

**SEVERE ACUTE RESPIRATORY
SYNDROME (SARS)**

HEARING
BEFORE A
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE
ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

SPECIAL HEARING
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SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

FRIDAY, MAY 2, 2003

U.S. SENATE,
SUBCOMMITTEE ON LABOR, HEALTH AND HUMAN
SERVICES, AND EDUCATION, AND RELATED AGENCIES,
COMMITTEE ON APPROPRIATIONS,
Harrisburg, PA.

The subcommittee met at 9:29 a.m., room 140, Pennsylvania State Capitol, Hon. Arlen Specter (chairman) presiding.
Present: Senator Specter.

OPENING STATEMENT OF SENATOR ARLEN SPECTER

Senator SPECTER. Good morning, ladies and gentlemen. The hour of 9:30 having arrived, we will begin our hearing promptly on time.

This is a hearing of the Appropriations Subcommittee on Labor, Health and Human Services and Education, and this subcommittee has jurisdiction over the budget of the Department of Health and Human Services which includes the National Institutes of Health and the Centers for Disease Control and Prevention.

The world is now suffering from an enormous problem of SARS, originated in China, has been a problem in many parts of the world, recently in Toronto and also in the Lehigh Valley in Pennsylvania.

The subcommittee has taken up the subject on two occasions. Once when the Secretary of Health and Human Services, Tommy Thompson, testified earlier this year about the budget for NIH, CDC and his entire department.

Then we had a hearing a few weeks ago where Dr. Gerberding and Dr. Fauci testified, and in light of the continuing problem and a great deal of public concern, really public worry, about what is happening here, it seemed to us that it would be useful to convene a hearing and to have an update.

In the world of Washington activities so much happens that it is hard to focus on any one subject when we are battling the problems of Iraq and North Korea, economy and the tax cuts, et cetera, so it seemed a good idea to come to a local setting.

I very much appreciate Dr. Fauci's being here and Dr. Gerberding's being here. And I asked them not once, but several times if it was an unduly imposition on their time to come and testify.

We can find very much concern that they spend their time on the substance of the problem, but a very big issue here is informing the public with the current threat, and I hear it from many, many con-

stituents, what is the problem, what is happening, what is the risk to my family, what will be the risks this summer when more people are outdoors?

Then we also have the issue of adequacy of funding which is a very grave concern of the subcommittee. And I have already expressed these concerns in Washington, but they bear repeating.

We are calling upon the Centers for Disease Control to undertake enormous new responsibilities to prepare for potential bioterrorism, and SARS is an unexpected problem; but when we take a look at the funding for the Centers for Disease Control, it is really totally inadequate not to use other language which might be more expressive or more emphatic, but the Centers for Disease Control was cut by some \$175 million this year.

For fiscal year 2003, the Centers for Disease Control was funded at \$4.49 billion, and this year it is at \$4.32 billion which is a \$175 million cut, and it is hard to see how the Centers can function with all of its increased responsibilities on bioterrorism, to say nothing of a unique problem like SARS.

It is difficult to say this, but the Centers for Disease Control is in a dilapidated state, something that Senator Harkin and I, the Ranking Member of this committee, we found out and revisited Atlanta several years ago and undertook an expansion program, but this year that expansion program has been curtailed with a reduction of the planned funding by \$152 million.

I think it is important for people everywhere to know what is happening, because this is a matter of public concern, and candidly, public pressure on the Congress and on the administration to provide the funding necessary to do the job. That is by way of a very brief introduction on the overall issues of the funding. And now we come to the substantive problem. Today we will take up what is happening now on the containment of SARS, what is happening with the problem posed in China, which is really, as I understand, it is out of control; but there have been limitations as to where people can travel and quarantines, and we have had some good results which will be detailed by our witnesses here today and they will be taking a look at what is going to happen in the future and what we need to do to have an adequate system to deal with problems like this one.

Then in the local scene we will be hearing from Dr. Luther Rhodes, who is chief of the Division of Infectious Disease at Lehigh Valley Hospital and Health Network, where they recently treated a man with SARS.

We will be hearing from Dr. John Combes, senior medical adviser for the Hospital and Health System Association of Pennsylvania, to get some insights as to Pennsylvania's ability to handle the problem and really perhaps illustrative of what is happening nationally.

STATEMENT OF JULIE GERBERDING, M.D., M.P.H., DIRECTOR, CENTERS FOR DISEASE CONTROL AND PREVENTION, DEPARTMENT OF HEALTH AND HUMAN SERVICES

Senator SPECTER. Our first witness is the celebrated Dr. Julie Gerberding. She has been celebrating since she has become the star of television in the course of the past few weeks. Something I think she did not desire.

That is one of the facts of life. She is the director of the Centers for Disease Control and Prevention. She has a bachelor's and M.D. from Case Western Reserve, and a master's in public health from the University of California, Berkeley.

Dr. Gerberding, thank you for joining us, and we look forward to your testimony.

Dr. GERBERDING. Thank you. It is great to be here and especially in this excellent, gorgeous building. This is an extraordinary architectural design here and it is filled with history; so I am especially pleased to be here, participate in this hearing with you and I thank you for your leadership and your interests. You have been a great friend of CDC's and Public Health and I think we really respect and appreciate that you are taking time to focus in on SARS, especially at the local level where so much of our efforts really do have to come to fruition.

I want to give you a brief recap of where we are right now with the epidemic. We recognize that there was a problem in China last November, and it took about 4 or 5 months before the WHO could get information about the details of the evolving problem in that part of the world.

Senator SPECTER. As a matter of format we are going to run this hearing a little differently than we run hearings where there is a great distance between Senators and the witnesses.

I wanted to set this up in a very informal way. And you and I have discussed this matter on a number of occasions, so I am familiar with where you are going, and I think we would have a better description if I do kind of a conversation with you as opposed to a regular type of testimony procedure.

Why did it take so long for CDC to find out about the China problem?

Dr. GERBERDING. Well, the Chinese Government was unwilling to provide the information to the global health communities for quite some time. I think initially they misunderstood the problem as being caused by chlamydia infection or some other infectious disease.

We could not access information, we do not have people there on the ground who can independently assess or provide technical assistance—

Senator SPECTER. Dr. Gerberding, the Chinese authorities have been criticized for really stonewalling this issue, and I think that is one point which needs to be made, not to attach political blame, that is not our interest in criticizing Chinese officials, but to make the point that when a Nation faces a health problem that they do not understand, that they need to communicate that to people who do understand it.

Is there any agency in the world which compares to the Centers for Disease Control in the United States and experience and understanding of this kind of a problem?

Dr. GERBERDING. I think we have tremendous experience and laboratory support and technical support and we work very well with the World Health Organization that has the international jurisdiction for being the first point of contact for many health problems. So we certainly would have wanted to help if we had been asked.

Senator SPECTER. We are going to circulate this transcript far and wide. I think that is the first point to be made, and that is when a country faces a health problem, they ought to communicate it to the World Health Organization, Centers for Disease Control, so you can start to get some assistance.

On a communications level, in our prior discussions you have commented to me about the lack of communications and the difficulty in correlating materials.

Could you expand upon that issue?

Dr. GERBERDING. We need a global system for detecting and diagnosing and responding to emerging infectious disease threats. In fact, the Institute of Medicine just issued a report which said exactly that, that CDC and the Department of Defense and the USDA need to come up with a coordinated global interface for identifying these emerging threats.

We have some capacity to do this in some parts of the world, but the network is not complete, the laboratory capability is inadequate in many regions such as China, and we have a lot to do before we really get that network to encompass the entire global community.

Senator SPECTER. Before coming to the steps which are necessary to correct those kinds of problems, let us focus at the outset on the problem posed to the United States by SARS.

Dr. GERBERDING. At the moment we have 56 cases of probable size in the United States and we have not had any transmission from those individuals to contact their healthcare workers for more than 20 days, which means we have contained the problem here, at least for the time being.

We are continuing to alert travelers to the hot spots, and the hot spots right now are China, Hong Kong and Taiwan, where there is very active transmission and new cases being reported every day.

We are also alerting travelers to other parts of the world that have recently had problems with SARS—which is Canada and Vietnam—but we do not have travel advisories to those areas that have brought the disease under containment.

So the threat in the United States right now is primarily from travelers returning from the hot spots, and we have to continue to be vigilant and identify people at the earliest possible moment so that we can prevent spread.

Senator SPECTER. What is being done when people do come back from China, Hong Kong or Taiwan, the so-called hot spots?

Dr. GERBERDING. Well, first of all, we advise them not to go to those hot spots unless they have essential business there, and when they come home they would see the travel alert card at the airport.

I just got one yesterday coming home from Toronto, as a matter of fact, and it advises if they develop any illness in the next 10 days that they should contact their physician so that the healthcare system can initiate the infection control precautions before they even arrive in the doctor's office.

When they arrive at the doorstep they will have the mask protection and the air protection necessary—

Senator SPECTER. If they start to show some signs that they might have something?

Dr. GERBERDING. Symptoms, exactly.

Senator SPECTER. And what are those symptoms so that people will be able to recognize them perhaps if they or their children are afflicted?

Dr. GERBERDING. The most common symptom is fever. But some people do not start out with a fever, they start out with aches and pains or coughing. Sometimes they have diarrhea. And mostly they just feel exhausted and weak like we all do when we are coming down with a virus infection.

It is not specific, and that is why we are trying to cast this broad net. If you do not feel well, make contact and let the doctor help you sort it out if there is anything to be concerned about.

Senator SPECTER. Is that sufficient if somebody is coming back from China, they have essential business as you characterize it, and they come back and they are given a warning as to what to look for, but they are obviously in a position to have contact with a lot of other people and the disease is spread in an infectious way on person-to-person contact.

So what risks does the community run by having somebody back from China or Taiwan or Hong Kong that are mingling in the community?

Dr. GERBERDING. So far, our science tells us that you are not at risk to the community until you get sick. So if you are incubating it, you are not likely to be infectious.

