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EFFECTIVE RESPONSES TO THE THREAT OF BIOTERRORISM

HEARING

BEFORE THE

SUBCOMMITTEE ON PUBLIC HEALTH

OF THE

COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS
UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

ON

EXAMINING EFFECTIVE RESPONSES TO THE THREAT OF BIOTERRORISM, FOCUSING ON DETECTION, TREATMENT, AND CONTAINMENT MEASURES

OCTOBER 9, 2001

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EFFECTIVE RESPONSES TO THE THREAT OF BIOTERRORISM

TUESDAY, OCTOBER 9, 2001

U.S. SENATE,
SUBCOMMITTEE ON PUBLIC HEALTH, OF THE COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:02 a.m., in room SD–430, Dirksen Senate Office Building, Hon. Edward M. Kennedy (chairman of the subcommittee) presiding.

Present: Senators Kennedy, Mikulski, Wellstone, Reed, Edwards, Clinton, Dodd, Murray, Frist, Hutchinson, Collins, and Sessions.

OPENING STATEMENT OF SENATOR KENNEDY

The CHAIRMAN. We will start the hearing.

We have two very important panels today. First, we welcome our colleagues to the committee. Then, we have a very important vote at 10:30.

Three of my colleagues are here now. Senator Frist and I will make a statement, and I know Senator Edwards is a cosponsor of this bill with Senator Hagel. Under normal circumstances, six times five is 30, and that is when the bell is supposed to ring. It may ring a few moments before, but we will try to conclude the Senators' statements prior to the vote. Then we will commence with our second panel. We are enormously grateful to them for being here and for their help and assistance to this committee. They are old friends, and we have benefited and the country has benefited immensely as a result of their years of study and work on the matter of bioterrorism and drug-resistant bacteria. We are immensely, immensely appreciative of their willingness at this time to give us the benefit of their judgment and also to give us an idea about where we should be going and additional steps that should be taken.

We will proceed in that order. I will make a brief opening statement and recognize Senator Frist, and then we will turn to our colleagues.

It is a privilege to hold today's hearing on improving the Nation's preparedness for bioterrorism and to continue the work that this committee began 3 years ago on this issue of special importance. Yesterday, Tom Ridge was sworn in as director of the new Office of Homeland Security. One of the immediate tasks facing Governor Ridge is to close the gaps in our ability to deal with the possibility of bioterrorism on American soil. All of us in Congress stand ready

to work with Governor Ridge and Secretary Thompson on this vital assignment.

The response to the recent confirmed anthrax case in Florida and the suspected case in Virginia shows that there are many strengths in our public health and law enforcement systems. But as our witnesses today will attest, there is still much to be done. Every day we delay in expanding our capabilities exposes innocent Americans to needless dangers. We cannot afford to wait.

Senator Frist and I began addressing this challenge 3 years ago. Last November, our initial legislation to strengthen the Nation's capacity to respond to bioterrorism was enacted into law. Last week, we proposed a fivefold increase in current Federal funding to deal with the consequences of a possible bioterrorist attack. Today's hearing will provide further evidence that our $1.4 billion plan is fully justified.

Our first priority must be to prevent an attack. That means enhancing our intelligence capability and our ability to infiltrate terrorist cells. It also means using the renewed partnership between the United States and Russia to make sure that dangerous biological agents do not fall into the hands of terrorists. We have worked with Russia to prevent the spread of nuclear weapons, and we must work together now to prevent the spread of biological weapons.

We must also improve America's preparedness for a bioterrorist attack. The keys to responding effectively to a bioterrorist attack lie in three key components—immediate detection, immediate treatment, and immediate containment.

To improve detection, we should enhance the ability of health professionals to recognize the symptoms of a bioterrorist attack, identify biological weapons accurately, and communicate essential medical information rapidly and securely.

To improve the treatment of victims of a bioterrorist attack, we must strengthen our hospitals and emergency medical plans.

To improve containment, we must make certain that Federal supplies of vaccines and antibiotics are available quickly to assist local health officials in preventing the disease from spreading. Developing new medical resources for the future is also essential. We should use the remarkable skills of our universities and biotechnology companies to give us new and better treatments in the battle against bioterrorism.

Senator Frist and I look forward to working with our colleagues on this committee and in Congress to achieve these extremely important goals. Senator Edwards and Senator Hagel have already put forward a number of significant proposals. We welcome the contributions and leadership of our colleagues, Senator Corzine, Senator Bayh, and Senator Cleland, a member of our Armed Services Committee who has taken a particular leadership position on this issue, as they testify before us today.

September 11 was a turning point in American history. Our challenge now is to do everything we can to learn from that tragic day and prepare effectively for the future.

[The prepared statement of Senator Kennedy follows:]

PREPARED STATEMENT OF SENATOR EDWARD M. KENNEDY

It's a privilege to hold today's hearing on improving the nation's preparedness for bioterrorism, and to continue the work that this committee began three years ago on this issue of special importance.

Yesterday, Governor Tom Ridge was sworn in as President Bush's Director of the new Office of Homeland Security. As our forces continue their actions over Afghanistan, we can expect that our enemies will try to strike against our country again. One of the most immediate tasks facing Governor Ridge as he takes on this new extraordinary responsibility is to close the gaps in our ability to deal with the possibility of bioterrorism on American soil. All of us in Congress stand ready to work with Governor Ridge and Secretary Thompson on this vital assignment.

The response of the Centers for Disease Control, the FBI, and local health authorities to the recent anthrax cases in Florida shows that there are many strengths in our public health and law enforcement system. But as our witnesses today will attest, there is still much to be done.

Last week, Senator Frist and I proposed a five-fold increase in current federal funding to deal with the consequences of a possible bioterrorist attack. Today's hearing will provide further evidence that our $1.4 billion plan is fully justified, and that we should act now to provide this emergency funding.

We want to reassure all Americans that much has already been done to assure their safety from such an attack, and to minimize the spread of biological agents if an attack does occur. The kind of heroism we witnessed from average Americans on September 11—with Americans caring for and protecting their fellow citizens—would take place once again in responding to a bioterrorist threat.

But every day we delay in expanding our capabilities exposes innocent Americans to needless danger. We cannot afford to wait.

That's why Senator Frist and I began addressing this challenge three years ago. Last November, our initial legislation to strengthen the nation's capacity to respond to bioterrorism was enacted into law. Now we look forward to working with the Administration and our colleagues in Congress to assure that the essential work of strengthening these defenses is accomplished as soon as possible.

Our first priority must be to prevent an attack from ever occurring. That means moving quickly to enhance our intelligence capacity and our ability to infiltrate terrorist cells, wherever they may exist. It also means using the renewed partnership between the United States and Russia to make sure that dangerous biological agents do not fall into the hands of terrorists.

Russia currently holds the largest supply of potential biological weapons. We have an opportunity now to make needed progress in securing these dangerous biological materials. We've worked with Russia to prevent the spread of nuclear weapons, and we must work together now to prevent the spread of biological weapons.

We must also enhance America's preparedness for a bioterrorist attack. Our citizens need not live their lives in fear of a biological attack, but building strong defenses is the right thing to do.

Unlike the assaults on New York and Washington, a biological attack would not be accompanied by explosions and police sirens. In the days that followed, victims of the attack would visit their family doctor or the local emergency room, complaining of fevers, aches in the joints or perhaps a sore throat. The actions taken in those first few days will do much to determine how severe the consequences of the attack will be.

The keys to responding effectively to a bioterrorist attack lie in three key concepts: immediate detection, immediate treatment and immediate containment.

To improve detection, we should improve the training of doctors to recognize the symptoms of a bioterrorist attack, so that precious hours will not be lost as doctors try to diagnose their patients. As we've seen in recent days, patients with anthrax and other rarely encountered diseases are often initially diagnosed incorrectly. In addition, public health laboratories need the training, the equipment and the personnel to identify biological weapons as quickly as possible.

In Boston, a recently installed electronic communication system will enable physicians to report unusual symptoms rapidly to local health officials, so that an attack could be identified quickly. Too often, however, as a CDC report has stated: "Global travel and commerce can move microbes around the world at jet speed, yet our public health surveillance systems still rely on a 'Pony Express' system of paper-based reporting and telephone calls."

To improve the treatment of victims of a bioterrorist attack, we must strengthen our hospitals and emergency medical plans. Boston, New York and a few other communities have plans to convert National Guard armories and other public buildings into temporary medical facilities, and other communities need to be well prepared too. Even cities with extensive plans need more resources to ensure that those plans will be effective when they are needed.

To improve containment, we must make certain that federal supplies of vaccines and antibiotics are available quickly to assist local public health officials in preventing the disease from spreading.

Developing new medical resources for the future is also essential. Scientists recently reported that they had determined the complete DNA sequence of the microbe that causes plague. This breakthrough may allow new treatments and vaccines to be developed against this ancient disease scourge. We should use the remarkable skills of our universities and biotechnology companies to give us new and better treatments in the battle against bioterrorism.

Much has already been done to improve the nation's readiness, but we need to be even more prepared. Senator Frist and I look forward to working with our colleagues on this committee and in Congress to achieve these extremely important goals. Senator Edwards and Senator Hagel have already put forward a number of significant proposals. And we welcome the contributions and leadership of our colleagues, Senator Corzine, Senator Bayh, and Senator Cleland, as they testify before us today.

September 11th was a turning point in America's history. Our challenge now is to do everything we can to learn from that tragic day, and prepare effectively for the future.

Senator Frist?

OPENING STATEMENT OF SENATOR FRIST

Senator FRIST. Thank you, Mr. Chairman.

As America begins to strike back against Osama bin Laden, his terrorist cohorts, and the Taliban regime for the brutal assaults of September 11, today we face the possibility that a new front in the war on terrorism has opened at home—a second potentially deadly case of anthrax discovered in Florida just yesterday.

Just as many of us never imagined that America's commercial airliners would be converted into weapons of mass destruction, it is perhaps beyond the grasp of many that the weapons of choice in the war of the 21st century may well be tularemia, smallpox, and anthrax. But this should come as no surprise. As we will hear today, the threats from biological and chemical agents are real. Terrorist groups have the resources and the motivation to use germ warfare.

Osama bin Laden has said publicly that it is his religious duty to acquire weapons of mass destruction, including biological and chemical weapons. We all know that rapid advances in agent delivery technology have made the weaponization of germs much, much easier.

Finally, with the fall of the Soviet Union, the expertise of thousands and thousands of scientists knowledgeable, trained professionally in germ warfare, may be available to the highest bidder. It can be bought.

Unfortunately, as we will also hear today, America is not yet fully prepared to meet the threat of biological warfare. Great strides have been made in the past 3 years, but there is much more to be done. There are gaps to be filled.

Today some of the Nation's leading experts on bioterrorism will help provide us further guidance as we prepare to meet this remote yet very real and growing threat. A biological or chemical attack on our soil could be even more deadly and more destructive than the recent attacks on the World Trade Center and the Pentagon.

Without a substantial new Federal investment in our public health infrastructure, increased intelligence and preventive measures, expedited development and production of vaccines and treatments, and constant vigilance on the part of our Nation's health care workers, a terrorist attack using a deadly infectious agent, whether delivered through air, through food, or by any other means, could kill or sicken millions of Americans.

Senator Kennedy has already mentioned the Public Health Threats and Emergencies Act of 2000 which originated in this committee and was ultimately passed. It provides a coherent and I believe relatively comprehensive framework for responding to health threats resulting from bioterrorism.

Last week, Senator Kennedy and I asked the administration and the Senate Committee on Appropriations to provide an additional $1.4 billion for these activities. The vast majority of these funds would go toward a one-time investment in strengthening the response capabilities of our hospitals, our health care professionals, and local public health agencies that would indeed form the front line response team in the aftermath of a bioweapons attack.

I look forward to working with our colleagues in the U.S. Senate and with the administration toward this goal.

I too would like to recognize those Senators before us for their leadership on this particular issue. I believe their presence here is a heartening signal of the growing focus and commitment on the part of the United States Congress to take those steps necessary this year to make sure that our Nation is fully prepared to respond to any threat to the American people.

The CHAIRMAN. Thank you very much.

The CHAIRMAN. Senator Cleland, we welcome you to our committee. We enjoy serving with you on the Armed Services Committee where you have made this a particular area of your expertise.

Welcome.

STATEMENTS OF HON. MAX CLELAND, A U.S. SENATOR FROM GEORGIA; HON. CHUCK HAGEL, A U.S. SENATOR FROM NEBRASKA; HON. EVAN BAYH, A U.S. SENATOR FROM INDIANA; AND HON. JON CORZINE, A U.S. SENATOR FROM NEW JERSEY

Senator CLELAND. Thank you very much, Mr. Chairman. I am honored to be here with my distinguished colleagues and with all of you.

Mr. Chairman, we have long known that the threat of bioterrorism has existed. In the mid-1990's, intelligence sources believed that Iraq had a sophisticated bioweapons program, and during the cold war, the Soviet Union produced unknown quantities of the smallpox virus.

In the wake of the September 11 attack on America, our intelligence agencies now State that there is a 100 percent chance of another domestic attack. What form of terror this attack will take is unknown, but we have seen bin Laden and his followers become more brutal and complex in their planning.

Are we fully prepared to deal with such bioterrorism events? The answer at the moment is clearly no.

Look at the results of the Johns Hopkins-sponsored "Dark Winter" smallpox bioterrorism exercise, which my former colleague and friend Sam Nunn participated in. There was another exercise, "TOPOFF," regarding top officials regarding a nuclear and bioterrorism drill conducted this year to test the capabilities of the Centers for Disease Control and Prevention, the Federal Emergency Management Agency, the FBI and DOD. Both of these tests dramatically illustrate that our response to date is woefully inadequate to deal with a domestic bioterrorist event and that a reconsideration of both strategy and organizational structure is needed.

I would like to call the committee's attention this morning to restructuring and improving dramatically the CDC in Atlanta, GA, which is an international resource for fighting bioterrorism.

In 1999, I joined with Senators Kennedy, Mikulski, Murray, and my late friend Paul Coverdell to address the critically needed repairs and upgrade of the CDC's buildings and facilities. This has been an ongoing effort. The CDC is universally recognized as the lead Federal agency for protecting the health and safety of people at home and abroad, as well as the response and readiness for bioterrorist threats against the United States.

However, Mr. Chairman, before last year, the CDC had been insufficiently funded to maintain the security of its perimeter and the safety of its laboratories. The CDC, which is based in Atlanta, was still using World War II-era buildings from a reclaimed army base. Scientists and laboratory staff were patching holes in the ceilings to protect their research studies. I have seen this kind of thing.

In fiscal year 2001, we started the first year of compressing a 10-year CDC renovation plan into 5 years. That is the massive upgrade that we are talking about. This faster upgrade is more critical now than ever before.

I would like to acknowledge three of Georgia's outstanding business leaders—Bernie Marcus, former head of Home Depot; Oz Nelson, former head of UPS; and Phil Jacobs, head of Bell South—known as friends of the CDC. They called these horrible situations to my attention.

I would like to commend Senators Kennedy and Frist for your insights in developing and getting the Public Health Threats and Emergencies Act passed last year. This measure is critical in helping us to develop the needed infrastructure.

I also commend key provisions in the measure which would enable CDC to maximize its bioterrorism response capabilities and to improve the preparedness of communities and hospitals.

The level of preparedness for homeland defense that we will need to protect Americans will require money and resources and will take time. We can and must take the additionally needed steps and dramatically improve what we have in place, especially the CDC. This is one reason, Mr. Chairman, why I am seeking some $100 million extra beyond the $150 million that the President has requested for this fiscal year 2002 budget, and which will be going after three-quarters of a billion dollars of your $1.4 billion bioterrorism budget.

I believe the President has taken an important step with the creation of a Cabinet-level position for homeland defense, but one of the key defenders in this homeland of ours is the CDC, and I urge my colleagues to pay special attention to that agency.

Thank you very much, Mr. Chairman.

The CHAIRMAN. I would just point out for the record, Senator, that you were tireless in pursuing the importance of upgrading the physical aspects of the CDC. None of us needs to be told how important that is in terms of its contribution to safety and public health. We were able to get that authorized and funded last year because of your intervention, and that has played an indispensable role both in New York and Florida.

Senator CLELAND. And with the anthrax scare, Mr. Chairman, the CDC has been able to be on top of that with 100 vials of antibiotics there to deal with that situation. But what we are talking about here is a bioterrorist attack where you have mass casualties, and we are patently unprepared to deal with that.

The CHAIRMAN. Thank you very much.

Senator CLELAND. I thank the chairman.

The CHAIRMAN. Senator Hagel.

Senator HAGEL. Mr. Chairman, thank you.

I wish to extend my thanks to you and Senator Frist for your leadership. It has been very much a part of this issue over a rather

sustained period of time; so to each of you, we appreciate that leadership and the very fast action that you are putting into place, especially with this hearing this morning, and the actions and consequences that will result from the hearing.

My colleague and your committee colleague, Senator Edwards, and I collaborated last week on a bill that you mentioned, Chairman Kennedy, that we have introduced. I would like to take the time to address some of the general areas of what Senator Edwards' and my bill will do to hopefully contribute to this very real threat that our country and the world face, and to also thank the professionals who will be coming behind this panel of Senators. They are the real professionals who understand the issue and who will be charged with some very significant responsibilities as we set some perimeters for them and provide them with the new resources that we must.

With that, the bill that Senator Edwards and I have introduced is a bill that addresses some very general areas of local, State, and Federal responders, and in particular the State and local first responders who are the ones who need, it is our belief, the resources because they are the ones who, as we have seen in New York and at the Pentagon, must deal with this on a real case basis and in real time.

So the $1.6 billion bill that Senator Edwards and I have introduced focuses on some of the following key areas—developing and stockpiling vaccines and antibiotics at the Centers for Disease Control, Department of Energy, National Institutes of Health, and Department of Agriculture; it provides additional training and equipment to State and local first responders; it enhances disease surveillance through coordinated efforts between the CDC and State and local public health services to provide sophisticated electronic nationwide access to medical treatment, data, guidelines, and health alerts.

This bill also strengthens the local public health networks, including increased training, coordination, and Federal assistance. It assists local hospital emergency rooms with response training for personnel, biocontainment, and decontamination capabilities. It protects food safety and the agricultural economy from biological and chemical threats. This is a very significant part, Mr. Chairman, of our bill to focus on. It is one that I suspect, especially in light of the conversation that you and I had last week when we testified before the Senate Appropriations Committee, needs some attention.

