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INTEGRATING LOCAL PUBLIC HEALTH AGENCIES INTO THE HOMELAND SECURITY COMMUNITY

by

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March 2007

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After more than seven years of funding through The Centers for Disease Control and Prevention, local public health agencies have made inconsistent progress in fulfilling their Homeland Security objectives. Most progress has been made in those areas in which Public Health has previous experience. However, in those activities requiring integration with other responder agencies Public Health has lagged in developing effective capabilities in prevention, preparedness, response, mitigation and recovery. This thesis argues that several factors contribute to this lack of success, including funding structures and guidelines, the reluctance on the part of other responder agencies to include Public Health in emergency planning and response activities, and the organizational isolation in which Public Health has existed.

In order for local public health agencies to meet their Homeland Security objectives, funding structures and guidelines must support local Public Health and public health agencies must be better integrated with their Homeland Security partners. Public health agencies at all levels and their leadership have the opportunity to effect organizational changes designed to accelerate the transformational process, enhancing their Homeland Security partnerships. Public Health agencies can be more effectively integrate into the larger Homeland Security community by demonstrating commitment to making these changes.

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INTEGRATING LOCAL PUBLIC HEALTH AGENCIES INTO THE HOMELAND SECURITY COMMUNITY

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ABSTRACT

After more than seven years of funding through The Centers for Disease Control and Prevention, local public health agencies have made inconsistent progress in fulfilling their Homeland Security objectives. Most progress has been made in those areas in which Public Health has previous experience, such as disease surveillance. However, in those activities requiring integration with other responder agencies, such as fire and police agencies, Public Health has lagged in developing effective capabilities in prevention, preparedness, response, mitigation and recovery. This thesis argues that several factors contribute to this lack of success, including funding structures and guidelines, the reluctance on the part of other responder agencies to include Public Health in emergency planning and response activities, and the organizational isolation in which Public Health has existed for the past several decades. Moreover, a pervasive organizational culture has developed within Public Health that reduces its ability to correct these problems.

In order for local public health agencies to meet their Homeland Security objectives, funding structures and guidelines must support local Public Health, and public health agencies must be better integrated with their Homeland Security partners. Public health agencies at all levels, and their leadership, have the opportunity to effect organizational changes designed to accelerate the transformational process, enhancing their Homeland Security partnerships. Public Health agencies can more effectively integrate into the larger Homeland Security community by demonstrating a commitment to make these changes.

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I. INTRODUCTION

Since the United States Department of Health and Human Services' 1999 Bioterrorism Initiative, the Centers for Disease Control and Prevention (CDC), designated as the lead agency to improve the nation's public health capacity to respond to bioterrorism, has provided grant funding to state public health agencies for bioterrorism preparedness and response activities.[1] This funding, in part, may be passed through to local public health agencies to build infrastructure and response capacity.

However, in spite of diligent efforts by local public health agencies to build emergency capacity, they continue to be frustrated in fulfilling their Homeland Security objectives by both internal and external factors. These factors include barriers from funding structures to organizational cultural issues. While funding at the state level has produced improvements, such as increased laboratory and disease surveillance capacity, the burden of Public Health preparedness and response responsibilities remains at the local level where emergencies occur and must be responded to appropriately.

This thesis maintains the premise that local public health agencies are the first line of emergency Public Health response. Since 1999, public health agencies nationwide have made progress in improving Public Health infrastructure in specific areas, such as disease surveillance, which relate to the health initiatives in the National Strategy for Homeland Security. However, they continue to meet with limited and inconsistent success in grant activities that require collaboration with other agencies involved in Homeland Security activities.[2] Arizona Public Health is used throughout this thesis in examples of Public Health progress in developing emergency capacity.

Public Health Emergency Preparedness Cooperative Agreement funding originated due to the perceived threat of a bioterrorism incident, within the United States,

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1 Centers for Disease Control and Prevention, National Bioterrorism Preparedness and Response Initiative, Overview and General Information About the Initiative, Prepared by the Bioterrorism Preparedness and Response Program, National Center for Infectious Diseases, May 8, 2000.

2 Highlights of GOA-04-458T, Public Health Preparedness, Response Capacity Improving, but Much Remains to be Accomplished. February 2004.

that will require immediate and effective response by public health agencies. Ultimately, there will be significant negative consequences to the United States if local public health agencies are unable to effectively plan for and respond to emergency incidents. Recognizing that there are Public Health consequences to virtually any natural or intentional emergency incident, the Centers for Disease Control and Prevention, in its 2005-2006 Cooperative Agreement funding, extended its expectations of public health agencies to include response to all types of emergency incidents, effectively making public health agencies "All-Hazards" responders. However, local public health agencies must be able to effectively utilize these grant monies if they are to build emergency capacity.

This thesis argues that multiple factors contribute to the difficulties Public Health is having in meeting its Homeland Security obligations. First, Public Health funding structures must ensure that local public health agencies are fully supported in meeting their Homeland Security objectives. Because local Public Health emergency capacity is vital to meeting state and federal objectives, funding passed from the federal level through states to local public health agencies must be adequate, timely, and include appropriate guidelines to avoid inconsistent results nationwide and to allow local Public Health capacity building.

A second barrier to local public health agency success is the reluctance of other responder agencies, such as fire, emergency management, and law enforcement, to include public health agencies in various preparedness and response activities. Although this reluctance may be quickly overcome in a major emergency such as Hurricane Katrina, it poses barriers for Public Health in preparing to be a response partner before major incidents occur. Part of this reluctance may be due to Public Health culture being different from responder agencies. There may also be some reluctance due to the crossover of Public Health activities into what has been traditionally perceived as emergency management activities. For example, local Public Health is involved heavily in volunteer recruitment, training, and management activities as a result of planning for mass dispensing of medications or vaccine.

An outcome of the disparate cultures and lack of experience between public health agencies and other responder agencies is the reluctance of some responder agencies to actively invite public health agencies to participate in emergency planning and response activities. Public health agencies may be viewed as inexperienced in dealing with emergencies, naïve, unknowledgeable, and difficult to communicate with. However, even if public health agencies work to overcome their culture barriers, unless other responder agencies become inclusive of them, barriers to collaborative and cooperative response will remain. If other responder agencies will not voluntarily include Public Health in the responder community, they will need to be motivated to include public health agencies in emergency preparedness and response activities.

Last, public health agencies have been organizationally isolated from other agencies for several decades and have developed organizational cultures that, while benign in fulfilling Public Health core activities, pose barriers to accomplishing objectives requiring integration of Public Health into the Homeland Security community. This isolation has contributed to deeper, problematic organizational behaviors that perpetuate the isolation of Public Health from other responder agencies. Public health agencies must actively find ways to change communication and decision making characteristics that hinder effective collaboration with other responder agencies while focusing preparedness funding on activities that contribute to meeting Homeland Security objectives.

Public health agencies must actively transform their cultures in ways that will allow them to adapt quickly to the Homeland Security environment or they will not be able to timely meet their Homeland Security obligations. This thesis will examine the ways in which police and fire agencies have evolved to meet changing community needs by diversifying activities. Other response agencies — especially fire and law enforcement agencies — have evolved in organizational environments in which they interact regularly with other responder agencies. While having agency-specific cultural traits, these responder agencies have also developed strategies that usually allow them to bridge interagency gaps and function in a more diverse responder community while

fulfilling their changing roles. By modeling some of these strategies, public health agencies can make effective changes to better fulfill their Homeland Security objectives.

This thesis suggests several policy initiatives as strategies for accelerating the needed changes in local public health agencies. These initiatives are directed at different levels — from federal funding to local training initiatives — to support local Public Health in developing effective emergency capacities and to assist them in integrating into the Homeland Security community. As federal funding dollars become less available, it is critical to effect immediate changes within Public Health that will best utilize available funding and resources.

II. PUBLIC HEALTH ROLES IN HOMELAND SECURITY

A. BACKGROUND

Public Health is uniquely suited to engage in accomplishing certain goals within the National Strategy for Homeland Security. These goals include participation in: 1) Detection of chemical and biological materials and attacks, 2) Preparing health care providers for catastrophic terrorism, 3) Augmenting America's public pharmaceutical and vaccine stockpile, 4) Building the Citizen Corps, and, 5) Ensuring reliable public health information.[3] For this reason, Public Health is needed to take an active role in the Homeland Security community.

