

THE FLU: IS IT COMING FOR YOU?

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What is the flu?

- mainly effects the respiratory system
- annual epidemic from October-February
- effects 9.3 million people each year in U.S. since 2010 (1)

How does the flu work?

- Influenza A and B virus broken down into subtypes and strains (1)
- change in virus occur due to evolutionary pressure (3)
- Influenza virus can change via two different pathways:

1. **Antigenic drift** → change in virus genes
2. **Antigenic shift** → change in surface protein in influenza A (1)

How is the flu vaccine made/given?

- can be grown egg-based, cell-based, or recombinant-based (4)
- administered through a shot (inactivated vaccine) or nasal spray (weakened vaccine) (1)

How effective is the flu vaccine?

- vaccine made based on predicted dominant strain
- 40-60% effectiveness (2)
- age/exposure/immune system play a key role in its effectiveness (2)

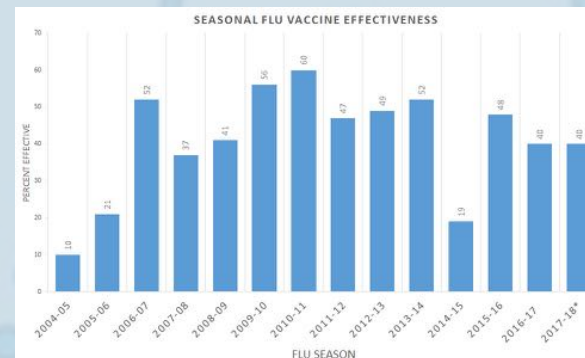


Figure 1: A graph of seasonal flu vaccine effectiveness from 2004-2018 (Center for Disease Prevention)



Figure 2: An ad campaign slogan for flu season created by the Center for Disease Prevention (CDC)

References

1. "Frequently Asked Flu Questions 2018-2019 Influenza Season". Centers for Disease Control and Prevention. 2018. <https://www.cdc.gov/flu/about/season/flu-season-2018-2019.htm>
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3. Velislava, Petrove., Russel, Colin. "The evolution of seasonal influenza viruses." *Nature Reviews Microbiology.* 16 (2018): 47-60.
4. Zost, Seth. "Contemporary H3N2 influenza viruses have a glycosylation site that alters binding of antibodies elicited by egg-adapted vaccine strains." *PNAS.* 47 (2017): 12578-12583.