

# DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR DISEASE CONTROL AND PREVENTION

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*National Biosurveillance  
Advisory Subcommittee (NBAS)*



*Summary Minutes  
August 24, 2010  
Atlanta, Georgia*

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## Acronyms

<b>Acronym</b>	<b>Expansion</b>
ACD	Advisory Committee to the Director
AJPH	American Journal of Public Health
ARRA	American Recovery and Reinvestment Act
ASPH	Association of Schools of Public Health
ASPR	Assistant Secretary for Preparedness and Response
BCU	Biosurveillance Coordination Unit
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CIOs	Centers, Institutes, and Offices
COTPER	Coordinating Office for Terrorism Preparedness and Emergency Response
DALYs	Disability-Adjusted Life Years
DARPA	Defense Advanced Research Projects Agency
DFO	Designated Federal Official
DoD	Department of Defense
EAPO	Epidemiology and Analytic Methods Program Office
ED	Emergency Department
EHR	Electronic Health Record
ELR	Electronic Laboratory Reporting
EPA	Environmental Protection Agency
FAO	Food and Agriculture Organization
FDA	Food and Drug Administration
GATS	Global Adult Tobacco Survey
GYTS	Global Youth Tobacco Survey
DHHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
HSPD	Homeland Security Presidential Directive
IDSA	Infectious Disease Society of America
LSPP	Laboratory Science, Policy, & Practice
MCH	Maternal and Child Health
MMWR	Morbidity and Mortality Report
NAMCS	National Ambulatory Medical Care Survey
NBAS	National Biosurveillance Advisory Subcommittee
NBSHH	National Biosurveillance Strategy for Human Health
NCBI	National Center for Biotechnology Information
NCHS	National Center for Health Statistics
NGOs	Non-Governmental Organizations
NHACS	National Hospital Ambulatory Medical Care Survey
NHIN	Nationwide Health Information Network
OD	Office of the Director
OIE	World Organization for Animal Health
ONC	Office of National Council
OPHG	Office of Public Health Genomics
OPHPR	Office of Public Health Preparedness and Response
OSELS	Office of Surveillance, Epidemiology, and Laboratory Services
PEPFAR	President's Emergency Plan for AIDS Relief
PHIN	Public Health Information Network
PHIT	Public Health Informatics and Technology
PHSPO	Public Health Surveillance Program Office
PPACA	Patient Protection and Affordable Care Act
QALYs	Quality-Adjusted Life Years

<b>Acronym</b>	<b>Expansion</b>
SECEBT	Southeastern Center for Emerging Biologic Threats
SEPDPO	Scientific Education & Professional Development Program Office
SME	Subject Matter Expert
SurvSaG	Surveillance Science Advisory Group
UK	United Kingdom
VOCs	Volatile Organic Compounds
WHO	World Health Organization
WIC	Women, Infants, and Children

## Meeting Purpose and Objectives

### Meeting Purpose

The purpose of this meeting was to begin preparations for the National Biosurveillance Advisory Subcommittee's (NBAS) work ahead toward submission of its second report to the Advisory Committee to the Director (ACD) of the Centers for Disease Control and Prevention.

### Meeting Objectives

For the members to understand the charge and expected outcomes of the NBAS over the next year.

For the NBAS members to establish work group action plans for developing recommendations and guidance in order to expand and strengthen the national portfolio of activities in biosurveillance practice and scientific assessment.

## Welcome, Introductions, and Agenda

Dr. Pamela Diaz, NBAS Designated Federal Official (DFO)

Dr. Jeff Engel / Dr. Ian Lipkin, NBAS Co-Chairs

Dr. Pamela Diaz officially called the meeting to order and welcomed those present, particularly new members of the committee. She explained that as the DFO, her role was to serve as the link between NBAS and the federal government.

Dr. Engel extended his welcome and gratitude, noting that this was the second iteration of NBAS, and that he was a part of the first iteration of the group as a Work group member. He said he thought that this work would be somewhat easier because they would not be starting with a blank page, given that there were already some documents, a concept plan, and a strategy for how to move forward. He stressed that the day's work was fairly scripted in order to keep the group focused so that they could all return to their respective homes ready to work on the final deliverable of the Work group reports due on January 31, 2011.

Dr. Lipkin also welcomed and thanked those present. He indicated that a range of individuals were in attendance representing various arms of the federal government, academia, industry and the civilian population and that while some were seated at the perimeter of the room all were needed provide the input to the NBAS. He emphasized that an enormous amount of work had been done since the group met last, and he encouraged everyone to review the report last published. Based on this foundation and the work NBAS members would begin during this meeting, Dr. Lipkin was confident that the NBAS would be able to deliver a pithy and well-

reasoned document in the required time frame. He then reviewed the purpose and objectives of the meeting and opened the floor for introductions. Dr. Diaz subsequently reviewed the agenda for the day.

## NBAS Background and Scope

### Discussion

Dr. Pamela Diaz  
NBAS Designated Federal Official (DFO)

Dr. Diaz reported that on October 18, 2007, Homeland Security Presidential Directive-21 (HSPD-21) was released by the White House. HSPD-21 called for a nationwide biosurveillance capability, as well as the establishment of an advisory committee to the federal government on issues related to biosurveillance. Specifically, HSPD-21 calls on the federal Department of Health and Human Services (DHHS) to "establish an operational national epidemiologic surveillance system for human health, with international connectivity where appropriate, that is predicated on state, regional, and community-level capabilities and creates a networked system to allow for two-way information flow between and among federal, state, and local government public health authorities and clinical health care providers." The Secretary of DHHS was tasked with leading that effort in collaboration with other agencies. DHHS tasked CDC with the leadership role, establishment of the advisory subcommittee, and addressing issues related to HSPD-21 and biosurveillance.

The NBAS was formed on May 1, 2008. The membership of the subcommittee was comprised of a mixture of public and private stakeholders with diverse backgrounds and perspectives—people who were leaders in their area, with great minds, who had a lot to offer. At that time, Dr. Larry Brilliant, Executive Director of google.org, was the facilitator of the subcommittee. The first iteration of the subcommittee was divided into 8 Work groups, and federal liaisons and CDC subject matter experts (SMEs) agreed to provide support to the subcommittee. The Biosurveillance Coordination Unit (BCU) was formed at CDC to provide support to the subcommittee, with Dr. Dan Sosin as the original leader of that unit. The BCU was established to respond to the mandate of HSPD-21 regarding the development of a nationwide, robust, and integrated biosurveillance capability.

In accordance with HSPD-21, the BCU, in conjunction with other federal agencies, stakeholders at the state and local levels, and other stakeholders for biosurveillance led the development of the "National Biosurveillance Strategy for Human Health." That strategy was subsequently bolstered by speaking to two very important areas in a concept plan: 1) governance; and 2) the need to create a registry of biosurveillance efforts across the federal government to better understand capabilities. That work was conducted in tandem with the work of NBAS. NBAS' work included a review of the biosurveillance research, fact-finding, and surveillance methodologies by the various Work groups to collect information. The Work group reports were completed in January 2009. Those Work group reports were subsequently compiled into a publication, the first NBAS report titled "Improving the Nation's Ability to Detect and Respond to 21st Century Health Threats." This report was published on October 16, 2009 and is a very

important report in that it addresses some very high level, overarching, critical issues that are relevant to improving and enhancing biosurveillance for human health.

Early in 2010, Dr. Engel, who had been a Work group member, joined the subcommittee as a co-chair at the request of Dr. Frieden. Subsequently, Dr. Brilliant requested to step down from the subcommittee as a co-chair, but to remain as a subcommittee member. Dr. Lipkin, who had also been a chair of one of the Work groups, then joined the subcommittee as a co-chair in July 2010 at Dr. Frieden's request.