Public Health began in the 1600s in the United States primarily to address water quality and sanitation issues.[4] Gebbie notes that Public Health has changed from "the absence of diagnosable disease to a state of well-being to the inclusion of the capacity to live and work in a community.[5] Public Health authorities addressed the control of specific diseases, such as polio in the 1950s[6], and smallpox, which was eradicated in the late 1970s. Both of these diseases are examples of acute events in which public health agencies were required to respond quickly and effectively to eradicate health threats.

Over time, in the absence of true emergency health threats, Public Health began to address other health issues of a less acute nature. Current Public Health responsibilities include vaccinations, injury prevention, workplace safety, infectious disease investigations and control, chronic disease (such as cancer) surveillance and investigation, food and environmental safety, mother and child health, family planning services, water fluoridation, and tobacco use. Few current public health activities require

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3 National Strategy for Homeland Security, Office of Homeland Security, July 2002.

4 Eileen Salinsky, Senior Research Associate, "Public Health Emergency Preparedness: Fundamentals of the System." NHPF Background Paper, National Health Policy Forum, The George Washington University, April 3, 2002.

5 Kristine M. Gebbie, "The History of Public Health," Columbia School of Nursing, New York, NY.

6 Edmund Sass, "A Polio Timeline," in *Polio's Legacy: An Oral History*, 1996. http://www.cloudnet.com/%7Eedrbsass/poliotimeline.htm, accessed May 31, 2004.

immediate response or interagency coordination. Exceptions to this are communicable disease investigations and food, environmental, and water safety. The planning and response skills to respond to public health emergencies were largely lost over time. The need to coordinate and integrate with other agencies remained minimal until the late 1990s.

In many ways, public health agencies effectively worked themselves out of their emergency roles and requisite funding by being successful in mitigating many disease threats.[7] Public health infrastructure suffered continuing budget cuts, resulting in agencies that were struggling to maintain existing programs. Public health agencies were already handicapped — by deteriorating infrastructure and diminishing budget support — when they received their new directives to meet Homeland Security objectives.

To ensure maximum capability to plan for and respond appropriately to emergency incidents, public health agencies must be able to effectively collaborate with other agencies involved in Homeland Security preparedness and response activities. For example, any mass vaccination event will require the combined resources of public health, fire, law enforcement, and emergency management agencies. Effective and safe dispensing sites can only be managed with the assistance of multiple agencies. Without the other responder agencies, Public Health will fail in its obligations to provide preventative medications or vaccines to the public in emergency incidents.

Public Health capability for appropriate response is vital, not only in addressing natural and intentional biological incidents, but in addressing other disaster and emergency incidents that affect the public's health. Successful collaborative efforts will assist public health agencies in all emergency planning and response goals by improving interagency coordination through established, positive interagency relationships and improved planning and response capabilities.

Public health agencies are diverse organizations administrating multiple health programs already in place. Interagency collaboration to improve communication and

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7 NGA Center for Best Practices, Issue Brief, Contact: Jeff Mitchell, State Strategies for Fully Integrating Public Health into Homeland Security, November 23, 2005.

coordination is considered vital to improving Public Health response.[8] Because the greatest amount of interaction with other agencies must occur at the local level, where other local responders — such as fire, police and hospitals — are involved, an appropriate amount of funding must be directed locally if local capabilities are to be adequate. Local public health agencies bear the immediate burden of disease surveillance and outbreak response, public and agency emergency training and education, public health risk communications, health advisory dissemination, and planning for public health emergencies such as pandemic influenza. Although federal and state public health agencies provide support for these activities, the groundwork for preparedness, planning, communications, coordination, response, and integration occurs at the local level. Nationally, federal funding passed though state health agencies provide significant funding for local health agencies, accounting for 30 percent of local funding.[9]

Funding structures and procedures directly affect the preparedness and response capabilities of local public health agencies. In Arizona, the state health agency currently passes through only 50 percent of Public Health Emergency Preparedness funds to county public health agencies. This hampers local Public Health efforts to develop and maintain the large number of program activities that are required to meet their grant deliverables; the number of staff available to accomplish the required deliverables is severely curtailed. In fact, Cooperative Agreement funding for Arizona counties has remained level since the inception of this grant's funding, despite an increasing number of deliverable tasks and increasing employee-related costs.[10]

The Department of Health and Human Services has argued that some jurisdictions have not been able to expend funds they were allotted. Subsequently, those funds were redirected to support other initiatives. The problem of unexpended funds affects local jurisdictions as well. A United States Government Accountability Office report found

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8 Eileen Salinsky, Senior Research Associate, "Will the Nation be Ready for the Next Bioterrorism Attack? Mending Gaps in the Public Health Infrastructure," National Health Policy Forum, The George Washington University, Washington, D.C., NHPF Issue Brief, No. 776, June 12, 2002.

9 Salinsky, "Public Health Emergency Preparedness: Fundamentals of the System."

10 Tom Schryer, Director of Public Health, Pinal County Division of Public Health, Pinal County, Arizona. Personal communication, September 2005.

that factors including administrative practices — such as hiring freezes, contracting and procurement processes, the need for information technology upgrade, and the inability to hire qualified staff — resulted in difficulties in expending and obligating funds.[11] These same factors that have hampered state jurisdictions' spending also hold true at the local level. With the initiation of these funds, local public health departments suddenly found themselves competing for qualified employees to develop Public Health emergency preparedness programs. Without adequate staffing, programs cannot be developed or expanded to meet various objectives. Now that Public Health emergency preparedness programs have been established, local public health agencies have learned more about what is needed to build and maintain emergency capacity but now may find themselves short of funds and staffing to complete those activities.

The Centers for Disease Control and Prevention's Cooperative Agreement Guidance for Public Health Emergency Preparedness for 2005–2006 describes nine goals outlined below:[12]

Prevent:

(1) Increase the use and development of interventions known to prevent human illness from chemical, biological, radiological agents, and naturally occurring health threats.
(2) Decrease the time needed to classify health events as terrorism or naturally occurring in partnership with other agencies.

Detect/ Report:
(3) Decrease the time needed to detect and report chemical, biological, radiological agents in tissue, food or environmental samples that cause threats to the public's health.
(4) Improve the timeliness and accuracy of information regarding threats to the public's health as reported by clinicians and through electronic early event detection, in real time, to those who need to know.

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11 United States Government Accountability Office, Report to Congressional Requesters, Bioterrorism, Information on Jurisdictions' Expenditure and Reported Obligation of Program Funds, February 2005.

12 Cooperative Agreement Guidance for Public Health Emergency Preparedness, Centers for Disease Control and Prevention, July 1, 2005. http://www.bt.cdc.gov/planning/guidance05/index.asp, accessed March 20, 2007. …..

Investigate:
(5) Decrease the time to identify causes, risk factors, and appropriate interventions for those affected by threats to the public's health.

Control:
(6) Decrease the time needed to provide countermeasures and health guidance to those affected by threats to the public's health.

Recover:
(7) Decrease the time needed to restore health services and environmental safety to pre-event levels.
(8) Increase the long-term follow-up provided to those affected by threats to the public's health.

Improve:
(9) Decrease the time needed to implement recommendations from after action reports following threats to the public's health.

The Centers for Disease Control and Prevention outlines further activities required for states to receive federal funding. They include the establishment or participation in a senior advisory committee to coordinate funding; integration with other funded programs; coordination with military bases, tribes, and local health agencies; and National Incident Management System compliance. An additional requirement, which requires the greatest support and implementation at the local level, is the evaluated ability to respond to events, which will be measured by assessments, drills, exercises, site visits and responses to real incidents.

The Centers for Disease Control and Prevention, in providing general activities guidance, has left each state to interpret this guidance. Some goals, such as building laboratory capacity and developing statewide electronic reporting systems, must be accomplished at the state level. Some goals require both state and local Public Health efforts to be successful. Most of the Centers for Disease Control and Prevention's goals for state public health departments must be accomplished at the local levels. For this reason, financial support for local Public Health infrastructure is critical to the success of federal objectives. Because emergency incidents occur sporadically, local infrastructure must be consistently funded for local Public Health to maintain the capacities to respond to actual emergency incidents and to maintain the personnel and skills needed to do this.

