-by-side with public health and emergency medical services personnel, vastly exceeding their normal scope of duties (and increasing their risk of exposure), they may be given higher vaccine priority.

Personal Protective Equipment

Providing personal protective equipment (PPE) is one of the most important steps for protecting law enforcement personnel and is a necessary component of an effective all-hazards disease control plan. Moreover, many departments prohibit officers from responding to a potentially contaminated scene unless they wear the department-issued PPE. Some jurisdictions have outfitted all officers with such equipment. For example, the Toronto Police Service provides officer safety kits, which are worn on the officer's duty belt. Higher level kits are stored in patrol vehicles. Training also must be provided in the proper use of PPE, and the law enforcement agency must deliver this training in a context that is law enforcement-relevant and suitable to the biological hazards personnel may face.[16]

Occupational Health and Safety Program

Tom Imrie, Unit Commander, Occupational Health and Safety, Toronto Police Service

The Toronto Police Service Occupational Health and Safety Program ensures that all police officers and some civilian staff receive training in communicable disease risk management and appropriate personal protective equipment (PPE). PPE has been provided to every patrol officer and some civilians deemed at risk, such as court security officers and staff who clean the insides of police vehicles.

Police officers and court officers are issued PPE, including officer safety kits that are contained in pouches on an officer's duty belt. These kits include antimicrobial gloves, antiseptic towelettes, saline solution, and a one-way CPR air mask. Higher level enhanced kits are stored in the trunks of patrol vehicles and include N95 masks,[a] protective eye wear, waterless antiseptic hand wash, needle debris containers, Tyvex or similar material coveralls, heavy-duty rubber gloves, and biohazard storage bags for contaminated clothing. The foregoing is considered basic equipment and is available to all members who may be exposed to communicable diseases.

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16. For additional information on personal protective equipment (PPE), see the U.S. Department of Homeland Security's *First Standards for Personal Protective Equipment for First Responders,* available at www.dhs.gov/dhspublic/display?content=3301; the National Institute of Justice's Law Enforcement and Corrections Standard Testing Program, *Guide for the Selection of Personal Protective Equipment for Emergency First Responders (Respiratory Protection)* (NIJ Guide 102–00 Vol. IIb) and *Guide for the Selection of Personal Protective Equipment for Emergency First Responders (Percutaneous Protection—Garments)* (NIJ Guide 102–00 Vol. IIa), available at www.ncjrs.gov; for information on training on the use of PPE, see www.cdc.gov and www.osha.gov.

PPE should be planned for and acquired well before an outbreak occurs. There are three main classes of PPE that should be made available to law enforcement: hand sanitation, protection against blood and body fluids (e.g., gloves), and respiratory protection.[17]

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Identifying which officers need enhanced PPE was one of the lessons learned during the Severe Acute Respiratory Syndrome (SARS) epidemic and other events such as anthrax hoaxes.

Through risk assessment, the Toronto Police Service determined that there was a need for officers who could respond to natural or manmade public health emergencies. In preparation, the department trained and equipped specific forensic identification officers in Level 4 Hazmat. The equipment provided consists of positive pressure self-contained breathing apparatus (SCBA), and full-coverage, total-isolation, biohazard containment suits. These officers were then trained in the recognition, assessment, and control of biological hazards. In a biohazard emergency, their function is to mitigate the biological hazards that resulted in the emergency through appropriate means (e.g., containment, isolation, and decontamination), and then investigate the event including packaging and collecting evidence.

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Hand sanitizing—hand washing, applying alcohol gels (with 60–90 percent alcohol), and using antibacterial wipes—is the simplest and easiest form of personal protection. It can also be one of the most effective. Even in an epidemic, liberal use of hand washing and alcohol gel can slow the spread of disease.

The next level of protection is what used to be called "universal precautions" (i.e., against blood and body fluids) and includes gloves, gowns, and masks. Anyone who might come in contact with another person's blood or body fluids should be wearing latex or vinyl antimicrobial gloves. During an epidemic, wearing gloves when body contact is likely would prevent germs from getting on hands in the first place—preferable to killing germs by hand sanitizing.

If there is more than a little blood or it is likely to splatter, more complete coverage is needed: waterproof gowns, paper masks, and eye shields. Although these items are fairly simple to put on correctly, few people take them off correctly. If gloves are grossly contaminated, for example, they must be washed or cleaned before removing any other items. Gowns should be pulled off inside out before the gloves are removed. The facemask should then be removed completely, not hung around the neck. Goggles should be removed last (using clean hands).

Wearing waterproof gowns poses two challenges to law enforcement personnel. First, it will be difficult to identify them as law enforcement personnel because their uniforms will be covered. Second, unless their equipment (e.g., batons, pepper spray, and firearms) is worn outside the gown, it will not be readily available. If the equipment is worn outside the gown, on the other hand, it will have to be decontaminated before it can be touched with clean hands.

Respiratory protection is the most complicated and difficult to use properly. A paper mask worn loosely over the mouth and nose is good protection against blood splatters and keeps the officer from putting contaminated fingers into the mouth or nose. As protection from airborne disease, however, it is virtually useless. The basic principle of respiratory protection is that all air moving into the respiratory tract must pass through the filter of the mask. Individuals need masks that fit snugly over the mouth and nose and a pair of goggles that covers

17. U.S. Food and Drug Administration, www.fda.gov/cdrh/ppe/fluoutbreaks.html.

the eyes. If air gets around the mask or through contaminated tears and into the nose, there is no protection.[18]

Law enforcement personnel who may be required to wear any type of respirator, even a simple mask type, should have a physical exam beforehand and must be fit-tested to determine that they can wear the mask appropriately. Inability to detect specific aromatic substances in the air while wearing a respirator, for example, indicates a proper fit. Men with facial hair cannot wear this kind of protection effectively. People with asthma or other respiratory diseases may not be able to tolerate the reduced airflow.

