Bioterrorism Preparedness: Cooptation of Public Health?

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Proposals made by the US government in recent years to intensify medical and public health preparedness for bioterrorism have received additional impetus from anthrax attacks following September 11, 2001. The threat has been exaggerated to support military and law enforcement agendas; resources have been diverted from essential public health priorities; ineffective or dangerous measures have been used; and public health programs have been inappropriately commingled with security programs. M&GS 2002;7:82-89.

The attacks of September 11, 2001 and the subsequent dissemination of anthrax spores through the mails have led to an intensified campaign for preparedness against bioterrorism in the United States. Proposals include increased funding for local and national public health infrastructure, including investment in lab modernization and improved systems of surveillance and communication, as well as intensive education of health personnel to be better able to manage appropriately the early presentation of bioterror-associated infectious disease. Budgets are slated to be increased to strengthen the ability of hazardous materials ("hazmat") teams and other local responders to effectively deal with terrorist attacks and to promote the development of new anti-microbial agents and vaccines to handle all conceivable outbreaks.

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Efforts should clearly be made for primary prevention of violence in any form and for secondary prevention and effective treatment when necessary. For example, sharply increased funding for public health infrastructures, which have been starved for funds for years, should be provided at every level; effective surveillance for disease outbreaks, whatever their origin, is essential; training for public health and medical personnel in handling emergencies, whatever their cause, should be expanded, as should access to public health and medical services, without financial or other barriers. The population should be educated on ways to avoid and respond to health problems of all types. Nevertheless, attempts to build long term public health capacity on the basis of what may well be exaggerated bioterrorism threats, while uncritically partnering with military, national security, and law enforcement agency-led preparedness strategies and programs could ultimately undermine our ability to effectively employ primary prevention against significant health threats. Such threats include—but are not limited to—emerging and re-emerging infectious diseases, global climate change and pollution, and the use of weapons of mass destruction of all sorts, including biological weapons.

While our collective imagination has

been seized by fear of bioterrorism, it is useful to remember that the weapons most frequently used in the United States for violence designed to cause fear and panic and, thereby, to force changes in attitudes and in policies—violence that has been termed "terrorism"—are small arms and light weapons, incendiaries, and explosives. In the most recent major acts of terrorism—the 1993 underground explosion that damaged the World Trade Center, the destruction of the Federal Building in Oklahoma City, and the attacks on US embassies in Africa and on the USS Cole in Yemen—explosives were used. In the September 11, 2001 attacks on the World Trade Center and on the Pentagon, fuel-laden airliners were used as explosive devices. The term terrorism has also been used to describe the use of incendiary and detonation bombs during World War II on civilian targets such as Guernica, Warsaw, Rotterdam, London, Coventry, Dresden, Hamburg, Tokyo, and Osaka and to describe the use of nuclear bombs on Hiroshima and Nagasaki.

Bioterrorism Rare, With Limited Success

In contrast, examples of "bioterrorism"—the use of chemical or biological weapons for terrorism—have been rare. In Oregon, followers of the Bhagwan Shree Rajneesh contaminated salad bars at 10 restaurants with salmonella in 1984 , resulting in 751 reported cases of gastrointestinal illness but no deaths.[1,2,3] In Japan, followers of Shoko Asahara who were members of the Aum Shinrikyo cult used the nerve agent Sarin to kill seven people in a Tokyo suburb in 1994 and used it again in 1995 in the Tokyo subway system to kill 11 people and to affect several thousand.[3,4,5] The Center for Nonproliferation Studies at the Monterey Institute of International Studies has identified 285 incidents throughout the world since 1976 in which chemical or biological weapons have been used, most with little harm to humans.[6] The recent dissemination of anthrax spores in the US is believed, at the time of publication, to have caused fewer than 20 cases of cutaneous and inhalation anthrax (including five deaths from inhalation anthrax). The dissemination of anthrax in these incidents, the source of which remains unknown, has also been termed an act of bioterrorism. Despicable as these acts are, the morbidity and mortality bioterrorism has caused has been very small compared to that produced by the use of other weapons and small compared to the extraordinary level of concern engendered by bioterrorist acts or the threat of them.

