A REVIEW OF FEDERAL BIOTERRORISM PREPAREDNESS PROGRAMS FROM A PUBLIC HEALTH PERSPECTIVE

HEARING

BEFORE THE

SUBCOMMITTEE ON
OVERSIGHT AND INVESTIGATIONS

OF THE

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A REVIEW OF FEDERAL BIOTERRORISM PREPAREDNESS PROGRAMS FROM A PUBLIC HEALTH PERSPECTIVE

WEDNESDAY, OCTOBER 10, 2001

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:15 a.m., in room 2322, Rayburn House Office Building, Hon. James C. Greenwood (chairman) presiding.

Members present: Representatives Greenwood, Stearns, Burr, Bass, Tauzin (ex officio), Deutsch, Stupak, Strickland, and Rush.

Also present: Representatives Ganske and Buyer.

Staff present: Tom DiLenge, majority counsel; Peter Kielty, legislative clerk; and Edith Holleman, minority counsel.

Mr. GREENWOOD. The hearing will come to order.

Good morning. We welcome you all and apologize for the slight delay. The Chair recognizes himself for an opening statement.

Today's hearing is part of this subcommittee's long-standing interest and oversight of bioterrorism issues which led to the unanimous passage of the Bioterrorism Prevention Act of 2001 by the full committee just last week.

Today, we turn our attention to an acutely critical area, our Nation's preparedness to deal with the threat of bioterrorism. Since May of this year, members of the committee and committee staff have been busy investigating the capacity of Federal, State and local public health officials to respond to these kinds of threats and dangers.

When this subcommittee announced 5 weeks ago its intent to hold a hearing on September 11 to examine the effectiveness of Federal bioterrorism preparedness from a local public health perspective, a concern at that time was that too little attention was being paid to improving the ability of our local health care communities to detect, contain, treat and effectively manage a terrorist attack using deadly biological agents, or for that matter, any naturally occurring disease outbreak or disaster with mass care consequences.

The evil that was visited on our country and the world on September 11 has changed all of that. It is now clear that the people who perpetrated this deed are unconstrained by any sense of morality. The only restraint on their form of ideologically inspired madness is the limit of the technology that they can acquire. And

though the weapons of choice on that day were jetliners filed with innocent passengers and not anthrax or the plague, September 11 prompted this Nation to seriously reexamine how we prepare for all types of terrorist attacks, including bioterrorism.

There is much anxiety. Some of it is fueled by the almost daily stories on the networks and in our major newspapers detailing our lack of preparedness for bioterror assaults. Congressional committees are also busy holding hearings to examine this potential threat and the efforts to combat it.

The detection of the anthrax bacterium in a Florida workplace and in two workers at that site, one of whom already has died, has raised the temperature on this issue even higher. Nevertheless, while there is legitimate reason to be anxious, it is the duty of Congress to confront and reduce that anxiety by making sound public policy choices. And big questions remain unanswered about how best this Nation should approach bioterrorism defense.

Our mission today is to engage in a dialog with the public health officials who would be in the vanguard of any response to bioterrorism, so that we in Congress build the right kind of working partnership between all levels of government, as well as assemble the necessary Federal resources that will best enable them to address this threat. I hope to accomplish several objectives with continuing, indeed increasing, importance.

First, as we embark upon what most likely will be an major new Federal initiative to improve our bioterrorism preparedness, I think it is critically important that Congress hear directly from the health care front lines—the hospitals, the physicians, the emergency medical personnel about how they view the existing Federal preparedness programs and what some of the past barriers have been to successful preparedness programs in the health care community.

Too often the concerns and needs of these groups which will constitute our first line of defense in any real bioterrorist incident have been overlooked or ignored in our race to do something about terrorism. Hopefully, our hearing today will help to change that.

Second, and just as important, I believe it is essential that we at all levels of government approach bioterrorism preparedness from a broader public health perspective. This makes good sense for several reasons, but most of all because it will be difficult to justify the costs or sustain accomplishments over the long run if we focus too narrowly on a threat that many in the health care community may rightly perceive as small when compared to the tremendous daily challenges facing our health care systems.

While there is a considerable debate about the likelihood of a mass casualty biological terrorist attack, there was near universal agreement that our public health infrastructure itself is in need of CPR.

What do we mean when we use the term "public health"? The basic elements are pretty straightforward: clean water, a plentiful and uncontaminated food supply, clean air, wastewater treatment, and the ability to respond and control epidemics. Unfortunately, in recent decades, we have allowed the capability of our public health departments, laboratories, and hospitals to deal with major disease outbreaks to stagnate or even deteriorate. Between 1981 and 1993,

for example, State public health budgets declined as much as 25 percent. To now ask them to take up the additional burden of responding to bioterrorism without substantial new resources and direction would be to risk a breakdown of the entire system.

Last, we need to take a good, hard look at how we are spending and will continue to spend Federal dollars in this area to ensure better allocation of existing and future resources devoted to this purpose. Everyone gives lip service to the idea that our local communities are and will remain the principal responders to terrorist events. Yet most of the billions of dollars spent each year on combating terrorism never finds its way beyond the Capital Beltway.

We need to change that reality, particularly given that all of the Federal assets and specialty teams that have been created for this purpose make two fundamental assumptions in their response plans: first, that timely surveillance and detection activities will be made at the local level; and second, that the local response teams possess the resources and capabilities to effectively manage an emerging crisis within a critical 12 to 72 hours before Federal assistance arrives on the scene.

As we will hear today, those are two big assumptions.

Before I conclude, I also want to announce that this subcommittee plans to hold another hearing on this topic on October 25 to explore the related and equally important issue of public health surveillance and detection systems, and how technological advances in these areas can help in our battle against bioterrorism, as well as against naturally occurring disease outbreaks.

I thank our witnesses today and now recognize the ranking member of this subcommittee, Mr. Deutsch, for his opening statement.

Mr. DEUTSCH. Thank you, Mr. Chairman.

Last Thursday, I had, I guess, just certain difficulty, as this meeting was originally scheduled for September 11, with meeting with the county chairperson of Palm Beach County, the county chairperson of Broward County, and the mayor of Miami-Dade County in the early afternoon. At that point, they were actually up here in terms of the potential supplemental bill and in terms of talking about issues related to it. And in the course of our discussion, you know, we were talking about other issues. And I was talking about our committee and our jurisdiction.

As many of you are well aware, our committee has jurisdiction over the CDC, and we were talking about issues of threats of bioterrorism. And I proceeded to go through what I was aware of at the time, the sort of plan that exists and how good that plan is, and how CDC is supposed to move in automatically and provide all sorts of resources.

And as it so happens, unbeknownst to me at the time, but beknownst to the chairperson from the County of Palm Beach, an anthrax case was diagnosed in Palm Beach County. And the three heads of the three counties in South Florida, where the population is close to 6 million people, they didn't go into outbreak laughter, but they basically said that what I was describing was not reality.

And it was not reality at that moment in Palm Beach County, and it was not reality of what could exist in Broward or Miami-Dade Counties. And, you know, we understand—and the Secretary of HHS has been on television on several occasions since last

Thursday telling the American people, don't worry, relax, we are ready, we can deal with this.

Based on this sort of empirical thing of the leadership of the three counties in South Florida, I have real concerns, and I expect that we will have testimony today that will essentially substantiate that.

This issue, though, is obviously much different since September 11. I think all of us are much more knowledgeable about not just terrorism in general, but bioterrorism, bioterrorism in particular. It is no longer theory; it is a reality in many ways; and I think, just to put on the table at the start of the hearing, chemical weapons were used over 10 years ago by both Syria and Iraq. And I think there is absolutely no reason to think that terrorists don't have available those weapons today; and the only restricting factor could be a delivery system.

So we are no longer talking about some esoteric, theoretical issue; we are talking about a practical issue. As awful as the horrific events that occurred at the World Trade Center were, I think all of us understand that the potential is far in excess of those events in a direct attack.

Now, the good news is, there are things that we can do in terms of intelligence and also in terms of public health to prevent that. And that clearly has become the highest, or as high a priority as any that this Congress faces.

I yield back the balance of my time.

Mr. GREENWOOD. The Chair recognizes for an opening statement the chairman of the full committee, Mr. Tauzin.

Chairman TAUZIN. Thank you, Chairman Greenwood, for holding this very critical and timely hearing on how this Nation can best prepare for the possibility, however small, of any kind of major bioterrorist event. I believe this committee, as the principal public health committee on this side of the Capitol, must take the lead to ensure that the Nation can, in fact, tackle this very difficult issue.

Given what we read in the newspapers, what we see on television, the American people understandably are concerned about the threat of bioterrorism. It is true that—as we will hear today, that we need to do more. So we need to do more to fully prepare our Nation for this kind of a possibility.

It is also true, after September 11, that we have all, I think, underestimated the evil and the sophistication of our enemies, unfortunately, at our own peril.

That said, we should not allow undue public concern or worry to develop over what most experts believe is a relatively remote threat and one that is technically very difficult to carry out. That is why it is imperative that we approach this issue in a very thoughtful and a very measured way. I am glad to see that that is exactly the approach that you, as chairman, and the subcommittee have agreed to take.

Let me expand quickly on three points that Chairman Greenwood has raised. First, we need to start a serious public debate about some of the big questions that he alluded to, the questions that remain unanswered today: What are we preparing for, and what is the measure of our preparedness? In other words, what are we trying to achieve and how do we know when we have achieved

it? How do we know that we have reached the point where we can assure the American public that we are prepared, and that we are prepared not only to assure their safety, but to react in the worst case?

Our staff hears over and over about the health care front lines, that the people who operate those lines, what is not happening, where direction is not being given, where guidance from Federal experts to properly prepare for a bioterrorism event might, in fact, be helpful.

We need to change that. We need to make sure the lines of communications are clear and that people understand guidance and direction in this area as clearly as anything else as we face these threats.

Second, this is not, as some would think, just a question of more money. There is a reason that today's hearing is before the oversight committee. We have already spent at the Federal level billions of dollars in this area and more than $200 million annually on health-related programs alone. Secretary Thompson says he needs at least $800 million more for bioterrorism preparedness, probably more in the future. That is not small change, and it is incumbent upon this committee to make sure that both existing funds and new funds are used in the most effective and measured way.

Again, that means the big questions need to be addressed: Where should we be spending our money for the most safety and security?

And third, I want to echo Chairman Greenwood's comments regarding the importance of really listening to our brethren in local jurisdictions around the country, particularly those in the health care community. As one of our witnesses today states so well in her written testimony, it is the local emergency medical personnel, the hospitals, the health department administrators, the doctors and nurses and support staff in the communities where we live who are going to be the people whose actions and decisions will determine just how contained or how damaging any bioterrorism incident ultimately will be.

There are people who will detect an outbreak and treat their fellow citizens often putting themselves at risk as well as, and they should not be ignored by the Federal Government that so often focuses too much on itself when devising responses to bioterrorism.

One final thought: Our full committee has been briefed very deeply by Secretary Thompson on the nature of those potential threats. We are not about to join the leakers around town who talk about things we shouldn't talk about. But I want you to know that as we went into that briefing, my concern levels and, I think, the concern levels of every member of this committee were extraordinarily high; all of us felt more assured after that briefing than before we had it.

Secretary Thompson and his department are aggressively working and private sector components of the effort to prepare this country are aggressively working not only to beef up the already deployed stocks of vaccines and other pharmaceuticals that are important for us to be able to respond to any such threat, but also to make sure that there are new quantities and new, appropriate steps taken to protect our citizens not simply from the advent of

the incident, but equally important, to take care of our citizens should the worst ever happen.

Now, look, I got a call from a doctor at home. I am sure you all did. And people were calling them because they have heard stories and they want to know about what they can do personally to prepare themselves.

The best preparation we can all have in this area, as in so many areas, is to be the best citizens we can be, to be on our guard, to go about our lives and to conduct our businesses—as the President said, to hug our children, but also to be on our guard, to be good citizens and to be helpful and supportive of the agencies of our government that are trying to make sure nothing like this ever happens in this country again, or anything like it should happen in the future.

And the second thing is to have what I have—what I am beginning to have in greater degree: a great deal of faith in the notion that everybody at this level is working day and night to ensure that our preparedness is at its top, its best; and the money we will allocate and spend will have been directed, as the chairman said, to the most important places where our country needs to be prepared.

This Nation has come together very well. And Mr. Chairman, this hearing, I hope, will be another effort to make sure that the country knows that its government is not sleeping, that we will not rest until we are sure that the American public and this Nation are as protected as we can make them and as prepared as much as we can for the worst of circumstances, should we ever experience them again.

Thank you, Mr. Chairman.

Mr. GREENWOOD. The Chair thanks the chairman for his opening statements and for his presence, and recognizes for an opening the statement the gentleman from Michigan, Mr. Stupak.

Mr. STUPAK. Thank you for holding today's hearings on the subject that I have been interested in working on for the past few years. Bioterrorism has suddenly taken center stage, and we welcome comments from today's participants on this topic.

Last year, Congressman Burr and I cosponsored a public health and emergencies act, which was rolled into the health omnibus bill. It is the logical next step to evaluate our Nation's preparedness.

As a former law enforcement officer, I am well aware of the logical difficulties in implementing a country-wide or county-wide public health response; and I am eager to hear today's witnesses and their advice on how best to build on what Mr. Burr and I started last year.

I was especially pleased and gratified to see Secretary Thompson recently invoking the law that Mr. Burr and I worked so hard to pass last year, specifically relating to bioterrorism. It is my understanding Secretary Thompson was able to ship medical supplies and assistance to the victims of the September 11 terrorist attack in New York City as easily as he did because of the language that we inserted in our legislation last year.

The logistical elements of coordinating our efforts are staggering, to stay the least. Effective communications mean establishing links among public law enforcement, local health departments, clinics

and hospitals, so that critical data in an emergency situation can identify, contain, and respond to an emergency efficiently. However, we lack the personnel and the resources to do this.

For example, if a bioterrorism attack occurred on Friday afternoon after office hours, there would be no one to report it to until Monday morning. The way most health departments are currently set up, that would be the situation.

No one wants to spread unnecessary fear or alarm, but I have to question, just how organized is the Nation's public health system to respond to bioterrorism? No hospital or geographically contiguous group of hospitals can effectively manage even 500 patients demanding sophisticated medical care and supplies, as would be required in a case of the outbreak of anthrax.

The Bush administration's head advisor on bioterrorism testified yesterday morning in front of a Senate panel. He said in the event of a contagious disease outbreak such as smallpox, far fewer patients could be handled, testified the expert, Dr. Donald Henderson, Director of Johns Hopkins's Center for Civilian Biodefense Studies. That is a good fact to know and a compelling factor to consider in our deliberations today.

Mr. Chairman, I thank you for holding this hearing and for holding a future hearing on October 25, and I look forward to hearing from our experienced panels of witnesses on this issue today. Thank you.

I yield back the balance of my time.

Mr. GREENWOOD. The Chair thanks the gentleman and recognizes for an opening the gentleman from New Hampshire, Mr. Bass.

Mr. BASS. Thank you, Mr. Chairman; and I appreciate your holding this important hearing. As the distinguished chairman of the committee has mentioned, the issues here are what we are preparing for and what measure of preparedness should we take.

Over 2 years ago, the Intelligence Committee had a public hearing on this very subject. I had the pleasure of participating in that hearing, and suffice it to say that there has been awareness and action undertaken both on the military and on the civilian side to prepare for this kind of eventuality.

I think, however, it is important, as we consider the issues here, not to scare people or create mass paranoia, but to inform and educate the people so that we can be alert and aware of what we need to look out for, not for Congress to overreact—or government, for that matter—but develop and implement good, effective public policy that will be in the best interests of the American people.

This hearing is a good beginning. I look forward to hearing the testimony from the distinguished witnesses.

I yield back.

Mr. GREENWOOD. The Chair thanks the gentleman and recognizes the gentleman from North Carolina, Mr. Burr.

Mr. BURR. Thank you, Mr. Chairman.

We are here today to look at bioterrorism preparedness. We are probably a little late, in all honesty. But what we find when we examine the issue is, we find a number of entities within the Federal Government, a number of different agencies with funding and with efforts to address our preparedness—some because of the oversight

restrictions of committees that fund duplicative programs, some where one committee might determine that the money is directed in the right place. We see the participation of other agencies in the same area.

And now, since September 11, we have begun to look at it in its entirety and, in many cases, with a microscope.

Let me suggest, had we held this before September 11, we would have highlighted one thing today, and we will at this hearing: What we had put in place as it relates to the national medical response network of four private sector entities that could be called up at any time, given that there was threat of a bioterrorism attack. Had we had the hearing before September 11, I am not sure that we would have looked as closely at our response capabilities federally and locally like we do today.

So I think for the American people the benefit of us having this hearing post-September 11 is tremendously advantageous.

Mr. Chairman, we have got a challenge. As a member of the Intelligence Committee—Ms. Harman is on the Commerce Committee—we understand the efforts that are under way, we understand the challenges that we will place on health care professionals in every community across this country.

The only way that Congress can fall down on their job is to make sure that the resources that we make available do not get to the entities that need the equipment and that need the training to respond in a timely fashion to a threat that exists somewhere in America.

Our ability to pinpoint that threat does not exist and will not exist, but our capabilities to respond to the threat and to minimize the effects exist today. If the Congress of the United States can find a way to coordinate the resources, the existing resources and the potential future resources, we will have a tremendous opportunity with the confirmation of Governor Tom Ridge in his newly designed post.

And, Mr. Chairman, I hope that we will learn a lot about our health preparedness and our response capabilities today; and I hope that all members will begin to think, and those entities that are here to testify will begin to think, how it is that we help design this new post for Governor Ridge, so that he has the budgetary authority to make sure that the dollars are directed where they can do the most good for the threat that we perceive and for the comfort of the American people.

Even though we are an oversight arm of the Commerce Committee, we are limited to a great degree by the efforts of Health and Human Services and to—to their dollars that they spend on health. Given that there are eight Federal agencies and eight committees of jurisdiction where we don't have collaboration between oversight committees, the only way that we can function with the degree of confidence that we need to have to make sure that American people are, in fact, protected and that our response capabilities are the best, is to make sure that we have an entity within the Federal Government, like Governor Ridge, who is in charge of making sure that every agency is held accountable for every dollar that goes into our preparedness and our response capabilities.

I look forward to the panel that the committee has before us today. And with that, I yield back.

Mr. GREENWOOD. The Chair thanks the gentleman and reiterates that this hearing was originally planned for July, and we decided to wait for the GAO study. And of course, the great irony is that we noticed the hearing for September 11.

The issues remain the same, only the urgency has changed.

The Chair thanks the gentleman and recognizes the gentleman from Iowa, Mr. Ganske.

Mr. GANSKE. Thank you, Mr. Chairman. I ask consent to submit for the record my full statement.

Mr. GREENWOOD. Without objection.

Mr. GANSKE. Which would be about 30 to 40 minutes and I am sure——

Mr. GREENWOOD. I am sure there are no objections.

Mr. GANSKE. I think some of the remarks that have been made so far bear repeating briefly; and that is that we should not scare people, but we need to be responsibly concerned about the threat of bioterrorism, and it is something that this Congress has been working on in the past few years.

A couple of years ago we passed a bill outlining a number of ways in which to better combat a potential bioterrorism attack. In that legislation, sums were authorized for Federal expenditures. We need to fulfill those authorizations, and as the chairman pointed out, probably expand those authorizations and actual appropriations. Because we are dealing with the situation, with bioterrorism, where the first line responders will not be policemen or firemen, but they will be doctors and nurses and hospitals and public health facilities; and there are a number of things that we need do to bolster that public health component.

For many years now, public health services have been not funded, I think, at the levels that they should be. They need to be better coordinated between Federal, State and local and city units. That is something for Governor Ridge to work on and for Congress to work on, too, in order to facilitate that.

We are going to hear something about smallpox and about anthrax today. Smallpox, as a physician, I can tell you that there is probably no one in this audience today who is immunized against smallpox. The immunizations for that were discontinued years ago, were effective for a period of time.

Then, we supposedly eliminated smallpox from the planet, except that it was kept in two repositories, that were supposed to be secure, both in the United States and in Russia. I think it is fair to say that it is possible that there are smallpox strains elsewhere in the world, for instance in Iraq, possibly in other places in Russia.

There certainly is expertise among Russian scientists who have worked on bioterrorism projects. That is available around the world. And we know that the—we are facing increasing levels of sophistication in terms of terrorist attacks, so these are some things that we need to be concerned with.

Smallpox is extremely catchy, and it can be 30 percent fatal in people who are not immunized. So we need to do things about increasing supplies for vaccines, surveillance, things like that.

Anthrax is a little harder to distribute, but it is more fatal if you get it in the pulmonary form. I will be interested in seeing or hearing testimony today about this strain in Florida that, according to newspaper reports, can be traced to an Iowa facility from the 1950's.

But I also want to talk about the bioterrorism attack in an economic way, and that is something that I and members of the Agriculture Committee have been concerned about for many, many months, long before the September 11 attack; that is the foot and mouth disease problem.

We have seen what has happened to agriculture in areas around the world where—particularly Europe, where this has hit. We have been concerned about proper USDA surveillance, CDC surveillance, things like that for this disease. It is not particularly harmful to humans, but the economic devastation on our agriculture community could be incredibly, incredibly devastating.

I know that there will be some farmers who will be listening to my testimony right now that would probably not want me talking about this, except for the fact that this has now received front page and headline stories in major magazines like Time magazine, so this is not something that is secret. We need to be looking at ways to secure our agriculture in terms of an economic attack on our country, as well.

And finally, I think that we can all hope and pray that we do not see a massive epidemic. I think that with better coordination, with better funding of our public health services, we certainly could see some additional benefits in our ways for our country, and I look forward to the testimony.

Thank you, Mr. Chairman.

[The prepared statement of Hon. Greg Ganske follows:]

PREPARED STATEMENT OF HON. GREG GANSKE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA

Tuesday September 11th is forever seared into our minds. We will never forget the images: airplanes flying into buildings and exploding, people choosing to jump off buildings rather than burn to death, buildings collapsing on rescuers, clouds of vaporized concrete, steel, glass and thousands of humans rolling down the streets like a volcanic eruption . . . the Stars and Stripes framed by the flaming crater that was the pyre of 195 soldiers and civilians at the Pentagon. Our hearts go out to the victims and their families.

We watched those images and they didn't seem real. The spectacle almost disguised the human toll. At first the magnitude of this tragedy made it hard for most Americans to grasp. But everyday the newspapers now put faces on the victims and their families. The shock has worn off and we are left with grief, the deepest grief. We read those obituaries and find ourselves tearing up. I don't know about you, but I can only read a few each day before I must stop.

We've learned the stories of the brave passengers on United Flight 93 who bid their loved ones farewell pledging that they were going to go down fighting. Their plane crashed but those heroes saved many lives in Washington—perhaps even my own. We are humbled by their courage and their sacrifice! Ordinary Americans who in 45 minutes became heroes.

We remember the final recorded words of the men and women hopelessly trapped above the fiery inferno of the World Trade Center—messages of love to their families.

In Corinthians the Bible teaches; "So we do not lose heart. Even though our outer nature is wasting away, our inner nature is renewed . . . for we know that if the earthly tent we live in is destroyed, we have a building from God, a house not made with hands, eternal in the heavens."

Each of us will carry our own memories of 9/11. I will never forget the sense of unity as 170 bipartisan members of Congress, not Republicans or Democrats but

Americans, stood on the front steps of the Capitol in the lengthening evening shadows of that Tuesday to say a prayer for our country and its victims . . . and then we sang America the Beautiful. Our message then—and today—and tomorrow is that we are one Republic, united we stand. Terrorists can challenge this nation's spirit—but they cannot break it!

In righteousness, we *are* hunting down . . . to the ends of the earth if necessary . . . the assassins of our brothers and sisters, mothers and fathers, husbands and wives, and children. We *will* do what is necessary to win this war that has been declared on us. The victims deserve justice and our people deserve security. We are meting out justice to these terrorists, and we do distinguish between terrorists and those who harbor them and the rest of the Muslim world.

But Christians, Jews, and Muslims must all understand that the Osama bin Ladens, are leading to the destruction of all religion and society . . . if the Muslim fundamentalists don't realize that the war will go on and on.

Take the radical Islamic-fundamentalist Taliban regime. This is a government so oppressive that it executes little girls for the crime of attending school. Girls, aged 8 and older, caught attending underground schools are subject to being taken to the Kabul soccer stadium and made to kneel in the penalty box while an executioner puts a machine gun to the back of their heads and pulls the trigger. Spectators scattered among the stands are then encouraged to cheer.

An Afghani woman was beaten to death recently by an angry mob after accidentally exposing her arm. Osama Bin Laden's treatment of women is so barbaric that he orders their fingernails and toenails pulled out if they are painted. Women have almost no health care because male doctors are forbidden to touch female patients and there are very few female doctors. The beating, raping and kidnapping of women are commonplace.

A reporter for CNN recently told of meeting a family of three little girls hidden under their scarves and garments while their father stared into space. The girls had apparently not moved in weeks . . . they had been made to watch as the Taliban militia shot their mother in front of them and then stayed in their home for two days while the mother's body lay in the courtyard. The reporter asked the girls what the Taliban men did to them during those two days . . . they just wept silently.

The Taliban is rounding up men from villages. Those that don't join willingly are shot. There are news reports of mass graves—some containing as many as 300 Afganis—scattered throughout the country.

The Taliban is taking more than a few pages from the Nazis. They require all Hindus to carry a yellow sticker identifying them as members of a religious minority. Hindus are required to put yellow flags on their rooftops, as well. The Taliban also controls the heroin trade and funds its domestic and international terrorism with drug money.

So what do we do? Well, to quote from British Prime Minister Tony Blair's magnificent speech: "Don't overreact some say. We aren't. Don't kill innocent people. We are not the ones who waged war on the innocent. We seek the guilty. Look for the diplomatic solution. There is no diplomacy with Bin Laden or the Taliban regime. State an ultimatum and get their response. We stated the ultimatum; they haven't responded. Understand the causes of terror. Yes, we should try, but let there be no moral ambiguity about this: nothing could ever justify the events of 11 September, and it is to turn justice on its head to pretend it could. There is no compromise possible with such people, no meeting of minds, no point of understanding with such terror. Just a choice: defeat it or be defeated by it. And defeat it we must." These are words worthy of Churchill.

I personally will never forget the smell of the smoldering crater of the Pentagon or the smoke unfurling into the air of lower Manhattan while at "ground zero" the firemen poured water onto the ruins of the World Trade Center that is the grave of over 5,000 innocent people.

As I stood looking at the mass of twisted steel and concrete, my thoughts turned to the words of a little girl's handwriting I had just seen a victims' family center . . . the words, "I miss you daddy!! Love you, Jenny." It is indescribably sad.

So what do we do? Just what we are doing in Afghanistan now: destroying the terrorists and their supporters. Our prayers are with the brave men and women soldiers of our Armed Forces. It must be galling to the Taliban that some of our bravest soldiers are women!

What else do we need to do? Well, if we didn't realize how important airplane security and airport security was before September 11th, we sure do now. The safety and security of our aviation system is critical to our citizens' security and our national defense.

The tragedy of September 11, 2001 requires that we fundamentally improve airport and airline safety. That is why Congressman Rob Andrews and I Introduced

on September 25th the Aviation Security Act, H.R. 2951 which is the companion bill to that offered by Senators Hollings and McCain. Our bills have bipartisan support in both the House and the Senate. Our bill would make planes' cockpits secure; it would place federal air marshals on more flights. It puts the FAA in charge of airport security operations including increased training for airport security personnel and anti-hijacking training for flight personnel. The Aviation Security Act would improve the screening of flight training so that a terrorist couldn't walk up to the counter, plunk down $20,000 in cash and say, "Teach me to fly a jet and, oh by the way, I'm not interested in learning how to take off and land . . . just teach me to steer the jet!"

Our bill would pay for this with a $1 charge on airline tickets. When I talk to Iowans, none of them say this is too much to pay for increased airline security. I don't want more families writing letters like another one I saw at the victim's family center: "Danny, I will love you always—you will always be in my heart. Love Chris and your son, Justin."

So what do we do about other terrorist threats like the possible bio-terrorist anthrax attack in Florida? First of all, we should not panic. I am speaking as a Congressman but also as a physician. Selecting and growing biologic agents, maintaining their virulence, inducing the agents into forms that are hardy enough to be disseminated and finding an efficient means of distribution is not easy for a nation to do, much less terrorists.

However, the level of coordination and the profiles of the terrorists associated with September 11, mean we must be prepared for attempts at bio-terrorism. There are nations such as Iraq that might help these terrorists in their evil plans. Clearly, we must try to root out terrorist cells before they strike. Our intelligence services must be bolstered and given the tools they need. Impoverished scientists from countries like Russia that have worked on biological weapons must be prevented from selling that knowledge to terrorists.

But it is important to understand that the first line of defense against a biological attack will not be a fireman or a policeman. It will be doctors and nurses; it will be the public health system because the ultimate manifestation of the release of a biologic agent is an *epidemic.* Smallpox and anthrax are most frequently mentioned as agents of bio-terror.

Officially, only two stores of the smallpox virus exist, for research purposes, in secure locations in Russia and the U.S. . . . but there may be covert stashes in Iraq, North Korea and in other places in Russia. People who were vaccinated before 1972 have probably lost their immunity and routine inoculations were halted around the world in 1972. Most people would therefore be at risk. Smallpox is very "catchy" and about 30% fatal.

The first victims of smallpox would likely be the terrorists themselves, but remember, these are people who commit suicide to spread terror. Inhaled anthrax is fatal about 90% of the time, 20% of the time if infection is from contact with animals. Its spores are resistant to sunlight, but manufacturing sufficient quantities and then distributing them widely by, say, crop-duster airplane, would be difficult.

Time Magazine even talks about a terrorist attack aimed at crops and livestock that would be easier and less directly harmful to humans, but economically very harmful. Foot-and-mouth disease can spread with astonishing speed in sheep, cattle and swine. An outbreak in the U.S. could be devastating to American agriculture.

So what can we do? First, we need better coordination between the Defense Department, the State Department, the Agriculture Department, the Centers for Disease Control, state public health programs and directors, and the city-based Domestic Preparedness programs. This is a job for the new Director of Homeland Security.

Second, we must make a systematic effort to incorporate hospitals into the planning process. As of today I think it is accurate to say that few U.S. hospitals are prepared to deal with community-wide disasters for a whole host of financial, legal and staffing reasons.

There will be significant costs for expanded staff and staff training to respond to abrupt surges in demand for care, for outfitting decontamination facilities and rooms to isolate infectious patients. There will be the costs of respirators and emergency drugs. The first serious efforts to implement a civilian program to counter bioterrorism emerged in the spring of 1998 when Congress appropriated $175 million in support of activities to combat bio-terrorism through the Department of Health.

But we must do more to integrate federal, state and city agencies:

1. We must educate family doctors and public health staff about the clinical findings of agents,
2. We need to further develop surveillance systems of early detection of cases,
3. We need individual hospital and regional plans for caring for mass casualties,
4. We need laboratory networks capable of rapid diagnosis,

5. And we need to accelerate the stockpiling and dispersal of large quantities of vaccines and drugs.

The Public Health Threats and Emergencies Act of 2000 provides for increased funding to combat threats to public health and we should provide that increased funding this year.

I recently visited Broadlawns Hospital in Des Moines. Public hospitals like Broadlawns and public health agencies have not been adequately funded in recent years. They need to be bolstered in order to cope with a biological attack. Even if a catastrophic biological attack doesn't occur, and we pray it doesn't, the investment will pay dividends in other ways.

Finally, let me return to the question of understanding the causes of Muslim fundamentalists' hatred of the United States. President Bush asked in his September 20 address to Congress, "Why do they hate us?" And those of us in the audience and those at home listening to the President—still stunned by the magnitude of the attack—wondered what degree of poverty or political resentment or religious convictions could lead anyone to revel in the deaths of so many innocent people?

Shortly after the attack I was asked by the Des Moines Register newspaper's editorial board why I thought there was so much hatred of us in the Middle East. In April I had visited Israel, Jordan and Egypt. Our Congressional delegation met with the leaders of these countries and the Palestinians, but also met with people from these countries who weren't in government.

I told the editorialists that there was much envy of our wealth and dislike of our Western culture, particularly the role of women as equals. I also said it was clear that our support of Israel was significant.

But this is an incomplete answer and I do think we need to reflect a moment on what we hear when, for example, we hear the translation of Osama Bin Ladin's screed. In the end, coping with Islamic anti-Americanism has to be a component of our "war on terrorism."

As someone who has traveled rather extensively to third world countries on surgical trips, let me say that not everyone regards the United States as a greedy giant. Even critics in other countries of America's foreign policy still often praise U.S. values of freedom and democracy.

But extremism thrives in poverty. Cairo is now a city of 18 million. In the center of the old city is a huge cemetery called the City of the Dead. Years ago the authorities gave up evicting people from living in the crypts—today it is home for a million people! And population explosion in these countries is unbelievable. The breakdown of services such as garbage collection is something few Americans can comprehend.

Since the early 1970s, the populations of Egypt and Iraq have nearly tripled. As a result, per capita income in Arab states has grown at an annual rate of 0.3%. The labor force in these countries is growing faster than that of any other region in the world. This leads to large pools of restless, young men with no jobs.

Globalization has accelerated the pace of economic and social change that creates insecurity. Most Islamic states don't have democratic governments to mediate these conflicts. Generals, kings, leaders for life, and parliaments with no power lead to frustrated people.

When people feel powerless and extremely deprive—either economically, politically or psychologically—the ground is fertile for terrorism.

This sense of deprivation is part of the public backlash in those countries against globalization, modernization, and secularism. And the United States, regardless of its relationship with Israel, is the country most benefiting from globalization, it is the most modem and the most secular nation on earth. Two thirds of Egyptians and four-fifths of Jordanians consider a "cultural invasion" by the West to be very dangerous, according to a 1999 survey.

So what can we do? First, there is no compromise with people that celebrate killing 5,000 people and would celebrate even more if they killed 50,000. We will hunt down and destroy these assassins of our brothers and sisters, mothers and fathers and our children.

We must also understand the region better. We do need to help those countries tackle their underlying economic woes. We had to fight a Second World War because of the failure of the Treaty of Versailles, but the Marshall Plan helped us secure a safe Europe after W.W. II. President Bush is already starting in this direction with Pakistan. The Jordanian Free Trade Agreement is also an important step, especially symbolically.

Education in the region is a problem. Secondary school education is low, illiteracy is high, and fundamentalist Islamic sects have filled the void. Those fundamentalist sects educate, feed and clothe the poor and they win converts to their hatred of the West.

In Egypt and Jordan the state forbids the teaching of jihad in those schools. As a condition of U.S. foreign aid, Pakistan should do the same. Many of the Taliban are products of those schools that teach hatred of us.

The United States should do more to promote democracy in the Middle East. This means promoting free and fair elections, judicial and legislative reform and rule of law. An investment in these countries could be well worth the cost. Consider that the Wall Street Journal is estimating the World Trade Center Attack to be costing the American economy over $100 billion!

This war that we are in is a fight for freedom and justice. Whether it is our military, our intelligence agencies, our resolve to make airports more secure and our public health system better, I see around this country the will and resolve to win this war. Our parents fought World War II. Each generation is called on to sacrifice and I see the valor of my fellow countrymen in its soldiers, and firefighters and policemen and nurses and ordinary Americans, who in 45 minutes became heroes.

This is our generation's challenge. It is *our* turn to fight for freedom and justice. We *will* do our duty.

Mr. GREENWOOD. The Chair thanks the gentleman for the abbreviated version of his opening statement and recognizes the gentleman from Florida, Mr. Stearns.

Mr. STEARNS. Good morning and thank you, Mr. Chairman. Like my other colleagues, I wanted to commend you for holding this hearing today. Looking at the two panels, of course, we have folks from the private sector and folks from the government, so we will be able to get a good cross-section of answers on some of our questions.

How should our Federal Government shore up our defenses against enemies who would harm us not with bullets but using bacteria or viruses in our streets, subway cars, crops or water supply? We have had several what-if scenarios recently. In Florida, of course, one individual contracted the anthrax bacterium and now a coworker has also been tested positive for anthrax as well.

The FBI and CDC, of course, do not believe there is any relationship to the September 11 attack, but I think all of America has felt a collective shiver upon learning this news last week, and this occurrence, this so-called "random illness" so soon after the September 11, was quite a concern.

I think the fundamental questions we have for those panelists is, do we have preparedness? Are we prepared to deal with this crisis in America? And do we even have a definition that the public health community is working off of, State, Federal, and local, in dealing with these types of viruses and bacteria?

Also, do we have the resources that are properly placed for both the State and local governments in the health care communities to sufficiently help solve this problem and clear up and provide specific guidance about how we are going to deal with bioterrorism situations?

And so I think, Mr. Chairman, just airing those two ideas about what constitutes preparedness and whether we have the resources available in this country and at the State, Federal, and local level, and do the health care communities have the specific instructions on what to do, is extremely important. So I commend you for putting this hearing together.

And to—ultimately, not to overreact but put in perspective what we can do to prepare, and to make sure that all of us are safe.

And I yield back, Mr. Chairman.

Mr. GREENWOOD. The Chair thanks the gentleman from Florida and would note, on our second panel, we will hear from Dr. Scott Lillibridge from to the Office of the Secretary, Department of Health and Human Services, who will give us an update on the Florida situation.

That concludes the opening statements.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. TED STRICKLAND, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

I would like to thank Chairman Greenwood and Ranking Member Deutsch for holding this hearing on an issue that has always been important but has added urgency after the September 11 attacks. On that day, we saw the almost unimaginable happen. I am glad the Subcommittee is today addressing what the needs of our country will be should a bioterrorism attack causing an epidemic occur. In addition, I would like to thank the witnesses for sharing with us their expertise about local communities' readiness and needs.

First, I want to echo the sentiments of my colleagues who warn that confronting the threat of bioterrorism with anything short of calm and thoughtfulness will lead to a response that is both ineffective and wasteful of taxpayer money. Bioterrorism agents are difficult to turn into weapons of mass destruction and easily degrade in the environment: simply, science does not currently hold the mechanisms needed to easily create the threat of a likely bioterrorist attack. However, as science advances, the risk of such an attack will increase, and our country must be prepared. It is essential that our approach to deal with such an act enhances the ability of our local agencies by giving them the resources they need to monitor and respond to all public health threats, including bioterrorism, flu epidemics, and other challenges to the health of our entire population. And by coordinating the many Federal programs that have a role in mitigating the effects of any bioterrorism attack, we will improve our nation's ability to respond and potentially save many lives.

As a representative of a rural district, I am particularly aware of the workforce shortage concerns expressed by the hospitals in my district and the effects of these shortages on our preparedness in the event of a bioterrorist attack. This concern is also elevated because as reservists who also serve their communities as physicians, nurses, or specialists are called to military duty, many rural and other hospitals already struggling with a workforce shortage may be further challenged to have the staff they need to provide routine patient care. From both the perspective of a bioterrorism threat and the long-term needs of our nation's health care delivery system, it is essential that we strengthen programs to encourage more people to serve as physicians and nurses. It would surely be a tragedy if certain regions of the country could not respond to a bioterrorism attack because its hospitals lack health professionals.

In conclusion, I want to commend the successes of all members of the health care community for their response to the September 11 attacks. Physicians, nurses, medical supply distributors, and mental health care professionals were all integral parts of the quick response that was needed. I look forward to the witnesses' testimony.

PREPARED STATEMENT OF HON. BOBBY L. RUSH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. Chairman, thank you for holding this timely hearing on the federal government's preparedness to deal with bioterrorism. The two Florida anthrax cases which occurred so soon after the September 11 terrorist attacks have thrust the issue of bioterrorism to the forefront.

I would like to begin my remarks by pointing out that it is due to the vigilance of Florida state public health officers who detected and reported the first case of anthrax in Florida on October 3 that the federal government was able to spring into action. I commend them for their good work.

This incident, whether the act of terrorism or merely a natural case of this disease, underscores the necessity of having a strong network of local public health departments. The same local public health officials that we rely on to respond to naturally occurring disease outbreaks are the same officials that are responsible for bioterrorism preparedness and response. Local public health officials are the front line soldiers in the war against domestic bioterrorism. They will be the first to come into

contact with those infected and they are responsible for alerting the federal government of any possible bioterrorist attack.

However, there are serious questions of whether the federal government is adequately preparing local health departments for a bioterrorist attack. Too often, we have inadequately funded local public health efforts. The key to preparing for a bioterrorist attack is not just in funding bioterrorist programs, but in creating a strong overall public health system. Unfortunately, some federal dollars are tied to narrow programs and do not address public health as a whole.

While the topic of this hearing is the federal government's readiness for a bioterrorist attack, it is clear that the swiftness of the federal governments response to an attack is inextricably tied to the strength of our local departments of public health.

Thank you.

PREPARED STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Today's hearing on the level of preparedness of our public health system for a bioterrorism attack or a pandemic caused by an unknown organism is particularly important because it focuses on the very serious deficiencies in our public health system at the local, state and federal levels. Improvements in our public health system can save lives lost every day to such diseases as new strains of infectious tuberculosis that are resistant to antibiotics, undetected hanta virus, and gastrointestinal illnesses. They also will better prepare us for potential biological attacks.

To date, the Federal Government's approach has been highly fragmented and focused on training police, firefighters, and emergency medical personnel. This has worked well for chemical disasters; it does not for biological disasters. The first responders to a biological attack will most likely be hospital emergency room personnel and medical staff in clinics and doctors' offices. These people have been almost totally ignored in response planning and training. It also appears that there may not be sufficient stockpiles of antibiotics, antidotes and other medical supplies to respond to a bioterrorism attack because of the "just-in-time" inventory that hospitals, pharmacies, and other health care facilities have implemented.

The fragility of the response system has been demonstrated by the anthrax incident in Florida. Because of one case of anthrax, 700 people are being tested and treated with antibiotics. There were not enough antibiotics available from local sources to treat even 300 people so the National Pharmaceutical Stockpile was activated. What would happen if there were 50 cases of anthrax and 35,000 people to be tested and treated in a very short time frame? The answer is clear: the system would break down.

But we know how to fix our public health infrastructure. We know that increased funding is required, as well as improved federal direction and coordination. Now it is a simple and direct question of political will, given greater urgency because of the implications of the tragic events of September 11. We need money for training, for developing new vaccines and antibiotics, and for developing stockpiles of pharmaceuticals and other medical supplies. We need money for public hospitals and community health centers. And we need leadership from the Federal Government.

We must be prepared to defend all our citizens from domestic or foreign enemies and from a variety of threats that now include biological agents. Undue haste and panic are unwarranted and, in fact, are counterproductive. But we need to begin significant and serious efforts to rebuild our public health system, and I look forward to working with my colleagues on them.

Mr. GREENWOOD. The Chair would call forward the our first panel of witnesses. They are Dr. Amy E. Smithson, Senior Associate of the Henry L. Stimson Center here in Washington; Dr. Joseph Waeckerle, who is the Chairman of the Task Force of Health Care and Emergency Services Professionals on Preparedness for Nuclear, Biological and Chemical Incidents with the American College of Emergency Physicians; Dr. Kathryn Brinsfield, Associate Medical Director and Director of Research, Training and Quality Improvement, Boston Emergency Medical Services.

We have Dr. Lew Stringer, Medical Director of the North Carolina Division of Emergency Management; Mr. Ronald R. Peterson, President of the Johns Hopkins Hospital, on behalf of the American

Hospitals Association; and Dr. Dennis O'Leary, President of the Joint Commission on Accreditation of Healthcare Organizations; and Dr. Frank E. Young, former head of the Office of Emergency Preparedness, Department of Health and Human Services.

We thank all of the witnesses for your testimony today, in advance, and for your patience in waiting for us to begin. You are hopefully all aware that this committee is holding an investigative hearing, and when doing so, we have the practice of taking testimony under oath.

Do any of you have objection to testifying under oath?

Seeing no such objection, I would advise you that under the rules of the House and the rules of the committee you are entitled to be advised by counsel. Do any of you desire to be advised by counsel during your testimony?

Seeing no such interest, I ask you then to please rise and raise your right hand, and I will give you the oath.

[Witnesses sworn.]

Mr. GREENWOOD. We will recognize Dr. Smithson first for your testimony. Welcome. You are recognized for 5 minutes to offer your statement.

TESTIMONY OF AMY E. SMITHSON, DIRECTOR, CHEMICAL AND BIOLOGICAL WEAPONS NONPROLIFERATION PROJECT, HENRY L. STIMSON CENTER; JOSEPH F. WAECKERLE, CHAIRMAN, TASK FORCE OF HEALTH CARE AND EMERGENCY SERVICES PROFESSIONALS ON PREPAREDNESS FOR NUCLEAR, BIOLOGICAL AND CHEMICAL INCIDENTS, ON BEHALF OF THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS; KATHRYN BRINSFIELD, DIRECTOR OF RESEARCH, TRAINING, AND QUALITY IMPROVEMENT, BOSTON EMERGENCY MEDICAL SERVICES AND DEPUTY MEDICAL COMMANDER, NATIONAL DISASTER MEDICAL SYSTEM'S INTERNATIONAL MEDICAL AND SURGICAL RESPONSE TEAM-EAST; LLEWELLYN W. STRINGER, JR., MEDICAL DIRECTOR, NORTH CAROLINA DIVISION OF EMERGENCY MANAGEMENT; RONALD R. PETERSON, PRESIDENT, JOHNS HOPKINS HOSPITAL, ON BEHALF OF THE AMERICAN HOSPITAL ASSOCIATION; DENNIS O'LEARY, PRESIDENT, JOINT COMMISSION ON ACCREDITATION OF HEALTHCARE ORGANIZATIONS; AND FRANK E. YOUNG, FORMER HEAD, OFFICE OF EMERGENCY PREPAREDNESS, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Ms. SMITHSON. Thank you, Mr. Chairman. And I thank the other members of the committee for their appearance here today, because I hope we all become more educated about what is obviously a very confusing subject for the American public and for some of our policymakers.

In a continuing effort to separate fact from fiction, what I would like to do is start with a topic that has been in the news quite a lot lately. Let's talk crop dusters.

There are many people in this country that are under the impression that crop dusters are suited to disperse biological warfare agents. Quite frankly, that is not the case. Crop dusters disperse materials in 100-micron particle sizes and larger.

The size of a biological warfare agent particle needed to infect the human lung is 1 to 10 microns. So let's hopefully cut down on some of the apprehension about crop dusters as an instrument of biological terror.

As far as the case in Florida is concerned, let's also get right to it. Rubbing some type of an anthrax substance on a keyboard is not a mass casualty dispersal attempt. So I hope that even though the timing of these two things, the September 11 conventional attacks and a very unusual and possibly criminal case in Florida, has put us all on edge that we will be able to calm down and begin to consider the nature of this threat in a bit more, shall we say, calm atmosphere. Because there are important things that Washington needs to do to prepare this country better for a biological disaster, and quite frankly, this needs to be done regardless of whether or not terrorists overcome the significant technical hurdles involved in dispersing these materials in a way that would cause massive casualties.

Mother Nature is out there and occasionally she wreaks havoc with the human population. Not only are we talking about emerging infectious diseases, but the increasing antibiotic-resistant diseases that our public health officials on this panel can speak to much better than I.

So this country needs to be prepared to deal with a biological disaster regardless of whether or not terrorists ever figure this out.

I would focus the remainder of my remarks on what I consider to be the division of labor that needs to be achieved between Washington and the rest of the country, the Federal Government and the rest of the country.

There are several important missions for the Federal Government. At the top of that list would be the need to enhance our programs involved in the research and development of vaccines and antibiotics. You will find a few remarks in that regard in my written testimony. In addition, the other thing that the Federal Government will need to provide is emergency medical manpower in the event that there is some type of significant disease outbreak in this country.

At present, in the survey that I did for Ataxia, which encompassed officials from 33 cities across this country, it is very clear that our hospital systems and health care systems cannot handle the patient load of a regular influenza outbreak season. So they are going to probably need in very quick order outside medical assistance in order to cope with the incredible burdens on the health care system that would result from a major disease outbreak.

Now, there have been statements that 7,000 medical personnel could be put on the spot in fairly short order. If you are to examine the outcome of the mid-May 2000 Top Off drill, you will see that the conclusion from the slated release of plague in Denver is that 2,000 outside medical personnel needed to be put on the ground within 24 hours or the local health care system would collapse.

Well, I couldn't find anybody in any survey that felt like the Federal Government could meet just the 2,000 goal, much less the 7,000. I would recommend that Congress sponsor annual medical mobilization exercises to see whether or not the Federal Government can deliver what is on paper.

There are other roles that I would recommend for the Federal Government, but most important the resources that are spent on enhancing public preparedness have to get outside of Washington, DC's Beltway. Right now, in this area, $8.7 billion are being spent on readiness, but only $311 million is making it outside of the Beltway. That is simply an unsuitable balance of where the resources are being spent.

There are a few important things I would like to highlight in terms of local readiness. If our health care systems are going to be able to withstand the patient burden of a disease outbreak, they need to have in place an agreement among entities that are now competitors in most of our communities. Hospitals are private entities. They need to have regional hospital planning where there is a pre-agreed burden-sharing arrangement so that some hospitals convert over to infectious disease hospitals, others will take trauma patients, ladies having babies and heart attack victims, because these things will continue to occur, so those types of plans need to be established.

And there were only a couple of cities that I surveyed for Ataxia where this type of planning was even beginning. So I would encourage you to support regional hospital planning grants.

In addition to continuing to strengthen traditional public health capabilities such as the improvements being made to our laboratories, I would also encourage you to look at what may give our physicians and our laboratories that heads-up early warning that something is going wrong in the community, in the health of their metropolitan community.

There are a few cities across the country that are engaged in what is called syndrome surveillance, disease syndrome surveillance. They are taking data that is available and putting it to the purpose of giving us that heads-up. This is another wise investment for Congress to make in the days ahead.

I thank you for your time, and would be glad to answer your questions.

Mr. GREENWOOD. I am sure that we will have very many questions. The surveillance aspect which you referred to last will be the subject of a hearing on this subcommittee on October 25.

[The prepared statement of Amy E. Smithson follows:]

PREPARED STATEMENT OF AMY E. SMITHSON, DIRECTOR, CHEMICAL AND BIOLOGICAL WEAPONS NONPROLIFERATION PROJECT, HENRY L. STIMSON CENTER

When a major, complex problem comes to light, even the most learned and experienced can find it tough to think calmly and rationally about the reasonable, constructive steps that government should take to address it. When the problem identified is as frightening and potentially devastating as a bioterrorist attack, rationality can take a backseat. In the last few years, indeed in the weeks since September 11th, countless government officials have extolled their terrorism response capabilities, only to ask Congress in the next breath for just a few million more dollars so they can better address the problem. A few million here and a few million there soon adds up to serious money. Already, the General Accounting Office and some nongovernmental researchers like myself, have issued warnings about overlapping and short-sighted terrorism preparedness programs.

The convening of this hearing is a positive sign that Congress may soon begin to exercise more rigorously its oversight functions regarding terrorism prevention and response programs. The appointment of Governor Tom Ridge as Director of the new Office of Homeland Security would seem to be a constructive step that could put improved coordination and streamlining of the federal response bureaucracy on a fast track, but that may not be the case if he is not given strong budgetary author-

ity. An initial review of section 3(k) of the Executive Order establishing the Office of Homeland Security and the Homeland Security Council does not appear to vest sufficiently strong budgetary authority in this new office. As a matter of priority, the Office of Homeland Security and Congress must work together to tame the unwieldy federal bureaucracy and to get preparedness resources flowing to the nation's cities and long-neglected public health system. To aid Governor Ridge in his efforts, Congress should grant him czar-like budgetary authority. Unless this occurs in tandem with a consolidation of the number of congressional oversight committees, a few years from now a great deal of money will have been spent with marginal impact on reducing the threat of terrorism and mitigating the aftereffects of an unconventional terrorist attack.

GRASPING FOR PERSPECTIVE IN THE AFTERMATH OF SEPTEMBER 11TH

Despite what you might have heard in recent weeks, there are meaningful technical hurdles that stand between this nation's citizens and the ability of terrorist groups to engage in mass casualty attacks with chemical and biological agents. Between the misleading statements that have been made about the ability of crop dusters to disperse biological agents and the recent death of a 63-year old man in Florida from inhalational anthrax, the public is understandably spooked about the whole subject of bioterrorism. Facts often get overlooked in such an atmosphere, but I will resort to them nonetheless. Crop dusters disperse materials in a 100 micron or greater particle size, which is significantly larger than what would be required for the effective dispersal of a biowarfare agent. Another fact that has been glossed over is that the sheer mechanical stresses involved in putting a wet slurry of biowarfare agent through a sprayer can kill 95 percent or more of the microorganisms, to say nothing of the sensitivity that some agents have to environmental stresses once released. In order for an aerosol spray of biological agent to infect a person, the agent must arrive in the human lung alive, in a 1 to 10 micron particle size.

As for the developing situation in Florida, the investigation is ongoing and conclusions cannot be drawn at this point. In the end, this sad situation may fit into a pattern typical of past terrorist activity with chemical and biological substances. Data compiled by the Center for Nonproliferation Studies at the Monterey Institute of International Studies show that over the past 25 years instances where subnational actors actually used a chemical or biological substance relate mostly to disgruntled workers, domestic disputes, or others with some type of vendetta against political figures or rivals. The substances of choice tended to be household, industrial chemicals and the scope of intended harm included one or a few individuals, not dispersal at public locations or in a manner where mass casualties could result. In 96 percent of these cases where terrorists used chemical or biological substances, three or fewer people were injured or killed. Difficult though it may be, one should not jump to the conclusion that what has occurred in Florida is related to the horrific events of September 11th. In the headquarters building of American Media Inc., anthrax was reportedly found on an individual's computer keyboard, a dispersal approach that does not enable mass casualties. Should the investigation reveal that the perpetrator(s) who introduced *Bacillus anthracis* into this building employed a dry, microencapsulated form in the requisite microscopic particle size, then concern would be warranted. That would indicate that a subnational actor had indeed scaled technical obstacles that other terrorists had previously been unable to overcome. Greater detail about terrorist activities with chemical and biological substances can be found in Chapter 2 of *Ataxia: The Chemical and Biological Terrorist Threat and the US Response,* which is available on the internet at: www.stimson.org/cwc/ataxia.htm.

When one retreats from the hyperbole and examines the intricacies involved in executing a mass casualty attack with biowarfare agents, one is confronted with technical obstacles so high that even terrorists that have had a wealth of time, money, and technical skill, as well as a determination to acquire and use these weapons, have fallen short of their mark. Chapter 3 of *Ataxia* addresses this point at some length, examining the lessons that should be learned from the very terrorist group that got the hyperbole started, Aum Shinrikyo. To summarize, although the results of the cult's 20 March 1995 sarin gas attack were tragic enough—12 dead, 54 critically and seriously injured, and several thousand more so frightened that they fled to hospitals—Aum's large corps of scientists hit the technical hurdle likely to stymie other groups that attempt to follow in its wayward path toward a chemical weapons capability. They were unable to figure out how to make their $10 million, state-of-the-art sarin production facility work and therefore were unable to churn out the large quantities of sarin that would be needed to kill thousands. As for

Aum's germ weapons program, it was a flop from start to finish because the technical obstacles were so significant.

THE COMPELLING NEED FOR DISEASE OUTBREAK READINESS

No matter where one comes out in the debate about whether terrorists can pull off a biological attack that causes massive casualties, the fact of the matter is that the debate itself is moot. One need only consult public health journals to understand that it is only a matter of time before a strain of influenza as virulent as the one that swept this country in 1918 naturally resurfaces. Further confirmation of a looming public health crisis can be secured through a steady stream of reports from the World Health Organization and the National Institutes of Medicine, which describe how an increasing list of common diseases (e.g., pneumonia, tuberculosis) are becoming resistant to antibiotics. These public health watchdogs are also justifiably worried about the array of new diseases emerging as mankind ventures more frequently into previously uninhabited areas. Microbes have an astonishing capability to humble the human race: scourges such as plague, polio, and smallpox have devastated generations past. Even with everything that is in the modern medical arsenal, public health authorities will find it difficult to grapple with disease outbreaks in the future. Rapid global travel capabilities will facilitate the mushrooming of communicable diseases through population concentrations and will in turn hinder use of the traditional means of containing a contagious disease outbreak, namely quarantine.

An even grimmer picture materializes when one consults those on the forefront of health care in America. The best medical care in the world can be found in this country, but US hospitals are at present poorly prepared to handle an epidemic. To illustrate the point, US hospitals already have difficulty handling the patient loads that accompany a regular influenza season. Ambulances wait for hours in emergency department bays, unable to unload patients until bed space is available. The press of genuinely ill and worried citizens clamoring for medical attention in the midst of a plague or smallpox epidemic would so far outstrip a normal flu season that local health care systems would quickly collapse.

Ataxia, the afore-mentioned report that I released last October with my co-author, Leslie-Anne Levy, presents a series of recommendations on how to improve federal terrorism preparedness programs. *Ataxia* is based largely on interviews with first responders from 33 cities in 25 states conducted over a period of 1½ years, so this report is steeped in candor and the common-sense wisdom borne of experience. Drawing from this research and the feedback that continues to come my way in the aftermath of *Ataxia*'s publication, I would like to address a few issues critical to an effective response to a major disease outbreak, whether caused intentionally or naturally. Those issues could be listed as the ability to detect an eruption of disease promptly, the need to establish response plans among regional health care facilities that could be quickly activated, and the ability of the federal government to provide timely delivery of emergency supplies of medicine and medical manpower. Any response, however, would be thrown off track if there is not a clear agreement on lines of authority, so I will start there.

LEADERSHIP IN CONFRONTING DISEASE OUTBREAKS

How many FBI special agents or Federal Emergency Management Agency (FEMA) officials know off the top of their heads the appropriate adult and child dosages of ciprofloxacin for prophylaxis in the event of a terrorist release of anthrax? Darned few, if any. No, the FBI excels at catching criminals and FEMA at providing mid- and long-term recovery support to communities stricken with all manner of disasters. An outbreak of disease is first and foremost a public health problem, so let's not be confused about who should be calling the shots in an epidemic—public health officials. Yet, this simple fact is certainly not reflected in what is taking place with regard to bioterrorism preparedness, inside or outside the beltway.

Inside of Washington's beltway, concepts of crisis and consequence management not only linger, they predominate. With an apparent lack of budgetary authority and proposals circulating anew to have the Justice Department retain a leadership and coordination role despite the Bush administration's earlier appointment of FEMA in this capacity, it is fair to say that Governor Ridge's office will have difficulty presiding over the tug of war about which federal agency should lead the federal component of unconventional terrorism response. In America's cities, counties, and states there is also a fair amount of jostling as to who exactly would have the authority to make certain decisions during an epidemic. Only a handful of states, unfortunately, have untangled the cross-cutting jurisdictions left over from more than a century of contradictory laws passed as authorities scrambled to deal with

the different diseases that were sweeping the country. Prompt, decisive action could make a lifesaving difference in the midst of an outbreak, but the experience of various terrorism exercises and drills gives ample reason to believe that precious time would be squandered as local, state, and federal officials squabbled over who has the authority to do what. These circumstances beg for a clear vision and a firm hand to untangle this mess and put the people who know the most about disease control and eradication—public health officials—unquestionably in charge of any biological disaster, whether natural or manmade. FEMA, the FBI, the Pentagon, and other federal and local agencies should be playing support roles, not reshaping and second-guessing the directions of public health professionals as they manage the crisis *and* consequences of a major eruption of disease.

ADDRESSING PROBLEMS OF DISEASE OUTBREAK DETECTION AND OVERALL MEDICAL READINESS

Perhaps the first challenge facing the health care community would be figuring out that something is amiss. Many diseases present with flu-like symptoms, and the physicians and nurses who could readily recognize the finer distinctions between influenza and more exotic diseases are few in number indeed. Thus, in a spot test conducted in mid-February 2000 in Pittsburgh, Pennsylvania, only one out of 17 doctors correctly identified smallpox after hearing a case history and being shown photographs of the disease's progression. Smallpox, it should be recalled, presents in a most visible manner, with pustules covering the body. That sixteen doctors would not correctly diagnose smallpox can be attributed to the success of public health authorities in eliminating scores of diseases in America. Subsequently, medical and nursing schools concentrated training on ailments that health care givers are more likely to see.

In another illustration of the problem, there have been far too many reports in recent weeks of physicians prescribing antibiotics for patients worried about a possible bioterrorist attack. Of all people, physicians should understand how such prescriptions could backfire, not just in adverse reactions to the antibiotics if citizens begin self-medicating their children and themselves when they come down with the sniffles, but in the lessened ability of those very drugs to help their patients in a time of true medical need.

