

# Why do we need to get a flu vaccine every year? Answer: drift and shift.

Influenza (flu) viruses are always changing. They change through two processes: “antigenic drift” and “antigenic shift”.

## What is Antigenic Drift?

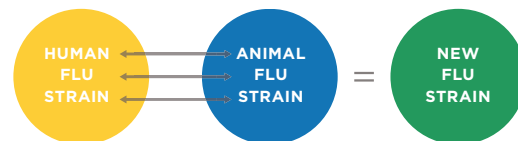
Imagine you’re playing the game “Broken Telephone” with a group of friends. You may start with one sentence, but as the sentence is whispered around the circle, small changes and errors creep in. By the time the sentence gets back to you, it may be similar to the sentence you began with, but not entirely the same. This process is similar to how antigenic drift works for flu viruses.



As the flu virus spreads from one person to another, it is always making copies of itself. As it continually replicates, small changes to its genes can happen over time. As more changes accumulate, the harder it becomes for your immune system to recognize, and protect you against, the newer versions of the virus. This process is called “antigenic drift”. This is the main way flu viruses change over time. It is also one of the main reasons we need annual flu vaccines.

## What is Antigenic Shift?

Imagine you’re playing that same game of Broken Telephone, except this time someone decides to completely change the language the game is being played in midway through the circle. Because the person who made the change is the only speaker of that language in the circle, the sentence then becomes unrecognizable to everyone else playing. This version of the game is similar to how antigenic shift works for flu viruses.



Antigenic shift occurs when two different flu strains, one native to humans and one native to animals (commonly birds), swap genetic material. This swap creates an entirely new flu strain that has the potential to infect humans. Since this flu strain would be completely novel to our bodies, our immune systems would not have any memory of how to fight it. This is why antigenic shift can be so dangerous, and why it has the potential to cause pandemics. Luckily, antigenic shift does not happen often, and influenza pandemics are rare.

**Talk to your doctor, nurse, pharmacist, or local public health office about getting immunized – your best protection against the flu.**

## References

Centres for Disease Control and Prevention. How Flu Viruses Can Change: “Drift” and “Shift”.  
<https://www.cdc.gov/flu/about/viruses/change.htm>

The Vaccine Makers Project. News & Events: Animation Expedition #9 – Antigenic Shift and Drift: How Does Influenza Adapt?  
<https://vaccinemakers.org/news-events/animation-expedition-9-antigenic-shift-and-drift-how-does-influenza-adapt>