

Timeline of human flu-strain infections

The European avian flu outbreak is caused by a H5N8 subtype of the Influenza Type A virus. Subtypes are categorised by two proteins on the surface of the virus – haemagglutinin (HA) and neuraminidase (NA)

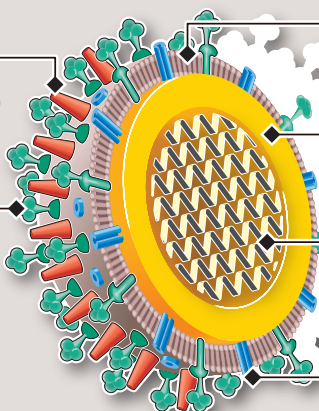
Influenza Type A

Haemagglutinin:

Rod-shaped spikes of glycoprotein (GP) responsible for viral penetration into host cell

Neuraminidase:

Mushroom-shaped spikes of GP act as enzyme to break down sialic acids and penetrate mucous membrane of respiratory tract



Lipid envelope: Outer membrane supports around 500 spikes of HA and NA proteins

M1 matrix:

Protein shell gives strength and rigidity

Nucleocapsid:

Eight segments of single-stranded RNA – genetic material of virus

M2 ion channel:

Allows acids to enter virus

17 subtypes of HA – **H1, H2, H3, H5, H7, H9 and H10** infect humans

10 subtypes of NA – **N1, N2, N3, N7 and N9** infect humans

H1N1

1918-19: Spanish flu pandemic kills 20-50 million people worldwide

H2N2

1957-58: Asian flu originates in China and spreads globally, killing 1.5 million people

H3N2

1968-69: Hong Kong flu pandemic of “variant” of H2N2 kills up to 750,000 people worldwide

H5N1

1997: First time an influenza virus is found to be transmitted directly from birds to people. 18 people infected in Hong Kong – six fatalities

H9N2

1999: New bird flu strain appears in humans – no fatalities

H7N2

2002: Infection found in one person in U.S. following poultry outbreak

H7N7

2003: New bird flu strain infects 89 people in Netherlands – one fatality

H7N3

2004: New strain detected in humans – two poultry workers in Canada

H10N7

2004: New bird flu strain detected in humans – two infants in Egypt

H5N1

2007: 88 cases in Southeast Asia and Nigeria, 59 fatalities reported

H1N1

2009: Swine flu pandemic spreads to more than 70 countries, killing 23,500 people, 12,500 in U.S.

H7N9

2013: New avian flu crosses to humans. 443 cases in China, Hong Kong, Taiwan and Malaysia – unofficial death toll of 127