The exotic disease recognition problems are not limited to the medical community. In the nation's laboratories, microbiologists and other technicians who analyze the samples (e.g., blood, throat cultures) that physicians order to help them figure out what ails their patients are much more likely to have encountered exotic diseases in textbook photographs rather than under their microscopes. Thanks to the laboratory enhancement program initiated by the Centers for Disease Control and Prevention, the ability to identify out-of-the-ordinary diseases more rapidly is on the rise in several dozen laboratories across the country. However, such is not the case in the 158,000 laboratories that serve hospitals, private physicians, and health maintenance organizations are the backbone of disease detection in this nation. In conjunction with the Centers for Disease Control and Prevention and the Association of Public Health Laboratories, the American Society of Microbiology is developing protocols to assist clinical microbiology laboratories in identifying bioterrorist agents. Although the protocols have yet to be published, volume number 33 in the *Cumulative Techniques and Procedures in Clinical Microbiology* series addresses bioterrorism issues and is available from the American Society of Microbiology. As of yet, there is no national guideline requiring private laboratories to enhance their ability to identify such diseases, a component of the preparedness framework that should be weighed carefully by public health authorities.

To date, the domestic preparedness training program, now administered by the Justice Department, has managed to draw some medical and laboratory personnel, mostly emergency department physicians and nurses, into the classroom in the cities where training is being provided. To enhance the disease detection and treatment skills of the medical community nationwide, however, a different strategy is required. If a long-term, systemic difference is to be made in the skills of medical and laboratory personnel, then more comprehensive instruction in medical, nursing, microbiology, and other pertinent schools is required. Knowledge of exotic diseases should be required to obtain diplomas, and the topic should become a mainstay of the refresher courses offered to maintain professional credentials. Those involved in setting the curricula for pertinent schools should waste no time in heeding the long-standing warnings of the Institute of Medicine and the World Health Organization and adjusting their course offerings, requirements, and other professional activities accordingly.

With modern data collection and analysis capabilities, however, one need not rely solely on the ability of laboratories and medical personnel to pick up the telltale early signs of a disease outbreak. In a few areas in the United States, public health and emergency management officials are teaming to test concepts to get a head start on detection. The concept focuses on early signs of syndromes (e.g., flu-like illness, fever and skin rash) that might indicate the presence of diseases of concern. They are compiling historical databases to supply a baseline of normal health patterns at various times of the year, against which contemporary developments can be measured. Since people feeling ill tend to take over-the-counter medications, consult their physicians, or request emergency medical care, some areas are beginning to track the status of health in their communities via select Emergency Medical Services call types (e.g., respiratory distress, adult asthma); sales of certain medications (e.g., over-the-counter flu remedies); reports from physicians, sentinel hospitals, and coroners about select disease symptoms or unexplained deaths; or some combination of these markers. Once a metropolitan area has compiled data to understand normal patterns activity patterns at various times of the year, abnormal activity levels can be detected. For instance, when EMS calls rise above the expected rate in the fall season, public health officials and emergency managers would get the earliest possible indication that something was amiss, which would enable them to cue medical personnel and laboratories to search more diligently for what might be causing a possible disease outbreak. This concept of syndrome surveillance will be key to allowing public health officials to get the jump on prophylaxis or whatever other control measures might be in order.

Nationwide, syndrome surveillance is being done in several locations, drawing in no small part upon the path breaking work done by New York City's Department of Public Health and Office of Emergency Management. Their efforts are summarized in box 6.7 of *Ataxia*, which again is available online so that policy makers and public safety and public health officials around the United States and elsewhere can have the benefit of the composite knowledge of the individuals who shared their expertise and experiences with me.

What is now called for is a more systematic approach to institutionalizing syndrome surveillance across the nation. A model for syndrome surveillance should be refined and then made available nationally, along with funds to allow metropolitan areas to conduct the necessary historical analysis and establish the computer database, communications, and other components needed to put syndrome surveillance in place. Again, the data and the computing capabilities are available, it is just a matter of harnessing them for the purposes of early disease outbreak recognition. In their own ways, the Kennedy-Frist and the Edwards-Hagel bills address these matters. Coordination of congressional action is called for so that the most readiness can be gained for taxpayers' dollars.

THE NEED FOR REGIONAL HOSPITAL PLANNING

The next challenge facing a metropolitan area in the midst of a major disease outbreak would be contending with the flood of humanity that would seek health care services. As already noted, hospitals would be quickly overwhelmed, so it will be critical for regional health care facilities to have a pre-agreed plan that divides responsibilities and locks in arrangements to bring emergency supplies in the interim until federal assistance can arrive. In the era of managed health care, hospitals compete with each other for business and rely on just-in-time delivery of supplies, keeping an average of two or three days supplies in inventory. Since community-wide hospital planning has fallen by the wayside, precious time could be wasted if hospitals lack prior agreement as to which facilities would convert to care of infectious disease cases—particularly important if a communicable disease is involved—and which ones would attend to the other medical emergencies that would persist throughout an epidemic. Business competitors, in other words, must convert within hours to work as a team.

This regional hospital plan must also contend with how to handle the overflow of patients and provide prophylaxis to thousands upon thousands of people. Whether the approach involves auxiliary facilities near major hospitals, the conversion of civic or sporting arenas to impromptu hospitals, or the use of fire stations or other neighborhood facilities to conduct patient screening and prophylaxis, such a plan needs to be put in place. Other factors that regional hospital planning must address are how to tap into local reserves of medical personnel (e.g., nursing students, retired physicians), how to break down and distribute securely the national pharmaceutical stockpile, and how to enable timely delivery of emergency supplies of everything from intravenous fluids to sheets, tongue depressors, and food.

FEDERAL ROLES IN BIODISASTER PREPAREDNESS

Washington's willingness to fund regional hospital planning as well as programs that institute disease syndrome surveillance nationally will be critical to biodisaster readiness. In addition, the federal government has important roles to play in the development and production of essential medicines, in the provision of medical manpower during an emergency, and in general mid- to long-term recovery disaster recovery assistance. With regard to the latter role, FEMA's capabilities have risen steadily over the last decade and little, if anything, would need to be added to its existing capabilities and regular Stafford Act assistance activities.

Long before the current concerns about bioterrorism, I was at a loss to explain how the federal government could have known about the extent of the Soviet Union's biowarfare program—including the production of tons of agents such as smallpox and antibiotic resistant plague and anthrax—as early as 1992 and not kicked this nation's vaccine research, development, and production programs into a higher gear until 1997. The extent of the problem is illustrated by the fact that only one company is under contract to produce the anthrax vaccine, no company currently produces the plague vaccine, and it was not until recently that steps were taken to meaningfully jumpstart smallpox vaccine production. Such matters should have been promptly addressed if only to enable protection of US combat troops, not to mention producing enough vaccine to cover the responders on the domestic front lines, namely the medical personnel, firefighters, police, paramedics, public health officials, and emergency managers who would be called upon to aid US citizens in the event of a biological disaster.

As for the effort that was mounted, many nongovernmental experts have been taken aback at the structuring and relatively meager funding of the Joint Vaccine Acquisition Program. With a $322 million budget over ten years, this program aims to bring seven candidate biowarfare vaccines through the clinical trials process. Giving credit where it is due, one must acknowledge that this program as well as Defense Advanced Research Projects Agency-sponsored research into innovative medical treatments are making headway. However, the federal government must find ways to shrink the nine to fifteen year timeline that it takes to bring a new drug through clinical trials to the marketplace. Food and Drug Administration officials are already wrestling with how to adjust the clinical trials process for testing of new vaccines and additional bumps are to be expected on the road ahead.

Next, the National Institutes of Health and the pharmaceutical industry, not the Defense Department, are this country's experts at clinical testing and production of medications. My point is not that the Defense Department should not have a role—perhaps even a lead role since the candidate vaccines originated with the US Army Medical Research Institute for Infectious Diseases—but these other important players need to be at the table if an accelerated program is to be achieved. As I noted, Governor Ridge will have his hands full, no matter which direction he turns. Moreover, close congressional oversight of this particular aspect of the nation's biological disaster readiness is warranted.

On the chemical side of the house, by the way, the picture is similarly discouraging. The Pentagon now turns to one company for supply of the nerve agent antidote kits, known as Mark 1 kits, that the Health and Human Services Office of Emergency Preparedness has encouraged cities participating in the Metropolitan Medical Response System program to purchase. Many a city is still waiting to receive the Mark 1 kits ordered long ago, and when they do, these kits will have a considerably shorter shelf life than the kits made available to the military.

EMERGENCY MEDICAL MANPOWER NEEDS DURING A MAJOR DISEASE OUTBREAK

Secretary of Health and Human Services Tommy Thompson stated on September 30th in an interview with "60 Minutes" that his department has "7,000 medical personnel that are ready to go" in the event of a bioterrorist attack. While that statement may be true in theory, in practice it may not hold. Somewhat lost in the late 1990s rush to soup up federal teams for hot zone rescues was the one major non-FEMA federal support capability that would clearly be needed after an infectious disease outbreak and perhaps after a chemical incident as well—medical assistance. The National Disaster Medical System was one of several improvements made to federal disaster recovery capabilities over the last decade, a time during which the federal government demonstrated that it could bring appreciable humanitarian and logistical assets to bear after natural catastrophes and conventional terrorist bombings. While these events flexed the muscles of the FEMA-led recovery system, including the deployment of Disaster Medical Assistance Teams, they did not even approach the type of monumental challenge that a full-fledged infectious disease outbreak would present. Prior to Secretary Thompson's recent statement, officials from

the Health and Human Services Department and the Pentagon have also stated that they could mobilize significant medical assets quickly.

Yet considerable skepticism exists that these two departments combined could have met the medical aid requests made from Denver after the release of plague was simulated during the mid-May 2000 TOPOFF drill, much less a call for even more help. During that hypothetical event, health care officials quickly found their medical facilities sinking under the patient load and concluded that 2,000 more medical personnel were needed on the ground within a day to prevent the flight of citizens that would have further spread the disease. Getting that number of physicians and nurses to a city and into hospitals and field treatment posts would be a tremendous logistic achievement. No one that interviewed for *Ataxia*, including members of the Disaster Medical Assistance Teams and other medical and public health professionals, felt that the federal government could deliver 2,000 civilian medical professionals within the required timeframe. For its part, the Pentagon has yet to articulate clearly or commit to civilians at the federal or local level just how much medical manpower it could deliver and in what timeframe.

Quite frankly, the time has come for the Pentagon to stop being coy about what medical assets it could bring bear in a domestic emergency. Articulation of this capability, even if it needs to be done in classified forums, is necessary for sound planning on the civilian side. Furthermore, there have been no large-scale dress rehearsals to confirm whether civilian or military medical assets could muster that many medical professionals that quickly, or even over a few days. Even so, the 2,000 figure from the Denver segment of TOPOFF seems almost quaint when compared to one US city's rough estimate that 45,000 health care providers—many of whom would have to be imported—would be required to screen and treat its denizens.

The only way to find out whether the federal government is truly up to the most important role it may have to perform after a bioterrorist attack or a natural disease outbreak is to hold a large-scale medical mobilization exercise. Despite the expense, Congress should mandate a realistic test of how much civilian and military medical assistance can be delivered, how fast. Unlike TOPOFF, where federal assets were pre-picked and pre-staged, the terms of the exercise should specify that teams deploy as notified. While the general nature and identity of the exercise location(s) would certainly be known beforehand and the timeframe of the drill agreed within a window of several months, local officials should trigger the onset of the exercise. In short, dispense with the tabletop games that allow everyone the comfort of claims of what they could do and see what a real exercise brings. A genuine and probably sobering measure of federal capabilities could be taken, and the lessons of the exercise could inform the structure of federal and local plans and programs.

CONCLUSIONS

One need not resort to hyperbole when it comes to how difficult it would be for major US cities to handle a pandemic; the truth is sobering enough. Even though the basic components of the ability to handle a disease outbreak—hospitals, public health capabilities at the federal, state, and local levels, and a wealth of medical professionals—are already in place, there is ample room for improvement. The pragmatic steps that the federal government should take are clear. Mr. Chairman, Members of the Committee, Washington can take the smart route to enhance biodisaster preparedness nationwide or it can continue to go about this in an expensive and inefficient way. The keys to biodisaster readiness are as follows:

- The sufficiency of existing federal programs, response teams, and bureaucracies needs to be assessed and redundant and spurious ones need to be eliminated. In the interim until an assessment of the sufficiency of existing assets is made, a government-wide moratorium on any new rescue teams and bureaucracies should be declared, with the exception of the enhanced intelligence, law enforcement, and airport security measures that are being contemplated.
- Defense Department programs related to the development and production of new vaccines and antibiotics need to be put on a faster track and incorporate expertise in such matters from outside the Pentagon.
- The federal government should continue to revive the nation's public health system, an endeavor that involves sending funds to the local and state levels, not keeping them inside the beltway. In addition, the federal government should fund regional hospital planning grants and additional tests of disease syndrome surveillance system, followed by plans and funds to establish such capabilities nationwide.
- Appropriate steps should be taken to see that physicians, nurses, laboratory workers, and public officials benefit from training that is institutionalized in the nation's universities and schools.

- Last, but certainly not least, Washington needs to develop a plan to sustain preparedness over the long term. Drills at the local and federal levels are necessary because plans that sit on the shelf for extended periods of time are often plans that do not work well when emergencies occur.

I will wrap up with one more essential task to which each individual member of Congress must attend. Since September 11th, I have received numerous calls from offices on both sides of the Hill and both sides of the aisle, asking me to brief them on these issues and to help fashion legislation that would put Representative "X's" or Senator "Z's" stamp on the legislation that is taking shape. While I have responded as quickly as possible to such requests, they are in some way indicative of the problem that Washington faces if it is to craft meaningful, cost-effective preparedness programs.

With all due respect, I would point out that while the attacks of September 11th occurred in New York City and Northern Virginia, they were attacks on this nation as a whole. Those who risked their lives that day to save the lives of others were not thinking about themselves or their future, they were selflessly acting in the interests of others. Put another way: this is no time for pet projects, whether they be to benefit one's home district constituents or a particular branch of government. This is not about job employment, it is about saving American lives. The future well-being of each American, I would contend, is equally important.

On behalf of the local public health and safety officials who have shared their experience and common sense views with me, I urge Congress to waste no time in passing legislation that brings the burgeoning federal terrorism preparedness programs and bureaucracies into line and points them in a more constructive, cost-effective direction. The key to biodisaster preparedness lies not in bigger budgets and more federal bureaucracy, but in smarter spending that enhances readiness at the local level. Even if terrorists never strike again in this country, such investments would be well worthwhile because they would improve the ability of hometown rescuers to respond to everyday emergencies.

Mr. GREENWOOD. Dr. Waeckerle.

TESTIMONY OF JOSEPH F. WAECKERLE

Mr. WAECKERLE. Good morning.

Mr. GREENWOOD. You are recognized.

Mr. WAECKERLE. Good morning to all of the members and my fellow panelists. I am Joe Waeckerle; I am a Board certified emergency physician in Kansas City, practicing. I have been involved in this area for the last 8 or 9 years as a consultant to the FBI, the Defense Science Board and CDC and Office of Emergency Preparedness.

I also serve as the task force chair, as you spoke to earlier. I am passionate about domestic preparedness and have spent too much time in the area, as we all must now.

America has been targeted. America has been attacked and America has suffered, and we all mourn as we should. But we need to do more than mourn to better protect our country and honor those who have suffered and died. We need to be prepared and, especially, prepared against biologic weapons.

We are extremely vulnerable. Numerous analyses of the escalating risks to America and the considerable deficiencies have been presented before you and other Members of Congress, both internal, external and from distinguished people, like Dr. Smithson to my right. They have demonstrated considerable deficiencies which the government has appropriately addressed, but there are many that still linger.

Careful consideration of the lingering major deficiencies are obvious points of interdiction requiring urgent reform that we can address, and I hope to do so for some today.

The failure to recognize biowarfare is a national threat that has resulted in a lack of a comprehensive national strategy. I therefore ask Congress to demand a specific comprehensive and sophisticated strategy of deterrence and defense against bioweapons. This currently does not exist and has not trickled down to the local community.

The failure to mandate and implement a centralized Federal authority has resulted in a void in leadership which, as you-all alluded to, is remarkable and causes fragmented, uncoordinated, redundant and inefficient planning and preparation.

Please authorize and fund a central Federal management and oversight group, whether it be in Governor Ridge's office or another, so that we can develop and implement a comprehensive deterrent and defense strategy, and we can have better communication and cooperation and integration between the Federal family and the local first responders who will be the first people to protect our country.

I will not discuss planning or detection deficits, you will discuss those, but I will tell you that I served on the Defense Science Board's recent task force, and that report was given to you, I believe, 2 weeks ago. It is remarkably well done. I apologize for saying so. And I urge you to look at it.

I would like to talk about three other issues.

The failure to maintain our public health system: Not having a public health infrastructure in this country has severely retarded our ability to detect, identify and investigate epidemiologic—appropriate epidemiologic studies. The Congress, therefore, must ensure that the public health system be retooled with appropriate capabilities and capacities for biowarfare, and be linked to emergency and other health care professionals so we have better detection and better notification.

This is an added value to the natural epidemics and infections occurring today that it will benefit such retooling. The failure to engage hospitals in this endeavor is a severe problem.

Hospitals are certainly financially frail. There is overcrowding. There are too few beds, too light staff, and too little supplies and resources due to financial frailty. There is no surge capacity. Congress must recognize that emergency departments and their hospitals are the critical component of the infrastructure of biodefense, along with public health, and must take steps to necessarily fortify their abilities.

Finally, the failure to engage emergency health care professionals has resulted in the lack of awareness of national strategy, a lack of clinical acumen of the bioagents and a lack of understanding of their vital roles.

Patients will come to the emergency departments, as you correctly pointed out. The ER is where we always go. That will be the incident scene in contrast to the tragedies in New York City. The first responders will now be emergency physicians, emergency nurses and emergency medical technicians. So they must be able to detect and diagnose and notify our system and implement treatment quickly. Unfortunately, we are not prepared to do such, as our task force pointed out.

Also, because of that, we may be not only the first responders, but the second victims, further destroying the infrastructure of our health care in this country. Congress must therefore authorize and implement an overall plan for providing, sustaining and monitoring appropriate educational experiences for these essential emergency care professionals.

An overarching strategy that our task force recommends you consider is to no longer fund private contractors through DOD or DOJ, but to allow HHS or the new office to directly partner with the professional organizations of all health care professionals, who communicate, educate, monitor and regulate their own members on a day-to-day basis.

Don't reinvent the wheel. The wheel is there.

In conclusion, to deter or mitigate any terrorist action against our country or our people, Congress must provide the leadership, financial support and organizational and logistical support requisite to developing a comprehensive national strategy, preparation and response.

Certainly such preparation is costly, both financially and personally to all of us. However, America must remain resolute. For what is the price of our freedom, of our country's well-being and our citizens' lives?

Thank you for the opportunity.

[The prepared statement of Joseph F. Waeckerle follows:]

PREPARED STATEMENT OF JOSEPH F. WAECKERLE, CHAIRMAN, TASK FORCE OF HEALTH CARE AND EMERGENCY SERVICES PROFESSIONALS ON PREPAREDNESS FOR NUCLEAR, BIOLOGICAL, AND CHEMICAL INCIDENTS, THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS

INTRODUCTION

Chairman Greenwood and members of the Subcommittee, good morning. I am Dr. Joseph F. Waeckerle, Editor in Chief of the Annals of Emergency Medicine, the Journal of the American College of Emergency Physicians. I am a Board of Emergency Medicine certified physician, and the Chairman of the American College of Emergency Physicians' Nuclear, Biological, and Chemical Task Force. I am here today testifying on behalf of the American College of Emergency Physicians (ACEP), which represents more than 22,000 emergency physicians and their more than one hundred million patients.

I want to thank you for the opportunity to appear before you today to discuss the readiness and capacity of the federal programs to provide needed health related services in the event of a biological terrorist attack.

The focus of the nation since September 11 has been on the tragic and senseless loss of lives caused by terrorists willing to fly air planes into buildings. I want to talk to you today about the new weapons of war that have emerged in our modern world which perhaps represent the greatest long-term threats to our national security. Preeminent among them are biological warfare agents. To date, our nation has had very little experience with threatened bioweapon use. What experience we have had has involved small, isolated events not indicative of the true potential devastation of bioagents.

The use of biologic agents as weapons of war could approximate the lethality of a nuclear explosion, can decimate a large population, and thereby destabilize a nation. It can inflict psychological and economic hardship and political unrest by attacking small populations in multiple sites over a protracted period. America's citizens, national security and international stature are at risk should a bioweapon be used.

AMERICA'S STATE OF READINESS

There have been numerous analyses of the escalating risks to America and the considerable deficiencies in our responses to the threat of any weapon of mass destruction much less biologic warfare. Internal reports from the Federal government

(Defense Science Board, Defense Threat Reduction Agency, General Accounting Office), external assessments by august panels such as Hart-Rudman and the Gilmore commission, and private testimonies including the Smithson report and individuals before Congress repeatedly warn of the serious deficiencies in our planning and preparation. Authorities have acted on these deficiencies, but we must decisively improve much more. Careful consideration of the existing strategies and response protocols reveals major deficits that are obvious points of interdiction.

NATIONAL STRATEGY DEFICIT

A comprehensive national strategy must be predicated on an in-depth analysis of threats and risks. By identifying credible threats, available assets, and resultant vulnerabilities, a cogent national strategy can be generated. To date, the approach has centered on an "all-hazards" approach. Most of our nation's hospitals have policies to respond to hazardous materials (HAZMAT) incident, which are inadequate for responding to some chemical agents and nearly all biologic agents. Certainly, conventional weapons are and should be our main focus. Current planning has also focused on chemical weapons with many federal agencies and departments specifically addressing these threats. This is appropriate to a degree because there are currently about 850,000 facilities in the US using hazardous or extremely hazardous materials. Better preparation for possible hazardous materials incidents whether they are the result of industrial accidents or perpetrated by terrorists is beneficial to our country.

Many governments and civilian authorities rightly believe that biologic agents suitable for warfare are readily available. The dissolution of the USSR has led to the cessation of funding for their once formidable bioweapons facilities and financial hardship for the employees. As such, security is minimal and personal motivation to survive, much less profit, is utmost, so bioagents may be "on the market." Compared with conventional weapons, research and development of bioagents are economically feasible today for many other nations as well. Research and development is now where once only a few had the capability and resources to pursue these avenues. As a result, many nations/states have aggressively and successfully pursued their own biowarfare research and development.

There is also legitimate scientific application of microbiology, which could be used to develop biologic agents. The pharmaceutical industry, beverage industry, and others pursue research in biology to benefit mankind. Because of the overlapping assets used for producing legitimate products and bioweapons, it is extremely difficult to estimate and regulate research and development activities to prevent legitimate research from falling into the wrong hands. Today, any bidder may easily procure samples of bioagents from a variety of sources both legitimate and illicit.

Even if only small samples of a bioagent are available, technologic advancements make it possible for nations or organizations to culture and harvest adequate quantities of an agent relatively inexpensively and virtually anywhere. Bioagents can also can be easily stored and transported. Dissemination, which may be most problematic in using these agents, is now more easily accomplished as well.

For those individuals seeking to gain competency in this area, knowledge is readily available. Educational opportunities are offered in the formal education process including high school, college, and graduate level courses and informally through widespread availability of knowledge via the Internet. In addition, motivated researchers using advanced techniques can now build engineered pathogens that are even more suitable for biowarfare.

The list of agents that could be used in a biological attack is formidable and growing. Legitimate and nefarious researchers have scrutinized the naturally occurring agents as to what clinical and biologic effects are most requisite. Also, newly engineered bioagents are now more than ever viable threats against which the US is vulnerable because they are custom built as weapons.

The capability is there, and today's world fosters malcontents, extremists and malicious opportunists that view the United States with hostility. These groups include nation/states, groups, and individuals—both domestic and international—that are motivated by political, social, economic, religious, or criminal intent. Nations who could not challenge the United States because of the high cost of conventional warfare now have the capability through the use of biologic weapons to challenge our dominance as the sole remaining superpower. Individuals and groups of zealots, extremists and criminals also view the recent availability of bioagents as an opportunity to wage asymmetric warfare in order to exert influence and manipulate the system for their own gain.

Some authorities have argued that moral constraints will limit the use of such particularly lethal weapons (weapons of mass destruction) especially if civilians are exposed. However, the September 11 assaults on America have shown the contrary.

The inevitable conclusion is that the availability of biowarfare agents and supporting technologic infrastructure, coupled with the fact that there are many who are motivated to do harm to the US means that America must be prepared to defend her homeland against biological agents. Denial of this threat or the excuse that this threat is too difficult to plan for is no longer tenable.

Although the probability of a bioattack is difficult to measure, the consequences are high. Biowarfare is a multidimensional problem due to the diversity of bioagents each with particular threat characteristics, plethora of vulnerable targets and varied routes of dissemination. As such, there is no typical presentation, no easily recognizable signature to allow easy detection or identification, limited treatment options and a disturbing array of sequelae. A biological attack on America will impose unparalleled demands on all aspects of our government and our societal infrastructure that must be met.

The consequences of poor preparation are not tenable. Considerations for the use of potential biological weapons are the *sine qua non* of future defense readiness. Biological weapons are such formidable weapons of uniqueness and complexity that a specific defense strategy is essential. The triumvirate of research, preparedness and response issues pertinent to biowarfare are central to the formulation of a robust strategic blueprint. Congress must demand a specific, comprehensive and sophisticated strategy of deterrence and defense.

COMMAND, CONTROL AND COMMUNICATION DEFICITS

The United States must designate and give adequate authority to a central office to coordinate the various agencies involved in emergency response. A single line of authority is traditional in the Defense Department and law enforcement for good reason. Yet the United States has a multitude of federal agencies and departments with vested interests in WMD preparation, and there is no authority structure. The result is efforts in formulate and implement a national strategy are fragmented, uncoordinated, redundant and inefficient. Unfortunately, the absence of unity not only decays the Federal effort it undermines the critical partnership between Federal authority and State and local authorities.

Communication is also a major problem in domestic preparation today. Due to the lack of an overreaching authority, there is little communication among active Federal participants in domestic preparedness. Equally disturbing, the lack of communication among the Federal families trickles down to the state and local communities. As a result, preparation for the possible use of WMD especially biological weapons without Federal assistance is not achievable for most communities in America. Our communities desperately need guidance and support but little communication results in little progress. This is an unacceptable outcome given the risks.

Until authority is mandated, centralized and implemented, turf battles, egos, pettiness and power and money struggles will preclude effective use of our dollars and prevent a collaborative and integrated preparedness process on a national level or local level. Congress should authorize and fund a centralized Federal management and oversight office.

PLANNING DEFICITS

Any response to a weapon of mass destruction on American soil will first be local and community-based perhaps for an extended period of time. This means that communities must have plans that are well conceived and effectively coordinated. Although a general plan in most communities today, the local response is currently not well informed, not well financed, not well trained or drilled, and not properly integrated into the overriding federal response. Federal authorities must ensure coordinated ventures with the local communities but they must first cooperate among themselves to do so.

Furthermore, current disaster preparedness programs in US communities are often insufficient in their design in that they are generally inappropriate for specific preparation and response against biowarfare. A biological agent incident requires a vastly different response with regard to management and personnel and resources needed. The multi-agency, multi-jurisdictional character of the many uncoordinated strategies being delivered by the Federal family to the local community makes success against biowarfare a remote possibility. Congress must direct the centralized the federal management and oversight office to provide preparedness and response, education, guidance, and financial support directly to State and local communities.

RESPONSE DEFICITS

The cornerstone of the Nation's response will lie in the medical and public health communities. It is critical they be actively involved in the threat-assets-risk analysis and subsequent national and local preparation efforts. They are essential to controlling disease outbreaks through appropriate and timely detection and identification, investigation and management.

Detection and Identification Deficits

The United States must establish, strengthen, and expand sophisticated surveillance systems that are integrated with the public health systems and the nation's emergency departments. Efforts to detect bioagents in the environment before people become infected currently face significant technical obstacles. This is unfortunate because the best defense is to detect the agent prior to its infecting individuals. Likewise, the current technology has not matured to the point that rapid and reliable diagnostic testing of individuals is available. The absence of such capabilities will significantly impede timely response and appropriate management.

At present, the detection of a disease outbreak depends on alert clinicians—or human surveillance. However, most health care professionals are not trained to recognize the symptoms of most of diseases from bioweapons agents nor do they have any experience with these agents. Patients may only exhibit non-specific flu-like symptoms during the early stages of their infection, and clinicians probably would recognize an outbreak only after a number of patients presented with highly unusual symptoms or died of unusual circumstances.

The United States must improve the partnership between health care system and public health agencies. Physicians are not prone to reporting puzzling cases of illness to health officials. Moreover, few public health departments have the personnel or resources to conduct real-time disease reporting or provide expert advice.

The absence of real-time surveillance and simple, quick and reliable diagnostic testing further complicates matters. It will be difficult for clinicians to determine the location and scope of the attack. Infected individuals could move about without overt manifestations during the incubation period of infection. Depending on the agent, contagion could be spread unknowingly, further amplifying the peril. The ability to determine who is actually infected so needs treatment and who is not infected so needs only reassurance is paramount. Potentially, the "worried well" may overwhelm the health care system just as it needs to be entirely focused on the truly infected. The inability to distinguish the infected victims also does not allow appropriate disease containment.

Complicating this, most hospital and commercial labs cannot definitively identify the bioweapons pathogens of greatest concern, such anthrax or smallpox. There are also serious concerns about the capacity of laboratories to cope with increased demands, and the capacity of hospital emergency departments that are already operating at critical capacity to respond. The CDC has been working with state public health laboratories to augment their abilities and capacities and foster a national laboratory system.

Congress must support public and private research for the development of real-time alerting and tracking surveillance systems with analytical capabilities as well as rapid and reliable diagnostic tests for bioagents.

Investigation Deficits

Suspicion that a bioterrorist attack has occurred will provoke public health officials to begin an immediate investigation. Epidemiologic investigations are essential to managing outbreaks of contagious disease. However, the U.S. public health infrastructure is fragile and in much need of rebuilding as has been previously reported. State and local health departments often lack sufficient professional staff, office support and equipment, and the laboratory capacity to perform the basic public health functions much less respond to a large-scale incident.

As noted above, the absence of real-time electronic surveillance systems is a serious problem. These systems could provide information and analysis of data from key testing and monitoring sources thereby allowing up-to-date understanding of an incident. Better understanding will result in more focused and presumably more successful interventions.

Congress must ensure that the public health system be retooled with the appropriate capabilities and capacities needed for biowarfare, and be linked to emergency healthcare systems.

MANAGEMENT DEFICITS

Personnel Deficits

The United States must train emergency healthcare personnel to recognize and treat victims of a biologic attack, as well as to report incidents. This is vital to our nation's preparedness for a successful response to a bioagent, medical personnel and medical resources are paramount. Local civilian medical systems—both out-of-hospital and hospital—are the critical human infrastructure. These professionals will be integral in recognizing a bioagent and minimizing the devastation. As in any emergency, concerned or infected patients may come to the "ER" seeking medical help. Emergency physicians and nurses and emergency medical technicians will therefore be the "first responders." Thee first and most critical line of defense for detection, notification, diagnosis, and treatment of a bioincident. However, this may be delayed if the treating emergency physicians and nurses do not have the clinical knowledge and high index of suspicion to recognize the features of a biologic attack and activate a response.

Emergency physicians and nurses along with other health care professionals in current preparedness programs. Emergency health care professionals need to be integrated and educated. These professionals, in turn must understand the need to become active participants in the preparedness arena. This specifically includes understanding of local disaster plans, including incident command systems and hospital disaster plans.

An overall plan must be implemented for providing, sustaining, and monitoring appropriate educational experiences for these emergency health care professionals in the field of biologic warfare. Unless this training is forthcoming, a critical link in the management of a bioincident will be missing.

To that end ACEP's Task Force of Health Care and Emergency Services Professionals on Preparedness for Nuclear, Biological, and Chemical Incidents assessed the needs, demands, feasibility, and content of training for emergency physicians, nurses, and paramedics for nuclear/biological/chemical (NBC) terrorism. The task force recommended that training programs and materials need to be developed and incorporated into these professionals' formative education and into their continuing education. The task force developed the core content essentials for incorporation into

Educational programs and recommended that each of the three groups be trained relative to their particular job responsibilities and anticipated levels of involvement.

It was suggested that a multidisciplinary oversight panel of content experts, educational specialists, and representatives of major professional organizations representing each of the three audience groups implement these educational strategies. The oversight panel would be tasked with the responsibility for the consistency, quality, and updating of the products developed. Additionally, the oversight group would work to establish partnerships with organizations and institutions to assist with the implementation of the recommendations discussed in this report. The multi disciplinary oversight group is an integral part in the development of each recommendation for each of the target audiences. They also formulate and manage formal plan for evaluating each educational product. To support the work of the oversight group, a national clearinghouse or repository should be established to collect relevant information, including articles, books, reports, research, instructional materials, and other media.

An important overarching strategy to support the proposed recommendations is to work with national professional organizations and associations to increase all health care professionals' understanding of the necessity of this type of education.

Working through national professional organizations and associations, Congress must authorize an implement an overall plan for providing, sustaining, and monitoring appropriate educational experiences for emergency healthcare professionals in the field of biologic warfare.

Hospital Deficits

Unfortunately, civilian health care facilities are not, in general, integrated into a community or regional disaster response system. Hospitals tend to be autonomous, competitive institutions so most are not committed to cooperative efforts that would be needed during a community-wide disaster. Furthermore, hospitals do not possess or regularly exercise requisite communications networks.

Hospital capacity and capability are very real dilemmas today. Many American hospitals are financially frail. They have responded to financial pressures by cutting staff, reducing inventory and eliminating money-losing operations. "Just-in-time'" staffing and supplies flow models now govern the number of personnel working and the resources available on a given day. These cost-cutting measures have reduced hospitals' flexibility; they have no surge capacity in the face of sudden or sustained

stress. As a result, it would not take many casualties presenting for evaluation and specialized treatment to overwhelm the hospital system of a large American city. Nowhere is this more evident than in the emergency departments where overcrowding, and lack of critical resources are the norm.

Staffing issues are also challenging. Although many if not most, physicians and nurses hold hospital privileges at several facilities so this will be available to only one institution. Hospital staff privileges requirements and state licensing restrictions are barriers to doctors and nurses from outside the community assisting. Further complicating the local shortage, many health care professionals are committed to military duty as reservists or have volunteered to serve on medical assistance teams or at emergency operations centers.

In addition to professional staff, hospital operations depend on a wide array of skills—the absence of lab technicians, security guards, food service, or housekeeping personnel would significantly affect the efficiency and effectiveness of the whole institution. Furthermore, a significant proportion of a hospital's staff may fail to report to work in the midst of an epidemic due to fear of a deadly, contagious bioagent.

Congress must recognize that hospitals and their emergency departments are critical components of the infrastructure of America's biodefense system, and must take these steps necessary to fortify their ability to respond.

Medical Treatment Deficits

For almost all of the bioagents thought to represent a serious threat, the speed with which appropriate medical treatment is administered is critical, i.e. early detection. Different bioweapons agents will require different medical treatment and in some cases there are scant scientific and clinical data available to support treatment decisions. The effectiveness of existing antibiotics and vaccines to prevent or limit the severity of diseases caused by bioweapons pathogens is quite limited as well. For some bioagents, antibiotic treatment is effective but in some cases only if given before symptoms begin or become severe. In other instances, the mainstay of care is supportive which can be very labor intensive.

Currently, there are no effective vaccines for many important bioweapons agents. When available, some vaccines have undesirable features and in other cases, existing vaccine supplies are limited. Special populations, such as children, pregnant women, and immune-compromised persons may be a particular risk or have contraindications for specific therapies. The possibility of bioengineered weapons resistant to traditional therapies must also be considered.

It is clear that there is major shortfall in the readily available capacity of drugs and vaccines. It is also clear that there are many vaccines yet to be developed. This is due to the lack of existing commercial partners interested in undertaking the production, minimal excess capacity within the drug and vaccine industry even if there were interested parties, and the regulatory and technology transfer issues that need to be overcome in order to rapidly manufacture critical supplies.

In addition, there is a lack of a coherent acquisition strategy for national pharmaceutical and vaccine stockpiles. The federal government has recognized that the availability of necessary vaccines and antibiotics is a critical component of an effective bioterrorism response and has taken steps to create a National Pharmaceutical Stockpile (NPS) of medicines and supplies. However, significant logistical problems were encountered in the handling and distribution of the supplies during Operation Topoff that must be remedied.

Congress should direct the centralized federal management and oversight office to partner with private industry interested in undertaking the research, development, and production of necessary pharmaceuticals; maintaining some surge capacity. Congress should also address the regulatory and technology transfer barriers that impede rapid development and availability of critical supplies.

CONCLUSIONS

The United States homeland is vulnerable. We are a free society; our greatest right is our greatest liability. We are an inherently trusting and tolerant people so we are not overly suspicious. We are peace loving; we do not act offensively but only respond when provoked. Finally and fortunately, we have had essentially no first hand experience with any form of modern warfare waged in our country until recently

An attack against the homeland using a biological weapon would severely test us. Foremost, the ability to mitigate the consequences of a bioterrorist attack is directly tied to the deficits of the civilian medical and public health systems. The importance of limiting casualties and minimizing interference with daily life is obvious. In addition, failure to deliver adequate medical care or to execute appropriate public health

measures could lead to loss of public confidence in the government's ability to protect our citizens, raise the possibility of profound, even violent, civil disorder, and possibly diminish America's position internationally.

Americans must now commit to not allow such heinous acts to occur in our country. We must all vow to become involved. Our goal is to deter or mitigate any terrorist action against our people or our country. Federal authorities must provide the leadership, the financial investment and the organizational and logistical support requisite to develop a comprehensive national strategy, solid domestic preparedness and appropriate response plans. Health care professionals and state and community leaders must pledge dedication and involvement. Such preparation is very costly, financially, and personally. There is never enough time. But American must remain resolute, for what is the price of our freedom, of our country's well-being, of our lives.

Mr. GREENWOOD. Thank you very much for your testimony, Dr. Waeckerle.

Dr. Brinsfield, you are recognized for 5 minutes.

TESTIMONY OF KATHRYN BRINSFIELD

Ms. BRINSFIELD. Mr. Chairman, members of the subcommittee. My name is Kathryn Brinsfield. I am the Director of Research, Training, and Quality Improvement for Boston Emergency Medical Services, a practicing Emergency Medicine physician, and the Deputy Medical Commander of the National Disaster Medical System's International Medical and Surgical Response Team-East.

As the youngster on this panel, I would like to thank you for inviting me here to speak me on this topic.

On March 20, 1995, Sarin was released in the Tokyo subway system. The incident started at 7:55 a.m. And the last patient was treated before noon.

On September 11, 2001, the terrorist events at the World Trade Center killed over 6,000. The last live victim was rescued within 36 hours. All disasters are local. And terrorist disaster response is a local response.

Federal programs have helped prepare localities for dealing with these disasters, but there is still more to do. While Federal response provides important relief in the forms of specialized experience, credentialed personnel and supplies, the ability of a locality to rescue, treat, transport and provide definitive care to its own citizens weighs the balance between life and death. This holds true for bioterrorism, although in nontraditional ways.

Treatment and stabilization of a bioterrorist event is dependent on recognition that an event is under way, and recognition is dependent on the ability of local responders in the local public health office.

In Boston, we are lucky to have a strong Public Health Commission with Cabinet-level input into the operations of the city. This has allowed our local CDC office to take the lead in organizing a citywide hospital volume surveillance system which has, 2 years running, detected the onset of influenza in the State prior to laboratory isolation.

Our recent exposure to the West Nile virus proved that incident command training for public health professionals pays off and that the public health director can act as incident command with police, fire, EMS and other city agencies participating in a unified command structure.

In bioterrorism, the ability to respond is dependent on the education and equipment of the prehospital personnel and hospital providers.

In Boston, we are also fortunate to have an Emergency Medical Service with strong city support. This has allowed us to train all of our EMTs and paramedics in hazardous materials and bioterrorism. Even though the training materials are provided free to agencies, training and salary costs are not. Annual recurring training and fixed costs supported by the city are close to a half million dollars for a small agency alone.

For every 1,000 people exposed to anthrax, the cost of treating the victims prior to the arrival of a national pharmaceutical stockpile is $25,000.

In Boston, we are lucky to have funding through the HHS Office of Emergency Preparedness MMRS program. We are also fortunate to have the support of local hospital pharmacies and pharmacy colleges, who agreed to rotate the stock of antibiotics and provide pharmacists for us.

We also have a strong Conference of Boston Teaching Hospitals, which has a long history of working together to improve the health care in the city. Those relationships proved invaluable in pulling hospitals and physicians into the terrorism planning process through Emergency Medical Services over the last 5 years.

In Boston, we consider ourselves fortunate to have been one of the initial cities trained under the Domestic Preparedness program. Although not perfect, the DP program did several things well. It required all city public safety agencies to sit at the table and submit a unified training and equipment plan before training would be scheduled.

Second, it trained the personnel locally, allowing city workers to brainstorm at the breaks and in the sessions and meet people that they may be working with in the event of a disaster.

It provided adequate awareness training.

And it allowed instructors and students to share information and gain knowledge of other cities' plans.

Unfortunately, the program failed by its stand-alone nature and its sometimes "foster child" status among the various Federal agencies who have been responsible for its implementation. New programs need strong, clear Federal leadership that reflects interagency cooperation at the national level.

In a bioterrorist incident, the emergency department and medical clinic providers are truly first responders. In the initial DP bioterrorism tabletop exercise, cities were encouraged to do an anthrax hoax letter drill, testing the fire department HAZMAT response. In Boston, we went against the tide and held a tabletop with seven hospitals and all public safety agencies that tested our ability to respond to a pneumonic plague event.

As the events of September 11 have unfolded, many who were previously skeptical are now requesting training. Let's not lose this opportunity. Based on the Boston experience, I recommend that new programs: Should include a lessons-learned format; Should include hospitals in addition to city public health and safety agencies; Standardized funded training and protective equipment should be

provided for hospital-based, public health, EMS, as well as police and fire personnel.

Money should be tied to a universal citywide approach to the disaster. This would require several Federal agencies to either work together or outside their usual funding schemes. I believe this consolidation on the Federal level is critical to avoid a splintering of response on the local level.

In closing, I share with the committee that I was proud and honored to be a member of the Massachusetts 1 Disaster Medical Assistance Team that responded to the World Trade Center. Although, as a health care provider, it was frustrating to have so few live victims to treat, our mission to treat the rescuers was rewarding and awe-inspiring.

Nonetheless, I will be very happy if I never again find myself working across the street from 6,000 dead.

It is clear there's only so much the medical response community can do in an event of this size. My thoughts and hopes are with the law enforcement agencies that can prevent these tragedies.

[The prepared statement of Kathryn Brinsfield follows:]

PREPARED STATEMENT OF KATHRYN BRINSFIELD, DIRECTOR OF RESEARCH, TRAINING, AND QUALITY IMPROVEMENT, BOSTON EMERGENCY MEDICAL SERVICES

Mr. Chairman, members of the subcommittee, my name is Kathryn Brinsfield, MD, MPH. I am the Director of Research, Training, and Quality Improvement for Boston Emergency Medical Services, a practicing Emergency Medicine physician, and the Deputy Medical Commander of the National Disaster Medical System's International Medical and Surgical Response Team-East. I would like to thank you for inviting me here to speak on this topic.

On March 20, 1995, Sarin was released in the Tokyo Subway system. The incident started at 7:55 am; the last patient was treated before noon.

On September 11, 2001, the terrorist events at the World Trade Center killed over 6,000 and injured fewer than 2,000. The last live victim was rescued within thirty-six hours.

All disasters are local.

Terrorist disaster response is a local response.

Federal programs have helped prepare localities for dealing with these disasters but there is still more to do.

- Ensure that significant funding goes directly to localities so we can have the flexibility to plan our response based on our unique needs
- Enable local health and public safety agencies to work together with hospitals to coordinate a response
- Coordinate among agencies at the federal level to ensure unified interagency guidance, materials and funding.
- Follow-up Domestic Preparedness training with concrete information and lessons learned based planning guides.

From floods to fires to bombings, the initial minutes and hours of a disaster largely determine the number of victims that will survive. While federal response provides important relief in the forms of specialized experience, credentialed personnel and supplies, the ability of a locality to rescue, treat, transport and provide definitive care to its own citizens weighs the balance between life and death.

This holds true for bioterrorism, although in nontraditional ways. Treatment and stabilization of a terrorist event is dependent on recognition that an event is underway, and recognition is dependent on the ability of local responders and the local public health office.

In Boston, we are lucky to have a strong Public Health Commission, with Cabinet level input into the operations of the city, and strong funding and support. This has allowed our local CDC office to take the lead in organizing a citywide hospital volume surveillance system, which has two years running detected the onset of influenza in the state prior to laboratory isolation. If this type of system can detect influenza, it should be able to detect the flu like illness that may be a harbinger of bioterrorism. In addition, we have been able to develop a consortium of Boston hospital based infectious disease and emergency medicine providers, poison control center

representative, and zoo veterinarian, who meet quarterly, and have the ability to share information and alerts over the Internet. Our recent exposure to the West Nile Virus proved that Incident Command training for public health professionals pays off, and that the Public Health Director can act as Incident Command with Police, Fire and other city agencies participating in a Unified Command Structure.

Many localities are not so lucky, and rely on antiquated information systems, scarce personnel, and minimal recognition from the public safety agencies.

In bioterrorism, the ability to respond is dependent on the education and equipment of the prehospital personnel and hospital providers.

In Boston, we are also fortunate to have an emergency medical service with strong city support. This has allowed us to train all of our Emergency Medical Technicians and Paramedics to the hazardous materials operations level and domestic preparedness EMS-technician level. Even though the training materials, and sometimes the training, are provided free to agencies, training costs are not. We are also fortunate to have respiratory protective equipment provided. Annually recurring training and fit testing costs supported by the city are close to a half million dollars a year for our small agency alone. In an anthrax exposure for 1000 people, assuming the National Pharmaceutical Stockpile arrives and can be unloaded in seventy-two hours, the cost of antibiotics that must be on hand in a city to immediately treat exposed victims is 25,000 dollars. In Boston, we are lucky to have funding through the HHS Office of Emergency Preparedness MMRS program. We are also fortunate to have the support of the local hospital pharmacies, who have agreed to rotate this stock of antibiotics for us, so that they do not out-date, wasting our investment if no event happened in two years time. However, training and fit testing costs are renewable and supported by federal funding; while these costs may be small compared to a federal budget, they are large costs for local agencies.

We are also fortunate to have a strong Conference of Boston Teaching Hospitals, which has a long history of working together to improve health care in the city. This organization supports a hospital disaster committee and hospital EMS committee. These relationships proved invaluable over the last five years, in pulling hospitals and physicians into the terrorism planning process through EMS. In addition, we applaud the local hospital CEO's, who have been long sighted enough to recognize the importance of this issue, and provided funds for the construction of decontamination areas and staff training in the emergency departments.

Many private and hospital based EMS agencies do not have the funding or support to receive the necessary training or equipment, or to stockpile the necessary antibiotics. Many hospitals do not work in this type of collaborative environment, and are not able to participate in citywide planning. Few physicians receive any training in bioterrorism. Emergency Department and hospital overcrowding is a very real issue that will only be exacerbated in an event of any magnitude. Future preparedness funding should take these things into account.

In Boston, we consider ourselves fortunate to have been one of the initial cities trained under the Domestic Preparedness program. Although not perfect, the DP program did several things well.

First, it required all city public safety agencies to sit at the table, and submit a unified training and equipment plan before the training would be scheduled. Second, it trained the personnel locally, allowing city workers to brainstorm at the breaks and in the sessions, and meet people they may be working with in the event of a disaster. Third, it provided an adequate awareness training of terrorism. Finally, it allowed instructors and students to share information, and gain knowledge of many other cities' plans.

Unfortunately, the program failed by its stand-alone nature, and its sometimes "foster child" status among the various federal agencies who, at one time or another, have been responsible for its implementation. New programs need strong, clear federal leadership that reflects interagency cooperation at the national level.

Domestic Preparedness was an awareness level program, and should have been followed by more concrete information and coordinated planning guides. Every locality is different, but every locality can learn some lesson from each other. Planning guides were produced separately by various agencies, and no other effort took into account the need for fire, police, and emergency medical personnel to collaborate on a single city plan.

At the time the program was started, the importance of bioterrorism, and the delayed manner in which it would appear was not appreciated. We now realize that in a bioterrorist incident, the Emergency Department and Medical Clinic providers are truly the first responders. In the initial DP bioterrorism tabletop exercise, cities were encouraged to do an anthrax hoax letter drill, testing the fire department HAZMAT response, but ignoring the hospitals and public health system. In March of 1999 in Boston, we went against the tide and held a tabletop with seven hos-

pitals, all public safety agencies, and several state and federal agencies participating that tested our ability to respond to a Pneumonic Plague event.

As the events of September 11th have unfolded, many who were previously skeptical are now requesting training. Let's not lose this opportunity. Based on the Boston experience, I recommend that

- New programs should include a lessons learned format, with concrete references and examples to help localities plan.
- New programs should be planned to include hospitals in addition to city public health and safety agencies
- Standardized, funded training and protective equipment should be provided for hospital based, public health, EMS, police and fire personnel.
- Monies should be tied to a universal, citywide approach to the disaster. This would require several federal agencies to either work together or outside their usual funding schemes. I believe this consolidation on the federal level is critical to avoid a splintering of response on the local level.

In closing, I share with the committee that I was proud and honored to be a member of the Massachusetts 1 Disaster Medical Assistance Team that responded to the World Trade Center. Although as a health care provider it was frustrating to have so few live victims to treat, our mission to treat the rescuers was rewarding and awe-inspiring.

Nonetheless, I will be very happy if I never again find myself working across the street from 6000 dead. It is clear there is only so much the medical response community can do in an event of this size. My thoughts and hopes are with the law enforcement agencies that can prevent these tragedies

Thank you.

Mr. GREENWOOD. Thank you very much, Dr. Brinsfield.

Dr. Stringer, you're recognized for 5 minutes for your statement.

TESTIMONY OF LLEWELLYN W. STRINGER, JR.

Mr. STRINGER. Good morning, Mr. Chairman, members of the committee. Thank you for allowing me to be here today.

I have long experience in emergency management as a local EMS Medical Director, commanding officer of the disaster medical team in North Carolina. I am the Medical Director of the North Carolina Division of Emergency Management, and for the last 10 years I've served as the Medical Director for ESF-8 or the U.S. Public Health Service's response to many natural and now man-made disasters.

Back in 1995 when the initiatives on weapons of mass destruction was started, I was one of about 16 people that Dr. Frank Young brought to the Office of Emergency Preparedness to look at what was it from the health side that Federal ought to do. Two things we came up with.

No. 1, as you've heard before, it's local. So we felt that we needed to coordinate, train and equip a unified local medical response team which is now known as the Metropolitan Medical Response System.

The second thing was to form some federally sponsored medical teams known as the National Medical Response Team for weapons of mass destruction. They would be highly trained, highly equipped, fast to go and assist the local community in such an event.

All of these have gotten started. 120 cities, as you know, have been picked for Nunn-Lugar-Domenici training courses. Of those, as of December 2000, 68 cities have been completed, and 37 more have been started. After the Nunn-Lugar-Domenici training, then the Office of Emergency Preparedness for the U.S. Public Health Service gives an award or a contract of approximately $600,000 to each city to finish their training.

Remember, the first one was trained to train only, to finish that training, to develop a team, to have a unified training program, a plan that included even the health departments and the hospitals and to purchase the equipment. As of September 1, 2001, 97 cities have been partly—correction—97 cities have received or are in the process of receiving these grants. Of those 97, 49 are considered to be partially or fully functional.

Disturbing thing to me is, of those 49, not but 26 have purchased their medications. In my opinion, it's going to be another 5 or 6 years before all 120 cities truly are functional, ready to roll.

But what about the other communities in this country that are not funded, that are not trained? The Office of Justice program has instituted 1999, 2000, 2001 monies to help the States and the communities that weren't included in this, try to get their training and equipment. The assessment part was extremely confusing that they required us to fill out. Only four States have turned in their assessments and three are planned. North Carolina, we've been working on this for a year and a half, and it's going to be the end of this year before we can even turn our paperwork in. It's too restrictive.

When questions are asked of OJP, you get many different answers. There was not enough funding to the States to assist the locals with trying to efficiently develop their needs assessment and what their problems were and where we needed to go. You don't get your 2000 and 2001 monies till the assessment and 3-year plan is turned in. Many areas in my State won't get any money, and the cities that we determine that are high risk are not going to get what they need.

We need more money. We need to get the 2000 and 2001 funds turned loose to the State now. We need to let the States decide what's needed and where and not tie our hands with so many restrictions. I think States know how to best help their communities.

As far as the health and the health initiatives, you've heard today the first responders are cops, firemen, HAZMAT and EMS. They're also docs and nurses. We've got to include the hospitals and the health care system in this training, in the equipping and in the planning for not just bioterrorism but for just handling a pandemic. It's got to happen.

There's not much in the way of Federal initiatives for the health care community; and the health care community, as you've heard, on a day-to-day basis functions in the crisis mode. As the Medical Director of North Carolina State Emergency Management, I can tell you now they have decided that they need not to consider this a "hope-not" plan, but they need to get some help. They are very concerned, as everyone in this country is.

CDC has developed an excellent program on bioterrorism. It's a template that the hospitals can start with and work with.

Also, the Office of Emergency Preparedness has a health care WMD training program at the Noble Training Center at Fort McCullen, which is just getting off the ground; and I think it's going to go a good job with that. It needs some more support. It's going to be like Emmitsburg for FEMA.

The four national medical response teams, which are the only assets that are available within the Federal Government's Office of Emergency Preparedness to go and assist communities in time of

an NBC event, are inadequately funded. They're highly trained professional medical personnel who do around 100 extra hours of training in addition to their requirements for their job a year at no payment at all. We have consistently asked for more funding for maintenance and readiness of the four response teams to go help the local community, but there's been very little increased support for us.

Since there are just four teams in the Nation like this, I think it would be rather cheap insurance to improve the funding so that we can at least name four entities that can get off the ground or go by ground in less than 4 hours response, any time, day or night, to help a community.

I've heard 7,000 quoted medical professionals that NDMS has that could go help people. They need job protection, sir. Right now, they have none. They need to know that they can leave when they are activated to go help, and they need to know that I have got a job when they get home, which does not happen at present. Please pass House bill 2233 to give these people some job protection.

After reading about, hearing about all the money that Congress has been appropriating these activities, in my job as both the local, State and Federal responder, I just don't understand where all the money has gone.

Thank you for allowing me to be here.

[The prepared statement of Llewellyn W. Stringer, Jr. follows:]

PREPARED STATEMENT OF LLEWELLYN W. STRINGER, JR. MEDICAL DIRECTOR, NORTH CAROLINA DIVISION OF EMERGENCY MANAGEMENT

Mr. Chairman and Members of the Committee, thank you for inviting me here today to discuss the issue of Weapons of Mass Destruction Preparedness. I am Dr. Lew Stringer, Medical Director of the North Carolina Division of Emergency Management. I have a long history of emergency management experience that ranges from services as a local EMS Medical Director for 27 years, Director of the Special Operations Response Team a disaster organization in North Carolina and involvement with the National Disaster Medical System through the Office of Emergency Preparedness, USPHS since 1990.

In 1995, because of concerns regarding Weapons of Mass Destruction (WMD) in the US, I was one on sixteen people asked by the Office of Emergency Preparedness, USPHS, to advise and develop strategies to deal with the consequence management of a WMD event. PDD 39 and the Nunn-Lugar-Demenici initiative were enacted during this time. Our group concluded that from the consequence management side, a WMD event was primarily a local issue. Local agencies needed to be trained, organized in a uniform manner and equipped to deal with the initial response in order to save lives. Mutual aid agreements needed to be in place with surrounding communities and state agencies should be immediately involved. The state agencies should respond to assist the "locals" in dealing with this complex and unusual emergency event that would rapidly overwhelm most local communities. Our group concluded that law enforcement, fire, HAZMAT, EMS, hospitals, Public Health, and local emergency management had to be brought together to assess additional training, organizational and equipment needs. These agencies needed to develop a plan. And, they needed assistance from the federal government.

Our committee named this new local entity the Metropolitan Medical Response Team, MMRT. In 1997, the first MMRT was formed in Washington, D.C. From that team concept, came the resource material to be used by OEP/USPHS for the other cities in the system. 120 of the largest cities in the US were selected to receive the Nunn-Lugar-Demenici training grants administer by DoD and then to receive the grants administered by the OEP/USPHS to organize and equip these MMST's. They are now known as *Metropolitan Medical Response Systems,* MMRS. It was our recommendation that several regional specialized medical response teams be formed and equipped by the National Disaster Medical System, OEP/USPHS to respond rapidly to assist communities affected by the WMD event. These teams were founded as *Nation Medical Response Team,* NMRT/WMD. I developed the first SOP for

the NMRT's early in 1996. There are four teams. I am the commander of the NMRT/WMD East, in Winston-Salem, N.C.

As of December 21, 2000, of the 120 designated MMRS cities/metropolitan areas, DoD had completed the training for 68 cities and had begun the training of 37 additional cities before the program was turned over to the Office of Justice Program (OJP) to administer. After a city completed the NLD Domestic Preparedness Program "Train the Trainer", OEP/USPHS contracts with the city's metropolitan area, providing a $ 600,000 grant for the development of plans, additional training, and equipment purchases to give the metropolitan area a unified multi-discipline team capable of responding to a terrorist event. According to OEP/USPHS, as of September 2001, 97 cities have received or in the process of receiving funding from OEP. OEP states that 49 cities are fully or partially functional. Only 26 cities have purchased the pharmaceuticals necessary to treat the victims. It is my opinion, looking at information I have received from several federal agencies, that it will be 5-6 years before all 120 cities are fully functional.

In 1999, OJP initiated a nationwide assessment of vulnerability, threat, risk, capabilities, and needs. Each state with their local jurisdictions was to complete this assessment and develop a long-range plan that was to include federal funding for the purchase of needed equipment. I have been told, that by September 2001, only four (4) states (give names) have turned in their completed assessment making them eligible for the 2000-2001 monies. Funding is not released until the completed assessment along with a three-year strategic plan is returned to OJP.

It has taken my state of North Carolina 1 ° years to complete the assessment and the 3-year plan. I have found the assessment to be complex and difficult to complete. NC does not have the resources to collect the data in a timely fashion. Local jurisdictions needed help in amassing the information. There is much diversity within the state, large cities and small rural counties made completing complicated.

The plan for North Carolina includes:

1) Equipping our 6 regional HAZMAT response teams, our highway patrol, and our state disaster team
2) Assisting financially our largest cities or highest risk cities (metropolitan area affecting 20 counties). Of our 100 counties, 80 counties will receive no financial assistance. Charlotte, NC, the second largest banking center in the US, will not receive funding through our plan, because they received separate financing from Congress.

In an explosive, chemical or nuclear event, victims are concentrated in that area. First responders will rescue, decontaminate, treat, and transport victims to health care facilities. With a biological event, victims will not likely be concentrated in any one area. Victims will receive most of their treatment at health care facilities. In this biological scenario, health care workers will be the first responders.

Until the horrendous events at the World Trade Center and the Pentagon and in the past history of disasters, victims have self-triaged to health care facilities bypassing the EMS system. In our present structure, ONLY law enforcement, fire, HAZMAT and EMS are considered First Responders by the federal government and eligible for funding in WMD Preparedness. This shortfall was pointed out to Congress in the 2000 Gilmore Report. The Noble Training Center, OEP/USPHS at Fort McCullen in Alabama is the only federally funded WMD training support for health care workers that I know in existence today.

CDC has an excellent program, well received by the states, to assist states and local communities with a WMD event:

1) The National Pharmaceutical Stockpile, NPS, delivered on site in 6-12 hours.
2) State grants to improve and upgrade laboratories and improve reporting of disease patterns. These grants assist state and local public health services to upgrade labs for agent identification, develop Bio-terrorist planning, implementation of the electronic surveillance programs of the Health Alert Network, and collect epidemiological information.

The health care community has been a difficult player to bring to the WMD planning table. Sadly, the health care systems operate in a "crisis mode" of staffing and financial problems on a daily basis. Several health care facility managers in my state of North Carolina have told me, "I have no time or finances for a hope not activity". This attitude must change. (We) in emergency management must help the health care system with planning, training and equipment to enable these dedicated individuals, be prepared to safely receive and effectively treat WMD victims.

I look at the support provided by the OEP's National Disaster Medical System for the four National Medical Response Teams for WMD. The 4 teams, staffed by volunteers who have to train without pay, receive limited funds for additional equip purchases and maintence. This funding is not enough to maintain the NMRT's proper

readiness state to respond to assist state or local communities. It would be proper, in my opinion, to increase the funding for the NMRT program.

I believe that the health care system must be funded and supported to become an active player in order to resolve the consequences of a WMD event. I am concerned that many cities will not be able to effectively manage the consequences of a WMD event for the next 4-5 years. I have pointed out to you that in my state of North Carolina, like many other states, little or no training or equipment is in place to respond to a WMD event if it occurred today.

As a state and a local emergency management official, I understand that it will be the state and local governments that will respond and manage the consequences of such an event for many hours and even after the federal assets arrive.

I have read about all of the money appropriated by Congress to the many federal agencies for WMD Preparedness. Frankly, I wonder and do not understand where all that money has gone?