The five recommendations from the first NBAS report were as follows:

- The Executive Branch must define the strategic goals and priorities of federal investments in biosurveillance activities and technologies, and implement a plan to achieve, fund and periodically assess progress toward these goals. To accomplish this, the White House should establish an Interagency Biosurveillance Coordination Committee (“the Committee”).
- The U.S. National Biosurveillance Enterprise must include global health threats in its purview and scope.
- The federal government must make a sustained commitment toward ensuring adequate funding to hire and retain highly competent personnel to run biosurveillance programs at all levels of government.
- Government investments in electronic health records and electronic laboratory data should be leveraged to improve how they serve biosurveillance and public health missions.
- The federal government must make strategic investments in new technologies (e.g., genomics, supply chain management, visualizations, display dashboards) to strengthen U.S. biosurveillance capabilities.

The NBAS also committed to develop additional specificity in recommendations, which the new iteration of the subcommittee would begin to address during this meeting. In particular, Dr. Diaz noted that the Work groups had been realigned, with many of them mirroring a combination of these recommendations and the high level priorities that are called for in the “National Biosurveillance Strategy for Human Health.”

The NBAS' scope document for 2010-2011, approved by Dr. Frieden as of April 11, 2010, describes biosurveillance, discusses the need to build upon and utilize established capabilities, calls for the inclusion of all hazards and all sources, and is defined by urgency and multi-jurisdiction interest. The work groups are set out in the following 6 major areas:

- Governance (Inter-Agency Collaboration and Engagement)
- Healthcare and Public Health Information Exchange
- Innovative Information Sources
- Global and Regional Biosurveillance Collaboration
- Biosurveillance Workforce, New Professions, Cross Training
- Integrated Multi-Sector Information

The NBAS will write a second report. Each Work group will be responsible for its own report to the NBAS co-chairs. Subsequently, the full subcommittee will work together to finalize the overall subcommittee report. The proposed NBAS report format:

**Work Group Scope:** To be completed during the August 24, 2010 meeting; Work groups will be able to submit multiple issues

**Work Group Approach:** Brief narrative on what actions Work groups took to identify issues

**Issue:** Brief statement of a specific issue within the Work group's scope

**Methodology:** Brief narrative to explain how the Work group researched the issue

**Discussion:** Brief narrative explaining the issue

**Recommendation:** Brief narrative providing the specific action needed to address the issue and who should take the action

The proposed outline of final the report is as follows:

**Introduction / Background:** Draft provided by CDC Staff

**NBAS Scope:** Draft provided by CDC Staff

**NBAS Approach:** Draft provided by CDC Staff

**Overall Recommendations:** Developed by the Steering Committee based on Work group reports and approved by the entire NBAS

**Appendices:** Draft provided by CDC Staff & will include acknowledgements and rosters

**Other:** As requested by NBAS

### **The NBAS members by Work group are as follows, with federal liaisons:**

**Co-Chairs:** Jeff Engel and Ian Lipkin

#### **Governance (Interagency and Collaboration)**

**Champion:** Robert Kadlec

**Members:** Tom Inglesby, Paul Jarris, Perry Smith, Larry Brilliant, Marci Layton

#### **Healthcare & Public Health Information Exchange**

**Champion:** Steve Hinrichs

**Members:** Cecil Lynch, Julia Gunn, Suzanne Delbanco, Ken Mandl

## **Innovative Information Sources**

**Champion:** James Heywood

**Members:** Rita Colwell, Tom Slezak, Ian Lipkin

## **Global and Regional Biosurveillance Collaboration**

**Champion:** Jim Highes

**Members:** Jim DeLuc, David Franz, Ann Marie Kimball, Mary Wilson, Stephen Ostroff

## **Biosurveillance Workforce, New Profionseillance Workforce, New Professions**

**Champion:** Don Burke

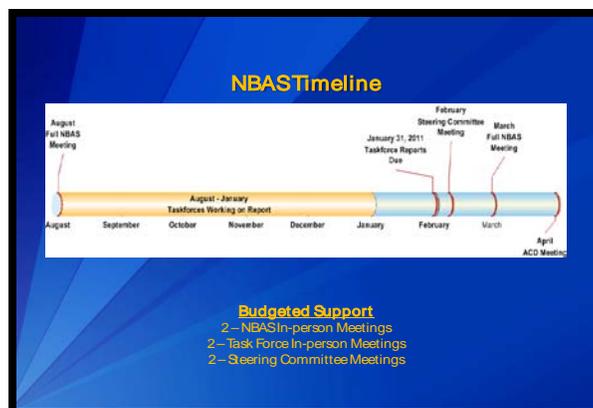
**Members:** Jim Handler, Linda McCauley, Tomas Aragon, Kathy Minor

## **Integrated Multi-Sector Information**

**Champion:** Lonnie King

**Members:** Heather Case, Richard Platt, Art Reingold, Al Bronstein

The co-chairs, Drs. Engel and Lipkin, oversee the Steering Committee of the NBAS, which is comprised of the champions of each Work group. The following represents the proposed NBAS timeline:



NBAS is at the far left of the timeline at this point, with the work of the Work groups to be done predominantly in the next few months. The Work group reports are due January 31, 2011; the Steering committee will meet in February; the full NBAS will meet in March 2011; the final report will be submitted to the ACD in time for their April 2011 meeting. Thus far, the budgeted support for NBAS includes two full NBAS in-person meetings, two Work group in-person meetings, and two steering committee meetings. Dr. Diaz noted that part of the work to be done during the breakout sessions would be to refine the scope of issues and capture the Work groups' resource needs in order to meet the expectations and complete their work. If the Work groups' needs exceed the current budget support, the agency can determine what must be negotiated beyond that and work toward finding the necessary resources. Dr. Lipkin added that if needed, the CDC will assist with additional consultants, staffing / arranging meetings, and minutes.

## Champion Briefs on Work group Scopes

### Overview

During this session, each Work group champion offered a brief report on the draft scope of his/her respective work group. These draft scope statements reflect the initial impressions as Work Group Champions and not a final position.

### Biosurveillance Governance Work Group Scope

Robert Kadlec, MD  
Former Special Assistant to the President and  
Senior Director for Biodefense Policy, Homeland Security Council

There is a need for the national biosurveillance enterprise to develop cross-sector, intergovernmental and intra-governmental collaborative processes that are transparent and effective. These collaborative processes should also provide a forum to discuss how federal, state, and local public health needs can be addressed in a federal biosurveillance enterprise. Active and timely communication and collaboration across programs and systems and among those representing all levels of public health jurisdictions, agencies, and healthcare communities is required to develop 21st century biosurveillance capability. An effective governance structure is needed in order to assure that a platform is established for that collaboration. Focus by the Biosurveillance Governance Work group on addressing the need for a collaboration platform can help to shape the parameters for a “whole society” approach to the nation’s biosurveillance effort. Key points for this Work group to address include:

- Structure Options / Recommendations
- Review of Concept Plan
- Explore Policy Issues
- Determine Appropriate Focal Point for Governance
- Inter-Agency / Inter-White House Coordination
- Balance Science / Technology with User Community
- Inclusion of All Stakeholders
- National Biodefense Science Board; Leverage / Role
- Role / Location of a Federal Advisory Committee

### Healthcare and Public Health Information Exchange Work Group Scope

Steven Hinrichs, MD  
Director, Center for Biosecurity  
University of Nebraska Medical Center

There are new opportunities to improve the exchange of information among healthcare providers, including laboratories, and public health agencies through the increasing automation of healthcare and public health information systems. The goal is to both leverage these opportunities to improve the care of patients affected by disasters or other crises and to enable more effective public health situation awareness. Electronic health and laboratory information exchange involves the sharing of digitized human health data and information according to nationally recognized standards. Health information technology and electronic health information exchange have the potential to accelerate significantly the timely and accurate sharing of health data between clinical care and public health practice settings. Laboratory-based testing and surveillance provide a critical foundation for effective biosurveillance practice. The Electronic Health and Laboratory Information Exchange Work group will consider recommendations to ensure a nationwide real-time biosurveillance capability that incorporates “meaningful use” in health IT systems with the potential to transform healthcare and public health capabilities. This Work group will also include recommendations that relate to further development of a national perspective of biosurveillance that supports laboratory test data harmonization and information exchange at all levels of government. This Work group will ask the other Work groups to help answer these questions: Who has data exchange agreements in place? What do they look like at the federal, state, and local levels? What data can be accomplished with this information? Key points for this Work group to address include:

