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Facing Reality In Preparing For Biological Warfare: A Conversation With George Poste

A longtime bioterrorism adviser warns against complacency on the part of the American people and their government.

by Jeff Goldsmith

Learning From Anthrax

Jeff Goldsmith: What did we learn from the anthrax episode about our degree of readiness to deal with a biological terror threat?

George Poste: There are multiple lessons. The first, in concert with the events that preceded it on September 11, is that we can no longer assume invulnerability to serious terrorist incidents on American soil. We are fortunate that the number of people affected in the anthrax incident was less than one day’s carnage on America’s roads. Nonetheless, the relentless media coverage brought home to the American public just how devastating a bioattack could be if conducted on a much larger scale. In addition, the economic dislocations accompanying the anthrax episode were substantial.

Biological terror is just one element in a complex, and rapidly changing, equation of new national security threats. We have entered an era of catastrophic terrorism in which our greatest vulnerability will be created by our own technological sophistication—the phenomenon of blowback—in which the technology and infrastructure that contribute to our economic comfort and social welfare can be exploited by terrorists determined to damage us, erode people’s confidence in government, and provoke legislative actions that erode our civil liberties. So whether it be a liquefied natural gas container ship being exploded in the ports of Boston, New Orleans, or Houston, or contamination of the interstate highway system with radioactivity in a tunnel, or the grotesqueness of the kind that we witnessed in the Twin Towers attack, every element of contemporary society is vulnerable.

Biological terror today probably ranks lower on the threat spectrum than many other kinds of catastrophic terrorism. The real challenge is what the “bio” threat will become over the next two decades as a consequence of the dizzying pace of progress in genetics and other areas of research in biology and medicine.

The twentieth century was dominated by weapon systems that evolved from advances in physics, engineering, computing, and mathematics, colloquially known as “big bang, big metal.” This produced weapons with ever greater explosive charges delivered with ever greater precision from ever greater distances, whether it be from land, air, sea, or space.

But we are now entering an era in which bioterror threats will be far more than bugs. It will not just be the threat from microorganisms that may have been engineered for greater nastiness but also new ways of crippling major body functions to produce injury or death. As

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molecular biology elucidates every key regulatory circuit for key body functions, this information can also be used malevolently. Just take brain function, for example: One could trigger depression, lethargy, amnesia, violence, hallucinations, or convulsions at will. As knowledge of the biological basis for normal human functioning increases, any function of the body can become susceptible to bioattacks.

**Decline Of The Public Health Infrastructure**

Goldsmith: Is the real vulnerability here a threat to our lives or a threat to our economy?

Poste: It’s a threat to our health, economy, and way of life. Also, in our anthropocentric arrogance, we always think about people as the targets. Agriculture is equally at risk from biological agents that target animals and plants. As President Bush stated, the first war of the twenty-first century is about basic ideology. It’s a conflict that involves the need to protect the post-Enlightenment view of the world based upon open democracy, technological and economic progress, and the quest to reduce human suffering and offer the greatest freedoms for fulfillment of individual aspirations. Our opponents, now revealed, want to impose a crushing, theocratic, anti-intellectual worldview that thrusts us back into a barbarous dark age. Our enemies resent us, our accomplishments, and our freedoms in a way that the average American cannot understand.

The anthrax episode served to highlight what many prescient commentators have been saying for a long time: that America and the Western democracies are ill prepared to deal with bioassaults as a result of the appalling neglect of public health infrastructure over the past three decades. Public health capabilities have suffered from the widespread, delusional belief held by political leaders that the battle against infectious disease had been won.

Similarly, in the populist quest for ever cheaper health care, we have eliminated most of the reserve capacity in the hospital system. There is no “surge capacity” in the hospital system to deal with any bioincident that caused extensive casualties. The carnage of September 11 in New York City was so absolute, in that so many people died. The New York hospital system would have been utterly overwhelmed if it had to accommodate thousands of critically injured people. It doesn’t matter whether it’s a biological attack or a 747 crashing into an urban area—we have excised urban hospital systems’ capacity to deal with a massive disaster, irrespective of its origin. The American public is completely unaware of this stark deficit. Patronized by cheap political sloganism from legislators eager to duck the real causes of health care inflation, they want more health care at ever cheaper cost. The reality is that there is a cost attached to this desire; one cost has been the erosion of reserve capacity.