Besides the detailed guidance given to local public health agencies from the state and federal levels, Public Health preparedness and response activities are determined in part by public expectations. In an emergency, local Public Health is expected to provide needed health services. The public is often unaware that public health agencies do not have adequate resources to fulfill that function. Additionally, most Public Health healthcare staffs, especially those in rural areas, are not trained to respond to emergencies or provide intensive patient care. Nor do they have adequate resources to train staff that are not directly funded by Cooperative Agreement funding. Even if funding is found for limited staff training, public health staff not funded by Cooperative Agreement dollars are often funded by other grant dollars, and must abide by those grant funding parameters, making it impossible to take more than a handful of hours away from their prescribed activities.

In short, local Public Health agencies were once better able to respond effectively to acute public health threats and were considered front-line responders. Their effectiveness in eliminating immediate health threats resulted in decreased funding over time, resulting in lost capacity and ability to respond. Funding structures that supported maintenance of routine public health activities evolved without allowing the building of capacities to respond to acute health threats. Over time, the importance and participation of local public health in responder activities was reduced, isolating public health from partnerships with other first-responder agencies.

Current funding systems for public health programs — other than emergency preparedness — do not allow for overall public health emergency preparedness and response capacity. Current funding for emergency preparedness continues to be reduced, cutting short capacity building at a critical time when limited progress is just being made. If public health agencies are to be effective Homeland Security partners, they must be funded and included fully in activities supporting national objectives. Likewise, public health agencies must take the initiative to show progress in fulfilling their objectives and commitment to emergency preparedness and response capacity building.

B. PRESCRIBED PUBLIC HEALTH ROLES

1. Prevention

Local public health agencies have several tasks written into the Public Health Preparedness Cooperative Agreement as interpreted by individual states. The foundation for prevention is planning, and the groundwork for planning is accomplished at the local level. In Arizona, local public health agencies are expected to develop written local plans for communication and information dissemination, 24/7 notification, exercises, Public Health emergency response, smallpox and mass vaccination, Strategic National Stockpile utilization, and pandemic influenza.[13] Every plan must take an all-hazards approach and be National Incident Management System compliant. Although there are general plans for each of these at the state level, the detailed, jurisdiction-specific implementation of any of these plans must occur at the local level. Plans require coordination and collaboration with multiple stakeholders such as local hospitals, fire, behavioral health, law enforcement, tribal, and emergency management agencies. Without collaboration with all involved agencies at the local level, plans cannot be successfully implemented. All partners must know and agree to their roles in public health emergencies. Developing and maintaining relationships with all these partners is a time-consuming but necessary activity for planning success.

In many cases, mutual aid agreements must be written and passed through agencies' legal approval processes — which can take many months — in order for plans to be fully and realistically implemented. Particularly difficult to develop are mutual aid agreements with tribal entities. This is due to the sovereign nature of tribal governments and the need for the language in those agreements to correctly reflect individual tribal sovereignty and governmental structure while remaining acceptable to all involved parties. Again, a great deal of time is required on the part of local public health agencies and tribes to mutually develop relationships based on trust and respect.

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13 Arizona Department of Health Services, County Deliverables, Cooperative Agreement Guidance for Public Health Emergency Preparedness, 2005/2006 grant year.

Local Arizona public health agencies are also expected to coordinate emergency activities with federal, state, and private correctional facilities, behavioral agencies, regional hospital groups, medical providers, and volunteer organizations. They are required to track local food and water companies that conduct emergency response planning or vulnerability assessments and be prepared to respond to small-scale suspected food tampering and agro-terrorism incidents. Border counties must also participate in cross-border activities with Mexico; all Arizona counties contend with a constant flow of undocumented aliens through their areas, adding to their public health responsibilities. Counties may also pre-position antiviral or antibiotic medications for public health staff, volunteers, and their families and purchase personal protective equipment for public health first responders. Due to the limitations placed on these resources by federal funding criteria, however, they may not make them available to other responder agencies.

Local public health agencies are the coordinating and collaborative foundation for Public Health preparedness. Undertaking this task is huge, especially when public health agencies have not had to closely collaborate with responder agencies for many decades and are already limited by an eroded funding infrastructure.

2. Education

Many public health personnel, especially those not directly involved in preparedness activities, do not have the basic knowledge needed to respond to emergency events. Although they have been active in many other aspects of Public Health, emergency response differs significantly from day-to-day public health activities such as maternal and child health care or family planning education.

One primary educational responsibility best accomplished with state and local health agency collaboration is the development of a core curriculum for Public Health preparedness to provide training continuity at local levels. This objective is not directly tasked or measured in the Centers for Disease Control and Prevention cooperative agreement; this allows states to determine their own course in this area. Local public health agencies need to be involved with this, as only they can determine the level of

expertise needed by their agencies. Aside from federal requirements that public health agencies be National Incident Management System compliant, there remains no standard core curriculum to ensure a minimum base knowledge across the public health community.

In Arizona, local health agencies are tasked with preparing their own emergency preparedness training plans for public health staff and volunteers. They include personal and family preparedness, emergency response overview, and behavioral health issues in disasters. They are also tasked with providing localized emergency preparedness trainings for rapid response teams, including hazardous materials and personal protective equipment, mass vaccination clinics, business continuity, Federal Emergency Management Agency cost recovery, and risk communication. In addition, local Arizona public health agencies are also responsible for training volunteers performing public health tasks in mass vaccination clinics and other public health emergency duties, and for providing training to physicians and health care professionals.

3. Early Warning Infectious Disease Surveillance Project

Local Arizona public health agencies that border Mexico must also participate in Early Warning Infectious Disease Surveillance program activities, which focus on early detection, identification, and reporting of infectious diseases associated with public health threats, including potential bioterrorism agents.[14] This includes participating in meetings, subcommittees, and border-wide training programs related to infectious disease surveillance and response. They must also conduct exercises that involve local hospitals and laboratories, community health care institutions, emergency response agencies, and public safety agencies, and they must develop the capacity to undertake joint epidemiological investigations.

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14 "United States–Mexico Border Health Commission — Early Warning Infectious Disease Surveillance Project." http://www.borderhealth.org/ewids.php?curr=programs, Accessed January 10, 2006.

4. Disease Surveillance

Disease detection, diagnosis, and response are vital components of disease surveillance and control for potential bioterrorism agents. Local public health agencies are typically the first governmental agencies to detect disease outbreaks and are required to be able to triage urgent disease reports at all times. In Arizona, they are also expected to investigate outbreaks and issue disease control recommendations for all types of communicable disease outbreaks, including food-borne outbreaks, and to investigate syndromic alerts issued by BioSense. BioSense is a part of a national biosurveillance initiative by the Centers for Disease Control and Prevention to assist states and localities in analyzing disease reporting data from multiple sources.[15] Often, local public health resources are inadequate to keep up with expectations and must set response priorities based on known existing Public Health threats — versus suspected threats.

Public health disease surveillance systems, mainly passive systems relying on laboratory and physician reporting, have been in use for many decades. They detect various disease patterns caused by bacteria, viruses, and environmental hazards that increase morbidity and mortality among human and non-human populations. This existing capacity to look for patterns is one of the greatest strengths of the Public Health system. Public health epidemiologists are familiar with recognizing various disease patterns and implementing disease control practices across populations.

However, infectious disease cases remain largely underreported by physicians who may have little time or incentive to report. The Arizona Department of Health Services estimates that reporting sources report only about 10 percent of reportable disease cases as required by law.[16] Laboratories are typically better reporters, but only report positive test results, not disease cases. For example, a laboratory may report multiple positive results for a single patient, while a physician will report a positive disease case in an individual. Even so, reported disease cases must be reviewed

15 Association of State and Territorial Health Officials, "The BioSense Initiative," Issue Brief, October 2004.

16 From 1994 through 2001, the author was employed as an Infectious Disease Epidemiologist at ADHS, and worked extensively with disease reporting, surveillance and investigation activities.

carefully, to ensure that a disease case exists. Not all positive laboratory results or physician diagnoses actually indicate a disease case. For this reason, local public health epidemiologists must closely interpret the data to ensure an accurate assessment of disease occurrence and appropriate control measures.