Despite the rarity of bioterrorist incidents, multi-billion dollar programs have been underway over the past three years in the US—well before the anthrax cases appeared in 2001—for "preparedness" against bioterrorism. Many public health organizations—including the Centers for Disease Control and Prevention (CDC), other units of the US Public Health Service, and numerous county and state departments of public health—are engaged in these programs. Institutes to study bioterrorism have been established and schools of public health are being encouraged to set up core curricula on the topic. Hundreds of presentations have been given advocating anti-bioterrorism programs and a huge, coordinated program involving law enforcement and national security agencies has been undertaken, with enormous implications for public health and medical care services.

There has simultaneously been an extraordinary proliferation of articles in medical and public health journals in the US calling for expansion of these programs. The articles have argued that acceptance by medical and public health facilities of governmental and other funds for bioterrorism preparedness, despite the extremely low probability of a bioterrorism event occurring, would be useful if an event were to occur and, even if it did not, would be useful to strengthen medical and public health infrastructures so they can respond effectively to other health emergences—a so-called dual-use strategy.[7,8]

Anti-bioterrorism programs have proliferated on the basis of scant evidence, with little public debate or independent review, and without adequate consideration of the real nature of the threat and of the possible negative consequences of the mandated responses.

Conversely, a much smaller number of articles in medical and public health journals have urged caution. The present authors and other critics of these initiatives have argued that while anti-bioterrorism funding may provide additional support for needed health programs, the organizing principles and priorities of biopreparedness programs can lead to an adverse politicalization of medical and public health decision making that conforms with national security directives while diverting attention from much more pressing and critical endemic global health problems. Anti-bioterrorism programs have proliferated on the basis of scant evidence, with little public debate or independent review, and without adequate consideration of the real nature of the threat and of the possible negative consequences of mandated responses. These potential problems include:

- exaggeration, in order to support

military programs and national security-state agendas, of the threat of use and the consequences of use by terrorists of chemical and biological weapons;

• diversion of resources from other, much more urgently needed, public health services;

• use of ineffective or potentially dangerous preventive measures;

• the risks of commingling public health programs with military, intelligence, and law enforcement programs.[9-12]

Exaggeration of the Threat

Bioterrorism has been presented as a major threat to public health, often based on exaggerated or fictional accounts of what "could" happen. A typical example occurred in 1997, when Secretary of Defense William Cohen held up a five-pound bag of sugar on a national television broadcast and declared that if the sugar were anthrax organisms, they could kill half the population of Washington DC.[3] Presentations such as these are designed to capture attention but contribute little to reasonable assessments of risk. In addition, reports of the risks of specific weapons have at times been erroneous or alarmist. For example, a commentary in the *Lancet* in 1998 suggested that inhalation anthrax was transmissible from an individual with the disease to others,[13] although there is no known evidence that inhalation anthrax can be spread by person-to-person contact. Over the past few years, and continuing into the post-September 11 period, a number of expert analysts have contended that the catastrophic threat of chemical and biological terrorism has been greatly exaggerated.[6,14-17]

In order to make a reasonable estimate of risk, it is useful to distinguish between very different types of potential incidents. The most frightening would be the use of chemical or biological agents in a manner that would cause huge devastation and up to millions of casualties. Biological and chemical weapons of the kind and amounts that could cause such catastrophic casualties, including smallpox, are extremely difficult to obtain and still harder to deploy. At present, only nation states with well developed military, scientific, and technical capacity would have the ability to carry out such an attack. Violation of the international treaties and conventions prohibiting chemical and biological weapons use would bring universal condemnation even from those who might otherwise sympathize with the initiating nation, which would also risk a devastating retaliatory attack.

Incidents on a smaller scale—similar to those that occurred in Japan or Oregon or to the dissemination of anthrax spores in the US—might indeed be within the capabilities of organizations or individuals. But it would be difficult for terrorist organizations, in secret and without government support, to develop a capacity that only a limited number of nation states have had the resources to acquire. For example, Aum Shinrikyo, the well financed cult in Japan that released nerve agent in the Tokyo subway, had been unable, despite years of attempts, to develop a usable biological weapon. Furthermore, weaponization of chemical and biological agents is difficult and dangerous, and would-be weaponizers may be more likely to hurt themselves than to hurt others.