Mr. GREENWOOD. Well, thank you, Dr. Stringer. We thank Congressman Burr for bringing you and your expertise to the attention of the committee and assure you that a large part of our effort here is to find out exactly where all the money is going and how well it's being spent.

Mr. Peterson you're now recognized for 5 minutes for your statement as well. Thank you.

TESTIMONY OF RONALD R. PETERSON

Mr. PETERSON. Mr. Chairman, good morning. Thank you.

I am Ron Peterson, President of The Johns Hopkins Hospital and Health System in Baltimore. I'm here today on behalf of the 5,000 hospitals, health systems, networks and other health care provider members of the AHA. We appreciate the opportunity to present our views on an issue of great concern to hospitals and communities across America, namely the readiness for a potential terrorist attack utilizing chemical or biological weapons.

On September 11, hospitals in New York, New Jersey, Connecticut, Virginia, Washington, DC, Maryland and Pennsylvania all relied on their training and experience. Shortly after the crash at the Pentagon, Secretary Tommy Thompson called to tell us that we might receive casualties at The Johns Hopkins Hospital. We immediately activated our disaster control centers at our three hospitals, ceased elective surgeries at all three hospitals and began to identify candidates for early discharge to increase capacity.

Our Baltimore Regional Burn Center was placed in a high state of readiness. That afternoon we sent burn supplies to the Washington Hospital Center and to Walter Reed Hospital.

Some of our emergency physicians with Oklahoma City experience were called on by FEMA to assist at the Pentagon, and we sent teams to augment the Red Cross blood drive across from the White House.

Our health care workers, like others, grieved when they could not do more, but our emergency plans were in place and worked effectively. We were ready.

But now we must plan for the extraordinary. To help America's hospitals with this planning, the AHA has created a disaster readiness site on its Web page engaged in frequent communication about biological and chemical preparedness and sent two advisories on hospital readiness. Our recommendations have included the following:

First, hospitals must be more highly integrated in the local public safety infrastructure with police, fire, EMS and public health.

Hospitals need to increase inventories of drugs and antibiotics to combat the effects of chemical and biological weapons.

Hospitals need to increase the supplies of ventilators and respirators, gloves, gowns and masks, the basic ingredients needed to treat victims of a mass disaster, as well to protect health care workers.

Hospitals need to establish better communications with public safety entities to coordinate care.

Hospitals must improve surveillance and detection to watch for potential biological outbreaks.

Hospitals also need backup water supplies, auxiliary power, sources and increased fuel storage.

We need our hospitals to be secure and safe and be able to lock down if necessary.

Hospitals need to enhance their current decontamination capability, and hospitals may need to filter and otherwise modify the air circulation systems of buildings that are designated to receive patients that might be infected with contagions so that infections are not spread through the air.

The Federal Government can provide financial assistance to help ensure that hospitals and local agencies are able to respond to potential attacks. These funds would help meet the challenges outlined above, including inventories of drugs and equipment.

Now, at The Johns Hopkins Hospital and Health System, we are aggressively pursuing the recommendations that I've just addressed. The Johns Hopkins Hospital alone will need to spend at least $7 million to prepare for these kinds of attacks. As an example of the expense that we will incur, we plan to purchase 1,000 powered air purifying respiratory masks at a unit cost of $300 dollars, a total of $300,000. That figure will get those masks to just one-seventh of our total employee population, those who are most likely to come in contact with infected patient. We will add 50 ventilators to our ventilator fleet, for a total price tag of $1.5 million. We will stock 4 days worth of vital antibiotics and other medication antidotes to treat 100 victims at a cost of about $600,000. These are but three practical examples that buildup cumulatively to the number, the $7 million figure that I suggested. These are three of about a dozen major categories.

In order to meet the challenges I've outlined, hospitals also need staff support. You should be aware that right now American hospitals are facing a severe workforce shortage, particularly for skilled help. For example, hospitals nationwide have 126,000 vacancies for registered nurses. This shortage cuts right to the heart of communities across America and our ability to be ready for any need.

Legislation has been introduced to address the workforce shortage, and we urge its passage.

You have our commitment, Mr. Chairman, to work with you to address the many challenges hospitals will face as they prepare for what was once the unthinkable. Our Nation's nurses, doctors and other health care workers are caring, committed, compassionate

people who are devoted to their communities. They answered the call on September 11, and they stand ready to do so again.

Thank you, sir.

[The prepared statement of Ronald R. Peterson follows:]

PREPARED STATEMENT OF RON PETERSON, PRESIDENT, THE JOHNS HOPKINS HOSPITAL AND HEALTH SYSTEM, ON BEHALF OF THE AMERICAN HOSPITAL ASSOCIATION

Mr. Chairman, I am Ron Peterson, President of The Johns Hopkins Hospital and Health System in Baltimore, Maryland. I am here today representing the American Hospital Association (AHA) and it's nearly 5,000 hospitals, health systems, networks, and other providers of care. We appreciate this opportunity to present our views on an issue that is dramatically affecting hospitals and communities across America: readiness for a potential terrorist attack utilizing chemical, biological or radiological (CBR) weapons.

September 11 introduced a new consciousness to the collective American mind. We find ourselves faced with the task of preparing for new threats that once seemed unimaginable. Among those threats is the potential use of CBR against our citizens.

HOSPITAL DISASTER PLANS

To answer these and other threats, hospitals nationwide, like those that directly responded to the September 11 tragedies, have disaster plans in place that have been carefully developed and tested. The plans are multi-purpose and flexible in nature because the number of potential disaster scenarios is large. As a result, hospitals maintain an "all-hazards" plan that provides the framework for managing the consequences of a range of events. Hospitals conduct at least two drills a year: one may be focused on an internal event, such as a complete power failure. Another must be focused on an external event, such as a major highway crash, a hurricane or an earthquake. A hospital near an airport, for example, might focus on responding to an airplane crash, while a hospital near a nuclear plant or an oil refinery would focus on responding to the consequences of incidents at those sites. It is important to remember that all incidents are local, and that local agencies and organizations must work together so that response mechanisms are tailored to the needs of their community.

A good example of how hospitals worked with their communities to prepare for a wide range of possibilities was the change of the calendar to the year 2000. Throughout 1999, hospitals across the nation engaged in a major preparedness effort: Y2K readiness. While Y2K was easier to address than mass casualty readiness, because it had a known time . . . midnight of December 31 . . . and place . . . the hospital . . . the consequences were unknown. Hospitals were ready.

Mass casualty preparedness is similar, because the possibilities are many. But it is also different because of its uncertainty. No one can accurately predict when an incident will occur, where it will occur, or what will be its cause and consequences. That is why the all-hazards plan, tailored to suit the needs of each individual hospital and its community, has provided an excellent framework for doctors and nurses forced into action by a wide range of events. Nowhere was this better reinforced than on September 11.

SEPTEMBER 11: HOSPITAL REACTION

When hospitals in New York received the call to expect thousands of injured patients, triage teams were immediately set up, rehabilitation centers were transformed into auxiliary emergency rooms, and hundreds of off-duty nurses and doctors swarmed the hospital to offer assistance. Hospitals in New Jersey and Connecticut were also at the ready. In Washington, readiness paid off as regional hospitals in Virginia, the District of Columbia and Maryland launched into their disaster modes. And in Pennsylvania, facilities in the southwest part of the state were ready to provide care for victims of the airplane crash there. When the emergency plan went into effect, everyone was in their place, doing their jobs. Nurses, doctors, and others, working side by side, communicating effectively, relying on teamwork and training to assist the incoming wounded.

Different cities, different hospitals, hundreds of miles away from each other, each responding efficiently to a direct hit of terrorism. Each reacted in a positive, planned manner that not only saved lives, but also proved that America's health care heroes are dedicated, caring professionals who are ready for the worst of circumstances. The health care professionals and volunteers at all the sites were pre-

pared to treat far more patients than actually came to them. Death tolls were simply too high, and health care workers grieved that they couldn't do more.

LEARNING TOOLS

It is important to realize each incident is used to improve our preparedness. Disaster managers use the term "after action analysis" to describe the types of activities that are conducted to study what happened, what worked and what did not. The AHA and its state, regional and metropolitan associations work with our member hospitals to share throughout the field critical information that can be derived from responses to events. The following are important facts that we already know:

- By definition, a mass casualty incident would overwhelm the resources of most individual hospitals. Equally important, a mass casualty incident is likely to impose a sustained demand for health care services rather than the short, intense peak customary with many smaller scale disasters. This adds a new dimension and many new issues to readiness planning for hospitals.
- Hospitals, because of their emergency services and 24-hour a day operation, will be seen by the public as a vital resource for diagnosis, treatment, and follow up for both physical and psychological care.
- To increase readiness for mass casualties, hospitals have to expand their focus to include planning within the institution, planning with other hospitals and providers, and planning with other community agencies.
- Traditional planning has not included the scenario in which the hospital may be the victim of a disaster and may not be able to continue to provide care. Hospital planners should consider the possibility that a hospital might need to evacuate, quarantine or divert incoming patients.
- Readiness could benefit from exploring the concept of "reserve staff' that identifies physicians, nurses and hospital workers who are retired, have changed careers to work outside of health care, or now work in areas other than direct patient care (e.g., risk management, utilization review). The development of a list of candidates for a community-wide "reserve staff" will require that we regularly train and update the reserves so that they can immediately step into various roles in the hospital, thereby allowing regular hospital staff to focus on taking care of incident casualties.
- Hospital readiness can be increased if state licensure bodies, working through the Federation of State Medical Boards, develop procedures allowing physicians licensed in one jurisdiction to practice in another under defined emergency conditions. Nursing licensure bodies could increase preparedness by adopting similar procedures or by adopting the "Nursing Compact" presently being implemented by several states.

BIOTERRORISM

The threat of chemical, biological and radiological agents has become a focus of counterterrorism efforts because these weapons have a number of characteristics that make them attractive to terrorists. Specifically, biological agents pose perhaps the greatest threat. Dispersed via the air handling system of a large public building, for example, a very small quantity may produce as many casualties as a large truckful of conventional explosives, making acquisition, storage and transport of a powerful weapon much more feasible. Some CBR agents may be delivered as "invisible killers," colorless, odorless and tasteless aerosols or gases.

The distinguishing feature of some biological agents—such as plague or smallpox—is their ability to spread. The victim may even become a source of infection to additional victims. The effects of viruses, bacteria and fungi may not become apparent until days or weeks after initial exposure, so there will be no concentration of victims in time and locale to help medical personnel arrive at a diagnosis. Exposure to biological agents may cause a variety of symptoms, including high fever, skin blisters, muscle paralysis, severe pneumonia, or death, if untreated.

HOSPITAL READINESS

Because September 11 redefined the meaning of disaster, hospitals are now upgrading their existing readiness plans to meet the new needs of their communities. Since the risk of chemical and biological attacks is now an obvious concern, hospitals are reassessing their current plans. The AHA so far has sent two Disaster Readiness Advisories to all of America's hospitals with information and resources to help them in this effort.

The following are among the key items that we believe need to be addressed to help hospitals as they update their disaster plans to meet the challenges of a threat

that, until recently, seemed hypothetical: an attack using chemical, biological or radiological agents.

Medical and pharmaceutical supplies—Hospitals must be properly stocked with antibiotics, antitoxins, antidotes, ventilators, respirators, and other supplies and equipment needed to treat patients in a mass casualty event.

Communication and notification—There is a need for greater coordination of public safety and hospital communications, the ability of different entities to communicate with each other on demand. In addition, alternative and redundant systems will be required in case existing systems fail in an emergency.

Surveillance and detection—Improving hospital laboratory surveillance and the epidemiology infrastructure will be critical to determining whether a cluster of disease is related to the release of a biological or chemical agent. The ability to rapidly identify the agent involved is vital.

Personal protection—Hospital supplies of gloves, gowns, masks, etc. would quickly be used up during an attack, and equipment like canister masks is rarely kept in adequate numbers to meet demands of a large casualty attack.

Hospital facility—Among the capabilities hospitals will need in the event of an attack: lockdown ability; auxiliary power; extra security; increased fuel storage capacity; and large volume water purification equipment.

Dedicated decontamination facilities—Hospitals need a minimal capability for small events and the ability to ramp-up quickly for a larger event.

Training and drills—Staff training is needed at all levels for all types of potential disasters. Additional disaster drills beyond the two per year required by JCAHO, particularly community-wide drills, would enhance the level of hospital readiness.

Mental health resources—Mass casualty events trigger escalated emotional responses. Hospitals must be ready to treat not only patients exhibiting these symptoms, but others, such as family members, emergency personnel and staff.

COMMUNICATION/TRANSPORTATION ISSUES

To truly solidify response readiness, the federal government should help establish an emergency communication and transportation strategy. During the recent attacks, street closings and clogged roads impeded EMS workers as they tried to reach the affected areas, and hindered quick access to hospitals. No-fly zones were implemented to prevent other air attacks, but those zones hindered med-evac helicopters and other air transports that shipped blood and bandages to hospitals in dire need. Hospitals need assistance from Federal Aviation Administration officials to keep the skies open to critical medical aircraft.

In addition, any biochemical attack will require the coordination of local, state and federal agencies. In response, the Centers for Disease Control and Prevention have invested in and upgraded state-of-the-art labs to identify and monitor reports of suspicious cases of illness across the country. Working in conjunction with state and local epidemiologists, they will communicate their findings to government agencies.

READINESS RESOURCES

Realistically, America can never afford to prepare every hospital in the country for every possibility of attack. However, the federal government can provide assistance to help ensure that hospitals and their local agencies are best able to respond to potential attacks. These funds would be earmarked to meet the challenges outlined above, including inventories of the necessary drugs and equipment needed to help victims of terrorist attacks. Communities need the funding to assist their hospitals and expand their emergency relief teams, as well as to establish or implement new systems of readiness.

HOSPITAL CHALLENGES

There is no more important strategy in this domestic war on terrorism than to help our hospitals reach a state of readiness. But if America's hospitals are to enhance their readiness for a new world of possibilities, they must have in place the people they need to do the job. However, America's hospitals are experiencing a workforce shortage that will worsen as "baby boomers' retire. Currently, our health systems have 126,000 open positions for registered nurses, for example. The United States Department of Health and Human Services predicts a nationwide shortage of 400,000 nurses by 2020. There also are shortages of other key personnel, such as pharmacists. This shortage cuts to the core of America's health care system, because dedicated, caring people are the heart of health care.

Fortunately, Congress has recognized the importance of this issue. Legislation has been introduced that can help hospitals attract and maintain the health care workforce that is needed to ensure that our patients receive the right care, at the right time, in the right place. For example, the Nurse Reinvestment Act (S.706/H.R. 1436) offers the right step to ensure health care professionals avert the collision course we face with lack of hospital staff.

CONCLUSION

The United States has been thrust into a new era. Our hospitals have always been ready for the foreseeable. Now we must plan for the previously inconceivable. Hospitals are upgrading existing disaster plans, and continue to tailor their disaster plans to suit the individual needs of the community in the face of new threats.

America can be comforted that, as we have witnessed over the last few weeks of our national tragedy, highly trained, caring doctors, nurses and other professionals are the heart of our health care system. They perform heroic, lifesaving acts every day. And, in the face of the unexpected, they can be depended on to rise to the needs of their communities.

The AHA has worked closely with the administration on this important issue, especially with Sec. Thompson. We look forward to working with Congress as we help ensure that the people we serve get the care they need in any and all circumstances.

Mr. GREENWOOD. Thank you very much for your remarks.

Dr. O'Leary you're recognized for 5 minutes for your opening statement, please.

TESTIMONY OF DENNIS O'LEARY

Mr. O'LEARY. Thank you, Mr. Chairman.

I'm Dennis O'Leary, President of the Joint Commission on Accreditation of Healthcare Organizations. We appreciate the opportunity to testify on the ability of this country's infrastructure to deal with acts of bioterrorism.

The medical and public health systems deserve particularly close examination. Their effective integration would not only enhance our terrorism response capacity, it would also expand our ability to deal with a broad range of public health threats such as emergent infectious diseases and epidemics. It is my intent to make a case for the development of integrated community approaches to preparedness that flow from Federal leadership.

The Joint Commission has long accredited most of this country's hospitals. We also evaluate and oversee home care agencies, ambulatory care centers, behavorial health programs, nursing homes, clinical laboratories, and managed care plans, among other health care delivery entities.

The scope of our involvement in the health care delivery system places us in a unique position to both set expectations for readiness across the entire spectrum of provider services and to measure adherence to these expectations. For many decades, the Joint Commission has required that accredited health care organizations meet established disaster preparedness standards, but several years ago we decided to develop new standards that would expand the ability of individual health care organizations to deal with rare events through broad engagement with their community.

First, we have shifted the focus of the standards from simple emergency preparedness to emergency management. Now health care organizations are expected to address four specific phases of disaster planning: mitigation, preparedness, response and recovery. This means planning as to how an organization would lessen the impact on its services following an emergency, how organization op-

erations might need to be altered in the heat of the crisis and how to return the organization to normal functioning once a crisis has passed.

Second, the new standards require accredited organizations to take an all-hazards approach to planning. Organizations must develop a chain of command approach that is common to all hazards which are credible threats in their community. This planning starts with a vulnerability analysis against an unconstrained list of extreme events, including terrorism, and then critically appraises their probability of occurrence, their risk to the organization and the community and the capacity for responding to each potential threat.

The last new requirement is the expectation that each health care organization annually participate in at least one community-wide practice drill relevant to its vulnerability analysis. Large-scale drills can be extremely instructive in plotting out the typical effects of bioterrorism over a period of weeks and in identifying unanticipated planning gaps. Because these drills are time-consuming and expensive to conduct, government financial incentives should be used to leverage ongoing engagement in such activities.

We as a Nation are not unprepared to deal with bioterrorism, but our Nation's public health and medical systems could be better prepared than they are today. To that end I would like to offer a series of recommendations for upgrading our system capabilities.

First, more medical care workers must be trained to become familiar with pathogens that may be used in bioterrorism, aware of the symptoms they produce, knowledgeable about their route of transmission and alert to the possibility of their use.

The reality is that most practicing physicians would not recognize a case of anthrax, tularemia or smallpox, nor would they know what kinds of specimens to collect for testing, how to handle such specimens or which clinical laboratories possess the expertise to detect the rare agents that could be used as terrorist weapons.

Second, it is essential that a single integrated system of response be created that will be effective in addressing a full range of diseases and rare events, whether of terrorists or natural origins. This system should be a blueprint for action that is also scalable to the extent of the emergency and to the settings that are involved. The framework should be community-wide and utilize common concepts so that it is transportable.

Third, a public health surveillance system should be established that can promptly detect naturally occurring epidemics as well as terrorist activity. The rapidity with which a rare disease or terrorist weapon is recognized at the provider level and communicated to the public health experts will largely determine the extent of its spread and the overall mortality rate. A surveillance system should be designed for the routine collection of automated data and presenting symptoms and laboratory findings that points of delivery system entry. Monitoring the data would provide an early warning system for potentially disastrous trends that might otherwise go undetected.

Finally, it is essential that the national funding policies which have progressively reduced the elasticity of the medical system to respond to peak demands be reevaluated. For more than two dec-

ades, public policymakers have taken clear steps to reduce the excess delivery system capacity, but we are entering a new era that requires a reexamination of fiscal public policy on emergency preparedness. We are not advocating an unfettered buildup of delivery system capacity but rather a strategic reassessment of the resources needed to assure necessary system elasticity in the face of national or local crises.

In conclusion, local emergency management requires government support that goes well beyond the availability of vaccines, antibiotics and medical technology. There are definitive needs for investment in the conduct of risk analyses, in the development of community infrastructures, in the training of key health personnel and an information gathering, monitoring and dissemination; and, in the end, government must set national priorities for resource deployment and ensure that emergency management efforts are carried out effectively at the local level.

It is essential that this country start to address the identified needs with all due haste. In this regard, the Joint Commission stands ready to commit additional resources toward meeting our collective national readiness goals.

Thank you.

[The prepared statement of Dennis O'Leary follows:]

PREPARED STATEMENT OF DENNIS O'LEARY, PRESIDENT, JOINT COMMISSION ON ACCREDITATION OF HEALTHCARE ORGANIZATIONS

I am Dr. Dennis O'Leary, President of the Joint Commission on Accreditation of Healthcare Organizations. We very much appreciate the opportunity to testify on this critically important "Review of Federal Bioterrorism Preparedness Programs from a Public Health Perspective." The tragic events of September 11, 2001 have served as an unwelcome catalyst for focusing on this country's ability to deal with acts of terrorism. All aspects of our nation's infrastructure have received renewed, and in some cases, heightened attention to their particular vulnerabilities and response capabilities. The medical care and public health systems perhaps deserve exceptional attention because they will assuredly be the centerpiece of any response to—and therefore be severally strained by—any terroristic event involving substantial illness or injury to multiple individuals. However, these systems also deserve close examination because our citizens can reap significant benefits from strengthening this interface even if bioterrorists do not strike. The value of a well-integrated medical and public health infrastructure transcends terrorism and expands our capacity to deal with a broad range of public health threats, such as emergent infectious diseases and epidemics.

I am here today to speak specifically about how the Joint Commission fits into the framework for bioterrorism preparedness and how we see ourselves playing a continuing, significant role in facilitating the readiness of our nation's health care organizations to respond to untoward events. I will be raising for consideration some vulnerabilities in the current ability of the medical system to respond effectively to bioterrorism and making suggestions about solutions. It is my intent to make a strong case for the development of system-wide, integrated community approaches to preparedness that flow from federal leadership. And I want to underscore that a strong nexus between the medical and public health systems is critical to improving and maintaining our preparedness.

For those of you who are not familiar with the Joint Commission, we are the nation's predominant health care standard-setting and accrediting body. The Joint Commission is a not-for-profit, private sector entity that was founded in 1951, and is dedicated to improving the safety and quality of care provided to the public. Our member organizations are the American College of Surgeons; the American Medical Association; the American Hospital Association; the American College of Physicians-American Society of Internal Medicine; and the American Dental Association. In addition to these organizations, the 28 member Board of Commissioners includes representation from the field of nursing, and public members whose expertise covers such diverse areas as ethics, public policy, and health insurance.

The Joint Commission accredits approximately 18,000 health care organizations, including a substantial majority of hospitals in this country. Our accreditation programs also provide quality oversight for home care agencies; ambulatory care centers and offices whose services range from primary care to outpatient surgery; behavioral health care programs; nursing homes; hospices; assisted living residencies; clinical laboratories; and managed care entities. The Joint Commission is also active internationally and, in fact, has provided consultation services on bioterrorism preparedness overseas.

The scope of our involvement in the health care delivery system places us in a unique position to both set expectations for readiness across the entire spectrum of provider services and to measure adherence to those expectations. However, leadership and resource commitments at the federal, state and local levels are also essential to any effective bioterrorism response capacity.

THE JOINT COMMISSION'S STANDARDS ON EMERGENCY MANAGEMENT

For many decades, the Joint Commission has required that its accredited health care organizations meet established disaster preparedness standards. Not surprisingly, these standards have focused on natural disasters such as tornadoes, floods, hurricanes and earthquakes; and on certain uncommon accidents such as power plant failures, chemical spills or fire-related disasters. Organizations have been required to develop internal response plans and conduct periodic staff drills to determine that these plans actually work. During on-site surveys, our surveyors review these plans as well as the results of the staff drills.

Several years ago, in a move that now seems prescient, the Joint Commission decided to develop new standards that would broaden the ability of individual healthcare organizations to deal with rare events. At that time, we had become concerned that the medical system was inadequately prepared to deal with the rare threat of bioterrorism, and perhaps equally unprepared for the greater possibility of infectious outbreaks arising from an increasing global inventory of virulent infectious agents. Regardless of the source of the threat, readiness for managing biological events has certain common elements.

The Joint Commission's accreditation standards were modified in three important ways, all of which infused the concept of community involvement into the preparedness process. First, we shifted the focus of the standards from simple emergency preparedness to emergency *management.* That modification may not sound significant, but it has far reaching implications. Now, health care organizations are expected to address four specific phases of disaster planning: mitigation, preparedness, response, and recovery. This means engaging in planning as to how an organization would lessen the impact to its services following an emergency; how organization operations might need to be altered during the heat of the crisis; and how to conduct consequency management to return the organization to normal functioning once a crisis has passed.

Further, emergency management requires that when organizations are addressing each of the four phases of disaster planning, they must broaden their preparedness and their perspectives to take into account how the community around them may be affected during a rare event. "Community" may be viewed as the population at large, the other medical institutions in the area, and/or relevant community structures and agencies. This more outward and proactive way of thinking should better position health care organizations to play an effective role in bioterrorism preparedness.

Second, the new standards, which were effective on January 2001, require accredited organizations to take an "all hazards approach" to planning. What this means, is that organizations must develop emergency management plans that contain a chain of command approach that is common to all hazards deemed to be credible threats—an approach that also can be easily integrated into their community's emergency response structure. Hospitals must start this aspect of planning by considering a wide variety of threats that could befall their community, including terrorism. Hospitals, for example, are now required by these new standards to do a hazard vulnerability analysis that starts with an unconstrained list of extreme events, and then critically appraises their probability of occurrence, their risk to the organization and the capacity for responding to each potential threat. Inherent in this analysis is having an understanding what the community itself, rather than just the health care organization, considers to be a realistic threat.

While this vulnerability analysis is obviously important, the abilities of the individual organizations, and indeed of communities, to prepare for and respond to the full array of potential threats is seriously constrained by the major cost restraints in most health care organizations. This will obviously lead to important priority

judgments about risk that will condition future response capabilities. There is also a risk of fragmented priority setting—healthcare organizations and communities may view the risk differently between and among themselves, leading to uncoordinated preparedness. To do their jobs effectively, individual health care organizations should take their lead from responsible federal and state government authorities. This is rather problematic at present because the United States has not articulated its own national threat and risk assessment. As stated in the recent GAO report on Homeland Security, "a threat and risk assessment is a decision-making tool that helps define the threats, to evaluate the associated risk, and to link requirements to program investments." It is clearly essential that governmental agencies involved with assessing the threats from bioterrorism communicate their analyses down to the local level so that the medical system has a blueprint for appropriate action and can construct a reasonably consistent strategy of preparedness throughout the United States.

The last new requirement of the standards is the involvement in at least one annual community-wide practice drill by those health care organizations whose all hazard risk assessment identifies credible community threats. These drills must evaluate the interoperability of the response structures developed by the health care organization and the community. Responding to a bioterrorism attack will require unprecedented communication, coordination, and attention to chain of command structures. Therefore, these drills, if effectively executed, are time consuming and expensive to conduct. Moreover, thorough mock attacks must consider how the effects of bioterrorism would typically play out over a period of weeks, constantly changing the landscape of issues and decision making for health care leaders. Given the complexity and cost of these essential drills, we believe that governmental financial incentives should be considered as a means of leveraging on-going engagement in such activities.

Drills also can be extremely instructive. Large-scale ones such as TOP-OFF have elucidated unanticipated planning gaps and have exposed the need for unconventional thinking in times of emergency. To elaborate, we rightly consider our hospitals the first place to go when people are severely ill. In fact, in this country we go to great lengths to ensure that everyone has access to hospital emergency care. Yet in the throes of a biological disaster, we may not want to admit everyone who arrives at the hospital door. First, if individuals are infected with a virulent pathogen, they will then infect physicians, nurses and other staff, and thus limit the availability of critical medical personnel. Under such circumstances, it may be prudent to keep the hospital free from contamination by setting up off-campus isolation units and treatment modalities outside of the hospital that are overseen by properly protected staff. This would permit the hospital itself to remain a safe haven for management of other injuries and illnesses.

Further, if—in the face of a biological threat—everyone were accepted into the hospital for evaluation, there is a real risk of overwhelming facility capabilities. Experience with drills has shown us that even the largest hospitals would be unable to handle the onslaught of people who are concerned that they may have the dreaded agent. This raises the real potential need for off-site evaluation and triage of individuals in a fashion different from the usual conduct of emergency services.

The new Joint Commission accreditation standards for emergency management represent a significant step toward improving the nation's readiness for a biological emergency, but national leadership in the area of risk analysis will be necessary to convince many organizations that bioterrorism threats are worthy of their serious attention. The Joint Commission is participating in an Agency for Healthcare Research and Quality funded project with Science Applications International Corporation to investigate the linkages among key entities in response to a bioterrorism event. This project will not be completed until next year, so I am unable to share any final results with you. However, as part of our contribution to the project, we conducted a survey of a sample of hospitals to assess their community linkages for purposes of mounting a bioterrorism response. Among the obstacles identified by those hospitals which did not have effective community linkages were the lack of community awareness of the issue and therefore, interest in planning; and inadequate funding for bioterrorism planning, training and resources at both the community and organizational levels.

VULNERABILITIES IN THE MEDICAL AND PUBLIC HEALTH CARE READINESS

Much additional progress needs to be made. Given the outstanding training we provide to our medical and public health personnel in this country, and given our scientific know-how, state-of-the-art technology, and high level of health care spending, it is reasonable for the American public to expect that this country is ready to

respond to the worst of disasters that terrorists could bring to our doors. This perception has been reinforced by the admiral way in which New York City medical and public health personnel handled themselves in the face of the massive disaster last month. But is should be pointed out that the medical care and public health systems were not tested for the level of stress that would result from a bioterrorist event, because sadly there were many more deaths from the World Trade Center calamity than there were persons needing medical attention.

Some people believe that the health care delivery system—if faced with a bioterroism event—will somehow be able to accommodate the thousands of ill, injured and worried well who will seek health care in that situation. The unfortunate truth is that we have much to do before such a belief can be fulfilled. This is not intended as an alarmist statement, but there are some stark realities that must be faced about the current capacity and integration of our public health and medical care systems and the readiness of governmental agencies to assume authoritative leadership roles.

To that end, I would like to offer a series of recommendations for upgrading our system capabilities and for weaving together a tighter response fabric among responsible parties. This fabric should be pattern recognizable to all those who comprise the cloth, because its essential elements will be comprised of effective coordination, communication, cooperation, chain of command, and capacity building.

• *More medical care workers must be trained to become familiar with pathogens that may be used in bioterrorism, aware of the symptoms they produce, and alert to the possibility of their use.* Medical personnel must also become knowledgeable about routes of transmission, the transmission vectors for various biologic agents and the effective therapeutic approaches to these agents. The reality is that most physicians would not recognize a case of anthrax, tularemia, or smallpox that presented to them in the emergency room or in their office. Nor would they know what kinds of specimens to collect for testing, how to handle such specimens or which clinical laboratories possess the expertise to detect some of the rare agents that could be used by terrorists. Such education is essential to a prompt response to any bioterrorism attack.

• *It is essential that a single, integrated system of response be created that will be effective in addressing a full range of diseases and rare events whether of terrorist or natural origins.* Because it will serve multiple purposes, a single system is less likely to wither from inattention or nonuse. This system should be a blueprint for action that is also scalable to the extent of the emergency and to the settings that are involved. The framework should be community-wide and utilize common concepts so that it is transportable. For example, we should be reliance upon a consensus-based "chain of command" construct that has interoperability common to all states. This would make emergency management plans quickly and easily understood by all who are engaged in emergency activities. The system should be periodically tested and evaluated for its currency and feasibility.

• *Community or state-wide capacity analyses of preparedness that include available medical facilities and delivery sites must be carried out.* We are pleased that the CDC is working to identify the core capacities that state and local health departments must have in order to be adequately prepared for a biological attack. However, this evaluation needs to be expanded to include the core capacities of the medical infrastructure within each geographic area. This should lead to a gap analysis that addresses issues of supplies at hand, which additional personnel may be needed, transfer agreements during times of system overload, and other identified medical system vulnerabilities. Such assessments should be integrated into any other assessments being undertaken by state and local authorities.

• *A medical/public health surveillance system should be established to promptly detect naturally occurring epidemics as well as terroristic activity.* The rapidity with which a rare disease or terrorist weapon is recognized at the provider level and communicated to public health experts will largely determine the extent of its spread and the overall mortality rate. With today's technology, the reporting system should not rely upon an astute clinician to pick up the telephone and know whom to call about an unusual case, or number of cases. Rather, a surveillance system should be designed for the routine collection of automated data on presenting symptoms at points of delivery system entry and of health care utilization and laboratory data. Such information should be provided to public health officials for ongoing surveillance. Public health epidemiologists might then be able to detect "spikes" in the data and take investigatory action if warranted. A system of this nature could also communicate electronically with CDC and could be used in time of bona fide bioterrorism to inform decision-makers about disease spread.

• *Issues of national supplies and their disbursement need to be evaluated and resolved.* Determinations as to how much vaccine, pharmaceuticals, medical equip-

ment and other supplies are needed for stockpiling should be made at the national level after a credible threat and vulnerability analysis. Equally important is how supplies are prioritized for distribution and how fast they can be deployed. It may be that there is no effective way to expeditiously distribute to localities the massive amount of supplies that may be needed if there is as large-scale bioterrorist attack, especially if the transportation infrastructure is also affected. The practicalities of needing to act quickly require considerations as to when regionalized supplies are preferable, who will have the authority to disburse them, and what criteria will be used to make dispersal decisions.

• *It is essential that the national funding policies which have progressively reduced the elasticity of the medical system to ramp up to a peak demand be re-evaluated.* For more than two decades, public policy makers have taken clear steps to reduce excess delivery system capacity (e.g., hospital beds). During this time many emergency departments and satellite clinics have closed. But we are entering a new era that requires a reexamination of fiscal public policy on emergency preparedness. We are not advocating an unfettered build-up of delivery system capacity, but rather a strategic reassessment of the resources needed to assure necessary system elasticity in the face of national or local crises.

The Joint Commission stands ready to work with many others on the aforementioned recommendations, because we believe that our organization has a key role in the strategic planning for medical and public health systems' response to terrorism.

CONCLUSION

It is said that all health care is local. That maxim ultimately applies to emergency management. Indeed, local readiness planning will need to be scaled and tailored to the characteristics and capabilities of individual communities. However, it is equally important that there be strong leadership at the federal and state levels that directs particular attention to the issues raised in our testimony. The resources needed to support effective emergency management at the local level are not simply vaccines, antibiotics, and medical technology. There are definitive needs for government investment in the conduct of risk analyses, in the development of community infrastructures, in the training of key health care personnel, and in information gathering and dissemination. And in the end, government must set national priorities for resource deployment and assure that emergency management efforts are carried out at the local level.

We as a nation are not unprepared to deal with bioterrorism and natural disaster and epidemics, but our nation's public health and medical systems could be better prepared than they are today. We therefore need to start addressing the identified needs with all due haste. In this regard, the joint Commission standards ready to commit its own resources to work alone and with others to meet our collective national readiness goals.

Mr. GREENWOOD. Thank you very much, Dr. O'Leary.

Dr. Young for 5 minutes.

TESTIMONY OF FRANK E. YOUNG

Mr. YOUNG. Mr. Chairman, thank you very much for the ability to be here today. I would like to submit my testimony for the record and summarize some points that have not been made completely by my other colleagues.

Mr. GREENWOOD. That will be fine. Your full statement will be made a part of the record.

Mr. YOUNG. Thank you. I'm particularly pleased to testify with two of my colleagues, Dr. Lew Stringer and Dr. Kathy Brinsfield, who were in my command when we served and began, as Dr. Stringer outlined, the entire approach to bioterrorism. I'd like to remind this committee that this is not an old issue that we are regrinding over and over again but an issue that we have been trying to address since 1995, and I've provided for the committee a copy of the first biological and chemical terrorism study that was conducted at that time. It was then that Dr. Stringer and others joined together to build a local system.

I'm also releasing for the first time as attachment 2 the letter that was submitted to President Clinton on May 6, which is the result of an ad hoc committee that I chaired in response to looking at bioterrorism, and you will note that most of the things that were spoken of today are outlined there in 1998 as well.

The budget is the ultimate instrument of policy, as you know, sir. These requests have been made year upon year upon year. Dr. Stringer knows the many times that I have come before Congress pleading for funds and the many times in which they were not answered. Now is the time to act, and I urge your dispatch to be matched with a passion of the day, with the actuality of the funding.

I have a number of urgent recommendations that I would like to bring to your attention that cobble together the needs that I believe are necessary to fix the system.

First, develop a command and control system for public health that interfaces seamlessly with the Office of Homeland Defense and integrates the State and local regional activities. Nothing is more important than the ability to communicate well. At a time of disaster, it is not the time to exchange business cards for the first time. We must know each other, and we must trust each other.

Second, you can see the problem displayed in Florida of the lack of laboratory facilities to rapidly diagnose infectious agent. I'm a microbiologist. It is not necessary to do, as we did there, to look for 48 hours at culture and sensitivities. There must be rapid diagnostic materials made available that can detect these pathogens in hours to minutes, not days to weeks. The laboratory facilities at USAMRIID and at CDC are woefully inadequate for high containment work, as are the laboratories around the Nation.

FDA has been urged in 1998 to finalize a regulation that would enable new drugs for bioterrorism agents to be approved based on suitable animal tests. That regulation was posted in 1999 and is languishing to this date. It is a simple thing to finalize. All the comments are in. I urge you, see to that.

The augmentation of the mass casualty response teams can be built by, one, augmenting the National Guard medical systems, which are in a poor state of repair; creation of disaster responders through the Commissioned Corps of the Public Health Service that would be able to respond at a moment's notice to augment the local teams. At the moment, just as Lew pointed out, with the State and local teams you have to get permission to deploy. You need to be able to be up and out the door in 4 hours or less. Otherwise, you are ineffective.

Next, to train people locally with the capacity to manage the medical consequences of weapons of mass destruction; to train medical and environmental health personnel through distance learning so that it would be possible to understand how these systems should work. There is an excellent course at USAMRIID that has trained over 50,000 people for this purpose; and I would urge that that be continued, funded and made available to the Nation.

Develop an integrated system of field hospitals and identify structures within communities whereby patients could be brought in. As pointed out by the President of Johns Hopkins, it is difficult to bring in large numbers of contaminated people within the hos-

pital system. There are only five field hospitals in DOD and less than one to two adequate field hospitals in the HHS and few scattered around the Nation. You need to make sure that we have those hospital facilities, portable hospital facilities that can be used at time of crisis.

There is a need to be sure that all types of therapies are developed, including immunotherapies that are just-in-time immunotherapies; and I've given information on one novel approach in Appendix 3.

It is important to protect our health responders with the adequate equipment and clothing and ability to find them in the event that they are incarcerated in rubble or other material, and I've given you information on that in Appendix 4.

Death management is critical. I was there in Oklahoma City, and I managed that from a medical standpoint. That was small in comparison to New York City. My heart goes out to the many people that are trying to deal with the large number of dead people there. It is a special activity. We do have disaster mortuary teams. They have been overstressed.

I now serve as a pastor. It was interesting that—to me when the call came to testify I was preparing my Sunday materials on the good Sermon on the Mount, Matthew 5:1-15; and I want to urge you with every fervor that I can to make a team of trained chaplains, grief counselors and other professionals that can go in and make an impact in the lives of people when they are suffering. I know a call went out, but when the call went out, there was "send as many people as you can who are not trained and not experienced." and I've seen the difficulty in counseling individuals dealing with large-scale deaths, and we need to be prepared, and that type of training needs to be done as well.

Media communications are key, Mr. Chairman. We have seen a lot of talking heads and experts that are nonexperts. I've been in weapons of mass destruction for a quarter of a century, and it is important for me to emphasize that I'm one of the young and retired people of the field that is no longer extant within the United States. We need to train people in this expertise and have people nursed and rehearsed and capable of bringing public messages.

Let me give you an example. In the Midwest flood, it involved five States, some of you know, from Michigan. I was there on the ground. The State health departments could not decide how long to boil water. Some said, 3 minutes. Others said 1 minute. Others said 30 seconds. Then there came a concern about hepatitis. And they said if these fools can't tell us how long to boil water, we can't believe them on infectious hepatitis.

We've got to have a message that is similar, that is accurate, that's done by experts and coordinated across the land. To do less is not appropriate.

Finally, Mr. Chairman, it's up to you. The budget is the ultimate instrument of policy. To not act and bring these medicines as we have been shouting for to the local communities for years represents, in my pastoral opinion, a sin.

Mr. Chairman, I'd be happy to answer any questions I can.

[The prepared statement of Frank E. Young follows:]

PREPARED STATEMENT OF FRANK E. YOUNG, FORMER DIRECTOR, OFFICE OF EMERGENCY PREPAREDNESS, NATIONAL DISASTER MEDICAL SYSTEM, VICE PRESIDENT REFORMED THEOLOGICAL SEMINARY, METRO WASHINGTON

INTRODUCTION

Dear Mr. Chairman and members of the Committee: Thank you for the opportunity of testifying before your committee concerning the "Federal Preparedness for Bioterrorism from a Public Health Perspective". As a microbiologist and a physician focusing on infectious disease, I have been involved in research on non-pathogenic and pathogenic organisms related to those used in bioterrorism for over a quarter of a century. In government I participated in the defense from the effects of organisms involved in bioterrorism since 1984 when I served as Commissioner of the Food and Drug Administration to 1996 when I completed my service as Director of the Office of Emergency Preparedness and the National Disaster Medical System. From 1993-1996, I represented the Department of Health and Human Services on the Council of Deputies of the National Security Council, coordinated the Emergency Support Function 8 for Health and Medical response in the Federal Response Plan and participated in many training exercises to test response to disasters caused by weapons of mass destruction. My testimony will focus on the reality of the threat, the two basic types of threats, the requirements for effective management; the progress made to date and additional needs for enhancement of our capabilities.

The call to testify before your Sub-committee came while I was preparing for an adult ministries class in the church where I serve as associate pastor. It was a remarkable kaleidoscope of ideas as I pondered the attributes of a Christian disciple from the Sermon on the Mount I taught last Sunday to my church (the Gospel of Matthew 5:1-15) as compared with terrorism-the essence of evil. The sinfulness of mankind is revealed in the wanton destruction of civilian life. None of the major world religions preach the violent slaughter of innocent people.

THE THREAT

Most experts in bioterrorism would agree that the threat is smaller than the use of bombs and bullets, but this low probability event is of high consequence. While a large number of microorganisms could be utilized, the more plausible organisms are summarized in attachment 1.[1] Of these, anthrax is the easiest to prepare and disseminate particularly in confined spaces. It also, under appropriate conditions, can produce the highest morbidity and mortality. A comprehensive analysis of the current threats can be obtained from the excellent publication of the Institute of Medicine and National Research Council entitled "Chemical and Biological Terrorism: research and development to improve civilian medical response".

Two general types of release can be perfected. First and easiest, is the release of organisms in an enclosed environment such as a building, subway or ship. Small amounts of microbes are required, the dispersal conditions are not so rigorous and the agent recycles in the air system until it settles out. The agent is also less exposed to harsh environmental conditions. This type of release is designed more to produce terror than a large kill. Second, the organisms can be released as an aerosol into the atmosphere through a spray such as a crop duster airplane, or a truck with an insect sprayer (fogger). The sprayers are more difficult as they require a dispersal agent to keep the particles below 10μ to ensure particles are inhaled into the lungs. Effective release is highly dependent on climatic conditions. It is important to note that the Aum Shinriko was unsuccessful in causing death form an aerosol release.

Fortunately the United States has excellent medical capacity to the management of infectious disease. However, there is limited hospital surge capacity. The growth of managed care, cost containment procedures; reduction in hospital beds and reduction in hospital staffs has limited markedly the excess capacity of the health system in responding to large-scale emergencies. A visit to a metropolitan emergency room on a Saturday evening will show the strain on resources required for daily needs let alone an emergency. Systems need to be developed to make beds rapidly available.

The primary issues to be addressed are: intelligence to minimize surprise and interdict the terrorists; crisis response to mobilize investigative forces and consequence management. Frequently crisis and consequence management occur at the same time. Bioterrorism events will likely be discovered after a number of people have become sick or died therefore rapid response is of the essence. With appro-

[1] D.R. Franz et al. Clinical Recognition and management of patients exposed to biological warfare agents, JAMA 278: 399-411

priate commitment of resources and organization skills illness and death can be reduced 60-to100 fold but deaths will occur at the initial site of release and continue until the infectious agent(s) are brought under control.

REQUIREMENTS OF A ROBUST SYSTEM FOR DEFENSE AGAINST BIOTERRORISM

1. An integrated Federal, State and local civil response system.
2. A single command and control system at the Federal level
3. A robust Public Health infrastructure that includes the military and civilian sectors.
4. Rapid diagnosis tests for the most common threat agents.
5. Enhanced reference laboratory capabilities including sufficient numbers of BSL 2-4 containment facilities in both USAMRIID and CDC
6. Surge capacity of the medical system.
7. Stockpiles of therapeutic agents.
8. Training of medical response system with particular emphasis on local response capacity using both exercises and distance learning
9. A regulatory system within FDA that can evaluate therapeutics using surrogate markers and sufficient resources to accomplish the reviews expeditiously.

PROGRESS SINCE THE GULF WAR

During the Gulf War, I had the responsibility for training the local fire-rescue and emergency response system for a possible anthrax attack. We had little of the above listed capacity. Together with William Clark, presentations were made on the various biologic agents and with the support of the Assistant Secretary for Health, James Mason, I stored sufficient medicine inside the beltway to treat 51,000 people for 48 hours with antibiotics. Liaison was established with both FBI and FEMA. The system was totally inadequate.

Following the Gulf war, The Public Health Service (PHS), through the Office of Emergency Preparedness which I directed sought the support of FEMA for the first Federal bioterrorism training exercise (CIVIX 93) that simulated an anthrax attack on a large metropolitan subway system. This exercise revealed widespread weaknesses in the response system at all levels. It also demonstrated the need to include military assets at USAMRIID and the research capacity of DARPA to develop certain applied research projects. However, attempts to obtain adequate funds to address the deficiencies were unsuccessful within the Administration and Congress.

The attack of the Aum Shinriko on the Tokyo subway system in 1995 with sarin led to middle of the night discussions during which I reported rapidly to Mr. Richard Clarke, National Security Council that the agent was most likely sarin based on the symptoms. The difficulties involved in preparing to defend against a coordinated attack on the United States and other countries are well described in the recent publication by Miller, Engelberg and Broad.[2] The magnitude of the Aum Shinriko operations and the discovery that they experimented unsuccessfully with anthrax provided a wake up call to our nation. In the aftermath of the incident, there was a great deal of activity led by Richard Clarke that culminated in PDD 39, and the designation of the PHS as the lead Federal Agency in consequence management for biologic agents. Broad Federal cooperation occurred in the meetings that I chaired and assignments were completed on time. Trust and close working relationships are required for success. We all recognized that we should not exchange business cards for the first time at the site of a disaster. The planning actions of representatives from American Red Cross, DOD, DOJ, EPA, FBI, FEMA, PHS, VA, and USDA resulted in the completion of the integrated Health and Medical Services Support Plan for the Federal response to terrorism in September 1995. Unfortunately, adequate funds for implementing this plan were not forth coming despite appeals both to the then Principle Deputy Assistant Secretary for Health and her staff and in the PHS and the Congress. There were two initiatives that were seminal and have had a marked impact on training nationally. First, the Secretary of DHHS made monies available for the first time to local communities enabling both local and integrated Federal, State and local training exercises to occur. Second, the Metropolitan Washington response agency (Council of Governments) wrote to President Clinton describing the inadequate preparation of the region. Subsequently, the Office of Emergency Preparedness with the advice of State and local health personnel developed a concept of Metropolitan Medical Strike Teams to augment the capability of local public safety, public health, fire rescue, hazmat and

[2]J. Miller, S. Engelberg and W. Broad *Germs, Biological Weapons and America's Secret War* Simon and Schuster, New York 2001, pg151-152

medical emergency responders to be able to address successfully biological and chemical terrorism.

The next major change in the preparedness system resulted from a concern by President Clinton. He concluded that there was weakness in the current response to bioterrorism based on world conditions and requested briefing from non-governmental experts. During the meeting with the President and selected senior staff, the Attorney General, the Secretary of Defense and the Secretary of DHHS, a comprehensive analysis of the current statue of preparedness and recommendations for improvement were presented. The President requested that the analysis be submitted expeditiously. The document with the attached budget is submitted as attachment 2. Particularly relevant was the focus on emergency response and research. The DOD, DHHS and DOJ were requested to examine their programs, propose enhancements to overcome the noted deficiencies and submit an appropriate budget. The positive response of the departments led to substantial improvements.

PROGRESS SINCE MAY 1998

The increased budget for the PHS has resulted in substantial improvements. However the most significant recent event was the appointment of Governor Tom Ridge as Director of Home Defense. If he is successful in developing a coordinated approach to the threat of terrorism in general and bioterrorism in particular, it will greatly improve the response. A coordinator in HHS for all of the former PHS agencies with budget authority and coordination responsibility could aid the Director's efforts.

Training has been greatly strengthened through the provision of funds to the States. The concept of Metropolitan Medical Strike Teams has been continued though renamed (Metropolitan Medical Response System). A total of 97 systems have been funded in cities or locales. Coordination between Federal and State and local public health agencies has been heightened through monies for joint training exercises. The National Disaster Medical System has been enhanced through additional development of teams that can respond to both chemical and bioterrorism.

The public health infrastructure at the local, State and Federal level is still not sufficiently robust. For example at the Federal level, the containment facilities and staff trained to study highly infectious pathogens at the BSL 2- 4 level in USAMRIID are inadequate to meet the needs for contained management of highly infected cases and research of pathogens. They need to be doubled in size. Similarly, the facilities at the Centers for Disease and Prevention and NIH are inadequate. Other regional facilities need to be developed. The public health laboratories, while able to diagnose bacterial infections, have insufficient facilities for viral diagnosis. Finally, there is insufficient graduate training in this field. The most experts who were involved in the bioterrorism field like myself are retired!

Most telling is the inability to diagnose infectious agents rapidly. The recent fatal case of anthrax in Florida is illustrative. It took at least 48 hours for the diagnosis. Probably classical culture and antibiotic sensitivities were employed. This is simply unacceptable. To have effective treatment to reduce toxemia, it is imperative to make the diagnosis more expeditiously through immunological means. Adequate laboratory facilities are required to meet emergency requirements. Anthrax may not always be easily diagnosed clinically, as textbook cases are rare in real life. Additionally, although USAMRIID and CDC and other state laboratories can do careful epidemiological work through plasmid determination or bacteriophage sensitivities, these too need to be done in hours not days. Public and private sector research and development and expeditious evaluation by FDA is required to meet these needs. Similarly, rapid detection of other an agents that could be used in bioterrorism is imperative.

Great progress has been made in developing stockpiles of antibiotics and other medical supplies. However the supply of vaccines against anthrax and smallpox remains insufficient. The production of vaccines needs to be accelerated and Federal facilities may be necessary if the private sector cannot respond adequately. Because most people will not be immune and antibiotic resistant strains can be utilized, there is a need for just in time therapy to neutralize toxin and microbial agents in bioterrorism. The Biotechnology Company Elusys on whose Board of Directors I serve is developing one such promising approach. This therapy can neutralize the anthrax toxin after exposure and when used in combination with antibiotics should be highly effective (attachment 3).

Surge capacity of the medical system has been enhanced but only marginal progress has been made since 1998. This is a highly significant though correctable deficiency.

Research on pathogenic model systems for the common infectious agents has proceeded but remains inadequate.

The ad hoc committee that reported to the President emphasizes the need for regulations to facilitate the development of therapeutic agents and diagnostic agents for organisms that cannot be tested in human volunteers. Because there are insufficient natural cases of infections with agents like smallpox and anthrax, it is imperative to evaluate these in appropriate animal models. Additionally, it was recommended that a special division be formed and funded to provide the personnel to expeditiously determine the safety and efficacy of such therapies. FDA proposed a rule Docket No. 98N-0237 "New Drug and Biological Drug Products; Evidence Needed to Demonstrate Efficacy of New Drugs for use against Lethal of Permanently Disabling Toxic Substances When Efficacy Studies in Humans Ethically Cannot Be Conducted" (FR Vol. 64: 53960-53970). The comment period closed December 20,1999, comments have been posted on the FDA web site however the rule is languishing. This rule is important because it would enable FDA to approve for marketing on the basis of appropriate well-controlled animal studies.

URGENT RECOMMENDATIONS

When I managed the emergency medical system there were difficulties in: understanding what to do, convincing the government to fund the infrastructure, and developing a system to coordinate the major agencies in PHS, DOD, VA FBI and FEMA. Much progress has been made since 1995 in addressing the response to terrorism with weapons of mass destruction. Funds can now be allocated to enhance the response system thereby saving many lives. Although there are especial nuances among them, the response to biological terrorism must be viewed in concert with an all hazards response system. Based on past professional experience, I urge the following recommendations for immediate implementation.

1. Develop a command and control system for Public Health that interfaces seamlessly with the Office of the Director of Home Defense and integrates all of the relevant organizations in the civilian agencies of government, the military and the private sector.
2. Enhance the rapid diagnosis system through the development of rapid immunological procedures. The recent delays in identifying the organism in Florida illustrate this need. Local laboratories can be overwhelmed by requests for mass screening. Therefore, it is necessary to ensure that communities have access to containment laboratories and surge capacity to meet large diagnostic loads.
3. Finalize the FDA regulation on Drugs to treat diseases where ethical considerations prevent the use of human subjects. The proposed regulation is Docket No. 98N-0237 "New Drug and Biological Drug Products; Evidence Needed to Demonstrate Efficacy of New Drugs for Use Against Lethal of Permanently Disabling Toxic Substances When Efficacy Studies in Humans Ethically Cannot Be Conducted (FR Vol. 64: 53960-53970). Provide 2-million dollars/ year for FDA to meet this critical mission.
4. Augment the mass casualty response system through:
   - Augmentation of the medical systems in the National Guard to enable them to rapidly deploy to the disaster site.
   - Creation of a dedicated health disaster personnel system with 750 officers within the Commissioned Corps of the Public Health Service under the direction of the Secretary and the Surgeon General. While these physicians, nurses, epidemiologists and support personnel can work in agencies while not deployed their primary responsibility is to the emergency management
   - Support training of individuals capable to manage the medical consequences of weapons of mass destruction both in the military and civilian sectors.
   - Training of medical and environmental health personnel through distance learning and exercises to ensure each community can respond appropriately. The excellent course at USAMRIID has trained over 50,000 people
   - Develop a similar civilian training program for all hazards
   - Develop an integrated system of field hospitals and identified facilities that can be used for mass casualty management. DOD has only approximately 5 such units and the equipment for field hospitals in DHHS is inadequate to meet the civilian need specially since the military units may be on deployment.
   - Augment the containment facilities in hospitals to ensure that the hospital will not be rendered useless through needless contamination.
   - Ensure that the emergency response teams can be protected through proper equipment and protective clothing. One recent development is a shirt devel-

oped through a research grant from DARPA that can determine heart rate, respiratory rate, temperature, blood oxygenation and locate people under 60-80 feet of rubble through geopositioning and two way communications (attachment 4). This would enable trapped workers to be located

- Provide sufficient training in containment and decontamination of infectious agents within the environment. The emergency response capacity of EPA should be enhanced.

5. Ensure sufficient medicines to respond to mass casualties through stockpiles at strategic locations. Where supplies are insufficient the Federal government should support research into new therapies and production of just in time immunotherapies and vaccines.
6. Mass death management. The events in Oklahoma City and the World Trade Center have taught us how difficult it is to identify bodies. Massive deaths from a major terrorist attack require sensitive treatment of the remains of loved ones.
7. Development of a reserve system of grief counselors and chaplains that can be trained through distance education and local exercises. As a Pastor, I can attest that at a time of mass casualties, the faith and the emotional well-being of the victims may be fragile and in need of significant support.
8. Media communications must be accurate and informative. Public Health officials should be trained and exercised in communication. The confusion of facts in the recent Florida anthrax case is an example of this need.
9. Support genomic research to enable rapid analysis of novel organisms including those with mutations to antibiotic resistance and genetically engineered toxin production.
10. Support development of "just in time immune therapies" to treat the potential threat agents

SUMMARY

While the threat of bioterrorism is a significant, it can be overcome through coordinated civil defense, a robust public health system and research on the genomes and mechanism of pathogenicity of threat agents. Of particular need are methods of rapid diagnosis, enhanced containment facilities and new modalities of therapy. It is important to note that the proposed measures will strengthen our response to emerging pathogens as well as meet the threat of bioterrorism. Thus funds to address the issues identified in this testimony will be well spent.

Mr. GREENWOOD. Thank you, Dr. Young; and let me assure you that this committee hears your prayers.

The Chair recognizes himself for 5 minutes for questioning.

If I were to dispatch any one of you to a city, Washington DC, Philadelphia back in my State of Pennsylvania, Los Angeles, wherever, and said to you I want you to go there and I want you to report back to me as to the preparedness of that city for a bioterrorist event, the question that I have for you is, would you know where to find the checklist? Do you think that we have developed or that you have access to a comprehensive definition of what would make a city prepared against which those local officials can measure themselves so that you could report back that, in fact, the preparations are adequate?

And let me ask any or all of you who wish to comment. We'll start with Dr. Smithson.

Ms. SMITHSON. This is exactly what I had in mind when I fanned out across the country in reviewing individuals from various response disciplines, and you'll see that in chapter 6 of the Ataxia. They feel that they're much better prepared to deal with a chemical disaster and that they've got a much further way to go when it comes to responding to a biological disaster.

Now I separate those two responses because they're very different things. And you'll also see in that narrative their key points about what is entailed in biological disaster preparedness, from detection to training, institutionalization of this training across the

various response disciplines. Not just hopping from city to city, but it's got to be in all of our universities, nursing and medical schools, as well as the other response disciplines.

Mr. GREENWOOD. Let me just make sure I'm clear about my question. My question is, is do we know what constitutes preparedness? In other words, is there a universally accepted checklist that you could take to the city of Philadelphia and say, training of EMTs, check; training of ERs, check; supplies of vaccines, check; et cetera? Do we have an agreed-upon—not even getting to the question yet of are we prepared, and we know very well that we have a long way to go in that regard, do we have a definition that's agreed to within the profession, if you will, that would enable us to measure our cities in terms of their preparedness? Dr. Waeckerle.

Mr. WAECKERLE. Thank you, sir. There are components of what you asked for available through certain previous workings of the Nunn-Lugar-Domenici Act, some through DOJ, OJP, some through DOD, and some through HHS and CDC. As Dr. Smithson alluded to, most are related to chemicals, but there is no protocol, templates or ability to bring anything from the Federal level to the local community for all hazards that we currently face available to any city in America. The MMRS effort is as close as I am aware to get to that currently, but, as they admitted in testimony in the GAO report, they still focus more on chemicals, and we need to have a great deal more, especially for biologics.

Mr. GREENWOOD. Did you want to——

Ms. SMITHSON. The MMRS effort has basically focused on allowing the cities to make their own plans, and that's put——

Mr. GREENWOOD. That doesn't seem to me to be adequate because we can't assume that every city has the expertise to do that, to know what constitutes readiness.

Ms. SMITHSON. They have some of the expertise there, but it forces all these cities to push the same rock up the same hill independently. While there's resistance at the local level to having a model, there ought to be some type of a model out there for them to follow; and I would say that perhaps New York City's biodisaster readiness efforts would be the model that, most of the places where I went, they were following that model.

Mr. GREENWOOD. Thank you.

Mr. YOUNG. Mr. Chairman.

Mr. GREENWOOD. Let me go to Dr. Stringer. We'll go from left to right.

Mr. STRINGER. There have been excellent examples of unified planning and working together with the MMRSs. The MMRS has done one thing for emergency management. It's brought the health departments and the hospitals to the table, as the Superfund law did in 1986, and required them to come to the LAPCs. So they're all working together. They even know each other now.

That's a start, sir, because, before, that didn't exist, and most communities—some will not agree with me on that, but I think that's probably overall true—each city is allowed to do it the way they sort of think it ought to be best for them. There have been a couple models that are excellent out there that the OEP has tried to provide to the cities, and I think many of them are using—

they're not all starting from scratch, but they do have the right to have what's best for them, which may not be the example of what's in the next city, say even in that State, that was approved on MMRS.

Mr. GREENWOOD. Thank you, sir.

Dr. Young.

Mr. YOUNG. Mr. Chairman, I think it's important to realize that when we started the program we wanted to recognize, as Dr. Stringer said, the local capability, but Dr. Lederberg and I were asked by Dr. Hamburg and through her from Mayor Guiliani to go with him the first month of his office and brief him on bioterrorism. I also briefed the Mayor of Boston.

So the answer to your question specifically, in those cases, all the appropriate officers of the city government were in the room and plans were developed, and that was the beginning of this local team approach. A single unified plan for bioterrorism and chemical terrorism does exist, and that Lew Stringer was helpful in developing for the Olympics that we had in Georgia. Because at that time we had both helicopters, response teams, outside and you noticed how rapidly, when the bomb went off, there was response within that area with teams. They were prepositioned, supplied and equipped; and I believe, Lew, those lists and the supplies, equipment and plans still exist in the Office of Emergency Preparedness.

Mr. STRINGER. That has been one of the initiatives that started the equipment catch list that most cities have in talking about whether it's a thousand or 10,000 patients or X number of thousand—the same equipment.

Mr. GREENWOOD. Thank you. Let's see. Dr. O'Leary.