But once you start developing the symptoms of your own infection, and probably when you start coughing, and you are having the illness, then you become an efficient transmitter to other people around you.

Senator SPECTER. So it depends upon the individual then being responsive at that early moment to report to a hospital so that person can be effectively isolated or quarantined?

Dr. GERBERDING. Exactly. We do one additional thing in this country, and that is, if you are a traveler and you have been evaluated for SARS or admitted to the hospital for SARS, we are asking anybody who has been recently exposed to you, such as the people who live in your house with you, to participate in an active monitoring program. So the health department will make contact with these individuals on a daily basis to make sure that they are not developing early SARS so they can capture them before they pose a risk to additional people.

Senator SPECTER. What has the experience been on this approach? Do people make the reports in time or is there some SARS transmitted from people that have traveled and do not recognize the symptoms early enough or take precautions to notify public health authorities to not come in contact with other people?

Dr. GERBERDING. We have had good, but not perfect success with this. We have had some people such as an individual admitted to the hospital here in Pennsylvania who was not recognized as being at risk for SARS at the first point of contact in the healthcare system.

We have had 1 of the 56 SARS patients, who was a healthcare worker exposed to another patient, and one was a household contact of another patient. So kind of two transmissions outside of the travelers, per se.

Senator SPECTER. Is that in the Pennsylvania situation?

Dr. GERBERDING. No, not in Pennsylvania. The containment here seems to be completely successful at this point in time and we are not aware if there has been any change since their most recent update, but the health department and the clinicians here were very aggressive about monitoring the exposed people and have a very good system for isolating the patient in the hospital. They actually evaluated the healthcare workers who were exposed and requested that they voluntarily quarantine themselves for ten days just to be absolutely sure that they did not pose a risk.

One of the frightening things that we have seen over and over again in China, in Vietnam, in Taiwan and in Canada, is that the threat starts with the healthcare workers.

The healthcare workers are the people who are at most risk for getting this in-country, and so our highest priority is the protection of the healthcare workers and the other patients in the healthcare system. That is why an aggressive approach, such as was taken here, is something that we would totally support.

Senator SPECTER. Has there been any consideration given to the more extreme measures, such as quarantining the people who are returning back from the hot spots?

Dr. GERBERDING. We have not needed to do that in this country yet. It would be a very challenging task to quarantine everybody because we are talking about hundreds of thousands of people who are still traveling.

Senator SPECTER. Hundreds of thousands of people are coming back—

Dr. GERBERDING. Over time, yes.

Senator SPECTER [continuing]. From China and Taiwan and Hong Kong?

Dr. GERBERDING. We still have a large volume of international travel. You know, some people who are traveling to other areas have to pass through Hong Kong to get back to the United States, but right now the pattern of transmission does not indicate that that step is necessary.

We have seen in other countries that containment can be achieved without quarantining incoming travelers.

Senator SPECTER. What countries have you seen that containment can be achieved without quarantining?

Dr. GERBERDING. Vietnam has been able to achieve containment, and that is very important because they started out with a very bad healthcare outbreak, and that is where Dr. Urbani, the physician scientist who first recognized the problem there, he himself acquired SARS and died from it.

So there was a cascading epidemic in Vietnam. By using the same kinds of high level protection for the healthcare workers, we sent CDC experts there to help get the precautions in the hospital organized and implemented.

They had to close the hospital temporarily and they had to do some steps that we have not had to take here, but they have had no new cases in Vietnam for more than 20 days, which means that they are two incubation periods away from the last case, and that by definition is containment.

Senator SPECTER. But they had to close the hospital?

Dr. GERBERDING. They did have to close the hospital and they did have to quarantine some of the healthcare workers because they did not get the transmission stopped without taking the next step.

I was in Toronto yesterday. One of the specific things that I was interested in learning about was in Ontario what steps were taken in the hospitals there when they were involved in this outbreak and could not get it under containment with the basic steps, what enhancements did they use, and quarantining, expressed healthcare workers, was an important aspect of their plan and it works.

STATEMENT OF LUTHER V. RHODES, M.D., CHIEF, DIVISION OF INFECTIOUS DISEASE, DEPARTMENT OF MEDICINE, LEHIGH VALLEY HOSPITAL AND HEALTH NETWORK

Senator SPECTER. Let us turn to Dr. Rhodes just to interrupt your testimony for a few minutes here, Dr. Gerberding, with the Urbani issue, to Pennsylvania where we do have it. Your testimony is up to this point.

So I would like to turn to Dr. Rhodes, who is the Chief of the Division of Infectious Disease for the Department of Medicine at Lehigh Valley Hospital and Health Network.

He has his M.D. from Loyola University. Thank you for joining us, Dr. Rhodes, we are very interested, anxious to hear what your experience has been and what the status is of the Pennsylvanian who had contracted SARS.

Dr. RHODES. Thank you. Senator Specter, members of the community, my name is Luther Rhodes. I was a native of Lewistown, Pennsylvania, right up the street, so to speak. I am an infectious disease clinician.

I have been in the private practice of infectious diseases for about 27 years, all in the Allentown, Lehigh Valley area. Most of that time I have been chief of a very dynamic—and blessed to have an excellent division of infectious diseases and infectious control. We are unusually well-supported by our health network.

I would like to summarize for this community today what happened with our two cases, actually, that were reported through appropriate channels, and I will discuss both separately to show you the different kinds of things that can happen at the community level.

I am honored to be in the presence of the esteemed national experts, Dr. Gerberding and Dr. Fauci, and our State is represented by Dr. Combes and myself, but I am basically the local doc trying to present the situation on SARS as it runs forward in our community.

About March 11 of this year Hong Kong officials published on an Internet site known as Pronet, at least if I watch them, any other infectious disease folks read. They described at that time an outbreak in Hong Kong of a pneumonia which had not yet been called SARS, but which was, and what riveted my attention was involving healthcare workers in large numbers, and I would say Dr. Gerberding and Dr. Fauci will tell you, that gets your attention right away because of the large number of healthcare workers and my experience is twofold; one, that is a problem medically for the people involved; the other is, we positively have to ensure that

healthcare workers themselves are proven, effectively proven, prepared, otherwise there is an eminent and present danger of the healthcare system collapsing on itself.

The cases initially described I think 3 days later by the WHO as cases of pneumonia which I think on March 14 were being called SARS for the first time.

What attracted my attention was they were now in Canada, Indonesia, Philippines, Singapore, Thailand, and Vietnam; and a worldwide alert was issued, that was a Saturday, the 15th of March.

Because again of the Internet and access to that information, we put the five emergency rooms in our area on alert by direct phone calls and faxes, et cetera, to say much of travelers from Asia, if they come in with fever and cough, put a mask on them and put a mask on yourself.

Senator SPECTER. So you did this before when the incident occurred with the man who had SARS?

Dr. RHODES. Yes, Senator. The WHO, at least in my reading, I have not seen worldwide alerts come out like that, and I also could not get beyond the very compelling information on the large numbers of healthcare workers.

I envision my own institution, you know, your own world where you work and spend your time, and I hearken back to when I was 2 months out of my fellowship, brand new, wet behind the ears, I showed up in Allentown the summer of 1976, and about my second month there the City of Allentown and the State of Pennsylvania was paralyzed with fear about a mystery pneumonia.

We had several dozen American Legionnaires who died a great mystery. There was hints about terrorism in the air. That was all new to me. The observation was—

Senator SPECTER. What year was that?

Dr. RHODES. That was August 1976.

Senator SPECTER. That is when the Legionnaire's Disease hit Philadelphia and Bellevue and—

Dr. RHODES. Absolutely. Absolutely. The Legionnaire's outbreak or Legionnaire disease was a mystery pneumonia that affected Pennsylvania American Legionnaires because it was a statewide convention.

At that time all we knew in Allentown was we had seven people in Allentown Hospital with mystery pneumonia that was killing people throughout the State.

Of course everybody and their brother and their sister had an opinion as to what was causing it, and the hospital's ability to go to their healthcare was impacted severely.

That is a lesson that sticks in my mind, and when I see things like SARS where the healthcare workers are directly threatened, I see a couple of problems.

One is the patient themselves. Two, the healthcare team. Three, the ability of my community to deliver healthcare. People still have heart disease, diabetes, diabetic repercussions and the like, they need healthcare.

What I see in Toronto, and it is compelling information, the greater Toronto area appears to be in disarray, getting better, but

in disarray; and I translate that to my own community, and it is painful, it is threatening.

It requires not panic, but a focus and continued notification of people in the township as to what is going on. Fortunately we have first-rate quality national resources.

The CDC, if anything, provides us so much information, you have to go there two or three times a day. And national response from my perspective is superb. Our statewide response and capabilities are getting better by the hour and are very, very good.

My concern is how do we incent and how do we prepare people at the community level, and by that I mean how do we strengthen the private practice of the health infrastructure in a meaningful way so that we can respond and respond promptly to that world class information.

This tremendous information is coming out from the Centers for Disease Control, WHO. I mean I have tons of record-setting information available at my fingertips.

When I go to my peers in those five or six area hospitals in Allentown, I have got to be able to put that into a meaningful package, because one case coming through where you have unrecognized, and goes through the institution, is catastrophic.

Senator SPECTER. Dr. Rhodes, come to your case. The one case that did come through, tell us exactly what happened.

Dr. RHODES. Yes. First of all, the very first case, about 2 weeks after we put our prevent preparation in the ER, just shy of 2 weeks, a 42-year-old businessman from Lehigh Valley returned on March 19—within 1 week I should say, on March 19 a 42-year-old businessman from Lehigh County returned from China, directly from China, where within the past week he had had fever, cough, shortness of breath.

He came back to Lehigh Valley and came to our emergency room, and because of a couple things, preventative preparation allowed us to give his family a mask. They took a mask out and met him at the tarmac, basically at the airport, put a mask on him. He was left in our emergency area, and the entire time he was there, there was essentially no exposure to the healthcare workers, so we could do our job in safety.

