National Science Advisory Board for Biosecurity

National Institutes of Health
Bethesda, MD
November 4, 2016

Teleconference Summary

Purpose of Meeting and Background

The members of the National Science Advisory Board for Biosecurity (NSABB) met to discuss policy updates and an overview of new NSABB activities, receive and discuss a report on the work and progress of the Working Group on Institutional Oversight of Life Sciences Dual Use Research of Concern (DURC) Policy Stakeholder Engagement, and receive and discuss an update from the Blue Ribbon Panel (BRP) reviewing the 2014 variola virus incident on the National Institutes of Health (NIH) campus.

Voting Members

Joseph Kanabrocki, Ph.D., NRCM(SM) (Acting Chair)
Craig E. Cameron, Ph.D.
Marie-Louise Hammarskjöld, M.D., Ph.D.
Theresa M. Koehler, Ph.D.
Marcelle C. Layton, M.D.
Jan Leach, Ph.D.
James W. LeDuc, Ph.D.
Margie D. Lee, D.V.M., Ph.D.
Francis L. Macrina, Ph.D.
Joseph E. McDade, Ph.D.
Jean L. Patterson, Ph.D.
I. Gary Resnick, Ph.D.
David L. Woodland, Ph.D.

Welcome and Introductions

NSABB Acting Chair Joseph Kanabrocki, Ph.D., NRCM(SM), University of Chicago, welcomed attendees and reviewed the purpose of the teleconference.

Dr. Kanabrocki introduced four incoming NSABB members:

RADM Kenneth Bernard, M.D., U.S. Public Health Service (Ret.)

Mark R. Denison, M.D., Division of Infectious Diseases, Vanderbilt University School of Medicine

John D. Grabenstein, Ph.D., COL, USA (Ret.), Merck Vaccines

Rozanne M. Sandri-Goldin, Ph.D., University of California, Irvine

Christopher J. Viggiani, Ph.D., Executive Director, NSABB, called the roll of NSABB voting and ex officio members and reviewed the conflict of interest rules.

The minutes of the previous NSABB meeting were unanimously approved.

Policy Updates and Overview of New NSABB Activities

Carrie D. Wolinetz, Ph.D., Associate Director for Science Policy, National Institutes of Health

Dr. Wolinetz noted that this is an exciting time for both science and policy because of the many emerging biotechnologies that hold promise for advances in human health. However, some of the applications of these new technologies are testing the frameworks of oversight on ethics and security already in place. Not all come under NSABB's purview, but a number of these emerging technologies may create a need for rethinking current oversight policies.

Within the last few years, a number of incidents have prompted renewed attention to safety and security and led to a series of interagency initiatives aimed at strengthening biosafety and biosecurity nationwide. These included the smallpox virus incident on the NIH Bethesda campus, about which this group will be hearing more in this meeting. In response to these incidents, the Holdren-Monaco memo released on August 2014 called on federal agencies to:

- Conduct a comprehensive review of current biosafety and biosecurity protocols to ensure adequacy and appropriateness for today's infectious disease research.
- Inventory and document microbial culture collections.
- Increase attentiveness throughout the research community to ensure the safety of laboratory workers and the American public.

Resulting activities include observation of National Biosafety Month, which was celebrated for its third year in October 2016, and the re-chartering of the Federal Experts Security Advisory Panel (FESAP) to evaluate approaches to enhance biosafety and biosecurity in the United States. The FESAP issued a report in December 2014 acknowledging the robustness of current rules, regulation, and practices, but calling for better oversight and compliance of biosafety, biocontainment, and biosecurity practices and more applied biosafety research. In parallel, the Fast Track Action Committee on Select Agent Regulations (FTAC-SAR) issued a report in October 2015, based on stakeholder feedback, calling for strengthening inventory control, material accountability, outreach and education, and sharing of best practices. The U.S. government is currently working to implement the recommendations of the FESAP and FTAC-SAR.

NSABB led the deliberative process on gain-of-function (GOF) research and made a series of recommendations in its May 2016 final report. Broadly speaking, the NSABB found that GOF research offered potential benefits to public health but a small subset of this research also entail potentially significant risks. NSABB recommended an additional multidisciplinary review for this subset of GOF research prior to a funding decision being made. Policy development regarding GOF research is ongoing within the U.S. government.