Mr. O'LEARY. Yeah. I think the issue is that—others have said more than a checklist issue. It is a plan issue. And I don't think we can assume that there is one single model. I think that we are talking about cities, we're talking about suburban communities and may be talking about rural areas. These things can happen anywhere, and the models, the templates will not be used unless they are adaptable to the realities of these communities, and there is a crying need to develop these so that they are going to actually be usable.

Second, I would comment that a plan itself is not sufficient, that we have to make sure that these plans are being tested and carried out. It is a functionality that we should be evaluating; and there is, I think, eventually a case to be made for some third-party oversight of these. That could be done by State agencies, it could be done at a national level, but I don't think we can assume because they have a plan that it's working. I think the public will want some external validation that these plans are working, and that a checklist is part of that.

Mr. GREENWOOD. I understand. Mr. Peterson.

Mr. PETERSON. Although I think you're hearing that we can't give you comfort that there is one uniform, elegant approach that's being deployed, it's my observation that one of the things that's going on is that we have a serious effort under way for folks to be talking to each other.

I know at our local level, the Mayor of Baltimore has been very actively involved in convening the appropriate agencies, hospitals and so forth and, in turn, has communicated via video conference, teleconference with other mayors of large cities to share best-demonstrated practices. So you should glean from this the sense that there is a lot of collegial activity under way, but I think it is fair to say—I would agree with all of my colleagues here at the panel that, in fact, there is not one uniform approach that's being deployed across all of the jurisdictions.

Mr. GREENWOOD. Thank you. My time has long since expired.

The Chair recognizes the ranking member, Mr. Deutsch, for 5 minutes to inquire.

Mr. DEUTSCH. Thank you, Mr. Chairman.

You know, maybe I'm looking at it differently than people on the panel. And we can talk about the incident in Florida, of whether it is a criminal case or a case of bioterrorism, and we could talk about definitional terms, but obviously something is happening, and it's very much I think on the minds of Americans and not just Americans, people around the world. Dr. Simpson, you, you know, talked about it specifically, and if you can maybe elaborate in terms of the response that's actually going on now, in terms of CDC, in terms of the local health agency, in terms of HHS, in terms how they are responding to the cases of anthrax that have been disclosed in Florida. You know, are they doing a good job? Should they be doing more? What should they be doing? If you're able to do that.

I mean, because I guess we've talked about the theory of bioterrorism. We've talked—you know, we've had all of you talk about the theory of response. As far as I'm concerned, there is a potential bioterrorism incident that is occurring right now in the United States of America. You can describe it as a criminal act. I think it's still open of whether or not it's bioterrorism, whether it's related to September 11, we don't know. My understanding is that, you know, 700 additional people have been tested.

Again, one of the issues that Dr. Young mentioned, which is I guess really frustrating, is that there still seems to be a 24/48 hour incubation period before we know if there are any additional cases. So that's not the case; it is the case. That's what CDC said to us yesterday in a nonclassified briefing that they gave Members and staff. But we have something going on.

And I will tell you that, you know, we can really get into this, what the definition of terrorism is. I will tell you, I'm going to submit this to the record—I wasn't aware of this until this morning—a letter that was sent by American Media, which is the company where the two cases were uncovered, and their building has been basically cordoned off.

A letter that was sent from that office to an office in Montreal, the building in Montreal was evacuated. The entire building was evacuated. People in that building were tested for anthrax, and at least we're getting reports at this point—and this is a local company in Florida. I represent Florida, and I'm familiar with the company—that at this point they are having problems distributing their newspaper because people are afraid that their newspaper is covered with anthrax, and in fact people apparently—we're getting

reports that people are apprehensive of going into supermarkets where their newspapers are distributed for fear of getting anthrax. So, I mean, you know, we have a public health crisis right now. I mean, if you can respond. I mean, because—just respond in terms of what's going on now, if you can.

Ms. SMITHSON. This country was viciously attacked on September 11, and in much of what I have seen in the media in the succeeding weeks with regard to bioterrorism, we've been traumatized all over again. I have to echo Dr. Young's remarks in that regard. There have been a lot of people on TV saying things that I don't recognize to be technically true.

With regard to the case in Florida, first of all, it is clear, at least as far as I understand from people that I've talked with and involved with the investigation, that this was a substance on a computer keyboard. If this were an attempt at mass casualty terrorism, the delivery method would have been much, much different.

Second of all, I think that it would be appropriate for me to actually turn your question about the response over to others who have been involved in that system, but, before I do, I would encourage you to look at what terrorists have actually been doing with these substances and to perhaps keep your mind open that this is the type of case that would be a grudge or a vendetta or a disgruntled worker.

We've had disgruntled workers sprinkling Shigella on the breakfast donuts in a hospital not so long ago, so occasionally individuals do turn to these substances to harm other people.

Mr. DEUTSCH. There is no question about disgruntled employees is also the theory. All of us have become experts in theorizing and movie writers over the last couple of weeks, but I guess, you know, first of all, in terms of the job of this committee, you know, we have continuously been told that this is a very difficult substance to obtain. We're now told that this is a substance which is nonnaturally occurring, so, you know, it is in a very limited capacity. So, you know, there are very smart, very vicious people out there; and I don't doubt it's possible that this is a case of a disgruntled employee, but this is a real case going on.

No. 1, you know, if the only substance—and we're not aware of this at this point in materials of this committee. If the only location of that anthrax in that building was on the keyboard, you might have more information than any of us have right here; and, if that's the case, I'd be happy for you to elaborate on it. So that would be No. 1.

No. 2, though, there's still the issue of how it became inhaled. If it was on a keyboard, the person who died inhaled, which again apparently is a very, very bizarre, you know, unusual case of anthrax. I mean, there have been many cases of the—through skin?

And I still question, just—you know, we have a situation that now this occurred last Thursday. We still don't know. I mean, today is Wednesday. You know, it goes back to the question Dr. Young mentioned. If you have the response which is Cipro or whatever in terms of preventing mass casualties, then, you know, we're almost a week later, and again my understanding is that once you got it, you got it. I mean, you can do prophylactic antibiotics, but you can't do it afterwards.

Dr. Brinsfield, do you want to respond?

Ms. BRINSFIELD. Although I'm certainly not the most expert in this of people in this room, anthrax is a naturally occurring organism that occurs throughout the world. It is not as difficult to obtain as it is to aerosolize and cause a mass casualty incident.

The other thing that I think is important to say is that when you define terrorism as the creation of fear, you know, maybe we have to look at ourselves and wonder what we're doing to stop that spread of fear. The idea that they decontaminated an entire building based on one letter sent to them is a colossal waste of money, time and the public's attention; and it just really I think behooves us to look at controlling how people know about this and how they respond to prevent the creation of fear.

Mr. DEUTSCH. If I can just respond, and obviously not having as much medical training as anyone or disaster training as anyone on the panel, I'll tell you that one of the problems is misinformation, not just in terms of pundits but misinformation in terms of the government. We're getting reports back, and they almost become circular. We get reports that it's naturally occurring. Now we're getting reports that apparently it was not naturally occurring anthrax, which seems to be the latest situation. Then we're getting reports that it can't be, you know, ascertained, the aerosol issue, but this gentleman clearly had inhaled anthrax. Right. So he—but apparently you can't get it by taking your finger and touching your nose. I mean, there's 5,000 spores that you would have to get into your nose and breathe in. So, you know, you're the experts here, and you can't tell me anything—or you can try.

Again, I know time is up, but the last two responses. Yes, Dr. Waeckerle.

Mr. WAECKERLE. I guess there are two issues here. The first issue is I'm reluctant to speculate on information that is tenuous with Dr. Lillibridge behind me and knows the answers to these questions, but I will tell you that—to some of the questions. I don't want to put Scott on the spot here, but—well, I do, but it's okay. But I do think that there's two issues that have come about that you bring up that are terribly important.

The first issue is how do we effectively communicate with the media as the authorities—the knowledgeable authorities that our citizens look to for reasonable, rational and accurate information? And I believe that this hierarchy that we've asked you to create in these management protocols, whether they be local or national, should address that specifically.

The second issue that you bring up is an incredibly important issue that I believe your committee attends to, and that is the dealings with the pharmaceutical industry and the availability of drugs and vaccines. And there are significant problems with drugs and vaccines that are available for this type of an organism and the capacity to produce them, the research and development of them and the technical barriers and legislative barriers that the pharmaceutical industry must face with regard to these.

So there are some issues that I think you've brought up that are terribly important that I hope you pursue, sir.

I do think that the answer to some of your questions, which I believe some of us can speculate on about not having the accurate in-

formation, we could talk to you about the inhalation of spores or what happens when you touch your nose or what happens if you open an envelope and smell it or what happens or how you spread it, but—and there is accurate information, and there also as I understand it maybe some laboratory diagnostic tests now that may be available in some areas that are not available to all the local communities. So I would hope that you'll get some answer from Dr. Lillibridge and others on that.

Mr. GREENWOOD. The time of the gentleman has expired.

Dr. Young, very briefly, if you have a comment.

Mr. YOUNG. Yeah. I was working with spore farmers while Scott Lillibridge was still in knickers. So I want to try to answer a little bit on your question directly.

First of all, it's important to note that you can aerosolize spores. They will last a long period of time, but you do have to get the amount up into the nose. But the second point that's most critical is to get accurate diagnostic information and to get it fast.

There's two parts to the case. One is related to any criminal activity, and the other is looking at what the organism is, per se. The most important thing for the American people to know is that it takes a significant dose of the organism to get the disease. You're not going to get the disease from a few spores on the keyboard, and you're not going the get the disease from a few spores on letters. Will you find it in both places and anytime people handle it? The answer is yes.

One time I wanted to get an organism from a Japanese worker in Japan who didn't want to send it who was a spore farmer. I got his letter. I put it in pen. assay broth, incubated it, and I had his organism because he had scratched his face, his nose and elsewhere, and I could get the strain from there.

Finding the organism in a place does not mean disease. Having disease does not mean an epidemic. We've got to be very careful with the language we use.

Mr. DEUTSCH. You know, if I can ask one final question with a show of hands, not with an answer. If I gave each of you letters from the American Media company right now, if I gave you copies of the National Inquirer right now that were published at that facility, would you just open them automatically, or would you try to get responses? I mean, just show of hands, all of you. Would open them automatically?

Mr. GREENWOOD. The time of the gentleman has expired.

Some would argue that the tabloids are toxic by definition.

I recognize the gentleman from North Carolina, Mr. Burr, for 5 minutes.

Mr. BURR. Mr. Chairman, one of the things that is certain is the definition of experts has changed since September 11, given the host of individuals that we've seen on and the fact that they're not always as consistent as the next one. I want to thank each one of you for very thoughtful and very informative testimony.

Dr. Smithson, let me turn to you real quickly, if I could. You talked a little bit about the vaccine and antidotes that were needed. We've certainly had a number of news reports of late as it relates to anthrax vaccines, the slow start that the Michigan company has that—not only transitioning that business that was

owned by the State but receiving the approvals from the FDA relative to production outside of the military of the vaccine.

There have been a number of commissions on terrorism. Several of them, if not all of them, have come to the conclusion that the vaccine manufacturing and potentially the antidote manufacturing must be done in a Federal manufacturing facility to assure us in some way, shape or form that we have the vaccines available and in the right supply. Would you like to comment on whether that function should be Federalized or not?

Ms. SMITHSON. It's not just limited to the anthrax vaccine. The plague vaccine is not being manufactured anywhere at present, as far as I understand. And even on the chemical side of the house, we just have one company in the United States that makes Mark 1 kits. We've got to keep, you know, looking across the spectrum at our manufacturing capabilities, and I think there should be serious consideration given to Federalizing some of these manufacturing capabilities, not just for the supplies that might be needed to vaccinate our soldiers but for the supplies that would be needed to get to the front lines at home, to our first responders at home.

Mr. BURR. Is it your belief that the private sector cannot fulfill that function?

Ms. SMITHSON. I think we need a public-private partnership in this, and there needs to be a Washington-led effort, in combination with the U.S. pharmaceutical industry, to bring that about.

Mr. BURR. Let me——

Ms. SMITHSON. Surge capacity——

Mr. BURR. Let me suggest to all of you that there's a very fine line there between a Federal entity and a partnership, and I know that I think in your testimony I think Dr. Young alluded to the fact. We have a budget currently of about $322 million over 10 years that was to address the joint vaccine acquisition program. Given the fact that a new pharmaceutical runs in the neighborhood of about a quarter of a billion dollars from start to finish, $322 million looks like a drop in the bucket for the funding of an entire vaccine program. Would you agree?

Ms. SMITHSON. Yes, indeed I would.

Mr. BURR. The current timeframe, if I remember correctly, is somewhere between 9 and 15 years, relative to the FDA approval of a vaccination.

Ms. SMITHSON. And that timeframe does not address the fact that the clinical trials in these cases must deal with diseases that are lethal. So that's why the FDA is having such a difficult time wrestling with this.

Mr. BURR. Dr. Young, you referenced to a date, 1999 or—I can't remember what it was—where the FDA was directed I think to put together a final regulation or a set of procedures, a directive that they receive, and they still haven't put that together.

Mr. YOUNG. That's affirmative, and there has been dialog with the docket branch trying to speed that along.

Mr. BURR. Ambassador Bremer in, I believe, 2000 when the National Terrorism Commission gave their report—let me read you one of the bullets: A terrorist attack involving a biological agent, deadly chemicals or nuclear or radiological material, even if it suc-

ceeds only partially, could profoundly affect the entire Nation. The government must do more to prepare for such an event.

Dr. Stringer, have we done anything different since that report came out before September 11?

Mr. STRINGER. I think there's a lot more interest in WMD preparedness, WMD training, funding from every level of this country. I just hope it won't go away when the televisions go away, because that's been the frustrating thing since 1995 when we started this, trying to get adequate funding for any of the initiatives.

Mr. BURR. The General Accounting Office on October 10 of this year put out a report. Let me read you just a section of it. It said: Federal spending on domestic preparedness for terrorist acts involving WMDs has risen 310 percent since fiscal year 1998, to approximately $1.7 billion in fiscal year 2001, and may increase significantly after the events of September 11. However, only a portion of these funds were used to conduct a variety of activities related to research on and preparedness for the public health and medical consequences of bioterrorist acts.

Dr. Young, can you shed any light on where the hell this money is going?

Mr. YOUNG. Well, I've been trying to track the same thing, Mr. Burr, but I think I can give you two points. One, the funds were set out in regards to the teams that Lew spoke of. That was a major initiative, about 600,000 for 1997, soon to be 120 teams. There have been exercises that went from the Federal level down to the local level, and that consumed a significant amount of the public health monies.

There's another point that I think ought to be added, and when you read the note that—or the letter that I sent to the President with the other committee, you can see the emphasis on research. One of the things that I've been concerned with is just-in-time therapy, and I've given you some information in Appendix 3 of just such an approach, because not everyone will be vaccinated, and there are therapeutics under development that can intervene and detoxify and remove the viruses.

Those types of efforts in research needs to be coordinated. DARPA has done some research in that way. FDA has a little bit. NIH has, CDC, but there is not a global look as to what type of research is done.

This is, in a sense, a war. There needs to be a focus, in my opinion, just as we did in World War II, to look at the kind of research that's needed, fill the gaps, and support the grants and contracts to do that.

Mr. BURR. Well, clearly, there's a renewed interest in fulfilling that mission.

Dr. Stringer, let me ask you one last question. As one of four national medical response teams, the pharmaceutical inventory that you must have to be able to be deployed and to address a potential casualty in a city of 100, 200, 300,000 people must be massive. Do you have such a drug inventory?

Mr. STRINGER. We carry on board the trucks a thousand patient doses and then a stockpile, an additional up to 10,000. Then there's the—coming behind, the national pharmaceutical stockpile with a lot larger footprint.

Mr. BURR. But from a standpoint of that national pharmaceutical stockpile, that's not at SORD or the other three?

Mr. STRINGER. No, sir.

Mr. BURR. Medical response——

Mr. STRINGER. They're in secured locations across the country. They can be in within 12 hours, and it was sort of neat to see in New York they didn't get there in 12 hours. It was a much shorter timeframe, which we're all proud of.

Mr. BURR. We're extremely fortunate.

Mr. STRINGER. The birds weren't flying that day.

Mr. BURR. Well, we were extremely fortunate also that this happened in New York, which may have been the best city as far as their preparedness.

I will ask one last question with the chairman's indulgence.

I made a statement during my opening statement that Governor Ridge has to have the budget authority and oversight responsibilities for every penny that is directed toward response and preparation for bioterrorism.

Is there anybody who disagrees with me on that, on this panel?

I will show that there are no hands raised. Everybody is in agreement that that budget authority needs to be extended.

I yield back.

Mr. GREENWOOD. The Chair recognizes the gentleman from Michigan, Mr. Stupak, for 5 minutes.

Mr. STUPAK. Sorry I missed some of this, but I ran down to do a press conference, because once again—for the last 5 years we are trying to do a food safety bill, and actually it is in this GAO study about how food safety or foodborne incidents can result in terrorism in this Nation. And we put in new authority there for the Secretary.

So I am—just a little reminder to everybody on the panel. I hope that they take a look at our legislation, and we can move it along, because it is a major concern in this country. Our imports of food have gone up 200 percent in the last 5 years, yet we inspect only 1 percent of food coming into this country. So you can see it could lead to some real problems if the right substances were added to our food. So we should take a look at it.

But we are talking a little bit about money here, and it came up quite a bit, and if you take a look at what is going on—Mr. Peterson, you mentioned that Johns Hopkins will spend up to $7 million, you said. Will you be reimbursed for any of that, for any kind of program through the Federal Government, State or local?

Mr. PETERSON. Right now there is no direct source for reimbursement other than through our ongoing patient revenues. But that is a budgetary item on the expense side of the ledger of budgetary impact for which we did not have a plan.

Mr. STUPAK. Sure, you didn't have a plan. What will it cost you a year to maintain that, supplies and things you need?

Mr. PETERSON. We have not been able to determine that. But that is a one-time startup situation.

To your very point, there will be ongoing costs to replenish consumables. Probably, if I had to guess, at least a quarter to a third of that number.

Mr. STUPAK. You're a big hospital complex. I am sure $7 million is not insignificant. But how about regional hospitals around the Nation?

Take northern Michigan where I am from, we are hundreds of miles apart from a regional hospital. How would they be able to do it? Just be prepared like you are?

Mr. PETERSON. I think the point is that there will probably be different needs at different hospitals. And the other point that I would make is that I do endorse the notion that was suggested earlier in the day, which is that we do need to engage in a more regional approach. There needs to be some rational planning that goes on so each and every hospital is not engaged in duplicative activities.

Mr. STUPAK. You mentioned the nurses shortage. The legislation that is pending before Congress is good legislation. Any other suggestion you would make on that legislation to increase nurse availability throughout the United States?

Mr. PETERSON. I think anything we can do to provide incentives for young women and men to enter the health fields is a good investment, a good thing to do for this country.

It is not just nurses. We have evidence that there are many other skilled categories of workers in health care for which there is a growing scarcity.

Mr. STUPAK. Thanks.

Dr. Smithson, you had mentioned money in your opening statement, and I missed it—something about $1.7 billion or something—but very little gets outside of the Beltway. Could you explain that again? I missed part of that.

Ms. SMITHSON. The Federal funds being spent this year on readiness are $8.7 billion, with $311 million getting to the local level in training, equipment and planning grants.

If we are to look at the public health sector and the hospital end, even a small fraction of that $311 million makes its way there.

Mr. STUPAK. Thanks.

Dr. Waeckerle, you participated in OPERATION TOP OFF, you mentioned, in Denver.

Mr. WAECKERLE. I was asked to oversee it. I didn't participate in it, sir.

Mr. STUPAK. It is my understanding that the FBI was in charge of the crisis management and FEMA was in charge of the consequences management. So where did the public health officials come in? Did they have to go through FEMA and FBI to do anything?

Mr. WAECKERLE. One of the panels has unanimously recommended that you have a central authority with command and control and the ability to communicate vertically and horizontally, if you will allow military terms, because as you—you probably know already that that was a disaster. And that was one of the major lessons learned from OPERATION TOP OFF.

And, in fact, there were open disagreements as to who was in charge at what point in time, and they adversely affected the drill and, theoretically, they would adversely affect any real events that might occur in this country. And that is why we have implored you

all to look at the authority and command and control and communications issues.

Mr. STUPAK. Okay.

Dr. Brinsfield——

Mr. WAECKERLE. I just had one suggestion for your law, and I apologize to my colleague for interrupting.

One of the great issues that the hospitals face in this country are credentialing and staff privileging issues, as well as State licensure issues. If we wish to supplement an institution's nursing staff or radiology staff or physician staff—and while I apologize, I haven't read your bill in detail, I hope that you have addressed the fact that we have to somehow create States that border on each other working together, so that they can share licensing, credentialing issues, as well as hospital and regions doing that; so we can have surge capacity and supplement from an unaffected region to an affected region of our country with critical health care personnel. And I hope that that is addressed.

Thank you.

Mr. STUPAK. Thanks. If I may have one more question.

Mr. GREENWOOD. We will have a second round. But the Chair has been very indulgent.

Mr. STUPAK. Okay. You said the domestic preparedness program failed because of its stand-alone nature and the lack of follow-up. Could you just elaborate a little bit on that for me?

Ms. BRINSFIELD. I think that it did several things well. I think one of the things that it failed with was that its oversight changed over the time that it was put out, and that it was a single program and a single day training, and there was no follow-up.

So, in Boston, we received that awareness level of training over 5 years ago, and there was no training that came as a secondary follow-up to move ahead.

Mr. STUPAK. Thank you.

Mr. GREENWOOD. The Chair thanks the gentleman.

The gentleman from Iowa, Mr. Ganske, is recognized for 5 minutes.

Mr. GANSKE. Thank you, Mr. Chairman. Appreciate the testimony of the panel.

Last night, when I gave a floor statement on this issue, I talked a little bit about the problems with different agents; and then I asked the question, what can we do?

And this is—these were my thoughts last night. I am glad the panel is in agreement with them.

First, we need better coordination between the Defense Department and the State Department, the Agriculture Department, the CDC, the State public health departments and directors, the city-based domestic preparedness programs. And that is a job that I gather this entire panel feels would be appropriate for the new Director of Homeland Security to address.

Second, we must make a systematic effort to incorporate hospitals into the planning process.

I appreciated your testimony, Mr. Peterson, because I think it is accurate to say that there are few, if any, hospitals today that are prepared to deal with a community-wide epidemic of the type that we could envision for a whole host of financial, legal and staffing

reasons, some of which you entered into, and went on to say there will be significant costs for expanded staff and staff training to respond to abrupt surges in demand for care—as you mentioned, outfitting decontamination facilities, rooms to isolate infectious patients, cost of respirators and emergency drugs.

The first serious efforts to implement that civilian program to counter that was in 1998 when Congress started to do this. But then I went on to say that we had to do more to integrate Federal, State and city agencies.

First, we have to educate the physicians of public health staff about the clinical findings of agents—not that easy because, as all of you know, the beginning symptoms on those are nonspecific upper respiratory, GI. We need to develop further surveillance systems for early detection of cases.

We need individual hospital and regional plans, as you have mentioned, for caring for mass casualties. As you have mentioned, Dr. Young, we need laboratory networks capable of rapid diagnosis; I think that is really, really important. And we need to accelerate stockpiling and dispersal of large quantities of vaccines and drugs.

I recently visited Broadlawns Hospital in Des Moines, Iowa, which is a public health hospital. We talked about some of these things. For years we have neglected our public health hospitals. We need to correct that.

But I just want to finish by making a—a generalized comment. You were here today making these points, and I would say that one of the main, overall reasons that you are making those points is because under the HMO model of health care in this country we have wrung out of the health care system any redundancy in the quest for efficiency.

And I see everyone on this panel nodding their head.

There is no room for the surge of an epidemic in the health care system today, because of the HMOs contracting with the health system. Some of us would argue that they have gone too far in certain circumstances.

So my point is this: Because of the way that we have financed health care in this country and because of the cost-cutting measures with managed care, we will be facing increased Federal costs.

And I think everyone on this panel before us, and probably every one of the Congressmen and Congresswomen here today, would agree that Congress will be appropriating significantly increased dollars to cover those problems, which you and I and others have outlined.

So one way or another—you know, the costs are there, and they will have to be paid for. If they aren't paid for through the private health care system, they are going to be covered hopefully through the government.

And with that I will yield back.

Mr. BUYER [presiding]. We thank the gentleman.

Mr. Strickland is recognized for 5 minutes for inquiry.

Mr. STRICKLAND. Thank you, Mr. Chairman, and thanks to the members of this panel.

As I have listened to you today and looked at your testimony, I have heard over and over again the admonition from you that you need more resources. And putting that in the context of—I just

can't help but think of actions that we have taken in this Congress over the last few months.

We have talked—all of us, people in both parties, so I am not being partisan here—we have talked over and over again about the surplus this country has. Well, there may have been an accounting surplus in a budgetary sense, but it is evident, I think to all of us now, that we have been woefully neglectful in terms of dealing with the real needs of our population.

We have neglected to fund these kinds of activities as we should have, and now we are trying to play catch-up.

And so I want to thank you. I think you are all incredible in terms of the message that you are bringing to us today.

Mr. Peterson, I have here an article from the American Journal of Public Health, and there is a study discussed here regarding the preparedness of hospitals to deal with certain terrorist incidents and so on. The conclusion is, hospital emergency departments generally are not prepared in an organized fashion to treat victims of chemical or biological terrorism.

Now, you have stated that hospitals must be properly stocked with antibiotics, antitoxins, antidotes, ventilators, respirators and other equipment. You have talked about what you have done at Johns Hopkins. But the question I would ask, would you give us an idea of the volume you are suggesting?

Who do you think is going to pay for it? And who is going to make sure that such supplies and the like are in place? How do we guarantee that what you are saying needs to be done is actually done? And how do we pay for it?

Mr. PETERSON. First of all, let me respond by saying, I think it is important to recognize that at the individual hospital level, it is important that we attempt to do two things. One is to introduce a rational way of thinking about what any one hospital needs to prepare for. And what I mean by that is that the hope, of course, is that if any one hospital or hospitals in the region are dealing with a catastrophic happening that help will be on the way at some point after the first couple of days.

Let me use that frame of reference so that as we are thinking about what our responsibility is at the local individual hospital level.

You heard me suggest that perhaps we need to have a stock to handle 4 days' worth, and I use that because we think it is our responsibility to be able to go for a couple of days. And we would plan for that. We would spend for that.

Beyond that, it is our hope that help would be on the way. So one way of responding to you is that the—the order of magnitude of planning that is done at any one institution, I think needs to recognize that in a catastrophic situation, there would need to be augmentation of what any one institution could do either in a physical way of thinking of it or in a fiscal way of thinking of it. But I would repeat that I would endorse the notion of some regionalization in how we think about utilizing hospitals and their resources.

Now to how do we pay for it: It strikes me that given the reality that was suggested with respect to how the system has been reimbursed for services over the last several years, we have been squeezed not just by the managed care phenomena, but it is also

fair to say that both medical assistance programs and Medicare programs over the last few years have also placed a squeeze on hospitals. So, in general, hospitals are working with very, very slim margins, can barely manage their current missions in that regard.

So I would have to take the point of view that we sit before you and suggest, we do need some help. I don't know that I can suggest to you that we should turn to the Federal Government for 100 percent of that which we need to gear up to do it, but I do think that we need to have some consideration in the form of some direct grants.

Perhaps there can be a Federal reserve fund of some sort that is developed. But—we can't do it alone, but we have a responsibility to temper that which we do.

So what I tried to do today is provide for you, for a fairly large hospital, a realistic depiction of what we think we have to do at our local level; and I don't think that number is unrealistic for the size of our hospital.

So I am not going to suggest that you multiply $7 million times 5,000 hospitals. I don't mean to scare you in that sense. But I do think that it is illustrative of one large hospital's requirement, and I think it is a fairly responsible position that we are taking in that regard.

Mr. STRICKLAND. Mr. Chairman, may I ask Dr. O'Leary one quick question?

Mr. BUYER. Yes.

Mr. STRICKLAND. Dr. O'Leary, in your opinion, how would your organization make local hospital planning for possible disasters, such as we are discussing today, a part of the accreditation process?

Mr. O'LEARY. It is part of the accreditation process now, as I mentioned in my testimony. It is part of the process now.

Mr. STRICKLAND. It has been suggested to me that I ask whether or not that includes having adequate supplies in place in terms of the things we have talked about.

Mr. O'LEARY. Well, the assessment that we have to make, which is a—you know, it is all-hazards analysis and what are the vulnerabilities and gaps, then identify the needs that have to be fulfilled.

One of the things I think that we—our standards are promoting is an engagement of hospitals with communities, but—which is a broader statement of the need for integration between the medical care and public health systems which is, we are well short of that reality in a number of communities around the country.

The fact that planning identifies needs does not automatically mean that these needs are going to be fulfilled.

I think that is the kind of problem that—we can't mandate that, but we can certainly advocate for adequate funding to provide the supplies and the Federal guidance in terms of direction for both risk analysis and setting priorities for deployment of those resources.

Mr. STRICKLAND. Thank you.

Mr. BUYER. You know, in response to Mr. Strickland's comment about neglectful, I am not so certain who he was targeting the com-

ment to, but I do know, as a people, as a society, there were things that we were—we weren't prepared for.

I can't blame Congress when I look back on this post-Oklahoma City.

You know, Bill Clinton and I did not exchange Christmas cards. But I can tell you that I have to compliment him because he began to help focus the country on weapons of mass destruction. He appointed the then-CINC of SOUTHCOM, General Hugh Shelton, as his Chairman of the Joint Chiefs of Staff, someone who operated in the dark world of Special Operations. That was very wise of him to do that.

When—when Senators Nunn and Lugar then passed their measures to focus the country on preparedness for weapons of mass destruction, you know, DOD takes up the program, we shift it over to the Department of Justice, yet States and localities don't prepare their plans.

There is Federal money available, but they don't even do it. Only four States have done that today. So even—even here as the Federal Government prepares a program and says, you know, offer us your plan, we will help you in your training and preparedness for your medical readiness, it wasn't even done.

So maybe it was the country, Mr. Strickland, when I think about that. I even remember Joe Biden, Senator Biden, and I, who don't always agree on things were at a conference committee under the antiterrorism bill. And we tried to change wiretapping from the rotary phone to the person, and we couldn't even get it out of conference.

Now the judiciary passes it in a flash fire.

Mr. STRICKLAND. Can I respond, sir?

Mr. BUYER. Sure.

Mr. STRICKLAND. I wasn't directing that comment to anyone. As I said at the beginning, this is a matter that all of us, I think, have to assume some responsibility for.

But the fact is that we haven't in the past been thinking as we should have been thinking. And I think we have all learned a great deal in the last few days and weeks. And growing out of that learning, I hope comes a change of policy and setting of priorities these folks can help us with.

Mr. BUYER. I can even tell you—gosh, I have to look back almost maybe 24 to 28 months ago as chairman of the Military Personnel Subcommittee—taking the Top Secret briefings, talking to General Zinni about the ever-present threat of anthrax and then authorizing the anthrax vaccine with regard to our soldiers. Very controversial.

I had—in the last election, I had billboards against me for having done that. Can you imagine? And now, I am getting the, how come other people can't get the shots? Now, isn't that a change?

And there was—something was brought up by Mr. Burr earlier in a comment—Dr. Smithson, you made—about public-private arrangements. That is what we have with BioPort.

Ms. SMITHSON. It is not working so well.

Mr. BUYER. We held a hearing on that issue. We cannot find a pharmaceutical company that is willing to take that program at risk. Are you familiar?

And I suppose if—if we are going to mandate that, do, you know, a population, then you would have all kinds of people saying, oh, yes, we would like that public arrangement. But when we don't have it, then we—I can tell you the conclusion was a sole-source contract in a public-private arrangement, i.e., an anthrax vaccine.

I just wanted to share that with you, what we have been doing with regard to our hearings.

I do have a—my question for you is, you took a lot of time to prepare your testimonies. I read them last night. But let's sort of concentrate it. Give me a one, two. And we will go quickly down the line of the one or two most productive things Congress could do right now. Just give me two bullets.

Dr. Smithson.

Ms. SMITHSON. Get the money outside of the Beltway to the local response entities.

Two, and I am going to kind of make this a duo. Please make grants for regional hospital planning and institute early warning disease syndrome surveillance across this country.

Mr. WAECKERLE. To paraphrase the distinguished Member of Congress, I am just a country doc from Kansas City; I am not real familiar with all of the politics. But I will tell you this, we have been clamoring for years to have a central authority to manage the money and get it to the local community. We have to have a central authority. It cannot go through 50 different Federal agencies, who are redundant and don't even talk to each other.

The second thing is, the money needs to get to the local resources. But we have to rebuild the local resources—the hospitals, the emergency health care personnel associated with them, and the public health infrastructure—at the local level. Thank you.

Mr. BUYER. Thank you.

Ms. BRINSFIELD. I think if I have to choose two, it would be to make sure that training and equipment and protective equipment makes it to the local level, mostly to the emergency medical personnel, the hospital personnel and public health personnel that are really lacking that right now.

And the second, these needs to be a coordinated response and it needs to stay coordinated to prevent the agencies, on the local level, from splintering.

Mr. STRINGER. The funds should go to the States to coordinate regionally in the State, county, city efforts. Get it out of the Beltway.

Second, job protection for the Federal response personnel so that they have a job when they come home. I have a real problem with that, I think this country would be hard pressed if you tried to find 7,000 immediately.

Mr. PETERSON. Local hospitals stand prepared to do their part, but are at this point in history, deserving of some additional fiscal relief to assist in the local planning that does need to go on.

However, having said that, the hospital community would welcome the introduction of a more coordinated approach. We would stand prepared to participate willingly and would welcome, in fact, the opportunity to, if you will, to take direction.

We think there is an indication at this point in time for more planning that is actually centrally promulgated.

Mr. O'LEARY. It is pretty clear that we need a national coordinated and integrated plan of response. I don't think that we can count on our communities to come up, and being isolated with the priorities, there needs to be guidance from the Federal Government. I think Mr. Ridge has the opportunity to do that.

And then we ought to create the models for planning within these communities and hold these communities accountable for making sure that necessary plans actually work. That is one.

Second, you know, it is easier for me to say than some of the other panelists, but our medical care delivery system is starving. This is not just on the bioterrorism. We see understaffing, we see it in emergency overcrowding. It is time to wake up to this issue. And it doesn't mean that we need to return to where we were in the 1970's and 1980's, but we need to think strategically about how to reintroduce resources in this system that permit us a surge capacity. That is real.

Mr. YOUNG. To develop a central command and control at the Federal level that extends to the State and local, with each of the entities integrated and able to work together. They should have control of resources, personnel, training, supplies, and the ability that Lew mentioned on protection of jobs.

I would also urge that Congress to have a single command and control on hazard response and that there be a single oversight committee, not multiple ones that bring individuals as witnesses at different times.

That is my first recommendation, single command and control administration and Congress.

Second, a rapid diagnostic capability that has the capacity through development of new tests from research to identify in minutes to hours by immunological means rather than culture and sensitivities. We have done that on cerebral spinal fluid, for meningococcal infections, pneumonococcal infections and others. This is a no-brainer and not that difficult to do.

Linked with it, a whole concept of just-in-time therapies which not only include antibiotics and vaccines, but immunotherapies that can be used to interdict toxemia, and viremia at the time it is occurring in a nonimmune population.

Those two issues would go a long way toward solving—and Mr. Chairman, you may not have seen, but I did put the letter to the President in 1998 which led to the kickoff of the terrorism response. And I would go on record that Mr. Clinton has done a remarkable job in bringing bioterrorism and chemical terrorism to the fore, and echo what you said in that the Nation is indebted to him.

Now is the time to take the next step.

Mr. BUYER. Thank you.

Before I yield to Mr. Rush, I want to thank all of you on how you answered Mr. Deutsch's question, so there is not a panic out there with regard to the anthrax. I really respect the way you answered that question.

Mr. Rush.

Mr. RUSH. Thank you, Mr. Chairman.

I also want to add my voice of congratulations and commendations to all of the panelists in what I have been able to ascertain.

This has been a very, very important and cogent hearing, and I appreciate all of your comments.

I must say to you that I was a bit tardy coming to this hearing because I was upstairs. I had a meeting with a major hospital in my area—the president; and they were concerned because there is an effort by the VA to close a hospital, major VA hospital in my city. And ironically we were meeting at the same time, and it just clearly indicates to me the kind of disjointed approaches that we take in the Congress and as the Federal Government in regards to the whole area of public health and the public health system.

It's indeed contradictory at worst—at best, rather, for us to—the VA in this climate to be entertaining closing down a hospital dedicated to veterans. And so I just wanted to say that.

I wanted to ask a question. It seems to me that over—since I have been a Member of Congress, and even prior to that as a member of the city council in the city of Chicago, there has been almost a total breakdown in the public health system across the board. In my area, hospitals have closed down, hospitals that have served the inner city communities; and cost-cutting policies have reduced medical care and—medical facilities to medical resources to a large portion of our Nation's citizens.

And I am—I—last—I believe it was about a week ago, the Nightline Show, I saw this enactment of what would happen if in fact a bioterrorist would invade the city with some chemicals and what would happen. I saw the buildup in terms of the afflicted citizens and how they responded, and I saw how the medical profession, the hospitals, started out with a steady stream to the point where they became overrun with victims.

And it really, again, is kind of—it really clearly indicated to me that there is a problem in terms of preparedness in response to this type of unfortunate event, that if it had—would occur in our—in one of our major American cities.

And so, Dr. Peterson, my question to you is, how can we balance concerns over cost with the need to be prepared for public health emergency? I mean, is there a way that we can—that you suggest that we try to figure out? How do we deal with—certainly cost is a reality.

Mr. PETERSON. As I suggested earlier, I think it—it starts with the requirement that we who are currently responsible for running the Nation's hospitals, that we need to take the responsibility to have a rational approach to what we are doing at the local level.

And that is why—and I don't mean to be repetitive, but I would suggest that we need to take, along with governmental entities, a leadership role in training, to rationalize how we do our preparedness planning as it relates to this kind of a—of a possible incident. And, therefore, I do not believe that it is prudent for each and every hospital to go out and assume that they have to—to be prepared at a level that is consistent with perhaps what a Johns Hopkins, if I may use the name of my own institution, would do.

So that is the first point.

We do need to balance, as you suggest in your statement, in your question, the reality that we are starting at a baseline that unfortunately is much lower from a fiscal health perspective than any of us would like. And so, therefore, I can't disagree with what has

been said among my colleagues on the panel or what has been said by the members of the committee, that indeed we don't have much surge capacity today.

So I think what we need to be about, we are trying to do at our local level is, we are trying to be as responsible as we can. I have authorized a certain amount of, if you will, overspending beyond my budget authority, and it is my hope that we will be able to solicit some consideration from the Federal Government to have some relief. We think some relief is indicated, but we have to take responsibility to not go overboard in what we are doing.

We are trying to be as prudent as we can in our response. But we have to do more now that we better appreciate, that we as a hospital community appreciate a little bit more subsequent to September 11, what we may be dealing with.

I have to suggest to you that if you go back in time, only a couple of years ago and maybe even before September 11, for many of us the notion of bioterrorism was certainly not on the front burner. It needs now to be on the front burner and there are some different things that one must do to prepare for that eventuality that then—in contrast to what one does for other types of disasters.

So that is the way I would respond to you, sir. And I think that we are dealing with a—a terribly complex balancing act, given where we are starting from a fiscal point of view.

Mr. RUSH. Mr. Chairman, the doctor wants to respond to my question also.

Mr. WAECKERLE. Thank you. I would like to make two comments, because I think this is incredibly important, that we need to discuss this for your benefit.

First of all, it would be hypocritical for us as health care professionals to come to ask you if we didn't commit. And I think, Mr. Peterson, the American College of Emergency Physicians and everybody here can promise you that we will commit, too. This is a partnership.

But I think what we are trying to ask you to do is just—the people trying to do the job, and to add a job on top of it is the reason that I want a central authority to oversee and manage everything—is all of the money that Dr. Smithson is taking about is available to us, but it never gets to us.

If you get the money to the health care professionals, the hospitals, to the public health, to the professional organizations that train the nurses and the doctors and the EMTs, and you bypass the bureaucracy that heretofore has plagued us, it becomes a much more efficient and much more effective process; and I believe will garner a greater gain than any of us ever dreamed of.

And that is a challenge we all face together.

Mr. RUSH. Dr. Smithson.

Ms. SMITHSON. Actually, in her testimony, Dr. Brinsfield illustrated how a Federal-local partnership might work with regard to an emergency cache of pharmaceuticals. Under the MMRS program the cities were given moneys to purchase pharmaceuticals, but what the locals have to figure out how to do is put that pharmaceutical cache in a bubble so that it is replaced before the dates of expiration. That costs money, and that needs to be a commitment on the local level.

So for each of those different areas, we need to figure out how to share that Federal and local burden.

Washington can go about this the ineffective and costly way or they can go about this the smart way in giving the locals the money to do the planning that would allow them to overcome some of those surge capacity problems, so that the hospitals can have a game plan for how to meet a surge of patients that need isolation capability by simply transforming wards to that type of patient care, as opposed to building new isolation capacity.

There are near-term solutions that are cost effective, as opposed to some of these other things that may be considered in the long term as advisable. There are ways to get about this.

Mr. GREENWOOD. The time of the gentleman has expired.

The gentleman from Florida, Mr. Stearns, is recognized for 5 minutes.

Mr. STEARNS. Thank you, Mr. Chairman. The question I have is for Dr. Young and perhaps Dr. O'Leary.

In my hometown we have two major hospitals. And in this world of free market, these hospitals will start to grapple with these problems and they will start to develop individually their own disaster plan dealing with terrorism; they won't be consulting, hospital to hospital, with other groups.

Do you think there is a potential for double-counting of the hospitals doing the same thing and perhaps not knowing what one hospital is doing, or the other? Is there some way perhaps to have the staff and supplies brought together from the two hospitals? And should this be done on a national level so that hospitals and physicians and everybody cross-pollinates on this in the event of a crisis?

And how could it be done, I guess?

Mr. YOUNG. That is an excellent question, sir. The reason that I think Boston and New York did so well is that they focused on working together among the hospitals, as Mr. Peterson said. I personally went up to Boston, met with a variety of hospitals and the public health and medical facility managers and also with the EMS and the MDMS teams. That was a very helpful catalyst. It brought us all together, and we began regional planning. And Boston made the commitment that they would go out and work with the regional hospitals and try to build a network.

What I would suggest, sir, is, just as we have talked about, that there be regionalization, that the local people have the ability to design their own system within guidelines, and that we reward and design the system so that if you work together and really don't each do your own competitive thing, you get even more resources, rather than each person trying to do their own work. I have found that where we have taken that approach, in Boston, in New York, and in other places that I personally visited that it went quite well and we saw the people rise up together.

In fact, in New York City it was interesting. In the meeting that the Mayor convened, as I described, many of the people hadn't met each other before. Their responsibilities were not outlined. And Dr. Letterberg and I walked through the various scenarios. And Dr. Peggy Hamburg, who was then Commissioner of Health, later be-

came Assistant Secretary in the Department of Health and Human Services, went out then and organized the region.

Mr. STEARNS. How should this originate today in my home community or in my congressional district? Should I, as a Federal elected officer, try to organize something like this; or should the Federal Government institute a program, or Governor Ridge provide designees that would come down to each congressional district to develop a whole consultation program much like that you did in Boston and New York?

I mean, how should this originate on a national basis?

Mr. YOUNG. I would recommend, based on past experience, that it come out of the new Department of Homeland Protection and that there be actual visits within the communities.

Mr. STEARNS. By someone from the Homeland?

Mr. YOUNG. By someone from the Homeland Department in this area of public health.

Mr. STEARNS. To give them guidelines and to tell them what to do?

Mr. YOUNG. That is right. And to start coming—just going there is an event of forcing action.

I don't think in a lot of places all of the individuals would have gathered and planned if we didn't have an event. When we first developed the concept of the metropolitan medical strike teams, Lew, Susan Briggs from Boston and a number of the other commanders were there, and then we took that program from them out to the States.

Now, with this new organization, I think it would be highly effective if there was a way to go into the regions. If you were there, sir, that would give it an added, heightened view.

Mr. STEARNS. Maybe congressional-wide consultation to talk about how hospitals and emergency facilities and physicians would act and use the guidelines from the—Governor Ridge's office to debrief everybody.

Mr. YOUNG. I would definitely think so. And I would be interested in what Mr. Ganske says, as a physician. But I would think that the joint action of Congress and the administration could go a long way toward dispelling fear and mobilizing the Nation to meet this.

Particularly, it brings together the medical, the public health communities, the local communities that manage emergencies and the teams that are there. And if the Congress would join that, I think it would be another way to get the proper attention from the media.

Mr. STEARNS. Mr. Chairman, before I close, I have got a question for Dr. O'Leary.

You can answer that one, but I just wanted to—you indicated in your testimony that disaster planning is part of the accreditation process, if I understand it.

Mr. O'LEARY. That's correct.

Mr. STEARNS. Have you told the staff—told the committee what your success rate has been? I understand that you have 18,000 health care organizations. What has been the success rate of these hospitals you inspect in terms of disaster planning?

Mr. O'LEARY. Well, the—I would like to come back to the original question. The degree of compliance with the disaster planning standards is actually quite high.

But we do have new standards in place—they went in place last January—which moved to the issue that you raised initially with Dr. Young. And that is the need to engage communities as part of the planning process.

Hospitals are not solos in this process, and while they—they may compete with each other in various communities, they can also collaborate; and I think many of them actually do. Our standards create the expectation in this engagement with community that "community" is other hospitals, it is public health agencies, fire fighters, policemen. It is everybody in the community.

And I think it is—it is too early for us to answer your question as to how effectively they are doing that. But you will not be surprised that we are paying a lot of attention to that issue in our survey process.

I think the question you may be getting at is, we have a system of accountability for hospitals, but we do not have a system of accountability for our communities. The hospitals are like nodes around a command center. But the command center is not well defined yet, nor is it accountable. And I think that is an issue that merits the consideration of the Congress and the new Homeland Security agency, to determine how that accountability will be played out once an appropriate model and planning is in place, because that really is a crucial issue.

That is a complimentary aside. The hospitals are only a piece of the puzzle. There is a bigger puzzle.

Mr. GREENWOOD. The time of the gentleman has expired.

We thank all of the—the committee thanks all of the panelists for being here with us these last 3 hours. We are wiser for your testimony and your responses to questions, and we will do our best to implement your suggestions.

We now excuse you and again thank you for your service. You are welcome to stay for the balance of the hearing.

Mr. GREENWOOD. We now call the second and final panel forward, beginning with Dr. Scott Lillibridge, Special Assistant for Bioterrorism, Office of the Secretary, Department of Health and Human Services; Mr. Bruce Baughman, Director of the Planning and Readiness Division of the Federal Emergency Management Agency; and Ms. Jan Heinrich, Director of Health Care and Public Health Issues for the U.S. General Accounting Office.

You are aware that the committee is holding an investigative hearing and that, when doing so, we have had the practice of taking testimony under oath. I need to ask you, do any of you have any objection to giving your testimony under oath?

No?

Seeing no objection, the Chair advises you that pursuant to the rules of the House and pursuant to the rules of this committee, you have the right to be advised by counsel. Do any of you choose to be advised by counsel?

Okay. In that case, would you please rise and raise your right hand.

[Witnesses sworn.]

Mr. GREENWOOD. You may be seated.

Dr. Lillibridge, you are recognized for your statement. Thank you for being with us.

TESTIMONY OF SCOTT R. LILLIBRIDGE, SPECIAL ASSISTANT TO THE SECRETARY ON BIOTERRORISM ISSUES AND FOR NATIONAL SECURITY AND EMERGENCY MANAGEMENT, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES; BRUCE P. BAUGHMAN, DIRECTOR, PLANNING AND READINESS DIVISION, FEDERAL EMERGENCY MANAGEMENT AGENCY; AND JANET HEINRICH, DIRECTOR, HEALTH CARE—PUBLIC HEALTH ISSUES, U.S. GENERAL ACCOUNTING OFFICE

Mr. LILLIBRIDGE. Thank you, Mr. Chairman.

I would like to thank the previous panelists. I learned a lot. And I would like to thank Dr. Frank Young for introducing me to the preparedness issues around terrorism. He put me on airplanes, had me eat bad food and sent me all over the world.

Mr. GREENWOOD. Were you indeed in your knickers during that time?

Mr. LILLIBRIDGE. I was indeed, perhaps, in my knickers at that time and have developed a few gray hairs since then.

Mr. Chairman and members, I am Scott Lillibridge, Special Assistant to the Secretary on Bioterrorism Issues, National Security and Emergency Management Issues; and I appreciate the opportunity to appear before you today to discuss the Department of Health and Human Services' role in State and local government preparedness to respond to acts of terrorism, particularly those involving bioterrorism.

Clearly, preparedness and response issues are the order of the day. State and local health programs comprise the foundation of an effective national strategy for preparedness and emergency response. No doubt about that. Preparedness must incorporate not only the immediate responses to threats, such as biological terrorism, but also must encompass the broader components of public health infrastructure which provide the foundation for immediate and effective emergency response and long-term sustained response.

Those capabilities include the following—we have heard many of these today:

Clearly, a well-trained public health workforce; Laboratory capacity to produce timely and accurate results for diagnosis; Disease detective work or epidemiology and surveillance; and Secure, accessible communication systems both to and from local health departments, to State health departments and from States back to Federal entities like CDC. CDC has used funds provided by the past several Congresses to begin the process of improving the expertise, facilities and procedures of State and local health departments to respond to biological and chemical terrorism.

For example, over the last 3 years, the agency has awarded more than $130 million in cooperative agreements to cover fifty States and at least one territory and four major metropolitan health departments as part of its overall bioterrorism preparedness and response program. This program is new since 1999—fiscal year 1999.

We must continue to work with our State and local health systems as part of our ongoing preparedness efforts, incorporating many of the components that we have heard today, in terms of their vital importance in responding to disease, epidemics and large-scale outbreaks of activities such as what is occurring in Florida.

The Health and Human Services Office of Emergency Preparedness is also working on a number of fronts to assist local hospitals and medical practitioners to deal with the effects of biological, chemical and other terrorist acts. Since fiscal year 1995, for example, OEP has been developing local Metropolitan Medical Response Systems.

Through contractual relationships, the MMRS system uses existing emergency response systems, emergency management and medical and mental health providers, public health departments, law enforcement, fire departments, and EMS and National Guard to provide an integrated, unified response to a mass casualty event, drawing them into a centralized planning activity and bringing public health and medical folks to the table for the first time.

As of September 30, 2001, OEP has contracted with 97 municipalities to develop MMRS systems, and the fiscal year 2002 budget includes funding for an additional 25 MMRS systems.

MMRS has continued to expand—or refine and expand our medical preparedness at the most local level by requiring the development of local capacity for mass immunization, mass prophylaxis, the capability to distribute and stockpile ingredients and local capacity to increase our ability to do mass care.

I would like to mention a few indications from lessons learned from previous responses such as the recent TOP OFF exercise. This occurred in May 2000. This national drill involved scenarios related to a weapons of mass destruction attack against our population. However, the exercise that simulated a plague outbreak in Denver still applies today to many things that have come to light during this hearing. This exercise, of course, involved FEMA, the Department of Justice, HHS, Department of Defense and many other vital community sectors that would play a role in an actual response.

Several things emerged, and we are still working toward these entities. For example, improving the public health infrastructure remains a critical focus of bioterrorism preparedness and response, and such preparedness is indispensable for reducing the Nation's vulnerability to terrorism related to infectious agents.

Second, we need to increase our current and very limited surge capacity in our health care system through issues ranging from local planning to local health care system expansion activities to rapidly expand in the face of an emergency.

Those two things are certainly things that have come up both in this hearing and the previous hearing over the past week.

I would like to just use some plain talk to talk about some of the things that Secretary Thompson has been thinking about in leading this preparedness effort in Health and Human Services, our Department.

First of all, it seems important as this new Office of health—Homeland Security develops that we begin to have strong linkage from HHS to OHS, our Office of Homeland Security, and that we

are in the process of identifying people in our Department who can work with Governor Ridge as he begins this new endeavor.

Also the Secretary is in the process of enhancing our ability to manage a one-department response in a way that we never have tried in the past. For example, getting different agencies with different agendas, harmonized to a centralized emergency response activity has been a very, new phenomenon for our Department and as a consequence, the manifestation of my coming to Washington was one of those activities, but only one of the most visible.

Other things have been involving key leadership and training, information, briefings, actually reaching out to the other interagency intelligence briefings and all of the kinds of things that you do for a serious one-department emergency response capability.

The second thing that was mentioned was the development of more response teams or rapid response teams, and we are working with CDC and our commission core readiness force to have additional capacity to put into an emergency should that develop.

Training remains important, and we have recently consolidated an interagency agreement with FEMA to expand cooperative training activity between HHS and FEMA and have worked with entities like Noble Army Hospital at Ft. McClellan, Alabama, and conducted regional and distance-based learning.

In conclusion, I would like to mention that the Department of Health and Human Services is committed to ensuring the health and medical care of our citizens, and we have made substantial progress to date in enhancing the Nation's capability to respond to a bioterrorism event. Priorities include, in conclusion, strengthening our local and State public health capacities, continuing to enhance our national pharmaceutical stockpile, and helping support our local hospitals and medical professionals to expand their vital surge capacity.

With that, Mr. Chairman, I will conclude my prepared remarks, and I would be pleased to answer any questions that you or members of the subcommittee may have.

[The prepared statement of Scott R. Lillibridge follows:]

PREPARED STATEMENT OF SCOTT R. LILLIBRIDGE, SPECIAL ASSISTANT TO THE SECRETARY FOR NATIONAL SECURITY AND EMERGENCY MANAGEMENT, DEPARTMENT OF HEALTH AND HUMAN SERVICES

Mr. Chairman and Members of the Subcommittee, I am Scott R. Lillibridge, Special Assistant to the Secretary of HHS for National Security and Emergency Management. I appreciate the opportunity to appear before you this morning to discuss, from a Public Health perspective, the Department of Health and Human Services (HHS) role in preparedness to respond to acts of terrorism involving biological agents.

What has HHS been doing to prepare for this kind of event? Our efforts are focused on improving the nation's public health surveillance network to quickly detect and identify the biological agent that has been released; strengthening the capacities for medical response, especially at the local level; expanding the stockpile of pharmaceuticals for use if needed; expanding research on disease agents that might be released; developing new and more rapid methods for identifying biological agents and improved treatments and vaccines; improving information and communications systems; and preventing bioterrorism by regulation of the shipment of hazardous biological agents or toxins.

PREPAREDNESS AND RESPONSE

State and local public health programs comprise the foundation of an effective national strategy for preparedness and emergency response. Preparedness must incor-

porate not only the immediate responses to threats such as biological terrorism, it also encompasses the broader components of public health infrastructure which provide the foundation for immediate and effective emergency responses. These components include:

- A well trained, well staffed, fully prepared public health workforce;
- Laboratory capacity to produce timely and accurate results for diagnosis and investigation;
- Epidemiology and surveillance, which provide the ability to rapidly detect heath threats;
- Secure, accessible information systems which are essential to communicating rapidly, analyzing and interpreting health data, and providing public access to health information;
- Communication systems that provide a swift, secure, two-way flow of information to the public and advice to policy-makers in public health emergencies;
- Effective policy and evaluation capability to routinely evaluate and improve the effectiveness of public health programs; and
- Preparedness and response capability, including developing and implementing response plans, as well as testing and maintaining a high-level of preparedness.

The CDC has used funds provided by the past several congresses to begin the process of improving the expertise, facilities and procedures of state and local health departments to respond to biological terrorism. For example, over the last three years, the agency has awarded more than $130 million in cooperative agreements to 50 states, one territory and four major metropolitan health departments as part of its overall Bioterrorism Preparedness and Response Program. In addition, CDC currently funds 9 states and 2 metropolitan areas specifically to develop public health preparedness plans for their jurisdictions. Many of these states and cities have participated in exercises to test components of their plans. We must continue to work with our state and local public health systems to make sure they are more prepared. This will require the interaction of state departments of health with state emergency managers to fully integrate the state's capacity to effectively distribute life-saving medications to victims of a biological or terrorism event.

HHS is also working on a number of fronts to assist local hospitals and medical practitioners to deal with the effects of biological, chemical, and other terrorist acts. Since Fiscal Year 1995, for example, HHS has been developing local Metropolitan Medical Response Systems (MMRS). Through contractual relationships, the MMRS uses existing emergency response systems—emergency management, medical and mental health providers, public health departments, law enforcement, fire departments, EMS and the National Guard—to provide an integrated, unified response to a mass casualty event. As of September 30, 2001, OEP has contracted with 97 municipalities to develop MMRSs. The FY 2002 budget includes funding for an additional 25 MMRSs (for a total of 122).

MMRS contracts require the development of local capability for mass immunization/prophylaxis for the first 24 hours following an identified disease outbreak; the capability to distribute materiel deployed to the local site from the National Pharmaceutical Stockpile; local capability for mass patient care, including procedures to augment existing care facilities; local medical staff trained to recognize disease symptoms so that they can initiate treatment; and local capability to manage the remains of the deceased.

LESSONS LEARNED FROM PREPAREDNESS EXERCISES

An indication of the Nation's preparedness for bioterrorism was provided by the congressionally mandated Top Officials (TOPOFF) 2000 Exercise, held in May 2000, and the recent *Dark Winter* exercise, which was held earlier this year. Both of these drills involved scenarios related to a weapons-of-mass-destruction-attack against our populations. Part of the TOPOFF exercise simulated a plague outbreak in Denver, while the Dark Winter exercise simulated a release of smallpox.

Lessons from TOPOFF

While much progress has been made to date, a number of important lessons learned from TOPOFF have begun to shape our plans about bioterrorism preparedness and response in the health and medical area. They are as follows:

- Improving the public health infrastructure remains a critical focus of the bioterrorism preparedness and response efforts.
- Local health care systems should expand their health care capacity rapidly in the face of mass casualties.

- Local communities will need assistance with the distribution of stockpile medications and will greatly benefit from additional planning related to epidemic response.
- Ensuring that the proper legal authorities exist to control the spread of disease at the local, state and Federal level and that these authorities can be exercised when needed. This will be important to our efforts to control the spread of disease.

Lessons from Dark Winter

The issues that emerged from the recent *Dark Winter* exercise reflected similar themes that need to be addressed.

- *The importance of rapid diagnosis*—Rapid and accurate diagnosis of biological agents will require strong linkages between clinical and public health laboratories. In addition, diagnostic specimens will need to be delivered promptly to CDC, where laboratorians will provide diagnostic confirmatory and reference support.
- *The importance of working through the governors' offices as part of our planning and response efforts*—During the exercise this was demonstrated by Governor Keating. During state-wide emergencies the federal government will need to work with a partner in the state who can galvanize the multiple response communities and government sectors that will be needed, such as the National Guard, the state health department, and the state law enforcement communities. These in turn will need to coordinate with their local counterparts. CDC is refining its planning efforts through grants, policy forums such as the National Governors Association and the National Emergency Management Association, and training activities. CDC also participates with partners such as DOJ and FEMA in planning and implementing national drills such as the recent TOPOFF exercise.
- *Better targeting of limited smallpox vaccine stocks to ensure strategic use of vaccine in persons at highest risk of infection*—It was clear that pre-existing guidance regarding strategic use would have been beneficial and would have accelerated the response at *Dark Winter.* As I mentioned earlier, CDC is working on this issue and is developing guidance for vaccination programs and planning activities.
- *Federal control of the smallpox vaccine at the inception of a national crisis*—Currently, the smallpox vaccine is held by the manufacturer. CDC has worked with the U.S. Marshals Service to conduct an initial security assessment related to a future emergency deployment of vaccine to states. CDC is currently addressing the results of this assessment, along with other issues related to security, movement, and initial distribution of smallpox vaccine.
- *The importance of early technical information on the progress of such an epidemic for consideration by decision makers*—In *Dark Winter*, this required the implementation of various steps at the local, state, and federal levels to control the spread of disease. This is a complex endeavor and may involve measures ranging from directly observed therapy to quarantine, along with consideration as to who would enforce such measures. Because wide-scale federal quarantine measures have not been implemented in the United States in over 50 years, operational protocols to implement a quarantine of significant scope are needed. CDC hosted a forum on state emergency public health legal authorities to encourage state and local public health officers and their attorneys to examine what legal authorities would be needed in a bioterrorism event. In addition, CDC is reviewing foreign and interstate quarantine regulations to update them in light of modern infectious disease and bioterrorism concerns. CDC will continue this preparation to ensure that such measures will be implemented early in the response to an event.
- *Maintaining effective communications with the media and press during such an emergency*—The need for accurate and timely information during a crisis is paramount to maintaining the trust of the community. Those responsible for leadership in such emergencies will need to enhance their capabilities to deal with the media and get their message to the public. It was clear from *Dark Winter* that large-scale epidemics will generate intense media interest and information needs. CDC has refined its media plan and expanded its communications staff. These personnel will continue to be intimately involved in our planning and response efforts to epidemics.
- *Expanded local clinical services for victims*—DHHS's Office of Emergency Preparedness is working with the other members of the National Disaster Medical System to expand and refine the delivery of medical services for epidemic stricken populations.