Senator SPECTER. He was given a mask?

Dr. RHODES. He was met at the terminal, at the airport with a mask, and so that went unusually well. He fortunately has done very well. He is home. In fact, his testing to date has not confirmed SARS, but we reported him as a suspect case—

Senator SPECTER. Did he come directly from the airport to the hospital?

Dr. RHODES. Yes. His family gave us a heads-up that there was a family member who had possible—this mystery pneumonia—was coming back, and what to do.

Senator SPECTER. Coming back from Toronto?

Dr. RHODES. Coming back actually from China, right around China. The second case is the Toronto connection. Two different situations that occurred. First occurs, like you say, flawlessly, or as close to that as you can get, the gentleman is doing well, fine and dandy.

Senator SPECTER. Did the first man coming back from China, was he diagnosed with SARS?

Dr. RHODES. He was tested for and considered a suspect case. His testing to date has not confirmed, is not completely finished, but does not confirm, so he remains a suspect case with final testing pending. He has done excellently and he is already back to work.

That was the first experience we—

Senator SPECTER. You were able to intercept him after notice from the family, you met him coming in from the airport with the mask so that it is an illustration of an excellent move on your part having been aware of the generalized problem, the cooperation from the family, and taking it right into a situation where you could minimize exposure.

Dr. RHODES. Again, we translated the information to WHO and CDC provided to us to have those prevent preparations in place, and that on the surface you would say, well, okay, we are ready for this, bring it on, so to speak, but that was very resource consumption. Despite our precautions, our employees were nervous for several days after that.

They still wanted to know because every day they pick up their paper they read healthcare workers—there was more dying in other countries and so on, so if there is not—

Senator SPECTER. I want to say for the record, Dr. Rhodes, we are not mentioning names because names are confidential.

Dr. RHODES. The second case is on April 14, a 52-year-old resident of Pennsylvania, gentleman presented to the emergency department at one of the three LVH campuses, this is the Bethlehem campus, for cough, shortness of breath and recent fever.

Now, this gentleman, in the 11 days prior to coming to the hospital, no airplane travel, no travel to Asia, he had set out to care for himself at one other hospital and a doctor's office during that 11-day time he was ill.

They actually looked at the thought of, both places, could this be SARS? And discounted it because at that time the diagnosis or the definition did not include travel to Toronto. And he persisted with his symptoms and presented on the 14 to the Middleburg campus in Bethlehem, Pennsylvania, Lehigh Valley Hospital.

Even then when he came in with that history of having been checked, got so-called ruled out, and having another chest x ray, our emergency room physicians, after about a 2½ hours period of time, increasingly escalated their concerns, increasingly escalated their precautions—point of fact, 2½ hours he was put in the full precaution that they put the other patient in on day one.

Same institution, same prevent preparation, a little more experience, so to speak, about why the difference. Well, the definition changed. That is my concern, and I think that is the concern of all of us here is this clinical definition we use now, whether it has traveled to this, this, this, this and this, is a phony definition. It will change with time. It has a purpose. It is like the Legionnaire disease.

The definition of Legionnaire disease in 1976 was you had to have spent a week in the Middle East effort. Imagine in retrospect

how silly those folks felt that diagnosed Legionnaire's with a history of having been in a hotel in Philadelphia.

So things changed, and if nothing else they must translate this world-class rapid development of information by Dr. Gerberding and Dr. Fauci and the Federal Government, what are they provided with, and translate that. That takes time, effort and energy and commitment. And I would say the private sector has to do this in partnership with public health. Public health infrastructure in my opinion is fragile, fragile at best at the local level.

Senator SPECTER. Is patient number 2 isolated at the present time?

Dr. RHODES. Patient number 2 went through a hospital stay for pneumonia. He was Pennsylvania's first and only case.

Senator SPECTER. You said Pennsylvania's first case. I believe it is the only Pennsylvania case.

Is that correct, Dr. Gerberding?

Dr. GERBERDING. The first patient is on the suspect case list and has not had positive virology. The patient that was the second individual here has a probable diagnosis and our laboratory test is positive, so he is now being considered a probable case with laboratory confirmation.

Senator SPECTER. But are there any other Pennsylvania cases?

Dr. GERBERDING. Not at this time.

Dr. RHODES. Fortunately this gentleman is home now recovering, but because of that 2½ hours, we had six healthcare workers who had not been protected at the time of their initial encounter.

We furloughed those individuals and monitored their health for 10 days at home as an extra precaution. They are doing very well.

Senator SPECTER. Dr. Rhodes, are they doing well enough so that you can rule out SARS having been contracted by them?

Dr. RHODES. The entire amount is close to 100 percent at this point because of the number of days that have gone by, and again—

Senator SPECTER. When you say close to 100 percent, there is still some risk, however minimal, existing?

Dr. RHODES. Current CDC guidelines recommended our final testing 21 days after the original exposure and I do not think—

Senator SPECTER. And they are still being isolated at this time?

Dr. RHODES. Well, their 10 days of incubation or quarantine is over. So they are actually now back to work and doing well.

Senator SPECTER. Why are they permitted to be back at work after 10 days if it requires 21 days to be absolutely sure?

Dr. RHODES. The testing, if you go to Version 10 of testing in a new disease, that is the testing is—without question the testing is getting more and more sophisticated such that I am reasonably certain we will be able to do as they do now for strep throat and emergencies.

It is something that you vote, vote out, and say you have SARS or you do not have SARS. That level of testing will improve expeditiously. We are weeks to months into this diagnostic testing, so it is an imperfect test and I think caution is proper at this point, and the CDC has decided 21 days for reasons I am sure that they have great sense. It is new information that I suspect will be really nice.

Senator SPECTER. Dr. Gerberding, let us hear from you on that point. If you are not absolutely sure until 21 days, what is your evaluation, that there is sufficient assurances after ten days to take the minimal risk?

Dr. GERBERDING. We are really talking about two different things. One is, at what point do we determine that people are not going to develop the disease SARS and that incubation period is ten days.

So if you were exposed, you would wait 10 days, and if nothing happened to you in those 10 days, you would be assured that you are not going to develop the illness SARS.

The 21 days comes in as an antibody test. If you have SARS, it takes 21 days for your antibody test to become positive. So if we want to diagnose someone or we want to see whether or not they actually have the coronavirus infection, when we test them at the beginning of their illness it is usually negative because the antibodies take time to develop. But we repeat the test after 21 days. It will be positive then. And that will tell us for sure, yes, there was coronavirus infection or, no, there was no coronavirus infection.

So you are asking both questions with your patients. One is, are the healthcare workers who are exposed safe, and if it has gone 10 days without infection, they are safe.

But if you are asking, does the patient have the infection or did they develop an asymptomatic infection, you would have to test them 21 days after exposure to be absolutely sure.

Senator SPECTER. So it is a determination that a patient with a 21-day test as opposed to the 10-day incubation period?

Dr. GERBERDING. Correct.

Senator SPECTER. But there is no possibility of transmission between the 10th day and the 21st day?

Dr. GERBERDING. We have not seen any evidence of transmission after 10 days here, but obviously we are still new in this and we have probably looked at 56 probable cases here, so we do have an open mind and we are not abandoning the follow-up of individuals who have been exposed.

Senator SPECTER. In some of the commentaries there is an issue raised as to recurrence. What is the scientific thinking that SARS can recur in an individual even after there is some judgment that he or she is safe to be around others, Dr. Gerberding?

Dr. GERBERDING. I spoke with Dr. Heyman from the World Health Organization about this yesterday, we have more than 5,000 probable cases of SARS internationally, and so just this week there were no reports of recurrence in any country.

The only country that is reporting recurrence right now is Hong Kong, in 12 patients. What is unique in Hong Kong is that when the patients are in the hospital with the severe pneumonia, they get started on steroids to cut down their inflammation.

What they think they are seeing is that the steroids are artificially disguising the inflammation in the lungs, and when they stop the steroids, the patients get sick again. So it may not be an infection recurrence. It may be an unmasking of the problem that was really there and that the steroids were artificially covering it up,

and also the steroids were preventing the sick person from developing immunity to the infection and it was delaying their recovery.

That is just a speculation right now, but that is the kind of question that is being asked there. We can answer the questions with some laboratory testing and some better clinical observation of the patients. We do not treat our patients here, typically, with steroids, in part because most of them have not been that ill, and in part because we have no evidence that steroids are particularly effective.

Now with this new information there is some concern they could even be harmful. But in this country and in Canada and the other countries that we have good, quality information, we have not seen evidence of recurrence.

Senator SPECTER. Dr. Gerberding, you said in response to my question only two of these instances in Pennsylvania and you said nothing else "at this time."

Do I detect some concern in your answer not at this time that it is an open question as to further problems in Pennsylvania?

Dr. GERBERDING. Can I just have the last graphic there? We all like to think that we have successfully contained this here, but I think this graphic that your staff kindly prepared for us illustrates the situation in Canada where—

Senator SPECTER. Dr. Gerberding, bring the graphic up here.

Dr. GERBERDING. Can you bring that up here?

There was just one person—

Senator SPECTER. It was not for me, Dr. Gerberding, it was for the television camera.

Dr. GERBERDING. This was reprinted from a newspaper article. There was just one person in Toronto who came back from Hong Kong with SARS, and that individual infected members of the family, they went to the hospital, all of these people in the hospital became infected, patients were admitted to other hospitals.

That one patient created this whole cascade of SARS patients in Canada, and it is this cascade of transmission that resulted in the closure of hospitals, the travel advisory by the WHO that had a terrible impact on the Canadian economy and great fear and concern on the part of the healthcare workers. Many hundreds of people needed to be quarantined and so forth. So you can see what happens when just one patient slips through the cracks of the system and the terrible consequences that can result from that.

