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Bioterrorism and the MSEHPA

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Introduction

Imagine for a moment that a handful of people in Austin, Texas are suddenly afflicted with a mysterious disease. Fear sweeps across the state because no one seems sure of the cause. In the meantime, it is swiftly spreading; the number of people stricken is rising at an alarming rate. As medical and public health professionals struggle to identify the disease and argue over the appropriate response system, the governor panics and declares a state of public health emergency, or a "state of disaster" as it is called in Texas.[1] In doing so the governor assumes the position of commander-in-chief, a position that in Texas bestows a tremendous amount of authority upon the governor, completely stripping the legislature of any control.[2] He then proceeds to seize property, including real estate, food, medicine, fuel, and clothing. Anything officials feel is necessary to handle the emergency is subject to seizure.[3] Next, the governor sets up roadblocks at city limits and state borders so that no potentially infected persons can move about freely,[4] and requires all suspected persons to submit to, and all doctors to provide, vaccina-

[1] Tex. Gov't Code Ann. § 418.014(a) (Vernon 1998).

[2] Tex. Gov't Code Ann. § 418.015(c) (Vernon 1998) states:

> During a state of disaster and the following recovery period, the governor is the commander in chief of state agencies, boards, and commissions having emergency responsibilities. To the greatest extent possible, the governor shall delegate or assign command authority by prior arrangement embodied in appropriate executive orders or plans, but this chapter does not restrict the governor's authority to do so by orders issued at the time of the disaster. *Id.*

[3] Model State Emergency Health Powers Act art. V, § 502(a) (The Center for Law and the Public's Health at Georgetown and Johns Hopkins Universities, Proposed Draft December 21, 2001), *available at* http://www.publichealthlaw.net/MSEHPA/MSEHPA2.pdf. (last visited November 6, 2003) [hereinafter "MSEHPA"].

[4] MSEHPA, § 502(d)(1)-(2) (giving the public health authority control of "roads and public areas" to "prescribe routes, modes of transportation, and destinations" and "limit ingress and egress to and from any stricken or threatened area, the movement of persons within the area, and the occupancy of premises therein" provided it is reasonable in response to the emergency).

tions.[5] Those who refuse to be examined or treated are quarantined, causing riots to break out.[6] In spite of these coercive measures, nothing seems to be working – the disease is taking an enormous toll at an increasing rate.

This scenario may sound far-fetched, but the truth is it may not be as unlikely as the American public would like to believe. As a result of the recent anthrax attacks and the tragic events of September 11th, the notion that a future terrorist attack may take the form of a lethal, contagious disease has become palpable. The federal government has been forced to confront public health law shortcomings, particularly emergency planning and coordination, at local, state and federal levels.[7] Unfortunately, this renewed motivation to reform public health law in the United States has produced controversial and arguably dangerous results, namely, the Model State Emergency Health Powers Act (MSEHPA).[8]

Critics of the MSEHPA argue that it completely ignores the diversity of state government structures and state constitutional law.[9] They argue that its language is far too broad because it applies to emergency *and* non-emergency situations, such as influenza and AIDS epidemics, alike.[10] Critics decry its inevitable infringement on civil liberties in the name of the "common good" and insist that by using overbroad language, the MSEHPA allows for abuse of power by the government.[11] If nothing else, the Act seems to undermine

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[5] *See* MSEHPA art. VI, § 603(a). The MSEHPA provides that the public health authority may vaccinate persons "as protection against infectious disease" or to prevent the spread of such a disease. It also allows the public health authority to quarantine "persons who are unable or unwilling for reasons of health, religion, or conscience to undergo vaccination." *Id.*

[6] *See* MSEHPA art. VI, §§ 604(a), 605(a)-(b) (stating that during a public health emergency, individuals or groups may be isolated or quarantined with or without notice and failure to obey will constitute a misdemeanor).

[7] *See* Wendy E. Parmet, *After September 11: Rethinking Public Health Federalism*, 30 J. L. MED. & ETHICS 201, 201 (2002) (stating that an effective partnership among federal, state, and local officials is necessary for an effective public health system).

[8] *See generally* MSEHPA (providing heightened governmental powers to impose more stiff civil penalties in the event of an emergency).

[9] Edward P. Richards & Katharine C. Rathbun, *Legislative Alternatives to the Model State Emergency Health Powers Act*, *at* http://biotech.law.lsu.edu/blaw/bt/MSEHPA_review.htm (last visited October 16, 2003).

[10] George J. Annas, *Bioterrorism, Public Health, and Civil Liberties*, 346 NEW ENG. J. MED. 1337, 1338-39 (2002).

[11] *See id.* at 1337-38, 1339.

the public's confidence in public health agencies[12] – a critical element in the face of a true state emergency.

This comment argues that one essential problem with the MSEHPA is that it does not set any guidelines for legal and medical authorities to coordinate efforts in order to create an efficient system of disease recognition and reporting that states can integrate into their individual public health systems. The MSEHPA takes a strictly legal perspective, ignoring the fact that in the event of an attack, doctors, nurses, and emergency medical personnel will have the greatest role in responding to the medical aspects; while public health authorities will "provide guidance to the public and other government officials in identifying and dealing with the disease," duties such as identifying, reporting, and treating affected individuals will fall on the shoulders of medical professionals.[13] Instead of acknowledging this fact and incorporating important medical guidelines into its text, the MSEHPA anticipates reluctance and uncooperative behavior on the part of medical professionals and the general public if an attack occurs.[14] This is the wrong approach. Rather, the MSEHPA needs to assimilate the knowledge health care providers can contribute to public health law-making and coordinating an effective response in an emergency situation. Specifically, identification of a disease based on its mode of transmission is critical to ensure a quick and successful response; only health care providers can educate public health authorities, politicians, and the general public in this regard. Any proposed model act that emphasizes collaboration between public health officials and health care providers will help guarantee that appropriate measures are taken according to the type of biological agent used in an attack. Moreover, the MSEHPA needs to limit its use of severe measures to only the most necessary scenarios, such as quarantine and prosecution. In effect, an act that is more medically-oriented and public-friendly would help prevent the chaos critics fear the tyranny of the MSEHPA would create. Such an act would do what the MSEHPA

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[12] *See* Richards & Rathbun, *supra* note 9.

[13] Annas, *supra* note 10, at 1339.

[14] *See id.* at 1338; *see also* MSEHPA art. V, § 604(a). The Act states:

> During the public health emergency, the public health authority may isolate or quarantine an individual or groups of individuals. This includes individuals or groups who have not been vaccinated, treated, tested, or examined pursuant to Sections 602 and 603. The public health authority may also establish and maintain places of isolation and quarantine, and set rules and make orders. Failure to obey these rules, orders, or provisions shall constitute a misdemeanor. *Id.*

was meant to do—maintain the balance between individual rights and the "common good" by clearly defining the rare situations in which minimal intrusions of rights are necessary.[15]

Part II of this comment examines the development of bioterrorism to the modern age. Subsequently, it addresses public health law generally, focusing on the power struggle between state and federal roles in matters of public health, particularly during public health emergencies. Part II will also examine the MSEHPA and discuss its major flaws, namely, that it fails to distinguish between the roles of government and those of the medical community. Further, the MSEHPA fails to specify exactly when severe governmental action should be taken so as not to unnecessarily infringe on civil liberties. Part III describes how combining both public health and medical efforts would help improve the public health infrastructure, particularly in the case of an attack. Part III also elaborates on how the MSEHPA can help create such cooperation between communities, specifically by incorporating a clinical analysis of potential biological agents and their modes of transmission. Part IV concludes that if the MSEHPA is amended to provide both public health and medical guidelines in the case of a bioterrorist attack, as well as specific situations in which severe measures may be taken, the MSEHPA might serve as the first step in reforming the American public health infrastructure.

I. BACKGROUND

A. Bioterrorism

According to the Centers for Disease Control and Prevention (CDC), bioterrorism is an "intentional release of viruses, bacteria, or toxins for the purpose of harming or killing civilians."[16] While the use of anthrax spores to intentionally contaminate letters damaged many Americans' sense of security and health, the use of infectious agents to cause death and disease as a means of intimidation or control is not a novel concept.[17] In modern times, bioterrorist threats

[15] *See* Annas, *supra* note 10, at 1339.

[16] Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, *The Public Health Response to Biological and Chemical Terrorism, Interim Planning Guidance for State Public Health Officials* (July 2001), *available at* http://www.bt.cdc.gov / Documents/Planning/PlanningGuidance.PDF (last visited November 6, 2003).