HHS will continue to work with partners to address challenges in public health preparedness, such as those raised at TOPOFF and *Dark Winter*. For example, work done by CDC staff to model the effects of control measures such as quarantine and vaccination in a smallpox outbreak have highlighted the importance of both public health measures in controlling such an outbreak. The importance of both quarantine and vaccination as outbreak control measures is also supported by historical experience with smallpox epidemics during the eradication era. These issues, as well as overall preparedness planning at the federal level, are currently being addressed and require additional action to ensure that the nation is fully prepared to respond to all acts of biological terrorism.

CONCLUSION

The Department of Health and Human Services is committed to ensuring the health and medical care of our citizens. We have made substantial progress to date in enhancing the nation's capability to respond to a bioterrorist event. But there is more we can do to strengthen the response. Priorities include strengthening our local and state public health surveillance capacity, continuing to enhance the National Pharmaceutical Stockpile, and helping our local hospitals and medical professionals better prepare for responding to a biological or terrorist attack.

Mr. Chairman, that concludes my prepared remarks. I would be pleased to answer any questions you or members of the Subcommittee may have.

Mr. GREENWOOD. Thank you very much, Dr. Lillibridge.

Mr. Baughman, you are recognized for your testimony.

TESTIMONY OF BRUCE P. BAUGHMAN

Mr. BAUGHMAN. Thank you, Mr. Chairman.

I am Bruce Baughman, Director of Planning and Readiness with the Federal Emergency Management Agency. It is my pleasure to represent Director Albaugh at this important hearing on bioterrorism. The mission of FEMA is to reduce loss of life and property and to assist in protecting our Nation's critical infrastructure from all hazards. When disaster strikes, we provide a management framework and funding for responding units.

The Federal response plan is the heart of that framework. It reflects the labor of interagency groups that meet in Washington from all 10 of our FEMA regions to develop a capability to respond as a team, the Federal community responding as a team. This team is staffed by 26 departments and agencies, including the American Red Cross, and is organized into interagency functions based upon the authority and the expertise of the member organizations, and the needs of our counterparts at the State and local level, health and medical, is headed by HHS under our plan.

Our plan is designed to support, not supplement, State and local response structures. Since 1992, the plan has been a proven framework for managing major disasters and emergencies, regardless of cost. It works. It worked in Oklahoma City, it worked at the World Trade Center.

However, biological terrorism would present some unique challenges and has already. With an undetected attack, first responders would be doctors, hospital staff, animal control workers, instead of police, fire and emergency medical service personnel. Connections between these nontraditional first responders and the larger Federal response is not routine. The Department of Health and Human Services is the critical link between the health and medical community and the larger Federal response.

FEMA works closely with public health service as the primary agency for health and medical function under the Federal response plan. We rely on them to bring the right experts to the table when

we meet to discuss potential biological threats, how they spread, and the resources and techniques that would be needed to control them.

We are making progress. As Scott mentioned, Exercise TOP OFF in May 2000 involved a chemical attack on the East Coast followed by a biological attack in the Midwest. We have incorporated the lessons learned in that exercise into our response procedures. The procedures—the process is active and ongoing. It takes time and resources to identify, develop, and incorporate these changes into the system.

In January 2001, the FBI and FEMA jointly published U.S. Government's interagency domestic concept of operation for terrorism, or CONPLAN, with the Departments of Health and Human Services, Defense and Energy and the Environmental Protection Agency. Together, the CONPLAN and the Federal response plan provide the framework for managing the response to causes or consequences to a terrorist act. It was recognized, however, at that time that these plans were inadequate to adequately address a biological incident.

On May 8, the President asked the Vice President to oversee the development of a coordinated national effort regarding domestic preparedness. The President also asked the Director of FEMA to create an Office of National Preparedness to coordinate all Federal programs dealing with preparedness for and response to the terrorist use of weapons of mass destruction. In July, the Director formally established the office at FEMA headquarters with elements in each one of the 10 FEMA regional offices.

On September 21 in the wake of the horrific terrorist attacks, the World Trade Center and the Pentagon, the President announced the establishment of the Office of Homeland Security in the White House headed by Governor Ridge. The office will lead, oversee, and coordinate a national strategy to safeguard the country against terrorism and respond to attacks that may occur. It is our understanding that the office will coordinate a broad range of policies and activities related to prevention, deterrence, preparedness and response.

This office includes a Homeland Security Council comprised of key departments and agency officials, including the Director of FEMA. We expect to provide significant support to this office in our role as the lead Federal agency for consequence management.

Mr. Chairman, you convened this hearing to ask about our preparedness to work with State and local agencies in the event of a biological attack.

Terrorism presents tremendous challenges. We rely heavily on the Department of Health and Human Services to coordinate the efforts in the health and medical community and to address biological hazards. They need your support to increase the national inventory of response resources and capabilities.

FEMA needs your support to ensure that the system the Nation uses 65 times a year to respond to major disasters and emergencies has the tools and the capacity to adapt to a biological attack or any other weapon of choice.

Thank you, Mr. Chairman.

[The prepared statement of Bruce P. Baughman follows:]

PREPARED STATEMENT OF BRUCE P. BAUGHMAN, DIRECTOR, PLANNING AND READINESS DIVISION, READINESS, RESPONSE, AND RECOVERY DIRECTORATE, FEDERAL EMERGENCY MANAGEMENT AGENCY

INTRODUCTION

Good morning, Mr. Chairman and Members of the Subcommittee. I am Bruce Baughman, Director of the Planning and Readiness Division, Readiness, Response, and Recovery Directorate, of the Federal Emergency Management Agency (FEMA). Director Allbaugh regrets that he is unable to be here with you today. It is a pleasure for me to represent him at this important hearing on biological and chemical terrorism. I will describe how FEMA works with other agencies, our approach to dealing with acts of terrorism, our programs related to terrorism, and new efforts to enhance preparedness and response.

BACKGROUND

The FEMA mission is to reduce the loss of life and property and protect our nation's critical infrastructure from all types of hazards. As staffing goes, we are a small agency. Our success depends on our ability to organize and lead a community of local, State, and Federal agencies and volunteer organizations. We know who to bring to the table and what questions to ask when it comes to the business of managing emergencies. We provide an operational framework and a funding source.

The Federal Response Plan (FRP) is the heart of that framework. It reflects the labors of interagency groups that meet as required in Washington, D.C. and all 10 FEMA Regions to develop our capabilities to respond as a team. This team is made up of 26 Federal departments and agencies and the American Red Cross, and organized into interagency functions based on the authorities and expertise of the members and the needs of our counterparts at the state and local level.

Since 1992, the Federal Response Plan has been the proven framework time and time again, for managing major disasters and emergencies regardless of cause. It works during all phases of the emergency life cycle, from readiness, to response, recovery, and mitigation. The framework is successful because it builds upon the existing professional disciplines and communities among agencies. Among Federal agencies, FEMA has the strongest ties to the emergency management and the fire service communities. We plan, train, exercise, and operate together. That puts us in position to manage and coordinate programs that address their needs. Similarly, the Department of Health and Human Services (HHS) has the strongest ties to the public health and medical communities, and the Environmental Protection Agency (EPA) has the strongest ties to the hazardous materials community. The Federal Response Plan respects these relationships and areas of expertise to define the decision-making processes and delivery systems to make the best use of available resources.

THE APPROACH TO BIOLOGICAL AND CHEMICAL TERRORISM

We recognize that biological and chemical scenarios would present unique challenges. Of the two I am more concerned about bioterrorism. A chemical attack is in many ways a large-scale hazardous materials incident. EPA and the Coast Guard are well connected to local hazardous materials responders, State and Federal agencies, and the chemical industry. There are systems and plans in place for response to hazardous materials, systems that are routinely used for small and large-scale events. EPA is also the primary agency for the Hazardous Materials function of the Federal Response Plan. We can improvise around that model in a chemical attack.

With a covert release of a biological agent, the "first responders" will be hospital staff, medical examiners, private physicians, or animal control workers, instead of the traditional first responders such as police, fire, and emergency medical services. While I defer to the Departments of Justice and HHS on how biological scenarios would unfold, it seems unlikely that terrorists would warn us of a pending biological attack. In exercise and planning scenarios, the worst-case scenarios begin undetected and play out as epidemics. Response would begin in the public health and medical community. Initial requests for Federal assistance would probably come through health and medical channels to the Centers for Disease Control and Prevention (CDC). Conceivably, the situation could escalate into a national emergency.

HHS is a critical link between the health and medical community and the larger Federal response. HHS leads the efforts of the health and medical community to plan and prepare for a national response to a public health emergency. FEMA works closely with the Public Health Service, as the primary agency for the Health and Medical Services function of the Federal Response Plan. We rely on the Public Health Service to bring the right experts to the table when the Federal Response

Plan community meets to discuss biological scenarios. We work closely with the experts in HHS and other health and medical agencies, to learn about the threats, how they spread, and the resources and techniques that will be needed to control them. By the same token, the medical experts work with us to learn about the Federal Response Plan and how we can use it to work the management issues, such as resource deployment and public information strategies. Alone, the Federal Response Plan is not an adequate solution for the challenge of planning and preparing for a deadly epidemic or act of bioterrorism. It is equally true that, alone, the health and medical community cannot manage an emergency with biological causes. We must work together.

In recent years, Federal, state and local governments and agencies have made progress in bringing the communities closer together. Exercise Top Officials (TOPOFF) 2000 in May 2000 involved two concurrent terrorism scenarios in two metropolitan areas, a chemical attack on the East Coast followed by a biological attack in the Midwest. We are still working on the lessons learned from that exercise. We need time and resources to identify, develop, and incorporate changes to the system between exercises. Exercises are critical in helping us to prepare for these types of scenarios. In January 2001, the FBI and FEMA jointly published the U.S. Government Interagency Domestic Terrorism Concept of Operation Plan (CONPLAN) with HHS, EPA, and the Departments of Defense and Energy, and pledged to continue the planning process to develop specific procedures for different scenarios, including bioterrorism. The Federal Response Plan and the CONPLAN provide the framework for managing the response to an act of bioterrorism.

SYNOPSIS OF FEMA PROGRAMS

FEMA programs are focused mainly on planning, training, and exercises to build capabilities to *manage* emergencies resulting from terrorism. Many of these program activities apply generally to terrorism, rather than to one form such as biological or chemical terrorism.

Planning

The overall Federal planning effort is being coordinated with the FBI, using existing plans and response structures whenever possible. The FBI is always the Lead Agency for Crisis Management. FEMA is always the Lead Agency for Consequence Management. We have developed plans and procedures to explain how to coordinate the two operations before and after consequences occur. In 1999, we published the second edition of the FRP Terrorism Incident Annex. In 2001, the FBI and FEMA published the United States Government Interagency Domestic Terrorism Concept of Operations Plan (CONPLAN).

We continually validate our planning concepts by developing plans to support the response to special events, such as we are now doing for the 2002 Olympic Winter Games that will take place in Utah.

To support any need for a Federal response, FEMA maintains the Rapid Response Information System (RRIS). The RRIS provides online access to information on key Federal assets that can be made available to assist state and local response efforts, and a database on chemical and biological agents and protective measures.

In FY 2001, FEMA has distributed $16.6 million in terrorism consequence management preparedness assistance grants to the States to support development of terrorism related capabilities, and $100 million in fire grants. FEMA is developing additional guidance to provide greater flexibility for states on how they can use this assistance.

FEMA has also developed a special attachment to its all-hazards Emergency Operations Planning Guide for state and local emergency managers that addresses developing terrorist incident annexes to state and local emergency operations plans. This planning guidance was developed with the assistance of eight Federal departments and agencies in coordination with NEMA and the International Association of Emergency Managers.

FEMA and the National Emergency Management Association (NEMA) jointly developed the Capability Assessment for Readiness (CAR), a self-assessment tool that enables States and Territories to focus on 13 core elements that address major emergency management functions. Terrorism preparedness is assessed relative to planning, procedures, equipment and exercises. FEMA's CAR report presents a composite picture of the nation's readiness based on the individual State and Territory reports.

FEMA's Comprehensive Hazardous Materials Emergency Response Capability Assessment Program (CHER-CAP) helps communities improve their terrorism preparedness by assessing their emergency response capability. Local, State, and Tribal emergency managers, civic leaders, hospital personnel and industry representatives

all work together to identify problems, revise their response plans and improve their community's preparedness for a terrorist event. Since February 2000, a total of 55 communities have been selected to participate, initiated, or completed a sequence of planning, training, and exercise activities to improve their terrorism preparedness.

Training

FEMA supports the training of Federal, State, and local emergency personnel through our National Fire Academy (NFA), which trains emergency responders, and the Emergency Management Institute (EMI), which focuses on emergency planners, coordinators and elected and appointed officials. EMI and NFA work in partnership with State and municipal training organizations. Together they form a very strong national network of fire and emergency training. FEMA employs a "train-the-trainer" approach and uses distance-learning technologies such as the Emergency Education Network via satellite TV and web-based instruction to maximize our training impact.

The NFA has developed and fielded several courses in the *Emergency Response to Terrorism (ERT)* curriculum, including a Self-Study course providing general awareness information for responding to terrorist incidents that has been distributed to some 35,000 fire/rescue departments, 16,000 law enforcement agencies, and over 3,000 local and state emergency managers in the United States and is available on FEMA internet site. Other courses in the curriculum deal with Basic Concepts, Incident Management, and Tactical Considerations for Emergency Medical Services (EMS), Company Officers, and HAZMAT Response. Biological and chemical terrorism are included as integral parts of these courses.

Over one thousand instructors representing every state and major metropolitan area in the nation have been trained under the ERT program. The NFA is utilizing the Training Resources and Data Exchange (TRADE) program to reach all 50 States and all major metropolitan fire and rescue departments with training materials and course offerings. In FY 2001, FEMA is distributing $4 million in grants to state fire-training centers to deliver first responder courses developed by the NFA.

Over 112,000 students have participated in ERT courses and other terrorism-related training. In addition, some 57,000 copies of a Job Aid utilizing a flip-chart format guidebook to quick reference based on the ERT curriculum concepts and principles have been printed and distributed.

NFA is developing a new course in FY 2002 in the Emergency Response to Terrorism series geared toward response to bioterrorism in the pre-hospital recognition and response phase. It will be completed with the review and input of our Federal partners, notably HHS and the Office of Justice Programs.

EMI offers a comprehensive program of emergency management training including a number of courses specifically designed to help communities, states, and tribes deal with the consequences of terrorism and weapons of mass destruction. The EMI curriculum includes an Integrated Emergency Management Course (IEMC)/Consequences of Terrorism. This 4½ day course combines classroom training, planning sessions, and functional exercises into a management-level course designed to encourage communities to integrate functions, skills, and resources to deal with the consequences of terrorism, including terrorism. To foster this integration, EMI brings together 70 participants for each course that includes elected officials and public health leaders as well as representatives of law enforcement, emergency medical services, emergency management, and public works. The course provides participants with skill-building opportunities in preparedness, response, and recovery. The scenario for the course changes from offering to offering. In a recent offering, the scenario was based on an airborne anthrax release. Bioterrorism scenarios emphasize the special issues inherent in dealing with both infectious and noninfectious biological agents and stresses the partnerships between local, state, and Federal public health organizations.

Exercises

In the area of exercises, FEMA is working closely with the interagency community and the States to ensure the development of a comprehensive exercise program that meets the needs of the emergency management and first responder communities. FEMA is planning to conduct Phase II of a seminar series on terrorism preparedness in each of the ten FEMA Regional Offices. In addition, exercise templates and tools are being developed for delivery to state and local officials.

NEW EFFORTS TO ENHANCE PREPAREDNESS AND RESPONSE

In response to guidance from the President on May 8, 2001, the FEMA Director created an Office of National Preparedness (ONP) to coordinate all federal programs

dealing with weapons of mass destruction consequence management, with particular focus on preparedness for, and the response to the terrorist use of such weapons. In July, the Director established the ONP at FEMA Headquarters. An ONP element was also established in each of the ten FEMA Regional Offices to support terrorism-related activities involving the States and localities.

On September 21, 2001, in the wake of the horrific terrorist attacks on the World Trade Center and the Pentagon, the President announced the establishment of an Office of Homeland Security (OHS) in the White House to be headed by Governor Tom Ridge of Pennsylvania. In setting up the new office, the President stated that it would lead, oversee and coordinate a national strategy to safeguard the country against terrorism and respond to attacks that occur. It is our understanding that office will coordinate a broad range of policies and activities related to prevention, deterrence, preparedness and response to terrorism.

The new office includes a Homeland Security Council comprised of key department and agency officials, including the FEMA Director. FEMA expects to provide significant support to the office in its role as the lead Federal agency for consequence management.

CONCLUSION

Mr. Chairman, you convened this hearing to ask about our preparedness to work with State and local agencies in the event of a biological or chemical attack. It is FEMA's responsibility to ensure that the national emergency management system is adequate to respond to the consequences of catastrophic emergencies and disasters, regardless of cause. All catastrophic events require a strong management system built on expert systems for each of the operational disciplines. Terrorism presents tremendous challenges. We rely on our partners in Department of Health and Human Services to coordinate the efforts of the health and medical community to address biological terrorism, as we rely on EPA and the Coast Guard to coordinate the efforts of the hazardous materials community to address chemical terrorism. Without question, they need support to further strengthen capabilities and their operating capacity. FEMA must ensure that the national system has the tools to gather information, set priorities, and deploy resources effectively in a biological scenario. In recent years we have made tremendous strides in our efforts to increase cooperation between the various response communities, from fire and emergency management to health and medical to hazardous materials. We need to do more.

The creation of the Office of Homeland Security and other efforts will enable us to better focus our time and effort with those communities, to prepare the nation for response to any incident.

Thank you, Mr. Chairman. I would be happy to answer any questions.

Mr. GREENWOOD. Thank you, Mr. Baughman. We appreciate your testimony.

Ms. Heinrich, you are recognized for yours.

TESTIMONY OF JANET HEINRICH

Ms. HEINRICH. Mr. Chairman and members of the subcommittee, I appreciate the opportunity to be here today to discuss our ongoing work on public health preparedness for a domestic bioterrorist attack. We recently released a report, that you referred to, on Federal research and preparedness activities related to the public health and medical consequences of a bioterrorist attack on the civilian population.

I would like to begin by giving a brief overview of the findings in our report and then address weaknesses in the public health infrastructure that we believe warrant special attention.

We identified more than 20 departments and agencies as having a role in preparing for or responding to the public health and medical consequences. These agencies are participating in a variety of activities from improving the detection of biological agents and developing new vaccines to managing the national stockpile of pharmaceuticals.

Coordination of these activities across departments and agencies is fragmented, as we have heard in the first panel today. The chart we have prepared—I draw your attention to this—gives examples of efforts to coordinate these activities at the Federal level as they existed before the creation of the Office of Homeland Security. We, too, feel that this office holds great promise.

I won't walk you through the whole chart, but as you can see, a multitude of agencies have overlapping responsibilities for various aspects of bioterrorism preparedness. Bringing order to this picture will be a challenge. We do need coherence.

Federal spending on domestic preparedness for terrorist attacks involving all types of weapons of mass destruction has risen 310 percent since fiscal year 1998 to approximately $1.7 billion in fiscal year 2001.

Funding information on research and preparedness of a bioterrorist attack, as reported to us by the Federal agencies, was difficult to ascertain. We identified increases year to year from generally low levels, or zero levels, in 1998. For example, HHS-CDC's bioterrorism preparedness and response program first received funding in fiscal year 1999; its funding has increased from approximately $121 million at that time to approximately $194 million in fiscal year 2001.

While many of the Federal activities are designed to provide support for local responders, inadequacies in the public health infrastructure at the State and local level may reduce effectiveness of the overall response effort.

Our work has pointed to weaknesses in three key areas—training of health care providers, communication among response parties, and capacity of hospitals and laboratories.

I think we heard very concrete examples of the problems with training, the problems with communication and also the lack of capacity, both laboratories and hospitals, very eloquently on the first panel, so I'm not going to repeat that; only to say in conclusion, although numerous bioterrorism-related research and preparedness activities are under way in the Federal agencies, we remain concerned about weaknesses in public health and medical preparedness at the State and local levels and, of course, the coordination at the Federal levels.

Thank you. I'd be happy to answer any questions.

[The prepared statement of Janet Heinrich appears at the end of the hearing.]

Mr. GREENWOOD. Thank you, Ms. Heinrich. Appreciate your testimony.

The Chair recognizes himself for 5 minutes. Let me address my first question to Dr. Lillibridge, and actually it may be appropriate for Mr. Baughman to respond as well. And Ms. Heinrich, if you'd like to respond, you may as well.

In your testimony, you talked about the number of metropolitan areas that have participated in your department's preparedness programs, how much money you've given out, the goals that have been set; but I'm not sure that we get a clear sense so far as to whether we're meeting those goals. And I think you were present when I asked the previous panel whether—if I were to ask them to go out and inform this committee as to whether or not a par-

ticular city or metropolitan area was in fact prepared, would they even know the right list of questions or the right checklist to compare the efforts against.

And what do we know about and how do we measure the preparedness of cities? Could you respond to that, Dr. Lillibridge?

Mr. LILLIBRIDGE. Yes, sir. Let me mention two things that we're working on, and we certainly share your concerns about municipal preparedness.

One of the things that we began to do in HHS is, after the first year or two of the grant cycle, when it became clear that this threat was going to continue and we'd be engaging in a long-term preparedness process, began to look at what core capacities really equal response and hone down on that. And through a 6-month process we've come to the conclusion in the key areas of epidemic preparedness and response the kind of things that help lead us to capacities that could be measurable at the State and local level as you begin to look at this—and we intend to anchor those or at least link those to our grant process in the near future. Those were developed in concert with public health, medical folks, people in the public health guilds and workers in disease detective work or epidemiology at the State and local level.

Mr. GREENWOOD. Mr. Baughman, did you want to comment?

Mr. BAUGHMAN. I think that probably HHS has done a good job in getting guidance out to the participating cities for guidance as to what an MMRS ought to be and how they ought to be able to react to a biological event. I think what we've done a poor job on is getting guidance out to area hospitals and health care providers as to how they detect and treat these types of things in a rapid—and I think you heard that from the first panel also.

Mr. GREENWOOD. But it seems to me if—if I could refine my question, if I were the mayor of Philadelphia and I had the ultimate responsibility for the lives of people in that city, I would want to be able to ask my cabinet, Are we ready? And that would mean somebody would need to tell me how the hospitals—you know, the hospitals, check; first responders, check; vaccines, check; communications system, check; command and control, check.

And if the mayor of Philadelphia called me after this hearing and said, How do I—what tool do I use to measure the preparedness of the city of Philadelphia, how should I respond to him?

Mr. BAUGHMAN. There are a number of checklists out there. The Office of Justice Programs has in fact put out guidance as to how you evaluate plans, what you ought to be looking for when you're evaluating those plans. I'm not sure that those plans have been adequately vetted through the community to get the expert input that they need to have on them.

Mr. GREENWOOD. Ms. Heinrich.

Ms. HEINRICH. I'd just like to say that we've certainly been looking for such a list, and measurable indicators.

To remind you, we are going to be starting—we are starting the second phase of our work, which is to assess the preparedness at the local and State level. It's part of the mandate that we have to do this work. And what we've found is that there's—there are a lot of different checks that seem to focus on this from an all-hazards approach, a chemical approach or a biological approach, and it

seems as though there are differences, depending on how you view what the threat is.

Mr. GREENWOOD. The Washington Monthly's cover is—this is from May 2000—"Weapons of Mass Confusion: There's Anthrax in Your Subway. Who Are You Going to Call?" and think that's what we're seeing here is that we do have that issue.

I'm going to yield 5 minutes to the gentleman from Florida, Mr. Deutsch.

Mr. DEUTSCH. Thank you, Mr. Chairman.

You know, I think that's a good lead-in to a question that in a sense everyone on the previous panel talked about, which is the need for a centralized location, and none of you testified to that need, where everyone on the other panel mentioned it.

Do you have thoughts? Is there disagreement of a centralized location to be coordinating this? Dr. Lillibridge?

Mr. LILLIBRIDGE. Let me begin. After engaging in nearly 3 years of national preparedness, individually with local communities, States and regionally, it's clear that we could benefit from central coordination of certain activities. Clearly, having a forum, an office or a centralized leadership to coordinate issues of implementation, budget and interagency things, I believe is going to be extremely important. Our department is quite excited about supporting the new Office of Homeland Security and Governor Ridge in his effort.

Mr. DEUTSCH. So would that theoretically, with the central location at this point—I mean, the Office of Homeland Security?

Mr. LILLIBRIDGE. We would be glad to coordinate through that, and that—as information becomes known and how that's going to roll out and be implemented. We're standing by, identifying staff and looking at issues that could really benefit from that kind of central coordination.

Mr. BAUGHMAN. I'd like to mention, though, there's two areas of coordination. There is, one, coordinating the various Federal programs that are going down to State and local government; and I think that everybody is in favor of a centralized need, central location. It's one of the reasons that we—lacking anything else, we set up, at the request of the President, an office of national preparedness.

Again, if Homeland Security takes on that responsibility, that's a central location. Regardless of where it is, that function is needed.

The other part is preparing the Federal community to respond to a situation like the World Trade Center. We have been the central coordinating agency, working with the Federal—various Federal agencies to bring together the existing arsenal of Federal response assets to respond, and I think we've done a pretty good job at that.

But the other one, the central location for coordination of the various Federal agency programs, that's needed.

Ms. HEINRICH. The GAO has gone on record as being very much in favor of a central coordinating office, but more than coordination, it speaks to several principles, a couple of examples being budget control and also the whole issue of command and control.

We don't think that anyone knows yet exactly what the President is thinking about in terms of inclusion of agencies under the Home-

land Security office. I think there are a lot of unknowns there at this time.

Mr. DEUTSCH. Let me go back to the questions I asked the first panel, and hopefully you could provide some additional information, and maybe get into a couple of specifics.

First off, Dr. Lillibridge, is there a test available on anthrax beyond this 24/48-hour incubation period?

Mr. LILLIBRIDGE. Sir, we have a number of things to draw down to look at. The assay—the issue of assay development could be discussed at length, but let me in short—in the application of public health at the State and local level, we have a system of 81 laboratories that we support at CDC, throughout the States, that have been trained and received reagents—those are the things to conduct the test—and test assays from CDC and other Federal entities to have in place to do rapid diagnoses at different levels.

Case in point, the Florida experience that we currently spoke of on the earlier panel, the—it's important to note that those resources were used on the first day of admission to get a presumptive positive and trigger the public health response and that that test was reconfirmed at CDC, but that capacity and that lab training and those lab tests were already in the State, and Florida has that also arrayed regionally.

Dr. Young alluded to the issue of advancing laboratory technology. There are many things we must do and stay focused on because there are many more agents. There's opportunities to push local diagnosis locally more rapidly, and I think those are going to be things that we'll work on in the future.

Mr. DEUTSCH. Let me try to be more specific. I mean, yesterday we were on a conference call, with CDC saying they're testing 700 additional people in Florida. They said that it's going to be 24 to 48 hours before it's determined whether there are additional cases of anthrax in Florida. I mean, is that the best we can do?

Mr. LILLIBRIDGE. You can do several ranges of tests, but the test that was selected to do for those folks that were potentially exposed, that they brought back for prophylaxis, was a culture. That requires that bacteria be grown in culture plates; that does take several days.

You could do presumptive tests on those people on their nasal swabs right away, but you would still have a presumptive test that would need a bacterial culture confirmation.

Mr. DEUTSCH. So the presumptive tests on those 700 people have not been done?

Mr. LILLIBRIDGE. What they're doing are the gold standard tests, the culture. They're already on medical prophylaxis——

Mr. DEUTSCH. Let me ask a follow-up question on this.

Is it a case—until those cultures grow, we don't know if this is a case that is limited to two people at this point in time?

Mr. LILLIBRIDGE. Good point. Being colonized is not the same as being infected or being a case, and the people who have positive nasal swabs may not be cases in terms of being—having clinical disease. They may be colonized or they may have external contact in their nasal cavity.

It does help us confirm that they were in a place where they might have been exposed; if it turns out, it may help guide the in-

vestigation to determine where the source of the exposure may have been.

Mr. DEUTSCH. Right. So the second gentleman which—it's unclear whether or not he in fact has developed anthrax. He just was exposed.

In other words, the nasal cavity, there were anthrax spores in his nasal cavity; is that correct?

Mr. LILLIBRIDGE. Correct. I was at CDC as early as this morning. It's been about—information is about 3 or 4 hours dated now, but as of that time, he was getting better. He was not considered a case of anthrax. He was considered a surface exposure of his nasal swab, which indicated that he had been in an area, perhaps, where there had been some contact with——

Mr. DEUTSCH. And the limitation of him is that—again, my understanding is it would take 5,000 spores sort of as an average, or as minimum, to actually acquire the disease?

Mr. LILLIBRIDGE. You need a substantial exposure, as Dr. Young said.

One of the interesting things about this—or at least some of the good news is that if this was a massive exposure, there should be lot of people sick or earlier presentations of pulmonary anthrax. We are not finding that, and we are—still have one confirmed case, and we are doing everything possible to conduct a dual law enforcement and a public health investigation.

Mr. DEUTSCH. At this point in time, do we know if that—I mean, the press is reporting that that particular strain came from a lab in Iowa. Is that accurate?

Mr. LILLIBRIDGE. Well, what we do know is that the strain from the man's nose and the patient who died and the keyboard from the patient who died are identical. We think that it—it's similar to—it has been reported to be similar to other strains. However, the confirmation on that was not available as of the time I came in.

I'd like to mention one thing, just to allay the public—one issue that's extremely important is that the sensitivity of this bacteria was such that it was sensitive to penicillin, doxycycline and ciprofloxacin, and possibly several other drugs. The significance of that is, it doesn't—that is not the hallmark of an engineered bioweapon.

Mr. DEUTSCH. Right. Because a bioweapon, that is why cipro is the only one that works on the bioweapons in the Russian labs. Is that correct?

Mr. LILLIBRIDGE. Well, you stack your therapy against what you think will work best, and it's one of the newer and more powerful antibiotics. You would start with that, wait for sensitivity in testing to come back, and then shift to something you were sure it was sensitive to.

Mr. DEUTSCH. Where would someone get anthrax to use? I mean, let's just assume it's a case of a disgruntled employee who has, you know, put it on someone's keyboard. I mean, where would someone get anthrax?

Mr. LILLIBRIDGE. Well, as mentioned in the previous panel, it's ubiquitous. It's in the soil. You could——

Mr. DEUTSCH. Right, but this is a non—you know, not naturally occurring. So this is in someone's lab in Iowa or something. I mean, so it didn't come from the soil is what we're being told at this point in time.

Mr. LILLIBRIDGE. Well, one of the things we're looking into is trying to nail down where the source is, by location, and then get more information about where that might have come from in terms of, was it a package? Was it an exposure of an airborne variety? Or was it some sort of occupational thing?

Mr. DEUTSCH. You're telling us now and you're confirming that it was on a keyboard that the gentleman who passed away used? Is that accurate?

Mr. LILLIBRIDGE. We have—it's consistent for us to understand that it was found in three locations. One, the environment; the keyboard is second; a man's nose——

Mr. DEUTSCH. The keyboard of the gentleman who passed away?

Mr. LILLIBRIDGE. The keyboard of the gentleman who passed away.

Mr. DEUTSCH. And again I guess I'm trying to ask a very basic question.

If it's there and, at this point, we're saying that it's not a naturally occurring form, someone put it there. I mean, is that a fair assumption that someone put it there?

Mr. LILLIBRIDGE. No. It is——

Mr. DEUTSCH. It's not a fair assumption?

Mr. LILLIBRIDGE. It's the assumption that all we know is that at this point in the investigation—I don't have all the elements of the criminal component, but that there's an environmental swab that was positive. There was a nasal swab in a second person, and the first index patient, or the first person who contracted the disease and died, had the same, similar pathogen.

Now, in the context of knowing that and beginning to examine patients and looking through the potentially exposed folks, you begin to look at people who might be sick, who were in the area or who traveled the same pathway.

Mr. GREENWOOD. It's theoretically possible that it could have—anthrax could have been in the victim's body first and the keyboard second?

Mr. LILLIBRIDGE. It is theoretically possible, depending on how the original person was exposed.

Mr. DEUTSCH. And it would have dropped out of his passages and ended up on the keyboard, I mean, and at what levels?

I mean, let me just tell you, we're in the mood of passing out things. This is local papers from south Florida, which I represent. I don't represent the location where the hospital is, but it's close enough, and the county is just directly bordering Palm Beach County.

I mean, you know, what the press accounts are—are, you know, out of a bad movie scene. I mean, people, you know, calling up HAZMAT, you know, dozens of times in south Florida yesterday whenever they see, you know, a packet of dust or an envelope of dust and things like that.

And, again, I know you're trying to be as helpful as possible, but you're not clearing up a heck of a lot. You're not clearing up a heck

of a lot. And I mean, if you're the guy at HHS that is supposed to be in charge of bioterrorism—whether we're calling this a criminal act or bioterrorism, I think we need to at least be thinking of it as potential bioterrorism at this point, contrary to what the Secretary originally said.

And whether it's a testing ground, I mean, of—you know, what the, you know, people who were living in this neighborhood were doing—again, this is just weird that——

Mr. BUYER. Mr. Chairman, we've got a vote coming on. We've been very patient here.

Mr. GREENWOOD. The time of the gentleman has expired.

The gentleman from North Carolina, Mr. Burr—Mr. Buyer.

Mr. BUYER. I think we could probably clear this up really quick for the gentleman from Florida.

Obviously we know that there are specific strains of anthrax. We know what type of strains of anthrax have been weaponized by certain countries in the world. Once you culture this particular anthrax, we will know whether or not this was an anthrax of a strain that was from a weaponized form from another country. So at some point in time, an answer is going to be made there, I want to share with the gentleman from Florida.

Now, obviously, I don't want to ask you this question, because you can't answer this question in a public forum. I see a nod by the doctor in the back. It's correct, isn't it?

Mr. LILLIBRIDGE. Well, I can tell you what I know as of this time, and let me just review the pathway.

As this—as more information becomes known—and they're double-checking and looking at different ways to do strain identification, all that information is not back yet, so it would be presumptive or premature to make prognostications, whether it came from a foreign state or whether it was a bioterrorism attack.

We do know the following: It wasn't large scale; the sensitivity looks relatively modest and not weaponized; it was a sensitive strain; and indeed there will be tests to look at different types of patterns, to locate it geographically and perhaps to locate it to somebody else's library or to look for a specific lab.

If that information were available today, I would tell you. I do not have that information, because——

Mr. DEUTSCH. I will tell you, CNN is reporting it came from a lab in Iowa, not from an overseas lab——

Mr. GREENWOOD. The time belongs to the gentleman from Indiana.

Mr. LILLIBRIDGE. I would have to have our lab people talk with the CNN lab people.

Mr. BUYER. The only reason I asked the question for clarification is that, because these strains are identifiable, there will be an opportunity to sort of track this thing down. I only brought this up because the gentleman is harping on this question between—the difference between criminality or bioterrorism, and we do have an ability to identify.

I want to go to this question to you: With regard to the GAO report on bioterrorism, it noted, under current law that Federal grant monies cannot go to private entities, such as hospitals, for bioter-

rorism preparedness activities. Do we need to change that, or do you recommend we change that? What is your counsel to us?

Mr. LILLIBRIDGE. Well, I would recommend the following, that—and the Secretary has asked for resources to begin hospital preparedness activities that would require some things that would—may require resources or structural changes in hospitals that would include enhancing medical capacity, developing alternative care, dealing with a wider range of infected patients.

And I think—in summary, that answer—I think we ought to look, work with you on that. That may be part of the solution.

Mr. BUYER. Okay. I yield the balance of my time to the gentleman from North Carolina.

Mr. BURR. Doctor, let me go to the heart of what you said. The Secretary has asked for additional resources. Everybody has asked for additional resources.

You know, America is in a position where they want to respond. One of the functions, if not the primary function on this committee right now, is to determine, what do we need to fix prior to injecting new funds?

We've alluded to a lot of numbers, $1.7 billion for fiscal year 2001; and I think, another place, we estimated that some small portion of that actually made its way to response and preparation and equipment and training.

I think it's extremely easy for Congress to throw more money in it and for us to turn around a year, 2 years, 5 years down the road, and for Dr. Stringer to tell us that the threat is every bit as great and his response is every bit as challenging and for everybody that was on the first panel to say, look at all the things that are broken.

Do we have somebody who is going to come with concrete suggestions as to what we need to fix legislatively, or what can be fixed rulemaking-wise that changes the outlook of our capability to respond effectively?

Mr. LILLIBRIDGE. Yes, sir.

Let me mention that we've mentioned some of the things—some of the targets have been brought up today by different panels and myself about key elements of the public health infrastructure. We've talked about some of the hospital surge capacity.

But let me turn then to something—the legislative issues that are high on our agenda that—I understand our department is working with this committee on several things. But high on our agenda includes food safety, things that we might have to do to improve our ability to respond. We're looking at issues around the select agent legislation that's been out there and are looking at a way to enforce certain high-priority agents that have come to light that are of public health importance, and a way to expedite—I think somebody mentioned earlier the FDA process of looking at key pharmaceuticals or vaccines that may need to be——

Mr. BURR. And I think all of us would agree with all the points you just made.

Will you be coming to us with the suggestions as to how you want them changed, whether you can do them internally, whether we need to do them legislatively?

Mr. LILLIBRIDGE. We will be coming——

Mr. BURR. The hair on the back of my neck goes up when you talk about changes at the Food and Drug Administration, because I don't think you understand how big an undertaking that is.

Mr. LILLIBRIDGE. Sir, we agree it's a big undertaking, but we will be coming to work with you on that. Secretary Thompson made that clear at his last hearing, and it's my——

Mr. BURR. And trust me, I have more confidence in his capabilities than I do in practically everybody else's in Washington. But I also know that the task that he has before him is one of the biggest tasks he has ever faced, and I don't think he understands—and I don't think we understand, by the way—everything that we're all going to have to do.

I just know that the answers and the questions that were raised by the first panel, the warnings that were given to us by terrorism committees that were chartered by this Congress and prior Congresses, the reports to the President, the warnings that were out there—we knew this existed. This threat was there, and we did a poor job at preparing ourselves for what happened in Florida and potentially what could happen elsewhere. We all need to get on the same page.

A last question, and then the chairman can go where he wants to.

Mr. GREENWOOD. I thank the gentleman.

Mr. BURR. That was a compliment.

To all three of you, should Governor Ridge have the budget authority over all bioterrorism dollars that are placed at these different agencies within the Federal Government?

Mr. LILLIBRIDGE. Sir, I don't know if our department has made a statement on that or has an opinion.

Mr. BURR. This is a tremendous opportunity for you.

Mr. LILLIBRIDGE. And so, at risk of getting out in front of our department on this issue, I would say that they have to have some capability to weigh in on budget issues, whether that's budget authority or whether that's participating in budget decisions or participating in planning, whereby things are implemented as a result of the budget.

Mr. BURR. Would you agree that if there's over a billion dollars of appropriated dollars out there—and I guess $1.7 is this year's number, and $300 million actually makes it into the stream of purchasing equipment, training, people to respond—that that percentage is pitiful?

Mr. LILLIBRIDGE. Well, I'll agree that the preparedness effort that has been lined out should include a general consideration for equipment, specialized personnel, hospital, public health and all the things we mentioned.

Mr. BURR. Mr. Baughman?

Mr. BAUGHMAN. Our director met with Governor Ridge last Friday. We're in the process—we're in ongoing dialog with Governor Ridge's office as to what he needs to succeed. I can't get into the particulars right now. The director, I'm sure, has his own ideas and I think will be forthcoming with those.

But certainly I think we would agree that as far as Federal programs, dealing with first responder training, there does need to be

a central point of coordination, and I think we realized that when we set up 2 months ago our Office of National Preparedness.

Ms. HEINRICH. I would just say that at this point in time OMB does try to do some coordination, or at least identification of dollars that are spent in terrorism, overall. They have not—they have not tried to coordinate or actually reduce duplication, but only to identify the dollars.

From GAO's perspective, I think, again we feel that there are some areas that overlap in terms of jurisdiction, and, therefore, accountability isn't as clear as it could be or should be.

Mr. BURR. You're being a lot more generous than the GAO report as it relates to the duplication, aren't you?

Ms. HEINRICH. Well, I'm——

Mr. BURR. The report was much more specific, that we just don't have any coordination of programs, and in most cases, can't find where that money went, can we?

Ms. HEINRICH. We had a difficult time really identifying all the dollars; and as we said, we used the reports from the various agencies and departments. They had difficulty, because for bioterrorism, there isn't a particular line item, and they also used different—different forums. Some appropriations, some dollars, were expenditures.

Mr. BURR. Let me read you what the report said: "over 40 Federal departments and agencies have some role in combating terrorism"——

Mr. GREENWOOD. I just would like to inform the gentleman that the time on the floor for voting has expired, so——

Mr. BURR. We had better leave.

Mr. GREENWOOD. We had better leave.

Mr. BURR. [continuing] "and coordinating their activities is a significant challenge. We identified over 20 departments and agencies as having a role in preparing for or responding to the public health and medical consequences of a bioterrorist attack." I'll stop there.

I'll only make the statement that, you know, I would feel much more comfortable if we had one agency doing it, and I think that is the decision. Are we going to have one office coordinating it? We may still have 40, but are we going to have somebody that is responsible versus 40 different entities?

I thank the chairman for his time.

Mr. GREENWOOD. The Chair thanks the panelists for your testimony and for your help and excuses the abrupt conclusion of our hearing, but we've got to go see if we can put our votes in the record.

[Whereupon, at 1:40 p.m., the subcommittee was adjourned.]

[Aditional materal submitted for the record follows:]

PREPARED STATEMENT OF DEBORAH J. DANIELS, ASSISTANT ATTORNEY GENERAL, OFFICE OF JUSTICE PROGRAMS

Chairman Greenwood, Mr. Deutsch, and Members of the Subcommittee: I am pleased to testify on behalf of the Office for Domestic Preparedness (ODP) within the Office of Justice Programs. When others from OJP have testified before Congress previously about domestic preparedness, they were able to talk about our programs and preparations in the context of the threat of a potential catastrophic terrorist attack. Sadly, we no longer have the luxury of time on our side and the attack is no longer merely potential.

The Office for Domestic Preparedness (formerly the Office for State and Local Domestic Preparedness Support) was created within the Office of Justice Programs in1998 when Congress authorized the Attorney General to assist state and local public safety personnel in acquiring the specialized training and equipment necessary to safely respond to and manage domestic terrorism incidents, particularly those involving weapons of mass destruction (WMD). Congress recognized that these state and local personnel are typically first on the scene of any emergency, would likely be the first to respond in the event of a terrorist attack, and need to be as well-prepared and well-equipped as possible for these potentially catastrophic incidents. As was demonstrated so dramatically and tragically on September 11, Congress was right. New York City Police, Fire and Emergency Services personnel were first on the scene at the World Trade Center. Arlington County, and other Virginia, Maryland and District of Columbia emergency personnel were immediately on the scene at the Pentagon. Local personnel were first at the Pennsylvania crash site.

Over the past three years, ODP has worked to provide coordinated training, equipment acquisition, technical assistance, and support for national, state, and local exercises to fulfill its mission of developing and implementing a national program to enhance the capacity of state and local agencies to respond to domestic terrorism incidents. OJP and ODP remain committed to reaching as many first responders—firefighters, emergency medical services, emergency management agencies and law enforcement—as well as public officials in as many communities as possible to prepare them for the wide range of potential threats.

ODP's activities are concentrated in the areas of training and technical assistance, equipment, planning, and exercises.

Since 1998, ODP has provided training to over 77,000 emergency responders in 1,355 jurisdictions in all 50 states and the District of Columbia, and has completed over 2,000 deliveries of technical assistance to state and local response agencies.

ODP's Training and Technical Assistance Program provides direct training and technical assistance to state and local jurisdictions to enhance their capacity and preparedness to respond to domestic incidents. Training is based on National Fire Protection Association standards, and provides emergency responders with a comprehensive curriculum in the areas of WMD awareness, technician, operations, and terrorist incident command. All courses go through a rigorous pilot and review process where federal, state, and local subject matter experts examine the course materials to ensure accuracy and compliance with accepted policies and procedures. Courses are brought directly to jurisdictions and taught by an ODP mobile training team or are conducted at a specialized facility, such as OJP's Center for Domestic Preparedness in Anniston, Alabama. Internet, video and satellite broadcast training courses round out the ODP curriculum.

Last year, ODP assumed responsibility for the Nunn-Lugar-Domenici (NLD) Training Program. The NLD Program identified the nation's 120 largest cities to receive training, exercises and equipment monies to enhance their capacity to respond to WMD incidents. Prior to the program's transfer from the Department of Defense, 68 of the 120 cities received all elements of the NLD Program, and 37 others received only the training component. ODP will complete delivery of the program to these 37 cities, and deliver all program elements to the remaining 15 designated cities. As part of the NLD Program, these 52 cities will receive a biological weapons tabletop exercise, and the 15 cities will also receive briefings on the U.S. Public Health's Metropolitan Medical Response System.

The National Domestic Preparedness Consortium (NDPC) is the principal vehicle through which ODP identifies, develops, tests and delivers training to state and local emergency responders. The NDPC membership includes OJP's Center for Domestic Preparedness, the New Mexico Institute of Mining and Technology, Louisiana State University, Texas A&M University, and the Department of Energy's Nevada Test Site. Each consortium member brings a unique set of assets to the domestic preparedness program. ODP also utilizes the capabilities of a number of specialized institutions in the design and delivery of its training programs. These include private contractors, other federal and state agencies, the National Terrorism Preparedness Institute at St. Petersburg Junior College, the U.S. Army's Pine Bluff Arsenal, the International Association of Fire Fighters, and the National Sheriffs' Association.

ODP provides targeted technical assistance to state and local jurisdictions to enhance their ability to develop, plan, and implement a program for WMD preparedness. Specifically, ODP provides assistance in areas such as the development of response plans, exercise scenario development and evaluation, conducting of risk, vulnerability, capability and needs assessments, and development of the states' Three-Year Domestic Preparedness Strategies.

Working with Congress, ODP has implemented a program in all 50 states, the District of Columbia, and the five U.S. territories to develop comprehensive Three-Year Domestic Preparedness Strategies. These strategies are based on integrated threat, risk, and public health assessments, conducted at the local level, which will identify the specific level of response capability necessary for a jurisdiction to respond effectively to a WMD terrorist incident. Once these plans are assembled and analyzed, they will present a comprehensive picture of equipment, training, exercise and technical assistance needs across the nation. In addition, they will identify federal, state and local resources within each state that could be utilized in the event of an attack. ODP anticipates receiving the majority of these strategies by December 15, 2001. Following their submission, ODP will work directly with each state and territory to develop and implement assistance tailored to the specific needs identified in the plans. Last month, the Attorney General wrote to the governors stressing the urgency of completing these assessments, and has directed ODP to place the highest priority on analyzing and processing these strategies and assisting states in meeting identified needs as quickly as possible.

To date, only one state, Utah, which has heightened needs and awareness in preparation for the 2002 Winter Olympics, has completed its plan and received its allocated equipment funds. ODP has approved the plans for Rhode Island, South Carolina and Hawaii, and these states are now eligible to draw down funds. Florida and Pennsylvania have recently submitted their plans, which are currently being reviewed. States received a total of $54 million in initial planning and equipment funds from FY1999 under this program and are scheduled to receive an additional $145 million in aggregated FY2000 and 2001 equipment funds as plans are completed. Each state will, in turn, distribute funds to jurisdictions within the state, as well as to state agencies, for use in implementing the state's strategy. Currently, equipment funding is limited to personal protection (such as protective suits), chemical and biological detection devices, chemical and biological decontamination equipment, and communications equipment.

Under the FY1998 and FY1999 County and Municipal Agency Equipment Program, large local jurisdictions received approximately $43 million in equipment funding. From 1998 through 2001, OJP has provided a total of $242 million in equipment grants for 157 local jurisdictions and the 50 states, the District of Columbia and the five U.S. territories.

Experience and data show that exercises are a practical and efficient way to prepare for crises. They test crisis resistance, identify procedural difficulties, and provide a plan for corrective actions to improve crisis and consequence management response capabilities without the penalties that might be incurred in a real crisis. Exercises also provide a unique learning opportunity to synchronize and integrate cross-functional and intergovernmental crisis and consequence management response. ODP's National Exercise and State and Local Domestic Preparedness Exercise Programs seek to build on the office's training, technical assistance, and equipment program activities.

The State and Local Domestic Preparedness Exercise Program aids states and local jurisdictions in advancing domestic preparedness through evaluation of the authorities, plans, policies, procedures, protocols, and response resources for WMD crisis and consequence management. The program provides funding and technical assistance to states and local jurisdictions to support local and regional interagency exercise efforts. ODP also provides guidance and uniformity in design, development, conduct, and evaluation of domestic preparedness exercises and related activities. A number of state and local agencies have requested exercise assistance in bioterrorism response as part of this program.

In May 2000, at the direction of the Congress, ODP conducted the TOPOFF (Top Officials) exercise, the largest federal, state and local exercise of its kind, involving separate locations and a multitude of federal, state and local agencies. TOPOFF simulated simultaneous chemical and biological attacks around the country and provided valuable lessons for the nation's emergency response communities. The bioterrorism scenario conducted in Denver, Colorado, involved state and local health, fire and HAZMAT agencies, as well as the CDC, the U.S. Public Health Service and other federal agencies.

ODP has begun planning for the congressionally-mandated TOPOFF 2 exercise, which will be conducted in Spring 2003. TOPOFF 2 will incorporate lessons learned from the first exercise into its planning and design. TOPOFF 2 will be preceded by a series of preparatory WMD seminars and tabletop exercises crafted to explore relevant issues.

In addition to its National Exercise and State and Local Domestic Preparedness Exercise Programs, ODP, in collaboration with the Department of Energy, is establishing the Center for Exercise Excellence at the Nevada Test Site. The center will

deliver a WMD Exercise Training Program for the nation's emergency response community to ensure WMD exercise operational consistency nationwide. During FY2001, the National Guard Bureau agreed to support the center with funding to exercise its Civil Support Teams in conjunction with state and local emergency responders.

All ODP programs and policy development include consideration of and response to potential bioterrorism, in addition to the full range of weapons of mass destruction.

In keeping with its congressionally-mandated mission, ODP has primarily focused program efforts on meeting the needs of traditional first responders, which include fire, HAZMAT, and law enforcement personnel, and has relied on the medical and public health communities to train their traditional constituencies, such as emergency medical technicians and hospital personnel. However, ODP has also actively worked with and supported other federal agencies in their efforts to provide this training and assistance.

ODP initiated an effort to bring together all of the federal-level training representatives to formalize the coordination processes already in effect and to capitalize on the diverse expertise and specialized training delivered by the respective federal agencies. The resulting *Training Resources and Data Exchange (TRADE)* working group includes representatives from the United States Fire Administration's National Fire Academy, the Federal Bureau of Investigation, the Federal Emergency Management Agency, the Environmental Protection Agency, the Department of Energy, the Department of Health and Human Services, and the Centers for Disease Control and Prevention. The *TRADE* group has identified and initiated work on several immediate tasks, including the development of agreed-upon learning objectives by discipline and competency level for federal training efforts, a joint course development and review process, joint curriculum assessment and review, and coordination of training delivery resources in accordance with state strategies.

Since 1998, ODP and the U.S. Public Health Service (PHS) have been engaged in active coordination of their domestic preparedness efforts and assistance programs for state and local emergency responders. In FY2001, several joint program efforts were initiated: a cooperative effort to integrate implementation of the Nunn-Lugar-Domenici Domestic Preparedness Program (NLD DP) and the Public Health Service's Metropolitan Medical Response System (MMRS) program; review and revision of the hospital training component of the NLD DP Program; a joint project to enhance awareness of MMRS initiative and the National Disaster Medical System, which are critical to the effective delivery of health and medical consequence management resources; and a partnership effort among ODP, PHS, and the National Domestic Preparedness Consortium to assist management and oversight of PHS' Noble Training Center in Anniston, Alabama, and to provide for joint development, review and delivery of WMD courses for medical personnel.

In October 2000, ODP held a formal program coordination meeting with the CDC. This meeting laid the foundation for cooperation between these agencies on a multitude of issues, and has resulted in continued follow-up communications and meetings, involvement of CDC subject matter experts in ODP course development and review, and better coordination of the two agency's programs.

In the future, ODP will continue to actively coordinate its programs with other federal agencies to ensure that the highest quality of training and technical assistance is provided to the broad spectrum of the nation's emergency response community while also making certain duplication of federal resources in these areas does not occur.

These joint endeavors will present a unified federal effort in the eyes of the public safety community and greatly enhance federal domestic preparedness efforts and the capacity of the nation as a whole to respond safely and effectively to incidents of terrorism involving WMD, including biological agents.

Once again, thank you for the opportunity to describe OJP efforts in this vitally important area.

Hospital Preparedness for Mass Casualties

Final Report
August 2000

Summary of an Invitational Forum

Convened on
March 8-9,2000

by the American Hospital Association
with the support of the
Office of Emergency Preparedness
U.S. Department of Health and Human Services

AHA
Advancing Health in America

The views expressed in this report reflect the advice and guidance of the Forum participants. They do not necessarily reflect the positions of the American Hospital Association, the HHS Office of Emergency Preparedness, or the organizations that employ the participants.

Source: OEP
Purpose: Information on hospital preparedness

Contents

Section I
Executive Summary

Disasters and incidents with hundreds, thousands, or tens of thousands of casualties are not generally addressed in hospital disaster plans. Nevertheless, they may occur, and recent terrorist actions around the globe suggest that it would be prudent for hospitals to improve their preparedness for a mass casualty incident. For that reason, and with the financial support of the Office of Emergency Preparedness of the U.S. Department of Health and Human Services (HHS), the American Hospital Association convened an "Invitational Forum on Hospital Preparedness for Mass Casualties" on March 8-9, 2000 in Chicago, Illinois.

The Invitational Forum brought together a diverse group of hospital and governmental personnel to develop recommendations and strategies for hospitals, hospital associations, and the HHS Office of Emergency Preparedness.

The attendees participated as individuals, not as representatives of their organizations. Attendees were asked to participate together in a conversation about the topic. All attendees accepted the opportunity to participate openly and candidly because everyone shared the desire to serve the health of their communities by helping hospitals prepare to serve effectively if a mass casualty incident arose in any community.

During 1999, hospitals across the nation engaged in a major preparedness effort: Y2K readiness. Y2K was easier to address than mass casualty preparedness. Y2K had a known time and place. It would occur on a defined date in every hospital.

Mass casualty preparedness is very different from Y2K because of its uncertainty. No one knows when an incident will occur, where it will occur, or what will be its cause. Of course, most hospital leaders hope their communities never experience a mass casualty incident. It must also be remembered that resources for mass casualty preparedness have to compete with other initiatives hospitals are being encouraged, or required, to adopt at the present time.

Attendees discussed a large number of issues and preparedness needs grouped into four broad categories:

- community-wide preparedness,
- staffing,
- communications, and
- public policy.

Selecting from the many individual observations and recommendations on preparedness, the primary conclusions are:

Community-Wide Preparedness

- By definition, mass casualty incidents overwhelm the resources of individual hospitals. Equally important, a mass casualty incident is likely to impose a sustained demand for health services rather than the short, intense peak customary with many smaller scale disasters. This adds a new dimension and many new issues to preparedness planning for hospitals.

- Hospitals, because of their emergency services and 24 hour a day operation, will be seen by the public as a vital resource for diagnosis, treatment, and followup for both physical and psychological care.

- Hospital preparedness for disasters has focused historically on a narrow range of potential incidents. To increase their preparedness for mass casualties, hospitals have to expand their focus to include both internal and community-level planning.

- Traditional planning has not included the scenario in which the hospital is the victim of a disaster and may not be able to continue to provide care. Hospital planners should consider the possibility that a hospital might need to evacuate, quarantine, or divert incoming patients.

- There are limited data on hospital emergency capabilities. In multi-hospital communities and regions there is a need to develop a real – time database, including an unduplicated count of potential staff.

Staffing

- Preparedness would benefit from development of a community-wide concept of "reserve staff" identifying physicians, nurses and hospital workers who are (1) retired, (2) have changed careers to work outside of healthcare services, or (3) now work in areas other than direct patient care (e.g., risk management, utilization review). While developing the list of candidates for a community-wide "reserve staff" will require limited resources, the reserve staff concept will only be viable if adequate funds are available to regularly train and update the reserves so that they can immediately step into roles in the hospital which allow regular hospital staff to focus on incident casualties.

- Hospital preparedness can be increased if state licensure bodies, working through the Federation of State Medical Boards, develop procedures allowing physicians licensed in one jurisdiction to practice

in another under defined emergency conditions. Nursing licensure bodies could increase preparedness by adopting similar procedures or by adopting the "Nursing Compact" presently being implemented by several states.

- Hospital preparedness can be increased if medical staff Credentials Committees develop a policy on the recognition of temporary privileges in emergency or disaster situations and if hospitals in a community regularly share lists of the medical staffs and their privileges.

Communications

- Everyday communications systems used in the community are likely to be overwhelmed in a mass casualty incident. Backup and redundant systems need to be developed, tested and drilled.

- A single community spokesperson for the mass casualty incident needs to be identified in advance, press and media briefings need to be regularly scheduled away from the hospital(s) but with supporting medical expertise.

- Community-wide systems for locating patients need to be planned with a single point of contact.

Public Policy

- In the present financial environment, where each payer wishes to pay only for the immediate costs of its patients, there is a need for a means to pay for the planning, education, standby supplies, and training costs of preparedness.

- The Emergency Medical Treatment and Labor Act needs to be refined to establish "safe harbor" provisions so that a hospital assigned a role of caring for unexposed patients does not have to violate either its status as a "clean" facility or its EMTALA obligation.

- The Stafford Act, which provides the authorization and framework for federal assistance by the Federal Emergency Management Agency, is more attuned to providing funds for property damage than for the added costs, or lost revenues, accompanying health services. A new federal approach is needed which expresses the Congressional commitment to assist hospitals in disaster recovery. The federal government needs to provide necessary catastrophic financial relief to assist hospitals in caring for disaster victims and in disaster recovery. This funding should recognize economic loss and establish the federal

government, perhaps with a cost sharing role with the states, as a last dollar payer.

Finally, hospital preparedness can be increased more rapidly if standardized but scalable national resources for staff training, building design, and facilities operations are developed and widely disseminated.

Implemented together, these recommendations would increase hospital preparedness for mass casualty incidents.

Section 2
Preface

Hospitals have multiple missions:

- patient care,
- clinical education,
- clinical research, and
- community service.

Two of these missions come together when a community prepares for and faces an emergency or disaster: patient care and community service.

The hospital's patient care role begins with and follows the disaster. The hospital's community service role begins long before the disaster as the hospital develops, tests, and implements its disaster plan. The objective is to prepare the hospital through the development of emergency response systems, staff training, and purchase of equipment and materials so that it can continue caring for its present patients, protect its own staff, and respond to the needs presented by the disaster.

A hospital's disaster plan usually addresses both internal emergencies, such as loss of electric power or potable water, and external disasters. Some of the external disasters are the results of events in nature. For some natural disasters--hurricanes, floods, and volcanoes—hospitals are likely to receive advance warning and be able to activate their disaster plan before the event. For other natural disasters, such as earthquakes, there is no advance warning. Many man-made disasters, or emergencies, also provide no advance warning. These include chemical plant explosions, industrial accidents, building collapses, and major transportation accidents.

In the last few years, a new category of disasters has appeared: terrorist acts. In New York City and Oklahoma City, bombings resulted in deaths and a significant number of injuries. In Japan, a religious sect used toxic chemicals in a subway to create illness and injury. The potential for biological terrorism with the agents of anthrax, smallpox, Ebola, plague or other infections is also real.

The United States has been very fortunate. In recent years, most disasters have been characterized by heavy property damage and a modest number of deaths or injuries requiring attention. We may not always be as fortunate. Natural or man-made disasters could realistically result in hundreds or thousands of casualties. Some terrorists appear to desire a high casualty count to provoke public anxiety and undermine social order.

Incidents with hundreds, thousands, or tens of thousands of victims are not generally addressed in hospital disaster plans. For that reason, and with the financial support of the Office of Emergency Preparedness of the U.S.

Department of Health and Human Services (HHS), the American Hospital Association convened an "Invitational Forum on Hospital Preparedness for Mass Casualties" on March 8-9, 2000 in Chicago, Illinois.

The Invitational Forum brought together a diverse group of hospital and governmental personnel to develop recommendations and strategies about mass casualty preparedness for hospitals, the American Hospital Association, state and regional hospital associations, and the HHS Officer of Emergency Preparedness. Attendees are listed in Appendix A.

