

Witness:

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Testimony

Summary Response

When Terror Strikes—Preparing an Effective and Immediate Public Health Response

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An important role for the federal government is to work collaboratively to assure a stable, predictable market for biodefense medical counter measures and to address related liability issues. Public health, with an adequately built and maintained infrastructure, can then guarantee timely distribution of these counter measures to ultimately protect the American population from preventable illness and death.

The three main strategies needed to maintain a robust public health infrastructure are a commitment to an all hazards approach, a trained workforce, and sustainable funding. These three factors, commitment, people and resources, will see the nation into a safer, more protected, and better-prepared future.

The multiple agencies and industries involved in the food chain must integrate and coordinate their surveillance, risk vulnerability, and mitigation plans. Human health, livestock and crop protection must be viewed as a single system for the development of surveillance systems, standardized plans, and training for local, state, federal, and industry stakeholders.

When Terror Strikes—Preparing an Effective and Immediate Public Health Response

1. What additional incentives or other measures will ensure the timely availability of sufficient amounts of effective biodefense medical counter measures, and is the cost of such incentives acceptable?

Biodefense medical countermeasures are one essential component of an effective preparedness and response effort which must also include surveillance, early detection, quarantine, isolation, distribution of biodefense medical countermeasures including mass vaccination, mass care and public communications. Having said this, at this critical point in history, the alignment of incentives in the production of biodefense medical counter measures (mainly vaccines and anti-infective drugs) must hinge on the ability of government, business, and public health to adequately plan together for these exigencies. This fundamental concept will be articulated using the examples of pandemic influenza, a natural event, and the dispersal of anthrax spores, a deliberate event.

An influenza pandemic occurs when a new influenza virus appears against which the human population has no immunity, resulting in simultaneous epidemics worldwide with enormous numbers of deaths and illness. Because of the ongoing and unprecedented spread of highly pathogenic avian influenza type H5N1 in SE Asia, the global alarm for the next human influenza pandemic has been sounded by the WHO. The toll in the US using a mid-point estimate of a 25% attack rate and a 5% mortality rate would result in 3 million deaths and 10 million hospitalizations, 10 to 100-fold greater than the numbers experienced during a typical wintertime flu season. Presently, the only biodefense counter measure for an H5 pandemic influenza of avian origin from SE Asia is the single antiviral drug, oseltamivir (Tamiflu®). The US Strategic National Stockpile contains only a small fraction of the oseltamivir needed to protect the US population. Using current biotechnology, it would take 12-18 months into the pandemic for a suitable vaccine, the ideal biodefense counter measure, to be developed, scaled-up, and delivered.

In October 2001, the US fell victim to a bioterrorist attack using weaponized anthrax spores. This limited attack on the US mail system resulted in 23 cases and 6 fatalities. A terrorist release of anthrax spores delivered from a small airplane upwind of a city of one million inhabitants could result in 125,000 cases and 95,000 fatalities, the first cases arising within 3 days and as long as 2 months following dispersal. The ideal biodefense counter measure is early detection allowing a rapid public health response including delivery of protective antibiotics or vaccination to the exposed population. Ironically, supplying and delivering protective antibiotics and/or vaccine to a large population at risk within the 3-day incubation period for anthrax would be difficult without sustained investment in the public health infrastructure.

These two natural and deliberate infectious disease disasters are not far-fetched scenarios. The natural history of humankind predicts 2-3 influenza pandemics every century and the events of 2001 showed that our nation is vulnerable to an anthrax attack. What incentives, then, are required at an acceptable cost that will ensure timely, sufficient and effective biodefense counter

measures? Planning among government, business, and public partners is essential to assure a stable, predictable market for biodefense medical counter measures and to address related liability concerns.

In last year's influenza season, the collaboration between industry and government was commendable. It is vitally important when vaccines or other counter measures are in short supply and the need is great that the federal government and industry work together through the state and local public health infrastructure to assure maximum health protection for the public.

2. What is necessary to build and maintain a robust national public health infrastructure to meet future biodefense requirements?

Prior to 9/11 public health's preparedness efforts had been focused on time-honored communicable diseases and traditional investigation strategies as well as responding to natural disasters such as hurricanes to the extent possible. Many times an effective public health response meant dropping everything else from infant mortality reduction efforts to the prevention strategies targeting chronic diseases, the leading causes of death, just to get through the outbreak or natural disaster.

After 9/11, public health was fully recognized for the first time for its critical role as a first responder, a vital part of the community's response to an intentional or unintentional chemical, biological, radiological, nuclear or explosive (BCRNE) attack. The new normal for public health is that preparedness is a core function. The states have a central role in assuring that every county and every local health department are prepared to respond effectively. It is critical to recognize that ALL emergencies will be identified and first responded to on a local level and that the state will mount a multi-county or statewide effort to support this initially local response. The federal government comes in to assist the states as needed. This coordinated local, state and federal public health response represents one system in responding effectively to any event that threatens the public's health. And clearly critical, new partnerships have been created between public health and agriculture, law enforcement, emergency management, emergency medical services, other first responders of all types and other medical providers in order to have the greatest impact. These partnerships with public health have become institutionalized and are absolutely critical to saving lives in every community in the nation.

The top three priorities to maintain a robust national public health infrastructure are to:

1. Focus on All Hazards - but at the same time remember that public health is much broader than preparedness
2. Assure a workforce that has the expertise to respond effectively in a world of new challenges-S.506 (Hagle/Durbin) bill should be passed
3. Sustain a national commitment to the federal preparedness cooperative agreement funding which is absolutely essential for states and communities to be able to respond to such health threats as West Nile virus, SARS, hurricanes or pandemic influenza. Now is

exactly NOT the time to cut federal preparedness funding to states and communities.