Most current infectious disease surveillance is primarily passive. Passive disease surveillance relies on health care providers and laboratories reporting selected diseases to public health entities and is noted for the extended lag times between disease diagnoses and disease reporting, thereby slowing the recognition of disease outbreaks.[17] This lag time is exacerbated by patients delaying or not seeking health care for illnesses. Electronic reporting, active surveillance (i.e., actively acquiring disease incidence data), and increased reporting compliance is helpful in overcoming these limitations, but often requires more resources than local public health agencies have available. To be effective in meeting Homeland Security objectives, disease reporting must be improved.

Public Health disease surveillance and control differs entirely from clinical patient management. Public Health disease surveillance looks for patterns and trends among populations and considers the treatment and control of diseases in individual patients as a means of controlling diseases in populations. This is not to say that Public Health is uncaring of individuals, it simply recognizes that controlling diseases in populations is contingent on individual patients receiving appropriate treatment.

It also differs from bio-agent detection surveillance systems that detect specific bio-agents in the environment as a means for identifying possible risk of disease.[18] Overall risk of acquiring disease is another matter completely from identifying actual disease cases and controlling them appropriately. While both clinical treatment and bio-agent detection systems contribute to the overall picture of diseases in populations,

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17 United States General Accounting Office. Infectious Diseases, Gaps Remain in Surveillance Capabilities of State and Local Agencies. Testimony before the Subcommittee on Emergency Preparedness and Response, Select Committee on Homeland Security, House of Representatives, by Janet Heinrich, Director, Health Care – Public Health Issues. September 24, 2003.

18 Dena M. Bravata, Vandana Sunderam, Kathryn M. McDonald, Wendy M. Smith, Herbert Szeto, Mark D. Schleinitz, and Douglas K. Wens, Evaluating Detection and Diagnostic Decision Support Systems for Bioterrorism Response. *Emerging Infectious Diseases*, vol. 10, No. 1, January 2004.

neither can substitute for Public Health disease surveillance systems. Clinical medical systems are typically unable to view specific disease incidence with sufficient scope to detect pattern anomalies throughout populations and are not designed for that purpose. Bio-agent detection systems may lack sufficient specificity or sensitivity to detect agents and are not direct indicators of actual disease exposures and infection; they are merely indicators of the possibility of disease exposure.

Since September 11, 2001, the need for improvement to Public Health's ability to detect and respond to intentional disease outbreaks has been identified as a Homeland Security objective. The National Strategy for Homeland Security notes that "information contributes to every aspect of homeland security and is a vital foundation for the homeland security effort". [19]

The Centers for Disease Control and Prevention's list of bio-agents includes forty-one disease organisms or syndromes.[20] On the other hand, the list of nationally reportable diseases includes fifty-eight disease organisms or syndromes.[21] State laws often include additional disease organisms or syndromes that are of interest regionally.

In the future, Public Health objectives will include enhancing passive disease surveillance systems, implementing active disease surveillance systems, developing redundant reporting systems, upgrading and standardizing nationally reportable data, and decreasing reporting lag times through electronic reporting. The National Electronic Disease Surveillance System developed by the Centers for Disease Control and Prevention provides a uniform data architecture for disease reporting as well as a structure for consistent data maintenance, which will result in reduced costs, greater efficiency, and increased data quality.[22] However, implementing these improvements

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19 *National Strategy for Homeland Security*, Office of Homeland Security, 55. July 2002.

20 Centers for Disease Control and Prevention, "Bioterrorism Agents/Diseases," http://www.bt.cdc.gov/agent/agentlist.asp, accessed September 10, 2004.

21 Centers for Disease Control and Prevention, Nationally Notifiable Diseases, United States 2004, http://www.cdc.gov/epo/dphsi/phs/infdis2004.htm, accessed September 10, 2004.

22 United States General Accounting Office. Post-hearing Question from the May 8, 2003, Hearing on Barriers to Information Sharing at the Department of Homeland Security. Response to the Committee on Government Reform of the U.S. Congress House of Representatives. July 7, 2003.

requires great resources at both the state and local level. The management and standardization of health data presents many more challenges than most realize.

5. Communications and Information Dissemination

One new area for public health agencies is the use of communications equipment that other responder agencies have used for many years, such as handheld radios and satellite telephones. It falls to each local public health agency to coordinate with responder agencies the type of communications equipment needed and to teach all public health personnel to use it properly. In addition, public health agencies must test and exercise the use of equipment.

Public health agencies are responsible for disseminating health advisory information to various groups, such as medical providers, schools, veterinarians, and fire and law enforcement agencies. This is accomplished in part through the Health Alert Network. As health advisory information is received from federal or state public health departments, it is channeled down to the local level and disseminated to recipients through email or facsimile. The identification of gaps in communications dissemination is also the responsibility of local public health agencies in Arizona.

Public health agencies are also expected to provide emergency public information to partner agencies, the media, the general public, and hard to reach populations. While standardized message information is available from the federal and state levels, it must be adapted and maintained at the local level. In Arizona, it falls to the local public health agencies to develop relationships with hard-to-reach populations, such as non-English speaking persons, migrant workers, people with disabilities including mental illness, people with homebound or medical conditions, the geographically isolated, and those persons without a usual means of communication such as telephones, televisions, or radios. The local public health agencies are also required to be able to provide a hotline with live operators for public information dissemination during emergency incidents.

6. Exercises

Developing and participating in exercises is another area of expertise fairly new to the public health community. Local Arizona public health agencies are expected to plan, implement, identify deficiencies, and apply corrective actions to regional and local exercises. These include tribes, emergency management, hospitals, schools, and other agencies as appropriate. While the state may provide some technical support, the vast majority of the work falls to the local public health agency. In addition, the local public health agencies are expected to participate in other state or regional exercises as they occur.

C. ADDITIONAL ROLES

Public expectations often drive the activities of government entities. In an emergency, public health agencies are implicitly expected to provide support in addressing any emergency issues involving the health and medical welfare of the public. For example, in Arizona, the American Red Cross is unable to provide shelter services for people requiring special assistance. This leaves it to local public health agencies to plan for and provide services for those segments of the population. It does not matter whether local public health agencies have the personnel or funding to provide those services. In an emergency, the public expects that shelter services for those needing special assistance will be available.

In Arizona, local public health agencies' preparedness staffs are also expected to participate in planning and readiness activities for pandemic influenza, including influenza surveillance, and receive a limited amount of funding to do so. This results in a large, additional local Public Health burden. It requires many hours of planning and exercising with multiple agencies — and the development of extensive public education programs about pandemic influenza.

D. SUMMARY

The Centers for Disease Control and Prevention's Public Health Preparedness Cooperative Agreement's grant guidance defines several public health readiness goals for states. The states in turn interpret these goals for local public health agencies and pass through a portion of these monies to local public health agencies. However, the majority of the work to accomplish these goals is done at the local level, with a few exceptions, such as developing statewide electronic reporting and information dissemination systems. Most isolation and quarantine processes occur at the local level, where they should, due to the need for quick action to control specific disease transmission. The Cities Readiness Initiative is another program developed and implemented largely at the local level for cities included in those programs. Arizona local public health agencies also are primarily responsible for the recruitment, training and coordination of Public Health volunteers. Because of the variety of volunteer systems in existence, local public health agencies often provide support and collaborate with multiple local volunteer agencies. Because of the large number of activities and responsibilities that must occur at the local level, local public health agencies must be adequately funded or they will be unable to develop the capacities needed to reach federal objectives.

However, even with positive changes in funding structures, Public Health must commit to making organizational changes to expand its scope of capabilities in order to become an effective response discipline. Other responder disciplines have transformed themselves in response to changing demands. Public Health is capable of meeting its expanded responsibilities as well.

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III. TRANSFORMATIONAL MODELS

A. BACKGROUND

Even with changes in funding structures, acceptance and inclusion by Homeland Security partners, and training and education initiatives, public health agencies cannot fundamentally transform themselves into effective partners without transforming their agencies and expanding their scope of public service. Organizational transformation is not merely exchanging one set of tasks for another, while still operating in basically the same manner with the same basic mission. It is making fundamental, sometimes radical, changes in the way and the reason an organization operates.[23] For example, even though public health agencies gradually changed from conducting sanitation and disease eradication efforts to addressing more chronic health issues in the last century, it continued to operate in basically the same way. The existing public health culture has continued to be perpetuated.