[17] James G. Hodge, Jr., *Bioterrorism Law and Policy: Critical Choices in Public Health*, 30 J. L. MED. & ETHICS 254, 255 (2002) (discussing historical accounts of bioterrorism in the United States, such as the intentional contamination of dry goods with smallpox, and the ex-

have been far more common than Americans would like to believe, with biological agents ranging from typhoid to salmonella.[18] Incidentally, the bioterrorists themselves have been as politically and ethnically diverse as the agents they use.[19]

The fear caused by the implications of a bioterrorist attack can be attributed, at least in part, to the misconception that infectious diseases are a thing of the past.[20] While cancer, cardiovascular disease, and other chronic conditions have attracted the attention of researchers and legislators since smallpox was eradicated worldwide in 1977, death due to infectious diseases rose fifty-eight percent in the United States between 1980 and 1992 in major part due to HIV.[21] Moreover, while the developed world has enjoyed considerable freedom from infectious disease, developing countries have not been as fortunate; afflictions such as malaria, cholera, and tuberculosis have continued to take a steady toll.[22]

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change of those goods with the Native American populations); *see also* JUDITH MILLER, STEPHEN ENGELBERG & WILLIAM BROAD, GERMS 37 (2001). There are several more historical accounts of bioterrorism. *Id.* For example, more than two thousand years ago, Scythian archers dipped their arrowheads in manure and rotting corpses to enhance their effectiveness; the Tartars in the 14th century catapulted dead bodies riddled with the plague over city walls of their enemies; the Germans in World War I sickened the horses of rival cavalries with glanders, a horse's disease; the Japanese in World War II dropped plague-infected fleas over Chinese cities. *Id.*

[18] Hodge, *supra* note 17, at 255.

[19] Mark G. Kortepeter & Gerald W. Parker, *Potential Biological Weapons Threats*, 5 EMERGING INFECTIOUS DISEASES 523, 523 (1999). A "wide range of groups or individuals" may use biological weapons. *Id.* At one end of the spectrum are large organizations that are well-funded and possibly state-supported, such as the Aum Shinrikyo in Japan. *Id.* The Aum Shinrikyo tried unsuccessfully to release anthrax and botulinum toxin. *Id.* On the other end of the spectrum are "smaller, less sophisticated organizations," such as the Rajhneeshees, who "attempted to influence local elections in Oregon by contaminating salad bars with salmonella." *Id.* The third type of bioterrorists is comprised of small groups or individuals who have specific targets, such as individuals or buildings—the recent anthrax attacks are examples of this type of targeted terrorism. *Id.*

[20] *See* Scott Burris, *Law As a Structural Factor in the Spread of Communicable Disease*, 36 HOUS. L. REV. 1755, 1757 (1999) (stating that it is a fallacy to claim that infectious diseases are back, mainly because they never left).

[21] *Id.* While epidemiologists claimed that an "epidemic transition" had occurred from infectious to chronic diseases, the truth is that only thirty years spanned the time between the effective control of polio in the mid-1950s and the emergence of the HIV virus in the United States. *Id.* at 1756-57. Moreover, infectious diseases such as tuberculosis and a variety of sexually transmitted diseases (STDs) have always been endemic in certain parts of society, particularly poor communities. *Id.* at 1757.

[22] *Id.* at 1757-58; *see also* Davidson R. Gwatkin & Patrick Heuveline, *Improving the Health of the World's Poor: Communicable Diseases Among Young People Remain Central*, 315 BRIT. MED. J. 497, 497 (1997). The authors reported that while "non-communicable diseases were responsible for. . .56% of deaths in the world in 1990, these deaths were unevenly distributed

The assortment of biological agents a bioterrorist may choose from is extensive.[23] A NATO Handbook on medical aspects of defensive operations catalogs thirty-nine possible agents that could be used as biological weapons, including bacteria, viruses, rickettsiae, and toxins.[24] Of course, some agents make better weapons than others; both the United States and the former Soviet Union compiled lists of what experts considered to be likely candidates based on specific physical characteristics that form the most effective biological weapons.[25] Those physical characteristics included "infectivity and toxicity, environmental stability, ease of large-scale production, and disease severity."[26] According to studies of the former Soviet Union, the agents with the best strategic and tactical capability include smallpox, plague, anthrax, botulinum toxin, equine encephalitis, tularemia, Q fever, Marburg, meliodosis, and typhus.[27]

In addition to being lethal aerosols and easily produceable in large quantities, agents that are communicable from person to person and have no treatment or vaccine are the ones with the greatest potential for widespread death and disease.[28] Biological agents that most closely fit this description in every aspect are anthrax and smallpox, and are therefore the most likely candidates for a bioterrorist attack.[29]

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across social class. . ." *Id.* Non-communicable diseases were responsible for only 34% of the deaths among the poorest 20% of the world's population and a staggering 85% of deaths among the richest 20%. *Id.* Conversely, communicable diseases caused 56% of deaths among the poorest 20% and only 8% among the richest 20%. *Id.*

[23] Kortepeter & Parker, *supra* note 19, at 523 (indicating that various terrorist groups have a variety of pathogens to choose from, depending on the group's size and resources).

[24] *Id.*

[25] *See id.* at 524.

[26] *Id.* The authors state that:

> [e]xamining the relationship between aerosol infectivity and toxicity versus quantity of agent illustrates the requirements for producing equivalent effects and narrows the spectrum of possible agents that could be used to cause large numbers of casualties. . . Anthrax and tularemia are predicted to cause the highest number of dead and incapacitated, as well as the greatest downwind spread.

Id. at 523-24.

[27] *Id.* at 524.

[28] Kortepeter & Parker, *supra* note 19, at 524.

[29] *Id.* at 524-25 (stating that both smallpox and anthrax: 1) are highly lethal; 2) can be transmitted as aerosols, produced in large amounts, and can survive for long periods of time under the right conditions; 3) have been produced in state programs; 4) have the potential for causing widespread panic on the target population because of their abilities to cause serious outbreaks; 5) can cause delayed disease recognition; and 6) have either limited vaccine availability for the general public or have limited viability when stored).

B. State and Federal Roles in Public Health

In an attempt to test the response of government officials in the case of a bioterrorist attack, The Johns Hopkins Center for Civilian Biodefense Studies simulated an outbreak of smallpox in an American city.[30] This "war game," ominously called Dark Winter, was conducted in the summer of 2001 and consisted of several mock meetings of the National Security Council.[31] The two-day exercise simulated two weeks, and the result was devastating; by the end of the exercise, an estimated 16,000 cases of smallpox in twenty-five states and 1,000 deaths across the United States had occurred.[32] The Dark Winter exercise taught public health officials that they were unfamiliar with the nature of bioterrorist attacks as well as what policy options were at their disposal.[33] Participants realized that they would require ongoing advice from public health and medical experts, and that their key decisions would ultimately depend on those experts.[34]

The lesson learned from Dark Winter that has been the greatest source of controversy is the unclear or otherwise conflicting priorities of the federal and state governments.[35] Because the public health system in the United States is not centralized, the roles and responsibilities of the government at federal, state, and local levels tend to be indistinguishable.[36] In this system, most authority regarding public health is the responsibility of state and local authorities, leaving the federal government with limited power in this respect: "it must rely on its delegated authority pursuant to Congress's powers to protect national security, regulate interstate commerce, tax and spend, or promote the constitutional principles of the Fourteenth Amendment (e.g., due process, equal protection)."[37]

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[30] Lorena Matei, *Quarantine Revision and the Model State Emergency Health Powers Act: "Laws for the Common Good"*, 18 SANTA CLARA COMPUTER & HIGH TECH. L.J. 433, 433 (2002).

[31] *Id.* (stating that the participants consisted of twelve former government officials, five members of the media, and fifty biological weapons experts who had either policy or operational occupations).

[32] *Id.*

[33] *Id.*

[34] *Id.* at 434 (discussing the other lessons learned from Dark Winter, including the fact that not only did the health care system lack the capacity to deal with mass casualties, but that the shortage of vaccines and drugs to contain the disease "severely limited management options.").

[35] *See, e.g.*, Parmet, *supra* note 7, at 201.

[36] Hodge, *supra* note 17, at 257.

[37] *Id.*

Therein lays the debate: while the need for cooperation between federal, state, and local health officials became evident after exercises such as Dark Winter, the extent to which the federal government should actively participate in protecting public health – a power long associated with state authority – has been a sensitive issue.[38] Even though few would disagree that the federal government has a key role to play in the fight against bioterrorism, many argue that the Constitution grants public health powers to the states exclusively, and too much federal involvement in that area could jeopardize state sovereignty.[39] At the other end of the spectrum, many argue that applying rigid boundaries between federal and state powers is dangerous, especially in the case of public health and bioterrorism, and that the federal government must be assigned a primary role.[40]

Underlying the argument for more federal involvement is the assumption that many state public health laws are outdated and probably inadequate in their approaches to preventing and containing epidemics caused by bioterrorist attacks.[41] Proponents argue that public health laws need to be reformed so that they deal with modern health threats and are more consistent from state to state.[42]

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[38] *See* Parmet, *supra* note 7, at 201.