In regard to an all hazards approach, North Carolina's chemical, biological, radiological, nuclear and explosive vulnerabilities have all been assessed. On that basis, the state developed seven regional response teams to cover the entire state. These teams are comprised of a physician, nurse epidemiologist, industrial hygienists and management support. All seven include a relationship with a veterinarian from Agriculture and three teams include a pharmacist and new lab capacity. The seven teams along with the State Preparedness and Response Team and the 85 local health departments implement the functional components of the NC Public Health Preparedness and Response Plan. This Plan includes strategies on surveillance, disease investigation, vaccination/prophylaxis, quarantine and isolation, mass care, mass fatality, public communications and command/control/communications. Every aspect of the plan is supported by critical technology systems, which are in varying stages of development or implementation. The importance of technology in saving lives cannot be underestimated. Also, the training of the workforce who must implement every aspect of the plan cannot be underestimated. These two issues--technology and workforce preparedness--are absolutely essential to effectively deploying North Carolina's Preparedness Plan and saving lives. This type of preparedness must be done "pre-event" and must include continually exercising and improving these plans.

Specifically, in regard to workforce preparedness, within the new public health infrastructure that has been built with federal support, there are 70 Bioterrorism Planners, 7 regional surveillance teams, 12 public health epidemiologists deployed to the largest hospitals in the state and the local public health workforce of the counties. As important as the development of new vaccines is, as critical as the rapid deployment of the Strategic National Stockpile (SNS) is, if there is not an adequately trained workforce on the ground ready to disperse these medical interventions in a timely and appropriate manner then there is no point in having SNS to begin with. The passage of S.506 (Hagler/Durbin) is critically important. This bill will provide for scholarships and loan repayment for students entering the governmental public health workforce, an important first step in addressing the current workforce crisis in public health at a time when the challenges are greater than ever before.

Sustaining the federal resources is essential. The states are doing an outstanding job of using these funds to build the public health infrastructure--collectively 90% of the states have obligated or spent their 03 funds and 90% have spent or obligated the hospital preparedness funds, States have spent 98% of the CDC preparedness funds in 2003. There are at least 5 benchmarks that have been developed to measure accountability by various federal or national agencies on the use of these funds. Consensus is needed on which indicators measure the entire system's ability to perform in an event. North Carolina has been successfully audited three times on the use of the CDC and the HRSA funding. It is important to note that the public continues to expect more and more protection from the local, state and federal public health system. Sustaining federal resources is the only way to meet that expectation. The challenges are increasing as well-- the best current example being the potential for pandemic flu, which will overwhelm

existing infrastructure.

Real life experiences are what count. Since 9/11 and the development of this new public health infrastructure, North Carolina has had some dramatic preparedness and response challenges. These include SARS, the smallpox immunization plan, numerous hurricanes, the vaccine flu shortage, a major outbreak of E coli, an unusual outbreak of legionnaire's disease, numerous white powder incidents and various infections that could have represented a bioterrorism event. North Carolina has also staged a number of large exercises based on main public events involving a chemical release or the plague and other exercises on food security or avian influenza. In every instance, the partnerships with law enforcement, agriculture, other first responders and providers have been essential.

3. What is necessary to protect our food supply and agriculture from biodefense threats?

If 9/11 has taught the nation anything, it is that it can no longer approach surveillance, early detection, mitigation, response and recovery in a fragmented way. The days of a silo division of agencies needs to be replaced with a unified approach to protecting the food chain - from the farm to the fork. Public health must join forces with Department of Agriculture, FDA, EPA and industry to address biodefense concerns.

First, each state should improve communication and coordination between all regulatory/advisory agencies and private industry. Threat intelligence must be shared with industry so they can determine vulnerability.

Secondly, states, using standardized criteria must assess the vulnerabilities of the food and agriculture chain using a valid vulnerability assessment tool, such as CARVER + Shock. The data must then be assessed and shared with all states and industry as appropriate to enable the system to be strengthened in accordance with the current level of threat.

Third, states must also improve their ability to conduct active surveillance and detection of pathogens or contaminants by improving connectivity and interoperability among all key stakeholders. This is essential for responding to all hazard events related to livestock, plants, food and humans. To do this states, as well as the federal government, must develop multi-hazard threat databases in which all vulnerability and surveillance data is placed. Accessibly to this database must be provided to appropriate law enforcement, emergency response, agriculture, and public health officials.

Underlying this cooperative work between government and industry is the development of specific mitigation response, and recovery plans designed to reduce the overall effects and impact from any terrorist act targeting the state's food and agriculture systems. Reasonable and cost effective vulnerability/risk reduction plans tailored to the key sectors of states' food and agriculture chains that are integrated within each industry component and supported by law enforcement and security community agencies need to be developed. These plans must include local and state standards in conjunction with national standard for food and agriculture security.

State leadership in shaping government policy on food defense and dissemination of current information on government affairs and issues must be coordinated with other states and federal agencies.

It is critical to assimilate and develop training curricula for key stakeholders. An institutionalized program of food and agriculture defense and response training and exercises to better prepare emergency response teams at the state and local levels, along with integrated industry training and exercises, are needed to protect the state's food and agriculture chain.

In summary, the multiple agencies and industries involved in the food chain must integrate and coordinate their surveillance, risk vulnerability, and mitigation plans. Human health, livestock and crop protection must be viewed as a single system for the development of surveillance systems, standardized plans, and training for local, state, federal, and industry stakeholders.