- ONC: Focal Point of Activity
- Funding Priority
- On-going Activity / Goals
- Tracking Delivery of Public Health Objectives from American Recovery and Reinvestment Act (ARRA)
- Electronic Laboratory Reporting (ELR) is a Priority
- Role of Local Health Departments To Implement

### **Innovative Information Sources Work Group Scope**

W. Ian Lipkin, MD

John Snow Professor of Epidemiology and Director  
Center for Infection and Immunity, Mailman School of Public Health and  
Columbia University and Professor of Neurology and Pathology  
College of Physicians and Surgeons

The breadth and depth of scientific knowledge are growing at a staggering rate. New technologies are enabling discoveries of new microbes and detailed characterization of known ones through a wide range of -omic strategies (e.g., genomics, proteomics). Much of this information is not published in traditional journals or linked to centralized databases, but may be reported in discrete databases. New tools have been developed to monitor climate, land use, the movement of populations and goods, and internet traffic. There is an urgent need to collect and integrate large volumes of both structured and unstructured data to enhance situational awareness. When this process first began, an inventory was compiled of what sources people

were using. It was extraordinary to learn how many resources there are in the private sector, as well as the military sector. This information will be updated under the new iteration of this Work group to determine where there are gaps. This Work group will define what is needed to more efficiently mine and integrate information derived from novel data streams, social networking technologies, web-based forums, and other potential sources while respecting and protecting the privacy of individuals. The Work group will also propose investments that will enable conversion of data into formats that will facilitate analysis and integration and to detect patterns and associations. Key aims of this Work group are to:

- Flesh out the committee with appropriate expertise
- Leverage data in the National Library of Medicine
- Estimate and monitor the future of genomics
- Include new systems and opportunities as well as existing systems
- Identify antiquated systems in need of improvement
- Pursue other technologies beyond informatics including social networks
- Enable investment in high risk/high potential biosurveillance tools and methods following the model of the Defense Advanced Research Projects Agency (DARPA)

### **Global and Regional Biosurveillance Collaboration Work Group**

James Hughes, MD

President-Elect, Infectious Disease Society of America (IDSA)

Executive Director, Southeastern Center for Emerging Biologic Threats (SECEBT)

All members of this Work group are new, and they had not yet had an opportunity to meet. This Work group will explore ways to leverage US governmental health and development policies and activities. It will also ensure the US's ability to contribute to and participate in global disease detection and response through increased global capacity and coordinated international action. The US has compelling security, economic, development, and humanitarian interests in national and global public health security. Biosurveillance is critical to achieving public health security. Improving national and international biosurveillance capabilities should be priorities for national security policy. Helping individual countries improve their biosurveillance capacities benefits other countries and the US. Key points that this Work group will address include:

- Governance aspects
- Access to information
- Recent article highlights "hot spots" for consideration [Jones KE et al. Global trends in emerging infectious diseases. *Nature* 2009;451;990-994]
- Strategies for enhancing capabilities
- Support IHR 2005 implementation
- Consistent with National Strategy for Countering Biologic Threats [November 2009]
- Link to Innovative Information Resource Work group
- Determine potential role David Heymann could play in this now that he has left the World Health Organization (WHO) and moved into a number of other responsibilities

## **Biosurveillance Workforce, New Professions, Cross-Training Work Group**

### **Scope**

Don Burke, MD, Director  
Center for Vaccine Research (CVR)

There is a need to address how to better maintain and enhance a biosurveillance workforce. The goal is to ensure a workforce at multiple levels that is available, trained, prepared, and able to adapt to evolving threats and crises. The critical functions of public health surveillance and investigation of exposures and acute human health events are widely distributed across local, state, federal and international jurisdictions. Ways must be found to sustain gains from recent investments in training, recruitment and retention, and to complete nationwide implementation of critical biosurveillance systems, as well as to attract young and talented specialists to the field, while retaining experienced public health employees. Key points that this Work group will address include:

- Informatics in Public Health: Gap
- Computational Skills for Public Health: Gap
- Includes need for modeling and simulations
- Need for environmental scan of public health workforce
- Rapid sharing of surveillance info during an event: technology, legal and workforce limitations
- Public health workforce recruiting and maintaining limitations: building capacity
- Role of schools of public health in modeling, research
- Inclusion of policy expertise, “policy literate”
- Leader development: Centers for public health leadership
- Management skills
- Specialty skills: entomologists and others

Dr. Burke said that if he wanted to be dramatic, he could say that 100 years ago when public health got started it was the new technology of microbiology that launched public health. Now 100 years later, with informatics, data access, systems, et cetera, public health is on the cusp of another change. He did not know whether this was revolutionary, but a paper was published in the July issue of the American Journal of Public Health (AJPH) titled “The Next Public Health Revolution: Public Health Information Fusion and Social Networks” [Khan et al. July 2010, Vol. 100, No. 7 | American Journal of Public Health 1237-1242]. If there is a revolution on the horizon, consideration must be given to what that means in terms of thinking about training and workforce development.

## Integrated Multi-Sector Information Work group Scope

Lonnie King, DVM, MS, MPA, ACVPM, Dean  
College of Veterinary Medicine, Ohio State University

There is a need for improvement in the biosurveillance enterprise across sectors, including but not limited to human health, agriculture and environmental. The need for data integration, communication networking, and situation awareness has become more acute with globalization and the increasing availability and complexity of health-related information. The goal is to improve the ability to rapidly, reliably, and securely collect, synthesize, and share diverse biosurveillance information among public health, healthcare and other response entities and stakeholders. Because responsibility for public health is shared across multiple levels of government, professional practice, and scientific disciplines, timely exchange of reliable and actionable information is essential. The Integrated Biosurveillance Information Work group will address key integration issues such as advancements in technology and epidemiologic science that support communication networks leading to early awareness of hazards and events and real-time monitoring of events. In addition, the Work group will consider issues related to the identification of which data are cost-effective/actionable, what frameworks are most appropriate for expanded information sharing and data integration, and how to ensure that integration technologies, products, practices, and standards are made widely available. Key points that this Work group will address include:

- Identify sources of infection—not just zoonotic diseases
- Regional approach
- Rapid testing of food sources
- Need private agribusiness expertise: “Cargill”
- Cross sector/cross domain trust: impacts on market
- Governance component: to include International
- Improve access to sectors
- Practices and disciplines
- Electronic medical records
- Unstructured data component
- Role of FSIS and enormity of food sources and screening capability
- Bedside / cowside capability
- Includes water supply, wildlife and food
- Hunter kills: source of info
- Global component
- Workforce: understand domain relationships
- Surveillance of “normal” animals
- Ties into new methods of serology: Innovative Sources Work group
- Ties into agri. workforce: Gregory Gray in Florida
- Entomology: need to look at specific pathogens
- Prediction on spread based on knowledge of vectors and disease

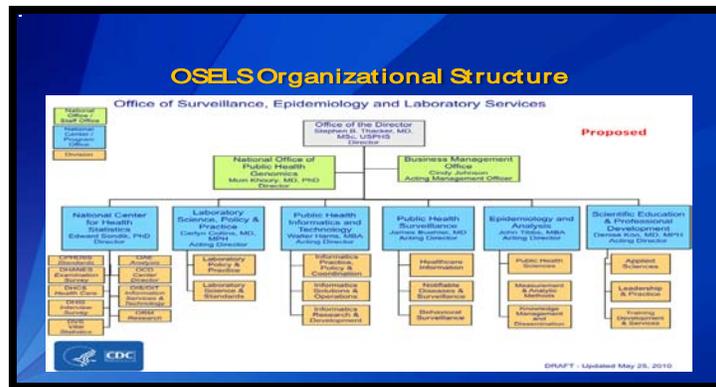
- Development of baseline infrastructure and data versus development of stove-piped and disease-specific systems
- Agency stovepipes
- Leverage fact: more vets interested in public health

## Dr. Frieden's Address to NBAS

### Overview

Stephen B. Thacker, MD, MSc, ASG / RADM (Ret.), USPHS  
Deputy Director, Office of Surveillance, Epidemiology and Laboratory Services

Dr. Thacker reported on the structure of the Office of Surveillance, Epidemiology, and Laboratory Services (OSELs), which is reflected in the following organizational chart:



While Dr. Thacker noted that his OD office is relatively small with about 10 staff members, within the structure of OSELs is the Office of Public Health Genomics (OPHG) and the National Center for Health Statistics (NCHS) and five program offices, including Laboratory Science, Policy, & Practice (LS3PO), Public Health Informatics and Technology Program Office (PHITPO), Public Health Surveillance Program Office (PHSPO), Epidemiology and Analytic Methods Program Office (EAPO), and Scientific Education and Professional Development Program Office (SEPDPO).

