## Opening Statement for Chairman Joseph Lieberman Homeland Security and Governmental Affairs Committee "Biological Security: The Risk of Dual-Use Research." Washington DC Thursday, April 26, 2012

Good morning. In 1851, a revolution in medicine already underway was crystallized in a letter Louis Pasteur, one of the fathers of microbiology, wrote to a friend: "I am on the edge of mysteries and the veil is getting thinner and thinner."

Thanks to the work of Pasteur and succeeding generations of scientists, the "mysteries" of the microbial world have slowly been unraveled and we all live in a healthier world for it. Childhood diseases, like polio and measles have been all but vanquished. Scientists were able to identify the AIDS virus, which helped lead to treatments and – according to one of our witnesses today – a cure is in sight.

And the last global pandemic that killed on a massive scale – the Spanish flu, which killed at least 50 million people – was almost a century ago.

But for all the medical miracles that lie underneath that veil Pasteur began to peel back, there also lie dangers. Research that can lead to cures extending life for millions can also kill by the millions if a rogue pathogen were released either by accident or by falling into the wrong hands.

And it is this paradox of "dual-use" research we consider with today's hearing.

Last fall the scientific world was rocked by the news that two researchers working independently had been able to engineer a new strain of the H5N1 virus – also known as bird flu – that could easily infect humans. Epidemiologists have long feared that if the H5N1 virus ever made the jump from a virus mostly confined to birds to one easily transmitted among humans it could swiftly cause a deadly pandemic.

The mortality rate for the few reported cases in humans who have been infected is as high as 60 percent.

By contrast, the Spanish flu had a morality rate of about 2 percent and the Great Plague that devastated Medieval Europe had an overall death rate of about 40 percent.

The researchers, based at Erasmus University in the Netherlands and at the University of Wisconsin, announced they were going to publish the results of their studies in the journals "Science" and "Nature" respectively.

This set off a global ethics debate in the scientific community about whether to publish or not publish these results – or if the experiments, funded by the National Institutes of Health, should have been undertaken at all.

On the one hand, there are those who say that getting this information out there could help other scientists better understand the mutant strain so they could prepare for a possible pandemic by watching for natural mutations and developing vaccines and medications.

After all, the fact that these two research teams were able to create this new strain from existing genetic material means that nature could create it as well. In fact, many scientists thought that was likely.

But given the lethality of the virus, others argued that publishing the results create huge security risks by offering a blueprint for a deadly biological weapon to rogue states or terrorists.

In a recent speech at a biological weapons conference in Geneva, Secretary of State Hillary Clinton warned that al Qaeda in the Arabian Peninsula has issued a call for – I quote: "Brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction."

And there is also a danger that the manufactured strain might somehow escape from the laboratory as others have in the past.

In December, at the request of the Department of Health and Human Services, the National Science Advisory Board for Biosecurity – or NSABB – was asked to review the H5N1 research papers.

The NSABB concluded that more needed to be known before the research was made public and they asked the editors of "Science" and "Nature" to delay publication. Both magazines agreed.

Last month, after further review, the NSABB withdrew its objections and voted unanimously to allow the University of Wisconsin study to be published and 12 to 6 to allow the Netherlands study to be published with some revisions and clarifications.

One of the things that influenced the board's decision was the revelation that the modified strains of H5N1 had become less lethal.

But that decision has drawn criticism from Dr. Michael T. Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota and an NSABB board member.

In a letter to the National Institutes of Health he wrote that the NSABB had deliberately ignored the voice of scientists who believed publication of the H5N1 research was dangerous.

"I believe there was a bias toward finding a solution that was a lot less about a robust science- and policy-based risk-benefit analysis and more about how to get us out of this difficult situation," Osterholm wrote.

We can't just "kick the can down the road without coming to grips with the very difficult task of managing [dual use research of concern]."

The "publish or not publish debate" continued earlier this month during a two-day conference of the world's leading scientists held at the Royal Society in London.

One point that most of the attendees seemed to agree on is we need to put in place better systems to track this kind of research at each experimental stage rather than waiting until its ready for publication to make decisions about what can be revealed.

And that's what I want our panelists to talk about today. Although this particular issue appears to have been resolved, it's going to recur and we can't just "kick this can down the road" and deal with it on an ad hoc basis when it happens again.

What systems were in place to monitor dual use research that could produce dangerous results at the time these experiments were begun? What new systems are being put in place? Are more needed? And how do we balance these against the quest for knowledge, which means free scientific inquiry.

Etched into the National Academy of Sciences headquarters are the words of Albert Einstein who said: "The right to search for truth implies also a duty; one must not conceal any part of what one has recognized to be true."

But what if peeling away nature's veil reveals a Pandora's box that could unleash new waves of disease upon the world?

These are tricky questions and I want to thank the expert panel – who I will introduce shortly – for joining us today to help us hold this much-needed conversation.