The Severe Acute Respiratory Syndrome Threat (SARS)
Bill Number: Oversight
Hearing Date: April 29, 2003
Witness:
Julie L. Gerberding, MD, MPH
Director, Centers for Disease Control and Prevention
Testimony:
Good afternoon, Mr. Chairman and Members of the Committee. I am Dr. Julie L. Gerberding, Director, Centers for Disease Control and Prevention (CDC). Thank you for the invitation to participate today in this timely hearing on a critical public health issue: severe acute respiratory syndrome (SARS). I will update you on the status of the spread of this emerging global microbial threat and on CDC's response with the World Health Organization (WHO) and other domestic and international partners.

As we have seen recently, infectious diseases are a continuing threat to our nation's health. Although some diseases have been conquered by modern advances, such as antibiotics and vaccines, new ones are constantly emerging, such as Nipah virus, West Nile Virus, vancomycin-resistant Staphylococcus aureus (VRSA), and hantavirus pulmonary syndrome. SARS is the most recent reminder that we must always be prepared for the unexpected. SARS also highlights that U.S. health and global health are inextricably linked and that fulfilling CDC's domestic mission–to protect the health of the U.S. population–requires global awareness and collaboration with domestic and international partners to prevent the emergence and spread of infectious diseases.

Emergence of SARS

In February, the Chinese Ministry of Health notified WHO that 305 cases of acute respiratory syndrome of unknown etiology had occurred in Guangdong province in southern China since November 2002. In February 2003, a man who had traveled in mainland China and Hong Kong became ill with a respiratory illness and was hospitalized shortly after arriving in Hanoi, Vietnam. Health-care providers at the hospital in Hanoi subsequently developed a similar illness. During late February, an outbreak of a similar respiratory illness was reported in Hong Kong among workers at a hospital; this cluster of illnesses was linked to a patient who had traveled previously to southern China. On March 12, WHO issued a global alert about the outbreak and instituted worldwide surveillance for this syndrome, characterized by fever and respiratory symptoms.

Since late February, CDC has been supporting WHO in the investigation of a multi-country outbreak of unexplained atypical pneumonia now referred to as severe acute respiratory syndrome (SARS). On Friday, March 14, CDC activated its Emergency Operations Center (EOC) in response to reports of increasing numbers of cases of SARS in several countries. On Saturday, March 15, CDC issued an interim guidance for state and local health departments to initiate enhanced domestic surveillance for SARS; a health alert to hospitals and clinicians about SARS; and a travel advisory suggesting that persons considering nonessential travel to Hong Kong, Guangdong, or Hanoi consider postponing their travel. HHS Secretary Tommy Thompson and I conducted a telebriefing to inform the media about SARS developments.

As of April 23, 2003, a total of 4,288 probable cases of SARS have been reported to WHO from 25 countries including the United States, and 251 of these persons have died. In the United States, there have been 39 probable SARS cases reported from 18 states. Of U.S. probable cases, 27 have been hospitalized, and none have died. In addition, 206 suspect cases of SARS have been reported and are being followed by state and local health departments.

CDC Response to SARS

CDC continues to work with WHO and other national and international partners to investigate this ongoing emerging global microbial threat. We appreciate the continued support of Congress, and of this Committee in particular, in our efforts to enhance our nation's capacity to detect and respond to emerging disease threats. The recent supplemental appropriation of $16 million to address the SARS outbreak will aid our identification and response efforts. SARS presents a major challenge, but it also serves as an excellent illustration of the intense spirit of collaboration among the global scientific community to combat a global epidemic.

CDC is participating on teams assisting in the investigation in Canada, mainland China, Hong Kong, Singapore, Taiwan, Thailand, and Vietnam. In the United States, we are conducting active surveillance and implementing preventive measures, working with numerous clinical and public health partners at state and local levels. As part of the WHO-led international response thus far, CDC has deployed over 40 scientists and other public health professionals internationally and has assigned over 400 staff in Atlanta and around the United States to work on the SARS investigation.