Other agencies, among them fire and law enforcement, have undergone transformational shifts that have allowed them to make not only changes in what they do as an agency, but in how they relate to the communities in which they operate. Fire agencies have been very adaptable to new tasks, allowing them to fill a large number of public safety and health niches. Law enforcement agencies have initiated fewer new organizational roles, but have made great progress in filling new roles that allow them to deliberately change the way they relate to communities. Public health agencies can model these types of transformational changes, not only to improve the way they relate to the public, but to effect changes in how they relate to other responder agencies. However, the only way these transformational changes can occur is if they are made deliberately by all levels of leadership, from the top down. Even with leadership support, ingrained cultural behaviors will take time to change, due to the natural tendency of people to resist changes in their environments.

23Carter McNamara, PhD, "Basic Context for Organizational Change," http://www.managementhelp.org/mgmnt/orgchnge.htm, accessed January 11, 2006.

B. FIRE AGENCIES

Fire agencies are a good example of successful organizational transformations. The number of fires, injuries, and deaths has continually been reduced since 1974[24] due to factors such as better building codes, equipment, and notification systems. As fire suppression activities have been reduced, fire agencies have been subject to continuing budget cuts, similar to the history of budget cuts within public health systems. These budget cuts strain many fire districts, with some communities opting for volunteer fire services rather than using career fire personnel.

As fire suppression activities have been reduced, many fire departments have initiated programs relating to fire prevention. Some of these programs include building plans and review, free distribution of home smoke alarms, juvenile fire-setting prevention, school fire safety, and fire code inspections.[25] By expanding their range of community services, fire agencies have been able to remain useful community resources. However, these types of services have not really required fundamental transformation within these agencies, instead being more of a logical extension to fire suppression services.

In conjunction with their proximity to and relationships with their communities, some fire agencies offer services traditionally offered by public health agencies, such as immunizations, blood pressure checks, and car seat checks. Some fire departments allow their buildings to be used as voting sites during elections. All of these activities serve to tie the fire service closer to the communities in which they serve, making them trusted community partners. In contrast, public health agencies tend to have limited services, defined by grant deliverables. They also tend to have fewer physical sites and fewer observed business hours. This makes public health agencies less accessible and useful to the communities they serve.

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24 "Fire in the United States: Executive Summary," 13th Edition, National Fire Data Center, United States Fire Administration, January 11, 2005. 1992-2001.

25 "A Needs Assessment of the U.S. Fire Service," A Cooperative Study Authorized by U.S. Public Law 106-398, Federal Emergency Management Association, U.S. Fire Administration, and the National Fire Prevention Association International. FA-240, December 2002.

Fire services also provide many other services unrelated to fire suppression, such as medical aid and emergency medical services, hazardous materials and emergency medical services response to suspected chemical or biological agents, and limited technical rescues with emergency medical services.[26] With these additional skills, firefighters are even more suited to respond to terrorism incidents.

It is no surprise that fire agencies are considered the first responders in any emergency incident.[27] Fire agencies have continually transformed themselves to meet the needs of their communities and jurisdictions, and in doing so have made themselves invaluable partners in Homeland Security.

Public health agencies can benefit from many of the characteristics developed by fire agencies. First, public health agencies need to develop the flexibility to expand and change the services they offer in response to changing demands. Because public health services are often dictated by grant deliverables, it may be necessary to develop additional funding flexibility by relying on more than just grant funding. For example, many fire agencies are funded through tax dollars in districts or municipalities. Having additional or alternate sources of funding such as this may allow public health agencies the flexibility they need to adapt to changing needs.

Public health may also expand their accessibility and perceived value to the communities they serve by expanding their scope of services and increasing their visibility to the public. Although public health agencies will likely never have the number of "brick and mortar" sites as fire service, increased visibility in the community through expanded business hours and services will be helpful in establishing their presence as community partners. Finally, by committing to participate fully as partners in emergency preparedness and response activities, public health agencies can establish their value as Homeland Security partners.

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26 "A Needs Assessment of the U.S. Fire Service," 106-398.

27 Terrorism Questions and Answers, Council on Foreign Relations, February 11, 2005, http//cfrterrorism.org/security/fire.html, accessed January 15, 2006.

C. LAW ENFORCEMENT AGENCIES

In contrast to fire agencies, law enforcement agencies have initiated fewer individual programs outside of their usual activities such as intelligence, crime control, and maintaining public security. However, in those areas where they have expanded their functions, they have made strategic plans and structured efforts to collaborate with their communities and outside partners, reducing the isolative culture that has developed in law enforcement.

The subculture of isolation in law enforcement agencies has been well-studied, along with the factors leading to that isolation from the general public community; these include paramilitary-like training, discipline, and dress standards.[28] This traditional subculture reduces positive community interactions and decreases the cooperation and trust of law enforcement by citizens when citizens perceive law enforcement officers as outside regulatory authorities who are uninterested or uncaring of community concerns and interests. By transforming themselves into community resources rather than community regulators, and by increasing their partnerships with the public and other agencies, law enforcement agencies will establish themselves as even more valuable Homeland Security partners.

The primary philosophical change responsible for transformation in law enforcement is the concept of community policing. Community policing broadens the nature of police functions and makes better use of the resources that may be available to law enforcement agencies. It emphasizes organizational change, flattening of the vertical hierarchical structure, decentralization of decision making, and working with citizens and external partners in solving problems.[29] Community policing programs encourage community communication. Law enforcement officers may be assigned as school

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28 Stephen J. Harrison, "Police Organizational Culture: Using Ingrained Values To Build Positive Organizational Improvement." Pennsylvania State University, 1998. http://www.pamij.com/harrison.html, accessed March 17, 2007.

29 Matthew C. Scheider and Robert Chapman, "Community Policing and Terrorism," April 2003, http://www.homelandsecurity.org/journal/articles/Scheider-Chapman.html, accessed February 11, 2005.

resource officers where they can teach classes in crime prevention and drug abuse.[30] Officers may be assigned to patrol and take responsibility for defined geographical areas, encouraged to have positive preventative interactions with the public, and be required to work with their community partners to identify potential threats and solve problems.

Community policing has been supported by the United States Department of Justice and encouraged through programmatic funding through the Office of Community Oriented Policing Services.[31] It serves as an example of organizational transformation strategically and financially, supported from the top levels of leadership and implemented throughout all levels of law enforcement.

D. SUMMARY

Public health agencies can utilize transformational strategies already used by fire and law enforcement agencies. Fire agencies continue to learn and implement new services that tie them more closely to their communities. These services offset much of the reduction in fire suppression activities that has occurred over time. Many of the services they offer are those traditionally offered by public health agencies, such as immunizations, car seat checks, and blood pressure checks. In addition, fire agencies participate in hazardous materials teams and respond to suspected terrorism incidents such as suspicious powdery substance exposures. By adding diversified programs to fire agencies, those agencies have made themselves more visible to the communities they serve and are perceived as valuable Homeland Security partners. As part of transformational change, Public Health leadership at all levels should support the addition of non-traditional public health tasks, such as emergency preparedness, and develop educational and training initiatives that will assist personnel to develop new skills that will assist public health in reaching Homeland Security objectives. In order to

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30 U.S. Department of Justice, Office of Community Oriented Policing Services, "COPS Fact Sheet, Cops in Schools," The COPS Commitment to School Safety, www.cops.usdoj.gov, updated March 10, 2004, accessed 2/11/2005. .

31 Ibid.

accomplish this, federal funding guidelines for all types of Public Health must allow the flexibility needed to train and support all staff to respond to emergency incidents.

The importance of leadership driving transformational processes is critical to public health success in transforming itself into a broader spectrum of functions. Key practices identified in a United States General Accounting Office forum on lessons learned for a Department of Homeland Security and other federal agencies on mergers and transformation include the following key practices: [32]

- Ensure top leadership drives the transformation.
- Establish a coherent mission and integrated strategic goals to guide the transformation.
- Focus on a key set of principles and priorities at the outset of the transformation.
- Set implementation goals and a timeline to build momentum and show progress from day one.
- Dedicate an implementation team to manage the transformation process.
- Use the performance management system to define responsibility and assure accountability for change.
- Establish a communication strategy to create shared expectations and report related progress.
- Involve employees to obtain their ideas and gain their ownership for the transformation.
- Build a world-class organization.

The law enforcement model of community policing closely follows these key practices by supportively structuring their transformational activities throughout multiple law enforcement agencies through the U.S. Department of Justice Office of Community Oriented Policing Services cooperative grants. These programs offer both funding and guidance in reaching key community policing goals.