We know we have to continue to be vigilant because there is no reason why this patient could not have arrived in the United States instead of Canada. And so the kinds of things that Dr. Rhodes talked about have to go on in every single emergency room and every single physician's clinic around our country right now. It is a big challenge and we just cannot relax.

Senator SPECTER. I do not want to be unduly provincial with respect to Pennsylvania, but are there SARS problems in any of the surrounding areas, Ohio, New York, West Virginia, Maryland, New Jersey?

Dr. GERBERDING. There have been, and I did not bring my State-by-State list with me this morning, but I can certainly provide to you that information.

Senator SPECTER. That is very interesting. You tell me what it means.

Dr. GERBERDING. This is just simply a list of today's updated information and the number of probable cases, in places across the United States. You asked about Ohio. There is one probable case of SARS in Ohio. You asked about—

Senator SPECTER. Where in Ohio? The Indiana border?

Dr. GERBERDING. I do not know the answer to that and I hope it is not close to Pennsylvania.

Senator SPECTER. Why do you say that? You are a national officer.

Dr. GERBERDING. I am trying to be thorough. The States that have the largest number of cases right now are California, Illinois, Massachusetts, New York, and Pennsylvania.

Senator SPECTER. How many does New York have?

Dr. GERBERDING. New York has a listing of 26 suspect cases and 7 probable cases. Pennsylvania is listing one probable case, so that presumably would be the individual we are talking about, and has evaluated over time a total of 10 suspect patients here throughout the State.

Senator SPECTER. Where are the other non-suspect cases, if you know?

Dr. GERBERDING. I can find out for you and let you know.

Senator SPECTER. How about New Jersey?

Dr. GERBERDING. New Jersey is demonstrating three suspect patients and one probable patient today.

Senator SPECTER. And West Virginia?

Dr. GERBERDING. West Virginia is not reporting any probable or suspect patients at the present time.

Senator SPECTER. Maryland?

Dr. GERBERDING. Maryland is reporting three suspect and no probable cases.

Senator SPECTER. Do you know what precautions are being taken as to the other eight suspect cases in Pennsylvania?

Dr. GERBERDING. The precautions that are being taken are as we described. The other patients in Pennsylvania are not necessarily in the hospital.

When we say suspect patient, this has been a very difficult thing to explain. We wanted to cast the widest net we possibly could so that every patient was included in the catchment, even if we did not have a strong suspicion that they had SARS.

So if a patient has traveled to any of the countries I have mentioned and they have any respiratory illness—they could have the common cold—they get included in the suspect case list until they have a chance to be evaluated and ruled out.

Senator SPECTER. What precautions are being taken as to those suspect cases?

Dr. GERBERDING. It depends on how ill they are, but they are not in the hospital. Most of them are over the period—

Senator SPECTER. Who is following them?

Dr. GERBERDING. Local clinicians and the local public health agencies.

Senator SPECTER. Do you keep track of those?

Dr. GERBERDING. We have a State team and we have a specific person who is responsible for tracking each State.

Senator SPECTER. And how many people from CDC do you have in Pennsylvania?

Dr. GERBERDING. We had a team of three people assisting Dr. Rhodes in the investigation of this particular scenario. Those individuals have now returned to CDC. They have done their work here and they are in the process of following up some of the laboratory testing—

Senator SPECTER. Would you provide the subcommittee with the specifics on those eight suspect cases and what precautions are being taken to see to it that those individuals do not infect other people, or are not infected with the capacity to infect other people?

Dr. GERBERDING. Absolutely, and I can get that information probably while we are in this room if Mr. Gimson would just simply call the Pennsylvania team at CDC, we can get that for you.

Senator SPECTER. That would be fine. We would like that. We may have to prolong this hearing, but we would like to know that because those assurances are very important to the people.

Dr. RHODES. Just one important point to follow up.

Senator SPECTER. Sure, Dr. Rhodes.

Dr. RHODES. My concern is—and I am sure we all share this—this is what keeps me up at night—this patient, for example, could be presenting to any of the counties—any hospital in Pennsylvania tonight, and be, instead of Asia or Toronto, be returning from the Indian subcontinent, we know that the Indian subcontinent is just now getting involved with SARS.

That person could end up and go to a hospital in Pennsylvania and our meeting today, or this meeting would be all about the catastrophic event that occurred in one of the Pennsylvania hospitals; whereby, 14 healthcare workers, nurses, doctors, medical students, et cetera, and numerous family members, had become infected with SARS.

Right now we are looking at a definition where we see people from Asia, Toronto, when we get to the traveler part, one part of it, my concern is that is our official, borough official, and someone is going to get burned when the first person comes from India or some other place and brings SARS in and gets admitted, et cetera. That is what happened in Toronto. We should not let that happen here because we cannot afford it.

Senator SPECTER. How do you suggest we prevent it?

Dr. RHODES. My recommendation is the clinicians are asked—I am sure it has been around the table about 15 times an hour—as an infection doctor, my recommendation is a patient who has a fever and a cough, both the person taking the interview and the patient, should have a mask on at the earliest possible moment.

Now, that sounds heavy gambit and that is because we do not have record diagnostic tests, but there are other things that you do not catch with somebody who has a fever and coughing, tuberculosis, influenza, and the like, and it is a lot easier to take that mask off and maybe even giggle about it later saying it was overkill, than it is to find out on the second or third or fourth hospital day—

Senator SPECTER. How do you identify the individuals coming into the United States where you ought to take those precautions?

Dr. RHODES. Fever, cough, travel would be a good general screening.

Senator SPECTER. Traveled anywhere?

Dr. RHODES. International travel.

Senator SPECTER. Is that realistic and practical, Dr. Gerberding?

Dr. GERBERDING. Well, what Dr. Rhodes is really describing is what you do recommend as the standard of infections within this country which is a concept of standard precautions. That is, if you have a patient with a fever and a cough, then put a mask on the patient until you've had a chance to evaluate the situation. And if the patient is too sick to have a mask, that the healthcare personnel should be masked. The problem is that people do not take that seriously unless there is a specific reason or a specific scenario that is sounding the alarm.

So the vigilance of doing that is not as high as it should be for a lot of complicated reasons, but it is one of the areas that I think we have learned a lesson with SARS. I do agree with you that while we are relying on the WHO and the whole international community right now, it is extremely vigilant about detecting SARS in each of the countries that you have mentioned. There is no guarantee that someone is not going to pop up in a new country and import a case from a new area of the world.

Senator SPECTER. When you say international travel, cough and fever, that would implicate many, many, many people. Is it realistic to try to identify them, what you are suggesting in sending out an advisory for everyone on international travel with a cough and a fever to identify themselves when they disembark to be met by a public health expert?

Dr. GERBERDING. No. I think that right now we have confidence that the WHO recognizes the hot spots in the world, and remember, it is not just travel, it is travel to an area where there is more than a case of SARS. It is travel to an area where there is ongoing transmission in the community, and so, travelers who go about their business run into infected people and pick up the infection.

Senator SPECTER. Are there any countries on the WHO list besides the so-called hot spots you mentioned, China, Hong Kong, and Taiwan?

Dr. GERBERDING. Singapore is an area that is bringing the problem under control, but right now there still is a travel advisory because of the kind of transmission risks going on there.

STATEMENT OF ANTHONY S. FAUCI, M.D., DIRECTOR, NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES, NATIONAL INSTITUTES OF HEALTH, DEPARTMENT OF HEALTH AND HUMAN SERVICES

Senator SPECTER. Let me turn to Dr. Fauci at this point to get your input on what we have already heard. Dr. Anthony Fauci is the director of the National Institute of Allergy and Infectious Disease at the National Institutes of Health. He has been at NIH since 1968 and has had a remarkable career there, obtained an M.D. from Cornell University Medical College, and is a world-renowned expert on infectious disease.

Dr. Fauci, I would like your evaluation first as someone who studied the SARS problem very closely. What is your evaluation as to risk to people in the United States at the present time?

Dr. FAUCI. I think at the present time given the burden of cases that we have now, the level of alertness that we have been put on, the measures that the CDC has taken in surveillance and public health and infection control, that the risk is relatively small.

In fact, when we say that, I think it is important to underscore what Dr. Gerberding and I have said many times and even before you hold a committee hearing in Washington, is that we still need to be on a state of alert and to take this very, very seriously. But the realistic risk is small, and that is the reason why we say we should not panic, but in the same breath we need to underscore that we need to take it very seriously and follow it on a real time, day by day basis as we had been doing.

I think the testimony of Dr. Rhodes—I was really quite shook—I must tell you, Mr. Chairman, because what he was saying was in the trenches playing out of what we would hope to have seen in response to what the CDC is doing on a national level. He was monitoring the information that was coming out, and as soon as he heard it, he made the appropriate steps to how he handled, how his colleagues handled cases that were suspected of being SARS.

I think if we maintain that degree of, one, alertness, two, seriousness and, three, implementation of the kind of directives that come from the CDC, my evaluation as an infectious disease physician is that the risk will remain small, but we need to keep alert.

Senator SPECTER. Dr. Fauci, what is your evaluation as to steps to be taken, but yet countries like China who tell World Health Organization or CDC or other health officials what is happening so that we do not have a four to five-month delay and have the spread and tremendous problems which emanated from China with SARS?

Dr. FAUCI. Well, I think prior to SARS it would have been difficult to change the combination of cultural, political, or other factors that go into a country's reluctance to communicate on an open forthcoming basis with the rest of the world regarding health.

It certainly is inexcusable and unconscionable not to do that. I believe with all of the pain and unfortunate events that have subsequently happened because of the reluctance of the Chinese early on to be forthcoming, I see that as being now a global wake up call to any country, as recalcitrant as they may be, to see what the dire consequences, not only for the rest of the world, but within their own country, that keeping silent—because right now China is bearing the brunt of not only the responsibility in some respects to what is going on, but some significant duress from their own country.

Part of the problem of the disruption that is going on in China right now, and one of the major stumbling blocks in their being able to implement what they are trying to do is that the people just do not believe the government anymore.