We provide in this bill assistance to States and local governments and health facilities through a series of block grants. We believe it is the best approach, the most accountable and responsible approach, to let these State and local first responders deal with these resources and frame them as they believe they need them.

And our bill adds additional funding for Federal Government programs, much of what we are already doing, but we go further in some of these areas, and a number of agencies are connected to our efforts.

Mr. Chairman, Senator Frist, we are all grateful again for your leadership and for an opportunity for me to represent my colleague, Senator Edwards, and myself here this morning to address some of

the specifics of our bill and would be pleased to respond to any questions.

Thank you.

The CHAIRMAN. Thank you very much.

Senator Bayh?

Senator BAYH. Thank you very much, Mr. Chairman.

I would like to echo the words of my colleague, Senator Hagel, in thanking you and Senator Frist for having this hearing today and for your legislation. It is reassuring to the country to have two individuals who have dedicated their lives to the cause of public health leading us in this effort.

Senator Frist, I listened to your comments, and I whole-heartedly concur. I believe that biological weapons have been characterized as "the poor man's nuclear weapon," and they pose a much greater risk to our country today than ever before. So to both you and Chairman Kennedy, I give my thanks for focusing on this very timely threat to our national security.

I want to acknowledge the good work of our colleague, Senator Hagel and my friend and colleague Senator Edwards. My proposal, Mr. Chairman, builds upon your work and Senator Frist's work and their work and seeks to refine and perhaps improve upon the area of State preparedness, which is vitally important to a successful response to an attack of this kind.

To Senator Cleland, my good friend, I would say, Max, that my proposal will be squarely within the context of the CDC, under its umbrella and its good leadership, so I thank you for your work in this regard as well.

Finally, Mr. Chairman, I am here today not only testifying in behalf of my own proposal but on behalf of seven of our colleagues, six of whom also served as former Governors and are well aware of the important role that State and local communities play in responding to any attack of this kind.

Mr. Chairman, I would like to build upon your recommendations, your legislation, and Senator Frist's and also Senator Hagel's and Senator Edwards', particularly in the area of State preparedness, because one of the things that we have learned, as you mentioned in your very eloquent opening remarks, is that State and local communities are on the front lines of responding to any threat to our country of this nature.

Yet, Mr. Chairman, it should be deeply concerning to all of us that a recent report indicated that too many States are not as prepared as they need to be to respond to a biological or chemical attack. As a matter of fact, the GAO just a few months ago determined that many States lacked the planning, the basic public health infrastructure, and the ability to respond to mass casualties or a surge of casualties that would be occasioned by a biological or chemical attack. And this, Mr. Chairman, in spite of the $124 million that has been spent over the last 2 years assisting States and local communities to beef up their capacity. Clearly, more work needs to be done.

This is vitally important, as both of you have mentioned, because particularly in the area of a biological attack, it is quite possible that for the first several days while the diseases are communicable, cases could go undiagnosed or misdiagnosed because many of the

symptoms, as I am sure Senator Frist would concur, replicate those of influenza or other diseases. So it is vitally important, Mr. Chairman, that we have trained health responders on the scene at the State and local level to make sure that we respond as comprehensively and quickly as possible.

Specifically, Mr. Chairman, I propose the following—that we allocate $5 million per year to each individual State and an additional $200 million to be allocated on the basis of population. I believe that this is an improvement, Mr. Chairman, over the competitive grant approach. Competitive grants work very well in many circumstances, but here, Mr. Chairman, I think we simply do not want to leave any State behind in its preparedness to respond to a biological or chemical attack.

It would be ironic, Mr. Chairman, if we left some States out. That would have the unintended consequence perhaps of identifying them as softer targets for anyone who would wish to do our country ill. So I would respectfully request that we allow every State to improve its planning to prepare for this eventuality.

Our proposal is somewhat more flexible than some others that have been suggested because it is impossible for those of us sitting in Washington here today to identify each State's needs and the myriad possibilities that need to be addressed. Therefore, we require a plan to be submitted to the Secretary of Health and Human Services detailing the State's proposal and describing in depth its training and other initiatives but giving greater latitude to Governors and local officials to allocate the resources as needed and as dictated by the requirements of each individual State.

Finally, Mr. Chairman, we would fund a simulation for each State so that each State could literally do a run-through of its plan to see where its strengths and weaknesses are and obviously improve those areas in need of additional attention. We require that they be part of the CDC's national communication network that has been underway for 2 years. We clearly need to have improved communication.

And finally, Mr. Chairman, we would provide some additional funding as necessary for the best practices program currently funded through the CDC so that States and local communities can learn from one another about what works and what does not work.

Again, Mr. Chairman, I would like to thank you, Senator Frist, and your colleagues on the committee for your courtesy today. State Governors and local officials are clearly on the front lines, and Mr. Chairman, I would like to work with you to ensure that those who will respond first to a disaster of this kind are prepared to do so in the most timely and effective manner.

I thank you for holding the hearing.

The CHAIRMAN. Thank you very much. We look forward to working with all of our panelists.

We are glad to welcome Senator Corzine. His State and its people have suffered immensely. We can understand why, having gone through the horrific experience on September 11, Senator Corzine wants to make sure that we as a country are prepared to deal with other potential challenges of bioterrorism.

We welcome you.

Senator CORZINE. Mr. Chairman, Senator Frist, and members of the committee, I am truly appreciative of the opportunity to talk to you about the preparedness issue with regard to biological and chemical weapons. It is a real issue.

Just this last Friday, I sat with 34 hospital administrators in New Jersey and discussed this issue, and quite frankly, I came away chilled and sobered by the lack of coordinated planning with regard particularly to biological attacks. It is of very serious concern; I agree with many of the comments of my colleagues and do believe very much that it needs to be a very coordinated approach that works with the States and local governments.

I think there is a growing consensus not only in New Jersey but across the country that we are unprepared for a serious biological and chemical attack, and I compliment you and Senator Frist for your efforts and leadership in this area. I think it is terrific what you have proposed.

I would like to take it a step further, particularly with regard to the planning and coordination, and to that end, I introduced legislation, the Biological and Chemical Attack Preparedness Act, which happens to be S. 1508, really designed to build on your efforts, but it deals with improving coordination and planning of hospitals, State, local, and Federal governments in responding to these kinds of attacks.

This bill is in concert with Senators Torricelli and Jack Reed, and the fundamental goal is to ensure that every American has access to public health resources in the event of such an attack through pre-prescribed comprehensive and coordinated planning.

Our Nation's response, Mr. Chairman, to chemical and biological attacks will depend on a system that, frankly, is patchwork at best, and the disparities in planning and capacity of the various States and individual hospitals is really quite serious. It is in my own State and I suspect across the Nation.

Improving our preparedness will require, first, resources. My legislation, as the others have suggested, provides for a grant program that would help hospitals, States, and municipalities purchase the items, services, and training that would be needed in the event we need to meet this kind of disaster.

But simply distributing money is not sufficient in my view. We also need to ensure that every part of the country is covered and that they fully take up their responsibility in this area. We need a systematic, complete, comprehensive approach to the problem, with more coordination among the many parties involved.

In an effort to promote such coordination, I would require each State to promptly develop and implement a public health disaster plan that addresses biological and chemical weapon attacks. Each disaster plan would be created in consultation with the many stakeholders in the State health care infrastructure, but it would be complete.

The fact is they need to be developed for each individual State. The needs of New Jersey are more than a little bit different than those of Wyoming.

The legislation I propose has an accountability feature in it. It requires certification of the Department of Health and Human Services that we are meeting that comprehensive coverage element,

and it has a condition that if those plans are not in place and do not meet the compliance requirements of Health and Human Services, then Medicaid funding would be held in abeyance.

As part of the disaster plan, each State would designate specific hospitals to assume responsibility for meeting related medical needs. One of the things that is very clear is that while this patchwork exists, everybody seems to be trying to meet the same problem, and there is a real need for a coordinated approach so that we do not overspend in this effort. We want to have a coordinated and comprehensive approach.

Mr. Chairman, I thank you for all the efforts that you and Senator Frist are making. I think we need to have an accountable system, one that takes into account the ideas of all those at the local level; but I think we need to move very quickly. This is a danger, and it is probably not whether, but when we will have to deal with these issues, as we are seeing in Florida now.

I appreciate this chance to comment, and I would like to work with my colleagues to make sure that we have that comprehensive approach for every American.

Thank you.

The CHAIRMAN. Thank you.

Senator Edwards is a cosponsor and is also a member of the committee. As a matter of courtesy, if you want to make a brief comment, Senator, in addition to what Senator Hagel has said about your bill, we would welcome it at this time. Then it would be our intention to recess and vote and return with the second panel.

Senator Edwards?

OPENING STATEMENT OF SENATOR EDWARDS

Senator EDWARDS. Thank you, Mr. Chairman. I will be very brief because I know we need to get to the second panel.

Senator Hagel covered very well the legislation that he and I have introduced. I also want to thank the chairman and Senator Frist for all the work you have done, the leadership you have shown, and all the members of the panel. We need the contributions of everyone on this very important issue to our country.

The focus of Senator Hagel's and my legislation is on the people who will have to identify that a biological attack has occurred—your local emergency room, your local public health department, your family physician. These are the people who have to be trained and equipped to recognize and identify what is happening; and once they identify it, they have got to know what to do with that information.

In effect, what we need to do is provide education and training for local first responders, and put a disease surveillance system in place so they can transfer the information to the place it needs to go.

The second thing we need to do is make to sure that we have adequate antibiotics and vaccine available to treat whatever the biological agent is.

And the third priority is to deal with the issue of agri-terrorism, which I know all of us have had a great concern about. Senator Frist, Senator Kennedy, and I have discussed this. We need to protect our food supply, including our crops and farms.

And I might add that I think a very important component of our bill is that, in the past, a lot of the funding that has been appropriated bioterrorism has stayed in Washington, DC. I think that misallocation is an enormous mistake which our bill seeks to remedy. We can equip all the expert response teams in the world here in Washington, but the people who need help are the people out there on the front lines—the doctors, the emergency rooms, the nurses, and the public health officials. Our bill gets the money out of Washington to the place where I believe that it is most needed—the people on the front lines.

Mr. Chairman, I thank you for allowing me to make a statement.

Senator Hagel, I thank you for your cosponsorship, and I thank all my colleagues for their very important contribution to this issue of national security.

The CHAIRMAN. I want to thank all of you very much.

A number of points caught my attention. One was Senator Bayh's mention of the difference in the grants approach. We have a competitive grant program because we have limited resources. Senator Frist can speak to this as well, but we would support the broader amounts for block grants with additional resources; we would be glad to work with you. It may be worthwhile to start that way in order to get this program started, but we do want to make sure that every State gets resources—but that moves the total amount up. I certainly feel that it would be justified, but it is basically a question of resources. We would be glad to work with you to take that into account.

Senator BAYH. Thank you, Mr. Chairman.

The CHAIRMAN. We thank all of the members. There are a lot of good ideas and a lot of areas covered that were not included in our proposal, so we value all of these suggestions. There will be others of our colleagues who have thought about this issue and have been meeting with experts back in their own communities. I think what is important for the American people to understand is that we have a way to go. But we have members of the administration and of Congress who are serious about trying to work through a process to do everything that we possibly can. We are committed to getting the resources out there, and we are going to go about our business in getting this job done.

We look forward to the next panel. They are the real experts. I think they can give the American people some very important insights about where we are in addition to what we should be doing.

We will recess now for 10 minutes.

[Recess.]

The CHAIRMAN. The committee will come to order.

We have a very distinguished panel of experts in bioterrorism. Janet Heinrich led the team that prepared the recent GAO report on bioterrorism. As we developed legislation last year, Senator Frist and I were struck by how difficult it was to get a clear accounting of Federal activities in bioterrorism. We are grateful to her for the comprehensive and insightful report on this issue.

We welcome any comments that Senator Mikulski would like to make by way of introduction of Dr. Donald Henderson.

Senator MIKULSKI. Thank you very much, Mr. Chairman. Again, I want to thank you and Senator Frist for organizing this hearing.

What I am so proud of is that both of you have taken the leadership well before this gruesome attack on the United States of America. Your leadership in other hearings on bioterrorism as well as your leadership in improving the public health infrastructure I think has laid the groundwork for us to be able to be ready, prepared, and able to respond. So I wish to thank you.

Mr. Chairman, many of us have been working on this issue for some time, and I am proud to introduce to you one of the outstanding people in the United States of America in the field of epidemiology, eradicating disease, and helping America be prepared now.

Dr. Donald Henderson comes to the table having recently been appointed by Secretary Thompson to head his Bioterrorism Advisory Panel. You could not have picked a better witness, and Secretary Thompson could not have picked a better person. Dr. Henderson is known globally for his leadership in eliminating smallpox around the world and also was dean of the Johns Hopkins School of Public Health.

After leaving that post, he assembled the Center for Civilian Biodefense Studies, a small group operating out of Johns Hopkins that, quite frankly, I have going through earmarks—those little congressional mandates—because nobody else thought it was an important issue. Those little earmarks enabled Dr. Henderson to assemble the staff to do a good job.

I really encourage us to listen to him because yes, we do need to do prevention and work through our law enforcement and national security, and yes, we need to be prepared, and we are going to have questions of Dr. Henderson and the panel, and we need to be able to respond. I am concerned that, after all the early surveillance and after all the detection, we will not be ready to respond because our first responders themselves will be wounded warriors.

So we look forward to listening to our experts, and Mr. Chairman, I really think we need to move with a great sense of urgency both here, with our authorizing, as well as with the appropriations, because we need to be able to manage the attacks, and we also need to manage the panic around those attacks.

So I am very honored to introduce Dr. Henderson to you.

[The prepared statement of Senator Mikulski follows:]

PREPARED STATEMENT OF SENATOR MIKULSKI

Mr. Chairman, thank you for holding this important hearing today on bioterrorism. I want to applaud you and Senator Frist for your leadership on this issue. I extend a special welcome to Dr. D. A. Henderson, Director of the Center for Civilian Biodefense Studies at Johns Hopkins, a real hero and an expert in his field.

What happened on September 11th was not only an attack against America. It was a crime against democracy, and decency. It was a crime against humanity. American citizens, American aircraft, American buildings were brought down by these barbaric terrorist attacks. Yet the American people—and our free and open society—stand unbowed and united.

Now Americans are more determined than ever to protect the safety and security of this great nation. Bioterrorism is one of the gravest threats and greatest challenges we face. Preparing our federal, state, and local governments to detect and respond to a bio-

terrorist attack will require an enormous commitment of resources and the coordination of nearly every federal agency. It's a daunting task, but the United States Congress—and the American people—are up to the challenge.

Efforts are underway. I was proud to be an early cosponsor of Senator Frist and Senator Kennedy's Public Health Threats and Emergencies Act that became law last year. Strengthening our nation's public health infrastructure is essential to our preparedness for and response to a bioterrorist attack. I have been working with my colleagues on the Subcommittee and on the Appropriations Committee over the last couple of years to make sure we have the infrastructure and resources to prepare ourselves for this threat. Now it's time to step up these efforts.

Many federal agencies and departments have been involved—from the Centers for Disease Control and Prevention to Ft. Detrick in Maryland that is on the frontline of bioweapons research to develop our best defense against these weapons. As Chairman of the Appropriations Subcommittee that funds the Federal Emergency Management Agency (FEMA), I am working with Ranking Member Bond and Director Allbaugh to ensure that FEMA is ready to handle its role of consequence management in the event of a bioterrorist attack.

An explosion of doctors' visits—not the explosion of a building—may be the first sign of a bioterrorist attack. That's why we need a strong public health infrastructure—to detect a bioterrorist attack; to make sure federal, state, and local agencies have the resources, tools, and technology to combat bioterrorism; and to ensure that health professionals are trained to recognize the symptoms of potential biologic agents. We must encourage research into new drugs and vaccines to prevent against the effects of a bioterrorist attack. And we must give FDA the tools and resources it needs to protect the safety of our food supply. Investments in the fight against bioterrorism will pay off in other public health arenas such as antimicrobial resistance and infectious disease detection. Public health departments are on the front lines of this new kind of war. Let's make sure they are combat ready and fit-for-duty.

Lines of communication and accountability among our federal agencies, as well as at all levels, must be clear. Cowardly terrorists don't respect borders or boundaries. I want to make sure that our government agencies aren't letting jurisdictional boundaries or smokestack mentalities prevent the type of critical planning and training our country needs.

I look forward to the testimony of all our witnesses today. We have much to learn and much to do. This is a national problem that requires a national solution and national leadership from the federal government. It requires the best and the brightest at all levels of government and industry. We must not wait for another disaster to occur. We must be ready with a plan of defense and a plan of offense. I look forward to working with my colleagues to make sure that we are combat ready for a bioterrorist attack. Thank you.

The CHAIRMAN. Thank you so much.

Dr. Henderson, Senator Frist and I both want to thank you so much for your help in drafting our own legislation. You were good

enough to give up part of your vacation to come back. You have a longstanding commitment in this area, and we look forward to your testimony.

I see my colleague Senator Wellstone here, who would like to introduce a very special witness, and we are glad to hear from him.

Senator WELLSTONE. Thank you, Mr. Chairman. I will be very brief.

Mr. Chairman, it is interesting that Michael Osterholm, of whom we are very proud in Minnesota, dedicated his book, "Living Terrors: What America Needs to Know to Survive the Coming Bioterrorist Catastrophe"—which is unfortunately prophetic—to "Donald Henderson who, more than 20 years ago, led mankind's greatest public health and medical accomplishment, the eradication of smallpox, and who has courageously entered the fight again to prevent its horrible return."

I also want to honor you, Dr. Henderson. If Dr. Osterholm does, then I certainly as a Senator from Minnesota will do so as well.

Michael Osterholm was the former Minnesota State Epidemiologist, and he has been internationally recognized. I think Senator Frist and Senator Kennedy have both met with Michael, and I thank both of you for your very fine work. He has been an internationally recognized leader in the area of infectious disease for the past two decades. He is a recipient of numerous honors and awards, and he served as personal advisor on bioterrorism to the late King Hussein of Jordan. He has led numerous successful investigations into infectious disease outbreaks of global importance. He has lectured around the world, and he is now director of the Center for Infectious Disease Research and Policy and professor at the School of Public Health at the University of Minnesota.

