

Business Week

Avian Flu FAQ

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NEWS ANALYSIS

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Avian Flu Under the Microscope

Here's key information about the potentially deadly disease that has governments and scientists on high alert, since it may spread around the globe

Suddenly the news is filled with dire warnings about avian flu, a potentially deadly disease that may -- or may not -- sweep the globe in the next few years. Infectious-disease experts have been warning for years that the virus that has killed tens of millions of chickens and waterfowl in Asia since 1997 could mutate into a form that would infect humans. If that happens, it could produce a devastating flu pandemic such as the Spanish flu of 1918 that killed as many as 50 million people worldwide (see BW Online, 10/6/05, "[Eerie' Discoveries about Flu](#)").

Now, Washington is taking the threat seriously: Health officials from 80 countries met with the State Dept. on Oct. 7 to discuss coordinating strategies to address a possible pandemic, and the White House met with vaccine makers the same day to see if production of a potential vaccine could be ramped up.

Here are some facts about avian flu and the risks it poses to humans:

What is avian flu?

In birds, the disease is caused by one branch of a family of microbes called Type A influenza virus. The viral subtype that scientists have been anxiously watching since 1997 is called H5N1, and it originated in water birds, primarily ducks. Ducks can usually withstand this virus, making them ideal carriers -- especially since they're migratory. Chickens have less resistance, and once one is infected it can quickly spread the virus through an entire flock, killing nearly all the birds.

How do humans get avian flu?

So far, virtually all the 100 or so avian-flu cases identified in humans can be traced directly back to contact with live chickens. Infected birds pass the virus through feces, and it affects humans that breathe in the fecal dust. The virus is not passed on in the meat or eggs, so there's no danger from eating cooked chicken.

How deadly is avian flu to humans?

In its current form, very. So far, about 65 people have died from the disease, resulting in a mortality rate near 70%. By comparison, the SARS outbreak of 2003 infected 8,098 people around the globe and killed 774, for a 9.6% death rate.

The disease can kill within a week, destroying the lungs and other organs. If it's anything like the Spanish-flu outbreak, its main victims will be otherwise healthy adults. The World Health Organization has warned that an avian-flu pandemic could kill as many 150 million people worldwide, and the Centers for Disease Control & Prevention estimates that about 25% of the U.S. population would fall ill.

How can the virus mutate into one that can be passed from human to human?

Viruses are notorious shape-shifters, able to constantly rearrange their genes and swap genetic material with different strains. Virologists are watching carefully for evidence that the microbe has begun swapping genetic material with a human virus -- that's when it could turn deadly for people. One worrisome sign: This summer Indonesia said the virus was found in pigs, which often act as incubators for human infections.

Are we sure that avian flu will turn deadly for humans?

No. The virus may never mutate into a form that's harmful to people. Or it could change into a relatively benign bug. Infectious-disease experts fret that the world is overdue for a flu pandemic since for hundreds of years four have occurred every century.

In the past 100 years, the world has seen three, of varying deadliness: The Spanish flu of 1918, which killed 500,000 Americans; an outbreak in 1957-58 that killed 70,000; and the Hong Kong flu outbreak of 1968-69 that caused 37,000 deaths.

Most experts, however, believe H5N1, if it does end up threatening humans, will probably be quite deadly because of its similarity to the Spanish-flu virus. Also, doctors have noticed that more people are surviving the infection recently than they were when H5N1 was first discovered. That's not necessarily a good thing. It could mean that the virus is mutating into one that is easier to carry -- and spread. Ominously, the Spanish-flu virus, which also started in birds, followed a similar evolutionary path.

If it does turn deadly, when might that happen?

It could be in the next few months, or in the next few years. No one's sure. Once it does turn, the pandemic will likely sweep around the globe over several weeks and last for about a year. Although, again, no one can be sure.

Can anything be done to prevent a pandemic?

Not much. The WHO and other international groups would like to increase surveillance and monitoring in Asia, so that a human outbreak can be quickly identified and contained, with quarantines and aggressive treatment. But Thailand is the only country in Southeast Asia with a comprehensive pandemic plan, so international efforts would have to be put in place rapidly.

Once the virus starts to spread, most likely carried by an international traveler, quarantine will likely do little good. Unlike SARS, which could be spread only by close personal contact, flu is transmitted by sneezing and hand contact, and carriers can be infectious up to a week before they start showing symptoms.

What about a vaccine or treatment?

No vaccine exists right now, although a potential candidate had some early success this summer. The National Institutes of Health is racing to develop one, and the White House is talking to vaccine manufacturers about increasing production capacity. However, if a pandemic does break, it could take six months to produce a vaccine for that particular strain.

As for treatment, Tamiflu, made in Switzerland by Roche Holding's ([RHHVF](#)) Hoffman-La Roche, is the only antidote for flu. However, the U.S. has stockpiled enough for only a few million patients.