Federal Public health leadership can promote faster transformational success structuring competitive funding to promote transformational goals at the local and state levels. At the same time, clear guidance on reaching these goals must be developed at the federal level to ensure more consistent results locally.

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32 United States General Accounting Office, Comptroller General of the United States, November 2002, Highlights of a GAO Forum, "Mergers and Transformation: Lessons Learned for a Department of Homeland Security and Other Federal Agencies."

IV. AGENCY BARRIERS TO PUBLIC HEALTH INTEGRATION

A. BACKGROUND

Public Health faces many barriers to needed integration with emergency management and other responder agencies.[33] Especially difficult to overcome are priority barriers, because local or state public health leaders may not agree that Homeland Security objectives are a priority for public health agencies. Public health cultural barriers pose continuing obstacles in almost every interagency interaction, as they are long ingrained into the workings and interactions of public health agencies.

Responder agencies, including fire, law, and emergency management agencies, are frequently unsure of the role and functions of Public Health. In many emergency management planning and exercise activities, public health agencies often find themselves only peripherally participating or lumped together with health institutions that provide acute clinical care. Some responders are unwilling to work with Public Health due to a history of poor interactions, which continue to be perpetuated due to differences in communication and decision making styles.

B. PUBLIC HEALTH CULTURE

1. Priorities

One major underlying problem with public health integration into the Homeland Security interagency community is that local public health agencies have varying ability and willingness to consistently focus appropriate funding and other resources on activities and priorities in Homeland Security-related programs. With so many other under-funded programs, reduced budgets, and crumbling infrastructure in relation to other public health needs that require attention (such as poor prenatal health, teen pregnancy, and sexually transmitted diseases) it is not difficult to understand why some Public Health officials may consider Homeland Security objectives a competing or lower

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33 NGA Center for Best Practices, Issue Brief, State Strategies for Fully Integrating Public Health into Homeland Security, November 23, 2005.

priority. After all, why should so much money go towards preparing for events that may never happen when there are current health problems to address daily?

An example of this occurred at an Arizona Department of Health Services-sponsored Crisis Communication Training Workshop,[34] where one health department director repeatedly focused on "slow-moving disasters" such as tobacco use and obesity. This discordance in focus between Public Health and Homeland Security objectives, illustrated by the speaker's spontaneous redefinition of chronic conditions as disasters, is not atypical in public health agencies.

Certainly tobacco use and obesity are important chronic health threats, but Homeland Security objectives and funding should not be put aside in favor of other public health agendas and priorities. Cohen et al., in an editorial on the home webpage of the American Public Health Association state:

> But other bioterrorist initiatives are more questionable. Before they are implemented by the public health community, such programs must be thoughtfully and scientifically examined in terms of their necessity, efficacy, safety, and cost. Bioterrorist initiatives may divert resources from other, more urgently needed public health tasks or may place public health agencies and personnel under the control of military or law enforcement officials. We should pause to consider how to maximize the limited resources available for the health protection of the people of the United States and of the world…. The U.S. government's active support for bioterrorist initiative programs stands in marked contrast to the inadequate attention that has been paid to providing more basic resources necessary to protect the U.S. and the global population from prevalent infectious diseases and the chemical threats posed by environmental pollution. While one instance of intentional salmonella contamination may be persuasive to advocates of bioterrorist initiatives, perhaps public health would be better served by preventing the millions of illnesses and thousands of deaths from food-borne infections that occur annually because of negligence and inadequate inspections. More broadly, finding ways to provide adequate food, housing, and health care for all would increase levels of resistance to infection while diminishing the causes of terrorism and war.[35]

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34 ADHS Crisis Communication Workshop, May 4-5, 2004, Phoenix, AZ.

35 Hillel W. Cohen, Robert M. Gould, Victor W. Sidel, *American Public Health Association Journal* website, http://www.apha.org/journal/editorials/editcoh.htm, accessed May 31, 2004.

While it is true that health problems abound worldwide, and there is certainly insufficient funding to build even basic Public Health infrastructure, this pervasive position on the part of Public Health unnecessarily places world health in competition with accomplishing Homeland Security objectives. It also assumes that war and terrorism are the sole results of poor health, nutrition, and housing, while ignoring other possible causes such as religious extremism and economic control. Public Health preparedness and response capacity is a priority because emergency incidents happen, whether intentionally or as natural events. Regardless of their readiness to handle such events, public health agencies, especially those at the local level, are responsible for a number of response activities. Until Public Health leadership recognizes that emergency incident preparedness is an integral part of Public Health infrastructure, rather than a competing priority, it is unlikely that this situation will change.

Funding priorities present other problems in managing public health personnel. Since local public health agencies are largely grant-funded,[36] pulling staff from one grant-funded activity to another funding stream's activities may adversely affect the performance measures of the first grant activity and future funding for those areas. Unless public health agencies are given the authority to address emergency events without negative consequences from other grant-funded programs, there will always be difficulties in assigning non-emergency public health personnel to preparedness activities. In a true emergency, this would not likely pose a barrier until afterward, when grant accountability became questioned. However, the time required to train public health staffs continues to be a problem as there are few funds available to pay for this, and other public health programs cannot allow staffs to participate except in only minimal ways.

Last, public health agencies have not always had a requirement to be available during non-business hours. Even now, due to Cooperative Agreement requirements, only a limited number of employees are available. Because of a history of only working during common business hours, most public health employees are unaccustomed to being

36 Tom Schryer, Director of Public Health, reports that the Pinal County Division of Public Health, in the third largest county in Arizona, is approximately 80% grant-funded.

available to work evenings and weekends. Many consider this type of request unreasonable, rather than a part of their normal job expectations.

2. Communications and Decision Making

Public health agencies have evolved a different communication style from other responder agencies. Public health communication styles tend to be indirect, laced with qualifying criteria, and may be perceived as circuitous and difficult to understand. There is a general absence of absolute statements. For example, if a public health official were describing a fire, he or she might say that there appears to be a fire, but it may be a prescribed fire and it only appears to be affecting a very specific part of the building; but there are insufficient data to support this conclusion. For agencies trying to get a direct answer, this may be frustrating and results in qualified public health personnel perceived as unconvincing. Is there a fire or not? Do they even know? Of course they do; they are just unable to communicate it effectively. The complex nature of disease transmission and the multitude of complicated disease etiologies make it almost impossible for a public health professional to answer disease-related questions simply and directly. There is always an exception to the rule.

In the fire example above, the answer of course is, "There is a fire." Health issues are rarely that simple. Many public health personnel may be uncomfortable making definitive statements about anything unless the listener understands all the parameters used to develop those statements and the criteria that would make those statements invalid. This can be a very difficult communication style for other agencies to work with. Law enforcement personnel often report that this appears to be "doubletalk" and that this style of communication makes public health people sound indecisive and less than credible.[37]

Public health personnel are often unfamiliar with the language and acronyms of other agencies, and other agencies are unfamiliar with Public Health's numerous acronyms for not only public health terms but medical terms as well. In effect, Public

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37 Multiple personal conversations with law enforcement officers throughout 2003-2004.

Health almost speaks another language, sometimes forgetting that what is grossly familiar to them sounds like medical jargon to others.

Public health agencies are now required to utilize the Incident Command System structure and be National Incident Management System compliant. Although the purpose of the Incident Command System is to have a standard emergency operating structure and language, some public health agencies have altered standard Incident Command System structure, further isolating themselves from other responder agencies. National Incident Management System guidelines contribute to this by allowing a vast array of acceptable ICS structures and not requiring local or state agencies to at least collaborate with their partners in developing their ICS structures. This is more problematic for public health agencies, who are the newcomers in developing their own structures.

An additional barrier to interagency collaboration is that Public Health is staffed primarily by employees with biological science or healthcare-related backgrounds. Other agencies, where personnel have different educational backgrounds in more diverse fields, may find public health personnel difficult to work with. For example, many well-educated law enforcement and fire department personnel have mentioned to the author that Public Health people are "academically elite and arrogant," and that this makes them difficult and undesirable to work with. This perceived arrogance affects other areas of collaboration as well. Public health agencies generally lack experience in interagency collaboration and are frequently unaware of the expertise or educational resources other agencies have.

