

# John Bartlett and Bioterrorism

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**Until 1997, the subject of bioterrorism was not discussed within the medical community and deliberately ignored in national planning efforts. Biological weapons were regarded as “morally repulsive.” This complacency stemmed from a 1972 Biological Weapons Convention where all countries agreed to cease offensive biological weapons research. In the 1990s, however, the Soviet Union was discovered to have an extensive bioweapons program and a Japanese religious cult sought to launch an anthrax attack on Tokyo. Biological weapons such as smallpox and anthrax had the potential to cause a national catastrophe. However, little was done until John Bartlett in 1997 led a symposium and program to educate the medical community and the country of the need for definitive bioweapons programs. It was highly persuasive and received a final stimulus when the anthrax attack occurred in the United States in 2001.**

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The possibility that microbes might be deployed as a biological weapon is a frightening prospect. It was sufficiently alarming that, in 1972, the nations of the world signed a treaty pledging to destroy all biological weapons and to cease all offensive research programs that use them [1]. For 20 years, there was a complacent belief that all had complied, but then serious concerns arose. Important actions were needed to prepare the country to at least deal with the 2 major threat agents—smallpox and anthrax. But it was not clear how the effort would be galvanized. As Director of the Johns Hopkins Division of Infectious Diseases, John Bartlett was especially concerned and, with others, took initiatives to deal with the challenge. For this supplement, I was asked to discuss the subject of bioterrorism and John’s role in this field, as well as the future.

Some historical perspective is necessary to appreciate the importance of the problem and the unusual role it occupied in the infectious diseases field. A key event in the evolution of this story was a symposium at the Infectious Diseases Society of America (IDSA) opening meeting on 13 September 1997. It awakened a key group to the

menace posed by microbes as weapons—indeed, of their potential to rewrite human history. At that time, the challenge of emerging infections, such as AIDS and Ebola virus, was a growing concern. John Bartlett, the IDSA president that year, was very concerned personally about the threats posed by biological weapons. They were, after all, a category of emerging threats—threats for which we were ill prepared. However, the topic of bioterrorism had not previously been discussed at a professional meeting such as this symposium. In fact, it had been little discussed at all, even in schools of medicine and public health. That changed beginning in September 1997.

As a matter of history, it is important to recall that a half century ago, Nobel Laureate Macfarlane Burnett as well as prominent leaders in medicine in this country announced that infectious diseases had effectively been conquered—that the time had come for medical expertise and resources to shift their primary attention to chronic diseases. At that time, John and I had barely embarked on our careers in the infectious diseases field. Not an encouraging pronouncement, but, for us, it was too late. We were committed!

Indeed, the dimensions of the infectious diseases field did change. Vaccines, antibiotics, and broad advances in care minimized the impact of infectious diseases. During a period that extended for some 20 years, infectious diseases residencies decreased in number and microbiology departments diminished in size or merged. In 1972, all nations signed the 1972

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biological weapons treaty, thus providing even more confidence that there were no hidden threats about which to be concerned.

In the early 1980s, AIDS provided a rude jolt to modern medicine's confidence in being able to handle major, unexpected challenges. The problem grew steadily worse before some rays of hope for treatment and prevention appeared. Progress was slow, but one of the few beacons of sanity and hope was Johns Hopkins with needed critical leadership provided by John Bartlett.

## BIOWEAPONS BECOME OF GREATER CONCERN

In the medical community, indeed, throughout the country, biological weapons were spoken of as being "morally repugnant" and not a subject for open discussion, instruction, or research. But in late 1992, Soviet defector, Ken Alibek, deputy director of the Soviet Union's biowarfare program brought news of large, sophisticated laboratories in that country that were working with botulism, smallpox, anthrax, and plague as well as recombinants involving Ebola and Venezuelan encephalitis viruses [2]. The information was regarded with disbelief. In the United States there were very few laboratories that had any expertise in dealing with the principle agents of greatest concern—anthrax, plague, and smallpox.

In 1995, an especially disturbing event occurred. A Japanese religious cult, Aum Shinrikyo, released lethal amounts of sarin into the Tokyo subway system. It was later learned that they also sprayed large quantities of anthrax organisms throughout Tokyo on several occasions, but the nonvirulent vaccine strain they mistakenly used caused no deaths [3].

## COPING WITH NEW CHALLENGES

In July 1995, heightened concern about terrorism prompted President Clinton to issue a special Presidential Decision Directive [3]. It stipulated that measures for planning and implementing counterterrorism programs be undertaken. The Departments of Defense, Justice, and Energy were given \$53 million to establish "first-responder" teams in 120 cities and to train and equip mobile military response units. No funds were given to the Department of Health and Human Services (HHS). The responder teams comprised police, fire, and emergency rescue staff. Much of the training was conducted at the Army's chemical weapons facility and dealt primarily with explosive devices and chemical weapons. Little was said about biological weapons or early detection and management of outbreaks or about the care and management of casualties. At that time, neither the Centers for Disease Control and Prevention (CDC) nor the National Institutes of Health (NIH) had personnel or expertise in dealing with biological weapons [4].