[39] *See, e.g.*, S.G. Calabresi, *Federalism and the Rehnquist Court: A Normative Defense*, 574 ANNALS AM. ACAD. POL. & SOC. SCI. 24, 25 (2001) (discussing the United States Supreme Court's recent doctrinal shift, referred to as the "new federalism," and its attempts to re-establish a preeminent role for the states); *but see* Parmet, *supra* note 7, at 204-05 (relating how the Supreme Court has decided several cases in the past decade restricting the federal government's role in domestic matters (including public health) and how this is unnecessary, since the states have never had exclusive jurisdiction over public health).

[40] *See, e.g.*, Hodge, *supra* note 17, at 258 (stating that through various agencies such as the Department of Health and Human Services (DHHS), its subsidiary Centers for Disease Control and Prevention (CDC), and the new Office of Homeland Security, the federal government has taken active steps towards leadership, and that state deference to this leadership is supported by the fact that: 1) "the federal government has greater financial resources at its disposal;" 2) it is "in a better position to negotiate the price of vaccines, medications, [and other] supplies;" 3) bioterrorism threats "will exceed the boundaries of any single state," requiring a coordinated response; 4) the federal government has greater access to medical experts; and 5) bioterrorism may "constitute a threat to national security," and therefore becomes a federal responsibility).

[41] Lawrence O. Gostin, *Public Health Law: A Renaissance*, 30 J.L. MED. & ETHICS 136, 136-37 (2002) (noting that the "most striking characteristic of state public health law and the one that underlies many of its defects is its overall antiquity.").

[42] *See id.* at 137 (revealing three essential problems with current public health laws, namely that most of them were created in the late nineteenth and early-to-mid-twentieth centuries; that they have, for the most part, been enacted "piecemeal" over time and are therefore "inconsistent, redundant, and ambiguous"; and that the health codes within the fifty states

These same proponents claim that legal intervention is the key to improving public health, mainly because existing health laws provide inadequate authority.[43]

Few would disagree that the federal government plays an important role in dealing with bioterrorism.[44] However, many disagree with the premise that inadequate legal authority is the fundamental problem with responding to bioterrorism.[45] They disagree with the idea that state public health laws are presently incompetent and need serious renovation.[46] They believe that the federal government does not understand and therefore lacks respect for state public health enforcement.[47] As a result, these critics reject the notion that a detailed, uniform, model law which attempts to micromanage the state's response to bioterrorism through elaborate statutory provisions is the best approach to reforming state public health laws.[48]

However, while the debate over the exact role of the federal government in dealing with bioterrorism persists, the federal government's involvement in public health promises to help improve its weak infrastructure: in January of 2002, as a result of bioterrorism-related legislation, the Bush administration allocated over one billion dollars annually in federal funding to state and local public health agencies for the improvement of the public health infrastructure.[49] Specifically, the funding intends to aid the agencies in certain

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have evolved independently of each other, and are therefore very different in their approaches to dealing with disease in both substance and procedure).

[43] *Id.* at 137-38 (discussing at least five models for legal intervention: 1) the power to tax and spend; 2) the power to alter the informational environment; 3) the power to directly regulate individuals, professionals, or businesses; 4) indirect regulation through the tort system; and 5) deregulation).

[44] Parmet, *supra* note 7, at 201.

[45] *See, e.g.*, Richards & Rathbun, *supra* note 9 (disputing that existing public health laws are inadequate, claiming instead health departments have insufficient political and economic support and that the "major legal problem is the dearth of skilled public health law practitioners and an informed judiciary").

[46] *See, e.g., id.* (alleging that the true problem with U.S. response to bioterrorism is the lack of political and economic support granted to state health departments and the resulting dearth of skilled public health law practitioners and informed judiciaries).

[47] *See, e.g., id.* (stating the most damaging flaw to MSEHPA is that it ignores state government structures, state constitutional laws, and assumes that states have no emergency procedures or laws).

[48] *See id.*

[49] Bernard J. Turnock & Christopher Atchison, *Governmental Public Health in the United States: The Implications of Federalism*, 21 HEALTH AFFAIRS 68, 73 (November/December 2002) (arguing that key aspects of the governmental public health endeavor, including leadership and

key activities: emergency response planning, epidemiological expertise, rapid communications, information and surveillance systems, laboratory support, risk communication capabilities, and workforce readiness.[50] The opportunity to transform the public health system has arisen from federal funding;[51] therefore, the chance to create a nationally consistent public health system, particularly in its approaches to workforce, information, and organizational resources, is also present.[52] As Bernard J. Turnock and Christopher Atchison have stated:

> Until there is a set of definitions for the resources used in practice that can ensure consistent performance across the distributed federal system, coordination of efforts will be difficult to achieve and demonstration of results that will assure long-term and continued support for public health programming will remain an even greater challenge.[53]

While the idea of a central framework for public health practice has been repeatedly advocated since the time of the Framers,[54] it is only now, in a time of new and changing threats, that the deficiencies of a system in which state and local governments assume independent public health authority are fully realized.[55] The current threat of bioterrorism is a powerful incentive to "federalize" – through coordination and integration – the inconsistent state and local public health systems.[56] Ideally, the change would be such that state bioterrorism laws would prepare state and local authorities in assisting federal agencies in dealing with national security.[57] In effect, bioterrorism preparedness in which individual states im-

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coordination, were weakened as a result of shifts toward a more "state-centered form of federalism" in the latter half of the 20th century).

[50] *Id.* at 73.

[51] John R. Lumpkin & Margaret S. Richards, *Transforming the Public Health Infrastructure*, 21 HEALTH AFFAIRS 45, 45 (November/December 2002) (insisting that federal funding can improve the public health information infrastructure if public health data standards are implemented that build upon the National Electronic Disease Surveillance System).

[52] Turnock & Atchison, *supra* note 49, at 77.

[53] *Id.* at 76.

[54] *Id.* at 68 (quoting Thomas Jefferson in 1807, "[m]any are the exercises of power reserved to the States wherein a uniformity of proceeding would be advantageous to all. . . . Such are quarantines and health laws.").

[55] *See id.* at 76.

[56] *See* George J. Annas, *Bioterrorism, Public Health, and Human Rights*, 21 HEALTH AFFAIRS 94, 94-95 (November/December 2002) (arguing that "it is unnecessary and counterproductive to sacrifice basic human rights to respond to bioterrorism" and that upholding those rights is the best defense against bioterrorism).

[57] *See id.* at 94-95.

plement a national plan developed by the federal government would hopefully be the catalyst for systematic reform of the public health infrastructure.[58] Thus, the public health's "core functions and essential services" will, through flexible resource-sharing strategies, create specific standards for states, which will in turn create standards for local health agencies.[59] It is not certain, however, that the newly-acquired funding will result in such a change; while there is evidence of enthusiasm at the state and local levels to implement the new resources to the public health mission, federal public health activities indicate little movement toward structural improvement.[60]

C. The Model State Emergency Health Powers Act

Basing its purpose on the belief that existing state laws are deficient, a group at Georgetown University and Johns Hopkins University led by Professor Lawrence Gostin drafted the MSEHPA, a model act meant to provide a more comprehensive plan for dealing with bioterrorism by supplementing state laws.[61] The Act begins by defining "public health emergency" rather broadly:

> An occurrence or imminent threat of an illness or health condition that 1) is believed to be caused by bioterrorism or the appearance of a novel or previously controlled or eradicated infectious agent or biological toxin; and 2) poses a high probability of any of the following harms: a large number of deaths in the affected population; b) a large number of incidents of serious permanent or long-term disability in the affected population; or c) widespread exposure to an infectious or toxic agent that poses significant risk of substantial future harm to a large number of people in the affected population.[62]

This is only one example of the broadness of the Act's language. James G. Hodge, Jr. points out the dangers in such all-encompassing interpretation: "These criteria serve as guides, but may

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[58] *Id.* at 95 (proposing that "bioterrorism can be the catalyst to effectively 'federalize' and integrate much of what are now uncoordinated and piecemeal state and local public health programs."); *see also* Turnock & Atchison, *supra* note 49, at 77 (arguing that in preparing for the threat of bioterrorism "federal agencies with responsibilities for public health must devise a structure that communicates a clear chain of command and responsibility for public health systems and capacity building").

[59] Turnock & Atchison, *supra* note 49, at 77.

[60] *Id.* at 74 (comparing the number of public health workers employed by local and state agencies to those employed by the federal government and noting that the composition of the federal public health workforce differs significantly from those at state and local levels).

[61] Matei, *supra* note 30, at 434-35.