The anthrax incidents of 2001, in addition to causing human disease and death, cost a great deal of societal energy and resources. Emergency response teams were even more stressed by suspicion and by the proliferation of anthrax hoaxes, which had increased in incidence even before the dissemination of spores in the fall of 2001.[18] The increased number of hoaxes does not, however, constitute evidence of increased risk of real incidents. They are rather evidence of increased risk of hoaxes. The costs in money and in disruption caused by suspicion and by hoaxes may be adverse outcomes of the campaign against bioterrorism, since the scare scenarios about alleged dangers of bioterrorism had given false reports a credibility they did not deserve and would not have received even a few years ago.

In a world of finite resources, it is impossible to adequately prepare for all "what-if" catastrophic scenarios. What is needed is a thorough, objective, and scientific analysis of probabilities and alternatives that would guide the setting of priorities for programs to defend populations at risk . Given that fallacies in proposals for fallout shelters, duck-and-cover strategies, crisis relocation, and national missile defense—presented as defensive programs against nuclear weapons—have historically been concealed by self-interested advocates,[19-21] it is imperative for US public health authorities to devise rational secondary prevention plans unencumbered by pressures from lobbyists for the biotechnology and pharmaceutical industries and for other influential groups that stand to benefit enormously from billions of dollars accruing to unproven, high-tech responses.[22] In this context, it is instructive to note that in 1999 the Gilmore Commission, charged with advising the US government on assessing the terrorist threat, criticized the general analytical focus on worst-case scenarios and called for greater consideration of dangers that might prove less damaging, but more likely.

Current plans for groups such as the National Academy of Sciences and the Monterey Institute to develop more objective measures of threat assessment may offer some promise of discrimination between realistic and hyped scenarios.[23] For the full range of competing benefits and risks of various interventions to be rationally weighed, it will be critical for such projects to incorporate perspectives of primary prevention, including intensified action to strengthen the Biological Weapons Convention and to alleviate the global conditions that provide reservoirs for emerging and re-emerging infectious disease. In the event that new bioterrorist incidents take place, it is likely that proponents of massive investment in anti-bioterrorism will claim that even more investment should have been made in their projects. But this claim will fail to consider how expensive and ineffective preparedness programs have been and how those investments might have been used more effectively for alternative programs [*see box, Comparative rates of bioter - rorism incidents and those of "ordinary" diseases and accidents*].

Comparative numbers of bioterrorism incidents and those of "ordinary" diseases and accidents

From 1976 through 2000, there were 285 recorded uses of chemical or biological weapons throughout the world, most with little human harm.[6]

Each year, in the US alone, there are 76,000,000 cases of food-borne illness, resulting in 325,000 hospitalizations and 5,000 deaths.[26]

Each year in the US there are 60,000 chemical spills, leaks, and explosions, 8,000 of which are considered "serious," resulting in more than 300 deaths.[27]

Each year in the US there are approximately 20,000 deaths and 110,000 hospitalizations directly or indirectly attributable to influenza, yet insufficient amounts of influenza vaccine were produced for the years 2000 and 2001 flu seasons.[28,29]

Diversion of Resources From Needed Public Health Services

Allocation of public funds for social well being and for public health programs—which are essential to the health of the people of the United States and of the world—should not be a "zero-sum game." If additional resources are needed in a rich nation such as the US, those resources should be allocated. In the real world, however, setting priorities for public resource allocation among many urgent needs is usually required. The funds so far allocated to anti-bioterrorism projects are small compared to the very large US military budget, which was further expanded by the Bush Administration in the wake of the September 11 attacks.[24] More to the point, they are also small compared to the desperately underfunded public health and social welfare budgets of the US and the world [*see box, Projected percentage budget increases for selected research programs under the National Institutes of Health (NIH) in fiscal year 2002*]. Investment of these funds in programs to improve education, nutrition, housing, and other measures for disease prevention for the world's peoples is likely to be far more useful for prevention of bioterrorism and for public health [*see sidebar, Investing in global public health*].