He is a very strong, steady, intelligent, experienced voice, and we thank him for being with us.

The CHAIRMAN. Thank you very much.

We are also fortunate to have Dr. Mohammad Akhter, who has been a leader in public health, director of the American Public Health Association. He has been a dedicated and skilled advocate for better health for all, and through his clinical practice around the world, he has encountered some of the infectious diseases that might be used in a biological attack. So our committee looks forward to hearing from him.

And finally, Janet Heinrich led the team that prepared the recent GAO report on bioterrorism. I mentioned earlier, Dr. Heinrich, how helpful it was to get your report and how much we appreciate your assistance in finding out where the gaps are and the areas we should be addressing. We are looking forward to continuing to work with you to try to address those observations. So, in the great tradition of the GAO, it is very constructive and helpful work, and we are looking forward to your testimony.

Dr. Henderson, please.

STATEMENTS OF DR. DONALD A. HENDERSON, DIRECTOR, JOHNS HOPKINS CENTER FOR CIVILIAN BIODEFENSE STUDIES, BALTIMORE, MD; JANET HEINRICH, DIRECTOR, HEALTH CARE AND PUBLIC HEALTH ISSUES, U.S. GENERAL ACCOUNTING OFFICE, WASHINGTON, DC; DR. MOHAMMAD N. AKHTER, EXECUTIVE DIRECTOR, AMERICAN PUBLIC HEALTH ASSOCIATION, WASHINGTON, DC; AND MICHAEL T. OSTERHOLM, DIRECTOR, CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MN

Dr. HENDERSON. Thank you, Mr. Chairman and distinguished members of the committee, for this hearing and for your leadership in this field, and my appreciation to Senator Mikulski for her very generous introduction.

Tragically, we find ourselves contemplating the possibility of a bioterrorist attack on U.S. civilians. As we consider these grave matters, it is important that we recognize that that attack is by no means a foregone conclusion; but the risk of this is not zero.

Some of the distinguished experts in this field have pointed out that it is difficult to identify a pathogenic organism, to grow it properly, to put it in the proper form, and then to disperse it. I think we need to remind some of our distinguished experts in the field that those who flew the airplanes into the trade towers did not know how to make airplanes. They have money, they have access, and they can coopt that which they do not have.

There is much that can be done if we take some prudent action beforehand. It has been emphasized by several that the first responders are health care workers and public health officials. There are many who still do not appreciate this and who still seem to think that we would be dealing with fire, police, and emergency rescue people. They will be needed for explosive and chemical events, but a bioterrorist attack on the United States would be completely different from the events of September 11. It would in all likelihood be a covert attack. There would be no discrete event, no explosion, no immediately obvious disaster to which the firefighters and the police and the ambulances would rush. We would know we had been attacked only when people began appearing in emergency rooms and doctors' offices.

Our ability to effectively deal with such an event depends directly on the capacity of our medical care institutions and our public health system to quickly recognize that an attack has occurred, to promptly identify those who might be at risk, and to deliver effective medical care, possibly on a massive scale.

A number of steps have been taken to prepare the Nation to respond, and clearly, I would say from my position that we are better positioned to do this now than we were several months ago, indeed, several weeks ago. But there is an awfully great deal that needs to be done yet.

On October 4, Secretary of Health and Human Services Tommy Thompson named me to chair an advisory council which is to work with him in furthering efforts to prepare the Nation to respond. I am honored to accept this post. The council is intended to draw on expertise and persons from across the country with varied experience at local, State, and Federal levels. The membership of the

council and its precise functions will be established within the next few days.

There is particular concern on the part of your committee and certainly at this time in the executive office as to needs in the immediate and near term—really, within the next 30 to 90 days—to better prepare the Nation to respond to possible acts of bioterrorism, and that is what I will tend to focus on.

In doing so, however, it is important that we bear in mind that there are no simple actions that we can take or one-time infusions of funding that will rebuild a deteriorated public health system quickly and provide the needed surge capacity in our hospitals to be able to cope on an emergency basis with large numbers of casualties. We do need a longer-term strategy.

The Department of Health and Human Services over the past several years, and especially in recent months, has taken a number of important steps to improve our readiness to respond to bioterrorism. There are many capable people working on a number of different projects. The efforts, however, still lack coherence. The diverse and disconnected efforts have to be brought together into a single unified program, and that is, I know, high on the Secretary's agenda. We need a single, centralized medical and public health strategy for preparing the Nation to respond.

State and local public health departments across the country are the real backbone for detection and response to biological weapons attack, and that has been noted earlier this morning. They need resources, and they need them urgently if they are to effectively carry out even the rudimentary actions which are absolutely essential for dealing with a major infectious disease outbreak.

It is difficult for me to exaggerate the deficiencies of our present public health capabilities. Assuming that Federal funds could expeditiously be made available, there will be need for an expedited process to get those funds to State and local levels. Reference has been made to block grants as perhaps being an approach to do that.

Such funds cannot be overly constrained, because certainly, priorities and needs do differ from Newark to Phoenix to Montgomery County, AL.

There are specific public health functions in need of immediate improvement. If we are to detect and rapidly identify a new health problem, health officials must be available 24 hours a day, 7 days a week, to take calls from clinicians reporting cases which may be suggestive of a bioweapons-related disease. In many areas of the country today, this is not done, and indeed it is not possible because of lack of personnel to take those calls.

Support in terms of training and equipment is being provided to a national network of 80 laboratories capable of diagnosing the principal threat agents. One of these laboratories in Florida is the one responsible for the early diagnosis of the anthrax case. That process needs to be substantially speeded up—that is, their capacity to differentiate a number of different organisms which ordinarily laboratories would not see—so that the full range of potential agents could be rapidly and accurately identified.

The Department of Health and Human Service began some years ago to require a national stockpile of drugs and equipment that

could be called upon in case of need for a mass casualty situation. Because of recent events, the nature and quantity of materials available will need to be reviewed, and I have been asked to meet with an expert advisory group later this month to do exactly that.

Secretary Thompson has initiated a number of steps to ensure that the supplies of smallpox vaccine are immediately ready for distribution if needed and has taken steps to expand the amount of smallpox vaccine available at an early time.

But perhaps the most uncertain part of the equation that has not really been addressed is how to get those drugs and vaccines to the population involved in a very short period of time. Distribution is not easy. Health departments have had very little experience in the large-scale, rapid distribution of either drugs or vaccines. Here again is where resources are needed for the State and local health departments to undertaken contingency planning for distribution and to prepare themselves.

However much we try to provide from the Federal level, we will be highly dependent on the knowledgeable people at the local level who know the area, as they say, know the territory, and know the buttons to push to get something done.

For our public health officials, emergency room health personnel, and infectious disease physicians, educational materials are urgently in need. At this time, many of these diseases are totally unknown to those who would be likely to see cases. To date, few good materials have yet to be provided.

Obviously, it does little good to have a public health system that can detect disease outbreaks and manage epidemics if we cannot take care of the sick people. Over the past decade, our hospitals and the medical care system have labored under intense financial pressures. One reaction to these pressures has been the elimination of excess capacity from the health care system. Today, few hospitals could respond effectively to a sudden, significant surge in patient demand. Indeed, based on our contacts with hospitals and hospital associations, we believe that 500 patients would overwhelm the health care systems of most cities.

The first step is to recognize that the problem exists and to encourage hospitals to join forces in the search for solutions. We would advocate an effort to establish regional consortia of hospitals, groups of institutions collocated in cities or counties around the Nation, to begin planning. Here, they need to plan with the State and local health departments.

But even simple steps will require money, and financial relief or incentives to enable hospitals to carry out these initial steps should be considered.

Finally, just a word on research and development. A well-conceived and integrated plan for research and development is clearly needed. We have a number of challenges. In the near term, we could use an improved anthrax vaccine, and a great deal has been done. With an intensive effort, that vaccine should be able to be available within a matter of a couple of years. There are new therapies to treat anthrax. We need drugs to deal with the complications of smallpox vaccine.

Beyond this, one could envisage an array of solutions that might prevent the use of biological weapons or at least mitigate the likeli-

hood of their use and so make bioterrorism and its consequences less likely or less severe. The science section of The New York Times today provides an interesting array to display some of the initiatives that might be taken.

But years and not months will be required for the development. Regrettably, I am afraid that biological weapons and biological terrorism will be with us for the foreseeable future.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Dr. Henderson.

[The prepared statement of Dr. Henderson follows:]

PREPARED STATEMENT OF DONALD A. HENDERSON, M.D., MPH, DIRECTOR, JOHNS HOPKINS CENTER FOR CIVILIAN BIODEFENSE STUDIES

Mr. Chairman, distinguished members of the Committee, tragically, we find ourselves contemplating the possibility of a bioterrorist attack on US civilians. As we consider these grave matters, it is important that we recognize that such an attack is by no means a foregone conclusion although the risk is not zero. However, there is much that can be done—if we take prudent actions beforehand—to mitigate the consequences of an epidemic deliberately initiated by terrorists.

A bioterrorist attack on the US would be completely different from the events of 11 September. It would in all likelihood be a covert attack. There would be no discrete "event"; no explosion, no immediately obvious disaster to which firefighters and police and ambulances would rush. We would know we had been attacked only when people began appearing in emergency rooms and doctors' offices with inexplicable illnesses or with seemingly common illnesses of unusual severity.

The "first responders" to bioterrorism would be health care workers and public health officials. Our ability to effectively deal with such an event depends directly on the capacity of our medical care institutions and our public health system to quickly recognize that an attack has occurred; to promptly identify those who might be a risk; to deliver effective medical care—possibly on a massive scale; and, should the bioweapon prove to be transmitted from person to person, to rapidly track and contain the spread of disease. A number of steps have been taken to fully prepare the nation to respond and, clearly, we are better positioned than we were several months ago, indeed several weeks ago, but much remains to be done.

On October 4, Secretary of Health and Human Services Tommy Thompson named me Chair of an Advisory body which is to work with the Secretary in furthering efforts to prepare the nation to respond to acts of bioterrorism or other attacks which could place large numbers of US civilian victims needing medical attention. I am honored to accept this post, but as I am sure you will understand, it is premature to discuss either the functions or composition of the Advisory Council other than to say that it will operate in accordance with the Federal Advisory Committee Act (FACA). It will draw on expertise and persons from across the country and with varied experience at local, state and federal level. The membership of the Council and its precise functions will be established within the next few weeks.

There is concern on the part of your Committee as to needs in the immediate and near-term—that is, the next 30–60 days—to better prepare the nation to respond to possible acts of bioterrorism and that I am happy to address. In doing so, however, it is important that we bear in mind that there are no simple actions or one-time infusions of funding that will rebuild a deteriorated public health system and provide the needed surge capacity in our hospitals to be able to cope, on an emergency basis, with large numbers of casualties. A longer-term strategy is critical. We must also, at the same time, embark on a search for better ways to prevent and treat infectious disease, especially those diseases likely to be used as biological weapons. We must find ways to use our significant assets in biomedical research to make bioweapons effectively obsolete as weapons of mass destruction.

HHS, over the past several years but especially in recent months, has taken a number of important steps to improve our readiness to respond to bioterrorism. There have been many laudable new initiatives, and existing programs that have relevance to bioterrorism response that have been promoted. Many capable people are working hard on a number of projects. The efforts, however, lack needed coherence. The task now is to combine these diverse and disconnected efforts into a unified program of action. We need a single, centralized medical and public health strategy for preparing the nation to detect and respond to bioterrorist attacks. It is an effort that appropriately should be managed by HHS, integrated across the

Department, coordinated with state and local authorities, and able to interface efficiently with other federal agencies.

The difficulty of understanding and managing the complex interactions among the different agencies, levels of government and private sector organizations that have roles to play in bioterrorism response is profound. New partnerships must be forged. Policy makers must be educated to understand the operational realities faced by hospitals and public health agencies. They must recognize that protecting national security will demand investments in sectors not typically considered integral to defense strategy.

State and local public health departments across the country are the backbone for detection and response to a biological weapons attack. They need resources and they need them urgently if they are to effectively carry out even the rudimentary actions that are absolutely essential for dealing with a major infectious disease outbreak. It is difficult to exaggerate the deficiencies of our present public health capacities. Indeed, it is inaccurate to even call the varied public health structures at state, city and county level a public health "system", since many of these units are not connected or coordinated in any meaningful way. In the near term, it is important that we identify and support the essential steps needed to make this motley arrangement functional.

Assuming that federal funds can expeditiously be made available, there will be a need for an expedited process to get these funds to state and local level. The leisurely and tortuous administrative channels will need to be foreshortened so that funds become available in weeks, not months. Moreover, such funds should not be overly constrained by restrictive definitions of how they are to be spent. The variety of needs in the 50 state and 3000 local public health departments around the country are such that, for a program of this urgency and complexity, it would not be sensible for the federal government to dictate what the most urgent spending priorities should be in Newark or Phoenix or Montgomery County, Maryland.

Public Health Functions in Need of Immediate Improvement

Systems Linking the Medical Community to Public Health

If we are to detect and rapidly identify a new health problem, public health officials must be available 24 hours a day seven days a week to take calls from clinicians reporting cases which may be suggestive of such as a bioweapons-related disease. This is not possible in most areas of the country. Creating this vital link between the medical system—which is likely to be where the first evidence of a bioterrorist attack arises—and public health will in some cases require hiring more health department staff. In some locales, it may require purchasing beepers or an answering service. It need not—indeed, should not be—a high-tech operation, but it is vital to the early discovery of an intentional epidemic. And early discovery is vital to saving lives.

Improved Communications and "Connectivity" among Public Health Agencies

There is a need to augment communications at local, state and federal level to assure the possibility for rapid communications 24 hours per day, 7 days per week between agencies.

Improved Laboratory Diagnostic Capacity

Support in terms of training and equipment is being provided to a national network of more than 60 laboratories capable of diagnosing the principal threat agents. This process needs to be substantially speeded up so that the full range of potential agents can be rapidly and accurately identified.

Ensuring the Adequacy, Availability of the National Pharmaceutical Stockpile (NPS)

HHS began some years ago to acquire a national stockpile of drugs and equipment that could be called upon in time of need for mass casualty situations. Today, the NPS consists of caches of such supplies, located in strategic locations around the country. CDC has reported that these supplies can be delivered within 12 hours to any point in the nation. Because of recent events, the nature and quantities of materials available will be reviewed by an expert advisory group later this month.

In addition, Secretary Thompson has initiated a number of steps to ensure that the supplies of smallpox vaccine held by the federal Centers for Disease Control and Prevention (CDC) are immediately ready for distribution if needed. The Secretary has recently directed that the amount of smallpox vaccine produced under the HHS contract with Acambis be significantly increased, and has taken steps to move up the date of delivery.

Perhaps the most uncertain part of the equation in getting drugs and vaccine to the population relates to the question of distribution. Health departments have had

little experience in the large scale, rapid distribution of either drugs or vaccines. Should such be needed, there predictably would be staggering logistical problems. Here again is where resources are needed for state and local health departments to undertake contingency planning for distribution.

Improved Training of Public Health Officials, Emergency Room Health Personnel and Infectious Disease Physicians

These three groups of professionals along with the laboratory personnel represent the foundation for early detection, diagnosis, definition of the epidemic and application of preventive and therapeutic measures. Educational materials are urgently in need. Resources are required for training programs, drills, tabletop exercises, etc. In the longer term there is a need for rigorous curricula and training programs to prepare public health professionals to manage deliberate epidemics, and to incorporate public health practice-related curricula into academic training programs.

Medical Care Functions In Need of Improvement

Obviously, it does little good to have a public health system that can detect disease outbreaks and manage epidemics if we cannot effectively take care of sick people. Over the past decade, hospitals and the medical care system generally, have labored under intense financial pressures. One reaction to these pressures has been the elimination of excess capacity from the health care system.

Today, few hospitals could respond effectively to a sudden, significant surge in patient demand. Research done by the Hopkins Biodefense Center indicates that no hospital, or geographically contiguous group of hospitals, could effectively manage even 500 patients demanding sophisticated medical care such as would be required in an outbreak of anthrax, for example. In the event of a contagious disease outbreak—such as smallpox—far fewer patients could be handled. There isn't enough staff, enough supplies, enough drugs on hand to cope with such an emergency. This problem of lack of surge capacity has no simple solutions.

The first step is to recognize that the problem exists and to encourage hospitals to join forces in the search for solutions. We advocate an immediate effort to establish regional consortia of hospitals—groups of institutions co-located in cities or counties around the nation—to begin planning how best to use available resources most efficiently. Hospitals should immediately review their existing disaster plans, paying particular attention to management of mass casualties and to how they would handle large numbers of patients with potentially contagious disease. Even these simple steps will require money. Congress should immediately investigate how they might provide financial relief or incentives to enable hospitals to carry out these initial steps. Secondly, medical professionals must be made aware of the possibility of bioterrorist attacks and learn to recognize the symptoms of the six or so pathogens thought most likely to be used as bioweapons. It is imperative that clinicians not only be able to recognize the symptoms of anthrax, smallpox, etc., but that they be aware of the responsibility to report suspicions of such diseases to the public health authorities—and that they know exactly who to call and how to reach them.

Research and Development

A well-conceived and integrated plan for research and development is needed to deal with a number of challenges—in the near term: an improved anthrax vaccine, new therapies to treat anthrax, and drugs to deal with the complications of smallpox vaccine. But beyond this, one could envisage an array of solutions that might prevent the use of biological weapons or at least mitigate the likelihood of their use and so make bioterrorism and its consequences less likely or less severe—new vaccines and treatments for currently untreatable viral and toxin diseases; rapid diagnostic tests; sensor systems; and immune enhancement mechanisms. Years, not months, will be required for their development but, regrettably, biological weapons and biological terrorism will be with us for the foreseeable future.

The CHAIRMAN. Dr. 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 which you referred to on Federal research and preparedness activities related to 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 find-

ings in our report and then address weaknesses in the public health infrastructure that we believe warrant special attention.

We identified more than 20 Federal departments and agencies as having a role in preparing for or responding to the public health or medical consequences of a bioterrorist attack. These agencies are participating in a variety of activities, from improving the detection of a biological agent and developing new vaccines to managing a national stockpile of pharmaceuticals.