In general, the more virulent the disease, the smaller the amount of infectious agent needed to infect an individual and the more critical the use of effective PPE. If a dangerous disease is easily spread through inhaled particles (e.g., anthrax or smallpox), the most effective PPE available, such as air-purifying respirators or self-contained breathing apparatus, will be necessary. Further, all PPE should be disposed of as hazardous medical waste would be.

Major Infectious Diseases

What should departments do about workers with major infectious diseases who nonetheless insist on staying at work? Paid sick leave is limited, and taking extra sick days may simply not be possible in some departments. There is also the realization that missing work places an added burden on those who are still working.

With major infectious diseases, however, it is critical that no one be allowed to work while sick, and this needs to be supported by supervisors at all levels within the department. Contagious diseases can spread very quickly through a department and most preventive measures are not very effective in a work environment. Many diseases spread through the air, through hand contact, and on environmental surfaces. One person working for a few hours while sick can pass the disease to many others. Soon, a significant proportion of the department (both sworn and civilian) is likely to be sick, too. For example, during the SARS outbreak in Toronto, an employee who came to work sick

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The department has similarly trained and equipped officers who investigate clandestine drug labs and "hydroponics grow" (i.e., soil-less gardening) operations. These officers can be deployed to assist in the event of natural and manmade incidents. They are provided with SCBA, Level 1 Hazmat suits, and evidence collection and packaging materials suitable to the risks present. This model has been adopted throughout Canada.

a. Masks certified by the CDC's National Institute for Occupational Safety and Health as filtering out at least 95 percent of airborne particles (www.cdc.gov/niosh/npptl/topics/respirators/disp_part).

18. Putting the mask on the person who has contracted a respiratory infection is a more effective way of controlling the spread of respiratory diseases. This strategy has been used in tuberculosis control for decades. If the disease agent is in the respiratory secretions (e.g., phlegm), keeping the secretions in the mask instead of coughing them into the air everyone else is breathing helps reduce the chance of spread. Fortunately, when trying to keep the germs in instead of out, the loose fitting mask is acceptable. There are, however, two problems. If someone has a significant respiratory illness, they are less likely to be able to tolerate the mask than a healthy individual would be. The other problem is determining who should be wearing a mask. Many people cough frequently (it is a natural cleaning mechanism for the lungs and mouth). If there is a serious respiratory illness spreading in a community, it may be worthwhile to put a mask on anyone who is coughing or on everyone when they must be in close contact with others, such as in a car, a holding cell, or waiting room.

exposed 49 people in 1 day. These individuals—who had the potential to infect their families and other close contacts—were quarantined and thus rendered unable to perform their duties for 10 days.

This is a particular problem for diseases that have a short incubation period (such as measles, mumps, and flu). Everyone who is infected from the original sick employee is likely to get sick and be out sick at the same time, reducing the size of the workforce. Law enforcement disease surveillance programs and plans are important vehicles for addressing the issue of working while sick during a public health emergency. Effective preparedness requires policymakers to consider implementing some form of disease surveillance and reviewing sick leave policies and policies on working while infected. Further, other issues regarding how and when employees use sick leave; workmen's compensation; and considerations for those who report to work, contract the disease, and die all need to be addressed in advance.

During the SARS outbreak in Toronto, officials decided that officers who were quarantined as a result of potential occupational exposure would receive full pay for the days they were previously scheduled to work. If they were quarantined as a result of nonoccupational exposure, however, they were instructed to use sick leave.

If there is an epidemic, a department may activate its disease surveillance program, whereby employees are checked for signs of illness before they return to work. This may be as simple as asking everyone to monitor their temperatures at specific intervals during their shifts and report any symptoms or as complex as having a nurse check each person physically before they enter the building. Obviously, the level of surveillance and the restrictions on employees returning to work depends on the type and severity of the disease.

In addition, much thought should be given to what ought to be done after an employee has been identified as possibly sick. Would he or she be sent home or to another predetermined location for isolation? The level of the threat will dictate the response, but departments should consider the range of possible responses (and secure the necessary partnerships and resources for implementing these responses). Departments need measures for determining which officers are fit for duty. Otherwise, it becomes even more challenging for a department to implement an effective disease control strategy, especially when leave will not be compensated or will count against the employees' sick leave or earned time off.[19]

Medical professionals in Toronto also encountered a situation that could translate to law enforcement. It was called a "working quarantine."

19. Some union contracts provide for a second independent medical opinion when the member does not agree with the findings of the medical official.

Nurses who had potentially been exposed still attended work, but were required to wear PPE while at work to minimize the risk of transmission. If one or more symptoms developed, the nurse was sent home. This may be an appropriate option for some essential personnel, depending on the level of the threat and the type of contact these personnel have with others.

Further considerations for dealing with employees who want to work despite having a major infectious disease appear in appendix 1.

Treatment of Infectious Disease

Many epidemic diseases do not have specific treatments. If a disease is caused by bacteria (e.g., anthrax or pertussis), antibiotics may be curative and can stop the disease from developing in someone who has been exposed. Because prophylactic antibiotics have to be given quickly to prevent a disease from developing, antibiotics must be stockpiled before an outbreak.

For most viral diseases, however, there are no curative medicines: once the person has caught the disease, it must and will run its course. This is why the best approach to viral diseases is to prevent them from occurring by developing a vaccine against them.

It may be prudent for law enforcement agencies to arrange for care of exposed or symptomatic employees who have no one else to care for them. While this would be somewhat difficult to do, it would also demonstrate support for employees at a time when some might consider not coming to work. Providing care for employees confined to their residences or a facility previously secured by the jurisdiction (for example, a hotel) also can speed their return to work.

