

Bioterrorism and the Use of Fear in Public Health

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Introduction

In 1910, Rosenau, the father of preventive medicine in the United States, wrote:

"Fear is lessening, but we would not want it to disappear entirely, for while it is a miserable sensation, it has its uses in the same sense that pain may be a marked benefit to the animal economy, and in the same sense that fever is a conservative process. Reasonable fear saves many lives and prevents much sickness. It is one of the greatest forces for good in preventive medicine, as we shall presently see, and at times it is the most useful instrument in the hands of the sanitarian."²

Public health professionals remain ambivalent about the use of fear to advance public health and safety. Fear, in the form of "neutral" information about health is the primary tool for fighting tobacco use. In food safety, the main goal has been to reassure the public. In HIV control, there is an attempt at a balance of terror: you should be afraid enough of HIV to take personal precautions, but not afraid enough to want to restrict others.

The current "hot button" issue in public health law is bioterrorism. This is not a new issue – cold war fears of bioterrorism in the 1950s were used to get Congress to fund transformation of what had been the Malarial Control Center into the modern Centers for Disease Control. This presentation deals with the ethics of using fear of bioterrorism to gain public and political support for bioterrorism preparedness, and whether such strategies will best balance individual rights and community safety.

Is Chemical and Biological Terrorism A Real Threat?

In April 2000, the Centers for Disease Control published its report, *Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response*.³ This report concluded that the United States was vulnerable to chemical and bioterrorism acts. While couched in the CDC's usual low key language, the report also makes clear that such

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² M. J. Rosenau, The Uses Of Fear In Preventive Medicine, *Boston Medical and Surgical Journal*, Vol. 162, #10, 305 – 307, Mar. 10, 1910. (To read the text, see http://plague.law.umkc.edu/phl/phl_info.htm)

³ Centers for Disease Control and Prevention. *Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response*. Recommendations of the CDC Strategic Planning Workgroup. *MMWR* 2000;49(No. RR-4):[inclusive page numbers].

attacks are likely in the future.⁴ Chemical and bioterrorism are especially troubling post-Superpower threats because they do not demand sophisticated delivery systems and, in the case of chemical terrorism, can use materials available through bulk commercial channels.⁵ Chemical weapons were used by the Chinese and Greeks and others over 2,000 years ago,⁶ but did not become a serious threat until modern chemistry in the mid and late 1800s lead to the isolation of chlorine, hydrocyanic acid, and the development of specific chemical warfare agents such as mustard gas and phosphene. These were used to devastating effect on troop morale in the first world war,⁷ and, while subject to international treaties, have been used sporadically since.

The archetypical modern chemical terrorism attack was the Saran gas attack in the Tokyo subway. Such an attack produces maximum terror because it is sudden and unexplained, and can produce substantial casualties with the right conditions. It is very analogous to the traditional terrorist weapon, the bomb, but with much more complicated cleanup. Bombing style attacks do not raise any special public health surveillance issues because they are self-identifying and they do not raise long term issues beyond those posed by other toxic spills. It is also possible to use a slow poison for a chemical attack. Slow poison attacks can be more devastating than bombing style attacks because of the chance to spread the poison widely before it is detected. In effect, this has happened accidentally on two occasions when animal feed was contaminated and the contaminated meat and milk entered the commercial distribution chain before the contamination was detected. Slow poison attacks do pose the public health surveillance issues because their onset of action will be insidious and in a dispersed population, and because finding all the exposed persons will require traditional epidemiologic investigations. Slow poison attacks are less threatening however, because of the problems entailed in dispersing

⁴ For a more specific discussion of the risks, see *Medical Management Of Biological Casualties Handbook*, U.S. Army (1999).

⁵ For these purposes, biological toxins such as ricin and aflatoxin would be considered with chemical agents because they are not self-replicating.

⁶ *Medical Aspects Of Chemical And Biological Warfare*, Text Book of Military Medicine Series, Office of the Surgeon General (1997), at 11.

⁷ Gas! GAS! Quick, boys!—An ecstasy of fumbling,
Fitting the clumsy helmets just in time;
But someone still was yelling out and stumbling
And flound'ring like a man in fire or lime . . .
Dim, through the misty panes and thick green light,
As under a green sea, I saw him drowning.
In all my dreams, before my helpless sight,
He plunges at me, guttering, choking, drowning.

. . . .
Wilfred Owen, *Dulce et Decorum Est*, frontispiece, id.

enough poison in a stable form without causing illness or detectable contamination.⁸ The contaminated animal feed cases went undetected because the levels of the poison were low enough to not cause illness in the animals, and thus too low to pose any serious threat to humans.