Because of past and present work and community experiences, attendees included individuals who had served in state and local government, as emergency medical technicians, as epidemiologists, as members of a community's HazMat team, as community planners and more. Individuals generously drew on their full and varied backgrounds as they developed and shared ideas.

The attendees participated as individuals. While each is listed with their position and organization, attendees were asked to participate as individuals informed by their career experience, not as representatives of their organization. This was done to obtain the broadest and most open conversation possible.

Attendees were asked to participate together in a conversation around the important topic of mass casualty preparedness. All attendees accepted the opportunity to participate openly and candidly because everyone shared the desire to serve the health of their communities by helping hospitals prepare to serve effectively if a mass casualty incident arose in any community.

Attendees are knowledgeable of hospital disaster plans. In some cases, the attendees' knowledge was limited to the plan of their own institution(s); in other cases, the individual had knowledge of and experience with multiple plans. The conversation at the Forum did not attempt to restate the common elements widely included in hospital disaster plans. Rather, the conversation focused on the augmentations that would be necessary for a mass casualty incident.

This report is a summary of the discussion and recommendation of the "Invitational Forum on Hospital Preparedness for Mass Casualties." The agenda used for the Forum is presented in Appendix B. It should be noted that the Forum did not spend much time addressing the nature, form or likelihood of mass casualty incidents. While attendees were provided with the background materials and references listed in Appendix C, the focus of the Forum was on the issues and strategies for preparedness and response, not the cause of the incident.

In general, the recommendations and strategies developed at the Forum are relevant to mass casualty incidents regardless of cause. Where

recommendations are specific to or heightened by a particular kind of mass casualty incident, the nature of the incident is identified.

Section 3
Background and Framework

Background

During 1999, hospitals across the nation engaged in a major preparedness effort: Y2K readiness. Y2K was easier to address than mass casualty preparedness. Y2K had a known time and place. It would occur on a defined date in every hospital.

Mass casualty preparedness is very different from Y2K because of its uncertainty. No one knows when an incident will occur, where it will occur, or what will be its cause. Of course, most hospital leaders hope their community never experiences a mass casualty incident. This makes it much more difficult for hospitals to allocate the staff time and financial resources necessary to establish a preparedness plan for a mass casualty event. Most hospitals would prefer to use their limited resources to address the needs of today's patients rather than the potential, hopefully unlikely, mass casualty preparedness needs.

Developing recommendations and strategies for mass casualty preparedness requires addressing a careful balance. In the ideal world, every hospital would be fully prepared to address every contingency. In the real world, however, resources committed to one purpose are often unavailable for another, although some contingencies can benefit from the planning for others.

Recommendations and strategies for mass casualty preparedness have to address a broad range of institutions. To appreciate the challenge of developing recommendations on preparedness, the Invitational Forum reviewed a number of background characteristics of the hospital field. Table 1 and 2 show that the nation's hospitals vary substantially by size and sponsorship. Initiatives to encourage mass casualty preparedness must accommodate this diversity.

Net revenues are one measure of hospital financial resources. Net revenues are determined as follows:

$$\frac{\text{Total Revenues minus Total Expenses}}{\text{Total Expenses}} \times 100$$

Table 3 shows that hospital financial status varies substantially by census region and bed size.

Many in the hospital field believe these average net revenues must be tempered by recognition of two factors. First, despite the positive average net revenues for the field as a whole, approximately 30% of hospitals are operating in the red. Second, under generally accepted accounting principles, hospital net revenues have to include unrealized appreciation on investments, such as stocks and

TABLE 1
Number of U.S. Hospitals by Bed Size, 1998.

Bed Size	Total Hospitals*	Community Hospitals**
6-24 beds	361	293
25-49 beds	1,039	900
50-99 beds	1,405	1,085
100-199 beds	1,523	1,304
200-299 beds	735	644
300-399 beds	411	352
400-499 beds	218	183
500 or more beds	329	254
TOTAL	6,021	5,015

*Includes Federal, long-term care, and hospitals for the mentally retarded.
**Limited to nonfederal, short-term general and other specialty hospitals (e.g., children's hospitals). Includes university medical centers.

Table 2
Number of Community Hospitals by Ownership, 1998

Type of ownership	Community Hospitals
Non-government, not-for-profit	3,026
Investor-owned	771
State and Local Government	1,218

Table 3.
Distribution of 1998 net revenues by census region and bed size, 1998

Census Region	Average Net Revenue
New England	4.15%
Mid Atlantic	1.01
South Atlantic	2.66
E North Central	2.50
E South Central	1.20
W North Central	2.09
W South Central	4.87
Mountain	5.86
Pacific	7.30
Bed Size	
6-24 beds	5.74%
25-29 beds	7.42
50-99 beds	1.46
100-199 beds	6.89
200-299 beds	(0.31)
300-399 beds	1.79
400-499 beds	3.15
500 or more	4.21

mutual fund holdings. Whether these unrealized gains will be realized or disappear in the stock and bond markets is unknown.

Finally, resources for mass casualty preparedness have to compete with other initiatives hospitals are being encouraged to adopt at the present time. These include, in no particular order:

- Billing system accuracy and compliance
- Safer needles and needleless systems
- Limitations on medical device reuse
- Medical error reduction
- Medication error reduction
- Privacy and security of personal medical information
- Filtering of blood products
- New requirements for restraint and seclusion
- Ergonomic standards for employees
- Reduce solid wastes, especially of heavy metals
- Heightened productivity to meet Balanced Budget Act payment targets
- Uniform billing procedures and processes for all payers

Each of these initiatives addresses a public need. Unfortunately, they compete with each other and with mass casualty preparedness for hospital attention, funds, and personnel.

Existing Preparedness Requirements

In developing disaster plans, hospitals must take into account the broad, national preparedness requirements imposed by the Health Care Financing Administration (HCFA) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

In December 1997, HCFA published revised requirements (i.e., Conditions of Participation) for hospital emergency preparedness. While the regulations have not been finalized, the proposed rules provide the most up-to-date statement of HCFA's expectations:

> (4) The hospital must have an emergency preparedness system for managing the consequences of power failures, natural disasters or other emergencies that disrupt the hospital's ability to provide care.

This emergency preparedness requirement is supplemented by HCFA requirements for emergency services. In the same December 1997 Notice of Proposed Rulemaking, HCFA proposed:

Sec. 482.50 Condition of participation: Emergency services.

The hospital provides, within its capabilities and its stated mission, services appropriate to the needs of persons seeking emergency care. If the hospital provides emergency services on a full-time or part-time basis, it meets the applicable standard in paragraph (a) or paragraph (b) of this section, respectively; if the hospital does not provide any emergency services, it meets the standard in paragraph (c) of this section.

(a) *Standard: Hospitals providing full-time emergency services.* If the hospital provides emergency services on a 24-hour-per-day, 7-day per week basis, the hospital meets the following requirements at all times:

(1) The hospital has sufficient numbers of personnel, including doctors of medicine or osteopathy, other practitioners and registered nurses, to meet patient needs for emergency care.
(2) The services are appropriate to patient needs.
(3) The emergency services provided are integrated with other departments of the hospital.

(b) *Standard: Hospitals providing part-time emergency services.* If the hospital provides emergency services, but not on a 24-hour per day, 7-day per week basis, the hospital meets the following requirements:
(1) The hospital has fewer than 100 beds and is located in a rural area as defined in Sec. 412.62(f)(1)(iii) of this chapter.
(2) The hospital establishes regular hours and days when the emergency services are available, and actually has services available at all of those times.
(3) The hospital notifies local emergency services personnel, law enforcement agencies, physician offices, and other health facilities of when it does and does not offer emergency services, and provides those it has notified with at least 5 calendar days' advance notice of any changes in its emergency services schedule.
(4) The hospital posts its days and hours of operation of emergency services in a conspicuous place where the public most commonly is informed of the hospital's location.
(5) The hospital complies with the requirements of paragraphs (a)(1) through (a)(3) of this section at all times when it does offer emergency services.
(6) The hospital complies with the requirements of paragraph (c) of this section at all times when it does not offer emergency services.

(c) *Standard: Hospitals not providing emergency services.* If the hospital does not provide emergency services, the hospital must provide for appraisal of emergencies, initial treatment, and referral when appropriate.

HCFA's Medicare Conditions of Participation for emergency preparedness and emergency services establish the minimum requirements for hospitals that participate in the Medicare and or Medicaid programs. They are broadly written in recognition of the diversity of hospitals by size, mission, and community.

The JCAHO requirements are also written to apply to the full range of hospitals from small rural facilities to academic medical centers in urban cities. The preparedness standards are focused in four areas:

- Emergency preparedness management plan (Standard EC.1.6),
- Security management plan (Standard EC.1.4),
- Hazardous materials and waste management plan (Standard EC.1.5), and
- Emergency preparedness drills (Standard EC.2.9).

The present JCAHO standards for these four areas are included with the permission of the JCAHO as Appendices D-G of this report.

JCAHO standards for the "Emergency Preparedness Management Plan" require hospitals to address the following:

- Specific procedures in response to a variety of disasters or emergencies
- Role in community-wide plan
- Role of external authorities
- Space, supplies, security
- Radioactive or chemical isolation & decontamination
- Notifying and assigning personnel
- Evacuation and alternative care site
- Managing patients
- Backup for utilities and communication
- Orientation and education
- Performance monitoring
- Annual evaluation

Separate from, but related to, the standards for Emergency Preparedness Management Plan are JCAHO standards addressing the hospital's Security Management Plan. In this component of its plan, hospitals must address:

- Access to/egress from sensitive areas
- Vehicular access to urgent care areas
- Security incident or failure
- Civil disturbance, media
- Control of human and vehicle traffic

While some incidents such as a power failure do not produce hazardous materials, incidents such as chemical accidents or industrial explosions may. JCAHO standards require hospital plans to address:

- Applicable law and regulation
  - OSHA
  - EPA
- Handling and disposing of wastes
- Space and equipment
- Emergency procedures for exposures
- Personal protective equipment

These requirements are likely to be highly relevant to any mass casualty incident, especially if it results from terrorism.

Finally, JCAHO standards require hospitals to conduct two emergency preparedness drills per year. These simulations are designed both to provide training exercises as well as to identify unanticipated shortcomings of the current plan so that revisions may eliminate weaknesses. The hospital is responsible for determining the particular disaster scenarios, but one drill must involve an influx of patients beyond those presently being treated by the hospital. The second drill may involve either an internal or an external disaster.

The JCAHO standards are regularly reviewed and updated. For 2001, the Invitational Forum understood that the JCAHO is considering several changes, including the following:

- Changing the title of standard EC.1.6 from "Emergency Preparedness" to "Emergency Management" to reflect the broader perspective that hospitals must both prepare for and effectively execute their plan,
- Revise the standards to focus attention on:
  - Clearly identifying who is in charge of what and when they are in charge
  - Establishing a command structure
  - Managing the logistics of critical supplies
- Assure that "Emergency Management" includes management of:
  - Patient scheduling, services, information, & transportation
  - Security
  - Consideration for staff family support
  - Interaction with family members
  - Interaction with news media
  - Critical processes when an alternative care site is necessary:
    - ✓ Patient packaging (medications, admissions, medical records) and tracking
    - ✓ Inter-facility communication
    - ✓ Transportation of patients, staff, & equipment

- ✓ Cross-privileging of medical staff
- – Disaster recovery
- – Availability of essential utilities (electricity, water, fire protection, fuel sources, medical gas, & vacuum)
- – Back-up systems for internal and external communications.

After reviewing present JCAHO requirements, Forum attendees discussed mass casualty preparedness in light of the JCAHO standards. The question was raised of how meaningful the JCAHO standards are to hospitals. While no attendee could identify a hospital that had lost its accreditation solely because of an inadequate disaster plan, attendees from hospitals reported the JCAHO standards have a major impact on the priority given to disaster preparedness in hospitals. No hospital wishes to receive a Type 1 (i.e., most serious) recommendation for the inadequacy of its plan or its annual drills. Thus, despite the fact that the JCAHO generally visits a hospital only once every three years, the standards discussed above do give added priority to emergency preparedness, disaster planning, and preparedness drills.

At the same time, attendees expressed concern that both hospitals and the JCAHO have historically addressed relatively small-scale incidents. Disasters have been seen as something that overwhelms, at least temporarily, the capacity of a hospital. An industrial explosion or airplane crash may result in a patient load that does overwhelm a single hospital or even a small number of hospitals. Thus, drills based on these incidents are appropriate.

If the disaster is a mass casualty event, such as a major earthquake or biological terrorism, the patient load may overwhelm all of the hospitals, the offices of physicians, and the general resources of the community. A disaster plan limited to an individual facility is inadequate. A single facility's plan may address part of the spectrum of disasters appropriately, but its weakness is that it may ignore larger scale incidents. Therefore, hospital preparedness should expand from planning within the context of a single hospital organization to planning by the hospital to become part of a community-wide initiative to address mass casualties. This would necessitate participation in community-wide preparedness drills.

While the majority of hospitals are accredited by the JCAHO and work to comply with its standards, some hospitals are not JCAHO accredited. Many of the unaccredited hospitals are in small rural communities, which may not perceive themselves as likely to experience a mass casualty incident. Nevertheless, all hospitals should include responding to the basic elements of mass casualty incidents in their preparedness plan. When hospitals are not JCAHO accredited, it was suggested that the state licensing body or a similar entity have the responsibility for assuring that the hospital's disaster plan addresses both incidents of limited and mass casualties.

In a disaster, especially one for mass casualties, the hospital may receive more patients than it can handle. Or, if the incident results from chemical or biological exposure, the community may need to protect itself by designating some hospitals as open to victims and others as open only to patients who have not been exposed to the chemical or biological contaminants.

Federal legislation, known as EMTALA for the Emergency Medical Treatment and Labor Act, governs what a hospital must do when potential patients present themselves, even if the hospital has closed its emergency room because of an excess of patients or to protect the health of current patients.

The implementing regulations for the Emergency Medical Treatment and Labor Act (EMTALA) state:

> If any individual (whether or not eligible for Medicare benefits and regardless of ability to pay) comes by him or herself or with another person to the emergency department and a request is made on the individual's behalf for examination or treatment of a medical condition by qualified medical personnel (as determined by the hospital in its rules and regulations), the hospital must provide for an appropriate Medical Screening Examination within the capability of the hospital's emergency department, including ancillary services routinely available to the emergency department."

The EMTALA interpretive guidelines provided by HCFA state:

> A hospital may deny access to patients when it is in 'diversionary' status because it does not have the staff or facilities to accept any additional emergency patients at that time. However, if the ambulance disregards the hospital's instructions and brings the individual on to hospital grounds, the individual has come to the hospital and the hospital cannot deny the individual access to hospital services.
>
> Individuals coming to the emergency department must be provided a medical screening examination beyond initial triaging. Triage is not equivalent to a medical screening examination. Triage merely determines the 'order' in which patients will be seen, not the presence or absence of an emergency medical condition.
>
> A hospital, regardless of size or patient mix, must provide screening and stabilizing treatment within the scope of its abilities as needed, to the individuals with emergency medical conditions who come to the hospital for examination and treatment.

Thus, if mass casualty patients present themselves physically at the hospital or on hospital property, the hospital has a legal obligation to provide at least a

medical screening examination. Under present law, there is no provision to "waive" this requirement even if a failure to accept, screen, or treat a patient would benefit the community's health. The consequences of the present law will be addressed in the section on recommendations for public policy.

The Medicare Conditions of Participation of HCFA, the standards of the JCAHO, and the provisions of the EMTALA statute provide the broad national context for mass casualty preparedness. Hospitals also are subject to additional regulations of the Occupational Safety and Health Administration and of the Environmental Protection Agency. Finally, hospitals are subject to state and local government rules and regulations. Because the Invitational Forum drew its participants from throughout the nation, limited information on the requirements of individual states or local governments was discussed.

Framework for Forum Discussions

Before beginning to identify issues and develop recommendations and strategies, attendees discussed the role of the hospital in mass casualty incidents. The discussion was initiated to see if there were some clearly defined limits or boundaries to preparedness and, therefore, for the Forum itself. The discussion began with a grid of potential hospital involvement based on three dimensions: (1) cause of incident (e.g., explosion, chemical contamination, or biological exposure), (2) role in incident (e.g., prevention, agent identification, and treatment), and (3) type of involvement (i.e., clinical or administrative systems). Attendees found the mass casualty topic too broad and the initial grid too narrow to be helpful. After extensive discussion, attendees concluded it was not possible to prepare a simple grid showing the priorities for mass casualty roles a hospital must prepare for and those it can give a low priority. There are simply too many types of mass casualty incidents requiring too many different responses to develop a simple planning typology.

Attendees did agree, however, on a number of observations that provide a framework for mass casualty preparedness:

- Mass casualty incidents, by definition, overwhelm the resources of individual hospitals. They may overwhelm the resources of a community's entire health care system. Therefore, mass casualty incidents should be seen as community-wide concerns likely to require a broad array of community resources to supplement the health care system. Local government will assuredly be involved, including both the public health department and the public safety systems of police and fire departments. Other community resources are likely to also be called upon. This may include schools, churches, public transportation, news media, telephone and communication systems, voluntary organizations (e.g., Red Cross and Salvation Army), restaurants and food suppliers.

- Because of their emergency services and 24 hour a day operation, hospitals will be seen by the public as a vital resource for diagnosis, treatment, and followup for both physical and psychological care.

- While some mass casualty incidents may follow the pattern of an intense, short-time peak of activity, others (e.g., bioterrorism incidents) will present the community and health system with rapidly increasing demands that plateau and have to be addressed for days or weeks.

- The local community is the primary resource for initially responding to the incident and providing subsequent clinical care. To assemble and transport resources to the site of the incident, state and federal governments will need time. They may supplement local resources across time, but no community should plan on its state government or the federal government as either the initial or primary clinical resource in a mass casualty incident.

- Mass casualty incidents that result from infectious causes are different from all other types of incidents for many reasons, including:
  (1) the onset of the incident may remain unknown for several days before symptoms appear,
  (2) even when symptoms appear, they may be distributed throughout the community's health system and not be recognized immediately by any one provider or practitioner,
  (3) once identified, the initial symptoms are likely to mirror those of the flu or the common cold so that the health system will have to care for both those infected and the "worried well,"
  (4) having gone undetected for several days or a week, some infectious agents may already be in their "second wave" before the first wave of casualties is identified,
  (5) public confidence in government officials and health care authorities may be undermined by the initial uncertainty about the cause of and treatment for the outbreak,
  (6) health care authorities and hospitals may want to restrict those infected to a limited number of hospitals but the public may seek care from a wide range of practitioners and institutions, and
  (7) health care workers may be reluctant to place themselves or family members at increased risk by reporting to work.

- Hospitals lack a "toolkit" of best practices in facility design, engineering operations, and facilities management systems which they can use to identify best practices for planning and implementation. While no single set of "tools" will be appropriate for all hospitals because of their variation in size, clinical programs, and patient community, a "toolbox" of scalable options with their estimated costs could facilitate more rapid development of hospital preparedness. Federal support for

development and dissemination of the "toolkit" would be valuable because it would minimize duplication and provide most consistency across the nation.

- There is a need to develop a widely understood and widely used classification system for mass casualty incidents so that communities can communicate their needs internally and with outside resources.

In light of this broad discussion and set of observations, the Forum then followed a three-step process. First, attendees were asked to identify the key issues they saw for hospitals mass casualty preparedness. All of the issues suggested in the initial brainstorming are shown in Appendix H. Second, using the issues identified, attendees were asked to identify the "show stoppers." These are the issues that will bring everything to a halt if not adequately addressed. Four broad categories of "show stoppers" were identified:

- community-wide preparedness,
- communications,
- staff readiness, and
- public policy.
-

Finally, attendees were asked to develop recommendations and strategies for addressing each of the four sets of "show stoppers."

Section 4
Recommendations on Community-Wide Preparedness

Disasters in communities come in all shapes and sizes. Some impact a small number of people, place intense demands on the health system for a short period, and conclude. Others may involve large number of casualties but reach a plateau only after a latent period, placing heavy continuing demands on the health system. Bioterrorism incidents, by their very definition, are much closer to the second.

Attendees at the Forum believe hospitals have a long history of preparing for and responding to short, intense disasters. Numerous examples of one of more hospitals responding to a plane crash, a train wreck, a flood, or an earthquake provide evidence that hospitals had appropriate plans in place, staff understood how to implement the plan, and the plan was sufficiently flexible to respond to the specifics of the incident.

Attendees are less comfortable that large numbers of hospitals are prepared for mass casualty incidents. Mass casualty incidents will overwhelm any single organization. Mass casualty incidents require the hospital to operate on three planes simultaneously: it must respond as:

- an organization in its own right,
- a part of the community's health care system, and
- as one component in a community-wide effort that extends far beyond the health system.

Attendees recommend that hospitals adopt a community-wide perspective and leadership role in planning and preparing for a mass casualty incident. This leadership role does not mean that the hospital needs to necessarily take primary responsibility for the community planning; just that hospitals work with other community leaders to effect an integrated community-wide plan. This broad perspective needs to begin with trustee development and education. Hospital trustees need to understand that their role involves both fiduciary responsibility for the institution and establishing linkages with the broader community. Both trustees "hats" are necessary for effective mass casualty preparedness.

Within the hospitals, attendees recommended that hospitals broaden the scale and scope of their disaster plans to link with and involve the community. Suggested linkages include:

- Communities need to develop horizontal and vertical relationships between the organizations, governmental and private, that will be called upon to work together in a mass casualty incident. Hospital participation in these functions is essential. While each community leader is primarily responsible for his or her own organization, it is

essential that senior representatives from each organization know each other personally, have developed working relationship with each other, and understand the roles that are planned for each organization. In the midst of responding to a mass casualty incident, there is no time to develop the infrastructure or trust and awareness necessary for the community to respond as a whole.

- Establish an open and ongoing relationship with the local health department and its leadership. While some mass casualty incidents may be easily identified and defined, biological incidents in particular require a community-wide surveillance and control effort to assemble apparently isolated incidents into a recognizable pattern that identifies the gravity of the challenge and institutes appropriate public health interventions, e.g. immunizations and prophylactic antibiotics.

- Develop periodic meetings with police and fire officials whose staff will be "first responders" to some mass casualty incidents and may be required by the hospital to enforce crowd control as the number of casualties increases. These meetings should be used to create a shared understanding of the different cultures between health care, public safety, and law enforcement organizations. They also should provide the opportunity to build the personal trust necessary for mutual action in the developing and potentially chaotic stages of a mass casualty incident.

- Develop and test daily a community-wide communications network. Recent disasters have demonstrated that different organizations may use different media and/or different frequencies in their communications. Unable to communicate with one another, precious time can be lost at the start of a mass casualty incident.

- Because of the broad scope of the incident, communications overload throughout the community is possible. Backup and redundant systems should be identified in advance to help assure communications. This should include an agreed-upon and tested courier service in case voice communications fail or are overloaded.

- Within the health care community, hospitals have an opportunity to use their existing emergency medical system (EMS), trauma coordination, and neonatal care relationships as a framework on which to build expanded relationships for mass casualty preparedness. The existing programs provide a framework for communications linkages, joint and complementary funding, and data collection and sharing.

- Communities and regions need to create and/or link existing data reporting systems to provide a community-wide assessment of health

needs and resources. Mass casualty incidents will increase demands simultaneously on all of the community's health resources. There will not be adequate time or unused personnel to survey hospitals, community health centers, multi-specialty clinics, nursing homes, and public facilities to inventory capabilities after the incident starts. Data systems which have a common architecture to integrate "streaming" data from institutional operations will provide the best means of matching community needs to available resources.

- Community-wide mass casualty drills should supplement the individual hospital and small casualty community drills generally in use today.

At the state and national levels, steps can be undertaken to facilitate the community and regional preparedness essential for mass casualty incidents.

- Biological incidents will be the most difficult for the community to understand and effectively coordinate its response. Valuable time is lost if public health officials are unable to rapidly identify and communicate the threat represented by what appears to be a series of unrelated illnesses. The federal government should continue to provide support for epidemiological programs which allow hospitals to submit rapidly information on atypical patients so that community-wide patterns can be identified as soon as possible.

- The traditional separation between the medical care community (e.g., hospitals, physicians, and nursing homes) and the public health community needs to be bridged in preparation for mass casualty incidents. Mass casualties will provide more work than any organization itself can address. Coordination is key, and the historic separation is a genuine disadvantage.

- Special funding for the development and testing of mass casualty preparedness plans and drills are essential. To obtain the greatest benefit for the community, the funds should be provided to a community-wide organization which is required to involve the community's political leadership, public safety services, public health services, hospitals, and community health centers.

- Hospital associations, alliances, and systems can facilitate mass casualty preparedness of their members by establishing linkages with the public health community, identifying and communicating "best practices," identifying and sharing "lessons learned" from disasters and emergencies of all sizes, and facilitating more uniform data definitions and reporting systems for institutional capacity.

Section 5
Recommendation on Staffing

As previously stated, mass casualty incidents are likely to overwhelm the capacity of individual hospitals and, perhaps, all of the hospitals in the community. Traditionally, hospital capacity has been described in terms of the availability of beds. Having unoccupied beds to use for casualties remains important; however, it is the judgment of the Forum attendees that the availability of adequate numbers of trained staff is a better indicator of the capacity of the health system to respond to mass casualty incidents. This section addresses Forum recommendations in three sections: numbers of staff, training for staff, and staff support.

Numbers of staff

In hospital disaster plans, staff augmentation is regularly addressed in a variety of ways, including extending hours of present staff and calling in supplemental staff. If all of the disaster plans in a community are collected, they appear to provide for a substantial augmentation of staff. This includes medical staff, nursing staff, technicians and technologists, and support services staff. However, it is common for each hospital's disaster plan to be prepared individually. Thus, there is a real potential for double counting of potential staff. That is, two (or more) hospitals may envision using the same resources for staff augmentation. In a mass casualty incident where the full human resources of the community are stressed, attendees recommend that hospitals improve their preparedness by working together to develop an unduplicated estimate of the number and sources of additional staff.

A number of very basic steps can expand hospital staffing for mass casualty incidents:

- Development of a community-wide concept of "reserve staff" identifying physicians, nurses and hospital workers who are (1) retired, (2) have changed careers to work outside of healthcare services, or (3) now work in areas other than direct patient care (e.g., risk management, utilization review). While developing the list of candidates for a community-wide "reserve staff" will require limited resources, the reserve staff concept will only be viable if adequate funds are available (1) to regularly train and update the reserves so that they can immediately step into roles in the hospital which allow regular hospital staff to focus on incident casualties and (2) develop protocols for where and how to use such staff efficiently and safely.

- It may be possible to expand the "reserve staff" concept to include medical, nursing, and allied health students training in programs affiliated with the hospital(s). Attendees recognize that this potential is

untested and may not be feasible if the students actually reduce available staff time because of their needs for supervision.

- Licensure of health professionals is generally conducted on a state-by-state basis. Licensure practices limit the flexibility and availability of potential staff. Hospital preparedness can be increased if state licensure bodies, working through the Federation of State Medical Boards, develop procedures allowing physicians licensed in one jurisdiction to practice in another under defined emergency conditions. Nursing licensure bodies could increase preparedness by adopting similar procedures or by adopting the "Nursing Compact" presently being implemented by several states.

- Medical staff privileges are generally granted on a hospital-by-hospital basis. In a mass casualty incident, physicians may be unable to reach the hospital where they usually admit patients. Hospital preparedness can be increased if medical staff Credentials Committees develop a policy on the recognition of temporary privileges in emergency or disaster situations and if hospitals in a community regularly share lists of the medical staffs and their privileges.

- In the initial hours of a mass casualty incident, "first responders" (i.e., EMS, police, and fire personnel) may be fully occupied in the on-scene care and potential de-contamination of casualties. However, as the duration of the incident progresses, first responders may be potential sources to help augment hospital staff. Attendees were unaware of communities which have developed and tested this concept. There needs to be an effort to identify communities who have tested, by design or default, this approach. If actual experience can not be identified, funding to explore the concept in communities of various sizes is needed.

- In many disaster drills, the incident places a short-term but intense demand upon the hospital. As a result, the clinical personnel experience a substantial increase in demands, but the support staff (e.g., food service workers, housekeepers) may have only a limited change in demands. In a mass casualty incident, the demand for both care and support services may be more sustained. Hospital preparedness will be facilitated by providing for augmentation of both clinical and non-clinical, support staff.

- Forum attendees believe some biological incidents are different because of their risk of infecting hospital staff. Biological terrorism will pose additional challenges of both uncertainty and fear. Reactions to unknown infectious agents can perhaps best be gauged by the reaction of health workers to AIDS/HIV in the early 80's, when some

workers were reluctant to care for infected patients. Attendees recognize that staff concerns can be reduced through appropriate education and the use of universal precautions until the nature of the disease agent is understood. However, hospital preparedness plans need to include contingency plans in case medical professionals, and or volunteers, do not show up.

- Communities have a long history of helping hospitals in times of crisis. A frequent demonstration of this community support is the willingness of individuals with four-wheel drive vehicles in Northern states to provide transportation assistance to hospital patients and staff during snowstorms. Attendees believe the potential for untrained volunteers to assist with a mass casualty incidents is very limited. Hospital staff will be under enormous demands and stress. There will be only limited time to identify, train on site, and supervise volunteers. In some cases, volunteers may add to the problems of staff identification and crowd control.

Staff training

In mass casualty incidents, there is unlikely to be time to conduct intensive staff training between identification of the incident and its onset. Weather related natural disasters—floods and hurricanes—may provide a little lead time for training, but most of the available time will be consumed by implementing the disaster plan and by staff needs to arrange care for members of their families and for pets.

- Mass casualty incidents require a prompt response and implementation of both the institutional and community-wide disaster plans. A more prompt response will be forthcoming from the full range of staff if education on potential incidents and their expected risks and consequences are taught to all hospital staff prior to the onset of any incident.

- While many hospitals rely on information resources originally developed by the military services for addressing chemical and biological exposure, some of the information and supplies assumed in a combat situation are not representative of civilian hospital environments. Attendees believe standardized materials oriented to training hospital personnel need to be developed and made widely available. Such materials would facilitate training, allow for a more standardized body of information across the hospital field, reduce the loss of expertise that accompanies employee turnover, and be cost efficient. Federal grants are seen as the only realistic source for developing the necessary training resources. Upon development, federal agencies should work with medical, nursing, and hospital

associations to make the availability of the materials widely known through newsletters, member advisories, and association web pages.

Hospital preparedness for mass casualty incidents will be increased if hospitals engage in regular, ongoing "in service" training programs and in readiness drills. But, the resources required for this training are expensive: training materials must be developed, trainers must be trained, staff must be released from other obligations, and supplies must be consumed. No payer for hospital services includes in their payments funds for the staff education necessary for hospital preparedness. The costs of hospital preparedness can be reduced in a number of ways:

- The American College of Emergency Physicians is presently completing the first phase and launching the second phase of developing a standardized curriculum and set of training materials for mass casualty preparedness. Access to these materials and subsidies for their purchase should be made available to all hospitals. The subsidies may result from federal or state grants, from grants from national or community foundations, or from local charities, such as the United Way.

- Historically, training has relied upon printed materials and training films. While both remain relevant, training materials using videotapes, CDs, and web-based technologies should be explored to provide more cost-effective and readily revised resources.

Staff support

Faced with the demands of a mass casualty incident, physicians and hospital staff will be called upon to provide extraordinary service to their communities. Pressure and stress will be high. Casualties will be numerous and may include friends and neighbors. To allow staff to function at their highest potential, attendees offer the following recommendations:

- Facing long hours and the likelihood of limited communications, hospital staff do not need the distraction of worrying and arranging for the needs of family members. In some communities, the network of an extended family or established group of friends may provide "coverage" during the incident. In many communities, however, population mobility, nuclear family structures, and single parent families may mean that many staff member do not have existing arrangements to care for their families. Mass casualty preparedness will be facilitated if hospitals work with community resources—school systems, churches, and employers—to include in their disaster plan pre-arranged supervision, shelter, and feeding for the families of those working in the hospital. These pre-arranged community support

systems can be activated using public service announcements on radio and television stations.

- Arrangements for the care of the pets of hospital workers can be just as necessary and often more complex. The congregate living arrangements that are possible for family members do not work well for pets. This may provide an opportunity for the veterinary medicine community to contribute to improving hospital preparedness. For example, hospital staff could provide a registry of pets which could be shared with both veterinarians and veterinary assistants for feeding and care if staff are confined to the hospital for extended periods.

- Those who have studied or experienced mass casualty incidents have reported the enormous stress and pressure faced by health workers. Effective response by these workers to the crisis requires that they have the necessary supportive services for themselves. These include access to vaccines, infection control advice, adequate rest and relief, and mental health counseling. In a sustained, mass casualty incident, the inclusion of these resources in the disaster plan will assist staff in meeting the other demands the plan places on them.

- At the onset of the mass casualty incident, there is likely to be confusion and conflicting information about the incident. This lack of certainty may distract hospital workers wishing to understand the risks they personally face in caring for incident victims. The use of universal precautions and a system for sharing information with staff prior to any incident are likely to facilitate implementation of the disaster plan.

- Crowd control will be essential in a mass casualty incident. There will be the sick and injured, relatives searching for each other, the "worried well," and the curious. To facilitate access to the hospital by physicians, hospital workers, and any "reserve staff" component, preparedness plans must include photo identification cards issued or authorized by the hospital. Prior to any incident, public safety officials must have information on the characteristics of authentic identification cards for each facility in the community. For "reserve staff" and pre-designated volunteers, identification cards can be coded with number and/or letter systems so that public safety officials can readily identify those authorized to cross any crowd control perimeter.

Section 5
Recommendations on Communications

Mass casualty incidents may be sudden, such as explosion, or gradual, such as a biological infection. In both cases, the scale of the incident will create a demand for public information. In most cases, at least some of the information will not be readily available while the incident develops.

We live in a mass media and multi-media culture. Every news and information source will seek access to the latest and most up-to-date information. Absent clear and credible information, speculation may reign and increase the stress and pressure of the incident, especially on the hospital and its staff.

Planned and structured arrangements for communication throughout the incident and during its response are critical components of hospital and community preparedness. Attendees offered the following recommendations and insights:

External communication

- A mass casualty event will become a "Tower of Babel" if every organization in the community attempts to establish its own media briefings. Unaware of what others are saying and despite the best of intentions, the use of different words and phrases will confuse the public and undermine the trust essential to the "orderly chaos" of a well-managed disaster. All organizations involved in the community preparedness plan for mass casualties, including hospitals, need to agree in advance on who will serve as the single, regional spokesperson. If a government official is designated as the spokesperson, health experts must be provided to assist the official with responses to medical questions.

- A community-wide spokesperson system will minimize disruption of hospitals if the press events are conducted away from health care facilities and using regularly scheduled and pre-announced media briefing times.

- All organizations participating in the community preparedness plan will facilitate communications and reduce disruption of their own staff if the plan for a pre-arranged community spokesperson also clearly identifies what others are not to say. While each organization responding to community need will want to "tell its story," a pre-existing agreement that the focus will be on a single point of communication will minimize disruptions while still allowing each organization to "tell its story" after the incident has concluded.

- Hospitals often have established relationships with the local health reporters. In a mass casualty incident, the health reporter may not be the prime media contact. The government reporter, or crime reporter in the case of terrorism, may have the lead on the incident. The community spokesperson needs to be known and trusted by this reporter prior to any incident. Health experts who will be used to complement the spokesperson also should be known in advance to the reporter(s).

- The present language being used by some to describe mass casualty incidents is unnecessarily inflammatory. When addressing potential incidents caused by terrorists, some have used the terms "weapons of mass destruction" or "weapons of mass effect" to characterize the incident. Both of these terms have heavy emotional and psychological overtones which are apt to increase community anxiety and fear in the face of any incident. Attendees encourage the use of more neutral words in communications.

Internal communications

- Hospitals need an ongoing, open channel of communications with emergency response teams who may have first awareness of the incident. In a mass casualty incident, this channel of communications can not be limited to a set of dyads where the EMS unit has to use a different channel or means of contact with each organization. A community-wide network using the same channel is necessary. The network should be tested daily, with the test rotating across the various hospital and EMS shifts. Redundant backup capability must be built into the preparedness plan in case the usual means of communications are ineffective. The backup capability also requires regular testing.

- The arrival of casualties will be accompanied by calls from family and friends seeking to learn where the person is and their condition. These well-meaning calls can rapidly overload the hospital's telephone system and isolate the hospital. Community-wide mass casualty preparedness plans will improve the responsiveness of health organizations if they include a single, community site for obtaining patient locator information. In many communities, the Red Cross is equipped and experienced in serving as this third-party, off-site source of information.

- A mass casualty incident overloads the resources of the hospital(s) if not the whole community. Staff morale and effectiveness will be facilitated by developing clear information systems that use both telecommunications and a position-to-position cascade in the event

that telecommunications are unavailable or overloaded. Such a cascade should be designated in terms of position, not person. The combination of hospital turnover, the multiple shifts of hospitals, and the reassignment of personnel during the incident have been found to undermine systems where the cascade specified names rather than positions.

Finally, attendees recognize that communication patterns are rapidly changing. The use of cellular phones, pagers, and the internet is increasing. Therefore, attendees recommend that the community-wide preparedness drills addressed in an earlier section of this report be accompanied by a post-event critique and evaluation of the communications plan specifically. To anticipate the communication patterns the public and media will use in the future, hospitals and communities must learn how patterns are changing.

Section 7
Recommendations on Public Policy

In a number of prior observations and recommendations, attendees identified roles for governments. In this fourth priority area, attendees considered specifically the public policy needs that should be addressed by federal, state, and local governments to facilitate hospital preparedness for mass casualty incidents.

A theme that was often heard at the Forum was that mass casualty incidents are community-wide incidents. They are not confined to individual hospitals. They involve hospitals, employers, transportation systems, food and medical suppliers, schools, and more. Despite all the current emphasis on smaller government and market-based solutions to societal problems, attendees believe it is necessary to appreciate that coordination and response to large-scale disasters is a legitimate responsibility of government that is unlikely to be borne by any other entity.

Moreover, the governmental responsibility rests first and primarily on local government. The local community is where the event occurs. Local government provides the "first responders" to explosions, chemical contamination, and natural disasters. Local governments manage the roads and public transportation systems, the school systems, and often the drinking water.

State and federal governments will be involved if the incident is large enough. But, state and federal governments will not lead. They are often outside the immediate area, lack the critical mass of immediate clinical resources, and will be unable to be present immediately.

There are actions in public policy that state and federal governments can take to help communities and hospitals develop and implement preparedness plans. This section provides the recommendations and observations of the Forum attendees.

- In the past two decades, the dual role of the hospital has been under debate. Some see the hospital as a community social institution; others see hospitals as health care businesses and encourage an emphasis on efficiency. Without adjudicating the debate on the hospital's role, attendees believe hospitals need to educate policy makers about the role of hospitals in mass casualty disasters. Hospitals are the last link in the community's response to a mass casualty incident. They are the most comprehensive community health resource. They are open 24 hours a day, 7 days a week, 365 days a year. People turn to the hospital's emergency department when they do not know where else to turn. Hospitals will receive the most seriously injured and ill casualties. Authorities need to acknowledge this role and its implications for preparedness plans.

- This "backstop" role of the hospital is not well appreciated by policymakers. For over two decades, there has been a constant push in the public debate to categorize an empty hospital bed as an "unnecessary" hospital bed. But, hospital beds have been declining. The influenza outbreak of 1999-2000 demonstrated how little excess capacity really remains. In California, the Midwest, and New York City, flu victims found all hospital beds occupied and emergency departments diverting patients because they were full. Attendees believe the recent influenza outbreak should be studied by independent researchers to help society understand the limited excess capacity hospitals have to respond to essential community health needs, especially unpredictable needs like a mass casualty incident.

- Some in the hospital field may feel that the Public Health Department, state or local, should advocate for the reserve bed capacity necessary to address mass casualty incidents. But, health departments are governmental units often unable to advocate publicly for the type of policy issues raised in this section. As the last link in the community chain of readiness, the hospital is the organization which has to make up, by default, for inadequacies in community preparedness. Therefore, hospitals should advocate comfortably for their reserve or readiness needs.

- The first hospital advocacy message should emphasize two themes for government funding: (1) fund the base of mitigation and preparedness functions of hospitals and (2) fund the reserve and readiness capacity essential to implementation. Attendees saw hospital trustees as the key advocates for both of these messages. Hospital trustees represent the broad interests of the community and must balance the multiple needs of the community. Trustees must explain how the present constraints on hospital revenues and the increases in expenses translate into an inability of the hospital to fully fund its preparedness needs.

- Mass casualty incidents and disasters are community events. While hospitals expect to be paid for the health services provided to the injured, there is no stream of funding for the costs of developing preparedness plans, training staff, purchasing standby equipment, and conducting disaster drills. In an era when each purchaser of hospital services, including Medicare and Medicaid, seeks to pay only the price necessary to care for its own patients, there is no general societal support for the preparedness role of the hospital. Government(s) need to develop a fund for hospital preparedness, especially mass casualty preparedness. This may involve a special assessment on industries that pose special risks of nuclear, chemical, or infectious

contamination. General revenue support is also likely to be needed if the health care system is going to be adequately prepared to meet the contingencies of mass casualty incidents.

- There is also a need for state and federal officials to address compensation for communities and hospitals that experience mass casualty incidents. The National Disaster Medical System provides funding if an event occurs in community A and patients from community A are transferred to community B in order to create medical care capacity in community A. But the Stafford Act, which provides the authorization and framework for federal assistance by the Federal Emergency Management Agency, has proven an unreliable source of funds for hospitals in communities experiencing floods, earthquakes, and hurricanes. The Stafford Act is more attuned to providing funds for property damage than for the added costs, or lost revenues, accompanying health services. Attendees recommend that a new federal approach is needed which expresses the Congressional commitment to assist hospitals in disaster recovery. The federal government needs to provide necessary catastrophic financial relief to assist hospitals in caring for disaster victims and in disaster recovery. This funding should recognize economic loss and establish the federal government, perhaps with a cost-sharing role with the states, as a last dollar payer.

- Trustees, medical staff, and hospital executives all need to open the dialogue with the federal government necessary to revise the provisions of the Emergency Medical Treatment and Labor Act. Passed for the purpose of assuring that all individuals who present themselves to the emergency department are evaluated, screened, and stabilized within the capability of the hospital before being transferred from one hospital to another, the Act has been interpreted as requiring every hospital to provide these services to every patient who presents themselves at the hospital. As a consequence, if a community's preparedness plan categorized hospitals into hospitals allowed to accept patients exposed to chemicals and hospitals limited to unexposed patients, the hospital delegated the unexposed patient role would incur an EMTALA violation if it turned away a patient exposed to the chemicals—even if turning the patient away was in the best interest of the community. The hospital designated to accept exposed patient would also incur an EMTALA violation if it did not accept a transfer from a non-designated facility since it would be considered a "higher level of care." Similarly, in a biological incident, an effective community plan may seek to classify hospitals into those accepting exposed patients and hospitals limited to unexposed patients. Implementing the plan would place some of the hospitals in violation of EMTALA. Attendees encourage Members of Congress and

officials of the Department of Health and Human Services to review the EMTALA statute, implementing regulations, and interpretive guidelines and provide a "safe harbor" for hospitals that decline to screen or treat a patient in a mass casualty disaster when public health or local government officials have limited the hospital to patients not exposed to the disaster.

- Finally, as the federal government develops data, privacy, and security standards required by the Health Insurance Portability and Accountability Act (HIPAA), special attention and "safe harbors" need to be created for hospitals responding to mass casualty incidents. Unfortunately, the extraordinary nature of these incidents may require atypical patterns of collecting and maintaining medical information. Special and restricted "safe harbors" should be provided to hospitals, other health care providers, and communities responding to mass casualty incidents. Otherwise, the damage of the incident may be compounded by the inflexibility of the rules and regulations.

Section 8
Conclusions

Throughout this report, there are numerous observations, recommendations, and strategies suggested by attendees to the Invitational Forum on Hospital Preparedness for Mass Casualties at their March 8-9, 2000 meeting. Rather than repeat each of them, this conclusion seeks to highlight some fundamentals.

Community Wide Preparedness

- By definition, mass casualty incidents overwhelm the resources of individual hospitals. Equally important, a mass casualty incident is likely to impose a sustained demand for health services rather than the short, intense peak customary with many smaller scale disasters. This adds a new dimension and many new issues to preparedness planning for hospitals.

- Hospitals, because of their emergency services and 24 hour a day operation, will be seen by the public as a vital resource for diagnosis, treatment, and followup for both physical and psychological care.

- Hospital preparedness for disasters has focused historically on a narrow range of potential incidents. To increase their preparedness for mass casualties, hospitals have to expand their focus to include both internal and community-level planning.

- Traditional planning has not included the scenario in which the hospital is the victim of a disaster and may not be able to continue to provide care. Hospital planners should consider the possibility that a hospital might need to evacuate, quarantine, or divert incoming patients.

- There are limited data on hospital emergency capabilities. In multi-hospital communities and regions there is a need to develop a real-time database, including an unduplicated count of potential staff .

Staffing

- Preparedness will be enhanced by development of a community-wide concept of "reserve staff" identifying physicians, nurses and hospital workers who are (1) retired, (2) have changed careers to work outside of healthcare services, or (3) now work in areas other than direct patient care (e.g., risk management, utilization review). While developing the list of candidates for a community-wide "reserve staff" will require limited resources, the reserve staff concept will only be viable if adequate funds are available to regularly train and update the reserves so that they can

immediately step into roles in the hospital which allow regular hospital staff to focus on incident casualties.

- Hospital preparedness can be increased if state licensure bodies, working through the Federation of State Medical Boards, develop procedures allowing physicians licensed in one jurisdiction to practice in another under defined emergency conditions. Nursing licensure bodies could increase preparedness by adopting similar procedures or by adopting the "Nursing Compact" presently being implemented by several states.

- Hospital preparedness can be increased if medical staff Credentials Committees develop a policy on the recognition of temporary privileges in emergency or disaster situations and if hospitals in a community regularly share lists of the medical staffs and their privileges.

Communications

- Everyday communications systems used in the community are likely to be overwhelmed in a mass casualty incident. Backup and redundant systems need to be developed, tested and drilled.

- A single community spokesperson for the mass casualty incident needs to be identified in advance, press and media briefings need to be regularly scheduled away from the hospital(s) but with supporting medical expertise.

- Community-wide systems for locating patients need to be planned with a single point of contact.

Public Policy

- There is no financial framework for funding hospital preparedness and mass casualty costs. In the present financial environment, where each payer wished to pay only for the immediate costs of its patients, there is a need for a means to pay for the planning, education, standby supply, and training costs of preparedness.

- The Emergency Medical Treatment and Labor Act needs to be refined to establish "safe harbor" provisions so that a hospital assigned a role of caring for unexposed patients does not have to violate either its status as a "clean" facility or its EMTALA obligation.

- The Stafford Act, which provides the authorization and framework for federal assistance by the Federal Emergency Management Agency, has proven an unreliable source of funds for hospitals in communities experiencing floods, earthquakes, and hurricanes. The Stafford Act is

more attuned to providing funds for property damage than for the added costs, or lost revenues, accompanying health services. A new federal approach is needed which expresses the Congressional commitment to assist hospitals in disaster recovery. The federal government needs to provide necessary catastrophic financial relief to assist hospitals in caring for disaster victims and in disaster recovery. This funding should recognize economic loss and establish the federal government, perhaps with a cost sharing role with the states, as a last dollar payer.

Finally, hospital preparedness can be increased more rapidly if standardized but scalable national resources for staff training, building design, and facilities operations are developed and widely disseminated.

Appendix A

Attendee List

Invitational Forum on
Hospital Preparedness for Mass Casualties
March 8-9, 2000

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Appendix B

Agenda

Invitational Forum on
Hospital Preparedness for Mass Casualties
March 8-9, 2000

Purpose of Invitational Forum:

To develop recommendations and strategies about mass casualty preparedness for hospitals, the American Hospital Association, and the HHS Office of Emergency Preparedness

Wednesday, March 8, 2000

Objectives: To introduce participants to each other
To develop a shared understanding for the meeting

Thursday, March 9, 2000

Session 1
Objective: Create a shared baseline for addressing preparedness

Morning Orientation

Discussion: What are the primary roles for hospital involvement in mass casualty incidents?

Presentation: What are the current JCAHO standards for preparedness?

Discussion: What is the current preparedness status of hospitals for mass casualty incidents?

Discussion: What language/words facilitate voluntary preparedness?

Session 2
Objective: A "brainstorming" session to identify the major clinical and non-clinical issues to address in hospital preparedness for mass casualties

Session 3
Objective: Compilation of a priority list of issues to address

Discussion: What are the "show stoppers" that will bring everything to a halt if not addressed in preparedness plans?

Session 4
Objective: Development of recommendations and strategies to increase and facilitate hospital preparedness

What practical guidelines should be prepared and distributed to hospital leaders for their use in increasing preparedness for mass casualty incidents?

What strategies will increase hospital awareness of mass casualty incidents without unnecessarily increasing public anxiety? What steps can be taken to increase the awareness of medical professionals and administrators?

What are the existing barriers to hospital preparedness for mass casualty incidents? How can government(s) help remove them?

What steps can the Federal Government take to remove barriers and/or provide tools to facilitate hospital preparedness?

Given the increasingly fragile status of hospital finances and the multiple competing demands for new initiatives, what financial incentives can the Federal Government provide to increase hospital readiness for mass casualties?

Appendix C

Resource and References

Invitational Forum on
Hospital Preparedness for Mass Casualties
March 8-9, 2000

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Appendix D

JCAHO Standards
Emergency Preparedness Management Plan

Standard

EC.1.6 A management plan addresses emergency preparedness.

Intent of EC.1.6

The emergency preparedness management plan describes how the organization will establish and maintain a program to ensure effective response to disasters* or emergencies affecting the environment of care. The plan provides processes for

a. implementing specific procedures in response to a variety of disasters;
b. defining and, when appropriate, integrating the organization's role with community-wide emergency preparedness efforts;
c. notifying external authorities of emergencies;
d. notifying personnel when emergency response measures are initiated;
e. assigning available personnel in emergencies to cover all necessary staff positions;
f. managing space, supplies, and security;
g. evacuating the facility when the environment cannot support adequate patient care and treatment;
h. establishing an alternative care site when the environment cannot support adequate patient care; and
i. managing patients during emergencies, including scheduling, modification, or discontinuation of services, control of patient information, and patient transportation.

The plan identifies

j. an alternative source of essential utilities;
k. a backup communication system in the event of failure during disasters and emergencies;
l. facilities for radioactive or chemical isolation and decontamination;
m. alternate roles and responsibilities of personnel during emergencies; and

The plan establishes

n. an orientation and education program for personnel who participate in implementing the emergency preparedness plan. Education addresses
    1. specific roles and responsibilities during emergencies,
    2. the information and skills required to perform duties during emergencies,
    3. the backup communication system used during disasters and emergencies, and
    4. how supplies and equipment are obtained during disasters or emergencies;

o. performance improvement standards that address one or more of the following
   1. Emergency preparedness knowledge and skills for staff;
   2. The level of staff participation in emergency preparedness management;
   3. Monitoring and inspection activities;
   4. Emergency and incident reporting procedures that specify when and to whom reports are communicated;
   5. Inspection, preventive maintenance, and testing of applicable equipment;
   6. Use of space;
   7. Replenishment of supplies; or
   8. Management of staff; and
p. how an annual evaluation of the emergency preparedness safety management plan's objectives, scope, performance, and effectiveness will occur.

Appendix E

JCAHO Standards
Security Management Plan

Standard

EC.1.4 Management plan addresses security.

Intent of EC.1.4
A security management plan describes how the organization will establish and maintain a security management program to protect staff, patients, and visitors from harm. The plan provides processes for

a. leadership's designation of personnel responsible for developing, implementing, and monitoring the security management plan;
b. addressing security issues concerning patients, visitors, personnel, and property;
c. reporting and investigating all security incidents involving patients, visitors, personnel, or property;
d. providing identification, as appropriate, for all patients, visitors, and staff;
e. controlling access to and egress from sensitive areas, as determined by the organization; and
f. providing vehicular access to urgent care areas.

In addition, the plan establishes

g. a security orientation and education program that addresses:
    1. processes for minimizing security risks for personnel in security sensitive areas;
    2. emergency procedures followed during security incidents; and
    3. processes for reporting security incidents involving patients, visitors, personnel, and property;
h. performance improvement standards that address one or more of the following
    1. staff security management knowledge and skill;
    2. the level of staff participation in security management activities;
    3. monitoring and inspection activities;
    4. emergency and incident reporting procedures that specify when and to whom reports are communicated; or
    5. inspection, preventive maintenance, and testing of security equipment; and
i. emergency security procedures that address
    1. actions taken in the event of a security incident or failure;
    2. handling of civil disturbances,
    3. handling of situations involving VIPs or the media, and
    4. provision of additional staff to control human and vehicle traffic in and around the environment of care during disasters; and
j. how an annual evaluation of the security management plan's objectives, scope, performance, and effectiveness will occur.

Appendix F

JCAHO Standards
Hazardous Materials and Waste Management Plan

Standard

EC. 1.5 A management plan addresses control of hazardous materials and waste."

Intent of EC.1.5
A hazardous materials and waste management plan describes how the organization will establish and
maintain a program to safely control hazardous materials and waste. The plan provides processes for

a. selecting, handling, storing, using, and disposing of hazardous materials and waste from receipt or generation through use or final disposal;
b. establishing written criteria consistent with applicable law and regulation, to identify, evaluate, and inventory hazardous materials and waste used or generated;
c. managing chemical waste, chemotherapeutic waste, radioactive waste, and regulated medical or infectious waste, including sharps;
d. monitoring and disposing of hazardous gases and vapors;
e. providing adequate and appropriate space and equipment for safe handling and storage of hazardous materials and waste; and
f. reporting and investigating all hazardous materials or waste spills, exposures, and other incidents.

In addition, the plan establishes

g. an orientation and education program for personnel who manage or have contact with hazardous materials and waste that addresses
    1. precautions for selecting, handling, storing, using, and disposing of hazardous materials and waste;
    2. emergency procedures for hazardous material and waste spills or exposure;
    3. health hazards of mishandling hazardous materials; and
    4. for all appropriate personnel, orientation and education about reporting procedures for hazardous materials and waste incidents, including spills or exposures;
h. performance improvement standards that address one or more of the following:
    1. Staff knowledge and skill necessary for their role in managing hazardous materials and waste;
    2. The expected level of staff participation in materials and waste management activities;

3. Monitoring, inspection, and corrective action;
4. Routine procedures for emergency and incident reporting that specify when and to whom reports are communicated; or
5. Inspection, preventive maintenance, and testing of applicable equipment;

i. emergency procedures describe the specific precautions, procedures, and protective equipment used during hazardous material and waste spills or exposures; and

j. how an annual evaluation of the hazardous materials and waste-management plan's objectives, scope, performance, and effectiveness will occur.

Reprinted with permission: Joint Commission: *Comprehensive Accreditation Manual for Hospitals.* Oakbrook Terrace, IL: Joint Commission on the Accreditation of Healthcare Organizations, January 1998.

Appendix G

JCAHO Standards
Emergency Preparedness Drills

Standard

EC.2.9 Drills are regularly conducted to test emergency preparedness.

Intent of E. C.2.9
The emergency preparedness plan is executed twice a year, either in response to an emergency or in planned drills. Organizations that offer emergency services or are designated as disaster receiving stations perform at least one exercise yearly that includes an influx of volunteer or simulated patients. Exercises are conducted at least four months apart and no more than eight months apart.

Reprinted with permission: Joint Commission: *Comprehensive Accreditation Manual for Hospitals.* Oakbrook Terrace, IL: Joint Commission on the Accreditation of Healthcare Organizations, January 1998.

Appendix H

Suggested Issues for
Hospital Mass Casualty Preparedness

To identify the potential issues and priorities for mass casualty preparedness, attendees brainstromed the following list of issues.

An adequate supply of food and water for staff, patient. and families in a time when normal supply patterns may be interrupted.

Management of a large number of fatalities, including awareness of and respect for religious customs.

Coordination of volunteers

Adequate, advanced staff education, including identification of who needs training, who provides training, who pays for training. Training must include recognition of the spectrum of causal agents and their respective treatments.

Setting priorities for high yield and low yield activities

Coordination of regional resources to assure that hospitals are not "double counting" the same contingency suppliers

Coordination of media relations. If not well done, media will detract from the need for focus. This will require coordination with others who will speak to the media also and education of media representatives before any event occurs.

Open and reliable communication across the community to enable monitoring of big picture.

Governing body appreciation of the need for a plan and of the importance of maintaining a connection to community.

A common, widely used nomenclature and definitions of "disasters" permitting communication across agencies, organizations, and communities.

Established logistics, especially patient and equipment transportation.

A staff augmentation plan, especially for a prolonged crisis.

Stockpiling of supplies so that they are readily available.

Mental health intervention at the incident and in follow-up and recovery.

Advanced, ethical guidelines and policies for triage of patients, supplies, and drugs. In the military, the triage concept is focused on making decisions to facilitate completing the mission. In the civilian community, triage has traditionally meant treating the most injured first. In a mass casualty incident, it may be necessary to use a triage approach more similar to the military's definition that the traditional civilian one. Moreover, depending upon the duration and pattern of the incident, the definition of triage may change over time.

A biological incident may initially manifest itself with vague symptoms. What is threshold for dissemination or sharing of early results? There must be a balance between early identification of incidents and not undermining public confidence with false positives.

How are hospitals going to have the resources to spend on preparedness when their current operational experience is declining revenue and increasing expense.

Need to establish an inventory successful practices. Hospital associations could inventory members. There is less legal resistance if inventory is of factual information rather than judgmental information.

Integration of support staff from non-traditional sources. For example, can nurses who work in physician offices be used to supplement hospital staff? Can technicians and technologists in "freestanding" clinical laboratories be used in the hospital laboratory?

Isolation of air handling systems so that airborne contaminants are not spread throughout the hospital or exhausted into the community.

Why should the hospital bear the costs of preparedness for events that originate outside its campus? If it is public policy to encourage hospitals to reduce costs and maximize productivity, why should CEO take long/large view? Should industries in a community that pose a mass casualty risk have to contribute to a fund to underwrite community preparedness, including hospital preparedness?

In a terrorist incident, the hospital is performing a government service. Should there be a public source of funds for both preparedness and implementation of a plan in response to terrorism?

Clear policies in the community and at the hospital of who is in charge. Ready access to the list of who is in charge. The list must include redundancy to provide coverage for vacation, business and personal travel, and other contingencies.

Recognition that a mass casualty event depends primarily on a local response.

Clear roles and coordination of the response triangle: fire, police, and medical services.

The development of large, geographically dispersed health systems has moved hospital governance and management outside of local communities. This makes it more difficult to obtain approval for disaster planning.

Space and facilities for handling a large volume of patient.

Identification of educational resources on the awareness of the several mass casualty threats.

The weak relationship between many hospitals and health departments.

The weak relationship between many hospitals and community health centers.

The needs for hospital leaders to look beyond their institution in order to develop and appropriate plan and allocation of resources. This may necessitate some anti-trust guidelines that provide "safe harbors" for collaborative actions across facilities in a community.

Communications with media, especially when information is incomplete on cause or response. Clear agreements on who will coordinate? Avoidance to the media's "divide and conquer" tactic. Community-wide agreement not to speculate when facts remain unknow.

Outbreak control

A plan for a backup strategy when hospitals are at capacity.

Coping with and addressing ethnic and religious customs for diets, death, and burial.

Funding for mass casualty preparedness, especially in financially vulnerable hospitals

Need a preparedness plan template for mass casualty plan to download and customize.

Fatalities resulting from the incident may be seen as "evidence" by the law enforcement community. This will result in religious and family conflicts.

Conflict in culture between health care organizations, law enforcement, and media organizations. Health care is based on the premise of open communications with the assumption of honest, if incomplete, information. Law

enforcement organizations often question every source and consider every action suspicious. The media seeks to probe and question. In this triangle of cultures, each party questions the behaviors of the other two.

The public sees terrorism as an "act of war" but doesn't want their health insurer to deny claims under a war exclusion provision.

Recognition that in a complex, sustained incident with mass casualties, there are multiple tiers of command-communications-control-computers-and intelligence (C4I in military terminology).

Management of fear, prejudice, and hatred among providers.

Need for real-time data to inform public and maintain their trust.

Temporary or "bridge" funding to make emergency purchases, especially when alternative vendors must be used.

Plan for tapping into wider network of professionals beyond the local community.

Sustaining competence in disaster skills. Hospital employee turnover in many communities ranges from 16-20% annually. What is the feasibility of rapid re-education of new staff?

Database for community and regional capacity of facilities, staff, supplies, local experts, etc.

Protecting the safety of staff. How do they get into facilities? Who get past crowd control?

CDC has a national pharmaceutical stockpile. What is the hospital role in distribution? Are there standing priorities determined in advance of any incident? How does a community recognize and define the "at risk" population? What will be the health rules for allocations of the stockpile versus the politics?

What can be learned from incidents like the 1999/2000 influenza experience?

What are the best strategies for information management of medical records, patient tracking, confidentiality, and cyberterrorism?

