Biosafety, Biodefense, and Fighting Infectious Disease

Anticipating and effectively combating infectious disease outbreaks requires coordination between experts across different disciplines, concluded a report documenting a May 2009 workshop with public health officials.

The AAAS report included an example from New York City in which an important connection was initially missed between seven human deaths and the fatal illness of several animals at the Bronx Zoo. Unfortunately, health officials researching the human deaths had no knowledge of the animals’ illness, which was identified as West Nile Virus. It was only after zoo officials shared their information with public health officials that the human deaths were recognized as the first U.S. casualties of West Nile. With a better system of communication between public health officials and experts outside of their discipline, the animal deaths could have been a mechanism for early identification of the human outbreak.

Serious threats to society’s welfare underlie the relevance and urgency of topics such as communicating about and preparing for disease outbreaks. Other expert workshops organized through the AAAS Center for Science, Technology, and Security Policy (CSTSP) tackled such issues as ensuring biological lab security while encouraging vital research, as well as the urgent need for scientists trained to help create biodefense policy.

Addressing Global Challenges

Although U.S. specialists had been warning of the possibility of a deadly flu pandemic for several years, the assumption was that this pandemic would arise far from the United States from the mutation of a deadly but not very contagious flu strain into a strain that would spread rapidly from person to person. However, the rapid spread of flu, beginning in April 2009, did not fit this model.

Some of the first cases were reported in California, and the strain involved was not the H5N1 avian flu, which had given rise to the earlier concerns, but an H1N1 flu more closely related to the strain responsible for the deadly epidemic in 1918. Despite initial reports of fatalities, the 2009 flu did not appear to be very lethal. “What we had was completely different” than what had been anticipated, Anne Schuchat of the Centers for Disease Control and Prevention in Atlanta told an audience at a discussion in the “Global Challenges” series organized by AAAS, Georgetown University’s Program on Science in the Public Interest, and the American Chemical Society. Moderated by Richard Harris of National Public Radio, the event called upon Schuchat, an assistant surgeon general in the U.S. Public Health Service, and influenza specialist Jeffrey Taubenberger of the National Institute of Allergy and Infectious Diseases to explain the main difficulties presented by H1N1. Those difficulties included the delays manufacturers encountered in trying to produce enough vaccine to counter the virus, which speakers said pointed to an urgent need for new vaccine technologies.

Other “Global Challenges” programs welcomed top authorities in health, ecology, the environment, sea life, and science policy to present expert insight into topics that included the impact on the oceans of increased carbon and
the interconnection of water and energy, with considerable quantities of each consumed to deliver the other.

Other Public, Press, and Policy Events

The interplay between science and the policies and campaigns that shape global security took many different forms in events organized by CSTSP in 2009. Ken Brill, director of the National Counterproliferation Center in the Office of the Director of National Intelligence, spoke to an afternoon session in the AAAS auditorium about the collaboration of scientists and the intelligence community to prevent the spread of nuclear, chemical, and biological weapons in a world where even terrorist groups might have the technology to develop weapons of mass destruction. Leaders of an international evaluation of nuclear testing detection told a rapt crowd at a three-hour Capitol Hill luncheon event that recent technological advances have enabled a system of sensors monitoring the Earth’s crust, oceans, and atmosphere to be even more effective at detecting nuclear explosions than was projected when the Comprehensive Nuclear Test-Ban Treaty was negotiated in 1996. Top experts also spoke at events focusing on science diplomacy with North Korea, as well as the advisability of ending the production of weapons-grade fissile materials as a step toward nuclear disarmament. These and other 2009 events brought balanced technical analysis to the general public, the media, and policy-makers.

Epstein Joins Security Policy Center

This year, the Center for Science, Technology, and Security Policy welcomed Gerald Epstein, a physicist with exceptional expertise on nuclear and biosecurity issues, as its new director. Epstein comes from the Center for Strategic and International Studies and previously from the Institute for Defense Analyses, where he was assigned to the Defense Threat Reduction Agency. He also worked for the White House Office of Science and Technology Policy and the National Security Council as well as the congressional Office of Technology Assessment. He holds as his mission ensuring that security policy is made with the best scientific and technical input, and that its implementation is fully consistent with the pursuit of scientific and technical excellence.