

1918 flu resulted in current lineage of H1N1 swine influenza viruses, study says

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In 1918 a human influenza virus known as the Spanish flu spread through the central United States while a swine respiratory disease occurred concurrently. A Kansas State University researcher has found that the virus causing the pandemic was able to infect and replicate in pigs, but did not kill them, unlike in other mammalian hosts like monkeys, mice and ferrets where the infection has been lethal.

Juergen A. Richt, Regents Distinguished Professor of Diagnostic Medicine and Pathobiology at K-State's College of Veterinary Medicine, studied the 1918 Spanish flu [pandemic](#) with colleagues from the Canadian Food Inspection Agency, U.S. Department of Agriculture and Mount Sinai School of Medicine.

Their research supports the hypothesis that the 1918 pandemic influenza [virus](#) and the virus causing the swine flu were the same. Richt said the virus was able to infect and replicate in swine and cause mild respiratory disease. The 1918 virus spread through the pig population, adapted to the swine and resulted in the current lineage of the H1N1 swine influenza viruses. The researchers' study is published in the May 2009 [Journal of Virology](#).

"This study emphasizes that an influenza virus, which is known to induce a lethal infection in ferrets and macaques, is not highly virulent in pigs, indicating a potential resistance of swine to highly virulent influenza viruses," Richt said. "It also suggests that pigs could have played a role in maintaining and spreading the 1918 human pandemic influenza virus."

Swine flu is a respiratory disease of pigs caused by type A influenza that regularly causes outbreaks of influenza among the animals and can be transmitted to humans. It is a typical zoonotic agent. While swine flu was first recognized as a disease in 1918, there also were reports of the influenza occurring in the Midwest in 1930.

For the study, the researchers used the 1918 pandemic virus and a 1930 H1N1 influenza virus for experimental infections in swine. The 1930 virus was chosen as a virus because it is thought to be a descendent of the 1918 virus, Richt said.

The researchers did not find a significant difference in effects from the 1918 and 1930 viruses in infected pigs. This was surprising, since the 1918 virus killed more than 20 million people and was lethal to ferrets, mice and macaques. Another surprising finding from the study was the rapid antibody response in the animals infected with the 1918 virus, which is not typically reported for the swine [influenza virus](#).

Richt said he plans to conduct a follow-up project that will study what makes a [swine flu](#) virus a pandemic flu virus.

The researchers conducted the study in the biosafety-level 4 laboratory and animal cubicle at the National Centre for Foreign Animal Disease in Canada.

Source: Kansas State University ([news](#) : [web](#))

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