What if the hospital is site of event?

Cellular phone systems often have build-in but unknown priorities for access in overload situations. Will the hospital and health providers be given priority during a mass casualty incident?

Licensure of medical and nursing personnel is geographic. Need a system of emergency credentialing to allow personnel to cross-state lines in a mass casualty situation.

Plans for auxiliary treatment facilities

An inventory of laboratory preparedness which may be used during a mass casualty incident.

Wide communication of the effectiveness of biological prophylaxis

Vehicles for transportation. Need equipment and directions for out-of-town personnel who arrive to supplement local resources.

Facility protection from contamination and crowds.

Effective regional mutual aid across communities for supplies, equipment, and staff privileges.

Methods to locate loved ones

Decontamination facilities

Toolbox of options and costs so that every hospital and community doesn't have to "reinvent the wheel."

Positive relationships with media

Political policy to get plans implemented

Security and crowd control

Reasonable interpretations of regulations by OSHA and EPA

Addressing denial (i.e., it won't happen here) throughout the community.

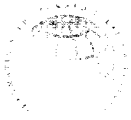
"Just-in-time" inventory systems limit ability to respond.

If facilities are regularly well maintained and serviced, they will be able to respond more readily to the atypical and instant demands of an incident. Physical plans staff must be included in any preparedness plan.

An inventory of non-health private industry that could support health care providers during an incident.

The identification of quarantine facilities available for use during a biological incident.

A contingency plan for an incident with no effective treatment.



Ataxia:*
The Chemical and Biological Terrorism Threat and the US Response

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and

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Report No. 35

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*__Ataxia__ *n* **1:** lack of order: CONFUSION
2: an inability to coordinate voluntary muscular movements that is symptomatic of some nervous disorders

Preface and Acknowledgments

Behind every major project, there are unsung heroes. In this instance, many of the behind-the-scenes stalwarts were those who have been real-life heroes in countless emergencies, the personnel on the front lines of public safety and health care in the United States. Others who played significant roles in shaping the content of this report were experts in matters pertaining to chemical and biological weapons, who reviewed segments of this manuscript, and who gave assistance by providing assorted facts and explanations for the text. Certainly not least in the category of unsung heroes would be the home team from the Henry L. Stimson Center.

Significant portions of the *Ataxia* text are grounded in interviews with police officers, firefighters, emergency managers and planners, emergency department physicians, registered nurses, and public health officials in over thirty cities, not to mention several state-level officials. Without their cooperation and insight, quite frankly, the final three chapters of this report would have been so much folderol. Some of these individuals literally spent hours with the author, explaining not only their regular jobs, but their assessments of the federal government's unconventional terrorism preparedness programs. These individuals also reviewed step-by-step their city's plans and capabilities to cope with this novel type of disaster. Although they are identified only by job title in the report, the author recalls with gratitude their dedication to their jobs, their patience with her, and their ingenuity and energy in tackling the terribly difficult problems that a chemical or biological terrorist attack would pose. Americans are indeed fortunate to have such heroes come to their rescue in times of trouble.

Another group of individuals who provided invaluable help with chapters 2 and 3 of this report are the numerous tutors that the author has had over the years in the technical intricacies of how chemical and biological agents are made and dispersed. These two chapters, written with an eye toward conveying the complexities of producing and disseminating these agents without crossing the line to reveal data that would assist terrorist activities in that regard, also benefitted from interviews with experts in the field, including Dr. Jeff Mohr, Chief of Life Sciences at Dugway Proving Ground. Other interviewees asked that the author not reveal their identities, but she thanks them and Dr. Mohr for sharing their expertise.

Chapters of this report were sent for outside review by nine individuals with expertise that ranges across the subjects addressed therein. The segments of chapter 2 that describe chemical and biological weapons production and use were reviewed by two experts in those fields. Similarly, two individuals evaluated the chapter on Aum Shinrikyo's chemical and biological weapons activities, Dr. Anthony Tu and Mr. Masaaki Sugishima of the Colorado State Department of Biochemistry and Molecular Biology and the Asahi University School of Law, respectively. Dr. Tu helped Japanese police crack the Matsumoto sarin gas attack case and also lent technical assistance in the aftermath of the Tokyo subway sarin attack, and Mr. Sugishima has extensively studied the cult's biological weapons program and the misperceptions about it. Two professionals with first-hand front-line knowledge, one a physician and another an emergency manager,

examined chapter 6 for accuracy and clarity. Also, Mr. John Parachini of the Monterey Institute's Washington office was one of several to see the concluding chapter in draft form and offer suggestions for the final version. Some of the reviewers were interviewed for the report, and a condition of those interviews was that the author not identify anyone by name. Anonymity does not diminish in the least the service that they provided by reading and commenting on the text.

Several branches of the US government cooperated with the research by providing information, and a number of federal staffers were interviewed along the way. Deserving of special mention in that regard are the Domestic Preparedness Program at the US Army's Soldier and Biological Chemical Command, the Federal Bureau of Investigation, the Office of Emergency Preparedness at the Health and Human Services Department, the Department of Veterans Affairs, the Centers for Disease Control and Prevention, the Office of Management and Budget, and the Office of Justice Programs at the Justice Department.

Outside of government, quite a few organizations and individuals amiably accommodated inquiries and requests from the project staff. For instance, Mr. Jason Pate and Ms. Lindsay DeFazio of the Center for Nonproliferation Studies at the Monterey Institute allowed the author to explore Monterey's database on terrorist activities with chemical and biological substances, which resulted in the analysis presented at the end of chapter 2. The author also wishes to thank Dr. William L. Waugh, Jr., for a couple of key conversations that helped her understand cycles, emerging trends, and funding in the field of emergency management. Dr. Waugh, a Professor in the Department of Public Administration and Urban Studies at Georgia State University, specializes in emergency management policies and decision making. In addition, Ms. Ellie Menser of the National Institute for Allergies and Infectious Diseases and Ms. Carol Adderly of the National Institutes of Health assisted by deciphering the infectious disease research budgets of their organizations. Mr. Phil Cogan of the US Chemical Health and Safety Board provided immensely helpful data on hazardous materials incidents in the United States, and Ms. Rose Cross and Ms. Doris Stowe of the Accreditation Council for Graduate Medical Education gave explanations of various topics related to medical education. Moreover, Ms. Heather Miller of the American College of Medical Toxicology helped with information on this particular area of medical specialization. Mr. Steven Foley of the National Fire Protection Association, who serves double duty as the co-chair of the InterAgency Board for Equipment Standardization and InterOperability, kindly explained a number of developments related to equipment and standards. Mr. Frank Simione of the American Type Culture Collection, Mr. David Smith of Genetic Resources Collection, CABI Bioscience, and Ms. Christine Rohde of Deutsche Sammlung von Mikro-organismen und Zellkulturen, GmbH, helped to decode the regulatory framework for culture collections. In addition, appreciation is due to Mr. Dean Samet of the Joint Commission on Accreditation of Healthcare Organizations and Ms. Tamatha Chapman of the International Association of Chiefs of Police for their assistance in with regulations and standards in the health care and law enforcement settings.

At the Stimson Center, Mr. Michael Krepon, president emeritus, and Ms. Cheryl Ramp, vice president, did double duty by not only reading portions of the manuscript but by providing guidance and encouragement over the lifetime of the project. Drawing from his background in journalism, senior associate Jesse James also stepped forward to help formulate plans for and execute the public release of the report. Also behind the scenes, Ms. Jane Dorsey, Ms. Caroline Earle, and Ms. Wendy Green deserve special credit for help with the report's look in its print, compact disc, and worldwide web forms.

The other members of the home team to whom the author is particularly indebted are co-author and research associate Ms. Leslie-Anne Levy and Ms. Claudine McCarthy, research associate. The former, who has been with the project since mid-1998, without complaint took on the tough chore of unraveling the federal government's serpentine programs and finances related to unconventional terrorism. The fruits of her labor can be found in chapter 4, but her fingerprints are all over the other chapters as well, particularly anywhere there are numbers. In addition to her incredible work ethic and irrepressible sense of humor, the author is eternally grateful that Ms. Levy has the mathematical skills that always seem to elude her. The newer member of the project team, Ms. McCarthy, flourished in the baptism by fire that constituted this report's final stages. Quite simply, she was indefatigable on the hunt for facts and admirably sharp in policing a manuscript of this length. Her suggestions on content and structure evidenced a mature touch for analytical research, and she was also no slouch in the humor department either. At the end of the day, the author could not have asked for better collaborators.

Finally, since January 1993, the Carnegie Corporation of New York has been a principal supporter of the Stimson Center's Chemical and Biological Weapons Nonproliferation Project. This research was conducted under the auspices of a Carnegie Corporation grant, with supplemental funding from Mrs. Peggy Spanel, who has also given grants to the project for several years running. The author is extremely grateful for this generous, recurrent support, which has enabled the project to tackle problems in the arena of chemical and biological weapons threat reduction that demand a considerable investment of time and resources.

A.E.S.
Washington, DC
25 October 2000

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List of Acronyms

BEEF	Base Engineering Emergency Force
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
CIA	Central Intelligence Agency
DMAT	Disaster Medical Assistance Team
DPP	Domestic Preparedness Program
EAR	Emergency alert receiver
ELISA	Enzyme-linked immunosorbent assay
EMS	Emergency medical services
EMT	Emergency medical technician
EPA	Environmental Protection Agency
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FRP	Federal Response Plan
GAO	General Accounting Office
hazmat	Hazardous materials
HHS	Health and Human Services
HMRU	Hazardous Materials Response Unit
ICU	Intensive care unit
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
MMRS	Metropolitan Medical Response System
NBC	Nuclear biological chemical
NDMS	National Disaster Medical System
NDPO	National Domestic Preparedness Office
NFPA	National Fire Protection Association
NIH	National Institutes for Health
NIAID	National Institute of Allergies and Infectious Diseases
OSHA	Occupational Safety and Health Administration
OMB	Office of Management and Budget
OTA	Office of Technology Assessment
PDD	Presidential Decision Directive
RAID	Rapid Assessment and Initial Detection
SBCCOM	Soldier and Biological Chemical Command
SCBA	Self-contained breathing apparatus
SWAT	Special weapons and tactics
USAMRIID	US Army Medical Research Institute of Infectious Diseases
USAMRICD	US Army Medical Research Institute for Chemical Defense
USC	US Code
VA	Veterans Administration
WHO	World Health Organization
WMD	Weapons of Mass Destruction

EXECUTIVE SUMMARY[1]

A crescendo of apprehension has been building in the United States ever since the Japanese cult Aum Shinrikyo upset the conventional wisdom that possession and use of mass destruction weapons was the province of governments alone. This sect's shocking 20 March 1995 subway attack was proclaimed the dawn of a new age "catastrophic" terrorism involving chemical, biological, and nuclear weapons. Before long, an array of US leaders went on record with dire "not if, but when" predictions that terrorists would harm large numbers of Americans using chemical and biological agents. This report calls that prediction into question and critically examines the US government's unconventional terrorism preparedness programs.

While the catastrophic terrorism premise is challenged with technical and historical analyses, the appraisal of the US government's programs comes from those on the front lines of public safety and health care in the United States who contend daily with emergencies small and large. Their pragmatism provides a sensible counterpoint to the hypothetical thinking that has taken the federal preparedness effort on costly, redundant detours and resulted in programs disconnected from the threat, each other, and the front line. Interviews conducted from January 1999 to September 2000 with police, firefighters, paramedics, emergency managers, health care personnel, and public health officials from over thirty cities in twenty-five states revealed that in contrast to Washington, those on the front line emphasize preparedness based on existing assets that are useful in multiple contingencies and structured for long-term maintenance.

Saturation coverage of scary, hypothetical, unconventional terrorism scenarios along with the ominous forecasts from Washington have taken their toll on the American psyche. According to a Council on Foreign Relations survey published in 1999, US citizens perceive international terrorism and chemical and biological weapons as the two most serious threats facing the United States. As the report's title indicates, there is confusion about the gravity of this threat and lack of order in the US government's response to it. Therefore, this report endeavors: 1) to put the threat into proper perspective, and 2) suggest ways the government might use taxpayers' dollars more wisely to enhance front-line preparedness.

Those seeking clarity about the nature of the unconventional terrorist threat or the labyrinth of federal agencies involved in unconventional terrorist programming can consult chapters 2, 3, and 4. Those in search of front-line insight into the federal government's unconventional terrorism training and equipment grant programs and the preparedness status typical of US cities that have received federal aid can turn to chapters 5 and 6. There, congressional, federal, and local officials can see where the front line is having difficulty with response capabilities so that the appropriate adjustments to federal and local efforts can be made to address the shortcomings. These two chapters contain novel ideas that some cities have employed

[1] For brevity's sake, footnotes are not employed in this summary. Statements of fact therein are thoroughly documented in the report.

to improve their plans, strategies, and capabilities, as well as a frank description of the significant trials facing on-scene rescuers and health care providers should this type of disaster befall a US city. Chapter 7 ties the text together and recommends the perpetuation of the domestic preparedness effort contingent on a return to its original focus—front-line preparedness.

In the years ahead, domestic preparedness must graduate to a program that puts as much emphasis on public health and hospital preparedness as on disaster scene rescue capabilities. A sign of maturity in the program would be its transformation from an inside-the-beltway justification for a spending carnival to preparedness standards and capabilities that are institutionalized and sustained over the long term. Readiness for large-scale chemical and biological events is necessary regardless of whether terrorists ever brew nerve agents again or master the microbe. Industrial chemicals are pervasive in modern society and pathogens can jump from continents overnight and resurface in more virulent or drug-resistant forms.

GROUNDING THE THREAT IN REALITY

For decades, the globe has been peppered with facilities full of the very materials and expertise from which poison gas and germ weapons can be made. Skyscrapers, sporting arenas, and subways have long been accessible terrorist targets. No amount of spending could alter those aspects of the threat in the past. The same is true of the present.

Should terrorists attempt to manufacture chemical warfare agents, the technical challenges are noteworthy, but not insurmountable. The task is not a snap, as Aum Shinrikyo discovered. By almost any standard, Aum was a terrorist nightmare—a cult flush with money and technical skills led by a con-man guru with an apocalyptic vision, an obsession with chemical and biological weaponry, and no qualms about killing. This dangerous combination left scars on Japan and by proxy on the rest of the world, but much of what has been written or said about the sect has embellished Aum's prowess with chemical and biological agents and the effects of its attacks with those agents. The sect's scientists located the agent formulas readily, but no chemistry book gave them detailed instructions about how to work with these exceedingly volatile materials. Aum's chemical program experienced several toxic production accidents, and the cult's attempts to disseminate poison gas often jeopardized the lives of cult members.

While it is theoretically true that a quart of nerve agent contains about a million lethal doses, the oft-discussed basement terrorist would labor roughly two years to make enough sarin to kill five hundred outdoors and another eighteen years to produce the *ton* of sarin required to kill ten thousand. No one disputes that bathtub manufacturing poses a threat to public safety, but this setting is incongruous with causing mass casualties. The indoor dispersal scenario also is not as easily executed as some have indicated. Terrorists could, however, take a shortcut to a genuine unconventional weapons capability by hiring scientists from national weapons programs. By the US government's *conservative* estimate, about 10,500 scientists from the former Soviet chemical and biowarfare program pose a critical proliferation risk. These scientists

are steeped in the finer points of chemical agent dispersal, have access to lethal disease strains, and carry in their heads the knowledge gained from decades of biowarfare research.

Without expert help, terrorists may be stymied by several barriers on the road to a mass casualty biological attack, which requires a deadly disease strain disseminated so that the microbes survive. Aum Shinrikyo could not even get past step one, failing to isolate a lethal strain of *Clostridium botulinum* from the more than 675 existing variants. As chapter 3 relates, though the sect is credited with producing and disseminating anthrax and botulinum toxin, the cult's bioweapons program was a serial flop from start to finish. Despite having aggressively recruited scientists, the results of Aum's chemical and biological weapons programs tend to disprove assertions that acquiring and spreading these agents is shake-'n-bake easy. Governments have found it necessary to employ hundreds, even thousands, of top-flight scientists to obtain a mass casualty unconventional weapons capability. Surveying the historical record for the last quarter of a century, no individual or group approached the replication of Aum's constellation of technical skill, intent, and resources directed toward a viable unconventional mass casualty threat.

The statistics charting terrorist behavior with chemical and biological substances from 1975 to mid-2000 show that by far the most frequent of terrorist activities domestically were non-credible hoaxes, which are a poor indicator of true terrorist intent to pursue such capabilities and use such weapons. As noted in chapter 2, the Center for Nonproliferation Studies database records 126 incidents worldwide where terrorists used chemical or biological substances during this time period, but a combined 45 percent of these cases involved either low-end materials (e.g., tear gas) or are attributed to Aum Shinrikyo. The largest death toll resulting from a single unconventional terrorist attack was nineteen, and in 96 percent of the cases, three or fewer people were injured or killed. No death or injury resulted in 60 percent of the cases where chemical or biological substances were used. These statistics jibe with the Federal Bureau of Investigation's description that recent use cases have involved domestic disputes or disgruntled workers wielding household or industrial chemicals with the intent to harm one or a few individuals (e.g., government officials), not to cause mass casualties.

Among the many possible lessons from the Aum experience is that the worst case scenario is not always what unfolds. Terrorists might look at Aum's troubles and see that acquiring and using these weapons is a hard rather than an easy proposition. Moreover, terrorists could well see the cult's attack, which resulted in a severe police clamp-down and domestic legal reform, as having backfired against Aum's near- and long-term objectives. In short, Aum has often been portrayed as a beacon for terrorists to follow, but it could be just the opposite. If the past is any predictor of the future, weapons of choice for terrorists will remain truck bombs and other conventional tools that are markedly less technically demanding, resource-intensive, and dangerous for the perpetrators.

THE VIEW FROM METROPOLIS, USA

Most local officials thought of Aum Shinrikyo as a terrorist aberration. Those who worried about a toxic terrorist attack thought first of the considerable harm that could be inflicted if terrorists sabotaged or stole chemicals from approximately 850,000 US facilities that work with hazardous or extremely hazardous substances. Still, most US cities did not undertake preparations of any significance until the arrival of the federal training and grant programs that Senators Sam Nunn (D–Georgia, ret.), Richard Lugar (R–Indiana), and Pete Domenici (R–New Mexico) launched after the Aum attack to help rescuers in the nation's 120 largest cities better cope with unconventional terrorism. Local officials report that this good idea was not implemented in a coherent or cost-effective manner.

While the front line applauded the decision to take programs directly to the cities, which averted siphoning of resources at the state level, the General Accounting Office criticized the approach for leaving rescuers in entire states and other densely populated areas without training. For their part, local officials soon deduced that the federal "partners" were busier competing with each other for missions and resources than they were coordinating their efforts. The equipment grant programs of the Defense, Heath and Human Services, and Justice Departments all had varying timelines and requirements, slightly different goals, and conflicting views on priorities regarding how to accomplish certain response tasks. Another byproduct of the lack of federal coordination was the creation of roughly ninety terrorism preparedness courses. Firefighters alone could get training from three federal agencies, headlined by the Army's Domestic Preparedness Program.

Some local rescuers characterized the Army's training as a good starting point, but others said the courses overflowed with material that rescuers were already required to know and short on the data that they needed to protect themselves and aid victims. By the time the courses were truly upgraded, over sixty cities had already received training. Local officials reported difficulties securing updated materials from the Army's contractors, who were also faulted for providing trainers who did not know the subject matter and executed the training and exercise programs in a manpower-intensive and therefore expensive fashion. After local officials stripped out redundant materials and added what was missing, the training spread fairly well among firefighters and ambulance crews. However, the police rank and file, 911 dispatchers, laboratory technicians, and health care providers did not make it into the classroom regularly.

Although laymen tend to think of chemical and biological weapons as similar, their use requires different response strategies and capabilities. Ask front-line officials what their challenges would be after a chemical terrorist attack and at a staccato pace they start ticking problems off on their fingers: absence of awareness and standard operating procedures in 911 call centers; insufficiently equipped and trained police who are therefore likely to rush into trouble; difficulty in decontaminating large numbers of casualties rapidly; lack of chemical antidotes, not to mention uncertainty among paramedics about how to administer them; far too few hospitals ready to handle a major onrush of panicked, possibly contaminated chemical casualties; deficiencies in communication systems likely to be overwhelmed and therefore contribute to a

confused response; and probable glitches if police were asked to organize and implement a large area evacuation on short notice.

To crown this list of worries, local officials predict that long after victims of a chemical attack had been transported to hospitals, they would be bombarded with incoming federal rescue teams that would joust with each other to find something useful to do when not ordering local rescuers about in their home city. These teams, which could not arrive in time to make a lifesaving difference, would create another disaster of sorts. The list of problems deviates slightly from city to city. Although they have made headway in some areas, even cities that have benefitted from the federal unconventional terrorism preparedness programs can identify gaps in their planning and capabilities to deal with a large-scale chemical terrorist event.

Although many cities have begun to overcome some of the hurdles of on-scene rescue, they had yet to spur meaningful or widespread preparedness at the hospitals. Some 60,500 accidents with hazardous materials occur nationwide annually, with over 2,550 resulting in casualties. Yet, US hospitals are not required to have a standing capacity to decontaminate a few, much less large numbers of, patients. Persistently high statistics document the closure of US hospitals from one or two contaminated patients, so hospitals are truly unprepared for a throng of chemical casualties. Consequently, in most cities surveyed hospitals plan to lock their doors after a chemical terrorist attack rather than risk compounding the problem by getting contaminated. Except for the 250 medical toxicologists in the country, the civilian medical ranks are terribly thin in chemical casualty expertise. Some emergency department personnel got a refresher course via the domestic preparedness training, but the remainder of the medical community is hardly braced to attend to chemical casualties. Finally, US hospitals, filled to near capacity on a daily basis, were often compelled to refuse patients during influenza seasons in the late 1990s. Medical professionals repeatedly estimated that at any given time there would be at most a dozen intensive care unit beds, burn beds, and ventilators available in any given city to facilitate the recovery of poison gas casualties.

In the aftermath of a covert bioterrorist attack, the first concern that weighs on the minds of local officials is that they would probably be unaware of the disaster until after a great deal of damage had been done. Since physicians have trouble making diagnoses from generic symptoms, most disease outbreaks are reported by the technicians in 158,000 state and local public health and private laboratories after they identify pathogens by analysis of cultures. However, the nation's disease surveillance capability has deteriorated significantly since its 1950s heyday. Few technicians have ever seen biowarfare microbes under their microscopes, and many may be unfamiliar with the special tests required to identify them. Significant delays could occur before the mystery disease was identified, which would hamper critical lifesaving intervention and efforts to prevent the spread of a communicable disease.

Next, local officials worry that their area health care system could well collapse under the intense pressure for medical care that a bioterrorist attack would generate. Medical manpower shortages would

materialize all too quickly, especially among the nursing ranks. Without missing a beat, local officials note that hospitals would rapidly run out of beds, drugs, and other support supplies. Then, they puzzle over the monumental logistics of providing preventative medical care for large populations within a crunched time period. Even in cities that have fashioned a plan to cope with a deluge of sick citizens, local officials describe a minefield of legal conflicts and logistical barriers in the way of swiftly quarantining a geographic area. None of the surveyed cities had made more than a dent on quarantine matters. As for outside help, local authorities are quite concerned that the federal government would be unable to deliver sufficient medical manpower fast enough to contain a disease outbreak.

When asked to rate their preparedness on a scale of one to ten before and after having received assistance via one or more of the federal programs, local officials said their readiness for a chemical attack improved from an average "before" rating of 3.1 to an "after" rating of 5.9. For bioterrorism readiness, the average "before" rating of 1.7 rose to an "after" rating of 4.1. While preparedness improvement was evident, local officials said they still had a long way to go.

EXPANDING, INSTITUTIONALIZING, AND SUSTAINING PREPAREDNESS

The time-tested, cost-effective approach to spread training geographically is institutionalization. If preparedness is truly to take hold nationwide and be sustained, then standards must be established and taught through the local and state training academies, as well as in the nursing and medical schools. A few cities have added a course in their responder academies, but a great many more indicated they had no plans to do so. Institutionalization would also bring with it an important feature lacking in existing training programs, namely the regular testing for professional knowledge and skills. Given the advantages of institutionalization, Washington would be well advised to get out of the training business and instead be the catalyst that prods the tangle of entities involved in institutionalization to articulate and promulgate standards. Otherwise, ineffective spending will continue at the federal and local levels and training without standards will be implemented unevenly. Standards and institutionalization of training would obviously be more effective.

The domestic preparedness program was structured as a cost-sharing arrangement, such that the federal government provided training and equipment while cities covered local costs. Local officials tended to put a very low priority on preparation for an unconventional terrorist attack, so it was often an uphill battle to get authorization for the overtime labor costs for training and the other expenditures inherent in the preparedness program (e.g., equipment maintenance). Since the federal programs did not include requirements to sustain training and other capabilities over the long term, local responders feared that city governments would gradually cut off supporting funds. Already, some cities reported that hard-won preparedness gains had begun to degrade. So, unless a long-term cost-sharing arrangement is created to sustain preparedness, both the local and federal investments to date could well evaporate.

City officials prefer that the federal government pick up the sustainment tab, and many in Washington would rather pronounce the 120 cities "prepared" than inaugurate an ongoing federal program. If anything, chapters 5 and 6 should shatter any impression that the 120 cities can be considered prepared. National and local leaders would be well advised to chart a forward fiscal course to solidify the preparedness gains, to fill in the remaining gaps in local capabilities, to enable continued exercises and equipment replacement and maintenance over the long term. In all fairness, local governments should pick up part of the bill because, as the saying goes, all emergencies are local. Moreover, the cities have already received significant federal aid that has helped to enhance local response for emergencies of all types. For its part, Washington should bear part of the burden because it has a vested interest in making sure that the front line remains as prepared as possible, lest the whole nation be paralyzed by a single local event or the copycat incidents that could follow.

The subject of add-on fees and taxes is universally unpopular, but many programs and capabilities that serve public safety and health are funded in this way. A cost-sharing arrangement could be built from any number of platforms, including ongoing federal domestic preparedness funding that incorporates measures and proof of progress, state and local disaster preparedness trust funds, and local user fees. Elected officials reluctant to consider such options need to recognize that between 1987 and 1996, a hazardous chemical incident of some severity took place in 95 percent of US counties. Also, if the hospitals are already buckling under the patient surges of an influenza season, it follows that capacity for a communicable disease outbreak of any significant proportion is grossly insufficient. Unconventional terrorism concerns aside, the public health and safety sectors must be buttressed if they are to handle the spiraling demands of modern emergencies (e.g., mass transport crashes). In other words, both local and national politicians should grit their teeth and fund disaster preparedness over the long term. Considerable leadership at the local, state, and national levels will be required, but the results would serve the entire country well in large-scale industrial accidents, natural outbreaks of infectious disease, weather disasters, and, yes, unconventional terrorist attacks.

A SOUND, LONG-TERM PRESCRIPTION FOR PUBLIC HEALTH

Preparedness funding has focused disproportionately on the on-scene sirens and rescue components of unconventional terrorism response. In 1999 and 2000, an estimated $148 and $222 million, respectively, from the unconventional terrorism preparedness budget was allocated to hospital preparations, the public health infrastructure, and biomedical research. Only about 6 percent of the unconventional terrorism budget was devoted to strengthening the public health infrastructure in 2000, but multiple public benefits will result because more laboratories can identify infrequently seen diseases and communications within the health care community will be improved. Escalation of research for new vaccines and antibiotics has been recommended consistently to reduce the biowarfare threat to US troops and citizens. Such research could also avert a looming global public health crisis that the nation's most esteemed scientists and public health watchdog organizations forecast could well plunge medicine back to a pre-antibiotic era. Development that encroaches

on various ecosystems is rousing new diseases, and physicians increasingly find their arsenal of medications powerless against old diseases resurfacing in antibiotic-resistant forms.

The combined National Institutes of Health infectious disease and bioterrorism medical research budgets total $1.08 billion. This appreciable chunk of money should be viewed, however, in the context that on average it costs $500 million to bring a *single* new drug online. At least nine and perhaps fifteen years can be required to take a drug from laboratory to market. No new classes of antibiotics have been introduced since the 1970s, and except for a handful of candidate biowarfare agent vaccines, no new drugs are in the developmental pipeline. Without corrective action, in the foreseeable future there will be no drugs that can fight common pneumonia and many other ailments. If that alone does not jar Washington's complacency about the microbial threat, then the frailty of modern medicine against this threat is evidenced by the fact that every year, roughly two million Americans acquire infections while in the hospital, and an estimated nineteen thousand die because these infections are resistant to drug therapies. These numbers reflect the steady march of infectious diseases up the chart of leading causes of death, with deaths from respiratory infections ranking sixth nationally in 1997 and 1998.

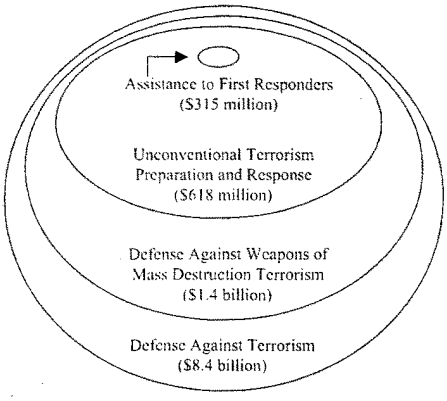
Even if a future disease calamity never arrives courtesy of terrorists, mankind is still in a race against time to develop new medications before the natural mutation of pathogens renders impotent all of those currently on the shelves. A creative, dedicated political and fiscal collaboration between government and the private sector of the kind that typified World War II mobilization partnerships must be forged to take laboratory discoveries from the National Institutes of Health and elsewhere through the process of clinical trials and licensing. Washington must also shed any illusion that this job can be done on the cheap. The amount needed to conduct pioneering research and bring industry to the table is probably well shy of the $22.5 billion that the Pentagon spent from 1942 to 1945 on the Manhattan Project, but far above the government's tepid investment to date. For the public good, someone in Washington must exercise leadership and have the guts to make a fiscal investment commensurate with what it takes to research, develop, and test new drug therapies.

SUBSTITUTING PREPAREDNESS FOR PORK

A series of expert studies and panels have labeled the federal preparedness programs a fractured mess and urged a national strategy to guide programs better. This counsel has fallen on deaf ears, for the executive branch continues to spawn duplicative programs, abetted by at least a dozen congressional committees that have authorized virtually any program with terrorism in the title. Throwing money at a problem is a costly substitute for effective government.

Had Washington taken full advantage of existing assets and stuck to its appropriate role of helping a stricken city recover over the mid- and long-terms, the front lines might be better prepared and spending priorities might not have strayed off course. As figure ES.1 shows, in 2000 roughly $315 million went to the front lines in the form of training, equipment grants, and planning assistance. That amount translates to 22 percent of funding related directly to weapons of mass destruction programs, or 3.7 percent of the overall $8.4 billion counterterrorism budget in 2000. Bluntly put, an absurdly small slice of the funding pie has made it beyond the beltway.

Figure ES.1: Breakdown of Overall Federal Budget to Combat Terrorism



Examples of questionable spending abound, including the profusion of specialized training facilities at the very time when Washington ought to be bowing out of the training business. When the Justice Department already has a first responder training facility at Ft. McClellan, Alabama, why is the National Guard building another in West Virginia to the tune of $60 million? In the late 1990s, the Marine Corps launched a 350-person team and the Guard began creating specialized response units despite the fact the Army, the Environmental Protection Agency, the Coast Guard, and the Army Reserve had sufficient long-standing assets to give cities whatever assistance they might need with unconventional bomb disposal, chemical warfare agent identification, decontamination, and remediation.

The overwhelming recommendation from the front lines—even from responders who are in the Guard—is that the National Guard teams should be abolished because they were an unworkable proposition from the outset. Local responders who have seen the Guard's supposedly multi-purpose technical resource squads in action rated them as bulldozing amateurs prone to embarrassing technical gaffes. As one local official said of them, "The good thing about those teams is that it takes them as long as it does to get here." Elected officials would better serve preparedness by disbanding the Guard teams and disbursing their equipment within the respective states to front-line units that actually know how to use this gear.

In fact, Washington should declare a moratorium on any new federal teams for unconventional terrorism response. Inside the beltway, the response to such criticism may be that these teams really do not cost much—just a few million dollars here and there. Such a rejoinder truly belies the fact that national policy makers have lost perspective on the program's stated purposes. A million dollars is serious money

on the front lines that can make a real preparedness difference. To illustrate the point, 2,333 hospitals or fire stations could be outfitted with decontamination capabilities for the cost of standing up one National Guard Civil Support team. If the total 1999 budget for these National Guard teams had been used thusly, 49,800 local facilities could have been armed for decontamination.

At the end of the day, front-line officials only ask that Washington take a coherent, pragmatic approach to unconventional terrorism preparedness, one that holds to a sensible division of labor and grounds a response in pre-existing local and federal capabilities that can be sustained cost-effectively regardless of whether a terrorist attack occurs. These heroes of everyday emergencies, many of whom have seen first-hand the misfortune of headline-making natural and manmade tragedies, are a candid lot. They know when pork is taking precedence over preparedness. So far, that is their assessment of the federal effort.

Among the report's other common sense recommendations to remedy various preparedness problems and reduce the threat of unconventional terrorism:

* To relieve the bottleneck of patients at hospitals after a chemical incident, cities and outlying towns should designate fire companies to perform decontamination chores at hospitals during emergencies and the Joint Commission on Accreditation of Healthcare Organizations should stiffen its hospital decontamination standards.

* To enable hospitals to manage a surge of infectious disease patients, the cost-effective interim option would have hospitals in all metropolitan communities jointly nail down plans for converting wards, even entire facilities to the care of such patients. More permanently, US hospitals would increase their isolation capacity.

* To hinder plots to sabotage industrial chemical plants, Washington should reverse a 4 August 2000 regulation that provides a road map to these sites on the Internet and in reading rooms throughout the country. Instead of foolhardily abdicating chemical industry watchdog duties to those who may not always have public safety in mind, policy makers and interest groups should consider augmenting professional regulatory staffs and expanding existing mechanisms for citizens concerned about environmental safety.

* To reduce the chances that terrorists might buy weapons expertise or materials, the US government should provide a hefty funding increase for the International Science and Technology Center and its sister organizations, which operate collaborative scientific grant programs that help former Soviet weaponeers find legitimate, peaceful employment.

* To stockpile drugs for possible chemical or biological agent casualties more cost-effectively, local pharmaceutical "bubbles" should be created with custodial hospitals that rotate these drugs so that expiration dates become immaterial and the Shelf Life Extension program should be employed. Also, guidelines should be drafted for chemical antidote purchases and the Public Health Service staff modestly increased to enable drugs to be procured in bulk, bringing economies of scale into play.

* To sharpen the ability to detect an infectious disease outbreak more rapidly than traditional laboratory analysis, the potential of the disease syndrome surveillance prototypes described in chapter 6 should be further explored and refined. Sound results that cue more intensive laboratory analysis, epidemiological investigation, and medical intervention as early as possible in a disease outbreak could point to the desirability of instituting syndrome surveillance tools nationwide.

* To prevent hospitals from collapsing during an infectious disease outbreak, cities should have workable plans to care for the unaffected and the mildly or moderately ill, including the establishment of field care centers where medical exams could be conducted, prophylactic drugs dispensed, and counseling provided, as appropriate. If a contagious disease were involved and person-to-person contact had to be kept to a minimum, fast food restaurants could be commandeered to administer drive-through prophylaxis.

* To test whether the federal government could fulfill its most important role after a manmade or a natural disease outbreak, a large-scale medical mobilization exercise should be held. A genuine and probably sobering measure of federal capabilities could be taken to inform federal and local plans and programs.

* To overcome the legal and logistic problems that all areas would face trying to enforce evacuation, isolation, or quarantine orders, a national conference should be convened. Thereafter, Congress should charter a multi-disciplinary expert commission to draft legislative proposals for the consideration of individual states and Congress.

* To enhance the domestic preparedness training, the program should include lessons learned from other cities' experiences, more likely scenarios (e.g., hoaxes), drills that realistically test hospital capabilities, and benchmarks for how deep into the front ranks the training should reach. Administrative costs should be trimmed by substituting as often as possible long-distance communications methods for contractor trips to the cities.

* To avert duplication of effort and greatly enhance the ability of medical personnel to attend to chemical and biological casualties, consensus pre-hospital and hospital medical protocols need to be completed.

Hospital Preparedness for Victims of Chemical or Biological Terrorism

LCDR Donald Clark Wetter, PA-C, MPH, USPHS, William Edward Daniell, MD, MPH, and Charles David Treser, MPH

ABSTRACT

Objectives. This study examined hospital preparedness for incidents involving chemical or biological weapons.

Methods. By using a questionnaire survey of 224 hospital emergency departments in 4 northwestern states, we examined administrative plans, training, physical resources, and representative medication inventories.

Results. Responses were received from 186 emergency departments (83%). Fewer than 20% of respondent hospitals had plans for biological or chemical weapons incidents. About half (45%) had an indoor or outdoor decontamination unit with isolated ventilation, shower, and water containment systems, but only 12% had 1 or more self-contained breathing apparatuses or supplied air-line respirators. Only 6% had the minimum recommended physical resources for a hypothetical sarin incident. Of the hospitals providing quantitative answers about medication inventories, 64% reported sufficient ciprofloxacin or doxycycline for 50 hypothetical anthrax victims, and only 29% reported sufficient atropine for 50 hypothetical sarin victims (none had enough pralidoxime).

Conclusions. Hospital emergency departments generally are not prepared in an organized fashion to treat victims of chemical or biological terrorism. The planned federal efforts to improve domestic preparedness will require substantial additional resources at the local level to be truly effective. (*Am J Public Health.* 2001;91:710–716)

There is growing concern about possible terrorist use of chemical or biological weapons against civilian populations. Although such incidents have occurred rarely to date, the need for concern is illustrated graphically by the sarin nerve gas attack in a Tokyo subway by the Aum Shinrikyo cult in 1995, causing 11 deaths and sending thousands of people to hospitals.[1,2] The United States is not immune from terrorist attacks within its borders, as evidenced by the bombings of the World Trade Center in New York and the Murrah Federal Building in Oklahoma and by a 1984 incident in Oregon, where members of a religious commune deliberately contaminated restaurant salad bars with *Salmonella typhimurium*, causing 751 cases of gastroenteritis.[3] One theoretical model predicted that a terrorist attack releasing *Bacillus anthracis* spores in prevailing winds toward the suburb of a major city could cause up to 50 000 cases of anthrax, with more than 32 000 deaths, in an exposed population of 100 000 people.[4]

The US government is taking seriously the need to prepare for terrorist attacks involving weapons of mass destruction. Presidential Decision Directive 39 in 1995 triggered actions among many national agencies.[5] Congress enacted the Defense Against Weapons of Mass Destruction Act of 1996, requiring development of a Domestic Preparedness Program, including efforts to improve the capabilities of local emergency response agencies.[5,6] The program developed training course materials for local responders, and it will train local responder-trainers in 120 cities by fiscal year 2001.[7]

True preparedness to reduce loss of life from an incident involving a biological or chemical weapon is critically dependent on the availability of resources at the local level.[8] Federal response teams and resources probably would not reach the scene of an unanticipated terrorist attack in time to substantially reduce mortality from a chemical weapon or until after a population exposed to a biological weapon had dispersed.[5] The Domestic Preparedness Program, however, has included no systematic efforts to integrate hospitals into response plans, and it has provided only limited funds to acquire resources for state and local responders and none for hospitals.[7,9]

A large proportion of hospitals probably are poorly prepared to handle victims of chemical or biological terrorism. Commonly, hospitals are not fully prepared to respond to massive casualty disasters of any kind, either in their capacity to care for large numbers of victims or in their ability to provide care in coordination with a regional or federal incident command structure.[10] Surveys of hospital emergency departments (EDs) have found broadly prevalent deficiencies in knowledge, plans, or resources for responding to hazardous materials or radiation incidents.[11–14] Even relatively small-scale hazardous materials incidents have overwhelmed the response capacities at some hospitals, producing symptoms in secondarily exposed ED staff or necessitating ED evacuations.[15–17] However, although the state of preparedness for hazardous materials incidents provides some indication of the level of preparedness for chemical weapons inci-

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Note. The opinions and findings in this article are those of the authors and should not be construed as official policies or positions of the US Public Health Service.

dents, the hazardous materials model may have limited applicability to the potential types and scale of problems associated with a chemical weapons incident, and it probably has little or no relevance for biological weapons incidents.[18]

In this context, an increasing number of authors writing in major journals have advocated the need for health care providers and hospitals to make specific plans for response to incidents involving chemical or biological weapons, and they have put forth principles and guidelines for such plans.[18–24] Other reviewers, however, have expressed concern that the magnitude of government support for domestic terrorism initiatives may be disproportionate to the probability of such incidents occurring, particularly compared with government support for initiatives to address existent public health problems that affect large segments of the population.[25] A substantial need for additional expenditures at the local level to ensure true preparedness for managing victims of terrorist incidents, particularly without the commitment of additional federal funds, could reduce the availability of limited state and local funds for other health care and public health problems.

There is a clear need for information about current hospital preparedness for terrorist attacks, to provide a foundation for systematic planning and broader discussion about relative costs, probable effectiveness, and overall societal priorities. To address this need, the present study examined existing administrative, physical, and medication resources at hospitals in 4 northwestern states for managing the victims of incidents involving chemical or biological weapons.

Methods

This study was a cross-sectional questionnaire survey of all hospital EDs in US Public Health Service Region X (Alaska, Idaho, Oregon, and Washington). A subsample of respondent hospitals was visited to verify selected questionnaire responses. Study procedures were approved in advance by the University of Washington Human Subjects Review Committee.

Questionnaire Survey

We used the American Hospital Association directory[26] to identify all hospitals in Region X for potential inclusion in the study. Pediatric, urgent care, psychiatric, and rehabilitation facilities were excluded. A self-administered questionnaire, cover letter, and postage-paid return envelope were mailed to 224 eligible hospitals, addressed to the "manager" of the ED. Surveys were mailed up to 3 times (in June–July 1998) if there was no response to initial mailings, with the third mailing addressed to a specific person identified by a telephone call to the hospital.

The questionnaire requested information about (1) hospital and ED demographics; (2) respondents' awareness and opinions; (3) planning, training, and drills within the last 24 months; (4) patient isolation and decontamination resources; (5) personal protective equipment; and (6) inventory of selected antidotes. Questions about hazardous materials incidents assessed readiness for presentations similar to those that would arise after a chemical weapons incident. The questionnaire asked whether the ED had (1) an indoor decontamination area (a) with or without ventilation isolated from the rest of the hospital and (b) including or adjoining a shower, with or without a separate water containment system; (2) portable outdoor decontamination equipment; or (3) other relevant resources. Atropine and pralidoxime were selected to represent antidotes for nerve agents and ciprofloxacin and doxycycline for anthrax and other biological agents.

Data Analysis

Data were examined for possible associations between selected preparedness variables and 3 primary independent variables: hospital location (rural or urban),[27] ED annual census, and proximity to the US Army chemical weapons depot in Umatilla, Ore. The ED annual census was categorized post hoc according to sample-distribution tertiles (low, <5000 visits/year; medium, 5000–15 000; high, >15 000). The low and medium census categories were combined for some analyses, because there were only 2 low-census urban hospitals. On the basis of the probable transport distance for patients immediately after an accidental chemical release and computer-generated plume estimates, proximity to the Umatilla depot was defined as 35 miles or less.[28] Responses of "aware" and "somewhat aware" were combined into 1 category. Comparisons used χ^2 or Fisher exact tests to assess statistical significance. Relative risks and Taylor series 95% confidence intervals were calculated with Epi Info.[29] All other analyses used SPSS for Windows.[30]

Preparedness for Hypothetical Incident

The analysis examined the preparedness of individual hospitals to initiate treatment in 2 hypothetical incidents involving 50 individuals exposed to either a chemical weapon (sarin) or a biological weapon (anthrax).

For the hypothetical sarin incident, medication preparedness was defined by the reported inventory of atropine and pralidoxime. Using the Tokyo incident as a model, we projected treatment to require 160 mg of atropine (2 mg each for 40 patients and 8 mg each for 10 patients) and 96 g of pralidoxime (2 g each for 48 patients).[31,32] The present study defined "minimum recommended" physical resource preparedness by the following criteria: (1) a hazardous materials or chemical weapons plan; (2) either (a) an ED indoor area with isolated ventilation and a shower with water containment ("integral decontamination unit") or (b) an outdoor portable decontamination unit; (3) at least 1 self-contained breathing apparatus or supplied air-line respirator; and (4) at least 1 chemical-protective garment. Less stringent definitions for "questionably effective" levels of physical resource preparedness included (1) access to a conventional shower in lieu of criteria 2a and 2b, given that wastewater containment may be a low priority in a mass casualty situation,[24] or (2) a chemical cartridge air-purifying respirator in lieu of criterion 3. A chemical cartridge respirator, particularly in combination with a high-efficiency particulate air filter, could provide protection against some chemical agents.[24]

For the hypothetical anthrax incident, medication preparedness was defined by the reported availability of ciprofloxacin or doxycycline sufficient to provide prophylaxis for 2 days, with the assumption that replacement stocks would become available thereafter.[33–35] The risks of secondary aerosolization and person-to-person transmission of anthrax are negligible[36,37]; therefore, scenario preparedness was defined only by having a biological weapons plan and the necessary antibiotic supply, without any requirement for specific physical resources.

Results

Survey Participants

Responses were received from 186 of 224 contacted hospitals (83%; Table 1). Most respondents were registered nurses (n = 162; 87%). The others were physicians (n = 10; 5%), physician assistants or nurse practitioners (n = 4; 2%), and other professionals (n = 9; 5%). The response rate was highest in Idaho and Washington (90% and 86%), lowest in Alaska (67%), and intermediate in Oregon (80%). The response rate was similar for rural hospitals (n = 114; 84%) and urban hospitals (n = 72; 81%).

Most respondent hospitals (61%) were in rural locations. There were proportionally

TABLE 1—Hospital Emergency Departments Participating in Survey of Hospital Preparedness for Incidents Involving Chemical or Biological Weapons

	Alaska	Idaho	Oregon	Washington	Total
No. of hospitals contacted	24	42	64	94	224
No. of hospitals responded	16	38	51	81	186
Hospital location[a]					
Rural, n (%)[b]	14 (87.5)	34 (89.5)	27 (52.9)	39 (48.1)	114 (61.3)
Urban, n (%)[b]	2 (12.5)	4 (10.5)	24 (47.1)	42 (51.9)	72 (38.7)
No. located ≤35 miles from US Army chemical depot[c]	0	0	2 (3.9)	3 (3.7)	5 (2.7)

[a]Urban = within a standard metropolitan statistical area; rural = all other locations.
[b]Values in parentheses represent percentages of respondent emergency departments in each state (total n = 186).
[c]Army chemical weapons depot at Umatilla, Ore.

more rural hospitals in Alaska and Idaho than in Oregon and Washington (Table 1). Overall, median ED size was 8 beds (range = 1–58) and median hospital size was 64.5 beds (range = 7–697).[28] Median ED census for 1997 was 10 900 patient visits (range = 739–80 000). Most urban hospitals (65%) reported more than 15 000 ED patient visits per year, whereas most rural hospitals (75%) reported fewer annual visits. Conversely, 42% of rural hospitals reported fewer than 5000 visits per year, but only 2 urban hospitals fell into this low-census category. Responses were received from 5 of 7 eligible hospitals located within 35 miles of the US Army chemical weapons depot at Umatilla, Ore (Table 1).

Respondent Awareness and Opinions

Slightly more than half of the respondents were aware (or slightly aware) of local or state preparedness plans, and about one third were aware of plans or resources at the national level (Table 2). Only 14% reported any familiarity with applicable federal legislation. In general, respondents from urban hospitals reported levels of awareness equal to or higher than those reported by respondents from rural hospitals, and respondents from larger urban hospitals reported the greatest awareness.

Nearly half of the respondents (48%; n = 90) answered yes to a final question asking whether "biological and/or chemical weapons are a real enough threat to your community that your hospital should make specific plans in preparation to treat victims of such weapons." The other respondents answered no (41%; n = 76) or gave no answer (11%; n = 20) to this question. Twenty-one cited location in a rural area as the reason for no concern. Sixteen cited concern because of proximity to a military facility and 3 because of closeness to militia groups.

Administrative Plans and Training

About 80% of the hospitals reported having a plan for response to hazardous materials incidents, whereas fewer than 20% had response plans for incidents involving biological or chemical weapons (each, $P < .001$; Table 2). Urban hospitals were 3 times as likely as rural hospitals to have response plans for incidents involving chemical weapons (relative risk [RR] = 3.4; 95% confidence interval [CI] = 1.7, 6.8) or biological weapons (RR = 3.4; 95% CI = 1.5, 8.0), with no significant difference relative to urban ED census.

The number of hospitals that reported training for response to incidents involving hazardous materials was less than the number reporting the existence of plans for such a response (Table 2). However, the opposite was seen for weapons incidents, where training was reported more often than hospital plans. Ten hospitals reported conducting 1 practice drill within the preceding 24 months for a chemical weapons incident, and 5 reported 2 or more drills. A smaller number of hospitals reported practice drills for response to a biological weapons incident (n = 5).

Isolation and Decontamination Resources

Only 21% of hospitals reported having an ED indoor area with isolated ventilation, shower, and water containment systems (indoor "integral decontamination unit"; Table 3). About a third of these same hospitals (14 of 39) additionally had outdoor portable decontamination units, and 45 other hospitals (24%) had an outdoor decontamination unit but less than a fully integral indoor unit. Another 27% of EDs at least had access to a conventional shower, without separate water containment, and in most cases without isolated ventilation (46 of 51). There were no isolation or decontamination resources of any type, fixed or portable, at 25% of the hospitals. Urban hospitals were more likely to have integrated indoor or portable decontamination units (urban, 58%; rural, 37%; RR = 1.7; 95% CI = 1.2, 2.5). Among urban hospitals, however, there was no significant difference between those with relatively busy and those with less busy EDs (RR = 1.1; 95% CI = 0.8, 1.6).

Personal Protective Equipment

Most hospitals reported having no respiratory protective equipment that would be appropriate against chemical agents (Table 4). Only 23 (12%) reported at least 1 self-contained breathing apparatus (2–4 per hospital) or at least 1 air-line respirator (1–6 per hospital), or both. Nine of these hospitals also had at least 1 chemical cartridge mask. Another 20 hospitals (11%) had only chemical cartridge masks. Of all hospitals with chemical cartridge masks, most had only 1 or 2 masks (48%). Urban hospitals were more likely than rural hospitals to report having any such form of respiratory protective equipment (urban, 40%; rural, 14%; RR = 2.9; 95% CI = 1.9, 9.0). The availability of chemical-protective garments had a similar distribution. In addition to the limited available self-contained breathing apparatus and air-line respirators, most hospitals had respiratory-protective equipment that would provide at least partial protection against biological agents and particulate chemical agents, including high-efficiency particulate air masks and surgical masks.

Preparedness for Hypothetical Incident

Eighty percent of respondents provided quantitative information about hospital medication inventories ("central pharmacy and emergency department" supply). The remainder gave only qualitative or no information. Of respondents with quantitative answers, 29% (41 of 143) reported an atropine supply sufficient to treat 50 patients in the hypothetical sarin incident (see "Methods" section), although another 22% (n = 32) reported at least half the necessary amount. The median reported amount of atropine was 103 mg at urban hospitals and 60 mg at rural hospitals. Urban hospitals were almost twice as likely as rural

TABLE 2—Respondent Awareness of and Hospital Administrative Preparedness for Terrorist Incidents Involving Chemical or Biological Weapons

	Hospital Location,[a] No. (%)			Urban Hospitals,[b] No. (%)	
	Total No. (%) (n = 186)	Rural (n = 114)	Urban (n = 72)	≤15000 Visits/Year (n = 22)	>15000 Visits/Year (n = 47)
Respondent aware or somewhat aware of:					
ATSDR resources	70 (37.6)	38 (33.3)	32 (44.4)	8 (36.4)	24 (51.1)
Nunn-Lugar-Domenici legislation	26 (14.0)	16 (14.0)	10 (13.9)	1 (4.5)	8 (17.0)
National domestic preparedness plans	62 (33.3)	28 (24.6)	34 (47.2)**	7 (31.8)	25 (53.2)
Local or state plans	107 (57.5)	54 (47.4)	53 (73.6)***	11 (50.0)	39 (83.0)**
Hospital has plan for incidents involving:					
Hazardous materials	149 (80.1)	85 (74.6)	64 (88.9)*	18 (81.8)	43 (91.5)
Chemical weapons	31 (16.7)	10 (8.8)	21 (29.2)**	5 (22.7)	15 (31.9)
Biological weapons	22 (11.8)	7 (6.1)	15 (20.8)*	4 (18.2)	11 (23.4)
Hospital offers training for incidents involving:					
Hazardous materials	116 (62.4)	64 (56.1)	52 (72.2)*	13 (59.1)	36 (76.6)
Chemical weapons	43 (23.1)	12 (10.5)	31 (43.1)***	4 (18.2)	24 (51.1)*
Biological weapons	36 (19.4)	9 (7.9)	27 (37.5)***	3 (13.6)	22 (46.8)*

Note. ATSDR = Agency for Toxic Substances and Disease Registry; Nunn-Lugar-Domenici legislation = Defense Against Weapons of Mass Destruction Act of 1996 (US Public Law 104-201, September 23, 1996).[6]

[a]Urban = within a metropolitan statistical area; rural = all other locations. Hospitals can have more than 1 resource; therefore, column totals can exceed 186.

[b]Emergency department census data were not available for 3 urban hospitals.

*$P < .05$; **$P < .005$; ***$P < .001$ for statistical significance (χ^2 test) of rural–urban comparisons and urban low–high visits per year.

TABLE 3—Hospital Emergency Department (ED) Resources for Patient Isolation and Decontamination Against Chemical or Biological Agents

	Hospital Location, No. (%)			Urban Hospitals, No. (%)	
Resource, n (%)	Total No. (%) (n = 186)	Rural (n = 114)	Urban (n = 72)	≤15000 Visits/Year (n = 22)	>15000 Visits/Year (n = 47)
Integral decontamination unit[a]					
Indoor ED unit, plus outdoor portable unit	14 (7.5)	6 (5.3)	8 (11.1)	2 (9.1)	6 (12.8)
Indoor ED unit only	25 (13.4)	13 (11.4)	12 (16.7)	1 (4.5)	9 (19.1)
Outdoor portable unit, plus:					
ED area with isolated ventilation (but no shower)	6 (3.2)	5 (4.4)	1 (1.4)	1 (4.5)	0
ED with no isolated ventilation (plus conventional shower; n = 6)[b]	39 (21.0)	18 (15.8)	21 (29.2)	7 (31.8)	13 (27.7)
No integral decontamination unit, but ED area has:					
Access to conventional shower, plus isolated ventilation system	5 (2.7)	1 (0.9)	4 (5.6)	0	4 (14.9)
Access to conventional shower (no isolated ventilation system)	46 (24.7)	30 (26.3)	16 (22.2)	7 (31.8)	9 (19.1)
Isolated ventilation system (no access to conventional shower)	5 (2.7)	2 (1.8)	3 (4.2)	0	3 (6.4)
None of the listed resources	46 (24.7)	39 (34.2)	7 (9.7)	4 (18.2)	3 (6.4)

Note. Urban = within a metropolitan statistical area; rural = all other locations. Hospitals can have more than 1 resource; therefore, column totals can exceed 186. ED census data were not available for 3 urban hospitals. Urban hospitals were more likely to have integrated indoor or portable decontamination units (relative risk [RR] = 1.7; 95% confidence interval [CI] = 1.2, 2.5). Among urban hospitals, there was no significant difference at busier EDs (RR = 1.1; 95% CI = 0.8, 1.6).

[a]Integral decontamination unit = specific indoor area that includes a shower with water containment and a ventilation system isolated from other portions of the hospital, or a portable outdoor decontamination unit.

[b]Some EDs had access to a "conventional" shower (i.e., without water containment or isolated ventilation).

hospitals to have sufficient atropine supplies for the hypothetical incident (RR = 1.8; 95% CI = 1.0, 5.2). Respondents at 87 hospitals (61% of 143) reported having no available pralidoxime, and the remainder reported having no more than one quarter of the hypothesized necessary amount of pralidoxime.

Only 12 hospitals (6.5% of 186) met the study definition for "minimum recommended" physical resource preparedness for an incident involving victims of sarin. An additional 4 to 17 hospitals had "questionably effective" levels of physical resource preparedness; they either lacked water containment and isolated ventilation for an available shower (n = 4), had only chemical cartridge respirators (n = 12), or both (n = 1). Only 10 hospitals had the minimum recommended physical resources plus a reported atropine inventory sufficient for the 50 hypothetical sarin victims, while none had the necessary pralidoxime inventory.

TABLE 4—Resources for Protecting Hospital Staff Against Chemical or Biological Agents

	Hospital Location, No. (%)			Urban Hospitals, No. (%)	
	Total No. (%) (n = 186)	Rural (n = 114)	Urban (n = 72)	≤15000 Visits/Year (n = 22)	>15000 Visits/Year (n = 47)
Self-contained breathing apparatus	17 (9.1)	5 (4.4)	12 (16.7)**	2 (9.1)	10 (21.3)
Supplied air-line respirator	8 (4.3)	3 (2.6)	5 (6.9)	0	5 (10.6)
Chemical cartridge respirator (any type)	29 (15.6)	11 (9.6)	18 (25.0)**	3 (13.6)	14 (29.8)
HEPA mask[a]	161 (86.6)	100 (87.7)	61 (854.7)	21 (95.5)	37 (78.7)
Surgical mask	171 (91.9)	105 (92.1)	66 (93.0)	20 (90.9)	43 (91.5)
Chemical protective garment	68 (36.6)	27 (23.7)	41 (56.9)*	9 (40.9)	29 (61.7)

Note. Urban = within a metropolitan statistical area; rural = all other locations. Hospitals can have more than 1 resource; therefore, column totals can exceed 186. Emergency department census data were not available for 3 urban hospitals.
*$P < .001$; **$P < .005$ for comparison of statistical significance of rural–urban and urban low–high visits per year (χ^2 test).
[a]High-efficiency particulate air mask.

Half of the respondents with quantitative answers about antibiotic inventories (96 of 149; 64%) described having enough ciprofloxacin and doxycycline to provide 2 days of prophylaxis for the 50 hypothetical anthrax-exposed individuals, and another 21% (n = 31) described inventories representing at least half the necessary amount. Urban hospitals were slightly more likely than rural hospitals to report sufficient antibiotic supplies (RR = 1.3; 95% CI = 1.0, 5.2). Only 9% of hospitals (14 of 149) had a sufficient reported antibiotic inventory and a written plan for managing victims of biological weapons incidents.

Hospitals Near Chemical Weapons Depot

The 5 responding hospitals within 35 miles of the Umatilla chemical weapons depot were significantly more likely than distant hospitals to have a chemical weapons response plan (4 of 5; RR = 5.4; 95% CI = 3.1, 9.4) and to have arranged chemical weapons response training (4 of 5; RR = 3.7; 95% CI = 2.2, 6.2). Biological weapons plans and training, however, were no more prevalent (1 of 5 and 0 of 5, respectively). Hospitals near Umatilla were no more likely to have an indoor or outdoor decontamination unit (3 of 5), and none of the 5 reported having a self-contained breathing apparatus, air-line respirator, or chemical cartridge respirator. Reported medication inventories were similar to those of other hospitals, except that there was a slightly higher presence of sufficient atropine for the hypothetical sarin incident (3 of 5; $P = .14$).

Discussion

The findings of this survey, while not surprising, are nonetheless disturbing: they indicate that hospital EDs generally are not prepared in an organized fashion to treat victims of incidents involving chemical or biological weapons. Levels of preparedness were relatively low in all areas examined—awareness, plans and training, physical resources, and medication inventories. In general, urban hospitals were better prepared than rural hospitals, and urban hospitals with busier EDs tended to be better prepared than hospitals with EDs serving smaller populations. Very few hospitals, however, fully met the conservative criteria used in this study to assess preparedness for hypothetical incidents involving 50 individuals exposed to sarin or anthrax.

Few of the hospitals had developed plans and arranged training for response to a possible incident involving chemical or biological weapons. Most surveyed hospitals did have plans and training for response to a community or hospital hazardous materials incident, and it is conceivable that those plans could provide a foundation for the eventual development of plans for response to incidents involving chemical or biological weapons. However, this survey demonstrated less than complete administrative and physical preparedness for hazardous materials incidents, in spite of existing guidelines and regulations,[38,39] calling into question the utility of such preparedness as a foundation for more extensive planning or action. Respondents may have underreported preparedness, but the findings are comparable to those in other surveys of preparedness for hazardous materials incidents in Philadelphia and Washington State.[13,14]

The ability to expand local or regional planning will be constrained by the availability and capacity of existing hospital resources for isolating and decontaminating victims of a chemical weapons incident and for protecting hospital personnel and other patients. Half of the surveyed hospitals had an integral decontamination unit in the ED, a portable outdoor decontamination unit, or both. However, the other hospitals had only a conventional shower or no shower near the ED, and the survey could not assess the patient capacity of resources at the better-prepared hospitals. It is foreseeable that even the better-prepared hospitals could be overwhelmed by the potentially large number of victims in a chemical weapons incident. In the Tokyo sarin incident, one private 520-bed hospital received 640 victims in 1 day, most of whom bypassed prehospital responders and arrived without undergoing decontamination.[1,2,31] A substantial number of care providers experienced symptoms or signs of secondary exposure.[2,40]

Most surveyed hospitals did not have appropriate types and sufficient numbers of respiratory protective equipment for ED staff. These observations echo the findings of a 1989 study of 45 hospital emergency departments in California.[41] Two thirds reported having personal protective equipment; however, few knew where it was, and only 2 had equipment actually located in their department.