**Emergency Preparedness: The Front Line**

Goldsmith: A lot of the institutions that you’ve talked about in New York, for months prior to 9/11, were diverting ambulances because they couldn’t staff their emergency rooms or operating suites. So it’s actually a little worse than you’ve suggested. Doesn’t this situation get dramatically worse in a bioterrorist incident, in that workers would not come to work if they felt they were going to be exposed to infectious agents? Simultaneously, you would have people surging into these institutions to be diagnosed or treated. What do we do about that?

Poste: We have very limited proactive planning across the health system for disaster management, whether it be an airliner that crashes spontaneously or is crashed deliberately by terrorists. Preparedness to cope with bioterrorism and other lurking evils requires proactive planning. Health care professionals are not exempt from fear. If there is a significant bioattack, we will undoubtedly see defection.
of health care personnel.

Another problem is the legal impediments to moving physicians and other health professionals between states in an emergency. We already have acute shortages in nursing staff all across the nation, as well as pharmacists and other critical health personnel.

Seventy percent of health care workers—and I’m not just talking about professionals—are women, and many of them are single parents. They have a fully appropriate concern about their children at home. Yet hospitals—indeed, disaster planning in general—have given scant concern to the emotional welfare of their front-line workers. If we actually had in place plans whereby people understood that their children were protected and that front-line personnel and their families had priority access to treatment or protective vaccines, they would be far more likely to stay on the front line. Health care professionals are a remarkable group of people with enormous dedication. They don’t want to abandon their roles, but when their families are at risk, they will understandably feel ill at ease.

Another formidable problem in a bioattack will be posed by the worried well—namely, individuals who believe that they have been infected and who will swamp already overloaded health facilities. This problem will also be fueled by the media. In all contemporary events, the media must be indicted for superficial sensationalism in all aspects of its coverage. If CNN had presented viewers with a risk scale as to what the carnage in the nation was from road accidents, handguns, and domestic violence on any given day versus the toll from anthrax, people would quickly have put the anthrax incident in perspective. If they had this information, every time someone got a sore throat, fever, or stiff neck, they wouldn’t run to the emergency room. Media irresponsibility, compounded by appalling communication skills on the part of several government officials in the early stages of the anthrax incident, served to fuel public concern. Training to deal with the media must be a prerequisite for all public spokespersons.

Communication: Key To Assurance

Goldsmith: What do you do to assure people of a rational, substantive response to the actual threat?

Poste: Recognizing that public concern is both inevitable and legitimate, it is crucial to have a proactive communication plan that conveys authoritativeness and realism without provoking panic. Those in charge at all levels should each be able to communicate in clear terms the status and implications of an incident. Preparedness and planning should define in advance who is responsible for working with the media. In any incident, the media will try to get someone to make an off-the-record comment or they will invade an emergency room to ask someone inappropriate questions and then broadcast inept or inaccurate commentaries proffered by people who may have no substantive knowledge of the true situation.

Proactive preparedness planning is everything: planning about resources; planning about the location, scope, and staffing of a command center; planning to establish specific operating procedures and clear delineation of roles and responsibilities, including the talks to the media. Specific plans need to exist at the local, regional, and national levels.

Goldsmith: Well, certainly the anthrax episode wasn’t a case study of how to do that right. How much learning has taken place from the difficulty in responding authoritatively to anthrax, and what happens next time, based on that learning?

Poste: I think that the lessons learned are consistent with what I just said about planning. We need to get our act together. Don’t make statements about issues or risks that you don’t understand, whether it be premature declarations about the amount of antibiotic available...
for the entire country, or debate with fright-
ened postal workers exposed to contaminated
mail, as if you were addressing the American
Society of Epidemiology on the nuances of sta-
tistical risk. In a crisis, people want to trust
those in authority, but such trust will evapo-
rate quickly if the spokesperson is ill informed
or arrogantly dismissive of public fears.

The ultimate pragmatic test in medical eth-
ics is whether you would have a specific proce-
dure done to yourself or your family. In the
context of advising postal workers about the
pros and cons of the postexposure anthrax
vaccination, you don’t have to portray the issue
in terms understood only by professionals.
You’re dealing with scared people; in the an-
thrax episode it was postal workers who could
have been exposed to a lethal infection. Indi-
viduals worried that they could be going home
to their families not knowing whether they
were carrying spores on their clothes. The ve-
ner of advanced academic debate has no place
in this setting. Focus on the key question:
“Doc, should I take the vaccine or not?” It’s a
simple matter of advising yes or no.