Bioterrorism is one of the oldest tactics in warfare. Long before Snow worked out the mechanism of cholera transmission through drinking water and Koch formalized the notion of infectious disease with his Postulates, armies knew that throwing corpses and dead animals into water supplies was an effective way to limit the process of an invading force. Catapults were used to hurl plague victims over city walls, and defenders dumped excrement on troops trying to scale castle walls. The strongest ally of the European invaders in the new world was communicable disease; without it, a handful of troops could never have subdued indigenous peoples.⁹ In the modern world, bacterial agents can be grown with simple equipment found in any hospital or school science department. Even viral agents can be cultivated with readily available equipment that is in most universities with biological sciences research. Some of the agents are ubiquitous in the environment and can be easily isolated. Others are difficult to find in the wild and the commercial sources are strictly monitored, but since they are so easy to ship and exchange, a breach of security anywhere in the world can seed far flung terrorist laboratories.

The Public Policy Dilemma

Bioterrorism has two unique characteristics:

1. The agent is self-replicating, i.e., it can reproduce and spread on its own in the environment, once it is introduced; and
2. Infectious agents that are spread by personal contact turn the victims into vectors for the disease.¹⁰

These characteristics allow the exponential spread of the disease until it begins to reach saturation in the population, and it facilitates widespread distribution through automobile and air transportation. Most troubling, it can require substantial restrictions of individual liberty to contain the spread of the disease. In severe cases, this could be complete

⁸ The harmlessness of such an attack does not mean it can be ignored. Mass hysteria from perceived threats with no scientific basis can paralyze society.

⁹ William. H. McNeill, *Plagues And Peoples*, New York: Doubleday (1976).

¹⁰ To a limited extent this can also be true for chemical agents as people carry toxins on their clothes, but the process of decontamination is simple and only momentarily intrusive.

biological isolation of the individual until death or cure.¹¹ In the worst case scenario, biological isolation facilities would be overwhelmed because there are very few such facilities in any given area and no way to transport people to them safely over any significant distance. The government's options at that point are all bad: either let folks risk the spread of disease or seal them in an isolated building until the disease runs its course. These are powerful images that have already been exploited in the popular media and thus are part of the public consciousness.

A bioterrorism policy must find a balance between compliancy and igniting public fears of a totalitarian military lock-down and thus becoming self-defeating. The risk of compliancy is that nothing will get done because state and local governments only spend money on things that voters care about, and voters only care about public health when they are scared. The risk of overstating the threat is that you look foolish when the threat does not materialize. After the Swine Flu episode, the federal government became much more concerned about losing credibility that it had been in the past.¹² Thus the policy dilemma: frighten the public to make big changes and you look foolish if there are no problems, or do not frighten them enough and be a scapegoat when there is an incident.¹³

The current course is to address bioterrorism through existing public health channels, but with new action plans and strategies. This is a rational strategy because it addresses the problem while not requiring state and local governments to do more than send people to meetings and have plans on paper. It also leaves the burden of preparation on the local and state entities, which will, rightly, take most of the blame if an incident is handled improperly. Most importantly, it is all that is possible for the CDC to do unless Congress fundamentally alters the legal relationship between the CDC and the states. This relationship is one of advisor and consultant, but not Czar. The CDC cannot come into a state to manage an outbreak or carry out other activities without the state's permission.¹⁴

While not explicitly stated in the government's planning documents, this strategy is consistent with the view that bioterrorism threats are on a continuum with traditional public health threats, and for most of the continuum bioterrorism does not pose risks

¹¹ This is already the case with some persons infected with pan-drug resistant tuberculosis: if the strain of the bacterium cannot be made non-infectious, the infected individual must remain in restrictive house arrest or in formal biological isolation until the disease resolves spontaneously or the patient dies.

¹² R. Neustadt and H. Fineberg, *The Epidemic That Never Was* (1983).

¹³ The news media will find fault no matter what because that makes stories, which will erode political support no matter how well-conceived the policy.

¹⁴ While it is beyond the scope of this paper, there are difficult Constitutional issues in direct federal disease control at the local level because police powers are the most protected of the state's reserved powers. It is this author's view that it is constitutional for Congress to authorize direct federal intervention for disease control emergencies under the same rationale that would allow the use of federal troops to repel a military invasion on the U.S. mainland.

significantly in excess of natural disease outbreaks.¹⁵ Thus bioterrorism is only a special case for extreme events, which are less likely than events that overlap with existing threats. The important question then becomes: how do we weigh extreme events in our planning?

The current approach to bioterrorism assumes that an extension of existing local and state public health efforts, combined with cooperation with law enforcement and other public agencies, will be sufficient to manage even extreme bioterrorism events.¹⁶ Yet other studies indicate that the local and state public health infrastructure is in shambles and cannot handle natural public health threats. The most detailed study of the United States public health system is presented in the Institute of Medicine's (IOM) 1988 Report, *The Future of Public Health*,¹⁷ which described the system as, "...a hodgepodge of agencies, and well-intended but unbalanced appropriations-without coherent direction by well-qualified professionals." When the IOM's Committee on Emerging Microbial Threats to Health revisited the issue in 1992,¹⁸ it reported:

"It is the committee's view that there has been little positive change in the U.S. public health system since the release of that [the 1988 IOM] report. The recent rapid increases in the incidence of measles and tuberculosis are evidence of these continuing problems."

