

## FIVE CENTURIES OF INFLUENZA



It seems like every time we hear about a flu outbreak, comparisons are made to the massive 1918 pandemic, also known as «Spanish flu», which killed between 30 and 50 million people worldwide, mainly young. But when that pandemic was unfolding, what did people compare it to?

In 1918, doctors were warning that that year's flu epidemic might be as bad as the 1889-1893 «Russian flu» that spread very quickly, taking just four months from the initial outbreak in St. Petersburg, Russia, to spread across the entire northern hemisphere. The 1889 pandemic returned with a vengeance for four straight years, with the second year considerably more damaging than the first.

But even the 1889 pandemic wasn't the first large-scale deadly flu epidemic: flu pandemics have a recorded history that now spans 500 years.

Although recent pandemics (including the 1918 flu and the 2009 H1N1 pandemic; figura A) have come from poultry and swine, for centuries the most common route to human infection was through horses, which is now much rarer.

Before 1700 it was widely accepted that flu epidemics began with horses

and ended with humans and equine influenza has circulated among humans in at least the 19th century. People born before 1893 produced antibody activity against equine influenza decades later. Why don't we see much equine flu in humans any more? The answer might lie in the rise of the automobile: few people live around horses today, so transmission is rarer.

Host switching between humans and swine has been documented in the 20th century, most notably in 2009. It seems like swine have replaced horses as the secondary extra-human mammalian reservoir. As swine are susceptible to both avian and human influenza A strains, they are a likely mixing host that could produce an antigenic shift with pandemic potential.

Avian influenza in domestic poultry has gained a lot of attention for the last decade. Although the few human infections contracted directly from domestic poultry have produced high mortality rates, there is little historical evidence that avian influenza from domestic poultry has directly produced human pandemics even though the pandemic-causing genes ultimately originate in avian influenza from wild birds.

What can we learn from historical studies of flu pandemics? For starters, the second year of the 1889 pandemic was worse than the first. So even though we may feel safe because the 2009 H1N1 pandemic turned out to be mild, it's important to remain vigilant. Then, vaccination is one of the best defence against influenza. Not only it does protect the individual who is vaccinated, it also prevents the disease from being transmitted.

[Adapted from «Five centuries of influenza» by Dave Munger, *Seed* (January 12, 2011) and from «Pandemic Influenza: 1510 –2010» by Michelle Ziegler on her blog *Contagion* (December 31, 2010).]

### Answer the following questions.

- A) What was the Spanish flu?
- B) Why is vaccination one of the best methods to prevent influenza?

A Some H1N1 viruses.