At the final level, informed consent, by defi-

dition, is individual choice. My answer—if I
were asked whether I would have taken the
anthrax vaccine—is yes. As the recent Insti-
tute of Medicine study reported, there is no
evidence of an unusual level of significant ad-
verse events associated with this vaccine.

Goldsmith: Isn’t fear the real weapon?
Poste: Absolutely. Remember the dictum of
the famous military strategist, Sun Tzu: “Kill
one, terrorize a million.”

Linking Jurisdictions
Goldsmith: Our health system is the size of the
country you were born in, Great Britain, in
economic terms. Who speaks for it? It is a vast
enterprise with a lot of conflicting opinions
and conflicting beliefs, as well as a jurisdic-
tional morass. How do you produce authorita-
tive pronouncements from that about what in-
dividual citizens ought to do?
Poste: You can’t, without reforming the orga-
nizational framework for disaster manage-
ment and public health competencies. It was
designed to respond to hurricanes, earth-
quakes, industrial disasters, and so forth. Above all, we currently face chaos in conse-
quence management because of serious orga-
nizational deficits at the national level. Every-
one is in charge, so no one is in charge. More
than forty federal agencies claim primacy in re-
sponsibility for different aspects of a bio-
incident. Then you impose on this the equally
Byzantine turf battles about organizational re-
sponsibilities at the state and local levels. So
what does Tom Ridge really have responsibil-
ity for in homeland defense? Ridge has only
one stated responsibility: to “coordinate, coor-
dinate, coordinate.” Irrespective of this com-
mitment to meet this goal, without control of
the resources needed to build a robust home-
land defense, the Office of Homeland Security
will be subject to constant challenges by those
who don’t want to surrender their current re-
sources and power.

The reality, tragically, is that the shock to
the system post–September 11 has still not
been enough to force enough people to stop
their territorial turf wars, abandon their rice-
bowl mentalities, and face the ugly fact that
the nation does not yet have a cogent, over-
arching strategic plan for bioterrorism. In the
absence of such a plan, there are no declared
priorities for biodefense or enunciation of de-
fensible technical rationales for what it is
choosing to fund. Third, there are no metrics
to measure performance to know whether we
are making progress and getting value for the
vast sums being invested.

The president and Congress, with good
intentions, have added $37 billion for counter-
terrorism initiatives, of which bioterrorism is a
part. But these monies have been allocated in a
rather knee-jerk fashion without careful as-
sessment. It’s throwing money against a prob-
lem without any attempt to set up a realistic
set of priorities as to what is doable within one
year, three years, five years, or what will re-
quire ten years. The current approach may
make the legislators feel good and allow the
American people to feel that all is well, but the
risk is that five years from now the defense of
this great republic will be no better served.
than it is today, thanks to the lack of stringent assessment of what is needed, how it will be achieved, and who will be held accountable for progress.

The Immediate Future

Goldsmith: The idea of staging it is a good way of approaching this. What needs to be done right now, in the next year to eighteen months?

Poste: What you have to do is to shape a tractable, pragmatic agenda for biodefense, with transparent rationales and definitions of time frames in which specific objectives could be fulfilled. I would love to have ways of identifying the illicit production of bioweapons by terrorists, to be able to excise them before an attack occurs. The reality is that this isn’t going to happen for years, because we don’t have the requisite intelligence-gathering capabilities. Detection of “bio” agents in production is far more difficult than finding illicit activities directed to the construction of nuclear weapons. Vast amounts of money have been invested in environmental sensors to detect biothreats, but with minimal success. Yet you still have people who, in my opinion, dishonor science by claiming that their sensors can do what they can’t. We’re not going to have environmental sensors that offer comprehensive detect-to-warn capabilities that can be deployed in key facilities, offices, or sports stadiums in the foreseeable future. Such sensors may eventually be developed, but the practical reality for the coming five years, and probably longer, is that the first time that we will know that a bioincident has happened is when ill people start appearing in healthcare system, just as the anthrax episode illustrated.