OSELs is a service organization supporting internal programs as well as external partners domestically and internationally. This is science-based support, and OSELs works with programs in the Office of the Director (OD) as well as the programmatic activities within the Centers, Institutes, and Offices (CIOs) at CDC.

### Discussion Points

An inquiry was posed regarding whether this structure is now formalized. Dr. Thacker affirmed that this structure is now approved, although there are some positions that have not yet been filled. The vacancies will soon be filled, and Stephanie Zaza is now the Director of EAPO and

Denise Koo is now the Director rather than the Acting Director of SEPDPO. Otherwise, everything reflected in the organizational chart is current and correct at this point.

Dr. Diaz noted that this is very relevant to their work in the biosurveillance realm because in some of the organizational improvements within CDC, the BCU and the support to NBAS were previously in the Coordinating Office for Terrorism Preparedness and Emergency Response (COTPER), which is now the Office of Public Health Preparedness and Response (OPHPR). In that organizational improvement, the biosurveillance effort within CDC moved into Dr. Thacker's new organizational structure in PHSP0. Thus, the support for NBAS activity comes through this organizational structure. However, it is no different in the sense that they work very closely with OPHPR and other organizations within the agency in conducting this work.

A question was raised regarding where biosurveillance fits within this structure. Dr. Thacker replied that this represents the movement of a lot of programs around CDC to this cross-cutting function. For example, within PHSP0 are the Behavioral Risk Factor Surveillance System (BRFSS) activities, Morbidity and Mortality Report (MMWR) activities, the Guide to Community Preventive Services, CDC Library Operations, and methods and modeling activities are housed in EAPO. Thought is being given to making the CDC Library more of a National Public Health Library to complement the National Library of Medicine.

Dr. Burke wondered whether this chart represented CDC's conceptualization of the units of public health. NBAS has a Biosurveillance Workforce, New Professions, Cross-Training Work group. Since training often parallels the federal agencies themselves in terms of what are seen as specialties or sub-specialties, he wondered whether this same organizational framework should be used for training for the future for public health.

Dr. Thacker replied that this is making operational one of Dr. Frieden's priorities, which is to strengthen surveillance and epidemiology. This is a science activity. At the same time, in the activity under Dr. Koo in SEPDPO there is training. The fellowships are included here and this office trains epidemiologists, informaticians, economists, and managers. In that sense, this could be very supportive of what Dr. Burke mentioned. Structurally speaking, Dr. Thacker could see all of the public health sciences fit what the Work group wanted to do. While some components may be missing, it is certainly a framework they could use as they try to operationalize their efforts.

Responding to a question posed regarding whether there are substantial biosurveillance activities at CDC that are not part of this structure, and whether OSELS would receive budget information for all surveillance activities underway throughout the agency, Dr. Thacker said that the programmatic activities throughout CDC that could fit into biosurveillance are often within categorical programs, particularly in the infectious disease areas, but also in the environmental health areas at the National Center for Environmental Health (NCEH) and probably even the Agency for Toxic Substances and Disease Registry (ATSDR). OSELS' role is to support, coordinate, and complement these activities. In terms of the budget information, OSELS may or may not receive budget information pertaining to surveillance activities throughout CDC. OSELS certainly does not control the budgets for these activities. Many activities coming into biosurveillance do not just come in from OPHPR. There is an internal organization known as the

Surveillance Science Advisory Group (SurvSAG), which is an employee organization comprised of 250 to 300 people. SurvSAG was formed approximately five years ago. OSELS shares these activities with programmatic staff. In that sense, they share at the program level, which begins with the budget activities.

### **CDC Director's Address**

Thomas R. Frieden, MD, MPH  
Director, Centers for Disease Control and Prevention  
Administrator, Agency for Toxic Substances and Disease Registry

Dr. Frieden addressed the group and welcomed their creative input regarding information needs for biosurveillance. He thanked them for the 2009 report, which, he said, provided a sound roadmap for moving forward; and he challenged them to move from that now to action-oriented recommendations. Dr. Frieden explained that strengthening surveillance, epidemiology, and laboratory services is one of his five key policy priorities at CDC, and emphasized the need to have better information systems, identify them, and determine ways for them to communicate with each other.

He noted the importance of the NBAS' identification of concrete steps to be taken, and offered wide-ranging comments on issues being addressed in each of the NBAS Work groups. In conclusion, he stressed that the goal of knowledge is action and asked the group to keep in mind consideration of how information being collected can help protect people and help them live longer and healthier lives. Dr. Frieden then accepted questions from NBAS members on a series of subjects of particular interest to them, including private proprietary data, NBAS' role with regard to chronic disease, budget implications for local health departments, international health organizations, data sharing between/within federal agencies, privacy, and other health-related issues.

### **Public Comments #1**

No public comments were offered during this session.

### **Work Group Breakout Sessions / Post Discussions**

#### **Overview**

During this session, the full membership divided into their respective Work group breakouts. CDC subject matter experts and federal liaisons attended the various groups at their discretion to offer input as needed. These breakout sessions were closed to the public, although when the full group reconvened for the back briefs, the meeting was reopened to the public. These Work group overviews represent the Work groups' initial impressions as a result of their breakouts and

do not represent a final position. Prior to the various Work groups breaking into groups, Dr. Diaz opened the floor for clarifying questions / discussion.

## Discussion Points

It was noted that HSPD-21 has many components, of which NBAS represents just one piece. Clarity was requested with regard to how NBAS fits into the broader response to HSPD-21, particularly given that other documents have been published by DHHS already that deal with a national strategy for biosurveillance and the like. Contextualizing this group with other groups could help in thinking about workforce development issues, for example.

Dr. Diaz replied that HSPD-21 includes a variety of areas of which biosurveillance / creating a nationwide biosurveillance capability is a component. Another component is medical countermeasures. NBAS is specific to that aspect of HSPD-21 that speaks to biosurveillance, the creation of the NBAS, and integrated biosurveillance capability.

Dr. Sosin added that their understanding is that HSPD-21 is still active and is expected to be responded to by federal government agencies. It is anticipated that additional guidance from the White House will direct them in the near future in a way that will be more reflective of ownership of this issue and will offer next steps guidance specifically regarding this topic. It can be anticipated that something will evolve from this so that it remains a topical and very important issue. Regarding the perception that there are other biosurveillance strategies at the DHHS level, Dr. Sosin was not aware of any. In the development of this strategy, DHHS is supportive of plugging this into the other strategies more broadly, for example, the National Health Security Strategy, which calls out the need for biosurveillance but does not go in a different direction or provide a different strategy for biosurveillance systems. CDC's understanding is in the context of the impact on human health, and One Health plays into that.

Noting that the NBAS document that was previously published included a number of very good specific recommendations, Dr. Inglesby wondered whether they would be briefed on the status of those recommendations in terms of what had / had not been done.

Dr. Sosin responded that it would be smart for the Work groups to request an update. With the change in administration, a lot of very important activities that drew their attention right from the start in terms of the economy, H1N1, and a variety of other issues, there was an understandable pullback from implementing the Strategy. There is an implementation plan, but there have been variable levels of engagement in that plan. Dr. Sosin's overall sense was that there had been fairly modest, limited accomplishments. NBAS should hear directly from the departments and agencies that have made progress.