[62] MSEHPA § 1-104(m).

allow for the declaration of a public health emergency for bioterrorism events that do not justify restrictive health controls."[63] The definition for "bioterrorism" is similarly broad, allowing for the declaration of a public health emergency in an event that involves an infectious agent but may not pose a considerable risk to the public.[64]

While the intentions behind the broad language include upholding the decentralized system of state sovereignty, abuse of power by federal agencies is an ever-present fear.[65] The powers granted to the governor in the case of a "public health emergency", some of which were mentioned earlier, are similarly broad and have the potential for turning governors into dictators.[66] As Texas law reveals, many existing state laws are no better in this regard.[67] The problem seems to be broader than the MSEHPA itself; it lies in the manner public health emergencies are dealt with on *both* federal and state levels. It seems irrelevant whether the source of law is a model act or a long-existing state statute – both fail in large part to respect individual rights.

George Annas, professor and chair of the Health Law Department at the Boston University School of Public Health, contends that the CDC's request to develop a state emergency powers act as a

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[63] Hodge, *supra* note 17, at 257.

[64] *Id.*; *see also* MSEHPA § 1-104(a). The MSEHPA defines "bioterrorism" as:

> The intentional use of any microorganism, virus, infectious substance, or biological product that may be engineered as a result of biotechnology, or any naturally occurring or bioengineered component of any such microorganism, virus, infectious substance, or biological product, to cause death, disease, or other biological malfunction in a human, an animal, a plant, or another living organism in order to influence the conduct of government or to intimidate or coerce a civilian population. MSEHPA.

[65] *See* Seth J. Chandler, *Disaster Preparedness: Preserving the Relevance of Law*, HEALTH LAW NEWS (University of Houston Health Law & Policy Institute, Houston, TX), April 2002, at 3 (noting a feared alternative of "federal agency that would either be reluctantly dormant except during times of emergency or that would more irreversibly displace states as the traditional guardians of public health").

[66] *See* Matei, *supra* note 30, at 438; *see also* MSEHPA art. VIII, § 802. Among the extensive powers granted the governor is "the power to enforce the provisions of [the] Act through imposition of fines and penalties, the issuance of orders, and such other remedies as are provided by law." *Id.*

[67] *See, e.g.*, Patricia Gray, *Public Health Emergency Laws: A Challenge For the Next Texas Legislature*, HEALTH LAW NEWS (University of Houston Health Law & Policy Institute, Houston, TX), April 2002, at 3, 6 (relating that despite a limited grant of power to the governor by the Texas Constitution, the governor is able to act with "tremendous authority without oversight from the legislature" during times of disaster and public health emergencies).

result of the anthrax attacks reveals a regressive tendency of pulling public health back into the 19th century.[68] He states:

> [The MSEHPA]'s exclusive concentration on the state level misses an important opportunity to exercise national public health leadership and instead promotes a return to the paternalistic pre-human rights days of nineteenth-century public health practices such as forced examination and quarantine.[69]

In so stating, Annas supports three distinct arguments: First, that bioterrorism should lead the United States into a more globalized public health system; second, the MSEHPA should cause action to modernize public health practice and; third, that protecting human rights is critical to an effective coordination of health and medicine.[70]

It is Annas' final argument that this comment addresses. Both federal and state public health laws fail to establish effective working partnerships with the health care community; a partnership is vital to proper planning in the case of a bioterrorist attack. Legal and regulatory issues seem to be the main concern of policymakers; the issue of cooperation between the legal and medical communities, let alone between the government and the general public, seems to slip through the cracks. Collaboration between medicine and public health requires integration of standards and strategies. What better place to start than the MSEHPA?

II. ANALYSIS

A. The Joining of Public Health and Medical Efforts

"Public health, a deceptively simple phrase, encompasses all activities undertaken by communities to assure the conditions within which people can be healthy."[71] Public health workers are, by definition, "responsible for providing certain essential ser-

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[68] Annas, *supra* note 56, at 94.

[69] *Id. Cf.* Lawrence O. Gostin, *Public Health Law in an Age of Terrorism: Rethinking Individual Rights and Common Goods*, 21 HEALTH AFFAIRS 6 at 79-80 (November/December 2002) (stating that the balance between personal liberty and the common good needs to be readjusted in recognition that both sets of interests are equally important).

[70] Annas, *supra* note 56, at 94.

[71] Kristen Gebbie, et al., *The Public Health Workforce*, 21 HEALTH AFFAIRS 57, 57 (November/December 2002) (stating that ensuring that the public health workforce is prepared to deal with emerging health challenges is a daunting task, as is defining the workforce itself and specifying its performance requirements).

vices. . .regardless of the organization in which they work."[72] A range of professions contribute to interdisciplinary practice of public health, including educators, transportation experts, engineers, and housing planners, just to name a few.[73] These public health partners contribute to improving public health, which is distinct from medicine in that it focuses on "populations and communities rather than individuals."[74] Nonetheless, one of the key partnerships in a bioterrorism emergency is between the healthcare providers themselves; the professionals will almost certainly be the first to recognize a bioterrorist attack when it is brought before them in an emergency room setting.[75]

The need for an intimate partnership between public health officials and healthcare providers in a bioterrorist attack cannot be emphasized enough. The CDC's strategic plan for bioterrorism has stressed five areas: preparedness and prevention; detection and surveillance; diagnosis and characterization of biological and chemical agents; response; and communication.[76] The CDC's plan has further included distance learning programs for healthcare providers, a national electronic infrastructure, a national pharmaceutical stockpile of medical supplies, and a multilevel laboratory response network, among other concerns.[77] The problem with the plan, however, is that it assumes a strong and flexible public health system at state and local levels—only then may these resources be fully utilized. Only if healthcare providers are able to identify the patterns of disease and subsequently report those occurrences to the correct public health officials quickly can those officials be aware that release of a

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[72] *Id.* at 58. Essential services include: 1) monitoring health status to identify community health problems; 2) diagnosing and investigating health problems and hazards in the community; 3) informing, educating and empowering the community regarding public health issues; 4) mobilizing community partnerships to identify and solve health issues; 5) developing policies and plans that support individual and community health efforts; 6) enforcing laws and regulations that protect health and safety; 7) linking people to needed health services and ensuring the provision of health care when otherwise unavailable; 8) ensuring a competent public health and personal health care workforce; 9) evaluating effectiveness, accessibility, and quality of personal and population-based health services; and 10) conducting research for new solutions to health problems. *Id.* at 58-59.

[73] *Id.* at 57.

[74] *Id.*

[75] Annas, *supra* note 56, at 95.

[76] Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, *Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response*, 49 MORBIDITY AND MORTALITY WEEKLY REPORT, RECOMMENDATIONS AND REPORTS 4, at 1, 8 (Apr. 21, 2000) [hereinafter Biological and Chemical Terrorism].

[77] *Id.* at 12-13.

biological agent has possibly occurred, and thus use the advanced laboratory tests and stockpiles of medical supplies.[78]

In order to ensure that healthcare providers agree in their recognition of potential bioterrorist attacks and act quickly and knowledgeably, and that in turn, public health officials act quickly and knowledgeably in containing the problem, both must be trained under a similar system.[79] This is beginning to occur.[80] For example, the American College of Physicians - American Society of Internal Medicine (ACP-ASIM), with funding from the ACP-ASIM Foundation, has created a "Guide to Bioterrorism Identification" in card form and distributed the card to healthcare providers.[81] The guide lists nine "Epidemiological Clues of a Bioterroristic Attack," taking care to clarify that only when several of the clues are taken together may they be pathognomonic (i.e., indicating with certainty the presence of a disease) of a bioterrorist attack.[82] In addition to the public health primer, the guide breaks up sentinel clues for Category A biological agents (those agents that are easily disseminated, may be transmitted from person to person, and can cause a high mortality) into four medically-described syndromes: pneumonia or influenza-like syndromes for inhalation anthrax, plague and tularemia; cutaneous ulcer or ulceroglandular syndromes for cutaneous anthrax; fever and rash syndromes for hemorrhagic fevers and smallpox; and

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[78] Heather H. Horton, et al., *Critical Biological Agents: Disease Reporting as a Tool for Determining Bioterrorism Preparedness*, 30 J. L. MED. & ETHICS 262, 262 (2002).

[79] *See* Biological and Chemical Terrorism, *supra* note 76, at 11 (stating that U.S. preparedness for the public health consequences of biological and chemical terrorism depends on the activities of well-trained health care and public health personnel throughout the country).

[80] *Id.* (describing the CDC's 5 year plan to work with state and local health agencies to develop systems that will effectuate better communication between state and health care and public health personnel).

[81] *See Guide to Bioterrorism Identification*, American College of Physicians, American Society of Internal Medicine Bioterrorism Resource Center, (2002), *available at* http://www.acponline.org bioterro/ (last visited October 29, 2003) [hereinafter ACP-ASIM Guide.]