That was a self-made situation. Hopefully they will correct that, and as they in good faith implement good public health measures, there will be a return of confidence in the government and the government will, in fact, realize that from the beginning they should have done it correctly.

I think that example will be a wake-up call to any other country of what the dire consequences are of not being forthcoming when it comes to health.

Senator SPECTER. You have identified a very serious political problem which faces China internally now and also a very substantial economic problem, tremendous—not loss of tourism, absence of tourism, and breakdown of the function of the economy. So let us hope that that is an impetus, but more is going to have to be done on the international level as a follow up.

Dr. Gerberding, in our discussions before, you emphasized to me a number of problems which need to be implemented, such as the access for CDC to specimens from other countries, and there is a whole range of items which you identified, such as having personnel who are trained in countries like China or Africa and the ability to get specimen are problems. What about the adequacy of people in China or Third World countries in Africa to identify a problem like SARS which might spread around the world, including the United States?

Dr. GERBERDING. We talk about the neglected public health system in this country, and we are fixing the system here. But the international public health system is in even worse shape. And of course some countries basically have no system at all. They have no laboratories, they have no disease detectives who can respond to an outbreak. So we are only as strong as our weakest link.

Senator SPECTER. We have CDC in Africa. I know I traveled there last August with Senator Shelby and we found CDC people on the AIDS issue, but that is such an international crisis, that we are willing to stand that, but to what extent are CDC personnel available in other countries?

Dr. GERBERDING. We have CDC people in 12 African countries and two Caribbean countries for AIDS. In Asia we have a beginning of a regional center for emerging infectious diseases in Thailand. We also have a very small field station inside of China that we support with some dollars but we do not have any personnel there. We have very small investments in some laboratories throughout Asia, the Soviet Union, and Eastern Europe that help us detect the new flu viruses that come out every fall or spring, and we work with those laboratories.

It is a very small investment. I think something like \$30,000 per lab to help get the specimens back to CDC so that we can predict what we need to put in the new—

Senator SPECTER. \$30,000 per lab?

Dr. GERBERDING. It does not take a lot of money and the resource per area to make a huge difference in the capacity to detect new problems, but the lab is not the only piece because, of course, you have to have the collaboration and the integration with the ministers of health and the in-country resources and the doctors.

Senator SPECTER. Dr. Gerberding, how should that be undertaken? Can the World Health Organization handle it? Is it something that is necessary for CDC, as you specified already been quite a number of countries? How expensive is it? Is it realistic for CDC to undertake it? Is it necessary for CDC to undertake a greater presence around the world to protect Americans here in the United States?

Dr. GERBERDING. WHO is clearly the essential coordinator of all of it, but as we learned last week, I have 400 people at CDC working on SARS, WHO had 39 people. So if we are going to realistically create a global safety net for emerging infectious diseases, we are going to have to utilize U.S. resources to support that. Again, the Institute of Medicine just took up this problem and they have men at NIH, CDC, USDA, and the DOD bring our existing resources together into a single uniform network and then identify the gaps—

Senator SPECTER. Dr. Gerberding, Pennsylvania's 67 counties, they are going to ask you a question, should the United States be the doctor of the world? I asked the question whether the United States should be the doctor of the world. The willingness of the American taxpayers to undertake this kind of expense might turn directly on the nature of imminence of the threat to the people here in the United States.

If we are really at risk on infectious diseases like SARS, I mean the only way we can protect ourselves is to have a dispersal of CDC personnel around the world, is to have them in some spots, that might be persuasive, but to what extent is there a list of people in the United States from these emerging infectious diseases?

Dr. GERBERDING. I do not think we can argue about the absence of a risk any longer. SARS is here—it is here now in this country and it is affecting people in Pennsylvania. We saw West Nile come in from other parts of the world. West Nile is a problem across our Nation this year. So we live in a global community and we are a resource-rich Nation, we have to do our share to—

Senator SPECTER. We are not talking about a share. We are really talking about doing it.

Dr. GERBERDING. We are talking about both things. We do some things independent of WHO. We also do a lot of things in collaboration with WHO as a partner in the global community. So certainly our Canadian partnerships and partnerships with other countries that have resources—sort of the global fund idea for AIDS—to be in the area where we need lots of people to contribute.

Senator SPECTER. Dr. Gerberding, as we go through a checklist of things that you would like to have in order to limit infectious diseases, the Congress is going to need what it would cost. And then it would be a matter for public discussion, public debate, and an evaluation of the risk of infectious diseases contrasted with what the cost would be; but it sounds to me when we have 400 people in the CDC and in the World Health Organization, 39 you said, then it is really pretty much asking the United States to be the doctors of the world.

Let us pick up some of the other things which are sore points or inadequacies. You talked to me about the difficulty of getting the specimens in your laboratories and the impossibility of getting airplanes and the pilots to bring them to CDC. Could you discuss that problem with us for the record?

Dr. GERBERDING. This is a huge challenge every time there is a new infectious disease problem. We know how to package stuff and move them safely from one point to another, but when there is fear, we cannot get pilots of the contracted aircraft to move the

specimens, and the people on the ground to handle them in the baggage plane, et cetera.

Senator SPECTER. You have had specific experience with that?

Dr. GERBERDING. I have just recent experience in the last month trying to get specimens out of Hanoi to CDC in Atlanta and having them sit on the ground for several days until the point where they were no longer valuable as specimens, because any chance of recovering virus in them was lost because they are sitting in the baggage area.

Senator SPECTER. So what is the answer? Authority to the CDC to lease planes?

Dr. GERBERDING. We need to evaluate what our authority is. We do have an authority to lease aircraft because of our stockpile responsibilities, our national pharmaceutical stockpile responsibilities; but we do need clarity of whether or not that applies internationally and whether or not we can not just lease the aircraft, but whether we could use it for this particular activity and whether or not we could also contract or lease pilots. Because unless we really have trained pilots that are comfortable and experienced in moving infectious disease specimens, it is not enough to have a plane, you have to have somebody to fly it.

Senator SPECTER. So you can work it out, you can find pilots and baggage handlers, et cetera, who will handle it if they are trained right, but you need authorization from Congress and obviously funding to do that?

Dr. GERBERDING. Yes. We need to get back to you about the authorities and the resource needs for this. As I said, we do have some authority, but we have to get a legal opinion about whether or not it would extend to this particular enterprise.

Senator SPECTER. You also told me about the difficulties you have which frankly surprised me not having the state-of-the-art diagnostic equipment in Atlanta. Do you have to send to California for some analysis or could you elaborate upon that?

Dr. GERBERDING. Well, as you know our laboratories are undergoing rehabilitation in large part to the efforts that this committee and your leadership have shown. So part of our buildings and facilities really is to rebuild our lab. That is work in progress and a lot has been done, but today if you came to CDC to look where we sequenced the coronavirus or where we at first identified it in the electron microscope, you would probably still be frightened by the environment that you would enter.

Our scientists—before SARS started, we had no dedicated scientists for the coronavirus. Obviously we are going to have to develop some enhanced capacities in this regard.

Senator SPECTER. No scientists who knew how to handle the coronavirus?

Dr. GERBERDING. They knew how to handle, but they were not specialists in coronavirus. So we pulled people from our respiratory pathogens activity to work on this virus because they understood related viruses and related problems, you have to have what we would call probably a pathogen discovery team of scientists who are experts at looking at an unknown illness and figuring out what is causing it.

They did that with Hanta virus, they have done it with this one, we contributed to the Legionella pathogen detection. So we know how to do this, but today, due to the good work that is happening at the NIH, we have tools and resources that allow us to identify organisms on the basis of their genetic fingerprint, as opposed to growing them, culture, isolating them in petri dishes——

Senator SPECTER. You are on two points now. You talk about state-of-the-art diagnostic facilities. One item is equipment and another item is personnel.

Dr. GERBERDING. That is true.

Senator SPECTER. Start with the equipment. You had to send to California for the equipment or have California make the diagnosis on state-of-the-art equipment which they had and you did not have.

Dr. GERBERDING. We actually did make the discovery at CDC using the more traditional methods, but we wanted to see if we could get it as fast as possible and some scientists at the University of California have a gene chip that allows a much more rapid screening for the kinds of viruses that could potentially have been involved here. And we did not have that capacity at CDC. We collaborated with——

Senator SPECTER. Is it adequate for you to collaborate, or as a matter of timing do you need to have the state-of-the-art diagnostic facilities at the CDC headquarters?

Dr. GERBERDING. I believe we could do it either way, but we need to have agreements and the arrangements and the support for the collaborators in place ahead of time so that we can be working on these things in advance and to speed up the whole process when we need to.

Senator SPECTER. You need to tell this subcommittee and we will tell the rest of the Congress just what you need, and if you can do it collaboratively without additional expense, fine, but you tell us what it is you need.

You also mentioned to me the need for test compounds for animals. Can you elaborate about what is involved there?

Dr. GERBERDING. We have animal facilities at CDC and have large BSL for state-of-the-art laboratories going up right now that will allow us to do some kinds of research, but right now the question people keep asking us is, do you know whether a viral treatment worked, and in order for us to answer that question quickly, we need to have an expanded capacity to test compounds and inoculate animals with this virus at CDC.

We do not have the facilities and the resources to do that kind of rapid screening of test compounds. We can test them and tested with NIH and the Department of Defense over at Fort Detrick. We are screening now, thanks to Dr. Fauci's support.

A large number of compounds and pharmaceutical companies are making double off their shelf, but we need animal models at CDC to help accelerate our discovery as well as our drug testing on site as we are learning about new emerging problems like this. We are also going to need the capacity to determine resistance to antivirals or antibacterials as they emerge and we need animal models for some of those studies as well.

Senator SPECTER. You also told me in our prior conversations about the need for quarantined areas, that there are only six to

eight entry areas which would have adequate quarantine if we face an epidemic coming in from overseas. Could you elaborate upon that?