Coordination of these activities across departments and agencies is fragmented. The chart that we have prepared gives examples of efforts to coordinate these activities at the Federal level as they existed before the creation of the Office of Homeland Security. I will not 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 challenging, and as Dr. Henderson said, we are in great need of coherence.

Federal spending on domestic preparedness for bioterrorist 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 and research in preparedness of a bioterrorist attack as reported to us by the Federal agencies involved shows increases year by year from generally low or zero levels in 1998. For example, within 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 levels may reduce the effectiveness of the overall response effort. Our work has pointed to weaknesses in three key areas—training of health care providers, communication among responsible parties, and capacity of hospitals and laboratories.

As we have heard, physicians and nurses in emergency rooms and private offices will most likely be the first health care workers to see patients following a bioterrorist attack. They need training to ensure their ability to make astute observations of unusual symptoms and patterns and report them appropriately. Most physicians and nurses have never seen diseases such as smallpox or plague, and some biological agents initially produce symptoms that can be easily confused with influenza or other common illnesses, leading to a delay in diagnosis.

In addition, physicians and other providers are currently underreporting identified cases of diseases to the infectious disease surveillance system.

Because the pathogen used in a biological attack could take days or weeks to identify, good channels of communication among the parties involved in the response are essential to ensure as timely a response as possible. 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.

Past experiences with infectious disease outbreaks have revealed a lack of sufficient secure channels in sharing such information.

Adequate laboratory and hospital capacity is also in question. Even though the West Nile virus outbreak was relatively small, it strained laboratory resources for several months. Further, Federal and local officials told us that there is little or no excess capacity in the health care system in most communities for accepting and treating mass casualty patients.

In conclusion, although numerous bioterrorist-related research and preparedness activities are underway in Federal agencies, we remain concerned about weaknesses in public health and medical preparedness at the State and local levels.

Mr. Chairman, this concludes my prepared remarks. I would be happy to answer questions.

The CHAIRMAN. Thank you very much.

[The prepared statement of Ms. Heinrich follows:]

PREPARED STATEMENT OF JANET HEINRICH, DIRECTOR, HEALTH CARE—PUBLIC HEALTH ISSUES

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 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

[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. 106505, 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.

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 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.

Federal Departments and Agencies Reported a Variety of Research and Preparedness Activities

Federal spending on domestic preparedness for terrorist attacks involving WMD's 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

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[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.

[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.

[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."

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 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 H 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.

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[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).

[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.

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 Team, 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.

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.[13] 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.

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

[13] 1n 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.

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 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]

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[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.

[18] See GAO–01–822, Sept. 20, 2001, pp. 104–106.

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.

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 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.

[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.

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 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 stock-

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[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.

[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.

pile 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 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 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

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[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.

[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.

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.

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 1: 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. (Note: This GAO chart is maintained in the Committee file.)

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.

Related GAO Products

Bioterroilsm: Coordination and Preparedness (GAO–02–129T, Oct. 5, 2001).

Bioterrorism: Federal Research and Preparedness Activities (GAO–01–915, Sept. 28, 2001).

Combating Terrorism: Selected Challenges and Related Recommendations (GAO–01–822, Sept. 20, 2001).

Combating Terrorism: Comments on H.R. 525 to Create a President's Council on Domestic Terrorism Preparedness (GAO–01–555T, May 9, 2001).

Combating Terrorism: Accountability Over Medical Supplies Needs Further Improvement (GAO–01–666T, May 1, 2001).

Combating Terrorism: Observations on Options to Improve the Federal Response (GAO–01–660T, Apr. 24, 2001).

Combating Terrorism: Accountability Over Medical Supplies Needs Further Improvement (GAO–01–463, Mar. 30, 2001).

Combating Terrorism: Comments on Counterterrorism Leadership and National Strategy (GAO–01–556T, Mar. 27, 2001).

Combating Terrorism: FEMA Continues to Make Progress in Coordinating Preparedness and Response (GAO–01–15, Mar. 20, 2001).

Combating Terrorism: Federal Response Teams Provide Varied Capabilities; Opportunities Remain to Improve Coordination (GAO–01–14, Nov. 30, 2000).

West Nile Virus Outbreak: Lessons for Public Health Preparedness (GAO/HEHS–00–180, Sept. 11, 2000).

Combating Terrorism: Linking Threats to Strategies and Resources (GAO/T–NSIAD–00–218, July 26, 2000).

Chemical and Biological Defense. Observations on Nonmedical Chemical and Biological R&D Programs (GAO/T–NSIAD–00–130, Mar. 22, 2000).

Combating Terrorism: Need to Eliminate Duplicate Federal Weapons of Mass Destruction Training (GAO/NSIAD–00–64, Mar. 21, 2000).

Combating Terrorism: Chemical and Biological Medical Supplies Are Poorly Managed (GAO/T–HEHS/AIMD–00–59, Mar. 8, 2000).

Combating Terrorism: Chemical and Biological Medical Supplies Are Poorly Managed (GAO/HEHS/AIMD–00–36, Oct. 29,1999).

Food Safety: Agencies Should Further Test Plans for Responding to Deliberate Contamination (GAO/RCED–00–3, Oct. 27, 1999).

The CHAIRMAN. Dr. Akhter?

Dr. AKHTER. Thank you, Mr. Chairman, members of the committee. I really appreciate this opportunity to be here today to discuss with you our views.

I represent the public health community. We are 55,000 public health workers working at the State, local, and Federal levels to protect the health of the American people, and we are all very

much ready to serve in any capacity to help deal with this new threat to America's security and the peace of our people.

We are a scientific community. Our people are experts in the field. We wrote the book on "Dealing with Communicable Diseases." We have been publishing this book since 1917. This is the book which is used worldwide to deal with infectious diseases. The United States Army buys 24,000 copies of this book to be distributed to its members to be able to protect against communicable diseases.

So we have a significant amount of knowledge about how to proceed, and we also have knowledge as to what is the reality on the ground. So I want to present to you, Mr. Chairman and members of the committee, the reality on the ground on different arenas.

First, prevention of bioterrorism is the key. There has not been any relationship between the public health community and the intelligence community. These two communities have never worked together in the past. There is very limited contact between these two communities. Good intelligence, not only looking at the foreign agents coming in but at our own labs, where these things could be manufactured, is very, very important. In fact, I would suggest that we make our State public health directors part of the intelligence community. Let us get them the clearance and get them hooked up, because the sooner there is free communication, the better work we as a public health community can do.

The second part is the local health department capacity. There are 3,000 local health departments. Ten percent of them do not even have email or Internet connection. Most health departments are 9 to 5 operations. So if there is an outbreak on Friday afternoon, there will be nobody there to take care of them on Friday evening, Saturday, Sunday, or Monday. The window of opportunity to deal with these infectious agents is 24 to 48 hours during which we need to either provide the vaccine or provide treatment to save the life of the individual and also to prevent the spread of disease. If nobody is there, how are we going to deal with this?

What I suggest we do is to look at the regional approach, get these health departments together, and have someplace where, 24 hours a day, 7 days week, people are available whom the local health providers could talk to and could provide service.

As we look at our local situation, we see the weakest link. I was State health director in Missouri and also health commissioner in our Nation's Capital, and I had the great pleasure of being the emergency medical services director for the States of Illinois and Michigan. The weakest link between the health department and health care providers just at the moment—there is no direct connection and no direct link in most places so that the emergency providers, EMTs, paramedics, could send in direct information immediately to the hospitals, clinics, and private providers. The information comes too late. We need to have that relationship and that link strengthened. Simply giving money and resources to the States to do things without asking them to do these specific things would not solve our situation.

Finally, Mr. Chairman, there is a lack of epidemiological capacity at the State level—the people who are trained, the medical detectives, to go after such things day in and day out—almost half of

our States do not have such people on board as we speak today. I think we need to build that capacity; we need to have these folks in there to carry out this responsibility.

Now I come to our premier agency, the Centers for Disease Control and Prevention. This is the lead agency in the world. The quality of this agency is unmatched by any other institution in the world. But its capacity is very narrow. Its ability to fight on multiple fronts is very, very limited. We need to expand that capacity.

In the natural history of disease, one case leads to another case; another case leads to another case. In a terrorist attack, large numbers of cases take place at the same time. And remember—the incubation period of a disease could be from one to 7 days; so by the time the first case appears, in our mobile society, people will have traveled many, many places. So that being available on multiple fronts is very important.

I suggest the capacity of CDC be increased and also that its capacity be placed at strategic locations, most likely at the regional offices, so that in case of transportation failure, people can get to it, or in case of a terrorist attack in Atlanta. So we need to decentralize some of this capacity so that we can provide the trained personnel, provide the drugs, provide the vaccines to the people in a timely manner where they need it.

Of course, there are many, many other issues dealing with the distribution of drugs. You all saw yesterday people in Florida standing outside, waiting for several hours to get their share of the medication. That is just a small group of people. Think about if you had to provide medication in New York City to all the population, or if you had to provide immunization to all the people in San Francisco. Do we have built up that kind of capacity, that kind of ability to be able to do this work?

The reason I am telling you all of this is not to scare you, but to tell you that we are vigilant, we are looking at it, and we will do whatever we need to do, but that this requires a long-term, sustained commitment by the Federal Government, the State governments, and the local authorities to be able to deal with the situation.

Finally, Mr. Chairman and members of the committee, I was born in India and grew up in Pakistan. As a child, I saw many of these diseases. There was an outbreak of smallpox when I was a child, and one-third of my classmates were infected. These are no "walk in the garden" kinds of diseases where you give medicine, and they get better. There are consequences besides death from these diseases which are lifelong.

We cannot afford not to be fully prepared to deal with these diseases. The unthinkable has already happened, and I as a public health official cannot sit here and say yes, we are ready, we are prepared. I say to you that we are underprepared, and we had better get ourselves ready to do the best we can.

Thirty years ago, this Nation made a choice that we would not immunize people against smallpox. We discontinued that immunization because the threat was low—thanks to Dr. Henderson and his colleagues, smallpox was eradicated. Now the threat has risen to a higher level once again.

It is time to revisit that policy. We should appoint a high-level panel of experts from both the medical side of the community as well as the intelligence community so that we can look at the threat level, and at the risks and benefits, and truly reexamine once again whether we should look at immunizing our people against common bioterrorist agents like anthrax and smallpox.

A lot more research needs to be done. We might find wonderful modalities. But I must submit to you that after seeing the firefighters and the EMTs and the paramedics working on the front line in New York City, the firemen running into the fire as others ran away, the same kind of situation will take place when there is a terrorist attack. These people have to go in, they have got to get folks out, and these people must be protected.

The United States Army right now provides immunization against smallpox and anthrax to its people. We should seriously reconsider making available these vaccines to our firefighters and our front-line workers. It would be a tragedy if these people had to stand in line, waiting to get their antibiotics and their vaccines when they could be working and helping other people.

Mr. Chairman, I appreciate greatly this opportunity and would be glad to answer any questions you and members of the committee might have.

Thank you.

The CHAIRMAN. Thank you very much, Dr. Akhter.

[The prepared statement of Dr. Akhter follows:]

PREPARED STATEMENT OF MOHAMMAD N. AKHTER, M.D., MPH, EXECUTIVE DIRECTOR OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

Mr. Chairman and members of the Committee, my name is Mohammad Akhter, and I am the Executive Director of the American Public Health Association. APHA is the oldest and largest public health association in the world, representing approximately 50,000 public health professionals in the United States and abroad. I am honored to appear before you to discuss the role of our public health infrastructure in preparing for, preventing, detecting, and responding to a bioterrorist event.

On behalf of our colleagues and members, I salute you, Mr. Chairman, and the members of the Committee for your timely recognition of the importance of public health in addressing the threats currently facing our great nation. My role today will be to assess how the public health infrastructure can and must be enhanced to respond to a bioterrorism emergency with greater speed, efficiency, and effectiveness.

Preventing a Bioterrorist Event is Preferable to Responding to One

On September 1 1th, the Centers for Disease Control and Prevention issued precautionary instructions to health departments to be on special alert for possible clusters of unusual disease symptoms, and hospitals were notified by state and local health officials to report any such incidents promptly. This was an appropriate action in the face of an obvious disaster. But, a bioterrorist attack itself won't be obvious. Links must be established between the intelligence community and public health officials on a routine basis to discern the actual attack, eliminate the response lag-time of the agent's incubation period, and thereby prevent casualties. Public health must be included in the intelligence process, and given appropriate clearance to review suspicious occurrences and threats much earlier in the process. There must also be a new segment of the intelligence community that is devoted to detecting bioterrorist threats. Good intelligence is key to preventing attacks.

Communication and Coordination

We have heard over the last several weeks that we must enhance our ability to gather information in an emergency, and to communicate it efficiently to all relevant parties. This means establishing linkages among emergency managers, local health departments, clinics, and hospitals so that critical data in an emergency situation can travel seamlessly to identify, contain, and respond to an emergency in the

most efficient way possible. This is mandatory, not optional, and yet the reality is that approximately ten percent of the health departments in the United States do not even have e-mail.

We must remember, however, that merely providing funding to bolster technical support is not enough. We also have to change the way we do business to meet the level of the threats now facing us. If a bioterrorist attack occurred on a Friday afternoon, there would be no report of it until Monday morning under the current staffing profile of most health departments. The events of September 11th demand that we now provide access to the public health network twenty-four hours a day.

Training and Expansion of the Public Health Workforce and Infrastructure

Members of the Committee, you have heard before about the gaps in our most basic public health capacities. Indeed, this Committee, under the leadership of Senators Frist and Kennedy, led the charge last year with the Public Health Threats and Emergencies Act, and the public health community is both grateful, and ready to advance the objectives of that legislation. Recognizing that you are already familiar with gaps in staffing, training, laboratory and information capacity and coordination, I will focus on only a few specific points.

CDC must expand its capacity to respond to more than one event. As the world's premiere agency for public health response, CDC must re-consider its own surge capacity, when state and local health departments rely on the agency so heavily. As such, CDC should integrate into the Health and Human Services regional system, establishing a new layer of workforce and supporting capacity regionally. This will allow continued federal technical support in all regions if the national transportation system is affected, while also recognizing that metropolitan areas and bioterrorist attack zones themselves may cut across state boundaries.

It is essential that every state have essential epidemiology personnel in place. CDC's Epidemic Intelligence Service Officers, the "Disease Detectives," can provide a set of very skilled hands to address a host of unanticipated events. Only 25 states have EIS officers at this time. Also, only 32 states employ a designated public health veterinarian. This is another lapse we can't afford. Seventeen of the 20 designated bioterrorism agents are either zoonotic, meaning they are transmitted from animals to man, such as plague; or they are fairly common diseases of animals, such as anthrax; or, they are foodborne illnesses such as Salmonella, about which public health veterinarians receive extensive training. These and other core communicable disease experts must be based in every state.

Training of the Medical Workforce and Enhancing Institutional Capacity

Even if we succeed in enhancing our communication and intelligence capabilities, this will not suffice unless the workforce of first-responders is adequately trained to detect and respond to bioterrorist threats. Last week in Florida, the first reported case of inhalational anthrax in the U.S. since 1976 was quickly identified, and appropriate therapy initiated. We are encouraged by this, but know that this might not be the norm. We cannot underestimate the importance of our front line health professionals; enhancing their technical expertise and knowledge of a broader array of health threats is of paramount importance at this time.

The capacity of our hospitals to accommodate a large number of patients is also under scrutiny. Emergency rooms can barely address current needs. In the event of a terrorist attack, there would be a surge in need for trained personnel who can diagnose and treat rare diseases, and also for isolation areas and rapid mobilization of special drugs and vaccines. The economic efficiencies of the "just in time" drug inventory system clearly operate to the disadvantage of a population confronted with an epidemic. Despite the negative impact on the bottom line, we must maintain a sufficient inventory of essential vaccines and drugs, and develop more surge capacities on a daily basis if we are to approach an adequate level of preparedness for a bioterrorist event.

The Safety of our Food Supply

So far, our only known domestic bioterrorist event occurred in 1976, when members of a religious cult contaminated a salad bar with Salmonella, sickening more than 700 people. Our food supply remains vulnerable. The number of inspectors employed to safeguard our food supply is vastly insufficient, especially the workforce of the Food and Drug Administration. So much of our food is imported from countries that utilize few precautions in the production of their products, yet we lack the authority and the personnel to scrutinize these products properly. Jurisdiction over food safety is currently spread among a host of agencies. APHA has long advocated for a single agency to address food safety, and current events have validated the wisdom of this position. We are grateful that many members of this Committee

have, over the years, engaged the problems of understaffing, imported food safety, and the regulatory structure.

Conclusion

We have focused on recognition of unique illnesses that may signal an attack, and were an attack to occur, we hope we will all be ready. But I must caution that the agents themselves pose such a challenge; hardwired into them is their incubation period, unique for each one but always too long for our liking; smallpox, 7 to 19 days; anthrax, up to 60 days; Ebola virus, 2 to 21 days. What does it mean, in a mobile, global society, if we recognize the first case of smallpox 7 days after exposure? And, there is the matter that for most of these agents, the symptoms are innocent and nondescript. No amount of money or planning or good intention can lower the hurdles the germs themselves impose. Our very best response can't approximate prevention.

I was born and raised on the Indian subcontinent. I have lived through the outbreaks of smallpox, malaria, typhoid, Hepatitis A, and many other diseases. When the risk is high, we must re-evaluate our position about making vaccines available to the public. Mr. Chairman, I suggest that a national committee of experts from the medical, scientific and intelligence communities be formed to review the level of threat, as well as the risks and benefits of making smallpox and anthrax vaccines available to the population at large. Assessing the risk at this stage will help us protect our people from the most common agents that could be used against us by a terrorist.

On behalf of the members of the American Public Health Association, I thank you for this opportunity to discuss this matter of critical national security, and I am happy to answer any questions you may have.

The CHAIRMAN. Dr. Osterholm?

Mr. OSTERHOLM. Thank you, Mr. Chairman, members of the subcommittee, and thank you, Senator Wellstone, for your kind introduction.

I am Michael Osterholm, and I am director of the Center for Infectious Disease Research and Policy at the University of Minnesota where I am also a professor in the School of Public Health.

For 24 years, I served with the Minnesota Department of Health, including 14 years as the State Epidemiologist. It was in that capacity that I testified before this committee in the past. I am here today to address the critical need for our country to prepare its homeland security against a potential bioterrorist attack. At the same time we can and must capitalize on that preparation to respond to the everyday growing threat of emerging infections that are not related to potential bioterrorism.