New NSABB activities: NSABB deliberations and recommendations related to biosecurity and, in particular, dual use research of concern (DURC) have informed the development of U.S. government policies for federal agency and institutional oversight of life sciences DURC released in 2012 and 2014,

respectively. These policies provide a collaborative approach to the identification, evaluation, and mitigation of risks associated with DURC throughout the research project lifecycle.

The institutional DURC policy, which was announced in September 2014 and came into effect in September 2015, has been effective for slightly more than a year, so this is an opportune time to begin evaluating the policy's effectiveness. NSABB has been asked to lead an effort to gather feedback from stakeholders involved in implementing the policy. Important questions to consider include:

- What are the strengths and limitations of the DURC policy?
- What challenges or opportunities are institutions encountering as they implement the policy?
- Are best practices emerging for identifying DURC, managing risks, and training investigators?
- What measurable effects is the policy having on scientific research and publishing?

NSABB has been tasked with helping the U.S. government plan and host regional meeting(s) to gather information on these and other questions from stakeholders. The NSABB Working Group responsible for carrying out this task is chaired by Joseph McDade, Ph.D., who will provide a report on the group's recent activity and next steps.

The stakeholder meetings are intended to give institutions the opportunity to report on their experiences implementing the policy, the challenges they are encountering and how they are overcoming these challenges, best practices for managing DURC, effective training strategies, and how the policy is working at their institutions.

A second new NSABB task concerns the NIH investigation of the 2014 variola virus incident on the NIH Bethesda campus which involved the discovery of improper possession and storage of vials of variola virus likely dating from the 1940s. Congress has expressed considerable interest in this issue and has asked NIH to conduct a root-cause analysis. Consequently, NIH Director Francis Collins, M.D., Ph.D., has appointed a Blue Ribbon Panel of external subject matter experts to review the incident and the immediate response. The Panel was constituted as a working group of the NSABB and will report their findings to the Board in public session, as appropriate. The NSABB will provide additional subject matter expertise and input on the BRP report, as well as a forum for public discussion.

Questions/Discussion

Q: Susan M. Wolf, J.D., Center for Bioethics, University of Minnesota, asked if the NSABB's recommendations on GOF research were under consideration by the U.S. government. The NSABB's second recommendation was to create an advisory body to exercise ongoing evaluation of oversight policies on certain GOF research. Dr. Wolf asked whether that recommendation is being adopted and whether NSABB is considered suitable for that purpose, noting it might affect NSABB's future activities.
A: Dr. Wolinetz answered that all of NSABB's recommendations are under active discussion as part of the U.S. government policy-making process. This discussion includes what the potential role of an advisory committee is and whether NSABB is appropriate to fill that role. However, no decisions have been made at this point, so it is not possible to say whether NSABB will be asked to take on this task.

Q: Marie-Louise Hammarskjöld, M.D., Ph.D., University of Virginia, asked if there was a timeline for the deliberations on the gain-of-function research policy.
A: Dr. Wolinetz indicated there is no specific timeline but noted that everyone in the U.S. government is committed to moving forward as quickly as possible on finalizing policy, however, the policy is too important to be rushed.

Update from the Working Group on Institutional Oversight of Life Sciences Dual Use Research of Concern Policy Stakeholder Engagement

Joseph E. McDade, Ph.D., Chair, NSABB Working Group on Institutional Oversight of Life Sciences Dual Use Research of Concern Policy Stakeholder Engagement

Dr. McDade explained NSABB's new task of hosting regional meeting(s) to gather information and feedback on how research institutions are implementing the U.S. government policy for institutional oversight of DURC and their experiences thus far. He noted that a stakeholder meeting was co-hosted by White House Office of Science and Technology Policy and the National Institutes of Health in July 2015, before the policy came into effect. The purpose of that meeting was to provide information about the policy to stakeholders, answer questions and solicit feedback from the community, and hear the experiences of institutions as they began to implement the policy.

Dr. McDade identified the NSABB working group members and welcomed any other NSABB members that were interested in serving on the working group. He indicated that the working group is currently in the initial stage of meeting planning and hopes to gain input from the assembled NSABB on identifying a suitable location and venue for the meeting, developing an agenda and a meeting format, identifying participants and panelists, and determining who will lead the discussions at the meeting.

Possible meeting strategies include a stand-alone regional meeting in partnership with a hosting university or research institute, a panel session held as part of the regular meeting of a scientific society such as the American Society for Microbiology or the American Society for Virology, or a stand-alone meeting held immediately before or after a society's scientific meeting and in the same location.