Based on this reality, the biggest single point of leverage we have available to us today in improving our biodefense capabilities is to improve the speed with which we can detect infected individuals and to accurately identify the infectious agent involved. Faster diagnosis will save lives, particularly in a major epidemic, since it will drive decisions about treatment and consequence management. Because we won’t have drugs and vaccines against many of the agents that could be used against us for at least five to ten years, or possibly longer, new diagnostic tools will enable appropriate containment actions to at least be implemented to curtail expansion of the incident.

Over the next twelve months we need to completely rebuild the vital first line of public health defense and consequence management preparedness. We’re started to do that. More money for the CDC (Centers for Disease Control and Prevention) and for state and local public health departments will help to accomplish this. Most don’t have even diagnostic testing capabilities to detect a bioincident.

Goldsmith: They don’t have the microbiology?

Poste: Not at most state and local levels. Or if they do, misdiagnosis is still a real risk. These are symptoms of how much we’ve allowed our public health system to deteriorate.

A second urgent objective is to ensure that every major healthcare network in the United States be required, let us say by—it’s probably too late now—by December 2002, but no later than June 2003, to have in place a disaster management plan for handling a mass casualty disaster, including significant casualties caused by bioterrorism. They should be required to also have in place compliance programs for training and simulation exercises. But who will audit competencies in meeting these taxing requirements? We don’t currently have audit capabilities on the scale needed.

How will we ensure that sufficient reserve capacity is available across hospitals to deal with different types of bioterrorist assaults? We have no inventory of what reserve capacity even exists. The current system has been squeezed dry. In formulating disaster plans, you will need to address which patients already in the hospital are movable, and where you are going to put them. Is a plan in place to requisition local hotels or to offer and monitor provision of home care?

When the worried well start to flood in, is there a plan established not just for the hospitals, but for the emergency preparedness system at large, so that the worried well don’t all come to the hospital but are directed instead to alternative triage sites set up in advance? Are plans in place to ensure that they travel to
these centers by prescribed routes within the city? This is to assure that they're not contaminating neighborhoods in the event they are infected. Bioattack simulation exercises such as TOPOFF and Dark Winter revealed that ill-defined legal authority to act to control infectious disease at the national, state, or local level can quickly compromise mounting effective epidemic control actions. What are the powers of the governor, the state attorney general, or the mayor? Who sets priorities for access to, and distribution of, the national pharmaceutical stockpile in the event of conflicting demands from multiple locations?

**Detecting The Nature Of The Problem**

**Goldsmith:** Unless the terrorists tell us, how do we actually know there's a problem? Isn't it true that seven of the eight principal vectors that you worry about present themselves like the flu? How do we know it isn't the flu?

**Poste:** Right now, we don't. As I emphasized earlier, we don't have the medical diagnostic infrastructure in place. So, for example, when the emergency rooms across America were filling up in February 2000 with what we assumed was influenza, we didn't know for sure that it wasn't anthrax, plague, or tularemia. Until we have in place comprehensive, rapid, robust, point-of-care diagnostic capabilities, we will be vulnerable, and the attacker will have the advantage gained by the delay before it is recognized that a bioassault has actually occurred. That's why within a three-year time frame we must have in place an aggressive program to widely deploy diagnostic capabilities for those biological agents for which diagnostic tests can be developed.

Every physician is taught that the most common diseases occur most commonly; if you hear hoofbeats, it's more likely to be a horse than a zebra. How do you detect zebras (the rare biological incident) among the vast herd of horses (routine infections)? It's not enough just to have the diagnostic tests. You also need real-time information linkages to ensure that if you detect a zebra in Washington, D.C., for example, you can quickly assess whether zebras are being found at other locations in D.C. and also disseminate alerts to other cities, in the United States and abroad, to be monitoring for zebras in their midst.

**Goldsmith:** What are the economics of a comprehensive zebra detection system, George? I mean, how much is it going to cost to deploy it, and who's going to pay for it?