[82] *Id.* The guide lists these nine clues:

> 1) Unusual temporal or geographic clustering of illness. 2) Unusual age distribution of common disease (e.g., an illness that appears to be chickenpox in adults but is really smallpox). 3) Large epidemic, with greater case loads than expected, especially in a discrete population. 4) More severe disease than expected. 5) Unusual route of exposure. 6) A disease that is outside its normal transmission season, or is impossible to transmit naturally in the absence of its normal vector. 7) Multiple simultaneous epidemics of different diseases. 8) A disease outbreak with health consequences to humans and animals. 9) Unusual strains or variants of organisms or antimicrobial resistance patterns. *Id.*

paralytic syndromes for botulism.[83] Finally, the guide provides "Reporting Protocols & Resources" for both office and hospital settings.[84]

While this guide is a good start to coordinating medical and public health efforts in the war against bioterrorism, the ACP-ASIM guidelines would be even more helpful if they were distributed among public health workers and healthcare providers. That way, both groups would be learning the same essential steps to dealing with a potential bioterrorist attack. Moreover, collaboration between healthcare providers and public health workers needs to exist outside of bioterrorism, for only then can it be effectively implemented in the event of bioterrorism. Fortunately, steps are being taken in this direction as well: The University of Texas Health Science Center at Houston School of Public Health has created the Medicine and Public Health Initiative, which aims to deal with both individual and population health.[85] It lists seven primary goals, the most significant of which is changing the education process to expand the public health system's understanding of medicine and the healthcare system's understanding of public health.[86] The idea is to give "medical and public health students and medical residents the training and clinical opportunities to learn to function as a team to improve health and serve individuals in the context of their communities" through affiliations between public health and medical schools.[87]

Likewise, the California Department of Health Services and the UCSF Institute for Health and Aging created the Integrating Medicine and Public Health (IMAP) Program with the stated purpose of implementing "innovative approaches that optimize the

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[83] *Id.*

[84] *Id.* The guide states that the proper course of reporting in an office setting is to record the data and order tests immediately for a suspicious case, then to report to the local health department, to alert a clinical lab, arrange for consultations, and discuss the findings with all involved parties. *Id.* For a hospital setting it is slightly different. *Id.* The proper course is to record data and order tests, alert a clinical lab, arrange for consultations, follow hospital protocols, notify the hospital epidemiologist/infection control specialist, and then discuss the findings with all involved parties. *Id.*

[85] *Mission and Goals of the Initiative*, The Medicine/Public Health Initiative (2000), *available at* http://www.sph.uth.tmc.edu/mph/purpose.htm. (last visited October 29, 2003).

[86] *Id.* (including among its specific strategies an organizational approach to accomplish cross-over education between schools of public health and medicine in order to aid clinicians to think epidemiologically and statistically while enabling public health workers to understand individual care of patients).

[87] *Id.*

physical, psychological, and social health of Californians" by "identify[ing], initiat[ing], conven[ing], evaluat[ing], and support[ing] collaborations between medicine and public health."[88] These attempts are commendable but need to be done on the federal level to be truly effective. Once again, it is the consistency of these kinds of initiatives across the nation that promises to improve the public health infrastructure in the long run.

B. Transforming the MSEHPA into a Movement Toward Systematic Reform of Public Health

In 2001, the CDC's Bioterrorism Preparedness and Response Program conducted a study of state and local disease reporting laws for the diseases caused by twenty-four biological agents.[89] Those "critical biological agents" were chosen in particular because of a list of factors:

> [M]orbidity and mortality; potential for distributing the agent population-wide based on stability of the agent, ability to mass produce and distribute a virulent agent, and the possibility for and its person-to-person transmission of the agent; potential for public fear and potential civil disruption; and special public health preparedness needs based on stockpile requirements, enhanced surveillance, or diagnostic needs.[90]

The critical biological agents were then divided into three separate categories– A, B, and C, – based on their potential to harm the public if used in a terrorist attack.[91] Category A agents have the greatest potential for harm, while Category B and C agents have less potential for harm.[92] The six diseases caused by Category A agents are anthrax, botulism, plague, smallpox, tularemia, and viral hemorrhagic fevers.[93]

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[88] *Integrating Medicine and Public Health*, California Department of Health Services and the UCSF Institute for Health and Aging (2000), *available at http :/ /www.sph.uth .tmc .edu /mph / new/imap.htm* (last visited October 29, 2003).

[89] Horton, et al., *supra* note 78, at 262 (listing those agents as anthrax, botulism, brucellosis, cholera, Cryptosporidium, E.coli, glanders, hantavirus, melioidosis, mycotoxins, plague, psittacosis, Q fever, ricin poisoning, Salmonella, Shigella, smallpox, staphylococcal enterotoxin B, toxic syndromes, tularemia, typhus fever, Vibro cholerae, viralencephalitis, and viral hemorrhagic fevers).

[90] *Id.* at 263.

[91] *Id.*

[92] *Id.* at 263-64.

[93] *Id.* at 264. Category B agents, such as cholera, Salmonella, and Shigella, were deemed less of an immediate bioterrorism threat because they are more difficult to disseminate and cause moderate morbidity and low mortality. *Id.* Category C agents, such as hantavirus, typhus fever, and viral encephalitis, are emerging pathogens that could be used as a bi-

The results of the study showed that three of the six Category A agents' diseases, anthrax, botulism, and plague, are "reportable immediately" in the vast majority of the fifty-four jurisdictions surveyed.[94] However, the other three Category A agents – smallpox, tularemia, and viral hemorrhagic fevers – are "reportable immediately" in less than half of the same jurisdictions.[95] These results alone indicate a need for change in state and local disease reporting laws. The study also revealed that physicians and other healthcare providers, along with laboratory directors and hospital administrators, had a mandatory duty to report diseases caused by critical biological agents to state, county, or local health agencies or other health authorities.[96] Additionally, many of these jurisdictions have drafted laws making non-compliance with disease reporting laws a misdemeanor punishable by fine or imprisonment.[97]

Obviously, timely disease reporting is an essential element in responding to a bioterrorist event.[98] However, many state disease-reporting laws make the same erroneous assumptions as the MSEHPA, namely that cooperation will ensue between medical and public health officials in a bioterrorist emergency through coercion and some forsaking of individual liberty.[99] The state laws, like the MSEHPA, lack provisions that reflect a mutual understanding between medical authorities, who are key players in disease reporting, and public health authorities.[100] Both the state laws and the model act fail to address issues such as training emergency room personnel in disease recognition and communication systems that are able to efficiently and accurately track relevant disease occurrences.[101] Perhaps worst of all, the laws and model act enforce strict penalties for non-compliance with the laws and also designate public health offi-

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oterrorist weapon in the future, but are not presently being engineered for mass dissemination. *Id.*

[94] Horton, et al., *supra* note 78, at 264. The fifty-four jurisdictions included all fifty states, New York City, Washington D.C., and Los Angeles County. *Id.*

[95] *Id.*

[96] *Id.* at 264. Some jurisdictions go further and mandate reporting by school principals (New Mexico), child care centers (South Dakota), nursing home administrators (Alabama), heads of families (Kentucky), personnel of food establishments (North Carolina), or anyone who knows of a case of a reportable disease (Montana). *Id.*

[97] *Id.*

[98] *Id.* at 262.

[99] *See* Annas, *supra* note 56, at 95.

[100] *See id.*

[101] *But see id.*

cials to be completely in charge after an outbreak has been confirmed.[102] Moreover, after having been issued badges, the MSEHPA provides public health officials with authority to "take over hospitals and order physicians to examine, treat," and possibly quarantine individuals against their will even when they lack evidence proving those individuals are either sick or contagious.[103]

As Annas states, "[p]ublic health officials are likely to be much more effective in responding to emergencies if they work with both physicians and the public, rather than trying to exercise arbitrary and unaccountable power over them."[104] Instead of taking the counterproductive approach of bullying healthcare providers and the public into obeying in a bioterrorist attack, the MSEHPA should create uniform guidelines for both medical and public health professionals regarding basic medical and public health management. These guidelines would help both those called on to provide medical care for potential victims of a bioterrorist attack, as well as those who are held responsible for creating and operating epidemic response systems.

First, there is no need to require that all public health officials have MDs or require all healthcare providers to have masters of public health degrees. While cross-over education between medical schools and schools of public health would help unify medicine and public health in the grand scheme of things, comprehensive yet simple guidelines provided by a model act that break down both essential medical and public health theories are better for short-term success, not to mention a jump-start into transforming public health.

The ACP-ASIM guidelines are a perfect example of where to start: in addition to providing basic epidemiological principles for healthcare practitioners, they list the sentinel symptoms for Category A biological agents, which would aid public health workers tremendously in understanding the effects of the diseases caused by potential bioterrorist agents.[105] Should the MSEHPA incorporate

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[102] *See id.*

[103] *Id.* "Moreover, should any patient be injured, or even killed, by the treatment (as, for example, immuno-compromised individuals could be by smallpox vaccine), the public health officials and state would be immune from lawsuit." *Id.*

[104] *See* Annas, *supra* note 56, at 95 (noting that medicine, unlike public health, has effectively integrated the doctrine of informed consent into its basic medical ethics teachings, and that public health would do well to learn from it).