Dr. GERBERDING. The CDC has the quarantine authority to protect our borders from incoming infectious diseases. Right now we have a very small number of quarantine stations, less than ten around the country, but we have many ports of entry, over 20 ports of entry just from Asia alone.

So we need to make sure that when you have a situation where we have to go to the borders, hand information to people, or screen passengers who are ill with infections on airplanes, that the personnel are there at the time that the passenger arrives, a little bit like the experience Dr. Rhodes had in Pennsylvania where when somebody comes in off the plane, they have to be met by health officials. And the Federal Government has the responsibility for doing that at the international ports of entry. When we—

Senator SPECTER. So what would you do today if you had a problem and needed a quarantine?

Dr. GERBERDING. Well, what we had done in the emergency situation is we had deputized other Federal employees who had some of the skills necessary to go and conduct an assessment, so we pulled them from other duties and gave them this temporary position to help us out because it is such an urgent problem. But I think over the long run we need to really develop a better plan and better coverage of our ports of entry generically, and we certainly cannot rely on this emergency solution if this SARS problem is going to go on very long because we are going to wear out.

Fortunately, the Department of Homeland Security has helped us tremendously with distribution of the alerting parts, particularly at the Canadian border, so we are making arrangements with other Federal agencies to help out with some of those. But the health assessment has to be done by medically qualified CDC quarantine officers and they are few and far between right now.

Senator SPECTER. But if you were to effectively quarantine, you would have to isolate people. Do you have facilities to do that if the need arose?

Dr. GERBERDING. The agreements are made on a site-by-site basis. Some of the international airports have clinics onsite and can isolate people until they can be transferred to the appropriate healthcare facility.

We have different agreements and different locations, and we can make that work. It is just a matter of identifying what is the best local solution.

Senator SPECTER. Dr. Rhodes, in your hospital do you have sufficient facilities to isolate if you should have a serious problem or a bioterrorist attack?

Dr. RHODES. Yes, we do. We have approximately between 60 and 65 isolation rooms and that is unusually high. Again, I would stress that the healthcare facilities we have in Lehigh Valley are for a lot of reasons, they do not represent most small hospitals, most small—the bulk of what I see of Pennsylvania medicine at the practical level in the trenches, doctor's offices, small hospitals. We are blessed by having a lot of assets and an unusually cooperative

local public health, long-term healthcare in particular, to form a partnership with them, and that is not most places.

I can think of 15 hospitals in my immediate area who would have a great deal of trouble handling any degree of isolation beyond perhaps—

STATEMENT OF DR. JOHN COMBES, SENIOR MEDICAL ADVISER, HOSPITAL AND HEALTH SYSTEM ASSOCIATION OF PENNSYLVANIA

Senator SPECTER. Dr. Rhodes, that is a good transition to bring Dr. Combes in. Dr. Combes is the senior medical adviser for the Hospital and Health System Association of Pennsylvania and the American Hospital Association.

Do you have a hunch, Dr. Combes, of bioterrorist attack, and we are going to come to that with a question to Dr. Gerberding and Dr. Fauci in a few minutes, but while we are talking about isolationism and quarantine, how well-equipped are our Pennsylvania hospitals?

Dr. COMBES. I think on the average, hospitals are fairly well-equipped to meet this kind of challenge and I think in this whole epidemic that we have been seeing here in the United States the response has to be very similar, of course, as we have seen the excellent response from the Lehigh Valley Hospital.

As Dr. Gerberding pointed out, there have only been two cases of secondary spread here in the United States and I think that is the unique cooperation between the public health services in the country and the acute care community and the local physician community. But the point that you made earlier about the funding for CDC and it has been referenced several times in terms of the weakness of the public health system here in this country, was very important for this issue, and all these unexpected issues, including bioterrorism, the same can be applied to hospitals as well and if the capacity becomes an issue, it has to do with concerns about funding of hospitals and their ability to keep meeting these challenges.

We face new challenges every day. Hopefully we rise to the occasion like Lehigh Valley does, but when the system is itself in some crisis state, we have the same problems that the CDC has in terms of being able to respond to all the demands that are out there, and there are multiple demands upon us.

Senator SPECTER. Dr. Fauci, you and I had discussed the significant assistance which has been given to the public health system in the United States as a result of appropriations which were initiated by this subcommittee putting in a bid at \$100 million year before last and \$1.4 billion this year and projecting another significant increase, another \$1.4 billion hopefully next year if we can find the money in our budget. All of that remains to be seen.

But to what extent has that improved the ability of hospitals, local hospitals, in States like Pennsylvania to cope with these problems, the isolation problem, for example?

Dr. FAUCI. Well, certainly if you look at the public health infrastructure at the local level, which is mostly State and local public health authorities, they get the primary benefits of that \$1.1 billion and \$1.4 billion in the future.

Senator SPECTER. Dr. Fauci, is it not true that the public health in American pretty much starved before we took a look at the problem of bioterrorism and—

Dr. FAUCI. Yes. If one looked at the public health infrastructure at the State and local level prior to the beginning of the rejuvenation that this committee has run to that prior infusion of resources, it has been unfortunately, and just about anyone in the business would recognize that, it was a local health infrastructure that had been left to go in disarray.

Almost a victim of our own successes, in that with the advent of successful vaccinations and antibiotics and infection control, a very competent infrastructure that was perfectly suited for the kinds of things that we face in the 1930s and the 1940s and the 1950s, were left essentially behind.

We now have to play some catch-up role. The first couple of years that this committee has allocated that money has been enormously helpful, but to rejuvenate a public health infrastructure system will take years.

That is why we are very heartened, Mr. Chairman, by the way you put it, that we have not only the money from last year and this year, but it needs to continue because we are not going to fix the problem in one or two years. It is going to have to be a sustained commitment to that. But before the monies that you infused, it was in rather sad shape.

Senator SPECTER. Dr. Combes, this is something that the subcommittee would like your help on a follow-up basis as to what is needed in Pennsylvania. I have visited many, many hospitals and the response I get consistently is that there are insufficient funds to handle the issue. Senator Santorum and I visited UPMC not too long ago and we found there some real steps have been taken to have a receiving unit where people would shower in an area close to or such an area that contained. But from what I hear generally, we are really just getting started. The public health system and SARS and then the impetus of bioterrorism threat activated some real concerns, so we were able to put up some money.

I would like for you to give us a projection as to what it would take to really be able to handle the problem in our setting.

Dr. COMBES. First of all, I do want to thank you on behalf of Pennsylvania hospitals because some of the bioterrorism money does flow directly through the public health agencies to hospitals to help their preparedness, but as you have pointed out it is really just beginning to scratch the surface.

Certainly issues of emerging new diseases, resistance of current diseases, those are things that are not being budgeted for in terms of what hospitals have to deal with, yet we deal with it every day.

What is the overall—what do we need to do our business in terms of dollars? It is a hard number to come up with, but I know that in a State where we are facing severe Medicaid cuts for hospitals where I know the House and Senate have worked to restore some of the Medicare dollars for us and we are appreciative of that; but still our costs are rising, we have work force shortages, we have a professional liability crisis which is driving lots on costs, all of those things need to be dealt with. We certainly can come back

to you with a number that it will take to get us to the level of preparedness.

The other point I want to make out is just a commitment of healthcare professionals. The thing that I was impressed about Dr. Rhodes' testimony as well was the time that he and others in hospitals all over the country spent monitoring excellent resources, those of the CDC, and applying it pre-event to their hospitals.

This is something that we do in addition to what we actually get funded for. This requires the dedication of professionals and administrative professionals in hospitals and we would like to work with your committee recognizing that and understanding how we can further that as we move forward because it is really this frontline action that will prevent the secondary spread of diseases like SARS and keep this country safe when other cities have had a major problem with this disease.

So think in your costs as we go forward, and it is not only facilities, it is how we encourage and develop that professionalism and the education surrounding issues like this.

Senator SPECTER. Tell us what it will take.

Dr. COMBES. We certainly will, Senator. You have been a good friend to us and we will keep you informed.

Senator SPECTER. We have the responsibility under the Constitution to decide what to appropriate, but we cannot decide that unless we know what is needed. I am not saying that there will be a political will to do it, but you will find it in the subcommittee.

Yes, Dr. Rhodes.

Dr. RHODES. Talking numbers, speaking numbers, I looked in the last report, our hospitals, network of three hospitals received about \$60,000, again courtesy of Mr. Reed's efforts for the Homeland Defense Corporation. We spent that on communications here, decontamination here—

Senator SPECTER. How about the \$750,000 which the subcommittee awarded the last year? Do not forget that.

Dr. RHODES. I am going to right here in the dollars that came back.

Senator SPECTER. Those are dollars that came right to your hospital.

Dr. RHODES. \$750,000?

Senator SPECTER. We allocated \$750,000 on earmarks to each of the three hospitals in Lehigh Valley.

Dr. RHODES. I only saw \$60,000.

Senator SPECTER. You better go back and make sure the books are not—

Dr. RHODES. My point is this, we were at that time targeting and of course particularly focusing on anthrax, and so our \$60,000 was well-spent and there may be more now, but we have spent almost that much, and a lot of effort and overtime and people just dedicated to the issue. There are hospitals with children who spend zero hours on that. Lehigh Valley Hospital, we spent a lot of time preparing it. That took away resources from other places.

Now, I would say hospitals then that do that and participate personally want to account for these dollars. We should be all held accountable for what we do. And there should be an issue of dollars I think generated incenting people to perform—maybe that is being

done. I am just talking from a perspective of a infectious disease physician.

I asked before I came down here, how many dollars came down to our hospital complex, the number \$60,000 was given to me, and where was it spent? Again, decontamination, radio and special protective equipment which was needed.

I am sure it was well-spent, but I am going to say over the last 5 months we have been dedicated, we have had a very complicated and I think world-class program to get our healthcare center ready for smallpox immunization and a program in trouble nationally because of support. And then we felt compelled to do it right and sustain the common effort and energy to offer our smallpox vaccination. Now, this issue, just our two cases and as well as they seemed to go, I would guess that we spent probably \$30,000, maybe more, on just those two cases.