Emergency maneuvers conducted by metropolitan areas throughout the country as part of bioterrorism preparedness have already stretched limited municipal resources dedicated to public health and welfare.[33-35] For example, in California, where counties already are struggling from increased energy costs and a softening economy, bioterrorism preparedness could drain an additional $80 million from the coffers of those governments, which supply most of the social services used by poor people and others.[35] The most effective way to reduce bioterrorism is to reduce poverty, hunger, violence, and stockpiles of weapons of mass destruction and to work for a world characterized by social justice, health, and peace. The belief that such a strategy would be successful seems utopian, but it is no more utopian than belief that current or even currently visualized US anti-terrorism programs will provide effective protection against the consequences of use of potential chemical or biological weapons.

Ineffective or Dangerous Preventive Measures

Campaigns of preparedness against bioterrorism have already resulted in measures that have restricted the disclosure of information useful for the protection of public health. Last year, the US Environmental Protection Agency (EPA) announced plans to limit public disclosure of potentially hazardous industrial chemical sites mandated by the Clean Air Act,[27,36] actions that have been extended by numerous government agencies in the wake of the September 11 attack.[37] Such policy changes supposedly address concerns that bioterrorists could use such information to attack the sites. However, by severely compromising the public's fundamental right to know about the potential toxic chemical threats from nearby plants, the EPA's policy could have the effect of insulating the corporations responsible for such facilities from public pressure to clean them up and to institute more effective safeguards to prevent accidents and illness.

Another new and dangerous bioterror-

Projected percentage budget increases for selected research programs under the National Institutes of Health (NIH) in fiscal year 2002:[25]

- Bioterrorism—115.8% (from US$43 million to $92.7)
- AIDS vaccines—53.6%
- Diabetes research—42.0%
- Prostate cancer—37.6%

Investing in global public health

The funds used to protect against remote threats in the US could be used to prevent high rates of disease in other countries or diseases that could emerge or re-emerge in epidemic form in the United States. In November 2001, Dr. Norman Neurieter, a US State Department science adviser, stated that the war on terrorism should not deflect attention from the need to combat infectious diseases and that there should be no delays "regardless of whether the infection is deliberately spread by domestic or foreign terrorists or whether it is naturally occurring, as with HIV/AIDS, tuberculosis or malaria."[30] In India during 1999

ism initiative is the expansion of research facilities that study potential biological and chemical warfare agents. Highly toxic agents, such as smallpox and ebola virus, can be stored and studied in these "Level IV" facilities. Until recently, such activities were known to have taken place at a CDC facility in Atlanta and at the US Army's Fort Detrick in Maryland. Under the new program, the public was informed that Plum Island, a Department of Agriculture laboratory on the edge of the New York metropolitan area is being "upgraded" to Level IV and an unknown number of other such facilities is being opened.[38] These facilities, it has been announced, will study ways to defend against potential biological and chemical warfare agents, including possible attempts to genetically engineer new agents that might pose additional proliferation problems.

Such facilities are not immune to accidents and leaks, either onsite or during the transport of pathogens. For example, a researcher at the US Army Medical Research Institute of Infectious Diseases (USAMRID) developed a case of glanders, a disease considered to have biowarfare potential. The researcher spent considerable time in his community before the diagnosis was made. The report of the case in the *New England Journal of Medicine*[39] and the editorial that accompanied it[40] used the case to argue for additional anti-bioterrorism preparedness. A letter from the authors in response pointed out that the case was an example of the risks of anti-bioterrorism programs, not of bioterrorism.[41] Worldwide experiences with presumably fail-safe facilities such as nuclear power plants should remind us that accidents can and do happen. More Level IV facilities will tend to increase the chance that an accident could occur, a possibility underscored by a 2001 Department of Energy (DOE) Inspector General's audit that indicated that DOE's "biological select agent activities lacked organization, coordination, and direction...resulting in the potential for greater risk to workers and possibly others from exposure to biologic select agents and select agent materials."[42] The chance of an accident may be remote, but perhaps less remote than the threat against which these facilities are supposed to guard.