[105] ACP-ASIM Guide, *supra* note 81. Healthcare providers could help define certain medical terms or describe the sentinel clues in simpler words so that an educated layman would be able to understand them. *Id.* As it is, however, the guide is geared towards those with a

such guidelines into its text for the entire nation to follow, consistency would begin to emerge in the realm of public health law, particularly regarding bioterrorism.

As it stands, the MSEHPA does not address potential biological agents and their diseases, not even in Article III, which is entitled "Measures to Detect and Track Public Health Emergencies" and deals with reporting, tracking, and information sharing.[106] The MSEHPA does not even reference the CDC's critical biological agents in any way, let alone their symptoms or treatment and prevention.[107] Therefore, the MSEHPA is strictly for legal and specific public health purposes and assumes that the necessary medical and epidemiological information will come from elsewhere.

In creating a section of the MSEHPA that addresses biological agents and their diseases, drafters should enlist medical experts to provide cutting-edge information and analysis on diagnosis, treatment, and containment of the critical biological agents. Leading experts such as Donald Henderson, Thomas Ingelsby, and Tara O'Toole, all three of whom possess medical and public health degrees, have created a book, *Bioterrorism*, which is meant to serve as a quick resource for clinicians, public health officials, and anyone else who must deal with bioterrorism preparedness.[108] The book stresses the importance of a partnership between clinicians and public health agencies, stating:

> Enhancing the knowledge and skills of clinicians is not just a matter of 11-time educational programs. Bioterrorism-related infections hopefully will remain rare events, and creative ongoing strategies will be required to sustain attention to potential new cases when the current phase of alarm and interest ebbs. Furthermore, better systems are needed for public health agencies to alert all clinicians when an attack is suspected or documented, facilitate real-time reporting, and disseminate credible information required for optimal exposure risk assessment, diagnosis, and treatment.[109]

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medical education and is difficult to understand for one with no medical training. *Id.* For example, symptoms of inhalation anthrax are described as pneumonia or influenza-like symptoms, specifically: "Chest pain, dry cough, possible nausea and abdominal pain, followed by sepsis, shock, widened mediastinum, hemorrhagic pleural effusions, and respiratory failure. . .[a] Gram-negative bacillus may be isolated." *Id.*

[106] *See* MSEHPA art. III.

[107] *See id.*

[108] *See* Donald A. Henderson, et al., BIOTERRORISM: GUIDELINES FOR MEDICAL AND PUBLIC HEALTH MANAGEMENT (American Medical Association Press 2002). The book focuses on six agents as biological weapons – anthrax (both inhalational and cutaneous), smallpox, plague, botulinum, tularemia, and hemorrhagic fever viruses. *Id.* at v.

[109] *Id.* at 30.

A new and improved MSEHPA or other model act could aid in bettering the system for disseminating information required for risk assessment, diagnosis and treatment if drafted to include specific information on potential biological agents and the proper methods for dealing with each, which is precisely the same kind of information Henderson, Inglesby, and O'Toole include in their book.[110]

The new section would list, in addition to the Category A agents, their common symptoms and treatment as well as particular traits of each agent, and specifically, the agent's mode of transmission. Among the factors the CDC lists for classifying an agent as Category A is the potential for person-to-person transmission.[111] This particular trait of a biological agent is crucial in determining key aspects of containment and prevention, and in determining whether quarantine and isolation are even proper measures.[112] Henderson, Inglesby and O'Toole insist that, before even considering quarantine as an option, the communicability of the disease at issue must be determined.[113] Additionally, after verifying that the disease at hand is indeed contagious, then "the specific mechanism of disease transmission must drive the disease containment strategy."[114] The authors add that, "[p]olitical leaders in particular need to understand that a single strategy for limiting the spread of all contagious diseases is not appropriate and will not work."[115]

With regard to Category A biological agents, the key modes of transmission for those diseases are either person-to-person or by air.[116] In nature, these diseases are most likely transmitted by food,

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[110] *Id.* at iii-iv. The authors include chapters addressing the necessary public health response to the usage of anthrax, plague, botulinum toxin, tularemia, and hemorrhagic fever viruses as biological weapons. *Id.*

[111] *Biological and Chemical Terrorism*, *supra* note 76.

[112] *See, e.g.*, MSEHPA art. I, § 104. The model act defines "isolation" as the physical separation and confinement of an individual or groups of individuals who are infected or reasonably believed to be infected with a contagious or possibly contagious disease from non-isolated individuals, to prevent or limit the transmission of the disease to non-isolated individuals." *Id.* at § 104(h). It defines "quarantine" as:

> the physical separation and confinement of an individual or groups of individuals, who are or may have been exposed to a contagious or possibly contagious disease and who do not show signs or symptoms of a contagious disease, from non-quarantined individuals, to prevent or limit the transmission of the disease to non-quarantined individuals."*Id.* at § 104(o).

[113] Henderson, et al., *supra* note 108, at 228.

[114] *Id.*

[115] *Id.*

[116] See Southwest Regional Center of Excellence for Biodefense and Emerging Infectious Disease Research, *Category A Diseases/Agents* at http://Gt.swmed.edu/BioThreatinfo/CatA /

water, or vector.[117] Man-made aerosol versions of these diseases are more ideal for bioterrorism, although the other forms may be used as well.[118] Thus, while some of these diseases may be transmitted in multiple ways, person-to-person and airborne are the most likely forms of transmission for the diseases of Category A agents.[119] Understanding the possible modes of spread for each agent and enumerating them alongside symptoms and treatment/prevention in the MSEHPA – or even going so far as to list the agents according to their mode of transmission –becomes even more crucial to both bioterrorism preparedness and the overall protection of individual liberty.

1. *Person-to-Person*

The specific mode of disease transmission of these biological agents is more complex than many healthcare providers, let alone public health officials, believe.[120] Person-to-person transmission is by far the most frightening form of spread, which is why the biological agents that spread in this way are listed among the most critical by the CDC.[121] However, unlike the dramatic Hollywood images of people collapsing to the ground for no identifiable reason, person-to-person transmission can be prevented if the proper methods are utilized.[122] Of the critical biological agents, smallpox,[123] pneumonic

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Cat_A.htm Southwest Regional Center of Excellence for Biodefense and Emerging Infectious Disease Research (last reviewed Nov. 22, 2003).

[117] *See, e.g.*, THE NEW LEXICON WEBSTER'S OXFORD AMERICAN DICTIONARY 1872 (2001 ed.). A vector is defined as:

> an agent that transmits a pathogen from one organism to another either mechanically as a carrier (e.g., the housefly for typhoid) or biologically, with a role in a life cycle (e.g., the mosquito for the malaria parasite)an organism, typically a biting insect or tick, that transmits a disease or parasite from one animal or plant to another. *Id.*

[118] Anthony H. Cordesman, *Biological Warfare and the "Buffy Paradigm*, 15-16 (September 29, 2001), at http:www.esis.org/burke/hd/reports/Buffy 012902.pdf (last reviewed Nov. 22, 2003).

[119] *Id.* at 15.

[120] *Id.* at 15.

[121] *See* Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, *Emergency Preparedness & Response, Biological Agents/Diseases By Category, at* http://www.bt.cdc.gov/agent/agentlist-category.asp#adef (last modified Sept. 8, 2003).

[122] US ARMY MEDICAL RESEARCH INSTITUTE OF INFECTION DISEASES, MEDICAL MANAGEMENT OF BIOLOGICAL CASUALTIES HANDBOOK (4th ed. Feb. 2001), *available at* http://biotech .law .lsu.edu/blaw/bluebook/Bluebook_htm.htm (last visited October 1, 2003).

plague,[124] and some hemorrhagic fevers such as Ebola are transmitted from person-to-person.[125] Nevertheless, the mere fact that a disease is contagious does not immediately mean that quarantine is the best solution for containment of the disease.[126] For example, smallpox can be "spread by cough at close distances or possibly over longer range. . ."[127] Plague, on the other hand, can only "infrequent[ly be] spread by cough at close distance;"[128] Ebola, meanwhile, is spread through direct person-to-person contact.[129] Thus, "disease containment may be more effectively achieved using methods that do not attempt to contain large groups of people."[130]

The most highly contagious disease on the CDC's list is, of course, smallpox.[131] Except for laboratory stockpiles, variola, the virus that causes smallpox, has been eliminated.[132] Nevertheless, the repercussions of September and October 2001 have created the fear that the variola virus might be used in a bioterrorist attack.[133] Exposure to the smallpox virus is generally followed by a two-week incubation period where there are no symptoms; then high fever, head and body aches, and occasionally vomiting follow and last for 2 to 4 days.[134] A rash emerges, signaling the beginning of the virus' contagious phase, as small red bumps in the mouth develop into sores.[135] Once these sores break open, the virus is at its most contagious; the rash spreads to the rest of the body.[136] The virus remains contagious

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[123] *See* Centers for Disease Control, U.S. Department of Health and Human Services, *Smallpox Fact Sheet*, *at* http://www.bt.cdc.gov/agent/smallpox/overview/overview.pdf (Dec. 9, 2002) (last visited November 10, 2003) [hereinafter Smallpox Fact Sheet].

