

Rethinking science on pandemic-potential viruses

May 28 2012, By Ashley Yeager



Electron micrograph of influenza A virus. Credit: Centers for Disease Control, Erskine Palmer)

Making mutant forms of [bird flu](#) and publishing the results caused a major squawk in the public and in the political and scientific communities over the last year.

The issue was whether the new mutants could ward off a major pandemic of [bird flu](#) or start one, explained Stephanie Holmer, a graduate student in Duke's Department of Cell Biology.

She raised the issue during the May 18 meeting of the Science and Society Journal Club.

The row began when researchers at the University of Wisconsin-Madison and the Erasmus Medical Center in the Netherlands independently tweaked strains of the H5N1 virus, commonly named the bird flu. The strains, the teams report, are more easily transmitted between ferrets, the lab-double for humans.

“The fear was that if the mutant forms of the virus got out of the lab, bioterrorists could use them to make a super-virus and start a [pandemic](#). But there was not any guarantee that what the scientists had was a weapon. The mutant strains weren’t even that efficient at killing a ferret,” Holmer said.

During the forum, about a dozen students and faculty from departments across campus debated whether this kind of research should have been done, if journal editors should publish the full results and what can be done to prevent future squawks about similar types of research.

Scientists want to study H5N1 to find out how fast the virus mutates and how virulent those strains are in mammals, including humans. So far, outbreaks of the non-mutant form of the bird [flu](#) in humans have been limited. The cases, about 100 to 200 from 2003-2012, have occurred most often in Indonesia, Egypt and Vietnam, according to [statistics](#) from the World Health Organization.

In two separate papers, the teams from Madison and the Netherlands reported the strains of H5N1 that seemed to be more virulent in ferrets. The Madison team submitted its paper to Nature; the Netherlands’ team submitted to Science. Both papers came under government scrutiny before they were published because the [methods](#) in each could potentially be misused to make a bioweapon.

But the researchers had already presented their data at conferences, and they had institutional approval to initiate the experiments, facts that led

Subhashini Chandrasekharan, co-coordinator of the journal club, to wonder aloud why it took until the point of publication to prompt a government and scientific scuffle over the experiments and the results.

“I’m not a virologist, but I don’t find any reason that the study should not be done or that the results should not be published. The jump of this virus from birds to humans is going to happen. It’s only a matter of time. If we already understand the mutations, then we’ll be faster at finding treatments and vaccines,” Chandrasekharan said.

She added that if a bioterrorist is going to make a weapon from a [virus](#), it didn’t seem likely that they’d need the papers, which were finally [approved for publication](#) on April 20, to make the mutations. They’d do it anyway, she said, explaining that preventing publication was probably not going to be “the wall” to stop a terrorist from plotting an attack.

That issue, of course, raises another whole set of squawks.

Provided by Duke University

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