Finally, there is evidence that the source of the anthrax spores that were disseminated through the mail in the United States during the fall of 2001 may have originated from samples supplied by USAMRID to US laboratories.[43] Pursuit of some so-called "defensive" or "preventive" measures may not only lead to a risk of accidents but may also lead directly or indirectly to biological terrorism.

Risks of Commingling Public Health with Security Programs

Once a bioterrorist incident has occurred, the cooperation of medical and public heath agencies and personnel with law enforcement agencies and personnel may be necessary and appropriate for a short term "tactical" response to the emergency. Long term "strategic" collaboration and commingling of medical and public health programs with military, intelligence, and law enforcement programs, however, might compromise the independence of public health professionals and agencies and subordinate their priorities to the priorities of the military, intelligence, and law enforcement agencies themselves. At a news conference on January 22, 1998, in which President Clinton announced new initiatives to address bioterrorism, the US Secretary of Health and Human Services stated: "This is the first time in American history in which the public health system has been integrated directly into the national security system."[3,44] Given the well documented history of public health collaboration with Cold War programs, which included numerous clandestine experiments on an unsuspecting American populace,[45] there is reason to be concerned about issues ranging from the erosion of scientific integrity and ethical standards through restrictions of basic civil liberties and free access to information and services necessary for medical care and public health.

The Department of Defense (DOD) has a long history of failure to adhere to public health principles[46-49] and law enforcement agencies have been no better as public health partners. Recently released information provides details about an FBI "disinformation" campaign through a double agent, Joseph Cassidy, to convince the USSR that the US had developed a new chemical weapon called GJ. The object was to spur Soviet investment in trying to produce an agent that the US had been unable to produce. The ruse apparently backfired: the Soviets were able to produce a usable, much more toxic, and highly effective nerve agent called Novichok.[50,51] The results of this and other disinformation campaigns were summarized in the *Bulletin of the Atomic Scientists* in September 2000: "...the US disinformation and deception operations of the 1960s and 1970s, designed to stimulate Soviet interest and investment in CBW, were only too successful, leading to the development of effective chemical and biological munitions....This is a disastrous outcome."[52] The FBI's deceptions in these areas and their provocative actions in others is evidence that the FBI has been an unreliable and dangerous partner for public health, which

must depend on the public's perception that truth will be told about health hazards.

In June 2000 the National Commission on Terrorism, created by Congress in 1998, recommended that the US military, rather than civilian agencies, lead the response in the event of a terrorist attack in the United States and that the government begin surveillance of foreign students in the US.[53] In December 2000 a panel chaired by James Gilmore, the Governor of Virginia, urged George W. Bush to bolster US preparedness against terrorist threats by the creation of a new counterterrorism agency and the loosening of restrictions on the CIA that had been in place since 1995 and that had prevented the agency from recruiting confidential informants who have committed human rights abuses.[54] In response, the Director of Human Rights Watch said rescinding the 1995 restrictions would be contrary to fundamental US principles.[55]

In the aftermath of the World Trade Center attacks, an order was issued by the US Department of Justice that would eliminate attorney-client confidentiality for terrorist suspects, followed by a presidential directive allowing closed-door military trials for noncitizens charged with bioterrorism at home or abroad. The USA Patriot Act, which includes a broad definition of terrorism, has further weakened civil liberties. The dangers of weakening the obligation of health professionals to protect confidential information in the face of demands to release information in the name of "national security" in the United States has long been recognized.[56] The proposed new Model State Emergency Health Powers Act, which is being promulgated by the CDC, would give greater powers to public health authorities to quarantine people, to require treatment for a range of illnesses, and to gather and release confidential information.[57,58]

The potential weakening of confidentiality protection and of forcible incarceration of those suspected of spreading communicable disease, and the alliance of medicine and public health with police and other investigatory authorities, would increase the suspicions of the most dispossessed of our society—particularly poor, immigrant (both documented and undocumented) and non-white people—who view governmental agencies, particularly local and state police departments, with well grounded distrust. Suspicions have already been aroused by the studies conducted by the US Public Health Service in Tuskegee from the 1930s to the 1950s on African-American men with syphilis who were denied treatment for it, for which the US Government has apologized.[59] The increasing subordination of public health planning to military and police direction that is already taking place under the anti-bioterrorist programs and those that are being proposed will compound these suspicions and endanger medical and public health outreach to vulnerable populations.