[124] *See* Centers for Disease Control, U.S. Department of Health and Human Services, *Pneumonic Plague Fact Sheet*, *at* http://www.bt.cdc.gov/agent/plague/factsheet.pdf (Oct. 14, 2001) (last visited November 10, 2003) [hereinafter Pneumonic Plague Fact Sheet].

[125] *See* Centers for Disease Control, U.S. Department of Health and Human Services, *Ebola Hemorrhagic Fever*, *at* http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/ebola.htm (last reviewed August 6, 2003) [hereinafter Ebola Hemorrhagic Fever].

[126] *See generally* Henderson, et al., *supra* note 108.

[127] *Id.* at 228.

[128] *Id.*

[129] *Id.*

[130] *Id.* at 229.

[131] Smallpox Fact Sheet, *supra* note 123.

[132] *Id.*

[133] *Id.*

[134] *Id.*

[135] *Id.*

[136] Smallpox Fact Sheet, *supra* note 123.

as the rash becomes raised bumps (pustules) and then scabs that eventually fall off.[137] Only after the scabs have completely fallen off is the virus no longer considered contagious.[138]

As Henderson, Inglesby, and O'Toole note, "[a] smallpox outbreak poses difficult public health problems because of the ability of the virus to continue to spread throughout the population unless checked by vaccination and/or isolation of patients and their close contacts."[139] The reason for this is the virus' two-week incubation period in which diagnosis is difficult, if not altogether impossible.[140] By the time a sufficiently distinct rash appears to suggest the diagnosis of smallpox, the infected individual may have come into close contact with several people who may be incubating the disease as well.[141] Such a situation is one of the few in which quarantine may be inevitable. Henderson, Inglesby and O'Toole recommend that "as soon as the diagnosis of smallpox is made, all individuals in whom smallpox is suspected should be isolated immediately and all household and other face-to-face contacts, as well as their families, should be vaccinated and placed under surveillance."[142] They also add that although isolation of patients and contacts should be sufficient, in some cases forcible quarantine may be required.[143]

The second critical biological agent that causes a disease which is transmitted from person-to-person is pneumonic plague.[144] Pneumonic plague is one of three forms of plague that may occur separately or in combination; the other two are bubonic plague and septicemic plague, neither of which is spread from person to person.[145] Bubonic plague, the most common form of plague, occurs

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[137] *Id.*

[138] *Id.*

[139] Henderson, et al., *supra* note 108, at 109.

[140] *See id.*

[141] *Id.*

[142] *Id.* It is important to note that the authors define "contacts" as "persons who have been in face-to-face contact with the patient *after the onset of fever*," emphasizing the importance of using discretion in identifying contacts of patients to ensure that vaccination and surveillance measures are aimed at those individuals at greatest risk. *Id. See also* Smallpox Fact Sheet, *supra* note 123 (stating that "fairly prolonged and direct contact is required to spread smallpox," but that the virus can also be spread "through direct contact with infected bodily fluids or contaminated objects such as bedding or clothing").

[143] Henderson, et al., *supra* note 108, at 110.

[144] *See* Centers for Disease Control, U.S. Department of Health and Human Services, *Frequently Asked Questions About Plague* 1 (October 3, 2002), at www.bt.cdc.gov/agent/plague/ plaguefaq.pdf (last reviewed Nov. 22, 2003).

[145] Pneumonic Plague Fact Sheet, *supra* note 124.

when an infected flea bites an individual or when *Yersinia pestis*-contaminated material enters through a break in an individual's skin.[146] Pneumonic plague occurs when *Yersinia pestis*, the bacterium that causes all forms of plague, infects the lungs.[147] Pneumonic plague can be transmitted when someone inhales bacteria that has been aerosolized, which could be part of a bioterrorist attack.[148] The pneumonic plague can also spread from person to person through the air via respiratory droplets.[149]

Although small outbreaks of (usually bubonic) plague continue to occur throughout the world, advances in living conditions, public health and antibiotic therapy make future outbreaks unlikely.[150] However, use of the plague as a biological weapon is still a possibility.[151] Moreover, the epidemiology of plague following a bioterrorist attack differs from how it occurs naturally.[152] The symptoms of plague include fever, headache, weakness, chest pain, and a cough.[153] What begins as shortness of breath and a cough may become pneumonia, which may last for two to four days and then cause respiratory failure and shock.[154] Early treatment is necessary to prevent death.[155]

Person-to-person transmission of pneumonic plague occurs via respiratory droplets, which is easily prevented in close contacts by wearing masks.[156] Although modern experience with person-to-person spread of pneumonic plague is limited, the few experiences have revealed that this form of plague does not spread widely or quickly in a community.[157] Hence, even if a close contact refuses treatment, isolation is not recommended – rather, the close contact should be carefully watched for development of fever or cough dur-

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[146] *Id.*

[147] *Id.*

[148] *Id.*

[149] *Id.*

[150] Henderson, et al., *supra* note 108, at 122.

[151] *Id.* (stating that "[i]n the years after World War II, the biological weapons programs of the United States and the Soviet Union developed methods to aerosolize plague directly, removing dependence on the unpredictable flea vector").

[152] *Id.* at 123.

[153] *Id.* at 125-26.

[154] Pneumonic Plague Fact Sheet, *supra* note 124.

[155] *See id.*

[156] Henderson, et al., *supra* note 108, at 136.

[157] *Id.*

ing the first seven days after exposure.[158] Quarantine in a pneumonic plague situation would not, therefore, be necessary.

Finally, viral hemorrhagic fevers can also be transmitted from person to person.[159] The most common of these hemorrhagic fever viruses (HFVs) are Ebola, Marburg, Lassa and Crimean-Congo.[160] HFVs are severe multisystem syndromes that naturally reside in an animal reservoir host (usually rodents) or arthropod vector (usually ticks or mosquitoes).[161] Ebola's host, unfortunately, remains unknown.[162] In naturally occurring cases, people are usually infected in the areas where the host lives.[163] The use of HFVs as biological weapons has not occurred, but HFVs "have been weaponized by the former Soviet Union, Russia, and the United States."[164] The symptoms of HFVs include high fever, fatigue, dizziness, aches, and exhaustion,[165] with the most severe cases showing signs of internal bleeding from body orifices like the mouth, ears or eyes.[166] Central nervous system dysfunction may be present and cause generalized seizures.[167]

As Henderson, Inglesby, and O'Toole observed, "[h]umans are infected incidentally, acquiring the disease by the bite of an infected arthropod, via aerosol generated from infected rodent excreta, or by direct contact with infected animal carcasses."[168] In addition to these modes, transmission can occur through close contact with infected people or their body fluids, or even indirectly through objects

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[158] *Id.*

[159] *See* Centers for Disease Control Special Pathogens Branch, *Viral Hemorrhagic Fevers*, at http://www.cdc.gov/mcidod/dvrd/spb/mnpages/dispages/vhf.htm (last reviewed Nov. 22, 2003) [hereinafter Viral Hemorrhagic Fever].

[160] Henderson, et al *supra* note 108, at 194; Viral Hemorrhagic Fevers, *supra* note 159.

[161] *Id.* A multisystem syndrome is one in which multiple organ systems are affected. An arthropod is a member of *Arthopoda*, an animal phylum characterized by a segmented body, a chitinous exoskeleton, and jointed appendages. The three main classes are arachnids, crustaceans, and insects. See Arthropod, at http://dictionary.Reference.com/search?r= 2Gq=arthropod.

[162] Henderson, et al., *supra* note 108, at 191.

[163] Viral Hemorrhagic Fevers, *supra* note 159.

[164] Henderson, et al., *supra* note 108, at 193.

[165] *Id.* at 200.

[166] *Id.*

[167] *Id.* at 200-01.

[168] *Id.* at 194.

contaminated with infected body fluids.[169] Because of the lack of licensed or effective vaccines and antiviral medications against HFVs, as well as the potentially long incubation period (up to twenty-one days), prevention of transmission is dependent upon careful implementation of strict infection control measures.[170] The majority of person-to-person transmission of HFVs has occurred not through airborne transmission (which is rare), but through direct contact with infected blood and bodily fluids.[171] Thus, specific precautions need be executed in dealing with HFVs, such as strict hygiene guidelines that include gloves, gowns, goggles, and various coverings.[172] Regarding HFVs, quarantine once again is an unnecessary measure if the appropriate precautions are taken.[173]

2. *Water, Food, or Air*

The first of the Category A agents listed, anthrax is an infectious disease caused by *Bacillus anthracis*, the "spore-forming bacterium" which commonly occurs in hoofed animals but can also infect humans.[174] The most serious forms of human anthrax are cutaneous, inhalational, and gastrointestinal anthrax.[175] Incidentally, the anthrax attacks of 2001 resulted in eleven cases of inhalational an-

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[169] Henderson, et al., *supra* note 108, at 194-95 (noting that several cases have been caused by needlestick injuries).