Protecting Officers' Families

Officers are more likely to report to work if their families are safe and healthy. Advanced education—to include information on the value of sheltering-in-place for the family and items that should be stockpiled—and planning (possibly securing a temporary residence for officers so they do not bring the disease home) may encourage a larger number of officers to report for duty.

Staff members with a sick relative at home may not report for work. Planning for the health of officers' families presents a unique challenge, as workers' compensation, injury prevention systems, and sick and special leave often address only the employee and not family situations. Effective disease control requires prevention activities that include all of an employee's close contacts.

For example, preventive measures such as immunization may protect individual officers, but department staffing levels may be difficult to maintain unless vaccines also are offered to family members, roommates, and anyone sharing an intimate or close contact relationship with an employee.

Protecting the Community

For years, community-oriented policing and problem-solving initiatives have taken root throughout the country. These relationships, now widely recognized as an essential component of law enforcement, facilitate community participation and ownership of programs and provide opportunities for community education on the importance of compliance with the law. Where these relationships already exist, working with community residents before a communicable disease outbreak event will be relatively easy. Law enforcement and community members can meet for open dialogue about plans, concerns, and strategies. Public health officials should consider teaming with law enforcement to address these groups.

If these relationships do not already exist, departments must build bridges with their community now, because such bridges will greatly enhance all department efforts that involve the community and will ensure that the relationships necessary to support an effective and coordinated response to a public health emergency are in place.

Some things for law enforcement to consider when bringing the community into disease control planning include informing people about the jurisdiction's plans; including residents in exercises; and getting as much input, buy-in, and involvement from community stakeholders as possible. Obtaining support prior to the incident can facilitate restrictive measures such as voluntary social distancing (and sheltering-in-place), quarantine, and isolation. Gaining this compliance is extremely important, as once the state of civil order declines past a certain point, it can be terribly costly for law enforcement to restore public order.

Working With Public and Private Agencies

The importance of partnerships to preparedness cannot be overstated, yet the terms "partnership" and "collaboration" are so common that their importance may be overlooked in the planning process. Effective, meaningful partnerships result in coordinated planning, information sharing, and formal memorandums of understanding (MOUs) and mutual aid agreements. Partnerships help the parties identify challenges and capacities within their organizations and develop and test response plans and alternatives based on the pooling of knowledge and resources.

Partnerships among law enforcement, local hospitals, and public health agencies should (1) focus on cross-training personnel, (2) educate the community on its role during a public health emergency and the basics of communicable disease prevention, and (3) develop methods for delivering up-to-date and consistent information to the public during an emergency.

Working collaboratively and sharing information ensures a clear understanding of roles and responsibilities and helps departments prepare to meet the expectations of other local responders. By gaining insight into other agencies' planning, law enforcement can better predict where their resources will be needed, possible shortcomings, and the type of activities that will be needed based on the nature and location of the threat.

For example, law enforcement will need to have a clear idea of how hospitals plan to handle overflow of patients and how they intend to maintain order. Partnerships with the medical examiner or coroner's office will give insight into how deaths will be handled and how law enforcement will need to be involved, if different from routine. Law enforcement also will need to know the emergency procedures for local schools, hospitals, college and university campuses, medical centers, and shopping malls.

Planning can facilitate agreement among partners as to the appropriate time to request assistance from the state and federal government and the types of assistance that may be needed. While partnerships require significant effort to initiate and maintain, they pay vital dividends during a crisis: delivering a coordinated response and accessing necessary personnel and resources quickly depend on them.

The Role of Law Enforcement in Mass Vaccination and Preventive Measures

Law enforcement would play two primary roles during a mass vaccination or prophylactic distribution campaign. The first—maintaining civil order and securing the sites and the supply of the vaccine or prophylactic measures—involves a dilemma. If the city activates a small number of sites (e.g., one for every 10–50,000 or more people), law enforcement may be able to secure all the sites, but there will likely be so many people at each site competing for vaccinations or treatment that crowd control may be difficult or impossible. On the other hand, if the city activates a greater number of sites (so that no one has to wait long or travel far), the crowd will be manageable, but there may be so many sites that it may be impossible to assign officers to all of them.

The second role law enforcement might assume is the enforcement of restrictions based on vaccination status, including prohibiting travel or enforcing quarantine orders for the unvaccinated. The most difficult task would be enforcing mandatory vaccination orders, if issued. In the face of a serious outbreak, the federal government may enact policies to encourage vaccinations or place restrictions on those who refuse.

Enforcing a mandatory vaccine rule raises questions about whether law enforcement would physically detain persons so they could be vaccinated against their will, whether these persons would be arrested (or held in a custodial status that is permitted under public health law but perhaps not criminal law), and how such an order might be enforced. Another issue to consider is that officers themselves may refuse inoculation with a new and unproven vaccine. Many health workers and first responders nationwide refused voluntary smallpox vaccinations offered by the Department of Health and Human Services in 2003 after two recipients died and others experienced unanticipated heart problems and other "serious" and "nonserious adverse events."[20]

Further considerations regarding the role of law enforcement in mass vaccination and/or treatment measures appear in appendix 1.

Law Enforcement's Role During Voluntary Restrictions

Social distancing is the process of limiting contacts between individuals to reduce the chance of spreading a disease. Community social distancing can include banning public gatherings, closing public places such as malls and movie theaters, canceling sporting and entertainment events, and closing nonessential workplaces. To be effective, as many locations as possible need to be closed to keep people at home, or at least out of contact in as many group settings as public officials can affect.

Personal social distancing means eliminating handshaking, increasing the physical separation of persons at work, eliminating nonessential meetings, using telecommunications for as many business or personal interactions as feasible, and other measures to limit personal contact with individuals outside the immediate family. Social distancing relies heavily on voluntary compliance and can slow the spread of disease if the population is compliant.