CDC has organized SARS work teams to manage various aspects of the investigation, including providing domestic and international assistance and developing evolving guidance documents. These work teams have issued interim guidance regarding surveillance and reporting; diagnosis; infection control; exposure management in health-care settings, the workplace, and schools; biosafety and clean up; specimen handling, collection, and shipment; travel advisories and health alerts; and information for U.S. citizens living abroad and for international adoptions. We have updated our travel advisories and alerts for persons considering travel to affected areas of the world. We have distributed more than 600,000 health alert notice cards to airline passengers entering the United States from China, Hong Kong, Singapore, and Vietnam, alerting them that they may have been exposed to SARS, should monitor their health for 10 days, and if they develop fever or respiratory symptoms, they should contact a physician. We have begun distributing health alert notices to airline passengers entering the United States from Toronto and at selected sites along the U.S.-Canada border.

WHO is coordinating frequent, regular communication between CDC laboratory scientists and scientists from laboratories in Asia, Europe, and elsewhere to share findings, which they are posting on a secure Internet site so that they can all learn from each other's work. They are exchanging reagents and sharing specimens and tissues to conduct additional testing.

On April 14, 2003, CDC announced that our laboratorians have sequenced the genome for the coronavirus believed to be the cause of SARS. Sequence information provided by collaborators at National Microbiology Laboratory, Canada, University of California at

San Francisco, Erasmus University, Rotterdam and Bernhard-Nocht Institute, Hamburg facilitated this sequencing effort. The sequence data confirm that the SARS coronavirus is a previously unrecognized coronavirus. The availability of the sequence data will have an immediate impact on efforts to develop new and rapid diagnostic tests, antiviral agents and vaccines. This sequence information will also facilitate studies to explore the pathogenesis of this new coronavirus. We are also developing and refining laboratory testing methods for this novel coronavirus, which will allow us to more precisely characterize the epidemiology and clinical spectrum of the epidemic. These discoveries reflect significant and unprecedented achievements in science, technology, and international collaboration.

In order to better understand the natural history of SARS, CDC is investigating aspects of the epidemiologic and clinical manifestations of the disease. In collaboration with our partners, we have implemented or planned investigations to describe the spectrum of the illness, to assess the natural history of the disease, to estimate the risks of infection, and to identify risk factors for transmission. These investigations are being conducted in concert with ongoing surveillance and epidemiologic efforts.

Rapid and accurate communications are crucial to ensure a prompt and coordinated response to any infectious disease outbreak. Thus, strengthening communication among clinicians, emergency rooms, infection control practitioners, hospitals, pharmaceutical companies, and public health personnel has been of paramount importance to CDC for some time. CDC has had multiple teleconferences with state health and laboratory officials to provide them the latest information on SARS spread, implementation of enhanced surveillance, and infection control guidelines and to solicit their input in the development of these measures and processes. WHO has sponsored, with CDC support, a clinical video conference broadcast globally to discuss the latest findings of the outbreak and prevention of transmission in healthcare settings. The faculty was comprised of representatives from WHO, CDC, and several affected countries who reported their experiences with SARS. The video cast is now available on-line for download. Secretary Thompson and I, as well as other senior scientists and leading experts at CDC, have held numerous media telebriefings to provide updated information on SARS cases, laboratory and surveillance findings, and prevention measures. CDC is keeping its website current, with multiple postings daily providing clinical guidelines, prevention recommendations, and information for the public.

Prevention Measures

Currently, CDC is recommending that persons postpone non-essential travel to mainland China, Hong Kong, Singapore, and Hanoi, Vietnam. We are recommending that U.S. travelers to Toronto observe precautions to safeguard their health, including avoiding settings where SARS is most likely to be transmitted, such as Toronto health care facilities caring for SARS patients. Persons planning travel to Toronto should be aware of the current SARS outbreak, stay informed daily about SARS, and follow recommended travel advisories and infection control guidance, which are available on CDC's website at www.cdc.gov/ncid/sars.