Dr. Lipkin suggested specifically requesting information with regard to how individual components of the original plan were received and implemented. He assured the committee that they would be provided with this information so that as they reviewed what occurred in the previous iteration, they could make updates and modifications. The original NBAS champions tried to highlight issues that were highest priority and/or were highly leveraged. The good news is that several members of the original Work groups are now within the administration, so they

may actually be able to reach out to them to find out whether the reports they prepared have been addressed.

Dr. Inglesby said he understood that in the first round of NBAS, there were numerous briefs on programs from federal agencies. While half of the current NBAS heard those briefs, the other half had not. Either in paper or in person, it would be beneficial to have the analytics that went into the first report or an update on those.

Dr. Lipkin responded that members of his task force were struck by the extent to which government activities are decentralized. There are recordings of those briefings, at least for his task force. They had teleconferences weekly, during which some extremely powerful concepts emerged. They are happy to distribute those recordings.

Dr. Diaz added that part of work during the afternoon would be for each Work group to enumerate their needs in terms of what would help them do their work. Biosurveillance Coordination (BC) is prepared to support that as best they can in whatever format is most amenable and needed.

Dr. Brookmeyer asked whether there was a vision for how the final product of this committee would look and the level of specificity. That is, what form should the report take so that it will have maximum impact? There is a reasonable amount of overlap among the various Work groups.

Dr. Lipkin replied that last time, each individual Work group generated a detailed document with an executive summary and that allowed users to drill down for more detail as desired. Thereafter, once all of the individual reports were collated, the steering committee identified the key elements, found areas of overlap, prioritized important initiatives, and then developed a very specific short list of the most important issues to address, followed by the secondary and tertiary issues. The idea was that people have a short attention span at certain levels, and they wanted to ensure that information did not get lost. That is a decision that the steering committee needs to make as they look for overlap.

Reflecting on the previous iteration, Dr. Heywood thought it was obviously important to focus on the final recommendations and products, but the secondary value was the process of asking the questions of the people involved. That is a product. They have authority to ask those questions that should drive internal decision-making. He thought they should use their roles in their Work groups to call upon people they think should be performing or accomplishing the objectives in each of the Work group areas to determine what they are doing well, what is missing, whether they are meeting milestones, et cetera. In the context of accountability, just the process of doing that every couple of years with a strong outside authority that has the ability to make recommendations and offer input that will drive behavioral change. This is a product they should not underestimate.

Regarding the overarching issues pertaining to HSPD-21, Dr. Engel noted that representatives were present from Homeland Security and the Assistant Secretary for Preparedness and Response (ASPR).

Rosa del Incario from DHHS / ASPR echoed Dr. Sosin's remarks that the National Health Security Strategy has been sent to the Work group federal leads so that there is comparability in what is being done within HHS and at CDC.

Dr. King inquired as to where, other than the ACD and Dr. Frieden, the NBAS report might go in terms of recommendations (e.g., DHHS, White House, et cetera).

Dr. Diaz replied that there is a formal process. Once the ACD accepts the report, it is then submitted to DHHS. There is the opportunity to brief other departments. CDC would be willing to do this. Dr. Sosin briefed a number of entities and shared comments on the Strategy and the NBAS report. The NBAS document becomes public once it has passed through the DHHS process and is accepted there.

Dr. Sosin responded that implied in Dr. King's questions was the authority of NBAS vis-à-vis informing the federal government, which is really the task in HSPD-21. It is circuitous, but they will get there. They learned some lessons with the first report. The NBAS included a sentence in the first report about offering its assistance to the White House should the White House take on this task, and that was deleted because lawyers at DHHS concluded that this body did not have the authority to offer their assistance to the White House. There are some nuances. In terms of the timeline shown earlier of the report being published in October, the hard work of NBAS was to produce this report in February and there were some learnings and a change of administration that affected how that report was cleared, and it took a long time. This is not expected to happen this time, but because it is a DHHS advisory body within CDC and has other layers, they must work through that context. Regarding what this report should address and look like, where they need to go could perhaps be informed by what the first report did. As noted earlier, one obvious impact of the NBAS report the first time around was that the thought leaders of the NBAS are now deeply imbedded in the senior leadership of the current federal government. Tara O'Toole is now the Undersecretary for Science and Technology at the Department of Homeland Security, Peggy Hamburg is the FDA Commissioner, and Farzad Mostashari is the Deputy National Coordinator for Programs and Policy in the DHHS Office of the National Coordinator for Health IT. These individuals are taking their perspectives from round one directly into leadership of the federal government. The report itself lost steam. It did not have an opportunity to do what it was geared toward in terms of high level informing of the new leadership for a number of reasons. Reflecting on where this needs to go next, there was a very specific and high level recommendation in the first iteration to address governance in that there needed to be direct White House engagement to take this on and make it a priority. However, there was a total reconfiguration of the White House in terms of how Homeland Security issues were addressed (e.g., biosurveillance, et cetera). In addition to the change of administration, there was the financial crisis, the H1N1 pandemic, and a variety of other factors that were not conducive to acting upon recommendations that were developed during the previous administration. It is also possible that the actionability of that recommendation was not clear / compelling enough to the new administration in terms of why the White House should make this a priority and how it fit relative to other priorities. There could be some benefit to further dissecting what occurred in terms of how to go deeper in the next set of recommendations to be more compelling and actionable. Two summers ago when the former steering committee

convened to talk about next steps, the notion of drilling deeper and providing more specificity in the recommendations was a piece of what was considered to be important next steps. Each Work group should take this into consideration as they deliberate.

In reading the report, Dr. Inglesby said he was not sure whether deeper was the way to go. Perhaps the rationale of not pursuing the recommendations needed to be drawn out further. It was not clear whether being more specific would be the solution to action, or whether they just needed to make the case better.

Dr. Lipkin stressed the difficulty of “making a case in an elevator,” which was why having several levels of detail was thought to be important. As Dr. Sosin pointed out, they just wound up on the cusp of two administrations and a number of other issues. The first report represented a lot of hard work done by a lot of people, and he thought they should try to recapture this.

### **Integrated Multi-Sector Information Work Group Report**

\*These post discussions represent the Work groups’ initial impressions as a result of their breakouts and do not represent a final position.

Lonnie King, DVM, MS, MPA, ACVPM, Dean  
College of Veterinary Medicine, Ohio State University

With regard to defining the scope, Dr. King reported that the Integrated Multi-Sector Information Work Group will address multiple domains and take a One Health approach (e.g., human, animal, and environmental health) with an impact on human health and taking an all-hazards approach. Emphasis will be placed on communicable threats and utilization of existing systems that are actionable, effective, and integrated across systems and with other work groups. All levels of governance (local focus, globally applicable) should be involved, specifically focusing on integrating and coordinating existing federal agency initiatives, incorporating a focus on timely warning as a key strategy, with a need for coordination, access, and utility of the systems in order to take appropriate action.

Dr. King shared a schema of One Health, indicating that this Work group had begun to scope out individual systems that exist for humans (e.g., EHR, disease systems, diagnostic labs, CMS claims); for animals (e.g., pets, exotics, Safety and Inspection Service, National Animal Health Monitoring Systems / USDA, animal health diagnostic labs, et cetera); and the environment (e.g., BioSense, Poison Control Centers, waterborne illnesses / contamination, pollution monitoring of water and air / EPA); and is looking into where these integrations occur (DHS systems, state and local systems, private delivery systems, private food systems, notifiable diseases, et cetera).

There are a number of concerns and barriers that must be overcome. The focus is too large as a whole, so expectations and success must be defined by a subset of these different systems. In order to limit and focus the scope, collaboration across agencies, states, and private systems will be necessary. Understanding the signal to noise ratio and integration of data streams will be very important. There is a considerable amount of data, but very little solid information that is likely to be usable and standardized. This Work group will limit their expectation of global data

sources and determine how these apply to local use. There are also concerns about the quality and standardization of data and long-term sustainability.