20. Centers for Disease Control and Prevention. 2004, February 13. "Update: Adverse Events Following Civilian Smallpox Vaccination—United States, 2003." *MMWR Weekly* 53(05): 106–107. Available at www.cdc.gov/mmwr/preview/mmwrhtml/mm5305a4.htm.

The biggest challenge for law enforcement in trying to enforce social distancing and voluntary quarantine will be keeping people in their neighborhoods. Because people will still need to shop for food and obtain medical care, it may be difficult to enforce social distancing unless the public has been educated about how social distancing protects their health and safety.

Isolation works on the principal that a person cannot spread a disease if he or she does not come into contact with others. Law enforcement can test and practice several approaches to isolation, even when an outbreak is not taking place. Holding cells in correctional facilities could be used to isolate prisoners while doctors determine whether they carry an infection before sending them into the general population. Cells could be arranged for single occupants, allowing officers to talk to and care for a prisoner without actually entering the cell. Eating utensils and the like should be disposable. This isolation allows time to check for disease before exposing others to the prisoner.

While this approach increases the number of isolation locations, it is a very limited resource during a major outbreak and should be reserved for emergencies where there are only a few cases of a dangerous disease.

Voluntary, at-home *quarantine* was the primary method used by Canadian officials to control SARS.[21] Only a few people refused to cooperate, requiring the government to obtain legal confinement orders.[22] The Toronto Police Service sent specially trained and equipped officers to locate the named party and transport him or her to the hospital named in the order, where the parties were detained until quarantine elapsed.

Specific considerations on social distancing, quarantine, and isolation appear in appendix 1.

Law Enforcement's Role in Involuntary Restrictions, Including Quarantine[23]

As the number of persons who must be restricted increases, so too does the cost in staff time and other resources needed to support the restrictions. In any given community, the number of (and the available space in) isolation and quarantine facilities—especially hospitals—is very limited. Setting up quarantine in secondary facilities—such as

Successful Components of Toronto's Voluntary Quarantine

During a recent conference hosted by the Police Executive Research Forum (and sponsored by Motorola, Inc., as part of the Critical Issues in Policing Series), Unit Commander Tom Imrie of the Toronto Police and Jane Speakman, Public Health Attorney for the City of Toronto, identified several key factors that led to the successful at-home, voluntary quarantine during the city's SARS outbreak:

1. Consideration should be given to compensation for lost time from work.
2. The government must guarantee the delivery of essentials such as food and medicines to quarantined houses. A major grocery chain provided delivery service in Toronto, but some U.S. cities may not have similar resources or established mutual aid agreements with the private sector for this type of assistance. In a pandemic, food will become scarce, and some form of government intervention such as rationing may become necessary.
3. The state should provide medical evaluation and transport for anyone

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21. Canadian SARS Commission, www.sarscommission.ca.

22. In these cases, a medical officer of health issued the order for quarantine upon application to a judge. Evidence of the nature of the disease was presented. This is a reverse onus situation in that the person named must comply with the order and show cause after they have complied.

23. Although quarantine may be practical when dealing with an outbreak of a communicable disease, it may not be practical in response to a biological disaster.

public buildings—only serves to congregate many people in a confined space, ensuring that many persons will be infected. Fear of infection will make it difficult to keep people in these facilities, requiring significant law enforcement personnel and resources to enforce such a quarantine.

The most realistic way to restrict large numbers of persons is to persuade them to stay home. The CDC's *Ten Principles of Modern Quarantine* (see appendix 2) stresses that involuntary quarantine is a last resort, seldom necessary, and should be as limited in scope as possible. This reflects philosophical concerns about individual liberty and pragmatic concerns about maintaining a quarantine that is widely resisted. For example, the logistical requirements of enforcing a quarantine in cities with complex networks of roads, alleys, underground tunnels, sewers, and various transportation links, as well as interconnecting buildings, are massive. Although most of the Canadians impacted by SARS voluntarily submitted to quarantine, it cannot be assumed that this will be the case in the United States, which has a very different cultural history of using compliance as a law enforcement tool.

In disaster management and disease control, the legal authority to act expands with the threat. Judges will not stop the enforcement of quarantine or the detention of individuals if they believe it is necessary for public safety. The U.S. Supreme Court has steadfastly upheld the broad powers of the state to protect its citizens from threats to public health.[24] Further, the Court has never questioned law enforcement authority to enforce quarantines and other public health measures. Nevertheless, many states have amended their traditional public health laws to provide citizens with additional due process protections.

In 2001, recognizing this need to provide guidance for states on the authority necessary for public health to enforce protective measures, the CDC, the Center for Law and the Public's Health at Georgetown and Johns Hopkins Universities, and representatives from various national organizations collaborated to develop a Model State Emergency Health Powers Act (MSEHPA). The goal of the Model Act is to assist state governments in reviewing emergency public health powers to ensure they are adequate to respond to modern disease and bioterrorism concerns. The Model Act helps to define elements of an emergency and the types of measures that can be enforced, but specific guidance on how to enforce these measures and the role and authority of public safety in enforcing these measures is not included.[25]

24. *Jacobson* v. *Massachusetts*, 197 U.S. 11, 25 S.Ct. 358 (1905).

25. The Model Act is available at www.publichealthlaw.net/MSEHPA/MSEHPA2.pdf#search=Model_State_Emergency_Health_Powers_Act. The following states have passed MSEHPA in some form: Arizona, Florida, Georgia, Hawaii, Maine, Maryland, Minnesota, Missouri, New Hampshire, New Mexico, South Dakota, Tennessee, Utah, and Virginia.

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needing medical care, or for those who develop symptoms.