Considerations regarding identification of a suitable location and venue include the research institutions or medical schools in the region; whether there is a regional biocontainment lab nearby; proximity to a major transportation hub for easy access; and whether there are any NSABB members associated with the institution or venue which could facilitate planning and logistics.

Another important issue is identifying the spectrum of meeting participants that would help ensure the goals of the meeting would be accomplished. Suggestions include principal investigators (PIs), members of institutional review entities (IREs), institutional contacts for DURC, and senior research administration personnel.

The working group must also consider various meeting formats and identify those that may best facilitate engagement with, and information exchange among, stakeholders. Possible formats include one or a combination of a lecture/plenary format with a question-and-answer session after each presentation, breakout sessions with groups reporting on their discussions to the full meeting, panel presentations with discussion, or an open forum with questions and comments.

Possible topics to explore regarding policy implementation include:

- Best practices and common challenges
- Identification of DURC or application of the definition of DURC
- Administrative burden and costs associated with implementing the policy
- Development and implementation of risk-mitigation plans
- Development of training and guidance materials (for PIs, IREs, and staff)

- Perceived strengths and limitations of the policy

A tentative timeframe for the meeting is spring 2017, with a specific date determined by considerations such as whether the stakeholder meeting will be associated with a major scientific meeting. The working group plans to have several conference calls over the next few months to further discuss these issues and to develop and refine meeting materials. The working group will provide a report to NSABB on the stakeholder meeting proceedings including any findings, at which point consideration will be given to the need for further stakeholder engagement and information gathering activities which could facilitate more systematic data collection than might be achieved from a single meeting.

Questions/Discussion

Comment: Dr. Hammarskjöld noted that it is important to ensure biosafety experts, who will likely lead or be involved in DURC policy implementation at research institutions, are involved in stakeholder engagement efforts being planned.
Reply: Dr. Kanabrocki agreed with Dr. Hammarskjöld's comment and noted that institutional biosafety committee (IBC) chairs comprise another target group to think about inviting. In most cases, the biosafety officer, if not the IRE, is at least involved in processes established at institutions to implement the DURC policy.

Comment: Ms. Wolf added that an important additional question for IREs is how they plan to monitor the effectiveness of their efforts. The policy requires them to institute effective oversight, so best practices would need to include some type of data collection. An important byproduct of this engagement process could be a dialogue across institutions about how they plan to monitor effectiveness. Consensus regarding a data set and a set of metrics that can be used to measure success can be generated from such discussions. This would give the needed feedback to develop a genuinely effective oversight system. Engagement can include surveys and or other forms of data collection. These can be very simple, but can be an excellent tool for engaging stakeholders and allows for feedback to respondents on their collective response.
Reply: Dr. McDade agreed with these points, indicating the issue of the most effective way to gather useful information has been a topic of working group discussion. He noted that institutions and their representatives may vary, so finding a single "best" way may not be successful, however the stakeholder meeting could help identify processes that appear to be working at individual institutions, possibly leading to consensus and broader adoption among institutions. This might reasonably be able to be accomplished in the near term. However, in the long term, the suggested data collection could be very useful.

Comment: Ms. Wolf suggested making data collection at the institutional level an ongoing project, adding that collection of effectiveness data and best practices has oddly languished among important oversight mechanisms such as IBCs and institutional review boards.
Reply: Dr. McDade agreed and thanked Ms. Wolf for the thoughtful input.

Comment: Dr. Kanabrocki suggested that in addition to surveying the institutions, it would be useful to include the funding agencies in some way to help shed light on how what happens at the institutional level helps to inform the funding agencies.
Reply: Ms. Wolf agreed with Dr. Kanabrocki's suggestion.

Comment: Dr. Viggiani added that this discussion has been very interesting and noted that NSABB's stakeholder engagement activities complement efforts to evaluate aspects of the DURC policy being undertaken by the NIH Office of Science Policy. This effort will involve both qualitative and quantitative measures of whether and how publications and funding patterns have changed over time since the DURC policy came into effect. The initiative will include interviews of funding agency program staff and others at NIH involved in administering the policy. When combined with information gathered by NSABB from institutions, these data could be critical in future U.S. government evaluations of the effectiveness of the DURC policy.

Comment: Dr. Kanabrocki agreed that these combined efforts create a great opportunity to understand how well the DURC policies are achieving their intended purpose.