**Poste:** This applies to much more than diagnostics. Your question goes to the heart of the challenge: Who pays for preparedness at large? It's the most important overarching question. So even with the congressional largess of allocating $37 billion to counterterrorism and homeland defense, the amount of money that's dedicated to health care systems is small relative to what is needed to build and deploy the full spectrum of new diagnostic capabilities and other critical medical services. Building the diagnostic tests themselves is relatively straightforward. It's the question of their deployment and routine adoption. Primary health care practice must now accommodate a seven-to-fifteen-minute consultation per patient. When someone comes in with nonspecific symptoms such as headache, stiff neck, and flu- and cold-like symptoms, a physician or his practice nurse are not going to disrupt their already pressured schedule to undertake a test that is either too complicated or too time-consuming. Similarly, hospital or clinic administrators are not going to allow the required high throughput of patients to be disrupted by conducting zebra tests unless they are low cost, are rapid, and do not interfere with conventional medical practice. The diagnostic test instruments must also have an automated readout to report the result not just to the requisitioning physician; if a zebra is identified, it activates an automatic electronic alert to communicate the incident to the relevant public health counterterrorism authorities. You can't expect busy physicians to report individual patient information; they may not see it for hours because they get distracted by something else. This means that the diagnostic instruments that read out the tests have got to link to an automated biological incident warning communication system.
The technological challenge posed by the need for new diagnostic tests is how to rapidly find any infectious agent, whether it be a horse or a zebra, in a clinical specimen, and do it much faster than we can do it now. It’s a matter of taking a sophisticated molecular diagnostic test, which may cost tens if not hundreds of dollars today, and reducing the cost to a few dollars per unit test, with the results being available in less than an hour.

**Goldsmith:** Is the instrumentation in physicians’ offices and emergency rooms now, or is it going to have to be put in there somehow?

**Poste:** It would have to be deployed to all relevant points of care, from primary care to hospital ERs. The type of instrumentation needed doesn’t yet exist, but this does not present formidable technical barriers based on current technologies.

**Technological Challenges**

**Goldsmith:** Are those current “industrial” providers of microbiology testing being networked together electronically? Don’t we already have a sampling mechanism now in their microbiology volume?

**Poste:** Tragically not, and that, of course, is even when we’re dealing with the detection of conventionally medically important pathogens. It’s very difficult to get an accurate, real-time national picture of infectious disease. The GAO report on infectious disease reporting systems from local and state public health authorities revealed that not only is there significant underreporting of infections, but a high proportion of the data is still submitted on paper rather than electronically, leading to inevitable time lags.

**Goldsmith:** Isn’t a very large fraction of our local public health infrastructure not even Internet enabled, so it’s basically telephone and fax connected? Is that going to change?

**Poste:** I hope it will, but at the present time your characterization is correct. Once again, these deficits are but elements of the more serious problem caused by budgetary cutbacks in the course of myopic political actions that have reduced vital public health capabilities.

**Goldsmith:** Let’s move out beyond a couple years and look at the five-to-ten-year outlook. You were pessimistic about the cycle time in developing vaccines and therapeutic responses to new biological agents. Is that a fixable regulatory problem, or a problem with inadequate science? What can be done with our existing scientific apparatus to respond more aggressively to a novel threat?

**Poste:** I don’t think I was being pessimistic. I was simply being realistic. For the most part, it is not a regulatory problem, but rather it reflects the complex nature of the scientific problem. Too many in politics, the media, and society at large succumb to H.L. Mencken’s dictum: “Yes, of course complex problems have simple solutions; and they are always wrong.” We have spent tens of billions looking for the cure for cancer and billions looking for an AIDS vaccine. The bioterrorism challenge is no different. The state of science has never been more sophisticated than it is today, but we do not know how to create antiviral drugs that are active against categories of viruses other than herpes viruses and the retroviruses and agents with some efficacy against myxo- and paramyxoviruses.

Forget bioterrorism for a moment. We are as vulnerable to new viruses that could emerge in analogous fashion to AIDS or unique agents such as prions [as in the human form of mad cow disease] as we are to assault by deliberate infection. If we suddenly had a new lethal virus of natural origin emerge in our midst, it would still take us, in all likelihood, many years to come up with new drugs and vaccines. And while there are many on the Hill who actually believe that just throwing money at this will yield an instant solution, they’re wrong. I wish it were otherwise, but it isn’t.
The Swine Flu Lesson

Goldsmith: We do have a recent contemporary example of an abortive response to a public health threat in the 1976 swine flu fiasco. Did we learn anything from that about how to use existing technologies and craft a more effective public health response?