4. The state must keep track of those in quarantine, communicating with them at least once a day to determine their mental state,[a] medical condition, and need for food or other supplies.[b]

Although these are not routine law enforcement functions, law enforcement personnel may be called upon to assist, because cities may not have sufficient social service and public health personnel to provide the services.

It is critical to note that almost none of the thousands of persons who were voluntarily quarantined in Toronto developed SARS. This meant that Canadian officials did not have to transport many sick persons to the hospital or experience the secondary cases that would

a. Many of those quarantined during the SARS outbreak reported experiencing post-traumatic stress disorder (www.sarscommission.ca/report/Interim_Report_2.pdf).

b. The department itself could conduct this type of health check on its own members. Two objectives would be achieved: the well-being of the member is assured and an early and safe return to work will be achieved through regular contact.

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have prolonged the quarantine for weeks. This lack of secondary cases may in fact be due to the efficacy of Toronto's rapid quarantine response, but it also might lead some persons to question whether the quarantine was necessary at all. This sense of ambiguity about what happened might complicate future voluntary quarantines.

Irrespective of whether states have formally adopted the provisions of the MSEHPA or not, law enforcement has the power to act under existing laws, even if a public health emergency has not been declared. This is a critical point because states are not likely to declare a public health emergency except in the most extreme circumstances.

An additional complication that law enforcement will face is the abundance of both legal and illegal weapons in homes throughout the United States. If education is not sufficient to maintain voluntary quarantine, and public decisionmakers believe that quarantine must be enforced, law enforcement leaders will have to determine the rules of engagement and whether ad hoc rules have to be adopted. There will be many issues to consider in regard to maintaining quarantine by force. For example, how much force should be used? Will the department apply its preexisting use-of-force policies/force continua to a quarantine? This should be part of the planning process, if only to stress the complexities associated with enforcing quarantine. Furthermore, arrest and imprisonment are not practical if more than a handful of persons resist quarantine: already crowded jails are not appropriate for quarantining persons with communicable diseases.[26]

Further considerations on involuntary movement restrictions appear in appendix 1.

Special Populations

Many cities in the United States have large populations of illegal aliens who may not cooperate with voluntary disease control measures if they believe doing so will put them at risk of identification and deportation. They also may be excluded from receiving social support services such as food delivery and transportation to medical care. The flow of illegal aliens into the United States, estimated at 700,000 a year,[27] would also pose a major problem for the implementation of a widespread quarantine or travel restriction.[28] Engaging the formal and informal leaders of different community groups to educate them and answer questions in advance of an outbreak is the key to convincing these community members to comply with quarantine orders.

Movement restrictions would be especially challenging should an outbreak occur in any of the cities on the border with Mexico. U.S. law enforcement would face numerous challenges in coordinating quarantine enforcement between local and state law enforcement

26. Although the challenge of housing violators is daunting, this topic is beyond the scope of this document. The Bureau of Justice Assistance, however, is currently discussing this challenge with appropriate justice system representatives.

27. U.S. Government Accountability Office, www.gao.gov/new.items/d05646r.pdf.

28. National Health Care for the Homeless Council, www.nhchc.org/Publications/CA08DataResourceGuide.pdf.

personnel; cross-border cooperation and coordination in light of language and cultural barriers will prove difficult. One step might be to reexamine current mutual aid agreements.

Also problematic is restricting the movement of people engaged in criminal and gang activity. It is unknown how they will cooperate with voluntary restrictions and quarantine, and it will be almost impossible to enforce restriction orders against them. For example, it has been postulated that bird smugglers are contributing to the spread of avian flu between countries. Given the pervasiveness of criminal enterprises in some cities, these groups should be specifically targeted in local or state plans.

Further considerations on special populations appear in appendix 1.

Law Enforcement's Role in Mass Casualty Planning

When mass casualties resulting from manmade or natural disasters occur, most hospitals and morgues are not at surge capacity and are able to assist. During a large-scale public health emergency such as might be caused by a pandemic flu, fatalities may continue to occur weeks or months after surge capacity has already been attained. The traditional sequence—the victim is transported to a medical facility, death pronounced, autopsies performed, and victim claimed and transported to a funeral home—will likely not occur.

Although primarily the responsibility of agencies listed in ESF #6 of the NRP ("Mass Care, Housing, and Human Services"), law enforcement will play a major role in the management of mass casualties. A pandemic flu could leave medical examiners and private physicians unable to sign multitudes of death certificates and perform autopsies when necessary and could overwhelm funeral homes, crematories, and cemeteries. These issues would be exacerbated by the lack of supportive infrastructure and the need to maintain other medical operations while dealing with a crisis.

In many jurisdictions, unattended deaths (i.e., occurring when the individual is not under a doctor's care or not in a hospital setting) have to be investigated by the state or local law enforcement agency. Given the number of unattended deaths during a pandemic situation, agencies should work with the state medical examiner (or coroner) in advance of an actual emergency to determine how best to respond. MOUs with these organizations could identify specialized teams of officers and paramedics to investigate a fatality and pronounce death. Clearly, some type of investigation will be necessary to rule out criminal activity.

Conclusion

While threats to public health are not new, this is the first time in recent history that local and state law enforcement officials and policymakers have had to consider these threats in such depth.

Lessons learned from the Hurricane Katrina response demonstrate the importance of careful planning in preparing law enforcement agencies and communities for any type of hazard. Ensuring the safety and welfare of law enforcement personnel and their families is vital to ensuring an adequate workforce and implementing a response. Local and state agencies must be able to work across jurisdictional lines to access necessary resources and assistance.

Incidents such as the anthrax letters mailed in fall 2001 underline the importance of quickly containing a contaminated area, accessing needed medicines and vaccines, and having the appropriate PPE available to first responders. Community cooperation and buy-in to comply with the SARS voluntary quarantine and isolation orders required public understanding of public health threats and measures for preventing the transmission of infectious disease.