My comments will reflect my combined experience in the trenches as one of those infectious disease epidemiologists, as a leader in several national infectious disease and microbiology professional organizations, my time as a personal advisor to His Majesty King Hussein of Jordan on this topic, and as an author of the recently published book, "Living Terrors: What America Needs to Know to Survive the Coming Bioterrorist Catastrophe."

Today we are here because of the tragedy of September 11 and the wake-up call to America that catastrophic terrorism is now a reality within the borders of our own homeland. The consequences of an infectious disease outbreak due to a bioterrorist attack dramatically illustrate the critical importance of shoring up our public health system. Without a comprehensive and timely response, we will realize both an increase in deaths and the potential for previously unseen panic and fear.

Preparing us for such an event will also prepare us for the daily barrage of exotic agents from abroad, antibiotic-resistant microbes,

and the ever-growing problems of our food safety. This represents the very essence of dual-purpose resources.

We have heard much over the past 3 weeks about the potential risk of a bioterrorism event occurring in this country. I will not address the issues any further other than to say that as a Nation, we cannot afford to be underprepared to respond to such an event as we are today.

Recently, our center at the University of Minnesota convened a working group on bioterrorism preparedness that reflects the expertise and experience of a number of important front-line organizations whose members will be responsible for responding to a bioterrorist attack. They include the American Society for Microbiology, the Alfred P. Sloan Foundation, the Association of Public Health Laboratories, the Association of State and Territorial Health Officials, the Council of State and Territorial Epidemiologists, Emory University School of Public Health, the Infectious Disease Society of America, the Johns Hopkins Center for Civilian Biodefense Studies, the National Association of County and City Health Officials, the National Association of Public Health Veterinarians, and NTI.

This group has provided a framework for your use for the public health action and bioterrorist preparedness we need. Out of this meeting grew a set of recommendations for critical funding for our public health activities. These members did not seek endorsement from their respective organizations for the recommendations contained in our report, and therefore it may not reflect the exact position of these respective organizations. However, we believe that at this time, this represents our best estimate of the necessary resources it will take to revitalize the public health system so it will pass the test of a catastrophic bioterrorist attack. The committee has a summary of that framework.

The designated amounts, as you will note, are needed for hospitals and Federal, State, and local public health agencies to effectively recognize and respond to bioterrorism. At the State and local levels, it is essential for these activities to be housed within existing communicable disease programs—that is where the foundation for controlling communicable diseases exists. By enhancing these systems, we can maximize the efficiency of putting new resources to their best use in the quickest amount of time.

I would also like to point out that the funds outlined are needed as an initial investment in building the surveillance systems, training programs, communication systems, and laboratory networks that are required to recognize a bioterrorist event.

I can promise you that these numbers are not some inflated, "come to the table, give us all the money" under an ideal time situation. We made an honest attempt to give you our best estimate of what it will really take to honestly and effectively deal with this system.

Ongoing funding is critical to keep these systems operational at the level needed for effective homeland security over time. Let me provide you with a quick overview of the funding requirements with some discussion of what we are requesting. I would also note that many of our comments here reflect quite closely what we heard in the first panel this morning and some of the other ideas

that have been proposed in terms of funding for bioterrorism preparedness.

First, we are requesting $35 million for State and local agencies to develop and test bioterrorism response plans. This amounts to about $500,000 per jurisdiction, assuming about 70 jurisdictions. A wide-scale bioterrorism attack would create mass panic and overwhelm almost every State and local system within a matter of just a few days. We know this from simulation exercises such as TOPOFF and Dark Winter. Therefore, State and local plans for recognizing and responding to a bioterrorism attack are urgently needed.

We believe that these plans should be completed in the next 90 to 120 days. In its last funding cycle, the Centers for Disease Control and Prevention funded 11 States to develop bioterrorism plans. Other State applications for funding were approved through the grant program but were not funded. Those applications should be funded immediately so that planning, which we heard about this morning and which we agree will be the critical step to any effective response, can be undertaken now.

We also emphasize that it is important to include cities and counties in a meaningful way in any planning activity that takes place.

Second, under the category of improving State and local preparedness, staffing, training, epidemiology and surveillance, we have requested $400 million. These funds amount to about $1.3 million per million population, or basically $1.30 per head.

Activities under this category are broad and include the following. We have to develop the sensitive surveillance systems that can rapidly detect illnesses caused by bioterrorism. Part of developing these systems involves educating physicians and other health care providers about illnesses that may be caused by bioterrorism.

Second, we must ensure that sufficient staff are available to collect epidemiologic data from suspected cases and to make the necessary connections as to the where, when, who, and why.

Third, we must ensure adequate statistical and epidemiologic support is available to manage and analyze data from surveillance systems and from suspect cases if bioterrorism events occur, particularly when they are over large regions of the country.

Fourth, we must ensure that adequate personnel are available to direct public health aspects of response to a bioterrorism attack, such as setting up triage systems and delivery systems for prophylactic medications and vaccine. Parenthetically, let me say that I headed up one of the largest emergency vaccine response programs in recent years in this country when we had to vaccinate 30,000 Minnesota residents in one community for a meningitis outbreak. We did that in a period of 4 days with one of the very best State health departments in the country, and it stretched us to the very edge of our ability. If today someone told me that we had to vaccinate 2.5 million Twin Cities residents, I would look at you and throw up my hands and ask "How?"

Fifth, we must assure that adequate personnel are available for containment and addressing issues of infection control in our hospitals, where secondary spread of agents like smallpox will cause additional panic and fear.

And sixth, we must provide rapid and updated information to other public health officials, the medical community, and the public itself as the situation unfolds.

Third, we are requesting $200 million to upgrade the rapid health alert networks and national communication systems. We heard about that earlier this morning. Sharing accurate information with those who need to know is essential during a time of crisis.

We also believe that it is essential to have a national electronic reporting system so that data can be collected efficiently and rapidly analyzed—not on the back of an envelope. This kind of system is needed to monitor a national epidemic that could follow the release of a bioterrorism agent even in only one location.

Agents such as smallpox or plague could set off widespread chains of illness that would require effective, accurate, and rapid communication about patterns of spread and needed control measures.

Fourth, we are asking for $200 million to upgrade our laboratory capacity. Two systems need to be enhanced and broadly implemented. One is the Laboratory Response Network. This system puts into place a multilevel network that can receive and analyze laboratory specimens from a range of sources. The system is designed to ensure definitive identification of suspected bioterrorism agents as quickly as possible.

The second system is the National Laboratory System. This is a communication system designed to rapidly share information between public health, hospital, and commercial laboratories. Such communication will be critical if we are to contribute to the early detection and effective monitoring of bioterrorist events.

Additional laboratory resources for chemical terrorism preparedness are also needed and should be integrated into the laboratory improvements.

Finally, resources for improved diagnostic testing and identification of potential bioterrorism agents by animal and wildlife laboratories are also needed, as is improved communication between human, animal, and wildlife laboratories.

All of us in this room are very aware of the issue of West Nile virus and the relationship to the wildlife populations. That was clearly not a bioterrorist event, but should it be anthrax, should it be plague, any number of infectious agents associated with bioterrorism may very well show up in the animal population as the first sentinel of what is going on.

Foodborne agents could be involved in a bioterrorist attack. Therefore, we are requesting $100 million be allocated to improve food safety in this country. Funds are needed to improve surveillance for foodborne disease at the State and local level, to improve outbreak response capabilities, to enhance rapid communication of information about foodborne disease outbreaks, and to provide Federal oversight for food safety activities.

Additional funds are needed to upgrade other Federal programs for bioterrorism. These include enhancements at the CDC to conduct deterrence, preparedness, detection, confirmation, response, and mitigation activities; development of Federal expert response team—individuals such as Dr. Henderson and others who may not

currently be part of the established Government structure. These teams would include experts who have extensive experience in management of outbreaks or have clinical experience with diseases caused by potential bioterrorism agents. The teams would be maintained on alert status and federalized as needed for deployment.

Third is improvements in the national pharmaceutical stockpile. Ideally, we should have at least enough medication stockpiled to provide treatment or prophylaxis to up to 40 million persons. Imagine the stockpile running out, the panic and fear that will ensue in this country if we have to tell people, "I am sorry, you were not in line soon enough." Therefore, we should continue to build the stockpile and rotate medications as needed.

Fourth, as heard earlier, we have to accelerate development of smallpox vaccines and research and development and production of other vaccines for civilian populations.

Finally, we have to improve our international surveillance by the CDC and the Department of Defense, as we may actually have our first early warning occur across the shore when, even by accident, an agent intended for bioterrorist use gets out of somebody's laboratory. That will be a very important step.

Finally, we need to assess what works and what does not work through implementation of applied research initiatives. We do not want to spend money just to spend money. We should conduct research studies predominantly at the State and local level which tell us what is really effectively making a difference. We are requesting $50 million to fund several research initiatives in this manner.

In conclusion, we as a nation must depend on our Government to provide us with the necessary resources to effectively and convincingly respond to a bioterrorist attack. Front and center to that response will be an effective and comprehensive public health, clinical laboratory and medical services system.

Today we are here to address in part those systems. If we fail, I fear history will judge all of us in this room as well as other leaders negligent for having wasted the opportunity to prepare ourselves for the new world. We must never allow ourselves the possibility of experiencing a bioterrorist event which makes the pain and suffering of September 11 less significant.

Thank you.

[The prepared statement of Mr. Osterholm follows:]

PREPARED STATEMENT OF MICHAEL T. OSTERHOLM, PHD, MPH, DIRECTOR, CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY, PROFESSOR, SCHOOL OF PUBLIC HEALTH

Mr. Chairman and members of the subcommittee, my name is Michael T. Osterholm, PhD, MPH. I am the Director for the Center for Infectious Disease Research and Policy at the University of Minnesota. I am also a Professor, School of Public Health at the University.

For 24 years, I served at the Minnesota Department of Health, including 14 years as the State Epidemiologist. It was in that capacity that I testified before this Committee in the past. I am here today to address the critical need for our country to prepare its homeland security against a potential bioterrorist attack. At the same time we can and must capitalize on that preparation to respond to the everyday growing threat of emerging infections that are not related to potential bioterrorism.

My comments will reflect my combined experience in the trenches as an infectious disease epidemiologist in one of the premier outbreak investigation groups in the country, as a leader in several national infectious disease and microbiology professional organizations, my time as a personal advisor to His Majesty King Hussein

of Jordan on bioterrorism and as an author of the recently published book, "Living Terrors: What American Needs to Know to Survive the Coming Bioterrorist Catastrophe.

First, let me remind all of us here that the substance of what we are talking about today, the need to adequately fund the "Public Health Improvement Act" authored by you, Mr. Chairman and Senator Frist, is no different now than it was last year. The importance of this issue was compelling before the passage of that important legislation; as microbial threats to our public health have continued to increase for the past decade. Last year I urged the Congress to pass and fund this legislation in an invited editorial in the *New England Journal of Medicine.*

Today, we are here because of the tragedy of September 11th and the wake-up call to America that catastrophic terrorism is now a reality within the borders of our own homeland. The consequences of an infectious disease outbreak due to a bioterrorist attack dramatically illustrate the critical importance of shoring up our public health system; without a comprehensive and timely response we will realize both an increase in deaths and the potential for previously unseen panic and fear. Preparing us for such an event, will also prepare us for the daily barrage of exotic agents from abroad, antibiotic resistant microbes and the ever-growing problem with food safety. This represents the very essence of dual purpose resources.

We have heard much over the past three weeks about the potential risk of a bioterrorism event occurring in this country. I will not address that issue any further other than to say that as a nation we cannot afford to be under-prepared to respond to such an event as we are today.

Recently, our Center at the University of Minnesota convened a Workgroup on Bioterrorism Preparedness that reflects the expertise and experience of a number of important front line organizations whose members will be responsible for responding to a bioterrorist attack. They include the American Society for Microbiology, the Alfred P. Sloan Foundation, the Association of Public Health Laboratories, The Association of State and Territorial Health Officials, the Council of State and Territorial Epidemiologists, Emory University School of Public Health, the Infectious Disease Society of America, the Johns Hopkins Center for Civilian Biodefense Studies, the National Association of County and City Health Officials, the National Association of Public Health Veterinarians and NTI. This group has provided a framework for public health action and bioterrorist preparedness. Out of this meeting grew a set of recommendations for critical funding for these public health activities. The members did not seek endorsement from their respective organizations for the recommendations contained in our report and therefore it may not reflect the position of the respective organizations. However, we believe at this time that it represents our best estimate of the necessary resources it will take to revitalize the public health system so it will pass the test of a catastrophic bioterrorist attack. Enclosed is a summary of that framework.

The designated amounts, as you will see noted, are needed for hospitals and federal, state, and local public health agencies to effectively recognize and respond to bioterrorism. At the state and local levels it is essential for these activities to be housed within existing communicable disease programs—that is where the foundations for controlling communicable diseases exist. By enhancing existing systems, we can maximize the efficiency of putting new resources to their best use. I would also like to point out that the funds outlined are needed as an initial investment in building the surveillance systems, training programs, communication systems, and laboratory networks that are required for recognizing a bioterrorism event. Ongoing funding is critical to keep these systems operational at the level needed for effective homeland security over time. Let me provide you with a quick overview of the funding requirements with some discussion of what we are requesting.

First, we are requesting $35 million for state and local agencies to develop and test bioterrorism response plans. This amounts to about $500,000 per jurisdiction, assuming about 70 jurisdictions. A wide scale bioterrorism attack would create mass panic and overwhelm most existing state and local systems within a few days. We know this from simulation exercises such as TOPOFF and Dark Winter. Therefore, state and local plans for recognizing and responding to a bioterrorism attack are urgently needed. We believe that these plans should be completed in the next 90 to 120 days. In its last funding cycle, the Centers for Disease Control and Prevention (CDC) funded 11 states to develop bioterrorism plans. Other state applications for funding were approved through this grant program, but were not funded. Those applications should be funded immediately so that planning, which will be critical to any effective response, can be undertaken.

Second, under the category of Improving State and Local Preparedness: Staffing, Training, Epidemiology and Surveillance, we have requested $400 million. These funds amount to about $1.33 million per million population. Activities under this

category are broad and include the following. 1) Develop sensitive surveillance systems that can rapidly detect illnesses caused by bioterrorism. Part of developing these systems involves educating the physicians and other healthcare providers about illnesses that may be caused by bioterrorism. 2) Assure that sufficient staff are available to collect epidemiologic data from suspected cases and to make the necessary connections as to "where, when, who and how." 3) Assure that adequate statistical and epidemiologic support is available to manage and analyze data from surveillance systems and from suspect cases if a bioterrorism event occurs. 4) Assure that adequate personnel are available to direct the public health aspects of a response to a bioterrorism attack (such as setting up triage systems and delivery systems for prophylactic medications and vaccines). 5) Assure that adequate personnel are available for containment and addressing issues of infection control. 6) Provide rapid and updated information to other public health officials, the medical community, and the public as the situation unfolds.

Third, we are requesting $200 million to upgrade rapid health alert networks and national communication systems. Sharing accurate information with those that need to know is essential during times of crisis. We also believe that it is essential to have a national electronic reporting system so that data can be collected efficiently and rapidly analyzed. This kind of system will be needed to monitor a national epidemic that could occur following release of a bioterorrism agent even in only one location. Agents such as smallpox or plague could set off widespread chains of illness that would require effective, accurate, and rapid communication about patterns of spread and needed control measures.

Fourth, we are asking for $200 million to upgrade laboratory capacity. Two systems need to be enhanced and broadly implemented. One is the Laboratory Response Network. This system puts into place a multi-level network that can receive and analyze laboratory specimens from a range of sources. The system is designed to assure definitive identification of suspected bioterrorism agents as quickly as possible. The second system is the National Laboratory System. This is a communication system designed to rapidly share laboratory information between public health, hospital, and commercial laboratories. Such communication will contribute to early detection and effective monitoring of bioterrorism events. Additional laboratory resources for chemical terrorism preparedness also are needed and should be integrated into the laboratory improvements. Finally, resources for improved diagnostic testing and identification of potential bioterrorism agents by animal and wildlife laboratories also are needed, as is improved communication between human, animal, and wildlife laboratories.

Foodborne agents could be involved in a bioterrorism attack; therefore, we are requesting that $100 million be allocated to improve food safety in this country. Funds are needed to improve surveillance for foodborne diseases at the state and local level, to improve outbreak response capabilities, to enhance rapid communication of information about foodborne disease outbreaks, and to provide federal oversight for food safety activities.

Additional funds also are needed to upgrade other federal programs for bioterorrism. These include the following. 1) Enhancements at the CDC to conduct deterrence, preparedness, detection, confirmation, response, and mitigation activities ($153 million). 2) Development of federal expert response teams ($45 million). These teams would include experts who have extensive experience in management of outbreaks or have clinical experience with diseases caused by potential bioterrorism agents. The teams should be maintained on alert status and federalized as needed for deployment. 3) Improvements in the national pharmaceutical stockpile ($250 million). Ideally, we should have enough medication stockpiled to provide treatment or prophylaxis to up to 40 million persons. Therefore, we should continue to build the stockpile and to rotate medications as needed. 4) Accelerated development of smallpox vaccine ($60 million) and research on the development and production of other vaccines for the civilian population ($100 million). 5) Improvements in international surveillance by the CDC or the Department of Defense ($20 million).

Finally, we need to assess what works and what doesn't work through implementation of applied research initiatives. These should be conducted predominantly at the state or local level. We are requesting $50 million to fund several research initiatives throughout the country.

In conclusion, we as a nation, must depend on our government to provide us with the necessary resources to effectively and convincingly respond to a bioterrorist attack. Front and center to that response will be an effective and comprehensive public health, clinical laboratory and medical services systems. Today we are here to address, in part those systems. If we fail, I fear history will judge us negligent for having wasted the opportunity to prepare ourselves for the new world. We must

never allow ourselves the possibility of experiencing a bioterrorist event which makes the pain and suffering of September 11th less significant.

The CHAIRMAN. Thank you very much.

This is an excellent panel, and I regret we do not have a great deal of time. We have nine members and 3 or 4 minutes per member to inquire, and obviously, the panel can take some time to answer the questions. I would ask staff to keep track of the time.