It was inconceivable to John and to me that health resources could be entirely overlooked. Medicine and public health along

with community resources would have to play the major role in dealing with a bioweapons attack. We believed that the existing policies should be more widely known and that government leadership should be persuaded of the need for support to deal with medical issues.

John Bartlett was an enthusiast and ideal leader in his positions as director of the Infectious Diseases Department at Johns Hopkins and as president of the IDSA; Mike Osterholm was an excellent public health complement as he was then past-president of the Council of State and Territorial Epidemiologists. I brought 6 years of experience at the White House and HHS.

The national IDSA meeting was an ideal opportunity to educate colleagues about biological weapons as well as emerging infections. It was fortunate that the best-selling book, *The Hot Zone*, which dealt with the threat of new microbial agents, had recently been published, [5]. It detailed a dramatic escape of the hemorrhagic Ebola virus from a laboratory in Reston, Virginia. Its author, Richard Preston, was an enthusiastic speaker, personally concerned, and anxious to participate. The only available meeting space was an exceptionally large auditorium, far bigger than what we needed. Yet, on the afternoon of 13 September, the audience streamed into the auditorium in unbelievable numbers. Publicity about the Soviet program and the Japanese attack were partially responsible; Richard Preston was an attraction; and John Bartlett's advocacy was a factor. It resulted in a standing-room-only audience—an estimated 2500. The audience included many physicians who could imagine being on call to emergency rooms to see patients with strange, severe diseases.

In discussing the urgent needs for a wider appreciation of the threat, 2 hypothetical challenges were posed. The first, what might be the diagnosis and response for a desperately ill patient with high fever who was thought to have pneumonia, had difficulty breathing, and appeared to be close to death? A chest X-ray provided no clue. As he was being examined, 2 other patients with severe pneumonia were brought into the emergency room from a nearby area. Early treatment was urgent. Could the cases be related? What might they have? Would anyone consider anthrax? Another case: a 15 year-old boy who was desperately ill with 3 days of a very high fever and with small vesiculopustular lesions over his face and lower arms. He had been successfully vaccinated against measles and was consuming no drugs of any sort. How many might think of smallpox as a possibility? After all, there hadn't been a case anywhere in the world for 30 years.

I posed this question to the audience: "What would you do as the on-call infectious disease consultant at 8:00 PM on a Saturday night?"

## FROM A SYMPOSIUM TO ACTION TO A CENTER

The symposium began to stimulate considerable interest among physicians and the public. Soon, John and I were presenting at

hospital grand rounds and scientific group meetings and to lay groups. Media interviews were plentiful. Many encouraged us to establish a center in order to increase the number of personnel and extend the educational effort. Senior leadership at 10 likely foundations was approached. Each expressed personal interest and concern. However, they quite frankly stated that their boards would not want to be identified with activities, however well meaning, that dealt with morally repugnant instruments of war. Schools of medicine and public health were of a like mind and many used the term “morally repugnant.”

Our first programmatic initiative evolved unexpectedly when I was invited to be an observer at a New York City day-long “table-top exercise” in which Mayor Rudy Giuliani would be an active participant. Other observers included representatives from a number of government agencies. A contractor presented an anthrax attack scenario and led a discussion about steps to be taken. I was startled by the number of misperceptions and the number of erroneous assertions. One conclusion that the group was advised to accept was that southern Manhattan would have to be quarantined and disinfected—a technically impossible and wholly unnecessary feat. Something had to be done to provide informed guidance. All agreed, but this was seen to be problematic given the number of agencies involved. They strongly encouraged those at Johns Hopkins to convene an informal invitation-only working group.

This we did. We invited 25 people representing relevant government agencies plus state and local health department staff and academia. Despite only 2 weeks advance notice of the several meetings we convened, attendance was consistently greater than 90%. As a first step, we reviewed a list of more than 30 possible organisms that could be used as possible biological weapons. In discussions, priorities were identified based on characteristics of the organisms and feasibility of preparedness and response strategies. Six organisms were selected as being of highest priority: smallpox, plague, tularemia, botulism, anthrax, and hemorrhagic fever viruses. These are now referred to as class A agents [3].

There was an additional problem as there were no ready references at that time that provided readable but concise medical and public health information about the 6 diseases or actions that should be taken. Accordingly, expert subgroups drafted disease-specific chapters that were reviewed by the entire group and published in the *Journal of the American Medical Association*. References for 2 of the 6 chapters are listed here [6, 7]. The journal’s weekly distribution of more than 300 000 copies ensured wide dissemination.

## THE CENTER COMES INTO BEING

In May 1998, at the president’s request, the Congress approved \$175 million for fiscal year 1999 in support of bioweapons

research in the HHS budget. Senator Barbara Mikulski pledged her support for a center at Johns Hopkins and earmarked \$1 million in the budget. With resources in view, the Center for Civilian Biodefense Studies was established in September 1998. John and I served as joint directors. There were 3 other professional staff: Drs Tara O’Toole, Tom Inglesby, and Monica Schoch-Spana. Soon after, the Alfred P. Sloan Foundation expressed its confidence in the center with a multimillion dollar grant and continuing encouragement that extended for more than a decade.