This document outlines key issues and concerns that law enforcement officials need to address in the wake of recent public health emergencies and in preparation for future public health emergencies, including flu pandemics and bioterrorist incidents.

It is hoped that law enforcement officials will carefully consider issues that may need to be addressed in their department's all-hazards planning process. The public safety and response issues raised herein are relatively new to this era of law enforcement and require further education and collaboration among departments and other local, state, and federal stakeholders. As stated in the *Implementation Plan for the National Strategy for Pandemic Influenza,* "Preparedness for a pandemic requires the establishment of infrastructure and capacity, a process that can take years. For this reason, significant steps must be taken now."

Appendix 1: Further Considerations

1. Education

- What educational materials need to be developed to educate officers about disease risks, methods of transmission, prevention, and control?
- Is there benefit to starting or expanding a basic occupational health program? What would be the scope of the program and where would it be housed organizationally? Are there local partners who could assist? What resources would be needed?
- Should certain law enforcement officers receive basic training in public health investigation techniques so they could assist in investigations during an outbreak?
- Should officers, who are in direct contact with the public or persons at high risk of contracting communicable diseases, be trained to observe and report potential outbreaks?

2. Personal Protective Equipment (PPE)

- Bearing in mind the recent debate over the effectiveness of masks at protecting against airborne viruses, does providing law enforcement personnel with surgical or N95 masks give them a false sense of security?
- Will differences in masks and other PPE raise concern among law enforcement that members from one jurisdiction are less protected than members from another?
- How will law enforcement departments secure enough masks prior to an outbreak? How many masks should be secured and who will receive them?
- What other types of basic PPE should be provided to all officers for day-to-day use? Should additional emergency kits be provided and what should be included in these kits? Who should receive the kits?
- What is a reasonable amount of PPE to keep on hand? How does the need compare with other department priorities competing for resources?

3. Working While Sick

- Will officers be encouraged to report possible exposure to communicable diseases and report symptoms during a public health emergency? How?

- Should there be special sick leave policies for these emergencies?
- Should there be a special leave category for officers who have been exposed but do not have symptoms?
- If there is a special leave category, should it only apply to communicable diseases to keep leave from being abused?
- How should isolation or quarantine orders for infected persons (i.e., they must stay home) be applied to law enforcement officers?
- How will department physicians or other medical professionals be involved in efforts to minimize disease spread within the department?

4. Immunization and Prophylactic Measures

An outbreak will send a huge number of people to hospitals and clinics seeking care and reassurance. Most will not be infected, but some may be and could contaminate the facilities.

- What are hospital or clinic plans for handling an overflow of patients? Will anyone be allowed to enter the hospital or clinic? Who will handle crowd control? What are the expectations of law enforcement if crowd control is needed?
- Will hospital staff conduct triage in the parking lot? Will law enforcement maintain order at the triage sites?

If there is a vaccine or treatment (Tamiflu, for example) available, there will be a run on facilities where it is rumored to be.

- How will law enforcement work with other organizations to receive, transport, protect, and distribute the vaccines or drugs throughout the community or the state?
- Are the hospitals and pharmacies counting on law enforcement support that the department cannot provide?

If emergency treatment facilities are set up in gyms, arenas, and the like, will law enforcement be expected to provide security? If private security companies will be enlisted to help, what coordination mechanisms exist to ensure smooth functioning with law enforcement agencies?

- Do any such agreements with private security agencies exist?
- What services can private security provide and what resources and protection will be needed from the law enforcement agency?

5. Controlling the Movement of Exposed/Infected Community Members

- During an event such as an anthrax attack, how is law enforcement expected to deal with displaced community members?
- Which agencies will supply community members with personal protective equipment and evacuate them if the area cannot be rapidly decontaminated?
- How would law enforcement be involved in evacuating a large urban area?
- What would law enforcement's role be in keeping an area closed for weeks or longer?
- How would law enforcement determine when people being evacuated would be allowed to enter the perimeter to remove personal property?
- Who is responsible for tracking individuals exposed to the virus who have left the jurisdiction? What resources are available through law enforcement cooperative agreements and possibly from federal and private agencies for assisting in tracking?
- What about people on airplanes and mass transit coming into the city? Are local law enforcement agencies prepared to work with airport and transit security agencies?

6. Involuntary Restrictions on Exposed/Infected Community Members

- Have the local law enforcement and public health agencies developed plans for activating restrictive measures? Are these plans detailed as to identifying individuals and backups for each critical function as well as contact numbers?
- Have these plans been integrated with the larger jurisdiction's plan (e.g., a county and a state plan) to ensure the plans work in concert?
- Has the plan been tested?
- Are there policies and procedures for enforcing a quarantine or other restrictions?
- Should law enforcement officers watch quarantined houses or patrol quarantined neighborhoods?
- Is there a hotline for people to report violations?
- Should violators be arrested? If so, when?

- Is there a preexisting court order that permits use of force or detainment of violators?
- Where should violators be housed? Short-term? Long-term? How will they be protected from the communicable disease?
- Will law enforcement guard these facilities?
- If the local law enforcement agency is expected to help enforce these orders, are mutual aid agreements in place to supplement the agency's workforce?

Assuming that some may want to contest isolation orders, they are entitled to a *habeas corpus* hearing.

- Are administrative alternatives to court hearings available?
- Is law enforcement expected to transport individuals to the court?
- Are there provisions for mobile or ad-hoc hearing facilities? Can hearings take place via a video link? Will law enforcement take the equipment to the homes of quarantined persons?
- What if the courts are closed as part of social distancing?

7. Special Populations

- Has law enforcement worked with community groups (e.g., faith-based) to reach out to and educate these populations?
- How can local law enforcement work with border law enforcement to plan for movement restrictions?