Senator Clinton has requested that she be able to inquire first since she has another engagement, so we will recognize her for that purpose.

Senator CLINTON. Mr. Chairman, I have to preside at noon, so I very much appreciate your kindness in letting me first of all thank the panel for this extraordinary testimony and the work and experience that brings each of you here. We look forward to working with you.

I want to address very briefly just two issues—one that has been alluded to in several of the presentations, including by our colleagues, namely, food safety and security, which I think has to have a higher priority. I believe we have to increase the number of FDA inspectors as well as assure that the USDA has what it requires in order to cover the needs that we have to protect our food supply.

But I also have a second issue that we have not addressed yet. I have grave concerns about our ability to protect and treat our most vulnerable citizens, namely, our children. I am very concerned that we are not paying adequate attention to the unique needs of children in our efforts to plan and prepare for any of these future possibilities.

We know that children have special vulnerabilities related to bioterrorism. First, they are particularly susceptible to biological and chemical attacks. Some dense nerve gas agents like sarin concentrate lower to the ground, closer to the breathing zone of children. Also, because children have more rapid respiratory rates and larger surface-to-mass ratios, they are anatomically more vulnerable to exposures that might not be quite so serious with adults.

Yet the tools for our response to bioterrorism are even less effective for children than they are for adults. As many of us know, particularly Senators Kennedy, Dodd, DeWine, and others who have worked on the pediatric testing issue, many pharmaceutical manufacturers have not tested or properly dosed antidotes, antibiotics, or other agents for use in children. And the CDC push-packs and other emergency response supply systems do not take into account the special needs of children. For example, adult-size gas masks can potentially suffocate children. A lot of people I know are rushing out to buy gas masks without any real understanding of how to use them for themselves, and especially without understanding of their potential dangers to children.

So we have to add another item to this rather daunting agenda we face, and that is a particular emphasis on the needs of our children. I would hope to get the support of my colleagues on a bill that I plan to introduce in the next day or two to establish a national task force on children and terrorism to bring attention specifically to children's needs. In all the literature I have read as I have tried to educate myself, I rarely see any mention of children.

Yet most mothers I speak to and fathers as well—but it is mostly mothers who have been coming to me in New York—their principal concern is their children. That is what they ask me to give them some reassurance on—how will we protect our children. And there is a whole agenda of protecting our children that I think we have to pay particular and special attention to.

This task force would make very prompt recommendations, I would hope within the time that Dr. Henderson and others have suggested we need to have such recommendations from those who would be studying it, and perhaps it could even be a part of the ongoing work that is already undertaken, so that we could have specific protocols. If there are amendments to legislation that are needed to expedite treatments for children and preventive steps for children, we could begin the necessary research, training, and dissemination of information.

We have got to begin testing for the proper treatment and doses of vaccines and antidotes. We have to ensure that we support model programs to train physicians and health care personnel in what we know about pediatric consequences, symptoms, and treatments of care. And I believe—and this will be part of the bill that I introduce—that we should set up a national clearinghouse to begin disseminating information to communities, health care providers, and schools on how best to prepare for a biological or chemical attack and to take whatever steps are necessary to ensure that children get the care they need.

This is an area that I hope we can address specifically and very quickly, because most of the people with whom I come into contact, particularly in New York, are increasingly worried and have very specific questions about children that all of us need to answer.

So I would appreciate getting just a very brief response from whichever panelists would like to respond.

The CHAIRMAN. Dr. Henderson, do you want to start?

Dr. HENDERSON. I think the Senator has a very good point, and it is particularly true with the antidote for chemical agents and certainly some antibiotics.

I think this should be looked at—whether we need a special task force, I do not know—but we have had recently a number of discussions about this, and I think the point is well-taken.

Senator CLINTON. Thank you.

The CHAIRMAN. Thank you very much.

If I could, Dr. Henderson, many experts are concerned that potential biological weapons in the former Soviet Union are poorly secured. Do you share that concern, and if so, what is the best way to make sure that dangerous biological agents are accounted for and secured?

Dr. HENDERSON. I do share that concern very much, Senator. The bioweapons research and development program of the former Soviet Union is very extensive, and many of the laboratories which were very active in this field are now at least partially open, doing other things—we are not quite sure whether they are all doing the right things. There are four laboratories which are under the ministry of defense which are completely closed even today.

I think the problem is that there are many scientists who have left the laboratories where they were making biological weapons

and are no longer there. Some of them are in this country, but some of them we are quite sure are other places.

In the light of a new president in Russia, with different relationships—and most of these places are in Russia, not in the other states of the Commonwealth—I think a new approach to President Putin and perhaps opening up this subject—it may be an appropriate time to do this and to see what could be done in terms of providing—again, as has been done but on a very limited scale—alternative support for these people who do other types of research and perhaps actually persuade them to open up at least these four laboratories which are closed.

The CHAIRMAN. I could not agree with you more.

A final question for the panel, and I hope you can be brief. Based on your knowledge of the event, do you think the Florida anthrax incident resulted from an act of terrorism? We have seen reports that individuals have bought gas masks and large doses of antibiotics. Do you think there is any value to this?

Dr. Osterholm, would you start?

Mr. OSTERHOLM. First, I think most of us would agree that the circumstances in Florida are beyond that of circumstantial, that there in fact is something that happened there. I think we all have to be very careful in making conclusions in the public about this, as these are obviously very fragile times.

Whether this has anything to do with the events of September 11 or whether it is a totally separate event, I do not know, and I do not know if anyone knows right now. I think the important message from that, Senator, is that someone had anthrax out there; someone was able to put it into a situation where it did what it did. I think there has been much skepticism over the past several weeks, and I have heard it voiced by any number of individuals, and Dr. Henderson referred to it, that this is too technologically difficult.

I think the point of the Florida experience is that somebody out there did grow anthrax; they put it into a form which could in fact potentially be used, and whether that was a very limited hit or a potentially large hit, it is another wake-up call to us that something is out there that we have to be prepared for, and we can no longer hide behind the explanation that it is just too tough.

The CHAIRMAN. I will turn to the rest of the panel, and you might comment about how you would characterize our reaction.

Dr. AKHTER. I think the incident in Florida truly is not an isolated event. Somebody did something that was criminal, and until we have the complete FBI investigation, we just do not know the extent of it.

If you find anthrax spores among two people, it does not really build my confidence to say there may not be a third person, a fourth person, or some other spot. So I will wait until I get the full investigation before I can say for sure.

The CHAIRMAN. Dr. Heinrich?

Ms. HEINRICH. My initial reaction was amazement at how well the Federal organizations, CDC especially, and the State and local official actually worked together. I think it is quite remarkable. I also think it is quite remarkable that the State lab was able to so quickly identify the agent.

The CHAIRMAN. That is an important point.

Dr. Henderson, the final word.

Dr. HENDERSON. I think the system worked in this case, and I was very impressed with the speed with which the diagnosis was made and the response initiated. But this is not a typical area, and I think there are a lot of places in this country where we would not distinguish ourselves at all, and I think there is a lot of work needed to strengthen the State and local health systems.

I am a little reluctant at this time to say that I am persuaded that this is a release by a terrorist. I used to be in charge of dispatching teams on epidemics from CDC and then in WHO, and we would get all sorts of strange reports, and the preliminary reports would come in, and you would be inclined to draw conclusions only to find that there were strange things that happened. And there are some strange things here that do not quite make sense to me.

We isolated anthrax from the man's nose, but he does not seem to have an anthrax illness. This is very strange. The organism that is involved is really a common, garden-variety anthrax that has been isolated, something like this, from animal outbreaks in different parts of the country. It is fully susceptible to antibiotics; it is not an engineered organism as far as can be told.

I think we will get a lot more information when some of the surface samples come in and the further studies are done on that. So I think I would be inclined at this point not to draw the solid conclusion that this is a terrorist event until we have a little more information.

The CHAIRMAN. A very solid recommendation.

Senator Frist?

Senator FRIST. Thank you, Mr. Chairman.

I will be brief. With regard to the last discussion, I think it is important that we address what is going on in Florida today because in many ways, it gives us a microcosm of how the system should work. And just looking at the last several days, the system is working well. We have the very best labs, the very best epidemiologists, the very best public and private sector people responding. So I am confident that we will get to the root of this.

We do have to be careful in terms of speculation, yet in light of September 11, in light of what we have heard from both the first and second panels, that the threat is real, number one, and number two, it is increasing, in part because of technology so that we can aerosolize much better today than we could 5 years ago or 10 years ago, in part because, as I mentioned in my opening comments, Osama bin Laden, who has very much become the focus of what we in the United States are trying to address today, has specifically said that it is a goal of his to develop and to acquire biological weapons. When you put all of that together, I think it is worth us addressing in a very careful way as we go forward.

We know that anthrax is deadly. We saw that this weekend—a death. There is 80 to 100 mortality from inhalational anthrax. There are three different kinds; that is one kind. And that is important for us to know.

No. 2, we know and the American people should know that in terms of treatment, we have very good treatment for it. It has to be given in the asymptomatic stage, the very early stage.

On vaccines, I will add, because everybody is calling, asking if they should get vaccinated, that that is an 18-month process, so it is an adjunct to treatment, not the treatment itself.

So we know it is deadly, number one. No. 2—and we need to recognize this up front without being alarmist too much—anthrax has been weaponized in the past. We have heard references to Russia. We all know that in Russia in 1979, one ounce of weaponized anthrax leaked from a manufacturing plant; there were 79 cases downwind and 68 deaths even when treated at that point in time. So number one, it is deadly. Yes, it is rare—there have been only 18 cases—but it has been weaponized in the past.

The third thing I have to comment on because it has been mentioned—with one case, you think it could be happenstance, circumstance, spontaneous; with two cases, from a medical and epidemiologic standpoint, it does lower the threshold, and that is why you heard the comments over the weekend; and obviously, three cases lower it much more.

So I guess my question—and Dr. Henderson, you are the best, because you have talked about what has happened in India with similar kinds of outbreaks—right now, the system is working very, very well. Careful investigation will get to the root of it, I am absolutely convinced. So whether it is a terrorist or somebody who just had bad intention, we will know the end of that, I believe. But what if it had been 100 cases, and we know that the incubation period is from several days, but because of spores, it could be several months, where people could travel around the country. Would we be as proud of our system as I think we should be in Florida if there were 100 cases? How quickly could that potentially overwhelm our system?

Dr. HENDERSON. I think we would find with 100 cases, Senator, that it would be another order of magnitude difficulty, because one of the things that we would want to do with people who might have been exposed to a plume or an aerosol of that anthrax would be to provide them antibiotics for 60 days. Providing antibiotic for 60 days to any large population is a huge effort.

Anthrax is not spread from person to person, so that is not so much a concern, but we would then also be concerned that there would be other rumors, rumors of other cases, and there would be need to do laboratory studies in a number of different parts of the country just because of rumors and concerns.

With the system we have, we do have a framework, but it certainly needs a lot of strengthening to really respond as well as we would like, and I think that is a point to be made.

Senator FRIST. Thank you.

Dr. Osterholm, we have had a chance to talk, and in terms of the numbers you presented, we will take them and study them once again. But again, just so my colleagues will know, your numbers are very much in line with the numbers that Senator Kennedy and I have put together in terms of State and local preparedness, hospital preparedness, improving disaster response, improved research and development, international surveillance, the FDA, which we have talked about and the first panel mentioned, and smallpox vaccine. All of our numbers are very much the same. Areas the where you add—upgrading CDC further than we recommend; improving

the national pharmaceutical stockpile beyond what we have proposed—we will be looking at very carefully. So I appreciate in fact the entire panel and the information that you have given us today.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Mikulski?

Senator MIKULSKI. Thank you very much, Mr. Chairman.

First of all, to the panelists and those of you who represent the field of public health, I think you should know that we are really proud of you. You are really the germ warriors, and you have been at this for a long time—and germs are germs, whether they are these deadly diseases that could affect large populations or whether it is issues around the day-to-day things that our public health system deals with—so we are really very proud of you. We also know that public health personnel, the training available for them, and the infrastructure have been long neglected.

So I think this is an opportunity while we are dealing with this crisis. But while we are talking about managing the sick and our response—and I will come back to that—I would like to talk about the issue of panic, which is equally insidious and I believe equally dangerous. When rumors occur, when there is an isolated incident, when people could confuse flu symptoms with anthrax symptoms, I am concerned that panic will ensue.

What we are hearing is that America is already scared. America is really scared. I have a gas mask manufacturing facility in my home State, and requests are up 3,000 percent. People are driving in from all parts of the country wanting to buy gas masks and willing to pay any price.

We also hear about this underground effort where people are going to their doctors and their pharmacists to stock up on antibiotics and the hoarding of antibiotics.

The panic is already here—it is not visible. Then, we have these really unusual circumstances in Florida, and congratulations to all who have properly responded, but now we are into rumor. The press comes up with all kinds of questions, certainly to us but to others, pouncing on every rumor like they are looking for something, exacerbating the tensions. At the same time, we hear on the 24-hour cable stations people who are so-called experts, which I am sure causes you to blanch, listening to the most ghoulish of predictions, sounding like they write more for the "X-Files" than carefully written plans for disaster management.

So my question to the panel is how can we now get a grip on the fear that America is facing without placating; and number two, what practical advice can we give parents in particular who, as Senator Clinton has said and I know all of us are hearing from constituents, what can moms and dads do, even within our own families.

I know this is a big question. I grew up during World War II. My father helped out as an air raid warden, and he was also a grocer. We had a little space downstairs. I always felt that the war was someplace "over there," but that if something happened in our community, my father could protect me. I do not know if fathers feel they can protect their children now. So I think this is a big issue that needs to be addressed. I do not know if you would even recommend that experts go on television, organized by Secretary

Thompson and President Bush, to talk about this and get everybody where they need to be.

Do you have any thoughts on this, Dr. Osterholm?

Mr. OSTERHOLM. Yes, Mr. Chairman, Senator Mikulski. First of all, obviously, this is not a new topic to you. You have covered this in the past. But part of the issue that we have today, frankly—and I am one of those who abide by the fact that being scared is not a bad thing if it is scared for the right reasons and the right reflexes and the right responses occur because of it. Physiologically, when you are scared, adrenaline flows, and a lot of good things happen. The issue is when inappropriate things happen or nothing productive.

Frankly, I will be real honest with you in this committee—you are part of the problem. Part of the problem that we have is that we have been coming to you for the last 5 years, telling you about this issue, and other than Senator Kennedy and Senator Frist and some of the efforts which were passed but not appropriated, we have had to continue to build out there a kind of groundswell to come to you to say we need help.

Well, that does require citizens to get more interested and more involved in this issue. So what we are really trying to do today is come to you and say the best thing we can do for panic and fear is to provide the resources so that we can honestly and certainly assure the population a) that we will detect it, b) we will respond effectively, and c) we will make sure that you are told honestly that this is what we have available, and this is what you will have access to.

I think that that is going to be a very important piece of downplaying or minimizing that. None of us wants to be on the air informing citizens of this issue when the only thing they can do is write their Congressmen. We can take that off the agenda——

Senator MIKULSKI. Well, I do not think so, Dr. Osterholm. One, I take the criticism; I think it is an accurate one. But number two, I am telling you that with all that is going on the air right this minute, writing your Congressman is not what they want to hear. But your point is well-taken, and I am not minimizing it. I think we have to have a sense of urgency about how to address this issue, really within the next 72 hours.

Yes, Dr. Akhter?

Dr. AKHTER. Senator, I think there needs to be a very quick dissemination of information among the health officials throughout the country. In 1994, there was a water crisis in Washington, DC., and I happened to be the health commissioner. Each jurisdiction has its own view, and there is always disagreement about how to deal with something. Somebody wanted water to be boiled for 1 minute; others want it boiled for 10 minutes.

Once we started to share information quickly, each health officer had the same information, and they got on the television in their own jurisdictions and said, "This is what we need to do. You are safe. We are taking action." That is what needs to happen now. Somebody from the CDC needs to have the central information that should be available to all health professionals in a timely manner. The media goes to other people when we are unable to provide them the information when we do not have it.

Senator MIKULSKI. Dr. Henderson, did you want to comment?

Dr. HENDERSON. Yes. I think there is really a concern out there, as you point out. What is very difficult is to try to convey to a broad public that we have a risk here, we think it is a small risk—that is, that in any given area, there is going to be a release—that it is a small risk, but if it happened, it would be catastrophic, and we need to be prepared for it, and not to feel that there is going to be anthrax in your back yard tomorrow.

So it is trying to hit some sort of balance, and this does not come across very well.

It seems to me that what we need more than anything else is to explain to the public by, say, the CDC or what-have-you, in an authoritative way where are we really. I think we need to be honest. I think we need to keep it in perspective. I think we need to work to convey that message.

I was pleased, actually, on a number of the reports with regard to anthrax in Florida how the first case came up on page 5 or 6. I think a lot of media covered this with some balance. But there are people calling us asking what can parents do, and the last thing you would recommend is that they get a gas mask, which is really useless and in fact can be dangerous. There were a number of Israeli adults and children who actually suffocated with gas masks. So this is certainly not going to help in the biologic event, and you are not going to be carrying it around with you all the time for a gas event.

As far as stocking up on antibiotics, we recommend that they not do so, because there is a shelf life, will you have the right antibiotic, this is costly, etc.

People ask, "Well, what do we do?" and we ask them, "Well, what are you doing to protect your family against an airplane coming out of the sky?" You really cannot do anything. You are depending on your Government to be ready to respond and take precautionary measures.

I think this is the best thing we can do is to convey that your Government is actively involved in a number of activities all the way from the intelligence side to stockpiling to responding quickly to providing you protections should an outbreak occur. And I think the fact that the Congress is acting as they are acting this time to identify those initiatives and that we can then go to the public and say we are doing these things, and we are prepared to respond, and this is the danger that we have—I think this is the only way that I can see that we can really act on this.

Senator MIKULSKI. I really appreciate everyone's testimony. I have just one follow-up question.

Dr. Heinrich, as you have looked at all these responses in an excellent report—and many thanks—is public information, an organized effort for public information, included in the plan either for Federal or State in a way that there would be a mandate to have a one-stop shop for appropriate information to the public? Did you note that in your report?