A primary goal for the center was to foster an understanding of the need to implement community-wide planning in order to deal cohesively with medical and public health preparedness and response. This implied the need to develop knowledge and skills among a diverse array of professional and public participants. Thus, in February 1999, we sponsored the First National Symposium on Medical and Public Health Response. We had an overflow registration for a 1000-seat auditorium in Washington, DC. A second symposium 1 year later was received with comparable enthusiasm. Thus, in just 24 months, we were well under way in establishing the fact that medicine and public health, hospitals, and community organizations were critical to the entire threat agenda. Encouraged, we established a website and started a newsletter that was the precursor of the journal, *Bioterrorism and Biodefense*, now in its tenth year and a premier publication in its field.

## DARK WINTER—A UNIQUE EXERCISE ONLY WEEKS BEFORE 11 SEPTEMBER 2001

Educating and persuading professional colleagues of the vital importance of a program is a challenge; persuading Congress and the president is a more daunting task. In 2001, we decided to develop an exercise to simulate the events that could be expected following the release of smallpox in a US city [8]. The critical issues that immediately would arise and the adequacy of the national emergency response capability would be reflected in the perceptions and actions of simulated meetings of the National Security Council. Twelve senior officials, including former cabinet-level officials, assumed roles as National Security Council members. In the role of president, former Senator Sam Nunn chaired the deliberations. Correspondents from 3 television networks and 2 newspapers attended and publicized the exercise.

A smallpox virus attack was chosen for the scenario because of its severity, capability to spread, and the problems of how to distribute 15 million doses of vaccine among a population of 280 million. Participants discussed the options and actions to be taken immediately following discovery and at 2 and 4 weeks after the disease spread.

The exercise vividly illustrated the complex array of problems in coordinating government actions to mobilize personnel,

vaccines, and health facilities to care for patients, confirm cases, and mount vaccination efforts. Communications with officials throughout the country as well as with the public would be necessary. But what were the messages, who should be delivering them, and through what media? Questions arose about isolating patients and their contacts and about quarantining institutions or even whole cities or states. It was abundantly clear that strategies were uncertain and national, state, and local preparations were grossly inadequate.

Subsequent to the exercise, Senator Nunn stated that he was deeply troubled by what had been revealed and said that he would ask Congress to permit him personally to brief them on the dangers that the country faced and the need for specific resources. This he did in special hearings.

## A NEW IMPETUS—THE 2001 WORLD TRADE TOWER ATTACK AND THE ANTHRAX OUTBREAKS

On 11 September 2001, only 3 months after the Dark Winter exercise, the World Trade Center Towers and the Pentagon were attacked. Two weeks later, letters containing anthrax were sent to members of Congress and news centers. In all, 22 persons were infected and 5 died. We feared that more attacks were imminent.

Secretary Tommy Thompson, then-secretary of HHS, created a new entity, the Office of Public Health Emergency Preparedness, and a \$3 billion emergency appropriation was signed. Funds were to be made available to CDC, NIH, and the US Food and Drug Administration; state and local health agencies for community planning and development; laboratories to create quickly accessible diagnostic services; hospitals to prepare and exercise plans for dealing with large numbers of casualties; and epidemiologists to develop reporting and response systems.

Remarkable changes have occurred since John Bartlett convened the Symposium on Bioterrorism in September 1997. Communication systems now link central command centers at national, state, and city locations; a network of more than 100 laboratories is capable of rapid diagnosis of many different biological agents; strategic national stockpiles of critical supplies and equipment can be dispatched with notice of only hours; all hospitals have emergency plans for dealing with a sudden influx of patients; surveillance networks have been established; and plans are in place to muster large numbers of emergency personnel.

In many communities, all hazards preparedness and response systems are becoming well established; others are still emerging. More needs to be done, but a remarkable

groundwork has been laid for more effective medical and public health responses to natural disasters as well as bioterrorism.

## WHAT OF THE FUTURE?

With ever-increasing travel and expanding populations, it can confidently be predicted that so-called emerging infections will steadily increase in number and that bioterrorists will be a greater problem due to growing number of more sophisticated laboratories, more extensive biological training, and more information on the Internet. New respiratory epidemics such as severe acute respiratory syndrome, Middle East respiratory syndrome, and pandemic influenza will recur more frequently; dengue and chikungunya infections are on the march; and we recently learned of a spreading Ebola hemorrhagic fever outbreak of record size. New and better control methods, vaccines, antimicrobials, and creative control strategies are more critical than ever. It is a new era for the infectious diseases community.

## FROM COMPLACENCY TO PREPAREDNESS

A salute to John Bartlett who dislodged the first stone of complacency and launched a landslide.

### Notes

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