8. Controlling Disease in Animals*

- What would the role of law enforcement be if avian flu spread through the U.S. bird population and policymakers decided to destroy domestic fowl?
- What if the disease spreads to urban birds such as pigeons and authorities called in law enforcement officers to help with eradication?
- Have relationships between law enforcement and agricultural inspection and regulatory agencies been established? Are existing mutual aid provisions appropriate for this kind of cooperation and are there policies and protocols drafted to help guide agency interactions?

*Although law enforcement may not generally handle this function, animal control (which may comprise civilians, not sworn officers) may fall under the purview of law enforcement in some jurisdictions. Officers who undertake this responsibility risk bird-to-human contraction of the virus, making it imperative that departments plan for these issues in advance.

Appendix 2:
Ten Principles of Modern Quarantine*

Modern quarantine is a collective action for the common good predicated on aiding persons infected or exposed to infectious agents while protecting others from the dangers of inadvertent exposure.

1. Used when exposed to highly dangerous and contagious diseases, when resources are available to implement and maintain, and when less restrictive means cannot accomplish the public health objectives.

2. Encompasses a wide range of strategies, from passive self-monitoring for symptoms to use of barriers limiting entry and exit to authorized persons.

3. Used in combination with other interventions and countermeasures to ensure that persons in quarantine or isolation are among the first to receive all supportive interventions available.

4. Ensures rapid isolation of infectious persons and separation from those merely exposed.

5. Lasts only as long as necessary to achieve epidemic control but no longer than the disease incubation period.

6. Does not have to be absolute to be effective; therefore, favors voluntary over compulsory approaches.

7. More likely to involve limited numbers of exposed persons in small areas than in a widespread geographic locale.

8. Requires clear understanding of the roles of jurisdictions and legal authorities.

9. Requires coordination and planning with multiple partners.

10. Requires education, trust, and participation of the general public.

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*Centers for Disease Control and Prevention. October 2004. "Postexposure Prophylaxis, Isolation, and Quarantine To Control an Import-Associated Measles Outbreak—Iowa, 2004." *MMWR Weekly*, 53(41): 969–970.

Appendix 3: Available Vaccinations for Diseases

The following is an overview of common diseases officers may be exposed to while on the job for which vaccinations are available.* In all cases, a qualified medical professional should be consulted by individuals and departments for advice on vaccinations.

- *Pertussis* (whooping cough) vaccine was historically administered exclusively to children under age 7. This was done because the vaccine was not safe for older children and adults. A new pertussis vaccine for older children and adults has been created and should quickly become more commonly used. Whooping cough is still common in much of the southern United States.

- *Hepatitis B* vaccine has been available for more than 20 years. It was originally provided only to those at high risk for blood exposures, such as officers and health care workers. It is now given to all children as part of their regular immunizations. Officers who were not immunized previously may consider receiving the full three-shot series of immunizations. Those with partial immunity may also consider receiving a booster dose of vaccine. This vaccine is considered safe and effective and the consequences of hepatitis B are severe. A substantial percentage of people with the disease develop chronic hepatitis, which can lead to liver failure and liver cancer.

- *Hepatitis A* is another relatively new vaccine that public health authorities recommend as standard for people with occupational risks. Contaminated food and close association spread this disease. Spread through jails, residential schools, and shelters is common. Unlike hepatitis B, hepatitis A does not cause chronic infection. However, it can cause liver failure and death so the vaccine is valuable. Having the vaccine also means that one does not need gamma globulin (antibodies removed from donated blood) if one is exposed to hepatitis A. Gamma globulin shots are painful, expensive, and less safe than the vaccine.

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*American Public Health Association. *Control of Communicable Diseases in Man*, 18th ed. 2004; *Adult Immunization: A Report By the National Vaccine Advisory Committee*. 1994; Centers for Disease Control and Prevention. *Interim Immunization Recommendations for Emergency Responders: Hurricane Katrina* (www.bt.cdc.gov/disasters/hurricanes/responderimmun.asp); Centers for Disease Control and Prevention. *Interim Immunization Recommendations for Evacuees of Hurricane Katrina*. (www.bt.cdc.gov/disasters/hurricanes/katrina/vaccrecdisplaced.asp); Nothdurft, H.D., J. Zuckerman, M. Stoffel, I. Dieussaert, P. Van Damme. "Accelerated Vaccination Schedules Provide Protection Against Hepatitis A and B in Last-Minute Travelers," *Journal of Travel Medicine* 11(4): 260–262, 2004.

- *Influenza* (flu) immunization is the one vaccine that must be administered every year because the influenza virus changes from year to year. The vaccine is not perfect, but health officials consider it safe and effective in preventing complications and in slowing the spread of the disease. Despite the popular myth, flu vaccine does not give recipients the flu. If avian flu becomes a threat to humans, the vaccine developed will be similar to the annual flu vaccine, just tailored to this special strain of flu. Because of the way the flu virus changes, the more years a person receives a flu shot, the more likely that person is to be resistant to whatever type of influenza circles the globe next.

- *Rabies* vaccine is recommended for anyone who works in animal control (which may fall under law enforcement agencies in some jurisdictions). Everyone who works in the program should discuss having the three-shot series for pre-exposure immunization with their physician. This will help protect from unknown exposures and will shorten the series to two additional shots after a known exposure. Like the hepatitis A vaccine, if an individual has had the previous shots and is exposed to rabies, the individual will not have to receive the rabies gamma globulin.

- *Tetanus toxoid* is also one of the childhood immunizations. While not a contagious disease, tetanus is everywhere in our environment, and it is not possible to prevent exposure to tetanus bacteria. The only way to prevent the disease is by immunizing everyone against the bacterial toxin that makes people sick. Because the disease is not spread from person to person, an individual could refuse immunization and not risk spreading the disease to others. However, the risk of the disease seems unjustifiable when the immunization is considered safe and readily available.

