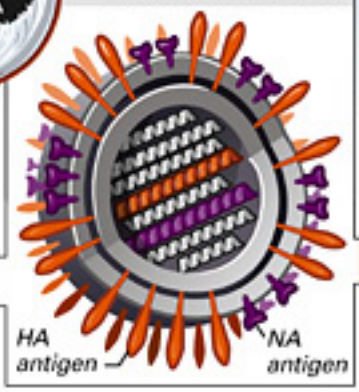
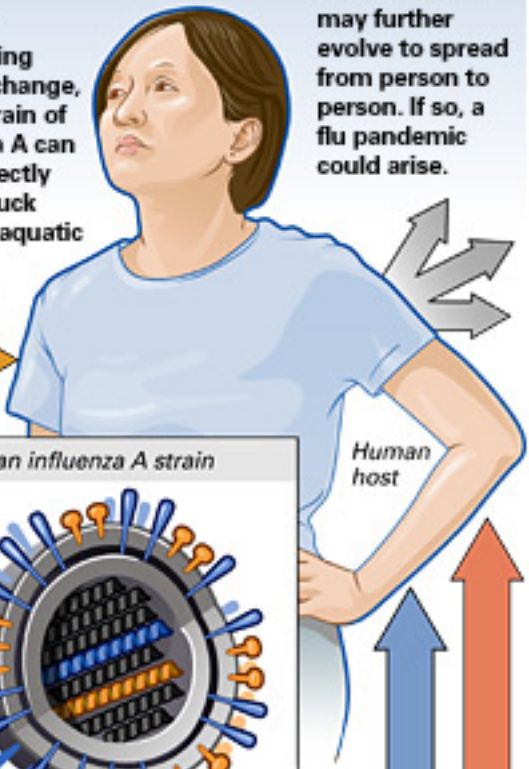
The genetic change that enables a flu strain to jump from one animal species to another, including humans, is called **"ANTIGENIC SHIFT."** Antigenic shift can happen in three ways:



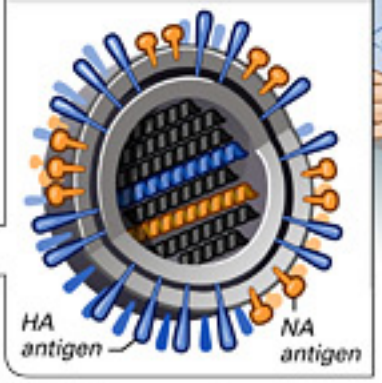
B Without undergoing genetic change, a bird strain of influenza A can jump directly from a duck or other aquatic bird to humans.



The new strain may further evolve to spread from person to person. If so, a flu pandemic could arise.

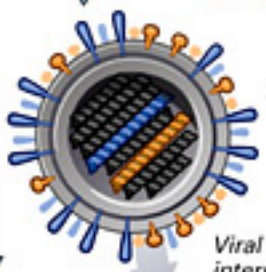
A-1 A duck or other aquatic bird passes a bird strain of influenza A to an intermediate host such as a chicken or pig.

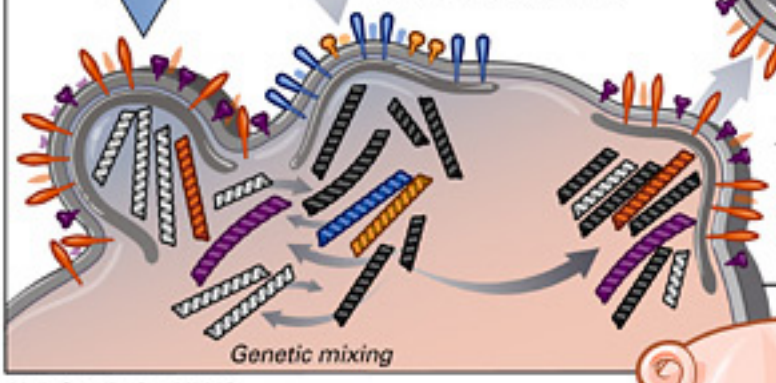
C Without undergoing genetic change, a bird strain of influenza A can jump directly from a duck or other aquatic bird to an intermediate animal host and then to humans.

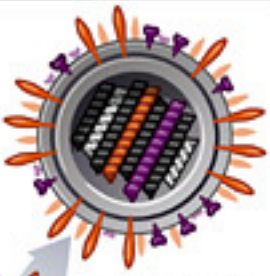


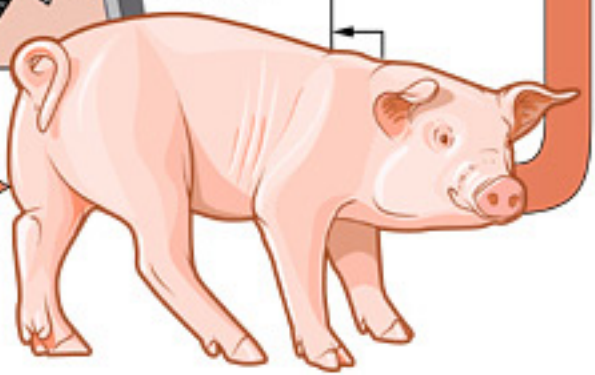
A-2 A person passes a human strain of influenza A to the same chicken or pig. *(Note that reassortment can occur in a person who is infected with two flu strains.)*

A-3 When the viruses infect the same cell, the genes from the bird strain mix with genes from the human strain to yield a new strain.







A-4 The new strain can spread from the intermediate host to humans.

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