Persons who have traveled to affected areas and experience fever or respiratory symptoms suggestive of SARS should use recommended infection control precautions and contact a physician. They should inform their healthcare provider about their

symptoms in advance so any necessary arrangements can be made to prevent potential transmission to others. Health care facilities and other institutional settings should implement infection control guidelines that are available on CDC's website.

We know that individuals with SARS can be very infectious during the symptomatic phase of the illness. However, we do not know how long the period of contagion lasts once they recover from the illness, and we do not know whether or not they can spread the virus before they experience symptoms. The information to date suggests that the period of contagion may begin with the onset of the very earliest symptoms of a viral infection, so our guidance is based on this assumption. SARS patients who are either being cared for in the home or who have been released from the hospital or other health care settings and are residing at home should limit their activities to the home. They should not go to work, school, or other public places until ten days after their fever has resolved and respiratory symptoms are absent or improving.

If a SARS patient is coughing or sneezing, he should use common-sense precautions such as covering his mouth with a tissue, and, if possible and medically appropriate, wearing a surgical mask to reduce the possibility of droplet transmission to others in the household. It is very important for SARS patients and those who come in contact with them to use good hand hygiene: washing hands with soap and water or using an alcohol-based hand rub frequently and after any contact with body fluids.

For people who are living in a home with SARS patients, and who are otherwise well, there is no reason to limit activities currently. The experience in the United States has not demonstrated spread of SARS from household contacts into the community. Contacts with SARS patients must be alert to the earliest symptom of a respiratory illness, including fatigue, headache or fever, and the beginnings of an upper respiratory tract infection, and they should contact a medical provider if they experience any symptoms.

Emerging Global Microbial Threats

Since 1994, CDC has been engaged in a nationwide effort to revitalize national capacity to protect the public from infectious diseases. Progress continues to be made in the areas of disease surveillance and outbreak response; applied research; prevention and control; and infrastructure-building and training. However, SARS provides striking evidence that a disease that emerges or reemerges anywhere in the world can spread far and wide. It is not possible to adequately protect the health of our nation without addressing infectious disease problems that are occurring elsewhere in the world.

Last month, the Institute of Medicine (IOM) published a report describing the spectrum of microbial threats to national and global health, factors affecting their emergence or resurgence, and measures needed to address them effectively. The report, Microbial Threats to Health: Emergence, Detection, and Response, serves as a successor to the 1992 landmark IOM report Emerging Infections: Microbial Threats to Health in the United States, which provided a wake-up call on the risk of infectious diseases to national security and the need to rebuild the nation's public health infrastructure. The recommendations in the 1992 report have served as a framework for CDC's infectious disease programs for the last decade, both with respect to its goals and targeted issues and populations. Although much progress has been made, especially in the areas of strengthened surveillance and laboratory capacity, much remains to be done. The new

report clearly indicates the need for increased capacity of the United States to detect and respond to national and global microbial threats, both naturally occurring and intentionally inflicted, and provides recommendations for specific public health actions to meet these needs. The emergence of SARS, a previously unrecognized microbial threat, has provided a strong reminder of the threat posed by emerging infectious diseases.

Conclusion

The SARS experience reinforces the need to strengthen global surveillance, to have prompt reporting, and to have this reporting linked to adequate and sophisticated diagnostic laboratory capacity. It underscores the need for strong global public health systems, robust health service infrastructures, and expertise that can be mobilized quickly across national boundaries to mirror disease movements. As CDC carries out its plans to strengthen the nation's public health infrastructure, we will collaborate with state and local health departments, academic centers and other federal agencies, health care providers and health care networks, international organizations, and other partners. We have made substantial progress to date in enhancing the nation's capability to detect and respond to an infectious disease outbreak; however, the emergence of SARS has reminded us yet again that we must not become complacent. We must continue to strengthen the public health systems and improve linkages with domestic and global colleagues. Priorities include strengthened public health laboratory capacity; increased surveillance and outbreak investigation capacity; education and training for clinical and public health professionals at the federal, state, and local levels; and communication of health information and prevention strategies to the public. A strong and flexible public health infrastructure is the best defense against any disease outbreak.

Thank you very much for your attention. I will be happy to answer any questions you may have.