Poste: I don’t characterize the swine flu episode as a fiasco. It was motivated by genuine belief that we might have the 1918 pandemic flu strain coming back, which killed fifty million people worldwide. What was done in preparing vaccine stocks in a remarkably short time was actually very impressive. Massive amounts of vaccine were generated quickly against a perceived threat. But don’t forget, that was because we know how to produce a flu vaccine. Where we got it wrong was accurate prediction of the precise flu strain that was coming. If the 1918 Spanish flu, or a near relative, had arrived, the vaccine would have saved the lives of millions of Americans.

I’ve spoken repeatedly about the decay of our domestic public health infrastructure. Sadly, the international public health infrastructure is in even worse shape. We don’t have robust data to allow us to understand what infectious agents are doing and how they could assault us, not through deliberate release but just via natural mechanisms of epidemic or epizootic spread. If we had something of comparable virulence to the 1918 influenza pandemic revisit us now, we would be very little better off than we were eight decades ago unless we had enough advance warning to mobilize the vaccine manufacturers. Antibiotics would undoubtedly save more people from bacterial complications. But a high fraction of the people who died in 1918–19 weren’t just the very young or the very old, or those with cardiac or lung problems; it was people in that age range of twenty-five to forty-five, who are normally the most resistant.

Goldsmith: But when you examine the swine flu episode, there were multiple months of delay in that response—from the political debate over liability and from the reluctance or unwillingness of drug companies to assume it. Then, when Congress resolved the question of making the federal government liable, there was an entirely predictable flood of liability actions. Have we learned anything from that? Is the liability problem, which is far worse now, going to delay the political and scientific response to a legitimate new threat?

Poste: Absolutely. Welcome to the perversity of tort activity and U.S. society’s abandonment of any pretense of understanding risk and benefit. Modern society wants it all. It wants technology to solve all of its problems and at the same time to have zero risk. But people believe it because politicians and the media have told them they can have zero risk, and if there is a problem there must be some conspiracy by greedy multinational companies. There’s no such thing as zero risk. You’re also right in stating that the delay was compounded by failure to provide indemnification to vaccine producer companies. On the other hand, if companies had gone ahead and produced the vaccine, who would have been the first to launch lawsuits if there was a problem? Either their shareholders for fiduciary irresponsibility if share price collapsed, or lawyers representing vaccine recipients.

The problem lies not in pharmaceutical science. Rather, it reflects the urgent need for tort reform in the United States and a more sophisticated debate about risk and benefit. The Vaccine Injury Compensation Bill went some way toward addressing this problem. If a vaccine carries a small, but nonetheless real, risk of injury, the bill established a superfund-type mechanism in which a small surcharge was applied to every vaccine to create a compensation fund for the people who were unfortunately affected by the real, but unavoidable, very low incidence of adverse reactions. When my child or your child is affected, statistics don’t mean much. You just want revenge, and the courts have provided the mechanism. In the case of injury produced by drugs or vaccines against bioterrorist weapons, most will not have been tested in human beings. It is impossible to test them for efficacy and safety in clinical trials since the organisms in question do not occur naturally or are too dangerous to infect volunteers. This raises a plethora of in-
demnification issues. Even if you solve the indemnification issue, the government has also got to reform its purchasing practices if manufacturers are to have sufficient economic incentives to produce these products. If a pharmaceutical company is to commit three to four hundred million dollars of capital investment, with a construction lead time of four to five years, to build a manufacturing facility for just for a single vaccine, it needs guarantees to ensure that the government won’t bail out after one year, leaving them holding the debt baby.

**Liability Laws And Regulatory Plans**

**Goldsmith:** Let’s leave aside the capital investment for a minute. Isn’t there a fairly compelling argument for suspending the traditional liability laws in dealing with a biothreat?

**Poste:** At one level, yes. But it shouldn’t create a vehicle that predisposes pharmaceutical and biotechnology firms to adopt shoddy practices. A more important requirement is that the FDA (Food and Drug Administration), and equivalent regulatory agencies overseas, must have in place well-defined plans for approving drugs and vaccines on the basis of the so-called animal efficacy standard (that is, without human protection efficacy trials). The FDA has been tardy in producing standardized guidelines for the evaluation of drugs and vaccines against biological agents. We’re told that these will soon be forthcoming.