Decision making is also usually more convoluted in Public Health. In contrast with the command and control structures of other responder agencies, decision making in Public Health tends to take longer, and is often by consensus or committee. Rarely can an immediate decision be made without conferring with several people. This results in time delays when dealing with other agencies that need immediate decisions and reduces individual responsibility in decision making. This contrasts with the command and control structures of many other agencies, especially military, fire and law enforcement agencies, that may find themselves frustrated with this decision-making style.

C. PUBLIC HEALTH EXCLUSION BY OTHER RESPONDERS

An additional barrier to public health integration and collaboration with Homeland Security partners is the exclusion of Public Health from planning and exercise activities. Some of this may be due to ignorance of the role of public health agencies, or whether Public Health is even perceived to have a role in emergency incidents. Some agencies, such as fire agencies, may see themselves in Public Health roles in addition to their usual responsibilities in emergencies. However, this can be problematic, as Public Health roles have been well-defined by the Centers for Disease Control and Prevention, and Public Health officials have been trained in their specific disciplines, just as fire personnel have been in theirs. This may be due to the lack of experience working with, or the frustration of working with, public health agencies, especially in emergency incidents.

Some responder agencies have evolved in ways that isolate them from the general community. Law enforcement agencies have long isolated themselves from the general public and from other agencies by a subculture of specific dress standards, organization, and paramilitary-like training. This contrasts considerably with the public health organizational subculture, leading to barriers in initiating collaborative efforts.

The primary activities that require collaboration between public health agencies and law enforcement agencies are investigation of and response to intentional disease outbreaks, activation of the Strategic National Stockpile, and standing up mass vaccination or medication dispensing clinics. The importance of working with law enforcement agencies in planning for emergency incidents cannot be over-emphasized; in the end, they will be the agencies with jurisdictional control in emergency incidents. Likewise, public health agencies provide a resource to law enforcement agencies in their capabilities to recommend disease control prevention measures in response to potential disease exposures.

Since the terrorist attacks on September 11, 2001, collaboration with law enforcement agencies in planning response activities and co-investigation of potential biological terrorist events has gained greater importance. Public health agencies may

lack an understanding of how to interact with law enforcement agencies during criminal investigations and law enforcement agencies lack understanding as to the investigative needs of public health epidemiologists. As a result, training in forensic epidemiology for both law enforcement and public health investigators has gained greater importance.[38] Other emergency planning activities have major law enforcement and public health components as well.

Probably the greatest potential problem for public health agencies during emergency incidents is that law enforcement agencies will simply omit or delay notification of public health agencies. After all, law enforcement has functioned perfectly well for the last several decades without too much contact with public health agencies; there has to be a good reason to do it now.

Only by changing specific aspects of its organizational culture, such as communication and decision-making styles, can public health establish its credibility and be accepted as a partner agency in Homeland Security activities. Public health agencies must be willing to spend time working with and educating responders about public health resources. Changing these ingrained characteristics will place demands on the adaptive capacities of public health agencies, and public health resistance to needed changes should be expected.

D. SUMMARY

Until Public Health acknowledges that Homeland Security is an important added focus, not a competing focus, will Public Health be able to be maximally effective in the Homeland Security venue. Once this major disparity in focus is addressed, many other Public Health characteristics can be addressed through specialized training initiatives.

Public health agencies must recognize the importance of working towards Homeland Security objectives and working as partners with other agencies. Likewise, other responder agencies must be motivated to accept and include public health agencies

38 Richard A. Goodman, Judith W. Munson, Kim Dammers, Zita Lazzarini, and John P. Barkley, Forensic Epidemiology: Law at the Intersection of Public Health and Criminal Investigations. *Journal of Law, Medicine & Ethics,* 31 (2003): 684-700.

as Homeland Security partners. Unfortunately, in the absence of voluntary efforts on the part of different agencies, federal grant requirements and guidelines may be needed to accomplish this.

V. PROPOSED INITIATIVES

This thesis proposes several initiatives, ranging from funding initiatives to recruitment and training initiatives. The most difficult to implement are those affecting funding and priority policies at the federal and state levels. The easiest are those that can occur at any level, but still require the support of public health leadership if they are to be effective.

A. FUNDING INITIATIVES

Because of the latitude given to state public health agencies in determining how much funding is passed through to local levels, there is inconsistency in the ability of local public health agencies to fund their preparedness activities. All emergencies are local, and the majority of funds should be focused locally to develop emergency capacity.

Capacity building at the local Public Health level is more than just purchasing communications equipment and medical supplies. Many hours must be spent collaborating with partner agencies in developing response plans and educating the public about emergency readiness. This is time consuming not only initially, but requires a great deal of time to continually update plans, engage additional partners, and maintain relationships. There are never sufficient numbers of personnel to accomplish the many existing tasks and develop initiatives to address new and varied objectives handed down from the federal government.

To assist local public health agencies in capacity building, the Centers for Disease Control and Prevention should consider limiting the amount of funding kept at the state level for state use. Exceptions to this would be in states where the majority of local public health services are provided directly to the public by the state public health department. Unless local public health agencies are adequately and appropriately funded, the foundation for national Public Health preparedness cannot be established.

Public Health and responder agencies must be actively motivated to participate in joint planning initiatives that include public health agencies in emergency preparedness

and response activities. Public health agencies are directed as part of their Centers for Disease Control and Prevention Emergency Preparedness Cooperative Agreement goals to include partner agencies in their emergency preparedness activities. Other responder agencies need to have the same requirement through their grant guidelines. Since this has not yet consistently occurred, funding directives should include the necessity for documented inclusion of public health agencies in emergency management and preparedness activities.

Before this can occur, it must be acknowledged and supported at the federal level that virtually all kinds of emergencies have public health components, and this support must be emphasized to emergency management and other responder agencies at the state level. Public Health must be included in planning activities, not as an afterthought, but as a full partner. For example, in the Arizona Homeland Security Regional Councils, Public Health was represented by a non-voting ad-hoc member prior to 2007, when this was finally changed.[39] If federal agencies want Public Health to be full participants in Homeland Security objectives, then public health agencies must be treated as such at all levels of government. Because change is often best facilitated by funding incentives, performance measures for Homeland Security funding can require partnerships with public health agencies as a requirement for grant funding.

Local public health agencies must be given the flexibility in federal and state grants to allow the training of non-emergency preparedness personnel in basic emergency preparedness in order to develop workforce response capacities. This may be accomplished by grant clauses that agree to allow these non-emergency grant-funded personnel a specified and generous amount of time for emergency preparedness training.

B. TRANSFORMATIONAL INITIATIVES

Effective and swift Public Health organizational transformation can only be accomplished with the support of federal, state, and local Public Health leadership. First, they must recognize the importance and necessity of transformation if it is to maintain

39 Greg Manning, Regional Planner, Arizona Office of Homeland Security, presentation, December 22, 2005.

and improve its effectiveness in the community as a Homeland Security partner. Until Public Health leadership supports the acquisition of new skills and roles in supporting Homeland Security objectives, priorities in training and education of public health personnel and the implementation of programs outside traditional public health roles will be difficult to accomplish at local and state levels.

Second, Public Health leadership at federal levels must provide the direction and mission consistent with best practices for organizational transformation for public health agencies to follow in implementing transformational strategies. Without effective and supportive federal Public Health leadership guiding transformational strategies and objections, efforts to achieve state and local public health emergency preparedness goals will continue to be inconsistent. Whatever the level of their readiness capabilities, public health agencies, especially those at the local level, are held responsible for the failures and successes in meeting emergency response needs.

C. CULTURAL INITIATIVES

Several initiatives can assist public health agencies in achieving organizational changes that will enable them to communicate, collaborate, and cooperate better with other responder agencies.

First, federal, state, and local public health agencies should facilitate the recruitment of employees from diverse disciplines. It is helpful to view and share dissimilar perspectives and knowledge bases in program development. Especially desirable is the recruitment of personnel from emergency responder backgrounds. Not only will these employees be able to ease interactions between agencies, they will assist public health employees in developing communication and perspectives that may be foreign to Public Health.

Second, increase the time public health personnel spend interacting with other responder agency personnel. This will assist in interagency understanding and knowledge of programs, priorities, and protocols. It is important for public health personnel to learn about and acknowledge the validity of other agencies' perspectives and

priorities. While the time spent may be a considerable effort for Public Health and responder agencies, both will benefit by the increase in knowledge and familiarity with different types of agencies.

