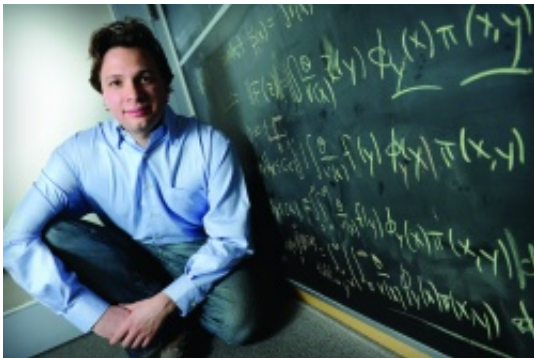


Flu research should proceed with caution, experts urge

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Joshua Plotkin (Photo: Candace diCarlo)

(Medical Xpress) -- The journal *Science* is today publishing a [paper](#) revealing that highly pathogenic H5N1 influenza, also known as bird flu, can pass from one ferret to another through the air. Publication of these results has been delayed and debated during the last several months for fear that terrorists or others might use information from the study to “weaponize” the flu virus for intentional harm.

But a University of Pennsylvania researcher and colleagues have another concern: That subsequent research will increase the risk of a dangerous [flu](#) virus escaping from a lab and causing a deadly epidemic.

In a “Policy Forum” [article](#) in today’s *Science*, Penn’s Joshua Plotkin, an associate professor of biology and computer and information science;

Marc Lipsitch and Barry Bloom of Harvard University and Lone Simonsen of George Washington University suggest that research on potentially dangerous flu viruses should be limited and carefully regulated.

Plotkin's research focuses on evolution, and he has previously studied the evolution of the influenza virus from a computational perspective.

The [flu virus](#) evolves continuously, acquiring new mutations that can change its ability to infect hosts.

"It is because the virus evolves that we have to change our vaccines from year to year," Plotkin said.

Despite extensive research in the area of influenza, sometimes the vaccines miss their mark.

"We basically still rely in part on guesswork to determine what strains will arise next in the seasonal evolution," Plotkin said. "If anything, we've learned that the course of influenza evolution is difficult to predict."

This slipperiness is what inspired Plotkin and his colleagues to author the commentary. They anticipate that, after learning of the new [bird flu](#) findings, many researchers will be eager to replicate the current findings and expand on them. An increase in the pool of researchers working with a potentially deadly virus translates to an increase in risk to public health, no matter how careful the laboratory workers are.

"We felt it would be worthwhile to have another voice in this debate and especially a voice that is informed by evolution," Plotkin said.

In the article, the researchers provide examples of how the flu virus has

mutated in unexpected ways. For example, strains of [influenza](#) have evolved to be resistant to the drug Tamiflu, despite the fact that researchers had largely believed that a mutation conferring drug resistance would be lethal to the virus.

There is no single regulatory body with authority over what research gets conducted based on concern for public safety. In this piece, the authors propose that such a committee should be formed to review proposals for research involving pathogens that could pose a threat to public health.

Plotkin acknowledges that these suggestions impose limits on free scientific enterprise and that many researchers involved in studies of pathogenic organisms may feel burdened by such a review-and-approval process.

“However, compared to the spectrum of science that’s out there, this is an incredibly small number of cases where we’re suggesting additional regulation,” he said.

Plotkin also noted that such restriction is not without precedent. Smallpox, for example, is contained in only two labs in the world.

“From my perspective, a highly pathogenic H5N1 would be far more dangerous than smallpox were it to start a human-to-human epidemic,” he said.

Caution before proceeding does not mean that Plotkin and his colleagues wish to stymie scientific investigation of highly pathogenic flu viruses. Indeed, these studies have the potential to lead to new treatments for infections.

“The last thing we want to do is stick our heads in the sand and not allow any research on it,” he said.

Provided by University of Pennsylvania

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