

I am Bernard Goldstein, MD, until recently dean of the University of Pittsburgh, Graduate School of Public Health. My background is that of a physician, toxicologist and public health expert. My past experience includes service as Assistant Administrator for Research and Development at the US Environmental Protection Agency

Since ancient times warfare has included attacks on the agricultural base of an enemy - such as Scipio's ploughing the fields of Carthage with salt. The prudent nation has considered how best to defend this agricultural base, and what investment is appropriate in developing countermeasures. We in public health have been particularly concerned with food safety and with the public health infrastructure, to which I will confine my remarks. The many related important areas under consideration by your subcommittee will I am sure be ably covered by my colleagues from Penn State and the University of Pennsylvania

The University of Pittsburgh Graduate School of Public Health is the only fully accredited school of public health in Pennsylvania, although our colleagues in Drexel are nearing accreditation of another Commonwealth school of public health which we welcome. Our school of public health excels in research, a subject of today's hearing. We are first in the nation among state-related schools of public health in competitive grants from the National Institutes of Health, and only behind Johns Hopkins and Harvard among the 37 schools of public health nationwide. In terms of the Commonwealth, NIH funding to the Pitt Graduate School of Public Health exceeds that of three of the six medical schools, demonstrating the particular vibrancy of public health education and research in Pennsylvania.. The University of Pittsburgh has continued to dramatically increase its NIH funding and its funding from other federal sources, ranking in the top ten nationally for each of its academic health center components and for the university as a whole.

Let me begin by addressing the value of academia to the nation's defense against terrorism. We in the university community recognize that there is an urgency to the shoring up of protections for our nation's food supply. But we also recognize that there is a need for better types of defenses - for new approaches that will increase the effectiveness, as well as lower the costs, of defending the nation's agriculture. There are three major reasons for this.

First, as is evident from the hearing today, our current technical approaches warrant improvement.

Second, the threat to our nation will extend over periods of years, decades and perhaps even generations. We know from history that, no matter how we improve our defenses now, we can not depend upon the defenses of today to be sufficient for the threats of the future

Third, the threat is directed by other humans, not by natural forces. These other humans, our enemy, will respond to any defenses we erect by purposefully attempting to bypass these threats.

The response to the threat to our nation's agriculture must contain a vibrant research activity including our nation's research universities. We have the technical skills to be responsive now, and the track record demonstrating that we can anticipate new threats and respond to the unexpected.

Response of the University of Pittsburgh

The University of Pittsburgh has taken very seriously its responsibilities to respond to threats of biological and chemical terrorism. In addition to specific programs described below pertinent to the topic of today's hearing, there is a campus-wide coordinating program reporting to the Provost - the Center for National Preparedness headed by Dr Kenneth Sochats.

Rural Public Health

Safeguarding American agriculture requires careful attention to the rural infrastructure involved in response to terrorist threats. Along with our colleagues at Penn State, we have major programs focusing on health in rural parts of our Commonwealth. The Graduate School of Public Health has worked closely with the University of Pittsburgh at Bradford on whose campus is a nationally known Center for Rural Public Health Practice, headed by Michael Meit, including being actively involved in the founding and funding of this Center. Response to bioterrorism has been a central part of this program. Of particular note is a major national meeting on the topic of the Rural Public Health Research Agenda organized in 2004 by the Center for Rural Health Practice with HRSA funding. In the nationally distributed document resulting from this meeting, Michael Meit, the head of the Center for Rural Public Health Practice wrote the section on "Rural Public Health Preparedness". The second of eight bullets in this section states:

"Rural areas are the locus of agricultural production which could be key in targeting the food supply, as well as accessing agricultural chemicals"

The Pitt-Bradford Center participates in programs developed through funding received from the Centers for Disease Control by the Graduate School of Public Health's Center for Public Health Preparedness, headed by Margaret Potter. We are one of over twenty such centers nationally, but one of only five that have significant preparedness activities aimed specifically at rural public health preparedness. Our center was recently awarded \$5.4 million for the next five years beginning in fiscal 2005 to train front-line public health workers and first responders. The University of Pittsburgh Graduate School of Public Health's Center for Public Health Preparedness offers onsite and long distance training in preparedness nursing, bioterrorism, preparedness law, forensic epidemiology, and environmental health to a combined total of more than 700 public health professionals and clinicians the year. However, in collaboration with the Center for Rural Public Health Practice at Pitt-Bradford, we could and should do more specifically aimed at rural public health and agricultural issues.