Public Health must acknowledge that other responder agencies have a great deal of knowledge and expertise to offer. Most of the emergency incidents that require Public Health response also require significant contributions by law enforcement, fire, and emergency management agencies. It is far more likely those agencies will have greater experience in managing emergency incidents and their consequences than Public Health currently does.

Third, public health agencies need to have a cadre of appropriately trained public health employees available for duty during non-business hours to address public health priority calls and emergency incidents. There must be an organizational expectation that Public Health has emergency response functions and roles that must be addressed appropriately. For this to be effective, however, other responder agencies must be aware of and trained in the need to notify public health agencies of emergency incidents that may have Public Health components. Many times, public health agencies are excluded because responder agencies are not aware of the role public health agencies may play in emergency incidents or even what types of incidents may need Public Health involvement. For example, during wild land fires, health recommendations for people in the surrounding areas with certain chronic health conditions must be made based upon the amount of particulate matter or a visual smoke assessment.

Fourth, Public Health leadership must give appropriately trained and trusted personnel decision-making authority — and support their decisions. This may be difficult, as decision-making authority is often concentrated at higher organizational levels or made at lower levels based on consensus. Unless trained public health emergency response personnel have the authority and knowledge to make timely and reasonable decisions, other responder agencies will continue to meet with frustration when working with public health agencies when immediate decisions are needed.

Training initiatives should include multiple approaches. Local and state public health personnel should attend relevant trainings, especially those that are attended by other disciplines. One example is Incident Command System training, where it is far more educational to attend trainings with other disciplines than to attend those attended by public health personnel exclusively. Only by training with other disciplines will public health personnel begin to understand the perspectives and priorities of other agencies. This will also assist Public Health in learning other agencies' protocols and procedures, acronyms, and organizational structures. Other agencies will benefit as well, by becoming familiar with Public Health roles and responses.

Public health employees need to learn how to communicate effectively with other agencies. Although training is often provided to public health employees on how to communicate with the media, they are poor at communications outside their immediate agencies. Public health agencies also need to learn how to communicate with responders in emergencies. Because they have, with few exceptions, had little exposure, public health personnel need to become familiar in how to effectively communicate with other people during emergency events

Last, federal agencies would benefit by more exposure to local public health agency perspectives. Too often, they are only aware of local Public Health activities and challenges by communicating indirectly through state public health agencies. A program of regular site visits to and discussion with local public health agencies would help federal public health agencies to better measure and understand local challenges.

Only by developing strategies at the federal level, and committing to implement them at the state and local levels, will these changes occur. Although federal grant guidelines for public health preparedness require a system of training and exercises, they only require minimal interaction with other responder agencies. It is far more effective to train and exercise with a diverse group of agencies regularly than to train within a familiar discipline. For state and local public health agencies, it requires considerable effort and time to develop relationships with other responder agencies. Sometimes these responders are unaware of the role of Public Health and may perceive that they have done quite well without public health participation. State and local public health agencies must

implement a consistent system of developing plans, exercises, and response activities with other types of responder agencies.

VI. POLICY IMPLICATIONS

The funding initiatives suggested in the previous chapter primarily affect federal policies and emphasize the importance of local Public Health preparedness and response. Although Homeland Security grant dollars are determined by a different funding formula and strategy than is the Centers for Disease Control and Prevention's Emergency Preparedness Cooperative Agreement funding, there is still an emphasis on preparedness at the local level. Once federal funding for public health preparedness reaches the state level, it is up to the state health agencies to determine the amount of funding passed to local public health agencies. This results in varying levels of funding actually reaching local agencies. For example, in Arizona the state Homeland Security agency passes 80 percent of Homeland Security grant funding through to local regional areas, while state public health passes only 50 percent to local public health agencies. If local public health preparedness and response capacity is really considered to be a priority by the leadership at the federal public health level, then guidelines ensuring that funding will be directed to the local levels need to be developed.

The need to prioritize local Public Health preparedness must be given increased importance by the federal government since all emergencies, including Public Health emergencies, are local. While it can be argued that state public health agencies initially needed more funding to support state initiatives such as laboratory capacity enhancement and electronic reporting systems, these initiatives have been largely accomplished. It is time for more funding to be directed at local public health agencies to build local Public Health preparedness and response capacity.

Public health agencies must be supported as full partners by the United States Department of Homeland Security, and this support must be interpreted by state Homeland Security agencies as the need to include public health agencies at both the state and local levels in planning initiatives. Some responder agencies may consider public health agencies competitors for diminishing Homeland Security funding, thereby excluding them from participation. Other problems between agencies may arise due to crossover in responsibilities and roles of the agencies. For example, Public Health

agencies and Emergency Management agencies are responsible for various volunteer recruitment and management activities. These roles must be better defined at federal levels to eliminate the confusion and annoyance such crossover precipitates.

Only by fully supporting public health agencies as partners, and requiring state and local Homeland Security agencies to do the same, will local public health agencies be considered necessary partners by emergency management, law enforcement, and fire agencies. This will require leadership at Homeland Security agencies and public health agencies to support in policy and practice the importance of including public health agencies in Homeland Security activities. Likewise, Public Health leadership will need to examine its priorities on the roles of Public Health during emergency incidents. They will need to recognize the importance of developing sound strategies and objectives aimed at defining the appropriate roles of public health agencies so that it is clear to other responder agencies that Public Health is a valued response partner.

VII. CONCLUSION

Public health leadership at federal levels can directly improve the ability of public health agencies to integrate into the Homeland Security community by developing a national strategy to effect transformational changes in the very nature and function of Public Health. This must be done at the federal level so that compliance and implementation will be effective at state and local levels. Federal level implementation is necessary for two reasons. First, broad guidelines can be established for state and local public health agencies, building more consistent policies throughout state and local governments. Second, the federal government controls the funding for public health emergency preparedness and response programs, thereby controlling the implementation of state and local public health practices.

Public health agencies have not yet built the integration they need with other local, state, and federal agencies in order to effectively fulfill their Homeland Security objectives. If this integration is not accomplished, public health agencies will fail to meet their emergency preparedness goals. Their failure will result in significant negative results during emergency incidents.

Failure to target the majority of federal funding to local public health agencies is a major cause of the limited success of public health agencies. Without success in completing Homeland Security objectives at the local level, there can only be very limited success at state and federal levels. Agency partnerships in planning and response activities are developed first at the local level and require extensive and time-consuming outreach and participation on the part of local public health agencies. Without these partnerships, local public health agencies will not ever become valued resources for other responder agencies. For this reason, federal public health emergency preparedness dollars must be focused on developing local public health capacity.

The failure of response agencies to include public health agencies in planning initiatives and other emergency preparedness activities is another reason for Public Health lagging in completing Homeland Security objectives. Federal Homeland Security

agencies must support and emphasize the importance of federal, state, and local Public Health involvement at all levels of emergency preparedness and response. If responder agencies such as emergency management, law enforcement, and fire agencies exclude local Public Health from these activities, local public health agencies will continue to be hampered in their efforts to integrate into the Homeland Security community.

Accomplishing Homeland Security goals requires extensive interagency collaboration. Public health agencies have many tasks to complete — such as enhancing isolation and quarantine procedures; disease detection and control; emergency plans; developing and implementing exercises for specific disease threats such as anthrax, smallpox, and pandemic influenza; chemical events; natural disaster events; and mass vaccination and medication dispensing clinics — in which they need the assistance of other agencies. In order to be maximally effective in contributing to Homeland Security objectives, all public health agencies must willingly collaborate with multiple agencies in planning for interoperable communications; vulnerability assessments for health, water, agriculture and power infrastructure; and emergency response activities. Education, exercise, and joint planning initiatives can do much to strengthen interagency working relationships.

Public health agencies must also overcome internal organizational barriers to interagency collaboration and coordination if they are to interact more effectively with other responder agencies that are involved in Homeland Security activities. To accomplish this, Public Health leadership will need to recognize and acknowledge that achieving Homeland Security objectives is a public health priority. Homeland Security objectives cannot be weighed against, or be considered a competing priority, with other public health programs. Preparedness and response initiatives are an important part of local Public Health infrastructure and should be given the priority required by federal funding agreements. Once this major disparity in focus is addressed, other organizational characteristics that hinder public health integration can be addressed through specialized training and education initiatives.

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