[170] *Id.* at 209 (suggesting that "surveillance should be continued for 21 days" after the person's possible exposure).

[171] *Id.* (warning that although rare, person-to-person transmission cannot be conclusively excluded).

[172] *Id.* at 209.

[173] *See generally Id.*

[174] Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Emergency Preparedness & Response, *Questions and Answers About Anthrax, at* http://www.bt.cdc.gov/agent/anthrax/anthrax-hcp-factsheet.asp (last reviewed October 2, 2003).

[175] Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Emergency Preparedness & Response, *Fact Sheet: Anthrax Information for Health Care Providers, at* http://www.bt.cdc.gov/agent/anthrax/anthrax-hcp-factsheet.asp (last reviewed June 11, 2003) [hereinafter Anthrax Information for Healthcare Providers]. The fact sheet explains that skin or cutaneous anthrax is the most common form of anthrax. Cutaneous anthrax occurs when there is direct skin contact with the spores; it also occurs in nature, when an individual's skin comes in contact with infected animals or animal products (usually through occupational exposure). *Id.* Inhalational anthrax, a rare form of the disease, affects the respiratory tract; it occurs when an individual inhales aerosolized spores. *Id.* Finally, gastrointestinal anthrax occurs after consumption of undercooked or raw meat products or dairy products from infected animals. *Id.*

thrax.[176] The common symptoms of inhalational anthrax initially resemble the common cold: low-grade fever, nonproductive cough, fatigue, chest discomfort and sweating.[177] After several days of initial symptoms, which may be followed by a few days of improvement, a sudden onset of high fever occurs, coupled with severe respiratory problems, and shock.[178] Death ensues between twenty-four and thirty-six hours following the onset of these symptoms.[179]

There is normally no person-to-person transmission of inhalational or gastrointestinal anthrax.[180] While standard isolation precautions are recommended for hospitalized patients with all forms of anthrax, measures for airborne protection, such as air filter masks, are not necessary.[181] Moreover, there is no need to immunize or treat contacts of persons infected with anthrax, such as household contacts, friends, or coworkers, unless it is determined that "they, like the patient, were exposed to the aerosol or surface contamination at the time of the attack."[182] While "proper burial or cremation of humans and animals that have died because of anthrax infection is important in preventing transmission of the disease,"[183] quarantine, per the mandate of the MSEHPA, would be utterly useless.[184]

Botulism, another Category A biological agent, also has three main forms – foodborne, intestinal, and wound.[185] In aerosol form, however, it can be a powerful biological weapon.[186] A fourth form, inhalational, is man-made for purposes of bioterrorism.[187] Symptoms include blurred vision, drooping eyelids, slurred speech, difficulty swallowing, dry mouth, muscle weakness that descends through the body, and eventual paralysis of breathing muscles

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[176] Henderson, et al., *supra* note 108, at 70.

[177] Anthrax Information for Healthcare Providers, *supra* note 175.

[178] *Id.*

[179] *Id.*

[180] *Id.*

[181] Henderson, et al., *supra* note 108, at 88.

[182] *Id.*

[183] *Id.*

[184] *See generally Id.*

[185] *Id.* at 144.

[186] Henderson, et al., *supra* note 108, at 141-42. Between 1990 and 1995 in three separate failed attempts, aerosols were dispersed at multiple sites in Tokyo, Japan and U.S. military bases in Japan by the Japanese cult Aum Shinriko. *Id.* at 142.

[187] *Id.* at 144.

which can lead to death.[188] The speed and severity of paralysis depends on the amount of toxin absorbed into circulation; incubation can be anywhere between two hours and eight days.[189] "Aerosol dissemination may not be difficult to recognize because a large number of cases will share a common temporal and geographical exposure and will lack a common dietary exposure."[190] Once botulism has been identified, it should be relatively easy to deal with infected individuals because individuals with suspected botulism need not be isolated, and quarantine does not even need to be a consideration.[191]

Tularemia, the last of the Category A agents, is an infectious disease caused by a bacterium (*Francisella tularensis*) found in animals, particularly rodents, and transmitted by vector, usually ticks or deerflies.[192] Like botulism, an aerosol form has been developed for purposes of bioterrorism; unlike botulism though, tularemia may actually have been used before as a biological weapon.[193] Symptoms of tularemia could include sudden fever, chills, headaches, muscle aches, joint pain, weakness, cough, and pneumonia.[194] Symptoms can also include ulcers on the skin and mouth, swollen lymph glands, eyes and throat.[195] These ailments may emerge anywhere between three and fourteen days after exposure to the bacteria.[196]

Tularemia could have the greatest adverse medical and public health consequences if released as an aerosol.[197] This is due to the nature of the symptoms – they are difficult to distinguish from a

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[188] Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Emergency Preparedness & Response, Facts about Botulism, *at* http: //www.bt .cdc.gov/agent/botulism/factsheet.asp (last visited Nov. 23, 2003).

[189] Henderson, et al., *supra* note 108, at 149.

[190] *Id.* at 148-49.

[191] *Id.* at 159.

[192] Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Emergency Preparedness & Response, Facts about Tularemia, *at* http://www. bt.cdc.gov/documentsapp/FactSheet/Tularemia/about.asp (last visited Nov. 23, 2003) [hereinafter Tularemia Fact Sheet].

[193] Henderson, et al., *supra* note 108, at 168. It has been suggested that the tularemia outbreaks that affected tens of thousands of Soviet and German soldiers on the Eastern European front during World War II may have been the result of intentional use. *Id.*

[194] Tularemia Fact Sheet, *supra* note 192.

[195] *Id.*

[196] Henderson, et al., *supra* note 108, at 171.

[197] *Id.*

natural outbreak of influenza or pneumonia.[198] Moreover, release in a heavily populated area would result in large numbers of acute illness.[199] Nevertheless, because the disease is not spread from person to person, isolation or quarantine would serve no purpose but to cause social disruption.[200] Standard precautions and quick action are the only necessary elements of infection control for tularemia patients.[201]

The above descriptions of the Category A agents and their effects need to be incorporated into the MSEHPA in addition to a step-by-step procedure for dealing with a public health emergency involving each agent. Each agent is unique in its effects and should be dealt with individually. The MSEHPA does not address this problem.[202] By educating public health and medical authorities, as well as the general public, on how to contain an outbreak caused by each agent, the MSEHPA need not assume that infringement of civil liberties is necessary for cooperation – both between medical and public health officials and between the authorities and the public.

III. CONCLUSION

As it stands, the MSEHPA is overly broad, bestowing tremendous power on state governors and public health officials without clearly defining the circumstances in which such power may be used.[203] There are no medical guidelines for public health authorities to follow, nor are there any public health guidelines for health care providers to follow.[204] As such, individual rights would be in serious jeopardy in the event of a bioterrorist attack, considering the MSEHPA provisions allowing forced examination and quarantine.[205]

The MSEHPA cannot be expected to be the cure-all for all bioterrorist and public health woes. However, if the MSEHPA is amended to provide specific medical and public health instructions regarding each individual biological agent, and subsequently

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[198] *Id.*

[199] *See id.*

[200] *See id.*

[201] *See* Henderson, et al., *supra* note 108, at 184.

[202] *See generally* MSEHPA, art. V, § 502.

[203] *See Id.*

[204] *Id.*

[205] Annas, *supra* note 56, at 94.

adopted by the states, it can be the first step towards combining medical and public health knowledge to create an effective and uniform response to bioterrorism. As a result, the MSEHPA might then serve as an initiative to federalizing public health practice and, in effect, cause systemic reformation of the public health infrastructure.[206] It seems undisputed that the public health system in the United States needs changing[207] – the question is *how?* The idea of a central framework that lays out guidelines for state and local authorities to assist federal agencies in dealing with public health issues is now possible with newly-acquired funding.[208] All that is needed now is a catalyst, and an MSEHPA that emphasizes cooperation between local, state, and federal levels of government, as well as between health care providers and public health officials, could be just that.

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[206] *Id.* at 95.

[207] *See, e.g.*, Nicole Lurie, *The Public Health Infrastructure: Rebuild or Redesign?* 21 HEALTH AFFAIRS 6, 28 (November/December 2002). The author argues that Americans need to insist on "building a system that meets the public health needs of the twenty-first century in an efficient, accountable, and equitable manner and that does, in fact, protect and promote the health of the nation." *Id.* at 30.

[208] *See* Turnock & Atchison, *supra* note 49, at 73-74.