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HEALTH CARE

Flu Work Akin to Nuclear-Bomb Experiments, Board Says

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AP Photo/Firdia Lisnawati

A Balinese health official holds a chicken to be slaughtered after an outbreak of bird flu.

Experts who made an unprecedented recommendation that bird-flu researchers hold back some details of their work justified the controversial decision on Tuesday, saying that the experiments were akin to the 1940s work on nuclear weapons or the first attempts at genetic engineering in the 1970s.

Members of the National Science Advisory Board for Biosecurity said that bioterrorists or rogue

governments could use details of the experiments to make a global weapon of catastrophic potential.

“We found the potential risk of public harm to be of unusually high magnitude,” they wrote in a statement published jointly in the rival journals *Science* and *Nature*.

The decision, they said, is too big for the scientific community to make on its own. “Physicists faced a similar situation in the 1940s with nuclear-weapons research, and it is inevitable that other scientific disciplines will also do so.”

Since it started spreading in 2003, H5N1 bird flu has killed 344 of the 583 people it is known to have infected--a mortality rate of 59 percent. This compares to a 2.5 percent fatality rate for the 1918 flu, which killed tens of millions of people, or 30 percent for smallpox before it was eliminated in 1979. Luckily, H5N1 doesn't infect people easily, but it spreads rapidly through flocks of chickens, infects ducks with barely a symptom, and appears to be carried by migrating wild birds. All flu viruses mutate, and most flu experts fear it is only a matter of time before H5N1 either evolves or mixes up with another flu virus to make a form that can easily infect people.

“A pandemic, or the deliberate release of a transmissible highly pathogenic influenza A/H5N1 virus, would be an unimaginable catastrophe for which the world is currently inadequately prepared,” the NSABB wrote.

Usually, when viruses acquire the ability to infect easily, they also become less lethal. So scientists are keen to find out what an H5N1 virus that could easily infect people might look like. If it transmits easily from one person to another, does it give up some of its killing power?

Two labs took a big step toward this goal last year, one in the Netherlands and one at the University of Wisconsin. They engineered forms of H5N1 that ferrets could easily pass to one another--ferrets being the closest thing in the animal world to humans when it comes to getting flu. The good news was that vaccines and drugs both worked against the new strain.

One team sent its findings to *Science* to be published, while the other submitted its results to *Nature*. The usual process would have been for the journals to ask other flu and genetics experts to critique the papers, and then they would publish them so other researchers could try to replicate the findings, adding to the world's knowledge about H5N1, how to watch for dangerous changes, and how to make drugs and vaccines to protect people.

The flu community was atwitter about the pending news, and the potential consequences alarmed the NSABB, which was set up after the 2001 anthrax attacks and which includes heavyweight experts on bioterrorism such as Paul Keim of Northern Arizona University and Mike Osterholm of the University of Minnesota, as well as genetics experts like Claire Fraser-Liggett of the University of Maryland. They [asked the two labs](#) to hold off last year until the scientific community could agree on a way to make sure the information got into the right hands--and not into the wrong hands. The

experts and the journals [have agreed to wait](#) for the time being, and the World Health Organization has set up a meeting in February in Geneva that includes experts from the two teams.

To say the decision frightened and irritated the scientific community would be an understatement. Almost everybody who is anybody in the world of viral research, bioterrorism, and scientific freedom has weighed in--most recently in [eight letters to *The New York Times*](#).

Keim wrote a separate explanation for the online journal *mBio*, published by the American Society for Microbiology. "I carefully considered how restricting the information would compromise scientific research progress and even how it would hinder public health efforts to prevent such a horrific pandemic," Keim wrote. "The short-term negative consequences of restricting experimental details seemed small in contrast to the large consequences of facilitating the replication of these experiments by someone with nefarious intent.... Publishing a detailed experimental protocol on how to produce a highly transmissible H5N1 virus in a highly regarded scientific journal is a very bad idea."

Dr. Robert Webster of St. Jude Children's Research Hospital in Memphis, Tenn., a pioneer in influenza research who doesn't serve on the NSABB, agreed. "It has been argued that suppression of information serves no purpose, as the information will inevitably be 'leaked.' Although this viewpoint is likely correct, I do not believe we should publish the detailed methods of preparing transmissible H5N1," Webster wrote in a separate commentary in *mBio*. But he said that the research itself must continue. "While bioterrorism is of real concern, nature has the potential to do much greater damage," Webster pointed out.

Vincent Racaniello, a microbiologist at Columbia University College of Physicians and Surgeons, disagreed. "Bioterrorists do not want to carry out an experiment; they want to instill terror," he wrote in *mBio*. "Science has always worked best when information is freely accessible. Fear has clouded the NSABB's vision. We cannot allow fear to limit our ability to address medical problems."