In the area of control of weaponry, it should be noted that in 1999 the US announced its intention to reject the appeals from other nations and from the World Health Organization (WHO) to destroy its stock of smallpox virus[60-62] and in July 2001 withdrew from international attempts to strengthen the 1972 Biological Weapons Convention (BWC) "in order to protect military and trade secrets."[63,64] In September 2001 the *New York Times* published information that demonstrated that the DOD was conducting tests of methods for production of biological weapons and conducting biological weapons tests that other nations and arms control experts could view as contravening the BWC and that could lead to a new biological weapons arms race.[3,65,66] And in November the formal withdrawal by the United States from the BWC Review Conference in Geneva led to such division among the nations attending the conference that they suspended their work for a year without any action to strengthen BWC enforcement provisions.[67] The proposals to spend billions of dollars for dubious and dangerous secondary prevention and treatment of the medical consequences of use of biological weapons while blocking international efforts for primary prevention of their production and use is a contradiction of good public health practice.

The vulnerability of public health agencies to pressure from more powerful governmental forces was vividly illustrated during the first two weeks of the recent anthrax dissemination. As the *Boston Globe* reported, "Senior Bush administration officials told both [Jeffrey] Koplan [the director of the CDC] and Surgeon General David Satcher to remain publicly silent."[68] At a time when public comment by competent public health specialists was needed to educate the public and prevent panic, the preemption of public health leadership by forces oriented towards military and national security-state agendas is a foreboding example of the potential limits on enlightened public health practice posed by the Bush Administration's approach towards bioterrorism.

In short, the folk wisdom "When you sup with the devil, use a long spoon," is worth heeding. Given the well documented history of abuses by US military, intelligence, and law enforcement agencies in the name of "national security" and the political agendas of the current US administration, no spoon may be long enough to protect public health

there were two million new cases of tuberculosis, causing about 450,000 deaths. Effective treatment for tuberculosis in India costs about US$15 per person treated. An investment of $30 million annually for a few years, compared to the current US contribution to India of $1 million for this purpose, could virtually wipe out the disease and—by saving the lives of young people, who are frequent victims of the disease—could also be effective in combating poverty in India.[31] The UN has estimated that $10 billion invested in safe water supplies could cut by up to one-third the current four billion cases of diarrhea worldwide that result in 2.2 million annual deaths.[32]

and medicine from being tainted by current and future violations of public trust. Those in the public health and medical community who understand the compelling need to tell the truth about public health and medical issues and to eradicate the root causes of the milieu in which terrorism thrives need to oppose forcefully a militarist paradigm of preparedness that fosters a deception that a "Fortress America" free of microbial assaults can be achieved. If our nation is serious about preventing epidemics, from whatever causes, it must transcend its current "bunker mentality" and focus on the full range of primary prevention strategies, which include abolition of all weapons of mass destruction and include determined actions to achieve global health for all.

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Improving public health preparedness and response capacity offers protection not only from bioterrorist attacks, but also from naturally occurring public health emergencies. On June 12, 2002, the President signed into law the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188 , H.R. 3448), which is intended to bolster the nation's ability to respond effectively to bioterrorist threats and other public health emergencies. The act builds on the programs and authorities established in Title III of the Public Health Service (PHS) Act by the Public He... INTERPOL Bioterrorism incident pre-planning and response guide. Prevent, prepare, respond. The spread of an infectious or toxic biological agent can happen without warning, while the response to a biological event, whether naturally occurring, accidental or deliberate, relies on coordination across multiple sectors. Clearly, the need for structured prevention, preparedness and response strategies is critical. INTERPOL Bioterrorism Prevention Unit aims to enable law enforcement agencies to prevent, prepare and respond to the deliberate use of bacteria, viruses or biological toxins that threaten