SCIENCE WINS OUT: STUDIES NSABB ATTEMPTED TO CENSOR PUBLISHED, FEARS UNFOUNDED

CDC high-speed photograph of droplets spread by a sneeze.

Back in December, a US government panel took the highly controversial position of calling for the censoring of scientific work aimed at an understanding of how the H5N1 “bird flu” virus can change to become directly transmissible between humans. The virus is deadly to humans but can not be spread from one person to another. Instead, close contact with infected birds is required for humans to be infected. The work which the National Science Advisory Board for Biosecurity (which, as described in the Washington Post article linked above, “was created after the anthrax bioterrorism attacks of 2001”) wanted to censor involved experiments aimed at understanding precisely what changes in the virus would be required for it to retain its lethality while also becoming directly transmissible between humans through processes such as the sneeze caught in the disgusting high-speed photo from CDC seen here.

After a very long delay, the first of the two delayed papers was published in Nature last

month. Now, the second paper has been published in Science, where the journal has taken the unusual step of dedicating an entire issue to the single topic of the H5N1 virus and has removed the subscription requirements for access.

It turns out that the fearmongering by the NSABB was entirely unfounded. The Washington Post repeated the fear back in December:

> Scientists seeking to fight future pandemics have created a variety of "bird flu" potentially so dangerous that a federal advisory panel has for the first time asked two science journals to hold back on publishing details of research.
>
> In the experiments, university-based scientists in the Netherlands and Wisconsin created a version of the so-called H5N1 influenza virus that is highly lethal and easily transmissible between ferrets, the lab animals that most closely mirror human beings in flu research.

The problem is that once the details of the experiments and their results were released, the viruses produced by both of the independent laboratories by different processes lost their lethality as they became transmissible between ferrets, which were used as a model of transmission among humans. It turns out then, that the feared "supervirus" which the NSABB was assuming had been created did not even exist, so the "risk" from publishing details of how one could create it was totally unfounded.

From the New York Times:

> As the virus became more contagious, it lost lethality. It did not kill the ferrets that caught it through airborne transmission, but it did kill when high doses were squirted into the animals' nostrils.

> Dr. Fouchier's work proved that H5N1 need not mix with a more contagious virus to become more contagious.
>
> By contrast, the lead author of the other bird flu paper, Dr. Yoshihiro Kawaoka, of the University of Wisconsin-Madison, took the H5N1 spike gene and grafted it onto the 2009 H1N1 swine flu. One four-mutation strain of the mongrel virus he produced infected ferrets that breathed in droplets, but did not kill any.

The editor of Science, Professor Bruce Alberts, says in commentary accompanying the publication of the special issue:

> Breakthroughs in science often occur when a scientist with a unique perspective combines prior knowledge in novel ways to create new knowledge, and the publication of the two research Reports in this issue will hopefully help to stimulate the innovation needed, perhaps from unsuspected sources, to make the world safer.

It should be kept in mind that the whole point of this research has been that in understanding how a lethal virus could be spread, there likely will come an understanding of what approaches will be useful in counteracting its spread. That is what Alberts is talking about in his words about the innovation needed to make the world safer. It also is what I was talking about when I called for full publication of the work back in December:

> Full publication of the bird flu virus work is essential for us to have the best possible chance for effective treatment if and when such a pathogenic version evolves in the wild.

Ironically, because the details presented in

these two papers do not create a lethal virus that can spread among humans, they do not constitute the “recipe” for a weapon of mass destruction that the fear-mongers cited in calling for the censorship and delay to publication of the work. That detail is less relevant to research in the world of prevention, though, so the net result of this exercise in moving the government’s nanny state into supervision of the publication of scientific work has been to delay the publication of details that may be important in developing the next tool against a deadly virus pandemic.

Sadly, despite his welcome move in removing the subscription requirement for the special issue of Science and his good words on the unexpected nature of where breakthroughs arise, Alberts also endorses the NSABB model and the caste system it would develop for who can and who can not be allowed access to certain scientific advances. From his commentary:

> As described in News and Commentary pieces in this special section, the prolonged controversy has also provided a “stress test” of the systems that had been established to enable the biological sciences to deal with “dual-use research of concern” (DURC): biological research with legitimate scientific purposes that may be misused to pose a biologic threat to public health and/or national security. One centerpiece of this system is the U.S. National Science Advisory Board for Biosecurity (NSABB). *Science* strongly supports the NSABB mechanism, which clearly needs to be supplemented and further strengthened to deal with the inevitable future cases of publication of dual-use research, both before and after their submission to journals. Still missing is a comprehensive international system for assessing and handling DURC—one that provides access, for those with a need to know, to any

> information deemed not to be freely publishable.

Establishing a “need to know” system for access to scientific work is anethema to the concept Alberts acknowledged in his comments about innovation from unsuspected sources. Although scientific freedom won out in the battle over the H5N1 virus, the movement to provide a mechanism for stifling publication of scientific work continues and more scientists are likely to see their important work delayed by posturing regulators who wish to win favor with fearmongers in government.

Scientific work carried out at the basic level needs to be freely published. Detailed, applied work describing how to create a bioweapon of course should not be published, but such work is illegal anyway and should not be carried out. The work which the NSABB tried to censor in this case falls far short of such weapons-based work and never should have been subject to the delays created.