Update from Blue Ribbon Panel Reviewing the 2014 Variola Virus Incident

RADM Kenneth Bernard, M.D., U.S. Public Health Service (Ret.), Chair of the Blue Ribbon Panel

Dr. Bernard identified other members of the BRP and reported that the Panel had an in-person meeting on November 3. He indicated the process of gathering and evaluating relevant information is moving along quickly.

At the in-person meeting on November 3, the Panel was able to tour the facility in which the variola virus samples were found in 2014. The Panel has also been able to review a series of reports on the event, one compiled by the Food and Drug Administration (FDA) and another combined report by the Centers for Disease Control and Prevention (CDC) and the Federal Bureau of Investigation (FBI). In addition, they have reviewed the House Energy and Commerce Committee report on the incident. Dr. Bernard noted that these three independent studies greatly facilitated the BRP's investigation into the background on, and immediate response to, the incident. The BRP is re-interviewing the people involved in the discovery and processing of the variola virus samples and is discovering what has been done since the finding of those samples.

Dr. Bernard indicated the Panel is very interested in how the NIH and the U.S. government are improving their oversight of such potentially dangerous organisms. The Panel is currently looking at what has happened subsequently to enhance biosecurity and biosafety procedures surrounding the storage and handling of highly pathogenic organisms, as well as what gaps may remain in those procedures.

The Panel's report is expected to include a detailed account of the 2014 incident and immediate response, but will primarily focus on what has been accomplished since, the identification of any remaining gaps in biosafety and biosecurity procedures, and suggestions for any needed actions.

Questions/Discussion

Comment: Dr. Bernard thought it important to note that although smallpox virus samples were found on the NIH campus, nobody was infected or got sick and the overall response to the discovery was well handled, highlighting the rapid and coordinated interagency response that involved the FBI, CDC, and NIH. There were clear issues to be addressed, most notably that no one was aware that these samples were stored in the cold room. Expansive changes to research programs have taken place over the 15

years since the 2001 anthrax attacks. Finding the variola virus samples was unanticipated and unfortunate, but the reporting system in place at the time of the discovery was tested and worked well.

Comment: Dr. Kanabrocki agreed with these comments, noting that the landscape of biosecurity and biosafety has changed dramatically over the last 30 to 40 years, and even over the last 10 years.

Comment: Dr. Viggiani said that the BRP will probably accomplish its work by the spring or early summer of 2017, and NSABB members should expect to see the draft report at the next full NSABB meeting.

Comment: Dr. McDade added to the previous discussion on stakeholder engagement, noting that the working group's report to NSABB concerning the first stakeholder meeting and related data collection efforts could be very important to informing how the U.S. government's initiative will proceed (e.g., whether to hold multiple meetings) and how future efforts can be improved.

Public Comment

Comment: Andy Stewart, Center for International Security and Cooperation, Stanford University, suggested that the Working Group might want to look at the information already being collected under both policies. The 2012 policy requires funding agencies to report to the Assistant Secretary for Counterterrorism. Under the 2014 policy, the funding agencies receive reports from the institutions. The discussion about systematic collection of information was excellent, building from institutional input and bringing in the funding agencies. This might be taken somewhat further by establishing a centralized federal body to collect and analyze data and report back to the regulated community. The federal government should be involved in this if it really wants to enforce the policy, and it will need to be involved financially in data collection as well. A possible model for such efforts would be the Securities and Exchange Commission (SEC). Regulated companies must provide reports, which are made public, and are reviewed by the SEC. This provides feedback on trends in disclosure. Similarly, if there were a form that IREs had to file every year, the government could collect the information, analyze it, and report back to regulated institutions.

Additional Discussion

Dr. Kanabrocki thanked Mr. Stewart for his comment and thanked the presenters, meeting participants, and staff for a productive meeting.

Dr. Viggiani added his thanks to NSABB members and members of the public who participated. An attempt will be made to coordinate the next NSABB meeting so the NSABB can hear substantive updates from and engage in discussion with both NSABB working groups.

Dr. Kanabrocki again thanked attendees and adjourned the meeting at 1:20 p.m.

03/29/18

Jessica Tucker, Ph.D.
Executive Secretary, National Science Advisory Board for Biosecurity

I hereby acknowledge that, to the best of my knowledge, the foregoing Minutes are accurate and complete.

This Minutes document will be considered formally by the NSABB at a subsequent meeting; any corrections or notations will be incorporated into the Minutes after that meeting.

Date: 4/2/18

Samuel L. Stanley Jr., M.D.
Chair, National Science Advisory Board for Biosecurity