Ms. HEINRICH. No, there was no such one-stop shop focus on public information, although we certainly found when we did the investigation of the West Nile outbreak that the need for public informa-

tion is tremendous and in fact in that instance really overwhelmed the local and State authorities.

Senator MIKULSKI. Thank you.

My time has expired, but to you, Mr. Chairman and colleagues, I would say that I think this is something we need to incorporate very quickly into whatever is going to be our plan, picking up on the excellent recommendations.

And Dr. Henderson, in your role with Secretary Thompson, I think we have got to get that pretty quickly included, because I think it could be one of our most important tools. I would much rather hear from germ warriors like you than from those who have come out of the X-Files.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Hutchinson?

Senator HUTCHINSON. Thank you, Mr. Chairman. Thanks for holding the hearing today, and I want to thank our panel.

I would like to touch on something that we really have not dwelled on much today, and that is the issue of vaccine production.

Dr. Heinrich, I thank you also for the GAO report. In your conclusions, you mention that "there are too many Federal agencies responsible for various bioterrorism coordination functions, with limited accountability and hindered unity of effort." I think that that is so true, and I hope the appointment of Governor Ridge is going to help alleviate that problem.

Dr. Osterholm, you said that September 11 was a wake-up call, and it was. But the first wake-up call occurred back in the early 1990's when we went into the Gulf War and sent our troops over there—and I serve on the Armed Services as well as the HELP Committees, and I am on the Emerging Threats Subcommittee, and we have become keenly aware of what is a tragic saga over the last decade, one that we must not allow to be repeated.

At that time, there was a DOD report that said that we needed to establish a Government-owned, contractor-operated facility to produce vaccine to protect our forces when we sent them into dangerous areas. The Department of Defense for whatever reason rejected that recommendation and instead went to the commercial sector and contracted with a commercial firm, Bioport, up in Michigan to produce that vaccine. We know that over the last decade, they have failed to receive FDA approval. So that while we went through this entire PR campaign where the Secretary of Defense received an anthrax vaccination and various other public officials did, DOD officials, to show that it was safe, and we convinced our troops that it is safe for the most part, and then did not have the vaccine to give them. So that today we are sending thousands of our troops into harm's way unprotected.

So Dr. Akhter, when you said that they are protected, that we vaccinate our troops, we really do not today, because we do not have a facility that is producing that vaccine.

So I think there are a lot of lessons that we need to learn.

I authorized another report last year in DOD authorization. We got another report, and DOD has once again recommended that we have a Government-owned facility producing this vaccine. And Dr. Satcher, our Surgeon General, wrote a letter to Secretary of De-

fense Donald Rumsfeld saying in effect—and I will summarize it, and I would like it to be included in the record, Mr. Chairman——

The CHAIRMAN. It will be so included.

Senator HUTCHINSON [continuing]. Essentially, the Surgeon said that if we do it—and we should—we ought to do it not just for our troops, but we should make it available for our civilian population for domestic preparedness. I think that that is so essential.

Now, a decade later, here we are. Our troops are unprotected and our civilian population is unprotected from a vaccine standpoint. I think there are some conclusions here. We cannot have a sole source for vaccine, so the idea of saying let us contract with the private firm and let them do it is misguided. A sole source is an easy target for terrorists; we are too reliant upon a single producer. If they fail, we are in the situation that we are in today.

We cannot rely on the commercial sector alone. They do many things in a great way, but these are not necessarily financially feasible vaccines—and I am not talking just about anthrax but other deadly pathogens. We have to have the Government involved in this.

Senator WELLSTONE. Excuse me. Could I hear that again? I did not hear what you just said.

Senator HUTCHINSON. I am for the Government doing this, Paul.

Senator WELLSTONE. I got it.

Senator HUTCHINSON. There are certain things only Government can do, and in this case, the private sector has failed us terribly. And I am glad to repeat that, and I am glad you caught that.

We cannot limit it to just one pathogen like anthrax, because there are others that we are going to be threatened with. That is why I think this facility, this production capability, is so critical.

So with that background and with all of my biases now laid out, let me just ask the panel how important is such a production capability, production facility; should the Government own it, at least have the guarantee of the Government's backing; and if we made a national commitment—because I have heard 5, 6 years for such a production facility to be up and running—but if we made a national commitment to it, and we coordinated with FDA, the Department of Defense, the CDC, and these various agencies, how quickly could we get this kind of protection available?

Let us begin with Dr. Osterholm and then anybody else who would like to comment.

Mr. OSTERHOLM. First of all, thank you very much for those comments. I think there are many people who are in complete agreement with you on the public health side. We need these resources however we can get them and effectively keep them on line is what we are trying to do.

Right now, I believe honestly—and this goes back Senator Mikulski's very good question about panic and fear—the very most important thing that will allay panic and fear is being prepared. And I think you have hit on a very important issue, that having the access and the capability to produce these vaccines is one way in which the public will feel assured.

Unlike my colleague here, I am not sure that we are ready to talk about routine population-based immunization yet for a lot of reasons, but I know darn well that if I were in the middle of a fire-

fight and an outbreak right now, and we had the vaccines we needed, and we had the pharmaceutical products we needed, that would be a major, major asset in trying to fight that epidemic both from the standpoint of the actual epidemic but also the panic and fear.

So I very much support your point of view. I do not know if any of us have the exact answer on how to do it, but we all know the current system is not working and has to be addressed, so I thank you for that.

Senator HUTCHINSON. Thank you.

Dr. Akhter?

Dr. AKHTER. It is a wonderful question, and I must say that I tend to agree with you. We need to have a Government facility to do the research and development, because nobody else will see it worth their while to do it, because you cannot sell these things commercially, and there is not a market out there. So this is something that really comes very close to home. It is the Government's responsibility to really do that.

Now, we could have private contractor in addition to the Government itself so that the contractor really concentrates on these areas and makes the resources. Having two sources is important not only from the point of view that one could be destroyed or attacked, but also from the point of view of comparison so that we can compare the two vaccines and make sure which one is better and continue to study that and make sure we have adequate supplies when the need arises.

I tend to agree with my colleague here that we need to have an adequate supply of vaccine so that I can stand up and look into the eyes of the American people and say, "Folks, we are ready, as ready as can be humanly possible. We have the vaccine, and in case something happens, we can provide it to you."

Senator HUTCHINSON. Dr. Heinrich?

Ms. HEINRICH. Yes, I just wanted to mention that we will be doing work for Senator Frist and Senator Kennedy on vaccine shortages and what are the issues underlying what is happening currently in the commercial sector. As these issues play out, it is interesting, because we are currently short of tetanus, which is a common vaccine, and there is only one sole source manufacturer at this point in time. We studied what was going on with the flu vaccine and the reasons for the shortage last year and the slower production this year, and there are many, many factors involved.

I guess, being from GAO, I would be hardpressed to say that one approach, the Government taking over vaccine production, is the only answer, but I do think we need to better understand what is happening in production in newer plants, what incentives can we put in place so that we do have a healthy market.

We also know that there are certain vaccines where there is not going to be a large market in the United States. I know that CDC and DOD and FDA currently have a contract in place to develop plans for such a facility that is Government-operated.

Dr. HENDERSON. I think there is a problem with vaccines as has been pointed out, and it extends across the board. It is not just these vaccines, but it is the childhood vaccines, where many of them have just one manufacturer, and we have been running into shortages.

Traditionally, in many countries, vaccines have been produced by government manufacturers. This has been the experience a long time ago. Many places made vaccines—Massachusetts, Michigan, and Texas had their own vaccine production facilities.

So I think it needs to be explored, there is no question, to see how to accomplish this to ensure that we do have vaccines. The private sector does not seem to be doing all that well at the moment.

There is a second piece to this, and that is the research and development, where I think we need a plan to develop vaccines. There is, for example, a second-generation anthrax vaccine which was developed within the military at USAMRD that looks very, very promising, and it really needs to be accelerated. The research on this should be accelerated. I think many of us who have looked at the question of what vaccines should we provide would say that if we had today an anthrax vaccine of the second generation, which perhaps could immunize with two doses, would we recommend it—I think we would for first responders and many others. It would be a very good thing to do.

We would not recommend a smallpox vaccination simply because of the complications given the risk. But if somebody walks through O'Hare Airport tomorrow and we find that he is carrying smallpox virus, that risk-benefit ratio could change overnight.

So that yes, with the smallpox, they are now looking for a second manufacturer so there would be two manufacturers and a long-term supply of that vaccine.

Senator HUTCHINSON. Thank you, Doctor. I thank all of the panel for their excellent responses.

Mr. Chairman, I would just say that the Department of Defense is saying they are going to be making a decision, but if they determine to go Government-owned, contractor-operated, the civilian population ought to get the benefit of that, too. We do not need to be duplicating those kinds of efforts when it is going to require such a huge investment.

So thank you very much for your timely comments.

The CHAIRMAN. Senator, we should have a hearing on that subject. It is another feature of this whole issue. Senator Frist and I have asked the GAO to do some definitive work.

There are enormous ethical issues—and time is moving along, and other colleagues want to question—but we have issues between killed and live vaccines. If you remember years ago, if a child received the killed vaccine, they had protection, but none of the other children in the classroom had any protection. If they used the live vaccine, the other children got protection and that child got protection, but you had one in a million cases resulting in the child getting the disease. So you had a defined number of 12 to 15 children getting the disease, and you can imagine the mothers out there, appearing before this committee, saying, "I was thoughtful enough to bring my child down there to get the vaccine, and now my child is going to be paralyzed for the rest of his life." And other mothers who did not bring their children, their children were immune, and how can you have that as a matter of public policy.

So there are enormous ethical issues, and we still do not know the right answer. These are ethical and moral issues and questions—as Dr. Henderson pointed out, we produced vaccines in my

own State of Massachusetts, and Michigan and other States did as well. So this is something that we ought to give good thought to, and we should get some recommendations from Pharma.

A fellow who is very interested in this is named Leschley, who is with SmithKline. He has talked about the failure of doing research into drug-resistant bacteria. Not many of the pharmaceutical companies are doing it. It is complex, it is expensive, but it needs to be done in terms of the public health. As a public health issue down the line, that is somewhat of a different issue, but some of these things overlap.

I thank the Senator for bringing this up. It is very important, and maybe we will ask our staffs to get together and give us a sense about how we can get good information in the committee.

Senator Wellstone?

Senator WELLSTONE. Thank you, Mr. Chairman.

I appreciate this hearing. I do not think Dr. Osterholm will be that sympathetic to what I am about to say, but in a lot of ways, I am having to pinch myself to realize that we are having this hearing. You cannot help but be very serious when focusing on these issues.

We have been talking about panic, but I do not know if that is the right word as I think about how people in our country are thinking about this now. The other night, our youngest grandchild had a 6-year-old birthday, and all the kids were there and grandchildren, and I said to Sheila as we left—I have never talked like this before in my life—but I said, "We are 57, and we have had a good life, but what is ahead for them?"

I do not know that that is panic, but people are very focused and worried and frightened. I have been thinking about this, and I have a particular question to ask you, and it is a small one. I do not want to repeat what others have said. I have learned something today, a lot, but there is one thing in particular. There has got to be—and I think, Dr. Henderson, you started to touch on this—there is a dilemma for you and for us as well, because to the extent that you want people to be aware of it and know this is ahead of us, you have to figure out how to do it without just terrifying people or making them just numb in their sense of hopelessness and powerlessness, and you have to know how to draw that line.

I have thought about this, too, Michael, back home. This would be an easy thing to do to get a lot of coverage. I could meet with you alone—I am serious—with people in the State, and everybody would come. But what I think would be better is if you can, at the same time you are outlining the problems, you can outline the action plan. So the whole thing is rapidity of response. The airline industry came in and the carriers said on Friday, "If we do not get indemnified by Monday, we are not going to be able to fly"—and by God, we passed a $15 billion package just like that.

So I think the key is the rapidity of response, and I think we need to do this in the public health field just as we did for the airlines. So what I look forward to very soon is to meet with our people in Minnesota, our local people—all of you have put emphasis on State and local—and to be able to say, "Tell me what you need," but at the same time be able to say, "This is exactly what we are going to do," so people hear about both—they hear about the prob-

lems, but also, about the action plan and what is being done by Government now. To me, that is the key, rapidity of response.

My quick question—and maybe it is because this is an area that I work in—in this whole public health infrastructure of care, it is my own belief that mental health services ought to be a part of this. It is part of the area that I work in, and it has not been discussed today, and I wanted to get your response. Whatever we are dealing with, trying to head off people becoming too frightened, if something has happened, trying to deal with a lot of different people—to what extent should this be part of the infrastructure that is there in our local and State communities?

Mr. OSTERHOLM. Senator Wellstone, let me say that I think it is as two levels that you have identified. One is for the individuals themselves out there, and clearly this is an important area. I do not think there is anyone in America who did not lose sleep, who was not restless or concerned, after September 11. We are not used to that kind of phenomenon, and that is an important mental health consideration.

I am in a very selfish way concerned about it, because frankly, how one of these episodes could unfold is going to be dependent not just on the bug and who is exposed, but on the psychology behind it. And for us to contain, control, and basically direct an outbreak investigation and the outbreak itself is going to be in part dependent on the population psychology, which I think we have very little experience with in modern times. What will happen; how will people actually respond to Government directives? How will they believe in their Government? Will they in fact do the things that we are recommending? Will they feel confident that we can respond in a way that allows them to stay rational and move forward?

I think that all of us who have been involved in this issue have talked about the fact of the relative absence of information on that kind of study of the mental health of the population when that happens, and that will be a key part of what we do to respond.

Senator WELLSTONE. Dr. Henderson?

Dr. HENDERSON. You raise a very good point indeed, and I think one of the most important concerns we have as we go through the exercise of an epidemic is how we communicate with the public. This has not received as much attention as I think it deserves on how we work through and anticipate how we communicate a message to the public.

There is a second piece, and that is the mental health piece. We have a group of cultural anthropologists who are working with us, trying to identify what the reactions of people will be or might be in an epidemic situation, and they have been off on several different kinds of exercises. It is easier, of course, to identify something like an explosion or a crash, but it is hard to find an epidemic that is big enough to get a sense of just what it is going to be like in a serious circumstance.

As we look at it historically, we have not had a serious infectious disease epidemic in the United States since 1918, and we are just not at all sure how people are going to respond or how the medical profession is going to respond. Are they going to flee? Are they going to work? Are people going to flee the city? What are they going to do?

So I think this deserves a lot of attention, and we have a unit on that at the moment, and I think we are finding some interesting things, but that is, of course, for another time to describe all of that.

Dr. AKHTER. I think there are two other components that are absolutely essential. One is dealing with people who are suffering grief reaction because they have lost somebody or because they themselves are hurt. The second is posttraumatic stress syndrome. The closest we have come is the New York incident, for example. A lot of people needed grief counseling, the people who are dealing with it, the firemen, the police, everybody else—but also, 800 families, 4 weeks after the incident, have signed up because their children are having difficulty sleeping, difficulty concentrating, having nightmares, not being able to go to school, and these are the children who need long-term care.

So a really good mental health response, also ready, is an important component.

Senator WELLSTONE. I thank all of you. Mr. Chairman, this is an area where you all have done so much of the work, but it is one area where I want to dig in. This whole mental health area is really near and dear to my heart, and I think it fits in.

I would like to thank each of you. Dr. Osterholm, thank you for coming to Minnesota, and thank the University of Minnesota for giving you to us.

The CHAIRMAN. Thank you very much, Senator Wellstone.

Senator Collins?

Senator COLLINS. Thank you, Mr. Chairman.

I want to start by praising your efforts and leadership, along with Senator Frist, in really being out front on this issue.

As I listen to the testimony today outlining the weaknesses and the unevenness of our public health infrastructure, and I hear Dr. Akhter talk about the criticality of the first 24 to 48 hours in identifying an outbreak, and Dr. Henderson talking about that we only have 80 labs that would be able to identify anthrax, I cannot help but think that if the anthrax case or cases in Florida had happened in another part of the country, we still might not realize what we are dealing with. And while this may well turn out not to be a terrorist attack, the implications of someone deliberately exposing a larger population are really frightening in terms of our ability to quickly identify, contain, and treat, and that is the overwhelming impression that I am getting from the panel today.

I want to talk about another issue that we really have not dealt with, and that is the vulnerability of our food supply to a bioterrorism attack. I held extensive hearings a couple of years ago in my Permanent Subcommittee on Investigations to look at the FDA system for inspecting imported fruits and vegetables. What we found was not reassuring.

I got interested in this after reading about cases where tainted raspberries from Central America had come into the United States and resulted in dozens of people getting sick. I learned that our system was really no system at all, that only about one percent of food shipments that are imported are subject to inspections, that there were all sorts of opportunities for unscrupulous shippers to avoid inspection.

So this is of great concern to me, because although my subcommittee made a number of recommendations, only some of them were implemented, and part of it was for more resources.

So I would like to have each of you comment on the vulnerability of our food supply and, starting with Dr. Henderson, I would also be interested to know whether the new bioterrorism advisory committee is going to take a hard look at FDA's procedures for screening imported foods, because what I found was very disturbing in terms of our vulnerability.

Dr. Henderson?

Dr. HENDERSON. I think the real expert on the food supply, actually, is Dr. Osterholm. Clearly there is a risk with the food supply. There is more food coming in from overseas and all sorts of different places. It is very difficult to inspect, and this is one very difficult problem, there is absolutely no doubt about it.

We are not well-prepared to deal with this, and I think there is a lot of research that could be done that we have just not taken advantage of, or should take advantage of, and trying to do something about it.

It is a problem, and I think we have focused more on aerosol dissemination of agents as being a way by which the worst of the agents we can imagine are best distributed, and looking at the moment on catastrophic events recognizing that the food supply may be even more likely to occur, but some of the more catastrophic agents, you cannot distribute in food, there is a balance here.

Clearly that needs to be looked at. We have focused on food, but we have also looked at water and come to the conclusion by and large that our water systems are really not that much of a problem, that food is a bigger problem, and I think this needs to be looked at.

What our council will do, I really don't know, but that should be on our agenda, no question.

Senator COLLINS. I want to share our report and hearings with you.

Dr. Osterholm, I am going to turn to you now and then go back to the other two witnesses, because I remember reading a lot of your work when we were doing the investigation, so if you would comment, please.

Mr. OSTERHOLM. Senator, thank you. I was one of those who was very impressed with and appreciative of what you did and your attention to that issue. You drew early attention to some of the changing problems that we are seeing with the food supply.