In addition to the 12 hospitals that met minimum recommended criteria for physical resource preparedness in the present study, another 12 hospitals "questionably" met these criteria in that they lacked self-contained breathing apparatuses or supplied-air respirators but did have chemical cartridge respirators. A well-fitting respirator with an organic vapor or high-efficiency particulate air cartridge could provide a meaningful level of protection against some chemical agents, and it might be better than using no respiratory protection in a crisis situation.[24] This study did not characterize the types of available cartridges.

The surveyed hospitals were universally unprepared to provide pralidoxime to a group of 50 victims in a hypothetical sarin incident,

and only 29% had sufficient atropine. These findings mirror those of another study of antidote supplies in Colorado, Montana, and Nevada: 62% of 137 hospital pharmacies did not have adequate pralidoxime to provide the necessary 2-g dose for even 1 70-kg individual poisoned by an organophosphate insecticide, which causes the same symptoms and pathophysiology as sarin or VX nerve agent.[42]

The surveyed hospitals generally were more prepared to initiate treatment for exposures to anthrax, which is not surprising given that the necessary antibiotics are commonly used in usual clinical practice. However, particularly in the absence of a prearranged plan, the antibiotic inventories might be exhausted more rapidly than indicated by the hypothetical scenario. Considering other possible antibiotic sources, it is unlikely that in-hospital inventories of appropriate intravenous antibiotics would substantially expand the capacity to initiate broad-scale treatment. It is also unlikely that antibiotics from possible nonhospital sources could be distributed to hospitals in a coordinated manner without a prearranged plan.

Not surprisingly, hospitals close to the Umatilla chemical weapons depot were more likely than other hospitals to have plans for responding to incidents involving chemical weapons. These survey responses may not have included military antidote kits or protective equipment stockpiled near the hospitals, and they may underrepresent the true level of preparedness. However, the availability of isolation areas, decontamination facilities, and identified personal protective resources was comparable to that of other hospitals. This is particularly noteworthy, because more than $33 million has been allocated to prepare for chemical emergencies in this region.[43]

These study findings are based entirely on a self-administered questionnaire survey, which carries inherent risks of reporting error or bias. The respondents were ED professionals, who should be sufficiently informed, or who should have ready access to the necessary information, to answer the survey questions. However, some questions, such as those about medication inventories, required effort to answer accurately. The quality of effort-dependent responses could have been adversely affected by the frequently expressed opinion of respondents that biological and chemical weapons do not present a real threat to their community. Some respondents may have portrayed their institution in an overly positive manner, especially given that many administrative actions and physical resources covered by the survey are required under existing regulations pertaining to chemical hazards.

Conclusions

The current state of hospital preparedness in these 4 northwestern states for managing victims of chemical and biological terrorism is generally not adequate to support the present strategy of the Domestic Preparedness Program. Although efforts to improve national preparedness—such as the Centers for Disease Control and Prevention National Pharmaceutical Stockpile Program, which establishes a medication and resource cache for terrorist incidents[44]—are under way, there is still a tremendous gap between federal efforts and the current state of preparedness at the level of individual hospitals. A broadly focused plan to establish effective local preparedness could require huge expenditures on a national scale, yet it could be undermined by the lack of clear consensus at the hospital level supporting the need for such preparedness. A more narrowly focused national plan for local preparedness might develop and maintain locally centralized caches of immediately deployable resources, and it might concentrate on preparedness at a small number of designated hospitals in each community or only in urban centers or communities judged to be at relatively higher risk. Such a focused plan, however, could still entail considerable cost while achieving only limited capacity to reduce morbidity and mortality from a chemical or biological terrorist attack.

A clear need exists for the planners of the Domestic Preparedness Program to confront the large deficiencies in local preparedness and the possible ineffectiveness of a program that is critically dependent on such preparedness. A need also exists for expanded public discussion of the feasible options for national and local preparedness—including projected costs and probability of effectiveness—and funding mechanisms that do not compromise financial support for other important health care and public health efforts. □

Contributors

D.C. Wetter planned the study and was responsible for data collection, data analysis, and manuscript preparation. W.E. Daniell supervised data analysis and manuscript preparation. C.D. Treser participated in data interpretation and manuscript preparation. All authors assisted with the study design, including questionnaire development.

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Bioterrorism: An Even More Devastating Threat

By Rick Weiss
Washington Post Staff Writer

It would require just a small private plane, not a hijacked commercial jetliner. A helper could casually dump a bag of powdery bacterial spores while in flight, rather than having to overpower a planeload of passengers. And the team could land and be home in time for dinner instead of crafting it off in a suicidal inferno.

It's called bioterrorism, and experts say it would be a lot easier to conduct and is more likely to occur in the next few years than a replay of last week's terrorist tragedies. A small cloud of bacteria or viruses could easily and silently infect tens of thousands of people, triggering fatal outbreaks of anthrax, smallpox, pneumonic plague or any of a dozen other deadly diseases. And victims infected with contagious ailments could pass the microbes to thousands of others before doctors even figured out what was going on.

Moreover, bioterrorism could foment political instability, given the panic that fast-moving plagues have historically engendered.

"The events in New York and Washington were tragedies beyond what anyone had previously imagined, but the potential of biological terrorism is far greater in terms of loss of life and disruption," said Michael Osterholm, director of the University of Minnesota's Center for Infectious Disease Research and Policy. "It would be less graphic—no flames and explosions—but much more insidious. Anyone with a cough would be a weapon."

In many respects the nation is less prepared for bioterrorism than it is for conventional acts of terrorism. An October 1999 General Accounting Office (GAO) report documented major gaps in the nation's system for protecting itself against biological attacks. Inspectors found shortages of vaccines and medicines, stockrooms filled with expired drugs, and lax security measures where crucial drugs were stored.

A January 2001 report by the Centers for Disease Control and Prevention (CDC) in Atlanta concluded that the nation's public health infrastructure is "not adequate to detect and respond to a bioterrorist event." And a March 2001 GAO report noted that 20 percent of the nation's pharmaceutical and medical supplies held by the federal Office of Emergency Preparedness for a bioterrorist attack were stored in a vault whose temperature was 95 degrees and that had no air-conditioning. The medicines' potency could be assured only if kept cooler than 85 degrees.

Some improvements have been implemented since then. Still, the nation and the world are largely unprepared to fight major outbreaks of deadly diseases like plague, said Norman Cantor, an emeritus professor at New York University and a plague scholar.

"It would be some improvement over the Middle Ages, but not all that great an improvement," he said.

Bioterrorism is not new. Fourteenth-century barbarians tossed plague-infected corpses over the walls of fortified cities to spread the deadly infection among their enemies. In 1763, the English at Fort Pitt, Pa., gave smallpox-ridden blankets to Indians who had been loyal to the French. And, as recently as the mid-1990s, U.N. weapons inspectors discovered that Iraq had stockpiled warheads containing anthrax spores and the toxin that causes botulism.

Russian scientists have revealed that the former Soviet Union produced large volumes of weapons-grade anthrax spores. And Aum Shinrikyo, the Japanese religious cult that released sarin nerve gas in the Tokyo subway system in 1995, made several tentative efforts to release biological agents. Members even went to Zaire to learn more about the deadly ebola virus.

An international biological weapons convention signed by 143 nations has outlawed the development, production and stockpiling of biological weapons since 1975, but the absence of any formal verification regime to monitor compliance has limited the effectiveness of the convention, according to the United Nations. In any case, terrorists don't play by the rules. And at least five countries known to sponsor international terrorism have acquired the capacity to produce biological weapons, according to U.S. Army experts.

Despite these capabilities, U.S. preparedness has lagged, in part because bioterrorism has been deemed so unlikely. "Who would do such a thing?" skeptics asked. Last week's attacks in New York and Washington seriously undermined such rational assurances.

Biological attacks can be far more difficult to respond to than conventional terrorist attacks. For one thing, they are covert rather than overt; for days, no one would know that one had occurred. That's a huge problem for a disease like anthrax. Up to 80 percent of people infected by inhaled spores die within days if untreated. By the time symptoms appear—fever, rash and congested lungs—it's generally too late.

Another problem is that the first-line defenders against a biological attack would not be police and fire officials, who are especially trained for public safety emergencies. They would be local doctors and hospital staffers, most of whom have received little training in the art and science of being able to recognize and respond to unusual outbreaks quickly.

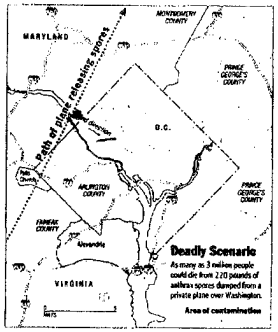
And contagious diseases—unlike explosives—keep spreading long after an initial attack. Smallpox, for example, is easily spread by coughing and sneezing. The disease was declared eradicated in 1980, but vials of the virus were saved and the whereabouts of some are uncertain. Vaccination no longer occurs, leaving an entire generation susceptible to attack. And few doses of the old vaccine remain in storage.

In a federal exercise three months ago, 24 simulated cases of smallpox were "discovered" in U.S. hospitals as part of an assessment of U.S. bioterrorism preparedness. Less than two weeks after those cases popped up, computer models indicated that—if the exercise had been real—15,000 people would have contracted the disease and 1,000 would have died. The "epidemic" was still raging when the exercise ended and, the computer models predicted, rioting and looting would have broken out as vaccine supplies ran out.

"This would crippie the United States if it were to occur," a former defense department official testified to Congress after the exercise.

A Clinton administration bioterrorism initiative, administered jointly by the CDC and the National Institutes of Health, is speeding development of protective technologies, including portable DNA diagnostic devices that may someday help identify mystery microbes raining from the sky. But the initiative's $300 million budget is a fraction of what will be needed to protect the nation in years to come, Osterholm and others said.

Meanwhile, just in case, the CDC has contracted with two biotech companies to make and stockpile 40 million doses of smallpox vaccine. The first batches that could be used by civilians are expected to be ready in 2004.



SOURCES: Office of Technology Assessment, American Biological Institute, Center for Disease Control and Prevention

Sowing a Silent Massacre

Easier to obtain than nuclear devices, but still with deadly potential, pathogens used as weapons pose a significant threat to heavily populated areas.

Anthrax

A cloud of anthrax spores inhaled by a city's inhabitants would create widespread, severe flu-like symptoms killing 80 percent of those infected within one or two days after their symptoms appear.

Once spores enter the lungs, anthrax bacteria require two to 43 days to incubate.

In the event of a bioterrorist attack, vaccinations and antibiotics would be essential. However, current supplies of vaccine are very limited.

Anthrax vaccine

Smallpox

The world has been free of smallpox cases since 1978, but some strains are maintained in laboratories. The former Soviet Union reportedly stockpiled large amounts of the virus for use in weapons.

Vaccinations in the United States ceased 25 years ago. People vaccinated years ago are likely to have diminished immunity.

An aerosol release of smallpox infecting only 50 people could unleash an epidemic killing 30 percent of those infected with the painful, disfiguring disease.

The United States has limited stores of vaccine.

Smallpox wiped out many Native Americans during colonization.

Plague

If 110 pounds of an aerosol of Black Death bacteria were released over a city of 5 million, about 150,000 people would contract the disease. More than 35,000 of those would probably die.

One to six days after exposure, victims would begin to show symptoms of severe respiratory and gastrointestinal problems.

The Soviet Union produced massive quantities of the germ for weapons use.

Treatment with antibiotics would be effective during early stages of the infection.

The plague killed a third of Europe's population in the 14th and 15th centuries.

STATEMENT FOR THE RECORD

of

THE COMMISSIONED OFFICERS ASSOCIATION of the U.S. PUBLIC HEALTH SERVICE

on

A Review of Federal Bioterrorism Preparedness Programs from a Public Health Perspective

Presented to the

HOUSE COMMITTEE ON ENERGY AND COMMERCE

Subcommittee on Oversight and Investigations

Submitted by:

Michael W. Lord
Executive Director
Commissioned Officers Association
of the U.S. Public Health Service

Introduction

The Commissioned Officers Association (COA) of the U.S. Public Health Service appreciates the interest of this Subcommittee in the very important issue of the Federal Bioterrorism Preparedness Programs from a Public Health Perspective. We are pleased that this Subcommittee recognizes the vulnerability of the nation to acts of bioterrorism by fringe groups and rogue nations, and is willing to take a leadership role in seeing to it that the various governmental agencies (local, state and federal) are asking the necessary questions and taking the necessary steps to ensure the nation is prepared if the unthinkable should occur.

COA believes the threat of bioterrorism is a serious one, and the Federal Government must have a clear, coherent and coordinated plan to deal with potential incidents that could impact upon the safety and health of large numbers of Americans. COA also strongly supports the enhancement of the Nation's public health infrastructure at all levels of government. In our view, such an effort is necessary irrespective of the magnitude of the bioterrorism threat we may face. Too often the bulk of Federal health funds has been expended for direct health care costs or to support biomedical research, while Federal expenditures for public health programs have lagged far behind. Consequently, we would urge this Subcommittee to examine not only the ability of our public health agencies to respond to bioterrorism, but also to review their ability to meet the current demands being placed upon them.

The Commissioned Corps of the U.S. Public Health Service

In our view any planning that takes place with regard to response to an incident of bioterrorism "must" take into consideration the capabilities of the Commissioned Corps of the U.S. Public Health Service. This view has been supported on a number of occasions, most recently by Secretary Thompson in testimony before the Senate Appropriations Committee, Subcommittee on Commerce, Justice, State, and the Judiciary this past May 9th. In that hearing he stated:

> In order to advance an orderly and comprehensive approach to the many issues involved in such preparation (for a bioterrorism event), I will appoint a special assistant within the Immediate Office of the Secretary to lead the department's bioterrorism initiative. This person will report to me directly. I plan to call a national meeting of HHS agencies to evaluate the status of bioterrorism activities and report back to Congress on our efforts. In addition, the new special assistant will support the Surgeon General's efforts to revitalize the Public Health Service Commissioned Corps and its Readiness Force. Let me assure you that this is a top priority for me and for my entire department.

Congress has also noted that the Commissioned Corps has much to offer in the area of bioterrorism. In 1998 the Senate Armed Services Committee, in the

Committee Report that accompanied the Department of Defense Authorization Act for Fiscal Year 1999, observed: "The Committee notes the efforts underway within the Department of Defense to develop the means to respond to acts of terrorism involving weapons of mass destruction. In this regard, the committee directs the Secretary of Defense to ensure the assessment of needs and capabilities includes an analysis of the capabilities that exist within the Commissioned Officer Corps of the U.S. Public Health Service, who, as members of the uniformed services, might be easily integrated into Department of Defense plans to respond to emergencies involving weapons of mass destruction."

The Commissioned Corps has a history of deploying with the military that goes well beyond mobilization in times of war. In such instances the uniform and rank structure of the Commissioned Corps, as noted by the Senate Armed Services Committee, has indeed facilitated the relationship among the services.

The Senate Appropriations Committee came to a similar conclusion. In the report accompanying the Appropriations Bill for the Departments of Labor, HHS and Education for Fiscal Year 1999, the Committee stated: "In developing plans for bioterrorism countermeasures, the Committee notes the standing personnel and reserves of the Public Health Service are a valuable resource that ought to be well-integrated."

The Commissioned Corps, as a uniformed service, brings some unique capabilities to the public health and emergency response arenas, making these officers especially well-suited for the public health response required in the aftermath of a bioterrorism incident. As noted in a February 1998 Report prepared by a Special Advisory Committee of esteemed public health professionals headed by Former Surgeon General C. Everett Koop, "... expertise

which is resident in the Corps to deal with biological and chemical agents is a critical resource that can be called upon in the event of terrorist attack." Tab A briefly describes some of the important characteristics of the Commissioned Corps, among them:

- public health training and experience;
- on call **24 hours a day**, like their military counterparts;
- available for assignment to accommodate changing public health needs and priorities;
- an exceptional track record in the area of emergency response;
- presence in 49 of 50 states, with large concentrations of officers in nearly every region of the country, thereby allowing for an expedited response.

The Commissioned Corps is also a rich source of epidemiologists whose expertise will be critical as part of a bioterrorist response.

In August 1997 Minnesota's former governor, Arne H. Carlson sent a letter to then-DHHS Secretary Shalala praising the outstanding assistance provided by Commissioned Corps task forces to the citizens of Minnesota in the aftermath of the devastating spring floods. Governor Carlson noted that one of the lesser publicized, but serious impacts of the flooding was an estimated 2500 flooded private wells, requiring the restoration of safe water supplies for many of Minnesota's citizens. He observed that "(t)he three task forces entered the stat fully equipped and thoroughly organized to operate with a minimum of state involvement", and they brought the long, dirty and sometimes dangerous work to a successful conclusion in six weeks. Tab B further details the emergency response capability of the Commissioned Corps based upon actual experience since the late 1980's.

One special component of the Commissioned Corps (cited by Secretary Thompson in his May 9th testimony before the Senate Appropriations Committee, Subcommittee on Commerce, Justice, State, and the Judiciary) is the Commissioned Corps Readiness Force (CCRF), which was created by the Office of the Surgeon General in 1994 to improve the DHHS ability to respond to

public health emergencies. The CCRF is a cadre of nearly 1500 PHS active duty officers who are uniquely qualified by virtue of their education, skills and experience to respond to public health emergencies, and who can be mobilized quickly for this purpose.

The Commissioned Corps is also a vital part of the Nation's emergency response capacity through its role with Disaster Medical Assistance Teams (DMATs), which consist of both federal and private sector personnel. One of these DMATs (PHS-1) is comprised primarily of Commissioned Corps Officers (approximately 80%). This team has been stationed at high profile national events to provide the initial public health response in the event of a bioterrorism incident.

In 1999 the first *National Symposium on Medical and Public Health Response to Bioterrorism* was held in Arlington, VA. During a panel discussion of a smallpox scenario, Mr. Jerome H. Hauer, Director, Office of Emergency Management, New York City, stated that in the event of a smallpox outbreak in New York, he would require hundreds of investigators in the metropolitan area. In addition, he noted the requirement for personnel to provide smallpox vaccinations, observing that the vaccination process is complex, and the average health care provider is not trained in this area.

Mr. Hauer's needs can most certainly be met by the Commissioned Corps. With hundreds of public health professionals stationed within a short drive of New York City, a rapid response can be achieved. The variety of locations nationwide where Commissioned Corps officers are stationed permits the mobilization of a large number of Commissioned Corps officers anywhere in the country in a very short period of time. Furthermore, with some improvements to the administration and training of the inactive reserve

component of the Commissioned Corps (discussed below), an additional response capacity, or a backfill capacity, as circumstances require can be made available. The medical expertise also resides within the Commissioned Corps to staff alternate care facilities as needed (e.g. hospitals to handle small pox cases).

While the Commissioned Corps is currently the best available source of public health expertise, a few modest initiatives will make it even better. Some of the initiatives may require legislation, while others may simply require policy changes within the Department of Health and Human Services. Clearly, however, oversight from this Committee is crucial to ensure that the necessary steps are taken. The following are some of the actions that would enhance the ability of the Commissioned Corps to respond to a bioterrorism incident:

- Clarification of the ability to mobilize the Commissioned Corps under a single operational control in the event of an incident involving a weapon of mass destruction. The Surgeon General, the uniformed leader of the Commissioned Corps, administers the Corps and as such is responsible for formulating Commissioned Corps policy. However, Commissioned Officers are assigned to agencies both within and outside the Department of Health and Human Services. This diversity in assignments is a clear advantage, and one of the great strengths of the Commissioned Corps. However, those agencies to which officers are assigned retain significant control over the work performed by their officers. There should be no question that the Surgeon General has authority to direct all PHS officers to respond to a bioterrorism incident, regardless of the agency to which the officers are assigned.

- Provide additional training. The public health background these officers bring to the bioterrorism scenario is a significant advantage. However, it is important that, as in any specialized area, the officers receive ongoing training to develop/maintain their expertise.

- Formalize the Inactive Reserve program. This issue was touched upon above. Unlike the inactive reserve components of the other services, the Commissioned Corps program has been run on an informal basis, with a somewhat loose affiliation by the members. Nearly all members of the PHS inactive reserve have served at least two years on active duty and thus are familiar with Federal programs and procedures. The potential of this program has been recognized by many in Congress, including the House Appropriations Committee that directed a study to ascertain the viability of establishing an Office of Reserve Coordination to administer the program.

Without question the inactive reserve program, and public health in general, could be dramatically enhanced if even modest resources were committed to the maintenance of the reserve program and to the training and utilization of inactive reserve officers.

Once again, the Commissioned Officers Association very much appreciates this opportunity to submit its views to this distinguished Subcommittee. We look forward to addressing further details of these and other issues with you and the Subcommittee staff.

THE FACTS ABOUT THE COMMISSIONED CORPS

THE COMMISSIONED CORPS OF THE U.S. PUBLIC HEALTH SERVICE . . .

- is an active duty force of approximately **5600 health care professionals** comprised of physicians, nurses, scientists, dentists, engineers, sanitarians, pharmacists, veterinarians, dietitians, therapists and health services officers who serve in nearly all 50 states and more than 550 locations worldwide.

- provides officers to serve in the **eight agencies of the Public Health Service** (largest number of officers serve in the Indian Health Service, but other PHS agencies, including the National Institutes of Health, the Centers for Disease Control and Prevention, and the Food and Drug Administration, also rely heavily on the Corps), plus non-PHS agencies, including the **U.S. Coast Guard** (whose uniformed medical services are staffed exclusively by Corps members), the **Federal Bureau of Prisons**, the **EPA**, and the **Immigration and Naturalization Service**.

- is one of the seven **uniformed services**, whose members can be called to duty **24 hours a day** to respond to public health crises and emerging needs, and can be **directed** to other duty assignments to accommodate changing public health needs and priorities. In recent years Commissioned Corps officers have been involved in:

  - **leading** the successful **global campaign to eradicate smallpox** (including a massive immunization program);
  - **investigating** and **identifying** the emerging **AIDS epidemic**;
  - **providing clinical services** for Haitian, Cuban and Southeast Asian refugees;
  - **identifying** and **isolating** three separate acute **hemorrhagic fever** viruses (Ebola, Lassa, and Marburg) in Africa;
  - **identifying** and **isolating** the infectious agent responsible for the **Hanta Virus** in the American Southwest;
  - **providing** and **coordinating emergency services**: at the Oklahoma City Federal Building Bombing ('95); during the Alaska ('94), California ('94-'95), Southeast ('94-'95), Midwest ('93-'94), Southwest ('92, '93-'94), Northern Plains States ('97) and Ohio ('98) Floods; following Hurricanes Hugo ('89), Iniki ('92), Andrew ('92) and Georges ('98); in the aftermath of the Loma Prieta ('89) and Northridge ('94) Earthquakes; following the Northeast ice storms ('98); for Kosovar refugees ('99).

- is **administered** and **managed** by the **Surgeon General**, its **uniformed leader**.

Emergencies to Which Commissioned Officers Have Responded Since 1989

1989

Loma Prieta Earthquake
Hurricane Hugo
Exxon Valdez

1990

Desert Shield

1992

Desert Storm
Typhoon Zelda
Typhoon Axel
Southwest Flood
Hantavirus
Hurricane Andrew
Hurricane Iniki

1993

Typhoon Omar
Milwaukee Water System
Cuban Neuropathies
Hurricane Emily
Midwest Flood
Southwest Flood

1994

Alaska Floods
Northridge Earthquake
Siberian Oil Fires
Winter Ice Storms
Haitian Immigration
Cuban Interdiction
Rwanda, Africa
California Floods
S.East Floods

1995

Kobe, Japan Earthquake
Tokyo, Japan Gas
Oklahoma City Bomb
Zaire Ebola
Diphtheria/NIS

1997

North Dakota/Minnesota Flood

1998
Northeast Ice Storms
Ohio Flood
Hurricane Georges

1999

Kosovar Refugees

United States General Accounting Office

GAO

Testimony

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BIOTERRORISM

Review of Public Health Preparedness Programs

Statement of Janet Heinrich
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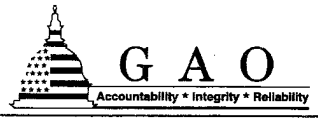

GAO-02-149T

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to be here today to discuss our work on the activities of federal agencies to prepare the nation to respond to the public health and medical consequences of a bioterrorist attack.[1] Preparing to respond to the public health and medical consequences of a bioterrorist attack poses some challenges that are different from those in other types of terrorist attacks, such as bombings. On September 28, 2001, we released a report[2] that describes (1) the research and preparedness activities being undertaken by federal departments and agencies to manage the consequences of a bioterrorist attack,[3] (2) the coordination of these activities, and (3) the findings of reports on the preparedness of state and local jurisdictions to respond to a bioterrorist attack. My testimony will summarize the detailed findings included in our report, highlighting weaknesses in the public health infrastructure that we have identified in our ongoing work and which we believe warrant special attention.

In summary, we identified more than 20 federal departments and agencies as having a role in preparing for or responding to the public health and medical consequences of a bioterrorist attack. These agencies are participating in a variety of activities, from improving the detection of biological agents to developing a national stockpile of pharmaceuticals to treat victims of disasters. Federal departments and agencies have engaged in a number of efforts to coordinate these activities on a formal and informal basis, such as interagency work groups. Despite these efforts, we found evidence that coordination between departments and agencies is fragmented. We did, however, find recent actions to improve coordination across federal departments and agencies. In addition, we found emerging concerns about the preparedness of state and local jurisdictions, including insufficient state and local planning for response to terrorist events, a lack of hospital participation in training on terrorism and emergency response

[1]Bioterrorism is the threat or intentional release of biological agents (viruses, bacteria, or their toxins) for the purposes of influencing the conduct of government or intimidating or coercing a civilian population.

[2]See *Bioterrorism: Federal Research and Preparedness Activities* (GAO-01-915, Sept. 28, 2001). This report was mandated by the Public Health Improvement Act of 2000 (P.L. 106-505, sec. 102). Also, see the list of related GAO products at the end of this statement.

[3]We conducted interviews with and obtained information from the Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Justice, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency; and the Federal Emergency Management Agency.

planning, the timely availability of medical teams and resources in an emergency, and inadequacies in the public health infrastructure. The last includes weaknesses in the training of health care providers, communication among responsible parties, and capacity of laboratories and hospitals, including the ability to treat mass casualties.

Background

A domestic bioterrorist attack is considered to be a low-probability event, in part because of the various difficulties involved in successfully delivering biological agents to achieve large-scale casualties.[4] However, a number of cases involving biological agents, including at least one completed bioterrorist act and numerous threats and hoaxes,[5] have occurred domestically. In 1984, a group intentionally contaminated salad bars in restaurants in Oregon with salmonella bacteria. Although no one died, 751 people were diagnosed with foodborne illness. Some experts predict that more domestic bioterrorist attacks are likely to occur.

The burden of responding to such an attack would fall initially on personnel in state and local emergency response agencies. These "first responders" include firefighters, emergency medical service personnel, law enforcement officers, public health officials, health care workers (including doctors, nurses, and other medical professionals), and public works personnel. If the emergency were to require federal disaster assistance, federal departments and agencies would respond according to responsibilities outlined in the Federal Response Plan.[6] Several groups, including the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (known as the Gilmore Panel), have assessed the capabilities at the federal, state, and local levels

[4]See *Combating Terrorism: Need for Comprehensive Threat and Risk Assessments of Chemical and Biological Attacks* (GAO/NSIAD-99-163, Sept. 14, 1999), pp. 10-15, for a discussion of the ease or difficulty for a terrorist to create mass casualties by making or using chemical or biological agents without the assistance of a state-sponsored program.

[5]For example, in January 2000, threatening letters were sent to a variety of recipients, including the Planned Parenthood office in Naples, Florida, warning of the release of anthrax. Federal authorities found no signs of anthrax or any other traces of harmful substances and determined these incidences to be hoaxes.

[6]The Federal Response Plan, originally drafted in 1992 and updated in 1999, is authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; P.L. 93-288, as amended). The plan outlines the planning assumptions, policies, concept of operations, organizational structures, and specific assignment of responsibilities to lead departments and agencies in providing federal assistance once the President has declared an emergency requiring federal assistance.

to respond to a domestic terrorist incident involving a weapon of mass destruction (WMD), that is, a chemical, biological, radiological, or nuclear agent or weapon.[7]

While many aspects of an effective response to bioterrorism are the same as those for any disaster, there are some unique features. For example, if a biological agent is released covertly, it may not be recognized for a week or more because symptoms may not appear for several days after the initial exposure and may be misdiagnosed at first. In addition, some biological agents, such as smallpox, are communicable and can spread to others who were not initially exposed. These differences require a type of response that is unique to bioterrorism, including infectious disease surveillance,[8] epidemiologic investigation,[9] laboratory identification of biological agents, and distribution of antibiotics to large segments of the population to prevent the spread of an infectious disease. However, some aspects of an effective response to bioterrorism are also important in responding to any type of large-scale disaster, such as providing emergency medical services, continuing health care services delivery, and managing mass fatalities.

[7]Some agencies define WMDs to include large conventional explosives as well.

[8]Disease surveillance systems provide for the ongoing collection, analysis, and dissemination of data to prevent and control disease.

[9]Epidemiological investigation is the study of patterns of health or disease and the factors that influence these patterns.

Federal Departments and Agencies Reported a Variety of Research and Preparedness Activities

Federal spending on domestic preparedness for terrorist attacks involving WMDs has risen 310 percent since fiscal year 1998, to approximately $1.7 billion in fiscal year 2001, and may increase significantly after the events of September 11, 2001. However, only a portion of these funds were used to conduct a variety of activities related to research on and preparedness for the public health and medical consequences of a bioterrorist attack. We cannot measure the total investment in such activities because departments and agencies provided funding information in various forms—as appropriations, obligations, or expenditures. Because the funding information provided is not equivalent,[10] we summarized funding by department or agency, but not across the federal government (see apps. I and II).[11] Reported funding generally shows increases from fiscal year 1998 to fiscal year 2001. Several agencies received little or no funding in fiscal year 1998. For example, within the Department of Health and Human Services (HHS), the Centers for Disease Control and Prevention's (CDC) Bioterrorism Preparedness and Response Program was established and first received funding in fiscal year 1999 (see app. I and app. II). Its funding has increased from approximately $121 million at that time to approximately $194 million in fiscal year 2001.

Research Activities Focus on Detection, Treatment, Vaccination, and Equipment

Research is currently being done to enable the rapid identification of biological agents in a variety of settings; develop new or improved vaccines, antibiotics, and antivirals to improve treatment and vaccination for infectious diseases caused by biological agents; and develop and test emergency response equipment such as respiratory and other personal protective equipment. Appendix I provides information on the total

[10]For example, an agency providing appropriations is not necessarily indicating the level of its commitments (that is, obligations) or expenditures for that year—only the amount of budget authority made available to it by the Congress, some of which may be unspent. Similarly, an agency that provided expenditure information for fiscal year 2000 may have obligated the funds in fiscal year 1999 based on an appropriation for fiscal year 1998. To simplify presentation, we generally refer to all the budget data we received from agencies as "reported funding."

[11]Although there are generally no specific appropriations for activities on bioterrorism, some departments and agencies did provide estimates of the funds they were devoting to activities on bioterrorism. Other departments and agencies provided estimates for overall terrorism activities, but were unable to provide funding amounts for activities on bioterrorism specifically. Still others stated that their activities were relevant for bioterrorism, but they were unable to specify the funding amounts. Funding levels for activities on terrorism, including bioterrorism, were reported for activities prior to the 2001 Emergency Supplemental Appropriations Act for Recovery From and Response to Terrorist Attacks on the United States (P.L. 107-38).

reported funding for all the departments and agencies carrying out research, along with examples of this research.

The Department of Agriculture (USDA), Department of Defense (DOD), Department of Energy, HHS, Department of Justice (DOJ), Department of the Treasury, and the Environmental Protection Agency (EPA) have all sponsored or conducted projects to improve the detection and characterization of biological agents in a variety of different settings, from water to clinical samples (such as blood). For example, EPA is sponsoring research to improve its ability to detect biological agents in the water supply. Some of these projects, such as those conducted or sponsored by DOD and DOJ, are not primarily for the public health and medical consequences of a bioterrorist attack against the civilian population, but could eventually benefit research for those purposes.

Departments and agencies are also conducting or sponsoring studies to improve treatment and vaccination for diseases caused by biological agents. For example, HHS' projects include basic research sponsored by the National Institutes of Health to develop drugs and diagnostics and applied research sponsored by the Agency for Healthcare Research and Quality to improve health care delivery systems by studying the use of information systems and decision support systems to enhance preparedness for the delivery of medical care in an emergency.

In addition, several agencies, including the Department of Commerce's National Institute of Standards and Technology and DOJ's National Institute of Justice are conducting research that focuses on developing performance standards and methods for testing the performance of emergency response equipment, such as respirators and personal protective equipment.

Preparedness Efforts Include Multiple Actions

Federal departments' and agencies' preparedness efforts have included efforts to increase federal, state, and local response capabilities, develop response teams of medical professionals, increase availability of medical treatments, participate in and sponsor terrorism response exercises, plan to aid victims, and provide support during special events such as presidential inaugurations, major political party conventions, and the

Superbowl.[12] Appendix II contains information on total reported funding for all the departments and agencies with bioterrorism preparedness activities, along *with* examples of these activities.

Several federal departments and agencies, such as the Federal Emergency Management Agency (FEMA) and CDC, have programs to increase the ability of state and local authorities to successfully respond to an emergency, including a bioterrorist attack. These departments and agencies contribute to state and local jurisdictions by helping them pay for equipment and develop emergency response plans, providing technical assistance, increasing communications capabilities, and conducting training courses.

Federal departments and agencies have also been increasing their own capacity to identify and deal with a bioterrorist incident. For example, CDC, USDA, and the Food and Drug Administration (FDA) are improving surveillance methods for detecting disease outbreaks in humans and animals. They have also established laboratory response networks to maintain state-of-the-art capabilities for biological agent identification and the characterization of human clinical samples.

Some federal departments and agencies have developed teams to directly respond to terrorist events and other emergencies. For example, HHS' Office of Emergency Preparedness (OEP) created Disaster Medical Assistance Teams to provide medical treatment and assistance in the event of an emergency. Four of these teams, known as National Medical Response Teams, are specially trained and equipped to provide medical care to victims of WMD events, such as bioterrorist attacks.

Several agencies are involved in increasing the availability of medical supplies that could be used in an emergency, including a bioterrorist attack. CDC's National Pharmaceutical Stockpile contains pharmaceuticals, antidotes, and medical supplies that can be delivered anywhere in the United States within 12 hours of the decision to deploy. The stockpile was deployed for the first time on September 11, 2001, in response to the terrorist attacks on New York City.

[12]Presidential Decision Directive 62, issued May 22, 1998, created a category of special events called National Security Special Events, which are events of such significance that they warrant greater federal planning and protection than other special events.

Federally initiated bioterrorism response exercises have been conducted across the country. For example, in May 2000, many departments and agencies took part in the Top Officials 2000 exercise (TOPOFF 2000) in Denver, Colorado, which featured the simulated release of a biological agent.[12] Participants included local fire departments, police, hospitals, the Colorado Department of Public Health and the Environment, the Colorado Office of Emergency Management, the Colorado National Guard, the American Red Cross, the Salvation Army, HHS, DOD, FEMA, the Federal Bureau of Investigation (FBI), and EPA.

Several agencies also provide assistance to victims of terrorism. FEMA can provide supplemental funds to state and local mental health agencies for crisis counseling to eligible survivors of presidentially declared emergencies. In the aftermath of the recent terrorist attacks, HHS released $1 million in funding to New York State to support mental health services and strategic planning for comprehensive and long-term support to address the mental health needs of the community. DOJ's Office of Justice Programs (OJP) also manages a program that provides funds for victims of terrorist attacks that can be used to provide a variety of services, including mental health treatment and financial assistance to attend related criminal proceedings.

Federal departments and agencies also provide support at special events to improve response in case of an emergency. For example, CDC has deployed a system to provide increased surveillance and epidemiological capacity before, during, and after special events. Besides improving emergency response at the events, participation by departments and agencies gives them valuable experience working together to develop and practice plans to combat terrorism.

[12]In addition to simulating a bioterrorism attack in Denver, the exercise also simulated a chemical weapons incident in Portsmouth, New Hampshire. A concurrent exercise, referred to as National Capital Region 2000, simulated a radiological event in the greater Washington, D.C., area.

Fragmentation Remains Despite Efforts to Coordinate Federal Programs

Federal departments and agencies are using a variety of interagency plans, work groups, and agreements to coordinate their activities to combat terrorism. However, we found evidence that coordination remains fragmented. For example, several different agencies are responsible for various coordination functions, which limits accountability and hinders unity of effort; several key agencies have not been included in bioterrorism-related policy and response planning; and the programs that agencies have developed to provide assistance to state and local governments are similar and potentially duplicative. The President recently took steps to improve oversight and coordination, including the creation of the Office of Homeland Security.

Departments and Agencies Use a Variety of Methods to Coordinate Activities

Over 40 federal departments and agencies have some role in combating terrorism, and coordinating their activities is a significant challenge. We identified over 20 departments and agencies as having a role in preparing for or responding to the public health and medical consequences of a bioterrorist attack. Appendix III, which is based on the framework given in the Terrorism Incident Annex of the Federal Response Plan, shows a sample of the coordination efforts by federal departments and agencies with responsibilities for the public health and medical consequences of a bioterrorist attack, as they existed prior to the recent creation of the Office of Homeland Security. This figure illustrates the complex relationships among the many federal departments and agencies involved.

Departments and agencies use several approaches to coordinate their activities on terrorism, including interagency response plans, work groups, and formal agreements. Interagency plans for responding to a terrorist incident help outline agency responsibilities and identify resources that could be used during a response. For example, the Federal Response Plan provides a broad framework for coordinating the delivery of federal disaster assistance to state and local governments when an emergency overwhelms their ability to respond effectively. The Federal Response Plan also designates primary and supporting federal agencies for a variety of emergency support operations. For example, HHS is the primary agency for coordinating federal assistance in response to public health and medical care needs in an emergency. HHS could receive support from other agencies and organizations, such as DOD, USDA, and FEMA, to assist state and local jurisdictions.

Interagency work groups are being used to minimize duplication of funding and effort in federal activities to combat terrorism. For example, the Technical Support Working Group is chartered to coordinate

interagency research and development requirements across the federal government in order to prevent duplication of effort between agencies. The Technical Support Working Group, among other projects, helped to identify research needs and fund a project to detect biological agents in food that can be used by both DOD and USDA.

Formal agreements between departments and agencies are being used to share resources and knowledge. For example, CDC contracts with the Department of Veterans Affairs (VA) to purchase drugs and medical supplies for the National Pharmaceutical Stockpile because of VA's purchasing power and ability to negotiate large discounts.

Coordination Remains Fragmented Within the Federal Government

Overall coordination of federal programs to combat terrorism is fragmented.[14] For example, several agencies have coordination functions, including DOJ, the FBI, FEMA, and the Office of Management and Budget. Officials from a number of the agencies that combat terrorism told us that the coordination roles of these various agencies are not always clear and sometimes overlap, leading to a fragmented approach. We have found that the overall coordination of federal research and development efforts to combat terrorism is still limited by several factors, including the compartmentalization or security classification of some research efforts.[15] The Gilmore Panel also concluded that the current coordination structure does not provide for the requisite authority or accountability to impose the discipline necessary among the federal agencies involved.[16]

The multiplicity of federal assistance programs requires focus and attention to minimize redundancy of effort.[17] Table 1 shows some of the federal programs providing assistance to state and local governments for emergency planning that would be relevant to responding to a bioterrorist attack. While the programs vary somewhat in their target audiences, the

[14]See also *Combating Terrorism: Comments on Counterterrorism Leadership and National Strategy* (GAO-01-556T, Mar. 27, 2001), p. 1.

[15]See *Combating Terrorism: Selected Challenges and Related Recommendations* (GAO-01-822, Sept. 20, 2001), pp. 79, 84.

[16]Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (Gilmore Panel), *Toward a National Strategy for Combating Terrorism*, Second Annual Report (Arlington, Va.: RAND, Dec. 15, 2000), p. 7.

[17]See also *Combating Terrorism: Issues in Managing Counterterrorist Programs* (GAO/T-NSIAD-00-145, Apr. 6, 2000), p. 8.

potential redundancy of these federal efforts highlights the need for scrutiny. In our report on combating terrorism, issued on September 20, 2001, we recommended that the President, working closely with the Congress, consolidate some of the activities of DOJ's OJP under FEMA.[18]

Table 1: Selected Federal Activities Providing Assistance to State and Local Governments for Emergency Planning Relevant to a Bioterrorist Attack

Department or agency	Activities	Target audience
HHS—CDC	Provides grants, technical support, and performance standards to support bioterrorism preparedness and response planning.	State and local health agencies
HHS—OEP	Enters into contracts to enhance medical response capability. The program includes a focus on response to bioterrorism, including early recognition, mass postexposure treatment, mass casualty care, and mass fatality management.	Local jurisdictions (for fire, police, and emergency medical services; hospitals; public health agencies; and other services)
DOJ—OJP	Assists states in developing strategic plans. Includes funding for training, equipment acquisition, technical assistance, and exercise planning and execution to enhance state and local capabilities to respond to terrorist incidents.	States (for fire, law enforcement, emergency medical, and hazardous materials response services; hospitals; public health departments; and other services)
FEMA	Provides grant assistance to support state and local consequence management planning, training, and exercises for all types of terrorism, including bioterrorism.	State emergency management agencies

Source: Information obtained from departments and agencies.

We have also recommended that the federal government conduct multidisciplinary and analytically sound threat and risk assessments to define and prioritize requirements and properly focus programs and investments in combating terrorism.[19] Such assessments would be useful in addressing the fragmentation that is evident in the different threat lists of biological agents developed by federal departments and agencies.

[18]See GAO-01-822, Sept. 20, 2001, pp. 104-106.

[19]See *Combating Terrorism: Threat and Risk Assessments Can Help Prioritize and Target Program Investments* (GAO/NSIAD-98-74, Apr. 9, 1998) and GAO/NSIAD-99-163, Sept. 14, 1999.

Understanding which biological agents are considered most likely to be used in an act of domestic terrorism is necessary to focus the investment in new technologies, equipment, training, and planning. Several different agencies have or are in the process of developing biological agent threat lists, which differ based on the agencies' focus. For example, CDC collaborated with law enforcement, intelligence, and defense agencies to develop a critical agent list that focuses on the biological agents that would have the greatest impact on public health. The FBI, the National Institute of Justice, and the Technical Support Working Group are completing a report that lists biological agents that may be more likely to be used by a terrorist group working in the United States that is not sponsored by a foreign government. In addition, an official at USDA's Animal and Plant Health Inspection Service told us that it uses two lists of agents of concern for a potential bioterrorist attack. These lists of agents, only some of which are capable of making both animals and humans sick, were developed through an international process. According to agency officials, separate threat lists are appropriate because of the different focuses of these agencies. In our view, the existence of competing lists makes the assignment of priorities difficult for state and local officials.

Fragmentation is also apparent in the composition of groups of federal agencies involved in bioterrorism-related planning and policy. Officials at the Department of Transportation (DOT) told us that that even though the nation's transportation centers account for a significant percentage of the nation's potential terrorist targets, the department was not part of the founding group of agencies that worked on bioterrorism issues and has not been included in bioterrorism response plans. DOT officials also told us that the department is supposed to deliver supplies for FEMA under the Federal Response Plan, but it was not brought into the planning early enough to understand the extent of its responsibilities in the transportation process. The department learned what its responsibilities would be during the TOPOFF 2000 exercise, which simulated a release of a biological agent.

Recent Actions Seek to Improve Coordination Across Federal Departments and Agencies

In May 2001, the President asked the Vice President to oversee the development of a coordinated national effort dealing with WMDs.[20] At the same time, the President asked the Director of FEMA to establish an Office of National Preparedness to implement the results of the Vice President's effort that relate to programs within federal agencies that address consequence management resulting from the use of WMDs. The purpose of this effort is to better focus policies and ensure that programs and activities are fully coordinated in support of building the needed preparedness and response capabilities. In addition, on September 20, 2001, the President announced the creation of the Office of Homeland Security to lead, oversee, and coordinate a comprehensive national strategy to protect the country from terrorism and respond to any attacks that may occur. These actions represent potentially significant steps toward improved coordination of federal activities. Our recent report highlighted a number of important characteristics and responsibilities necessary for a single focal point, such as the proposed Office of Homeland Security, to improve coordination and accountability.[21]

Despite Federal Efforts, Concerns Exist Regarding Preparedness at State and Local Levels

Nonprofit research organizations, congressionally chartered advisory panels, government documents, and articles in peer-reviewed literature have identified concerns about the preparedness of states and local areas to respond to a bioterrorist attack. These concerns include insufficient state and local planning for response to terrorist events, a lack of hospital participation in training on terrorism and emergency response planning, questions regarding the timely availability of medical teams and resources in an emergency, and inadequacies in the public health infrastructure. In our view, there are weaknesses in three key areas of the public health infrastructure: training of health care providers, communication among responsible parties, and capacity of laboratories and hospitals, including the ability to treat mass casualties.

Questions exist regarding how effectively federal programs have prepared state and local governments to respond to terrorism. All 50 states and approximately 255 local jurisdictions have received or are scheduled to receive at least some federal assistance, including training and equipment grants, to help them prepare for a terrorist WMD incident. In 1997, FEMA

[20]According to the Office of the Vice President, as of June 2001, details on the Vice President's efforts had not yet been determined.

[21]See GAO-01-822, Sept. 20, 2001, pp. 41-42.

identified planning and equipment for response to nuclear, biological, and chemical incidents as areas in need of significant improvement at the state level. However, an October 2000 research report concluded that even those cities receiving federal aid are still not adequately prepared to respond to a bioterrorist attack.[22]

Inadequate training and planning for bioterrorism response by hospitals is a major problem. The Gilmore Panel concluded that the level of expertise in recognizing and dealing with a terrorist attack involving a biological or chemical agent is problematic in many hospitals.[23] A recent research report concluded that hospitals need to improve their preparedness for mass casualty incidents.[24] Local officials told us that it has been difficult to get hospitals and medical personnel to participate in local training, planning, and exercises to improve their preparedness.

Local officials are also concerned about whether the federal government could quickly deliver enough medical teams and resources to help after a biological attack.[25] Agency officials say that federal response teams, such as Disaster Medical Assistance Teams, could be on site within 12 to 24 hours. However, local officials who have deployed with such teams say that the federal assistance probably would not arrive for 24 to 72 hours. Local officials also told us that they were concerned about the time and resources required to prepare and distribute drugs from the National Pharmaceutical Stockpile during an emergency. Partially in response to these concerns, CDC has developed training for state and local officials in using the stockpile and will deploy a small staff with the supplies to assist the local jurisdiction with distribution.

Components of the nation's public health system are also not well prepared to detect or respond to a bioterrorist attack. In particular, weaknesses exist in the key areas of training, communication, and hospital and laboratory capacity. It has been reported that physicians and nurses in

[22]A.E. Smithson and L.-A. Levy, *Ataxia: The Chemical and Biological Terrorism Threat and the U.S. Response* (Washington, D.C.: The Henry L. Stimson Center, Oct. 2000), p. 271.

[23]Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, p. 32.

[24]D.C. Wetter, W.E. Daniell, and C.D. Treser, "Hospital Preparedness for Victims of Chemical or Biological Terrorism," *American Journal of Public Health*, Vol. 91, No. 5 (May 2001), pp. 710-16.

[25]Smithson and Levy, p. 227.

emergency rooms and private offices, who will most likely be the first health care workers to see patients following a bioterrorist attack, lack the needed training to ensure their ability to make observations of unusual symptoms and patterns.[26] Most physicians and nurses have never seen cases of certain diseases, such as smallpox or plague, and some biological agents initially produce symptoms that can be easily confused with influenza or other, less virulent illnesses, leading to a delay in diagnosis or identification. Medical laboratory personnel require training because they also lack experience in identifying biological agents such as anthrax.

Because it could take days to weeks to identify the pathogen used in a biological attack, good channels of communication among the parties involved in the response are essential to ensure that the response proceeds as rapidly as possible. Physicians will need to report their observations to the infectious disease surveillance system. Once the disease outbreak has been recognized, local health departments will need to collaborate closely with personnel across a variety of agencies to bring in the needed expertise and resources. They will need to obtain the information necessary to conduct epidemiological investigations to establish the likely site and time of exposure, the size and location of the exposed population, and the prospects for secondary transmission. However, past experiences with infectious disease response have revealed a lack of sufficient and secure channels for sharing information. Our report last year on the initial West Nile virus outbreak in New York City found that as the public health investigation grew, lines of communication were often unclear, and efforts to keep everyone informed were awkward, such as conference calls that lasted for hours and involved dozens of people.[27]

Adequate laboratory and hospital capacity is also a concern. Reductions in public health laboratory staffing and training have affected the ability of state and local authorities to identify biological agents. Even the initial West Nile virus outbreak in 1999, which was relatively small and occurred in an area with one of the nation's largest local public health agencies, taxed the federal, state, and local laboratory resources. Both the New York State and the CDC laboratories were inundated with requests for tests, and the CDC laboratory handled the bulk of the testing because of the limited

[26]Smithson and Levy, p. 248.

[27]See *West Nile Virus Outbreak: Lessons for Public Health Preparedness* (GAO/HEHS-00-180, Sept. 11, 2000), pp. 21-22.

capacity at the New York laboratories. Officials indicated that the CDC laboratory would have been unable to respond to another outbreak, had one occurred at the same time. In fiscal year 2000, CDC awarded approximately $11 million to 48 states and four major urban health departments to improve and upgrade their surveillance and epidemiological capabilities. With regard to hospitals, several federal and local officials reported that there is little excess capacity in the health care system in most communities for accepting and treating mass casualty patients. Research reports have concluded that the patient load of a regular influenza season in the late 1990s overtaxed primary care facilities and that emergency rooms in major metropolitan areas are routinely filled and unable to accept patients in need of urgent care.[28]

Concluding Observations

We found that federal departments and agencies are participating in a variety of research and preparedness activities that are important steps in improving our readiness. Although federal departments and agencies have engaged in a number of efforts to coordinate these activities on a formal and informal basis, we found that coordination between departments and agencies is fragmented. In addition, we remain concerned about weaknesses in public health preparedness at the state and local levels, a lack of hospital participation in training on terrorism and emergency response planning, the timely availability of medical teams and resources in an emergency, and, in particular, inadequacies in the public health infrastructure. The latter include weaknesses in the training of health care providers, communication among responsible parties, and capacity of laboratories and hospitals, including the ability to treat mass casualties.

Mr. Chairman, this completes my prepared statement. I would be happy to respond to any questions you or other Members of the Subcommittee may have at this time.

[28] J.R. Richards, M.L. Navarro, and R.W. Derlet, "Survey of Directors of Emergency Departments in California on Overcrowding," *Western Journal of Medicine*, Vol. 172 (June 2000), pp. 385-88. R. Derlet, J. Richards, and R. Kravitz, "Frequent Overcrowding in U.S. Emergency Departments," *Academic Emergency Medicine*, Vol. 8, No. 2 (2001), pp.151-55. Smithson and Levy, p. 262.

Contact and Acknowledgments

For further information about this testimony, please contact me at (202) 512-7118. Barbara Chapman, Robert Copeland, Marcia Crosse, Greg Ferrante, Deborah Miller, and Roseanne Price also made key contributions to this statement.

Appendix I: Funding for Research

Total Reported Funding for Research on Bioterrorism and Terrorism by Federal Departments and Agencies, Fiscal Year 2000 and Fiscal Year 2001

Dollars in millions

Department or agency	Fiscal year 2000 funding	Fiscal year 2001 funding	Sample activities
U.S. Department of Agriculture (USDA)—Agricultural Research Service	0	$0.5	Improving detection of biological agents
Department of Energy	$35.5	$39.6	Developing technologies for detecting and responding to a bioterrorist attack Developing models of the spread of and exposure to a biological agent after release
Department of Health and Human Services (HHS)—Agency for Healthcare Research and Quality	$5.0	0	Examining clinical training and ability of frontline medical staff to detect and respond to a bioterrorist threat Studying use of information systems and decision support systems to enhance preparedness for medical care in the event of a bioterrorist event
HHS—Centers for Disease Control and Prevention (CDC)	$48.2	$46.6	Developing equipment performance standards Conducting research on smallpox and anthrax viruses and therapeutics
HHS—Food and Drug Administration (FDA)	$8.8	$9.1	Licensing of vaccines for anthrax and smallpox Determining procedures for allowing use of not-yet-approved drugs and specifying data needed for approval and labeling
HHS—National Institutes of Health	$43.0	$49.7	Developing new therapies for smallpox virus Developing smallpox and bacterial antigen detection system
HHS—Office of Emergency Preparedness (OEP)	0	$4.6	Overseeing a study on response systems
Department of Justice (DOJ)—Office of Justice Programs (OJP)	$0.7	$4.6	Developing a biological agent detector
DOJ—Federal Bureau of Investigation	0	$1.1	Conducting work on detection and characterization of biological materials
Department of the Treasury—Secret Service	0	$0.5	Developing a biological agent detector
Environmental Protection Agency (EPA)	0	$0.5	Improving detection of biological agents

Note: Total reported funding refers to budget data we received from agencies. Agencies reported appropriations, actual or estimated obligations, or actual or estimated expenditures. An agency providing appropriations is not necessarily indicating the level of its obligations or expenditures for that year—only the amount of budget authority made available to it by the Congress. Similarly, an agency that provided expenditure information for fiscal year 2000 may have obligated the funds in fiscal year 1999 based on an appropriation for fiscal year 1998.

Source: Information obtained from departments and agencies.

Appendix II: Funding for Preparedness Activities

Total Reported Funding for Preparedness Activities on Bioterrorism and Terrorism by Federal Departments and Agencies, Fiscal Year 2000 and Fiscal Year 2001

Dollars in millions

Department or agency	Fiscal year 2000 funding	Fiscal year 2001 funding	Sample activities
USDA—Animal and Plant Health Inspection Service	0	$0.2	Developing educational materials and training programs specifically dealing with bioterrorism
Department of Defense (DOD)—Joint Task Force for Civil Support	$3.4	$8.7	Planning, and when directed, commanding and controlling DOD's WMD and high-yield explosive consequence management capabilities in support of FEMA
DOD—National Guard	$70.0	$93.3	Managing response teams that would enter a contaminated area to gather samples for on-site evaluation
DOD—U.S. Army	$29.5	$11.7	Maintaining a repository of information about chemical and biological weapons and agents, detectors, and protection and decontamination equipment
HHS—CDC	$124.9	$147.3	Awarding planning grants to state and local health departments to prepare bioterrorism response plans Improving surveillance methods for detecting disease outbreaks Increasing communication capabilities in order to improve the gathering and exchanging of information related to bioterrorist incidents
HHS—FDA	$0.1	$2.1	Improving capabilities to identify and characterize foodborne pathogens Identifying biological agents using animal studies and microbiological surveillance
HHS—OEP	$35.3	$46.1	Providing contracts to increase local emergency response capabilities Developing and managing response teams that can provide support at the site of a disaster
DOJ—OJP	$7.6	$5.3	Helping prepare state and local emergency responders through training, exercises, technical assistance, and equipment programs Developing a data collection tool to assist states in conducting their threat, risk, and needs assessments, and in developing their preparedness strategy for terrorism, including bioterrorism
EPA	$0.1	$2.0	Providing technical assistance in identifying biological agents and decontaminating affected areas Conducting assessments of water supply vulnerability to terrorism, including contamination with biological agents
Federal Emergency Management Agency	$25.1	$30.3	Providing grant assistance and guidance to states for planning and training Maintaining databases of safety precautions for biological, chemical, and nuclear agents

Note: Total reported funding refers to budget data we received from agencies. Agencies reported appropriations, actual or estimated obligations, or actual or estimated expenditures. An agency providing appropriations is not necessarily indicating the level of its obligations or expenditures for that year—only the amount of budget authority made available to it by the Congress. Similarly, an agency that provided expenditure information for fiscal year 2000 may have obligated the funds in fiscal year 1999 based on an appropriation for fiscal year 1998.

Source: Information obtained from departments and agencies.

Appendix III: Examples of Coordination Activities on Bioterrorism Among Federal Departments and Agencies

We identified the following federal departments and agencies as having responsibilities related to the public health and medical consequences of a bioterrorist attack:

- USDA – U.S. Department of Agriculture
  - APHIS – Animal and Plant Health Inspection Service
  - ARS – Agricultural Research Service
  - FSIS – Food Safety Inspection Service
  - OCPM – Office of Crisis Planning and Management
- DOC – Department of Commerce
  - NIST – National Institute of Standards and Technology
- DOD – Department of Defense
  - DARPA – Defense Advanced Research Projects Agency
  - JTFCS – Joint Task Force for Civil Support
  - National Guard
  - U.S. Army
- DOE – Department of Energy
- HHS – Department of Health and Human Services
  - AHRQ – Agency for Healthcare Research and Quality
  - CDC – Centers for Disease Control and Prevention
  - FDA – Food and Drug Administration
  - NIH – National Institutes of Health
  - OEP – Office of Emergency Preparedness
- DOJ – Department of Justice
  - FBI – Federal Bureau of Investigation
  - OJP – Office of Justice Programs
- DOT – Department of Transportation
  - USCG – U.S. Coast Guard
- Treasury – Department of the Treasury
  - USSS – U.S. Secret Service
- VA – Department of Veterans Affairs
- EPA – Environmental Protection Agency
- FEMA – Federal Emergency Management Agency

Figure 1, which is based on the framework given in the Terrorism Incident Annex of the Federal Response Plan, shows a sample of the coordination activities by these federal departments and agencies, as they existed prior to the recent creation of the Office of Homeland Security. This figure illustrates the complex relationships among the many federal departments and agencies involved. The following coordination activities are represented on the figure:

- OMB Oversight of Terrorism Funding. The Office of Management and Budget established a reporting system on the budgeting and expenditure of funds to combat terrorism, with goals to reduce overlap and improve coordination as part of the annual budget cycle.
- Federal Response Plan – Health and Medical Services Annex. This annex to the Federal Response Plan states that HHS is the primary agency for coordinating federal assistance to supplement state and local resources in response to public health and medical care needs in an emergency, including a bioterrorist attack.
- Informal Working Group – Equipment Request Review. This group meets as necessary to review equipment requests of state and local jurisdictions to ensure that duplicative funding is not being given for the same activities.
- Agreement on Tracking Diseases in Animals That Can Be Transmitted to Humans. This group is negotiating an agreement to share information and expertise on tracking diseases that can be transmitted from animals to people and could be used in a bioterrorist attack.
- National Medical Response Team Caches. These caches form a stockpile of drugs for OEP's National Medical Response Teams.
- Domestic Preparedness Program. This program was formed in response to the National Defense Authorization Act of Fiscal Year 1997 (P.L. 104-201) and required DOD to enhance the capability of federal, state, and local emergency responders regarding terrorist incidents involving WMDs and high-yield explosives. As of October 1, 2000, DOD and DOJ share responsibilities under this program.
- Office of National Preparedness – Consequence Management of WMD Attack. In May 2001, the President asked the Director of FEMA to establish this office to coordinate activities of the listed agencies that address consequence management resulting from the use of WMDs.
- Food Safety Surveillance Systems. These systems are FoodNet and PulseNet, two surveillance systems for identifying and characterizing contaminated food.
- National Disaster Medical System. This system, a partnership between federal agencies, state and local governments, and the private sector, is intended to ensure that resources are available to provide medical services following a disaster that overwhelms the local health care resources.
- Collaborative Funding of Smallpox Research. These agencies conduct research on vaccines for smallpox.
- National Pharmaceutical Stockpile Program. This program maintains repositories of life-saving pharmaceuticals, antidotes, and medical supplies that can be delivered to the site of a biological (or other) attack.

- National Response Teams. The teams constitute a national planning, policy, and coordinating body to provide guidance before and assistance during an incident.
- Interagency Group for Equipment Standards. This group develops and maintains a standardized equipment list of essential items for responding to a terrorist WMD attack. (The complete name for this group is the Interagency Board for Equipment Standardization and Interoperability.)
- Force Packages Response Team. This is a grouping of military units that are designated to respond to an incident.
- Cooperative Work on Rapid Detection of Biological Agents in Animals, Plants, and Food. This cooperative group is developing a system to improve on-site rapid detection of biological agents in animals, plants, and food.