Officers are at special risk for many of the diseases for which immunization is available. If they are not immunized, they are very likely to spread these diseases to others in their department or in the communities they are supposed to protect.

Appendix 4: Standard Definitions of Key Terms

Effective collaboration among public health, law enforcement, and other coordinating agencies requires all parties to use the same definitions of terms. The following introduces the core vocabulary for communicable diseases.*

- *Communicable or infectious disease*. Diseases caused by infectious agents such as bacteria or viruses. Individuals may be infected from agents in the environment, infected animals, and infected people. These diseases are distinguished from genetic diseases, diseases caused by toxic exposures, and chronic illnesses such as diabetes and cardiovascular disease. The terms "communicable" and "infectious" are used interchangeably. *Examples:* the common cold, salmonella, Severe Acute Respiratory Syndrome (SARS).

- *Cordon sanitare*. An area that has been closed off to prevent the spread of a communicable disease. No one will be allowed to enter, and persons in the area may be kept from leaving or may be evacuated, depending on the nature of the threat.†

- *Epidemic disease*. The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time. Synonymous with the term "outbreak." *Example:* 10 cases of tuberculosis in a week in New York City would be within the expected number (based on historical data) and would not be considered an outbreak. Ten cases of measles in New York City, however, would be many more than expected and would be considered an epidemic or outbreak.

- *Epizootic.* An outbreak or epidemic of disease in animal populations.‡ *Examples:* avian flu in fowl, hoof and mouth disease in cattle.

- *Incidence*. The rate of new cases in a community over a given time interval, such as two cases per day. *Examples:* 20 cases of chickenpox in a week; 20,000 new cases of tuberculosis a year.

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*Unless noted, the definitions cited are from the Centers for Disease Control and Prevention Epidemiology Glossary available at www.cdc.gov/Reproductivehealth/EpiGlossary/glossary.htm. There also is a glossary in the *Implementation Plan for the National Strategy for Pandemic Influenza*, p. 205, available at www.whitehouse.gov/homeland/nspi_implementation.pdf.

†*Compagnie Francaise de Navigation a Vapeur* v. *Board of Health of State of Louisiana*, 186 U.S. 380 (1902).

‡Centers for Disease Control and Prevention, www.cdc.gov/ncidod/dvrd/spb/mnpages/glossary.htm.

- *Incubation period*. The time between when a person is first exposed to a communicable disease and the time when the person exhibits symptoms of the disease and becomes capable of spreading it to others. Diseases with short incubation periods, such as measles or smallpox, can cause fast spreading epidemics or pandemics because there will be a constant supply of infectious persons as new contacts become infected. Diseases with a long incubation period such as tuberculosis spread much more slowly, but can also reach high levels in the community.
- *Isolation*. Separation of infected individuals from those who are not infected. *Example:* placing a person with infectious tuberculosis in a restricted-access hospital room.
- *Outbreak*. Synonymous with "epidemic." The term is alternatively used to describe a localized (as opposed to generalized) epidemic.
- *Prevalence*. The total number of cases of disease in a community at a point in time. *Example:* the total number of persons living with HIV in a major city.
- *Pandemic*. An epidemic occurring over a very wide area (countries or continents) and usually affecting a large proportion of the population. The term "panzootic" is used to describe a pandemic in animals. *Example:* winter flu pandemic in the northern hemisphere.
- *Quarantine*. Preventing a person who has been exposed to a communicable disease, but is not yet showing signs of infection, from coming in contact with others. *Example:* requiring health care workers exposed to SARS to stay home until the incubation period has passed.
- *Restriction*. Limiting the activities of an individual infected with a contagious disease to prevent the spread of the disease to others. *Examples:* preventing a typhoid carrier from working in a restaurant; quarantining a person with infectious tuberculosis.
- *Social distancing*. The process of reducing contacts between individuals to reduce the chance of the disease spreading. Community social distancing can include barring public gatherings, closing public places such as malls and movie theaters, canceling sporting and entertainment events, and closing nonessential workplaces.
- *Surge capacity*. The maximum patient load a hospital or medical system can handle.[§]

[§]Agency for Healthcare Research and Quality. 2004. *Optimizing Surge Capacity: Hospital Assessment and Planning.* Bioterrorism and Health System Preparedness, Issue Brief No. 31. AHRQ Publication No. 04-P008. Available at www.ahrq.gov/news/ulp/btbriefs/btbrief3.htm.

Appendix 5: What Is a Pandemic?

A pandemic is an epidemic occurring over a very wide area (several countries or continents) and usually affecting a large proportion of the population. This means that control measures have failed and the emphasis must shift from preventing the further spread of the disease to limiting the damage the pandemic does to the community and its economy. The most effective approach for law enforcement to help prevent a pandemic is to prepare a rapid-response plan and resources to contain any *initial outbreak* of a disease, in addition to contingency planning should the outbreak turn into an epidemic or pandemic. The World Health Organization and the Centers for Disease Control and Prevention have developed a list of the six phases of a pandemic as shown below. According to this table, and at the time the document was written, avian flu could be categorized as a Phase 3 disease.

The Six Phases of a Pandemic*

Interpandemic Period
Phase 1: No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.
Phase 2: No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.
Pandemic Alert Period
Phase 3: Human infection with a new subtype but no human-to-human spread, or, at most, rare instances of spread to a close contact.
Phase 4: Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.
Phase 5: Larger cluster(s) but human-to-human spread is still localized, suggesting that the virus is becoming increasingly better adapted to humans but may not yet be fully transmissible (substantial pandemic risk).
Pandemic Period
Phase 6: Pandemic: increased and sustained transmission in the general population.

*Centers for Disease Control and Prevention, www.cdc.gov/flu/pandemic/phases.htm.

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