The Integrated Multi-Sector Information Work group also identified some of the resources needed to move forward: BioPhusion representative, environmental expert as related to human health, and NBIC (interagency work).

## Discussion Points

Dr. Engel thought it sounded like this Work group may have a lot of work to do in terms of developing a registry of what exists because it is so cross-agency. He wondered whether this was part of what this Work group intended to do before January.

Dr. King responded affirmatively. As soon as they can get their hands on a registry, they can use this as a “checks and balances system” to assess what already exists that can be used and to determine what should be used. Using a risk-based approach, consideration can be given to where they believe threats will come from so they can focus on appropriate surveillance systems.

Dr. Lipkin made two general points that applied to all of the Work groups. Many of the members will be holding briefings, and he thought it would be helpful if they could let everyone know when those briefings will occur because others may want to join. There may be instances in which consultants could serve the objectives of more than one Work group. The other point is that there is an enormous amount of overlap in many of their missions, so at some point they will have to determine how they can be sure that they indulge in that complementary nature and exploit it. He wondered whether there was a plan to have someone in CDC participate in multiple Work group meetings in order to ensure they are complementary.

Dr. Diaz responded that she had heard throughout the day about the overlapping or perhaps the interacting of the Work groups. That is part of the reason they were all there, so they could identify those areas. Certainly, the dialogue that will take place between steering committee members will be an opportune time to talk about some of those inter-digitations and perhaps how that might be worked. Additionally, as the Work groups provide CDC with their needs, the BCU will identify areas in which there are opportunities to integrate based on briefings or consultations requested to help further that mission.

Regarding that and pertinent to Dr. King’s report, Dr. Engel indicated that in iteration one when he and Dr. King were on the same Work group together, he clearly pointed out in terms of workforce that there is no training or professional development of that person, agency, or entity that looks over environmental health and how it relates to animal / human interactions and outcomes. That would be a cross area with the Biosurveillance Workforce Development Work group.

Dr. King added that they identified the Biosurveillance Workforce Development and the Governance Work groups as groups with which they particularly want to integrate.

Dr. Jarris inquired as to what was meant by the use of the word “local” a couple of times and specifically “local focus of governance.” Anything in surveillance takes a local, state, and

federal perspective to align. He wondered if what they meant by this was that each applicable group had to act in a coordinated fashion.

Dr. Case replied that she thought they were talking about the applicability at the local level. Obviously, it has to be broad enough to encompass the global aspect of surveillance. But it was the “boots on the ground” local focus in terms of usability of the systems as an action item. In terms of funding for these projects and differences among state and local jurisdictions, it was just the idea that priority would be: Is it useable at the local level?

Dr. Buehler pointed out that it was daunting to look at this list because they could come up with a long list of recommendations, some of which would sound familiar (e.g., working across systems, getting different agencies to work together more effectively). Given that these are longstanding challenges, he wondered whether it would be possible to identify some key recommendations or points that could help to break a logjam in terms of an advisory group advising an entity as large and diffuse as the federal government.

Dr. King replied that they talked about that, and they also talked about studying lessons learned. There have been great write-ups on SARS and influenza in terms of what did / did not work well and what was needed. Some really good recommendations came out of that, so he did not think they had to reinvent those. Some of the lessons learned are still fresh in everyone’s minds. If they just focus on those, they will help inform the kinds of recommendations that need to be made.

Dr. Burke pointed out that many of the other agencies had placed more of an emphasis on prediction, prevention, and very upstream activities. A reasonable question is: How much of that should be biosurveillance, how much should be predict / prevent / prophesy, and how much should all of the other efforts in other agencies be part of their preparation? It came through somewhat in Dr. King’s presentation, but he did not see it as a major thread.

Dr. King responded that one issue discussed was that with all of the existing systems, consideration had to be given to how to set up priorities and criteria to select them. He thought it related to the questions: Where is the highest probability of these threats coming from? Is it risk-based? Where are the interfaces occurring in environmental, animal, and human health? Using that probability will help direct them to the right systems and what to use for surveillance systems. There are many existing systems that will not be very useful to them at all. He thought they must set up some criteria for how to select the right surveillance systems and that it really would be a more risk-based focus with so much to cover.

Dr. Burke agreed that geography is one domain of prevention and prediction, but there are also different animal species, different varieties of microbes, and a lot of other ways of conceptualizing where / in what spaces (host space, microbe space, physical space). They could argue that maybe discussion is needed in all of those domains.

## **Biosurveillance Workforce, New Professions, Cross-Training Work Group Scope**

Don Burke, MD, Director  
Center for Vaccine Research (CVR)

Dr. Burke noted that not all of the members had reviewed the report, National Biosurveillance Strategy for Human Health (NBSHH): Biosurveillance Workforce of the Future [[http://www.cdc.gov/osels/pdf/NBSHH\\_V2\\_FINAL.PDF](http://www.cdc.gov/osels/pdf/NBSHH_V2_FINAL.PDF); page 51]. Since that did a nice job of summarizing where the state-of-the-art was, he thought they should review this document to inform their discussion before they started to build on it. Having said that, this Work group basically modified their existing scope to ensure a biosurveillance workforce, at multiple levels, that is available, trained, prepared, and able to adapt to evolving threats and crises.

Critical functions of biosurveillance are widely distributed across local, state, federal, and international jurisdictions. Ways must be found to evaluate / sustain gains from investments begun in 2002 in training, recruitment, and retention; complete nationwide implementation of critical biosurveillance systems; enhance integration into the broader public health community (e.g., clinical, laboratory, law enforcement, veterinary, et cetera); attract young and talented specialists to the field, while retaining experienced public health employees; address the future of public health as more computationally-intensive; leverage new resources available through the Affordable Care Act (ACA), given that it is going to be the only source of new money in the foreseeable future; and review the NBSHH workforce section. New technology systems, new informatics tools, and new innovations will be only as good as the people who run those systems, so training is critical.

This group agreed that they would meet again shortly, but they need some sort of website on which to place all of the documents that they have not yet seen (e.g., past NBAS documents, NBSHH documents, DHHS reports, manpower surveillance reports, sections of ACA that deal with surveillance manpower, 2009 Epidemiology Capacity Assessment [Jim Hadler will provide]). They view themselves as orthogonal to the other five Work groups in that the workforce cuts across all of those. Their own view is that having those issues that are specific to global or cross-cutting in a workforce section would have more impact than if they are dribbled throughout the rest of the report. He hopes to be in contact with all of the other champions to ensure that this occurs.

## Discussion Points

Dr. Engel inquired as to whether this group considered looking nationally at curricula or working with the Association of Schools of Public Health (ASPH). In his last survey of that, only a handful of them actually had public health informatics as a choice.

Dr. Burke responded that in October, the NIH Modeling Network will meet jointly in a one-day workshop with ASPH to deliberate how they can better teach systems thinking in schools of public health, and consider how computational tools can be made more accessible to non-computationalists across all five traditional public health domains. Thought must be given to how to move the pedagogy so that this can be effectively taught across all of the disciplines within public health.

## **Global and Regional Biosurveillance Collaboration Work Group**

James Hughes, MD

President-Elect, Infectious Disease Society of America (IDSA)

Executive Director, Southeastern Center for Emerging Biologic Threats (SECEBT)

Dr. Hughes reported that this Work group modified, rearranged, and added to their scope. They felt that the US clearly has compelling security, economic, development, and humanitarian interests in national and global public health security. Biosurveillance is critical to achieving public health security. Improving national and international biosurveillance capabilities should be priorities for national security policy. Helping individual countries improve their biosurveillance capacities benefits other countries as well as the US. Ensuring the US's ability to contribute to and participate in global detection and response for all-hazards through increased global capacity and coordinated international action is critical. Clearly there is a need to engage with WHO, OIE, FAO and other international, multi-lateral organizations. Exploring ways to coordinate and leverage US government global health, security and development policies, plans and activities is very important (e.g., PEPFAR). It is also important to think about more effectively engaging public-private partnerships, professional societies, academic institutions, and non-governmental organizations (NGOs).