...

"Steps have been taken to address inadequacies in these programs, but these responses are reactive, not proactive. It is the committee's belief that the *prevention* of infectious diseases must be stressed if the health of this nation's inhabitants is to be maintained or improved."

Since these reports, the Centers for Disease Control (CDC) has expanded its initiative on controlling emerging infections,¹⁹ but the overall United States public health system is in worse disarray than when the IOM last studied it. The administration's childhood vaccine program failed to address infrastructure problems that prevent long-term gains in immunization rates.²⁰ The states have only retreated further into politically balkanized

¹⁵ This is not to underestimate natural infectious disease epidemics. HIV has significantly increased excess mortality in the United States, and world-wide infectious diseases are still the leading cause of death.

¹⁶ Interestingly, the government's report is silent on any legal impediments that might exist to such cooperation and there were no lawyers present on the study panel.

¹⁷ Institute of Medicine. *The Future of Public Health*. Washington, D.C.: National Academy Press, 1988.

¹⁸ Lederberg J, Shope RE, Oaks SC Jr, editors. *Emerging Infections: Microbial Threats to Health in the United States*. Washington, D.C.: National Academy Press, 1992.

¹⁹ Centers for Disease Control. *Addressing Emerging Infectious Disease Threats: A Prevention Strategy for the United States*. Atlanta: U.S. Department of Health and Human Services, 1994.

²⁰ *Vaccines for Children: Reexamination of Program Goals and Implementation Needed to Ensure Vaccination* (GAO/PEMD-95-22).

disease control efforts, and the current climate in Congress is not supportive of increased federal control of state programs. Thus it is questionable whether state and local public health authorities are prepared to handle routine public health threats, and unreasonable to expect that they could effectively manage a significant bioterrorism incident.

A Modest Proposal²¹

The federal government has a rationale strategy for addressing bioterrorism, given political realities in the United States. This strategy must fail however, because it depends on a unsound foundation - state and local public health agencies and their state and local political masters. In political logic, the answer is to try to strengthen our bioterrorism response with more plans and stockpiles of essential materials and local readiness training. The objective is to better face the bioterrorism threat while not overly alarming the populace for fear of a "Swine Flu" backlash. As discussed earlier, given the low risk of a severe bioterrorism incident, this makes political sense.

The flaw with this strategy is that it focuses on the wrong issue. The problem is the day-to-day failure of state and local public health due to inadequate political and financial support. A better strategy is to focus directly on the real problems and address them in ways other than esoteric reports whose readership is limited to public health aficionados. Rather than elaborate bioterrorism contingency plans on the shelf at the local health department, educate the public to demand effective public health every day, thus rebuilding the political support necessary for an effective public health infrastructure. Better to have every diner worry when served lukewarm soup²² than to worry about vague threats of bioterrorism: focus the public's fears on events that it can recognize and address within local political institutions.

Thus, in an application of the Broken Windows hypothesis²³ to public health, the best way to manage the risk of bioterrorism is to not expend precious resources and political credibility on bioterrorism, but to focus on day-to-day public health functions, i.e., to channel the public and legislative fears about bioterrorism to fears about everyday public health. For example, one strategy in the bioterrorism plan is to establish a sentinel notification system where selected emergency rooms and others will notify the authorities of possible bioterrorism victims. As a matter of public health practice and law, this has a fatal flaw: since there will be few to no bioterrorism events in any given community over

²¹ With apologies to Jonathan Swift (A Modest Proposal For Preventing The Children Of Poor People In Ireland From Being Aburden To Their Parents Or Country, And For Making Them Beneficial To The Public (1729)).

²² Soup is an excellent media for bacterial growth. To be eaten safely, it must be stored and served cold or very hot. Being served lukewarm soup as anything more than a rare accident indicates the restaurant has no fear of being inspected or sanctioned for unsanitary practices.

²³ James Q. Wilson and George L. Kelling, "Broken Windows: The police and neighborhood safety", Atlantic Monthly Volume 249, No. 3; pages 29-38 March 1982.

any given time period, it will be impossible to evaluate the effectiveness of the system and to use existing enforcement mechanisms to bring inefficient systems into compliance. In contrast, assuring that the existing laws on disease control reporting are enforced will both improve routine public health and, because they include the unusual outbreaks that typify bioterrorism incidents, assure that bioterrorism-related events are also reported. The efficacy of such systems can be much better monitored because the incidents of reportable diseases is high enough and well enough understood to create useful reporting benchmarks.

Conclusions

The best way to manage bioterrorism is to improve the management of existing public health threats, rather than building a bioterrorism infrastructure separate from day-to-day public health practice. This dictates shifting the public's fear of catastrophic but highly unlikely bioterrorism events to a day-to-day fear (concern with) the more mundane but, statistically much more important problems of routine public health enforcement.