Our task is quite challenging for two reasons, only one of which is insufficient funding. The other is the lack of public health infrastructure in our Commonwealth's rural areas. According to federal HRSA figures, Pennsylvania ranks last among all states in the size of its public health workforce per capita - we are number fifty. As we have significant public health departments in ten of our larger counties and cities, this shortfall is particularly notable in our rural areas. As just one example, many of our Northern tier counties have an infrastructure in place of perhaps a total of 2 public health nurses, while demographically similar neighboring

Southern tier counties of New York State have a public health workforce that counts in the dozens. Let me emphasize that we have dedicated and effective public health professionals in rural Pennsylvania, as well as in our state Department of Health. We simply do not have enough of them to mount effective programs, let alone be responsive to new threats.

Our academic program has not waited for the Commonwealth to provide this infrastructure. Rather, we have used our CDC funding to reach out to the entire responder community: firefighters, police, EMT personnel and others active throughout the rural parts of our state. Some of this effort is being performed in collaboration with our colleagues at Penn State. The programs we have developed are beginning to be copied nationally through the interaction of the CDC-sponsored Centers for Public Health Practice and the good offices of the Association of Schools of Public Health. But much more can and should be done. Supplemental funding specifically aimed at using the expertise of the Center for Public Health Preparedness and the Center for Rural Public Health Practice, at a total of \$300,000 per year for five years, would allow penetration of training programs related to agricultural bioterrorism and food safety to all of the rural counties of Pennsylvania, and national dissemination of the innovative training programs and lessons learned.

Biomedical research related to the security of agriculture

We are living in an era of unparalleled advances in biomedical sciences. These advances provide the basis for threats to all life, including our agricultural resources. But they also provide the basis for effective defenses. As just one example, the molecular epidemiology laboratory of Dr Lee Harrison of the University of Pittsburgh has been very active in using new molecular methods for outbreak detection and forensic analysis of bacteria - methods that are more objective, portable, and have much higher throughput than pulsed-field gel electrophoresis, the most commonly used method by public health institutions. Unfortunately, funding to apply this work to terrorist threats has been less than robust. With an additional \$250,000 per year for three years, Dr Harrison's laboratory efforts could be readily extended to current and as yet unknown threats to the nation's agriculture, including approaches that would lead to the rapid development of simplified detection methods for any new, unanticipated threat.

There are numerous other examples of the potential for application of cutting edge NIH-funded biomedical research applications to agricultural threats. A multi-million dollar yearly initiative aimed at coupling public health and agricultural research methodology to address biological threats to agriculture would be very much in the nation's interest.

Integrated Assessment and Planning

The Center for Biosecurity of the University of Pittsburgh Medical Center is perhaps the first and certainly among the foremost programs in the US and elsewhere aimed at understanding the broad issue related to the threat of bioterrorism to the nation's health, economic and socio-political security. Its principals are DA Henderson and Tara O'Toole. Dr Henderson is the

physician most responsible for the eradication of smallpox; the former dean of the Johns Hopkins School of Public Health; the founder of the first comprehensive institute related to biosecurity issues, and the person to whom President Bush turned to in response to the threat of bioterrorism after Sept 11, 2001. Dr O'Toole, the CEO of the UPMC Center for Biosecurity, is a physician with excellent credentials, including service as Asst Secretary of the Department of Energy responsible for environmental health. The Center for Biosecurity is capable of providing an integrated assessment of the threats to agricultural security that will assess current and future vulnerabilities in relation to broad national objectives. Of particular pertinence is their expertise in understanding the future biological capabilities of terrorist organizations, and the appropriate approach to defense against these capabilities.

Thank you for the opportunity to testify on this important subject. I would welcome answering you questions.