In terms of some issues that this group needs to think about, the first issue that is very important is the USG-WHO relationship on the policy and technical support sides. Access to actionable information is a priority. Thought must be given to strategies for enhancing capabilities, and there must be a focus on issues related to IHR 2005 implementation, including the following elements: 1) Labs (including high containment labs), epidemiology, human capacity, information technology, communications, preparedness, response, legal framework; 2) Link this to health system strengthening activities; and 3) Cross-border. It is also important to think more about engagement of non-communicable diseases, and to be consistent with relevant national strategies. They also thought it was important to identify a focal point for leadership and coordination of relevant US government global programs. The recurrent theme of linkage and coordination with other Work groups arose in this group's discussions as well. They also identified briefings needed (e.g., Ben Petro; GLAD organization: May Chu / WHO lead; Nils Daulaire / GHI) and documents needed (e.g., 1995 CISET Report; 1992 ILM Report on Emerging Diseases). The first priority is to share this information with this Work group's other three members and schedule an initial teleconference to engage the entire group.

### **Discussion Points**

Dr. Lipkin asked whether this group discussed intellectual property, data sharing, and economic consequences of disclosure. He suggested that the Work group should address these issues.

Dr. Hughes replied that they did not do any of these topics justice during their breakout session discussions; however, they are aware of the magnitude of these issues.

Dr. Sosin inquired as to whether this group considered the responsibility of this Work group to bring back experiences from the global context from developed or developing countries. Many

are forced by necessity to have very simple, practical, low cost approaches to surveillance; whereas, the US is generally assumed to have all of the resources needed to build the biggest, best, most complex systems. Yet, there are probably some very useful lessons from others.

Dr. Hughes responded that the group did discuss this to some extent. They all felt that the frontline healthcare worker, potentially enabled by some currently available technologies, has a very important role to play. They did identify the need to discuss this with DoD and others.

## **Innovative Information Sources Work Group Scope**

W. Ian Lipkin, MD

John Snow Professor of Epidemiology and Director  
Center for Infection and Immunity, Mailman School of Public Health and  
Columbia University and Professor of Neurology and Pathology  
College of Physicians and Surgeons

Dr. Lipkin reported that the first thing the Innovative Information Sources Work Group needed to do was flesh out this Work group because it is lean. Therefore, they added the following federal liaisons: David Lipman / NCBI, Michael Kurrilla / NIAD, and Randy Kincaid / DoD. The rationale for adding these individuals is that Dr. Lipman (through NCBI, publications, and new media) can offer insights into how people are using genomic and other data; Dr. Kurrilla can offer insights into NIAD efforts; and Dr. Kincaid can offer insights into the DoD, which is leading the way in many new technologies. They also identified a number of people they thought should speak to them, including: 1) Dan Sosin to offer background information on what has been done to analyze what surveillance is being pursued, how much it costs, where the gaps lie; 2) Andrew Kress to offer information about insurance claim datasets; 3) Antony Williams to present on ChemSpider, which looks at chemical structures and has been taken over by the Royal Chemical Society; 4) John Russell, who used to be a member and can offer insights into the legal issues / ramifications of sharing information; and 5) Adam Bosworth who can discuss XML and data exchange standards. This work group plans to convene two in-person meetings, one in Washington, DC and the other in New York, as well as teleconferences every two weeks for 30 minutes each in duration. Dr. Heywood will be taking over as the champion of this Work group.

Dr. Lipman coined the interesting phrase “National Digital Immune System,” which is a very nice way to encapsulate what this Work group would like to do. The idea is to detect signals early—not just any signal, but meaningful signals. The group also wants to make it possible for decision makers to assess impact: Is an event likely to spread beyond local effects? Is it going to have economic consequences, medical consequences, or some combination thereof? In terms of real time diagnosis and management of infectious diseases, everyone is aware that sequencing is becoming faster and cheaper. Their estimates at present are that a human genome sequence could be done for about \$3,000 excluding costs for intellectual property. Those costs will drop further such that genomic data can be acquired on microorganisms even more readily. Far less is known about host susceptibility and response. The idea here would be to use various –OMIC technologies to gain insights. Serology, in contrast, has lagged.

The task force also noted the importance of collecting other types of data as well, including prescription, insurance, emergency department, deaths—and that is just the human realm. The same must be done for wildlife, domestic animals, and environment surveillance. One reason they are interested in having John Russell speak to them is that they need to address human subjects and proprietary issues, what can be accessed, and how it can be accessed in such a way that data are truly open. Ways must also be found to integrate data enabled by hierarchical organization of data. Data vary in quality; nonetheless, data that is less than perfect may still be useful. A probability score can be generated that suggests that the likelihood that this is a meaningful alignment is X or Y. As more data points are accumulated, something that has only marginal significance may become significant. New mathematical ways need to be found to integrate data from a variety of sources, lump it, split it, find ways to make sense of it. Ways must be found to engage commercial and non-commercial sources of various types of data. There is an enormous amount of information in commercial databases, and ways must be found to obtain it. The question is how / whether to pay for it or if there is a way to incentivize people to provide it.

Last is a distributed model for data collection. Data come from many sources and are not necessarily centralized. Ways must be found to encourage those who are collecting data (e.g., insurance companies, pharmaceuticals, patients) to provide that to one another. As test costs are reduced in price and become more comprehensive, people will test themselves for various types of diseases. It would be nice to find ways to capture that information. It will not be platinum information, but it might be useful, particularly if could be superimposed onto other maps of incidence of disease. For sustainability, a way must be found to motivate people to share data and participate in this enterprise, so it has to be service-based: What do I get for sharing with you the information that I have about myself, my patients, someone else? Dr. Frieden spoke earlier in the day about the difficulty with electronic reporting, much of which has to do with getting physicians to use it, which means this must be made user-friendly. This Work group obviously has overlap with the Integrated Multi-Sector Information Work group. Through technological innovations, data sharing plans, and such, they must enable ways to assess human, wild life, domestic animals, and environmental health.

## Discussion Points

Dr. Platt was struck by how much parallel there was between Dr. Lipkin's description and work that the FDA is doing. It would make sense to have an open discussion with the FDA, and Dr. Platt agreed to make this connection.

Dr. Burke wondered where in the federal government these activities were supposed to be taking place? Is this a CDC function, a state function? If there is a National Digital Immune System, is that CDC's job?

Dr. Lipkin replied that where this subcommittee would best reside remained an issue. The Work group members feel that this group, and some of the monitoring they are talking about, have to operate at some level that is independent or interdependent with the DHS, CDC, DoD. Thus, the answer to this question remains undetermined. NBAS is wrestling with this issue as a whole.

## Healthcare and Public Health Information Exchange Work Group Scope

Steven Hinrichs, MD  
Director, Center for Biosecurity  
University of Nebraska Medical Center

Dr. Hinrichs acknowledged that there was a great deal of crossover, and that there would need to be discussions with other Work groups at multiple times and about various topics (data exchange agreements, for example). This Work group tried to remain as much as possible at a high strategic level in an effort to determine the way forward and decide what issues needed to be prepared for next. This Work group is comprised of some members who have served on NBAS previously and some of whom are new. They had some very good input, and visited their past successes. The last iteration of the Work group said that ELR must be made a national priority and that innovative approaches must be used to move forward in terms of data integration. They have been working with the FDA to try to incorporate and modify package inserts so that the test name and way information is reported are included up-front rather than being entered into the process later. This Work group has also been able to add some collaborators and consultants from CDC, VA, and DHS who they hope will be able to join them on their upcoming teleconferences and face-to-face meetings. They have also identified the need for a member consultant from FDA.

This Work group also engaged in a discussion about what “biosurveillance” means and talked about the transition or growing up of the term “syndromic surveillance.” Early on, it was all non-identified information and the goal was to detect events before they happened or as soon as possible. It is actually easy to detect events. The difficulty is in managing events when “knee deep” in them and knowing whether intervention strategies are successful. The group considered how to move forward on that topic in order to manage outbreaks, disasters, emergency preparedness responses, and issues that do not necessarily have a definable beginning or end.