The pharmaceutical industry (and its stockholders) cannot be expected to spend vast amounts on R&D for no commercial return. Each constituency in the debate has a legitimate excuse for its inertia. What we must now shape is a new national agenda to address these complex technical, regulatory, legal, and commercial issues. What has happened in Washington since September 11 isn’t the way to deal with it. As stated earlier, there is no overarching plan for national biodefense. We lack clear priorities, and there is little to no assessment of the technical feasibility of the large number of questionable and overhyped proposals now being offered by academia, government laboratories, and industry as they seek to tap the new funding bonanza. For those scientific tasks that may well require more than five to ten years to complete, you may wish to be more prudent in what you disclose to our potential enemies, because it identifies our Achilles’ heel. On the other hand, we also need policymakers to understand that biodefense is not simply a one-time problem that is solved by throwing billions of dollars around without a plan.

**Who Pays The Bill For Preparedness?**

**Goldsmith:** Less than 10 percent of U.S. hospitals even have an electronic medical record, so 90 percent of the hospitals, including the public ones, are still dealing with paper records, with no potential for interoperability for moving the information quickly or connecting to a national surveillance system.

**Poste:** Exactly.

**Goldsmith:** That’s certainly not going to be resolved in a few months.

**Poste:** And certainly not with the amount of money that’s been allocated to it in recent counterterrorism funding initiatives.

**Goldsmith:** Is that a federal responsibility? I mean, billions of dollars are being spent out of private resources now to computerize clinical information systems. Is there a national security case for a federal contribution, and is there going to be enough risk to this society in having such a large portion of that point-of-care interface be noncomputerized that it makes sense to invest in it?

**Poste:** I don’t know. The key question is the one I raised earlier: Who pays for preparedness? It is probably the responsibility of the federal government, and national governments everywhere, to establish a basic template of financial resources and performance expectations. On the other hand, one cannot view this
simply as a “let-government-solve-it” problem. Crucial problems in biodefense preparedness also arise from the long-standing levels of inefficiency in health care and variations in clinical practice. These have nothing to do with failing to prepare for bioterrorism. They reflect the pervasive reluctance of health care professionals to embrace change, the snail’s pace of adoption of automated clinical systems, and the cultural paranoia of the medical profession toward anything that challenges its primacy in decision making even when current performance parameters in such decision making leave much to be desired. The extravagant variability in clinical practice between medical centers is unequivocally the responsibility of the health care system to reform.

These words roll easily off the tongue. Given the economic frailty of U.S. hospitals and the escalating expense of new technologies and medicines, both the public and politicians have failed to see that their strident cries for universal access to care and the constant slanders against the cost of care are destructive catalysts for triggering a future health care crisis. Again, this has nothing to do with bioterrorism. It reflects the problem that no one wants to talk about: how to balance finite health care resources against infinite demand.

**How Ready Are We?**

**Goldsmith:** If you had to assess our degree of readiness to respond to an organized threat of bioterrorism, where are we now?

**Poste:** Given that there is no single definition of “bioterrorism,” the answer depends on what you are encountering. If you have to deal with twenty-three cases of anthrax, as in the recent incident, then we’re fine. But if you had to deal with a thousand cases of anthrax, or millions of cases of smallpox, it becomes a very different issue, with far less sanguine outcomes. In short, it’s the magnitude of the threat relative to response capacity. If we had to treat several hundred thousand people, not in terms of acute or critical care units, but just to have them interface with the medical system to receive drugs and so forth, we would also reveal the cracks in the system. If we had to rapidly vaccinate more than a couple of million people in a very short time, even assuming that we had a vaccine available, this would also likely stress the system beyond its capacity. Just a few hundred cases, or at most a thousand cases, of a bioattack that required intensive care of the victims would collapse the current capabilities of most metropolitan hospitals in the United States and Europe.

The challenge in formulating biodefense postures is that the spectrum of risk is so broad, ranging from very few casualties to hundreds of thousands to millions. It saddens me to say this, but the vast majority of Americans, even though they were shocked by the events of September 11, are quickly reverting back to worrying more about whether the estimable Mr. Combs wishes to call himself Puff Daddy or P Diddy, and the circuses of Hollywood and professional sports again provide comfortable diversions. They have lost sight of the fact that America will almost certainly be bitten again by terrorist assaults. A comfortable, complacent society that is cocooned from risk is a great target for our enemies. Too many people in Washington feel that by dispensing billions in the wake of September’s horrors, they’ve done their bit and all is now well. They believe this in no small measure because the people who are the beneficiaries of the funding have told them that it will indeed be so. Let us hope that they are right.