

New bird flu cases revive fears of human pandemic

Hong Kong, believed to have been free of H5N1, is forced to cull thousands of poultry after an outbreak. Two avian flu deaths are reported in Egypt and Indonesia.

By Mary Engel
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Just when you thought you could scratch bird flu off your list of things to worry about in 2009, the deadly H5N1 virus has resurfaced in poultry in Hong Kong for the first time in six years, reinforcing warnings that the threat of a human pandemic isn't over.

India, Bangladesh, Vietnam and mainland China also experienced new outbreaks in December. During the same period, [four new human cases](#) -- in Egypt, Cambodia and Indonesia -- were reported to the World Health Organization. A 16-year-old girl in Egypt and a 2-year-old girl in Indonesia have died.

The new cases come after a two-year decline in the number of confirmed human deaths from H5N1 bird flu and as fewer countries are reporting outbreaks among poultry. A [United Nations report](#) released in October credits improved surveillance and the rapid culling of potentially infected poultry for helping to contain and even prevent outbreaks in many countries.

Yet H5N1 has continued to "at the very least smolder, and many times flare up" since the chain of outbreaks began in 2003, said Michael T. Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota in Minneapolis.

The year-end uptick is a reminder of how quickly the situation can turn as long as the H5N1 virus is still out there, Osterholm and other scientists said. "What alarms me is that we have developed a sense of pandemic-preparedness fatigue," he said.

H5N1 already has been a disaster for poultry farmers in Asia. Public health officials estimate that as many as half a billion fowl have been killed by the

virus or culled to contain its spread, causing enormous economic strain and food shortages. But the bigger fear has always been that H5N1 would give rise to a human pandemic like the so-called Spanish flu of 1918, which killed an estimated 50 million people worldwide.

It was in Hong Kong in 1997 that the H5N1 virus was first observed to jump from chickens to humans, infecting 18 people and killing six of them, raising fears of a worldwide catastrophe. Hong Kong ordered its entire poultry population, estimated at 1.6 million birds, destroyed within three days.

A more recent chain of poultry outbreaks began in South Korea in 2003 and spread over the years to 61 countries in Asia, Africa and Europe.

To fuel a pandemic, a virus must be able to both infect humans and spread readily from person to person. The currently circulating H5N1 strain does neither well.

The total number of verified human cases since the 2003 outbreak began is 391, of whom 247 died. After peaking in 2006 at 115 human cases with 79 deaths, human infections dropped to 40 in 2008, with 30 deaths, according to a [World Health Organization update](#) in mid-December.

Most of the human cases were traced to direct contact with poultry, especially in Southeast Asia where many people have backyard flocks and few wear gloves or masks while handling them. The few suspected human-to-human transmissions occurred in those who were closely involved in caring for an infected relative.

But as long as the virus continues to circulate, the threat that it could mutate to pass more easily among humans remains, according to the U.N. report.

The Hong Kong poultry outbreak last month is significant because the government thought it had stamped out H5N1 in the Chinese territory after an outbreak in 2003. Since then, Hong Kong has vaccinated poultry against the virus and strictly regulated farm sanitation.

The government ordered the slaughter of 80,000 fowl at two large farms after the latest outbreak killed 60 chickens at one of the farms. Investigators are looking for the source of the infection and testing the effectiveness of the vaccine used since 2003 to inoculate chickens, geese and ducks against H5N1.

Hong Kong uses a vaccine that protects poultry against several flu subtypes. But some scientists believe that the H5N1 virus may have mutated to break through the vaccine. Flu viruses change constantly, which is why human vaccines for seasonal flu are modified every year, said Scott P. Layne, a professor of epidemiology and environmental health sciences at UCLA.

Mainland China is using a newer poultry vaccine developed specifically for H5N1. But vaccination programs there and in Vietnam have not eliminated outbreaks.

The vaccine itself could be the problem, said Robert Webster, a virologist and avian flu expert at St. Jude Children's Research Hospital in Memphis, Tenn.

Vaccines should be used only in areas where the virus is out of control, and then only temporarily, he said. That is because routinely administering the vaccine encourages the evolution to resistant strains.

Some countries have managed to stop the virus by culling infected poultry flocks. Japan, South Korea and Malaysia are considered to be free of H5N1, according to the World Health Organization.

But the virus appears to be entrenched in Indonesia, parts of China, Vietnam, Egypt and other countries where backyard flocks are more difficult to regulate than commercial chicken farms, according to the United Nations' Food and Agriculture Organization.

Though bird flu viruses are common, highly pathological ones such as the 1918 virus and H5N1 -- which has been lethal to 100% of chickens infected and 63% of humans known to be infected -- are rare.

Scientists have little experience with which to gauge how H5N1 will evolve.

But, Webster said, "We still have to treat this as a potentially very, very dangerous virus."

mary.engel@latimes.com