This group enumerated a number of ideas and issues that they would like to work through. The Work group’s efforts should start small and stay practical in order to accomplish its goals. A major concept that arose is that the Work group must identify the needs and limitations of data exchange based on what state and local individual groups can accomplish. Information exchange must have an evidence-based approach and be evaluated to determine the value. Once the value is identified, then they can be implemented or brought into the whole process. Standardization of data efforts must also continue. This includes data, data elements, and terminology. With partners on both borders, data must be translatable and exchangeable. The group spent quite a bit of time discussing information models and architecture. There are several experts on this Work group who can assist with this, so they expect to make some recommendations in terms of information models with regard to services and federated architecture versus systems / applications approaches. This does not mean that they do not want systems and applications, but they must be incorporated into a federated architecture so that an application or system can be pulled in when needed. The bottom line is that perhaps it is time to move away from systems to a more open architecture with models that can be made once and used multiple times. It is the intent of this Work group to develop specifications and recommendations that can actually be implemented. The capability approach model should drive the enterprise (e.g., how it is going to

be used should drive how it moves forward). Building capacity in public health to use data is important, as is building the workforce, tools, and infrastructure. Consideration should be given to the role of EMS in disease surveillance for preparedness / disaster management (e.g., VA Telehealth is electronic and real time in the field). An EHR should be able to run substitutable, third party, applications for bidirectional communication between clinical care and public health. Multidirectional data use agreements and collaboration are needed. This Work group hopes to streamline their list to about three priorities as time progresses.

## **Discussion Points**

Dr. Engel inquired as to whether Poison Control Center data were considered as one of the data sources.

Steve Hinrichs responded that they did discuss this. What they are trying to address is how to have multi-directional data exchange so that everybody is a partner—it is not just one individual or agency. How do we assemble a data exchange agreement so that this can be accomplished? How do we make sure that we are not just pushing data to one partner, but are actually getting something back? How do we make this multi-jurisdictional, multi-partner in nature? Obviously, Poison Controls Centers must be one of the partners.

It was noted that the Obama Administration has made a priority of open data sharing of government sources. An inquiry was raised about whether that impacted this Work group's deliberations in terms of how many of these would fall under the general area of open public access and the development of tools for the public to gain access to these data.

Dr. Hinrichs responded that this is a great concept, but how to implement that, make it appropriate data sharing, make it HIPAA-compliant, and making it a rational national approach remains a question. This group had a lot of discussion about this topic. A couple of the Work group members said, "We've got a data use agreement with X agency, but the pipeline is still empty." It is not just saying these things. How do you make it happen?

## **Biosurveillance Governance Work Group Scope**

Robert Kadlec, MD  
Former Special Assistant to the President and  
Senior Director for Biodefense Policy, Homeland Security Council

Dr. Kadlec complimented his team because even though some had served on the NBAS before, none had served on the Governance Work Group, so they were immediately presented with the findings of the last report and their former colleagues railed against it with the intent that they basically asked the questions: What is governance? Is governance what we are really trying to say? Just by the conversation that has preceded them, it informs them further that in some ways they do need to be somewhat connected to all of the other champions and all of the other subgroups primarily because, if nothing else, governance (e.g., who needs to be governed and

who needs to be part of this process) will largely be determined by the architecture that will be established. Clearly the notion that they look to extend beyond traditional partners into the private sector to non-governmental agencies and organizations must be kept in mind because quite frankly, they did ask whether it was more appropriate to talk about coordination and collaboration than governance. Though as they went through the essential elements of this concept, they noted that there is a need for oversight, accountability, resource allocation, standardization, data reporting—all of the kinds of things that are the grist in this mill that have to be sorted out through some type of governing body.

That said, they spent some time talking about the highest levels of government and then they found out that there is “gambling in Casa Blanca”, that there was actually governance going on, that it was being done at the CDC level, and that they actually produced a national strategy for biosurveillance for human health and in some ways identified at least one concept, one approach, that could be used by the government to create a national biosurveillance enterprise. They identified that there was a federal working group convened by CDC, as well as a state and local working group that informed, influenced, and otherwise offered input into this creation of a national health strategy for biosurveillance. They were able to ascertain that this was agreed to, but it is uncertain how high it went into the level of governance to ascertain the political buy-in and support for the resources that would be necessary to implement something. Thus, as they begin to construct the necessary briefings and follow-on due diligence to understand what opportunities reside in governance, this Work group will spend some time assessing that process alone and possibly looking into this and other approaches that have been entertained concerning governance.

One that was mentioned, though scantily, at the end of the breakout session, was electronic health records and whether that would be a way to conceive of a way to manage the process for this program. The general sense is that there are some very first order principles which they agree to, which is that in some ways it has to be collaborative, it has to involve all of the stakeholders, and somehow it has to be global in construct even though in some ways the only way we can govern it is through our national constraints between what we have identified. They also acknowledged that there may be other roles for other organizations or groups to play in this (e.g., National Institute of Medicine, National Biodefense Science Board), and addressed whether it was necessary, given this august group, to have anybody else be bothered by the issue of biosurveillance. However, they did note that there is an extreme need for an independent review process and voices in this as products and ideas are created, whether at the low level or the highest level, so that they can be fully vetted and so that there is transparency in the activities and great confidence that the user and science and technology communities have input into this effort. In general, this Work group has an interesting challenge before it because in some ways it has to be adaptive to what the other Work groups are going to be doing over the next several months. It is not clear how it will manage this to remain aware of or keep insight into this. Perhaps Dr. Kadlec will attend the other Work groups’ teleconferences. Clearly, what is going to be identified by these other Work groups will impact the structure and architecture of this governance board and the agenda of a governance structure once it is created.

## Public Comments #2

No public comments were offered during this session.

## Closing Remarks

Dr. Pamela Diaz, NBAS Designated Federal Official (DFO)

Dr. Jeff Engel / Dr. Ian Lipkin, NBAS Co-Chairs

On behalf of CDC, Dr. Diaz thanked everyone for their hard work, deliberations, and the time spent during this meeting in those efforts. She acknowledged that there was much work ahead for all of them. From the Work group plans, CDC staff will be compiling all of the requests made for information, briefings, and consultations and will work with the Work group champions and co-chairs to provide those as quickly as possible. She requested that Drs. Lipkin and Engel offer their closing comments, especially as they related to the steering committee perspective in terms of subsequent meetings.

Referring to the NBAS timeline, Dr. Engel pointed out that there was a gap from August through January 31, when the Work group reports are due. That is a 6-month block of time during which the Work groups will be doing their work (e.g., conference calls, preparation of reports). Working with Dr. Diaz and CDC, he would like to schedule regular steering committee conference calls during that August to January (perhaps in October and December) timeframe to ensure that CDC is assured that efforts are moving on target, to have peer review among champions to discuss how the effort is progressing, and to inform the co-chairs.

Dr. Lipkin followed up on the suggestion about a website where data could be shared. During the last iteration of NBAS, the group used a Google function and could do something similar this time. The Innovative Information Work group has already organized a number of people who are going to give briefings, and he was sure other Work groups would be doing something similar. This will allow them to make sure that as they approach the final gate, when all of the champions are going to have to sit in a room to determine where there is overlap and devise a hierarchy of 5 to 10 points that they want to emphasize, that they are all working together and appreciating one another's work. He suggested that they exchange minutes, and update one another on meetings and briefing topics.

In conclusion, Dr. Diaz indicated that CDC staff would explore the possibilities to support that, and will report back about how they might be able to do that. With no further questions / comments raised or business posed, she officially adjourned the meeting.

## Certification

I hereby certify that to the best of my knowledge, the foregoing Minutes of the August 24, 2010 NBAS Meeting are accurate and complete.

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Date

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Jeffrey Engel, MD  
NBAS Subcommittee Co-Chair

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Date

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W. Ian Lipkin, MD