So the money goes fast and I think we have to account for it at the local level. And I am wondering about all of the other hospitals. I do not know what the exact number is, but what number do you take to hospitals in Pennsylvania of say \$100 or less of the total number?

Dr. COMBES. In Pennsylvania actually a majority of our hospitals would be small rural hospitals numberwise, and that number is probably around 70 to 80 of that class. They would be the biggest class of hospitals. We have many small rural hospitals.

Senator SPECTER. If you ask many more questions, Mr. Rhodes, I am going to have to make you co-chairman of the Senate Committee.

Dr. RHODES. That is my burning passion. If you say that many hospitals, I would say probably none, if any, have infectious disease consultative services or expertise, and probably have marginal infectious control because they are so tasked with many other duties, and that is who put the program like this together.

Senator SPECTER. Dr. Gerberding, let me come back to the long line of concerns you have about being adequately funded in CDC and you talked about information technology and Internet and ways of getting communications as to what is happening in the five foreign corners of the world which come right back to our doorstep in Lehigh Valley and elsewhere. What do you have in mind on information technology which you would like to see?

Dr. GERBERDING. Can I just say, to frame this discussion, that what we have been doing over the last 2 years, anthrax, smallpox, terrorism preparedness, West Nile virus, SARS is responding to emerging crises when they come up and going full force with effort and diligence of the whole system. Everyone has stepped up to the plate and we have received congressional and presidential support for these programs when they emerge. So we have been given a lot. But what we are doing right now is solving crisis problems, and we are not thinking about how to fix the system in the long run.

So, when I talk with you about the global safety network for emerging infectious diseases or a state-of-the-art information system that connects us from the hospital to the CDC to the NIH to China, I am talking about systematic longer term solutions to the problem that I think, in the long run, would pay off and take us

out of crisis mode and put us into a system where we have a better infrastructure for managing these problems.

But in terms of information technology, as you know in Pennsylvania where there are some excellent surveillance systems involving the private sector and the public health department—

Senator SPECTER. That is in the Pittsburgh area where they have a new software computer model coming out of the University of Pittsburgh Medical Center where they are able to track in various locales, doctors' offices and hospitals, symptoms which can be correlated into an early warning of a biological attack or poisoning or something in the water.

Is that the sort of a national or international system you are looking for?

Dr. GERBERDING. We want an international early protection system that will identify SARS, will identify arsenic poisoning, it will identify Anthrax or smallpox or any other threat as it pops up in the world.

Senator SPECTER. You are going to have to tell us what you need, give us a model. Tell us what you have to do from a responsive approach.

You had commented to me—moving away from SARS for just a few minutes onto the bioterrorism issue which is also your responsibility, and Dr. Fauci and I have had quite a number of discussions about the smallpox issue; but you made a particular point about insufficient knowledge as to chemical threats. Would you tell us what the problem is there?

Dr. GERBERDING. I think we have a lot of work to do in bioterrorism, but as we learned during some of the recent orange alerts, chemical terrorism is also an extremely important threat in this country.

With bioterrorism we can get a vaccine potentially to help us out. With chemical terrorism we have invested so little in understanding what to do about antidotes or what we have not studied, what is the best decontamination method. The science is not keeping up with the need in the chemical arena and you really need some solid public health research here to help us even begin to develop sensible and prudent protocols.

Senator SPECTER. Could that come, Dr. Fauci, from NIH?

Dr. FAUCI. Fortunately it can. It is the development of new and better improved antidotes against some of the chemicals. We now are dealing with antidotes that are good, but that have been in use for decades and decades and decades. So we do not have any improvements. I am not saying that the ones we have are bad.

We also have detection capability, and as Dr. Gerberding mentioned. One of the critical issues is how you decontaminate if there is, for example, nerve gas. Nerve gas comes in different forms, liquid form, vaporized form. And when health workers are going to be called in to take care of individuals, we know from the experience of, for example, the sarin attacks in the Tokyo subway, that there was not a lot of basic knowledge or understanding of decontamination of materials such as clothing and facilities that would get contaminated. So we do have a ways to go, some of which would be contributed to by the NIH's research endeavor.

Dr. GERBERDING. I would just like to add that I talked with Dr. Zerhouni a little bit about the continuum of the research necessary to address some of these problems and there are many institutes like NIH that have an interest and the capacity to contribute to this knowledge. What we want to do is have a pipeline from NIH to taking that science and implementing it and evaluating it for new containment and new intervention protocols. So we need to work together on this and I know Secretary Thompson is helping us make sure we act as all one department.

Senator SPECTER. NIH may be in a position, in fact Scott May is in a position. The NIH has been funded. Senator Harkin and I set out thinking that NIH was the crown jewels of the Federal Government. Maybe except for CDC the only jewel in Federal Government.

But we have increased the funding from \$12 billion to \$27-plus billion. Now, NIH has a lot of responsibilities on research on Parkinson's and Alzheimer's and heart disease and cancer, but there are funds available there which, \$4 billion-plus with CDC I guess, there are times of an emergency, and set our priorities, which NIH has to do.

NIH has to determine the priorities for the \$27 billion which it has. But it would seem to me that research and these chemical issues that Dr. Gerberding talks about—you talked about terrorist compounds which are readily available for industrial purposes. All of those really we need a line of defense on.

Dr. FAUCI. Can I make a comment in that regard, Mr. Chairman? Over the past 3 months in recognition of the precise point that you are making, I called a series of meetings of individuals in different sectors, particularly the Department of Defense, who had been the major players thus far in both chemical, radiologic, and nuclear defense. Fundamentally for the military we brought them together to get a feeling for what the scope of the landscape of what we have available, what are the gaps and how can we begin to fill those gaps.

So we are already starting to move into the arena. We are fundamentally in the arena of biological terrorism vis-a-vis microbes. We are now moving into the arena of chemical radiological and nuclear to determine if there is anything that we can contribute to NIH.

Senator SPECTER. The Department of Defense has its own independent laboratories doing all that work? Do they work with NIH on that?

Dr. FAUCI. They do now. In fact, it was through these meetings since—well, it started in a low level before September 11, but subsequent to September 11 and when we got the very large appropriation that you generously gave us, Mr. Chairman, we called in for even further intensification of interactions between ourselves and the Department of Defense. And we now already have very strong interactions with USAMRIID and we are now developing much stronger interactions with the chemical/medical unit of the Army as well as the radiobiological unit of the Navy.

So it is coming together, as Dr. Gerberding says, but we are really having interaction.

Senator SPECTER. Well, this subcommittee may be in a position to help you. CDC has \$4.3 billion and NIH has \$27.5 billion, but I am not sure, but I think the Department of Defense has more?

Dr. FAUCI. They have more—

Senator SPECTER. Do not pause too long.

Dr. FAUCI. The answer is yes.

Senator SPECTER. Dr. Fauci, I want to move now to the subject of vaccines. I know you are working on a vaccine for SARS. Tell us what your progress is.

Dr. FAUCI. Yes. What we had done—there are several levels of generations of vaccines that are likely to be successful with SARS. The first and easiest thing to do is to get the virus, grow it up, kill it, and vaccinate an animal. And CDC isolated the virus within a very short period of time. They gave the virus to us in our laboratories up in Bethesda and it is now growing in quantities enough to start the following experiments.

The first generation of vaccine is what we call whole killed or whole inactivated. Very simple. Nothing molecularly sophisticated. You grow it up, you kill it, you infect an animal with a live virus, you show that the animal can get sick, in this case the monkey, then you vaccinate the animal with the killed virus and you challenge the animal with the live virus. Those experiments are undergoing implementation right now. Within the next several months we should, by the end of this calendar year, have proved the concept that you can or not protect an animal from challenge.

The reason why we are cautiously optimistic that this would be the case is that in fact we know that in the vast majority of people who get infected with SARS, their immune system can successfully contain the virus, which tells us that from a conceptual standpoint that is likely possible. That is very different from HIV/AIDS in which individuals who are infected and have established infection, their natural body's capability does not allow them to clear the virus at all.

There are virtually no instances of that. So we are cautiously optimistic. Simultaneously with that first generation of killed whole virus vaccine, we are entering into several other levels. One of them is the recognitive vector. And by that we mean we take a simple virus that develops a benign virus like adenovirus. Now that we have the sequence of all of the genes of the SARS virus we can selectively take certain genes with codes for the protein that would induce protection if you would vaccinate, insert them into the vector, let them express themselves and then vaccinate individuals with that. So you have the safety of a benign virus, like an adenovirus, but the recognition of the SARS virus itself. Second best, second generation. That is already ongoing. We have entered into a collaborative agreement and a contract with a company called GenVec which will assist us in the ability to do that with HIV.

The other is producing large quantities of purified protein by a certain vector that when you instill the gene and stick it in the bottom and let it rotate for a long period of time, that just spits out endless amounts of protein.

The fourth one is a DNA vaccine approach where you take the purified DNA or complementary DNA that we can get from the virus and use that as a vaccine.

The final one is the one that is the most difficult, but ultimately will have the greatest chance of being very effective, and that is a live attenuated vaccine, similar to the concept of the original Sabin polio vaccine.

So there are at least five concepts, two of which have already hit the ground and I would expect that I know we are going to be interacting over the next year on how progress is coming along.

Hopefully by the end of this calendar year you can say we have proven a concept. The actual development of the vaccine could be available for distribution, but even at its most rapid pace will take a few years, a couple years at least, 2 or 3 years.

Senator SPECTER. Any way to expedite that?

Dr. FAUCI. Yes. I think the way to expedite it is to put on the afterburners and just get as many resources and as many people involved in that.

There are certain things you cannot rush—

Senator SPECTER. Take the full \$27 billion away?

