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## Avian Flu Tends to Kill Youths as in 1918 Wave, Study Finds

By DONALD G. MCNEIL JR.

Avian flu tends to kill younger people, much as the 1918 Spanish flu epidemic did, the World Health Organization said Friday as it released an analysis of more than 200 cases.

Deaths from the disease surged in the winter for the last three years, the report said, so a rise in fatal cases can be expected late this year even if the virus does not mutate into a form more easily transmitted.

Moreover, the report warned, the risk of the virus becoming more transmissible remains high "because of the widespread distribution of the H5N1 virus in poultry and the continued exposure of humans."

The median age of victims with confirmed cases was 20 years, the report said. The highest death rate -- 73 percent -- was among patients ages 10 to 19, while the overall fatality rate was 56 percent. This pattern has been noted before, but the new analysis takes in more cases; the typical age is drifting downward.

A high death rate among young adults echoes the pattern found in the 1918-1919 epidemic, said Dr. Michael T. Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota. Scientists contend that year's H1N1 virus was also an avian flu that mutated until it spread easily among humans; although it was fatal to only about 2 percent of those who caught it, that was enough to kill between 40 million and 100 million people worldwide.

When the second wave of the Spanish flu struck Boston in the fall of 1918, Dr. Osterholm said, the flu death rate among people ages 18 to 30, which had been about 30 per 100,000 people in previous years, soared to 5,700 per 100,000. (The figure was for civilians in Boston, he said, so it was not confounded by the high numbers of deaths in troop ships or trenches in Europe.)

The annual flu, by contrast, tends to kill the very young and the very old, often from secondary bacterial pneumonia.

In the Asian and Middle Eastern countries where the disease is most pervasive, people of all ages are exposed to chickens, but 90 percent of the cases have been in people under 40, so something in young adults must make them more susceptible.

Unpublished W.H.O. data from blood sampling around recent outbreaks, Dr. Osterholm noted, shows that few people carry antibodies to the virus, so there is not a huge pool of survivors of mild avian flu.

Evidence suggests that many young people in 1918 and quite a few in this outbreak are killed by a "cytokine storm" -- the body's own immune reaction, which floods the lungs with fluid. Young adults generally have strong immune systems.

The W.H.O. is tracking changes in the virus, trying to predict if it will mutate into a more infectious form and hoping to build vaccines against it in time to head off a pandemic.

Fatalities from the virus have almost tripled this year compared with last year. Indonesia, with 39 deaths, is close to surpassing Vietnam as the hardest-hit country with 42. Vietnam has not had a human death or poultry outbreak this year.

The typical avian flu victim is sick enough to be hospitalized four days after falling ill, and dies five days later, the report said. People over 50 have the lowest death rate, but it is still 18 percent, which is a huge impact compared with seasonal flu.

"The more we see what H5N1 is doing, the less we know about what's really happening with it," Dr. Osterholm said.