To follow up on what Dr. Henderson said, fortunately, the food supply does not pose the risk of the catastrophic agents, but the problem is—I have worked up the largest outbreak of salmonella in the country of 300,000 cases in contaminated ice cream—today the problem is that our system is so vulnerable because we now feed literally thousands to millions of people off of single-source supplies that are easily contaminated. I think that one of the ares that we need to look at is that vulnerability, not just from Mother Nature-made, but also manmade attempts. I think industry is very concerned about that, and we have to do that.

I think we would all like to be part of the dialogue about how that is done. Frankly, some of us are concerned that more inspec-

tors will not really make any difference, but there may be things that could make a difference, and we would very much like to be a part of that.

One of the areas I would draw your attention to as part of the ongoing continuity of the food supply—and I think Senator Edwards mentioned it very briefly—is agri-terrorism issues and the concerns we have around that.

I think that frankly today—and we are all careful about how we talk about this, but it has been rather publicly talked about—if we have just one incident of foot-and-mouth disease entered into this country intentionally, and we can understand the implications of that and how well we are prepared to respond.

The other area, frankly, that we are very worried about is the hoax situation where, if I just tell you that your food is contaminated, what does that do to the trust, the integrity, and in many cases the actual ability to sell certain products.

So we need to work much more closely with industry, and industry itself recognizes this. We have been approached at our center by many, many different industry representatives over the last 3 weeks saying, "Help us. We really believe it now. We know that we have to do something." And I think Government has to be a key piece in that.

So I do not have a prescription for you today other than to say that your concerns are well-founded and right on target. We need to do something about that, because loss of confidence in our food supply has, I think, tremendous economic implications besides the illness cost issues.

Senator COLLINS. Thank you.

Dr. Akhter?

Dr. AKHTER. I think that with the terrorist threats now, business as usual is not acceptable. It is no longer possible for us to continue to have 12 different agencies of the Federal Government deal with food. I think this needs to be coordinated. We at the American Public Health Association had a position on this of creating a single food agency. This is something which everyone uses every, single day, and we need to make sure that things are coordinated, that all agencies are working together; maybe they could be brought under the new department that is being created.

I also believe that we need to have more inspectors to make sure that food is inspected, not only when it enters our borders, but at the source, and work with the producers to make sure we avoid contamination of food coming into this country.

Senator COLLINS. Thank you.

Dr. Heinrich?

Ms. HEINRICH. Just a brief comment, and that is that the U.S. Department of Agriculture really has minimum funding and programming related to bioterrorism, and they certainly reminded us that the pathogens that affect humans also affect animals. And also just to reinforce your point that there are very low levels of inspection of imports, and we know that we import a lot of food items.

Senator COLLINS. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Edwards?

Senator EDWARDS. Thank you, Mr. Chairman.

I thank the panel very much. Let me just follow up briefly on the issue that Senator Collins was just asking about. As probably all four of you know, Senator Hagel and I have included in our legislation some specific provisions addressing the problem of food safety and agri-terrorism.

Dr. Heinrich, you just commented that there is a low level of inspection of imports. That is one of the issues that we have tried to address with our legislation, but could you talk more about what you think needs to be done?

Ms. HEINRICH. At this point, it would be very hard for me to address what needs to be done. There are others at GAO who are doing work specifically targeted in this area. I do not think any of us at this point has recommendations on what would be done.

Senator EDWARDS. But you do recognize that something needs to be done.

Ms. HEINRICH. Yes.

Senator EDWARDS. Do any of the other witnesses have comments on that subject?

Mr. OSTERHOLM. Senator Edwards, first of all, having been very involved with foodborne diseases over the years, I do not want to take on a "sacred cow" to say the least, but I think we ought to look at what role inspectors really play. I can honestly tell you that I do not know what someone who looks at a product coming in from a foreign country does to add value to that product when it is a microbial level of contamination.

So while we are very concerned about it, and we agree with you that it definitely needs to be addressed, it is an area where I think the apparent solution may be more cosmetic than real.

One area that we have looked at is how do you actually provide the integrity of the product control from the time that it is actually grown in the fields to the point where it is actually given to the consumer; how do you trace issues back. One area where we have run into many problems is that when we have outbreaks or possible outbreaks, you can never trace back to the source of the product because there is such a poor product tracing chain there which then does not allow you to make the definitive answer as to whether it is or is not really a problem, and if it is, what product is involved.

How many times have we had to have a nationwide recall of melons or berries because nobody knew where they all went because they got mixed and mingled; if we could have just identified that field source, we could have done something about it.

So we would be very happy to work with your staff. I talked with Senator Hagel about that this morning. I think that your interest in this is right on target, as I mentioned just now to the Senator, and we would be very happy to work with you on that piece—and it is needed desperately.

Senator EDWARDS. Yes, it is clearly desperately needed. Thank you very much.

If I could switch gears for a moment, the GAO report indicated that there was a real fragmentation at the Federal level in our efforts to deal with this issue of bioterrorism. I wonder if any of the

witnesses—this is not directed at any particular witness—could comment on that and what needs to be done, or what is being done, to deal with that issue of fragmentation, to have our Federal agencies operating more efficiently and more cohesively.

Dr. HENDERSON. Senator, that is a $64,000 question and not easy at all.

Senator EDWARDS. Yes—I saw everybody backing away from the microphones.

Dr. HENDERSON. I think what is true here as we get into this is that this is one of the most complicated undertakings, trying to be ready to detect and to detect and investigate and so forth, involving so many different agencies, State, Federal, and local, that to try to put together a group of people all working together from FBI to physicians in hospitals to those in the public health sector to various people coming from Washington and the different agencies with a concern—it may even involve EPA or the Defense Department. This has been a problem that we have all thought a lot about and are trying to figure out just how you can do it, and the new agency that is being created is I think one more effort to do this.

The only thing I can say is that it is not easy. The department that I am working with mainly now is the Department of Health and Human Services, and I think a lot can be done to bring that together and at least have one agency that has fewer pieces to it. But there are many agencies and many different components to this, and how to do it is probably one of the most difficult responses that one could have in, let us say, a Government action.

Senator EDWARDS. But you agree that it is critically important that they be able to operate cohesively?

Dr. HENDERSON. Absolutely. I think that is critical, yes.

Senator EDWARDS. Other witnesses' comments?

Dr. AKHTER. I think, Senator, that whenever there is a national emergency, all of us roll up our sleeves and come out and work together to get the job done. I think the real challenge is when there is no emergency, how can we all work together. And there are many ways, but it must start from the top. We must have a domestic security council type of situation where all parties sit around the table on a regular basis and really talk this stuff out, because if top people are not working together, do not expect the lower level folks to really——

Senator EDWARDS. It is impossible, yes.

Dr. AKHTER. So it takes the same kind of coordination, and it takes many, many years before we really get down to a smooth working relationship among the agencies.

Senator EDWARDS. Dr. Heinrich?

Ms. HEINRICH. Certainly in the past, some of our colleagues who work in defense have put forward some basic principles on what you need to have if you are going to have the kind of coordinated effort that we see that we need here in bioterrorism.

What we have found in our overview of the Federal agencies is that there are oftentimes overlapping areas of jurisdiction and responsibility, and when that happens, it is not clear who is in control, and that leads to no one organization or group having accountability.

So that certainly one thing that can be done is clarification of those areas of jurisdiction.

What is interesting to me is that when you look at some functions such as research for vaccines, for example, there are different agencies that have responsibility—NIH, Department of Defense, CDC, FDA—but in that instance, they seem to be very clear about what the function of each organization is, and there seems to be a lot of collaboration, both formal and informal, but in other areas such as response teams or the kinds of materials or grants that local agencies can apply for, there is a lot of overlap and not the same kind of coherence.

Senator EDWARDS. Clearer lines would obviously help. Thank you.

I thank the witnesses very much for their work, and Mr. Chairman, thank you so much for your leadership on this issue.

The CHAIRMAN. Thank you.

I want to thank the panelists as well as my colleagues. I think you could tell both by the number of our colleagues present and the probing aspects of their questions and the issues that they have raised that this is something that we are all very, very much interested in. We want to try to be responsive and take the recommendations that so many of you have helped us with as a result of a lifetime of experience in this area. We are very fortunate to have you here.

I think all Americans are mindful—as we are meeting today in the late morning—of our service men and women and all the support that they are receiving overseas. We must recognize that we have another battle here. It is of enormous importance and incredible consequence as we are committing as a nation to make sure that we have the best-trained, best-led, with the best equipment overseas, that we ought to do no less for the children and the families who are left behind. And you have given us a very important blueprint to try to follow. We understand that there will be a number of different policy issues and questions as we go down the road, but we ought to get about the business of doing that at this time.

I thank all of you for being here. The committee stands in recess.

[Additional material follows:]

ADDITIONAL MATERIAL

THE CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY, UNIVERSITY OF MINNESOTA, AND THE WORKGROUP ON BIOTERORRISM PREPAREDNESS

The Center for Infectious Disease Research and Policy, University of Minnesota, brought together a Workgroup on Bioterrorism Preparedness on October 3, 2001. The Workgroup included members from the following organizations: the American Society for Microbiology, the Alfred P. Sloan Foundation, the Association of Public Health Laboratories, the Association of State and Territorial Health Officials, the Center for Infectious Disease Research and Policy at the University of Minnesota, the Council of State and Territorial Epidemiologists, Emory University School of Public Health, the Infectious Diseases Society of America, the Johns Hopkins Center for Civilian Biodefense Studies, the National Association of County and City Health Officials, the National Association of State Public Health Veterinarians, and NTI. The members did not seek endorsement from their respective organizations for the recommendations contained in this report and the recommendations may not reflect the position of the respective organizations. The meeting of the Workgroup was supported by NTI.

RECOMMENDED FEDERAL FUNDING FOR A PUBLIC HEALTH RESPONSE TO BIOTERRORISM

The following amounts are needed for hospitals and federal, state, and local public health agencies to effectively respond to bioterrorism. The funds identified below represent an initial investment in upgrading the public health system for biodefense. Additional funds will be needed to effectively maintain such systems over time. The numbers provided below represent a first effort to achieve broad consensus in the public health community regarding funding for bioterrorism; the numbers will likely be refined with further discussion.

1. Improve State and Local Preparedness		
a. Bioterrorism Preparedness Planning	$35 million	
b. Staffing, Training, Epidemiology, and Surveillance	$400 million	
c. Information and Communication Systems	$200 million	
d. Laboratory Enhancement	$200 million	
TOTAL		$835 million
2. Upgrade CDC Capacity for Bioterrorism		$153 million
2. Develop Federal Expert Response Teams		$45 million
2. Improve Hospital Response Capabilities		$295 million
2. Improve Disaster Response Medical Systems		$62 million
2. Improve International Surveillance		$20 million
2. Improve Food Safety		$100 million
2. Develop and Implement Applied Research Initiatives		$50 million
2. Improve the National Pharmaceutical Stockpile (NPS)		$250 million
2. Accelerate Development of Smallpox Vaccine		$60 million
2. Develop Other Vaccines for Civilian Use		$100 million
TOTAL		$1.97 billion

JUSTIFICATION FOR FUNDING RECOMMENDATIONS

1a. Improve State and Local Preparedness: Bioterrorism Preparedness Planning—(Amount: $35 million)

• Every state and certain key local metropolitan areas should have a bioterrorism preparedness plan in place and the plan should be validated through simulation exercises. Planning at the state level or local level should involve the public health agency (or agencies) and all other agencies that would be involved in responding to a bioterrorism event. An estimated $500,000 is needed for each jurisdiction to immediately develop and test a comprehensive plan (assuming up to 70 jurisdictions).

• In 1999, many states applied for CDC funding for bioterrorism preparedness planning, but only 11 were funded. For those states whose applications were approved but not funded, the existing CDC cooperative agreement provides a mechanism to fully fund those activities and to rapidly move funds out to those states for implementation.

1b. Improve State and Local Preparedness: Personnel, Training, Epidemiology, and Surveillance—(Amount: $400 million)

• State and selected local health departments must improve their ability to recognize and respond to bioterrorism events by integrating bioterrorism preparedness activities into existing communicable disease prevention and control programs.

• The CDC's Emerging Infections Programs, which are now operational in nine states, have been highly successful in enhancing the kind of long-term capacity needed at the state level and should be redesigned to include bioterrorism activities and expanded to other states and selected large metropolitan areas.

• Additional funds are needed to train public health practitioners (epidemiologists, physicians, nurses, educators, and other program staff) to respond to bioterrorism events and to rapidly and effectively coordinate their actions across local, state, and federal agencies. Resources also are needed to recruit and train more public health practitioners (including medical and veterinary epidemiologists) through schools of public health and other colleges.

• An effective response will require close coordination between federal, state, and local agencies. Expertise must be available at each level to meet the demands of a bioterrorism crisis. Although federal leadership will be critical, too much reliance on federal resources may limit the overall effectiveness of a response. An estimated 1.33 million dollars is needed per 1 million population per year to implement and maintain bioterrorism preparedness activities.

1c. Improve State and Local Preparedness: Information and Communication Systems—(Amount: $200 million)

• Several essential information systems have been developed (or are in development) to effectively disseminate outbreak and disease information within or across jurisdictions. Funds are needed to expand or fully implement these systems to assure an effective response to bioterrorism.

• A system for emergency alerts (i.e., the Health Alert Network or HAN) must be in place in each jurisdiction so that public health agencies can rapidly communicate critical health information with each other in the event of a bioterrorism attack. Additional funding is needed to assure that all jurisdictions have fully operational alert systems in place.

• The National Electronic Disease Surveillance System (NEDSS) is a system designed by CDC to integrate a myriad of separate databases for public health surveillance so that reporting can be simplified and outbreaks (including bioterrorism attacks) can be rapidly detected and characterized across the different systems. Additional funds are needed to fully implement NEDSS.

• Epi-X is a rapid secure communication system for public health agencies that is sponsored by CDC for sharing information about outbreaks and critical health events as they unfold. This system would allow rapid communication of critical public health information in the event of a bioterrorism attack. Ongoing funds are needed to maintain the operation of Epi-X.

• Rapid communication systems (such as two-way radios or other systems) also are needed to allow state and local agencies to effectively communicate during times of crisis when conventional modes of communication may not be accessible.

1d. Improve State and Local Preparedness: Laboratory Enhancement—(Amount: $200 million)

• The Laboratory Response Network (LRN) is critical to a successful response to bioterrorism. The LRN is a multi-level laboratory network composed of county, city, state, and federal public health laboratories and is designed to receive and analyze laboratory specimens from a range of sources. The system is designed to assure definitive identification of suspected bioterrorism agents as quickly as possible. Additional funding is needed to assure that LRN laboratories are prepared to accurately identify potential for full implementation.

• The National Laboratory System (NLS) is a communication system designed to rapidly share laboratory information between public health, hospital, and commercial laboratories. Such communication will contribute to early detection and effective monitoring of bioterrorism events. Additional funding is needed for full implementation.

• Chemical terrorism preparedness also is needed and should be integrated into the laboratory improvements.

• Resources for improved diagnostic testing and identification of potential bioterrorism agents by animal and wildlife laboratories also are needed, as is improved communication between human, animal, and wildlife laboratories.

2. Upgrade CDC Capacity for Bioterrorism—(Amount: $153 million)

• CDC is the lead public health agency for federal bioterrorism preparedness and must be able to provide effective leadership to the public health and medical communities. Additional funding is needed for CDC to conduct deterrence, preparedness, detection, confirmation, response, and mitigation activities.

3. Develop Expert Response Teams—(Amount: $45 million)

• Public health management of a bioterrorism attack will be extremely challenging. Teams of national experts who can deal effectively with the demands of such a crisis should be recruited and trained. These experts should have extensive experience in management of outbreaks or have clinical experience with diseases caused by potential bioterrorism agents. The teams should be maintained on alert status and federalized as needed for deployment.

4. Improve Hospital Response Capabilities—(Amount: $295 million)

• Hospitals must be able to effectively triage and treat victims of a bioterrorism attack. This requires improvements in infection control (i.e., adequate isolation capabilities), expanded ability to provide intensive care, and adequate protections for healthcare workers (antibiotic prophylaxis, personal protective equipment, and vaccines [if available]).

5. Improve Disaster Response Medical Systems—(Amount: $62 million)

• Adequate disaster response systems are needed to coordinate disaster management during a bioterrorism event.

5. Improve International Surveillance—(Amount: $20 million)

• International surveillance is needed to monitor the occurrence of illnesses caused by potential bioterrorism events in other areas of the world.

5. Improve Food Safety—(Amount: $100 million)

• Foodborne agents could be involved in a bioterrorism attack. Funds are needed: 1) to improve surveillance for foodborne diseases at the state and local level, 2) to improve outbreak response capabilities, 3) to enhance rapid communication of information about foodborne disease outbreaks, and 4) to provide federal oversight for food safety activities.

5. Develop and Implement Applied Research Initiatives—(Amount: $50 million)

• Applied research is needed (particularly at the state and local level) to assess effectiveness of various public health strategies, such as evaluation of surveillance methods, evaluation of laboratory preparedness, and evaluation of rapid communication networks.

9. Improve the National Pharmaceutical Stockpile (NPS)—(Amount: $250 million)

• Additional stockpiles of anti-infective agents are needed to effectively provide treatment and prophylaxis to large populations in the event of a wide scale bioterrorism attack. Ideally, enough medication to treat or provide prophylaxis to 40 million persons should be stockpiled. These supplies will need to be rotated on an ongoing basis.

10. Accelerate the Development of Smallpox Vaccine—(Amount: $60 million)

• Release of smallpox virus has serious global public health ramifications. Containment measures, including the ability to conduct mass vaccination campaigns, will be critical to a successful response effort. Enhanced production of smallpox vaccine is urgently needed to contain the spread of smallpox if this agent is released through a bioterrorism attack. Also, lack of vaccine availability will cause widespread panic in the face of an epidemic, which will be extremely difficult to control. Ideally, enough vaccine should be available to vaccinate the entire US population.

11. Develop Other Vaccines for Civilian Use—(Amount: $100 million)

• Development and production of vaccines for civilians (other than smallpox as indicated above) is important to the long-term protection of the U.S. population against bioterrorism attacks.

[Whereupon, at 1 o'clock p.m., the committee was adjourned.]

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