Dr. FAUCI. I do not think we will take the full \$27 billion, but we will certainly use some of that, you bet.

Senator SPECTER. I will put the afterburners on it.

Dr. GERBERDING, I saw a message from Garcia. Perhaps we answer the other eight spots in Pennsylvania?

Dr. GERBERDING. Yes. I am going to ask if I could tell you the locations of the patients when we go off the air because some of these are small communities and I do not want to say anything that would identify a specific patient in a small town.

Senator SPECTER. Excellent idea. What are the communities, just a few? We will do it off the record.

Dr. GERBERDING. I would like to be respectful of that issue, but I can tell you that none of them have been at risk for transmitting infection to anyone else.

Senator SPECTER. None of the others are in the hospital?

Dr. GERBERDING. None are in the hospital.

Senator SPECTER. You can say that with respect to those eight other instances there is no risk factor?

Dr. GERBERDING. Exactly.

Senator SPECTER. I had asked Secretary Ridge when we had Homeland Security and had them both before the Appropriations Subcommittee on Wednesday and before the Governmental Affairs Committee, I am on both those committees and I discussed this issue with Secretary Ridge.

He is reluctant to get involved in health issues, per se, but I think this may be a matter for Homeland Defense on SARS depending on where it goes if he has not closed the door.

With respect to the issues on bioterrorism and the costs involved there, I am glad to see the Department of Defense in it, but that is Homeland Defense core function and they have \$38 billion so they should be working with you on that as to require a joint coordinated effort.

As we have identified so many areas that need to be covered, I come back to the issue of what it is going to take to do it and I

know that there is sometimes a little reluctance on the part of the executive branch that share the experience and expertise, but Congress has the responsibility under the constitution to appropriate and we need the information to determine what the appropriation levels should be and we are facing really enormously serious problems for the American people on healthcare for SARS or life problems as we are from bioterrorism.

So, Dr. Gerberding, I understand the constraints under which you operate, but I want for the official record directly from you, the expert, your professional judgment concerning what resources CDC needs to protect the public health.

I would like you to address all the relevant public health issues such as terrorism, homeland security and emerging infectious disease, including SARS, buildings, facilities, the obesity epidemic and other critical research that needs to be done by your agencies and I am requesting this information be made available to our subcommittee in ten work days, 16th day of May at the outset.

I know that is a tall request, but we are going to be putting together for the budget and we are going to have to assess the needs you identify with the needs that we have as you know, not only health human services, but education and labor; so we have a lot of work to do to assess priorities.

So can you do that?

Dr. GERBERDING. Yes, sir, I will do that and I appreciate fulfilling the recommendation and I also appreciate the priorities that your committee places.

Senator SPECTER. And, Dr. Fauci, I would ask you the same question, recognizing the constraints under which you operate, but I want for our official subcommittee record, addressing that record, directly from you the expert, your professional judgment, what resources NIH needs to protect the public health concerning public health issues, terrorism, homeland security, emerging infectious diseases including SARS, what your building and facility needs are.

We have a big problem with the obesity epidemic, strange to fit it in here, but it is part of our allocation of resources and other critical research that needs to be done, and I request this information for the subcommittee, you get it to us within 10 working days by May 16 if you would. Can you undertake that assignment, Dr. Fauci?

Dr. FAUCI. I will.

Senator SPECTER. Okay. This has been a very informative hearing. It is a little different format than sitting around a roundtable, but we really appreciate your coming, Dr. Fauci and Dr. Gerberding.

I repeat for the record my repeated inquiries to you as to how this would impact, but I think it is very important to hear the assurances which have been given today to the people.

This will be noted far beyond the borders of the Commonwealth of Pennsylvania, and we thank you, Dr. Rhodes, for what you have done in the emergency situation and I admire your background and your ability to cope with it.

It was your technical proficiency in all the hospitals in America. We would not give so much money to NIH and CDC, we just rely on you folks.

Dr. RHODES. I found the rest of the money. The \$60,000 was the amount allocated for bioterrorism by hospitals in our area. The rest of the money was put into not only resources, but education, et cetera.

So everybody knows where all the money is. I do not want to leave you nervous that we lost it.

Senator SPECTER. And, Dr. Combes, thank you for joining us. I understand what the Pennsylvania Hospital Association does and we have attached you with some responsibilities to tell us what you need.

I cannot promise, I am only one vote out of 100, but then we have the House of Representatives, but our subcommittees are starting to and we have shown that we have put resources behind needs, and our first subcommittee and the Congress are committed to it, and the Congress has the constitutional responsibility to decide what the priorities are, where the public's money should be.

We have a \$10 trillion national economy and a \$2 trillion, \$200 billion Federal budget, so we can do it. We have a lot of problems in this country, but we are up to the challenge.

Dr. COMBES. While I wrote down your request of Dr. Gerberding and Dr. Fauci, I would be very happy to have us submit the same type of information to you by May 16 if that would be helpful to you and the subcommittee.

Senator SPECTER. Consider yourself bound.

ADDITIONAL COMMITTEE QUESTIONS

There will be some additional questions which will be submitted for your response in the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR ARLEN SPECTER

PUBLIC HEALTH PROTECTION

Question. I understand the constraints under which you operate, but I want, for the official record, directly from you, the expert, your professional judgment concerning what resources NIH needs to protect the public's health.

Please address all relevant public health issues, such as terrorism and Homeland Security, emerging infectious diseases, including SARS, buildings and facilities, the obesity epidemic, and other critical research that needs to be done by your agency. I am requesting that this information be delivered to the Subcommittee within ten (10) working days at the latest.

Answer. At the time the preliminary fiscal year 2004 budget was developed in the spring of 2002, NIH's professional judgement budget requested a total of \$29,560 million. Detailed information on the professional judgement request for selected programs with high impact on public health are provided below. In reviewing this information, please keep in mind that neither the operating division request to the Secretary nor the HHS request to OMB was constructed in the context of other national priorities or government-wide budgetary limitations. We believe that the President's Budget is strong in its efforts to protect the public's health, especially in the context of all health priorities and needs. As I have stated publicly, I support the NIH request in the fiscal year 2004 President's Budget. The information provided on bio-defense and emerging diseases was provided by Dr. Anthony Fauci, Director, National Institute of Allergy and Infectious Diseases.

PROFESSIONAL JUDGEMENT OF RESOURCE NEEDS FOR SELECTED NIH RESEARCH AREAS

[In millions of dollars]

	Fiscal years		
	2003	2004	2005
Biodefense	1,488	1,886	2,296
Emerging Infectious Disease (inc. SARS) ¹	200	504	609

¹ Excludes resources for emerging infectious diseases included in biodefense line.

Biodefense Research.—Additional resources would accelerate the research and development of countermeasures against biological agents of terrorism. Funding increases will support the expansion of basic research, additional construction of regional high-containment laboratories for extramural researchers, and expansion of applied research with academia and industry to accelerate the research and development of the countermeasures.

In addition to supporting the advanced product development of the next generation smallpox vaccine, the funding will also accelerate and support the advanced product development of candidate countermeasures against botulism toxin, plague, tularemia, and viral hemorrhagic fevers, such as ebola and rift valley fever.

Emerging Diseases Research (including SARS).—Implements a comprehensive research agenda to combat SARS. Funding will support a multiprong strategy to rapidly expand research to develop multiple vaccine candidates to prevent SARS. Also initiates research on immune-based therapies while expanding screening and testing of thousands of compounds for therapeutic activity against the SARS virus. Includes the rapid expansion of: basic research, including the pathogenesis of the disease; clinical research and infrastructure to test candidate drugs, vaccines and diagnostics; and the advanced product development of the most promising vaccine candidates.

Obesity.—In fiscal year 2004, the NIH professional judgement request for obesity research is \$390 million. These funds will facilitate progress in NIH research to address the increasingly severe obesity epidemic and its serious implications for public health. The recently formed NIH Obesity Research Task Force has identified the following topic areas as critical areas for expanded research. Examples of potential studies are listed below each topic area.

—*Identifying the Genetic, Behavioral, and Environmental Factors that Cause Obesity and its Associated Comorbidities.*—The results of such research will open new avenues to investigate the causes and potential therapies for obesity.

—*Understanding the Pathogenesis of Obesity and Associated Co-Morbidities.*—The results of such research will provide fundamental knowledge to fuel the search for new strategies to prevent or treat obesity.

—*Prevention and Treatment of Obesity.*—Research in this area would be designed to analyze the efficacy of different approaches to prevention and treatment of obesity on weight loss and associated diseases, to test innovative approaches to prevent inappropriate weight gain, and to understand the molecular and behavioral factors underlying weight change.

—*Policy, Health Surveillance and Services, Economics, and Translation to Practice.*—Research in these areas will facilitate the translation of obesity research discoveries into practice to improve public health. Additionally, NIH-supported research will provide a scientific foundation to inform policy decisions.

—*Enabling Technologies.*—Recent advances in computer technology, robotics, miniaturization and molecular biology have already changed many aspects of our lives and promise to provide a new lens to examine the fundamental processes in biology. Application of these approaches to bridge the gap between our knowledge of the human genome and human health and disease holds particular promise in obesity research.

—*Development of Multi-disciplinary Teams.*—Research towards understanding, preventing, and treating obesity will benefit from increased efforts to enhance collaborations among scientists with fundamental laboratory research expertise, behavioral scientists, and clinicians, as well as collaborations among investigators from a variety of disciplines within these fields.

Buildings and Facilities.—In fiscal year 2004, the professional judgement request for Buildings and Facilities is \$350 million. These funds would provide for the completion of the John E. Porter National Neuroscience building in fiscal year 2004, as well as increased funds for essential fire and safety programs, such as asbestos abatement, and rehabilitation of animal research facilities, in addition to increased funds for repairs and improvements.

CONCLUSION OF HEARING

Senator SPECTER. Thank you all very much for being here. That concludes our hearing.

[Whereupon, at 11:19 a.m., Friday, May 2, the hearing was concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

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