



## Real World Problems in Real Time: The Academy Responds to Emerging Biothreats

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It's time for our universities and research centers to make substantial changes in the way we conduct our business. One of the striking results of last fall's bioterrorist events was the realization that we urgently need to develop new models of collaboration among academic health centers and public health institutions and government agencies. But cooperation is not enough. Our response must be more rapid than that often allowed by the normal process of scientific inquiry.

I'm not suggesting we abandon the time-honored scientific enterprise in which the payoff for knowledge and understanding may be years, even decades away. But universities must stop defining the only good science as long-term science. Distance—both of geography and of time—has been virtually eliminated as a defensive barrier. Until recently, anthrax seemed a distant threat—an old-fashioned disease limited to wool sorters. Smallpox was thought to have been banished forever.

But extraordinary changes have occurred in our world. A business executive at today's meeting in Chicago may have been inspecting his firm's assets in Sierra Leone just four days ago. The worst thing we had to fear from our mailbox was bills in the past, but now we have the added threat of infectious disease. Old barriers of time and geography, along with taboos once taken for granted in a civilized society, have been shattered.

In terms of lives lost, it won't matter whether the biologic agents we face tomorrow are naturally occurring or artificially manipulated. In the past three decades, we have tallied more than 30 new or increasingly toxic biologic agents. No matter the mechanism by which they arrive in our neighborhoods, the losses could be catastrophic.

And because of that, it's essential that in our universities we take steps to develop new models for how we conduct our own research and how we interact with others. In confronting these new biologic challenges, we don't have the luxury of a normal academic pace or isolated investigations. A more appropriate model would be the large-scale applied research programs that were crucial to the nation's defense in World War II.

**Intensified collaboration.** In defense research scenarios of the past, universities and individual researchers who had not previously collaborated suddenly found themselves caught up together in an effort to solve specific problems. In more recent peacetime, universities have begun sharing data and findings in large consortia, made possible by mega-computers and the Internet, to tackle problems like HIV/AIDS. It's time for more.

**Working at the front line.** Working on real-world problems with the CDC or with state and local health departments, we

can better inform the academic research agenda with the most urgent priorities. We can also facilitate the flow of our research findings into practice.

**Providing knowledge in real time.** The biggest and most controversial challenge of public policy is the need to make decisions in the absence of perfect models or complete data. That's what is happening today in the handling of the West Nile Virus and in the discussions over the best approach to prepare the nation for a potential smallpox attack. That's what will happen in the next crisis we face.

So much new information is being generated from all our academic institutions that it's been hard to keep up. While one group is working on a new vaccine or testing an old one, another group is learning how an antibiotic might work against a virulent infection. Meanwhile, our states are receiving new information on surveillance about some of these diseases. The speed with which we share all this new knowledge and information and the insights we can gain from one another are critically important.

**Can we change?** Absolutely. The Southeastern Center for Emerging Biologic Threats, recently initiated by Emory's Woodruff Health Sciences Center along with partners throughout the region, is a new model for addressing public health emergencies. This new center includes two important elements that we believe have been missing.

One is a more collaborative, cooperative relationship among normally competitive academic institutions, including a mix of disciplines within those institutions—engineering, agriculture, behavioral science, public health, clinical practice, vaccine technology, and emergency medicine. The second is a better ongoing partnership among academic institutions, state and local health departments, and federal agencies.

This new collaborative enterprise will combine the expertise of years of measured scientific inquiry with real-time response to urgent biologic threats, using knowledge, research, and communication as its primary weapons.

In facing these new challenges, universities and public health agencies will be a cornerstone of our national defense efforts. Only as a collaborative team prepared for rapid response can we mount an effective defense to emerging biologic threats as a region and as a nation.

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