In October 2007, HSPD 21 called for a nationwide biosurveillance capability. Biosurveillance “in the context of human health is the science and practice of managing health-related data and information for early warning of threats and hazards, early detection of events, and rapid characterization of the event so that effective actions can be taken to mitigate adverse health effects.”

HSPD 21 was assigned to cabinet-level departments, notably Homeland Security and Health and Human Services (HHS). The Centers for Disease Control and Prevention (CDC) was tasked with convening experts to advise the CDC director on a new path for biosurveillance, hence the formation of the National Biosurveillance Advisory Subcommittee (NBAS, a subcommittee reporting to the Advisory Committee to the CDC director).

The first NBAS report was released on October 16, 2009, and noted that wide variations existed nationally in biosurveillance systems and capabilities. Capacity depended on state and local programs and collaboration was impeded by interjurisdictional complexities and lack of sustained funding.

The report issued five broad recommendations:

1. Strong Executive Branch leadership in coordination of national biosurveillance

2. Due consideration of global health threats
3. Adequate funding for personnel for biosurveillance programs
4. Investment in electronic health records and lab data
5. Strategic investments in new technologies

In the time between HSPD 21 and the first NBAS report, there was a change in administrations, with new cabinet secretaries and Dr. Thomas Frieden as new CDC director. Dr. Frieden and his staff noted the accomplishments of the first NBAS report but wanted an updated version that would fit his mandate of “thoughts into action.” Under this new leadership, NBAS 2 was launched in 2010.

Then, as State Health Director for North Carolina, I was asked to co-chair NBAS 2 with Dr. Ian Lipkin, a leading physician-scientist at Columbia University known for his work on bioterrorism and detection of new biologic agents using global surveillance and novel molecular methods. In retrospect, we were a balanced duo, with Dr. Lipkin on the cutting edge of the science of...
novel agent detection and an applied infectious disease epidemiologist running a state public health agency. With the guidance and stewardship of Dr. Pamela Diaz and her staff in the CDC Public Health Surveillance and Informatics Programs Office, NBAS 2 began its work.

Building on the first NBAS report, NBAS 2, by maintaining group cohesion, active member involvement, and identification of cross-cutting issues, focused on prioritizing what is practical to achieve. From August 2010 to March 2011, we appointed new working groups, held 46 meetings and 74 briefings, and reviewed 230 supporting documents. The second NBAS report was made public on June 20, 2011.

Titled Improving the Nation’s Ability to Detect and Respond to 21st Century Urgent Health Threats, the report was brief and condensed; appendixes of the working group reports provided specifics and granularity. The second report (CDC, 2011) identified four overarching areas of focus:

1. **Governance**
   The federal government should establish robust policy oversight of the biosurveillance enterprise through the Executive Office of the President’s National Security Staff. This would serve particularly to improve coordination between the Departments of Homeland Security and HHS. Further, a lead advisory group should be established to provide ongoing input regarding biosurveillance events.

2. **Information Exchange**
   An improved legal framework is needed to better enable state–federal data sharing. Under the new framework, data on livestock, wildlife, plants, food, vectors, disease, and the environment can be integrated into a system of biosurveillance for human health. In harmony with the International Health Regulations, integrated biosurveillance should be developed globally in sites of greatest threat to human health.

3. **Workforce**
   To address widening gaps, key professions in public health need enhancement, especially informatics, social and behavioral epidemiology, vector biology, and environmental health. Modern workforces should cross-train and collaborate with clinicians and basic scientists in human and animal health.

4. **Research and Development**
   Research and development should focus on real-time data collection, easily deployable detection methods, and streamlined assay validation to better survey for pathogens and biomarkers of health and disease.

Since the release of the second and final NBAS report, there have been two notable examples of “thoughts into action”:

- Release of the National Strategy for Biosurveillance from the Executive Office of the President, July 2012
- Creation of the National Public Health Surveillance and Biosurveillance Advisory Committee, CDC, November 2012.

Ultimately, realizing the biosurveillance system necessary for 21st-century threats requires sustained public health capacity building and accountability. The public will know how well we succeed by gauging the impact of urgent health threats on their families, communities, and property.

Reference