

Vaccines are like giving your body's defenses a cheat sheet

By Jason Bittel, Washington Post, adapted by Newsela staff on 02.27.20

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Image 1. A girl gets a bandage on the spot where she just received a flu vaccine. Photo: Centers for Disease Prevention and Control on Unsplash

The sting of a needle in the arm or leg is nobody's favorite thing. However, the vaccines within those shots are some of the most important medical inventions in the history of science. There can be a lot of misunderstanding about what vaccines are and how they work. This February, the Washington Post reached out to Susan Nasif. Nasif is a virology expert and artist who specializes in creating comics that tackle difficult scientific subjects.

"When I was 8 years old, I remember watching a cartoon that explained the immune system to children," Nasif wrote in an email. "I loved it, and I decided then to draw and create my own comics."

The immune system is the body's natural defense against viruses, bacteria and other nasty stuff, Nasif said. Viruses are especially good at developing disguises that help them hide from the immune system. This is why we need vaccines to help our bodies see through the disguise.

Most vaccines contain a weakened or dead version of the virus they are meant to protect against. Some vaccines carry only the proteins found on the virus's surface. In both cases, once these substances are injected into the body, your immune system grabs them up. Then it learns how to identify them. It works kind of like a cheat sheet that helps you prepare for a big test.

Then, when the body comes into contact with the real thing - a healthy virus - it knows how to protect against it. It can set to work gobbling up the viruses before they can do too much damage.

You may be wondering why you still have to get shots for something such as polio, even though no one you know has gotten it. This is called "herd immunity."

"Vaccines act as a firewall that prevents the spread of diseases to others," Nasif said.

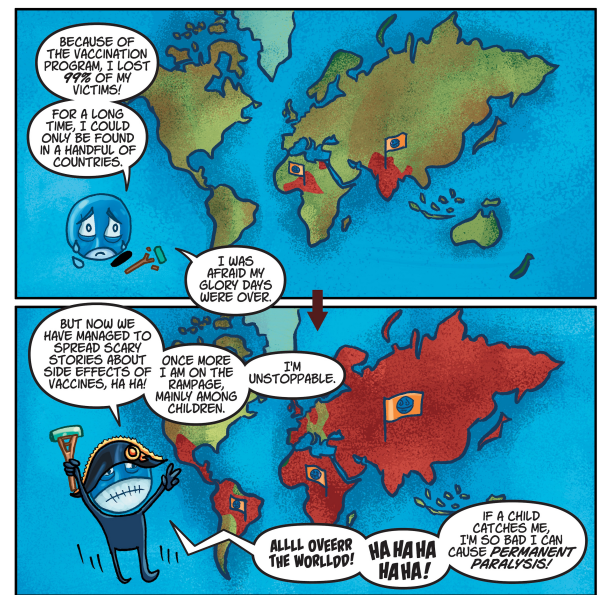
When enough people develop resistance to a disease by getting a vaccine, the chance that a virus can infect someone and then keep spreading drops to near zero. This is "herd immunity."

Polio was infecting 350,000 people a year in 1988. Herd immunity reduced the spread of the disease to just 33 cases reported worldwide in 2018. The protection only continues if people continue to give their bodies a cheat code to beat polio - vaccines.

Many people are concerned that a new virus coming from China could become a big problem for people around the world. This virus is called coronavirus. Nasif said that scientists are working hard to create a vaccine for this coronavirus. The virus causes a disease called covid-19. Nasif said that it takes time to produce a vaccine that will be safe to use in people.

For now, she said the best thing you can do to protect yourself against this or any other viruses, bacteria and other things that cause diseases, is to wash your hands frequently. She also suggested avoiding being close to people who are coughing or sneezing.

Nasif also suggests eating a healthy diet and getting plenty of sleep at night. Those are two ways you can give your immune system a helping hand.



Quiz

1 Read the conclusion below.

When enough people get vaccinated, everyone is much safer.

Which sentence from the article provides the BEST support for the statement above?

- (A) "When I was 8 years old, I remember watching a cartoon that explained the immune system to children," Nasif wrote in an email.
- (B) Then, when the body comes into contact with the real thing - a healthy virus - it knows how to protect against it.
- (C) "Vaccines act as a firewall that prevents the spread of diseases to others," Nasif said.
- (D) She also suggested avoiding being close to people who are coughing or sneezing.

2 Which paragraph in the article BEST supports the inference that vaccines are safe for people?

- (A) The immune system is the body's natural defense against viruses, bacteria and other nasty stuff, Nasif said. Viruses are especially good at developing disguises that help them hide from the immune system. This is why we need vaccines to help our bodies see through the disguise.
- (B) Most vaccines contain a weakened or dead version of the virus they are meant to protect against. Some vaccines carry only the proteins found on the virus's surface. In both cases, once these substances are injected into the body, your immune system grabs them up. Then it learns how to identify them. It works kind of like a cheat sheet that helps you prepare for a big test.
- (C) Polio was infecting 350,000 people a year in 1988. Herd immunity reduced the spread of the disease to just 33 cases reported worldwide in 2018. The protection only continues if people continue to give their bodies a cheat code to beat polio - vaccines.
- (D) For now, she said the best thing you can do to protect yourself against this or any other viruses, bacteria and other things that cause diseases, is to wash your hands frequently. She also suggested avoiding being close to people who are coughing or sneezing.

3 What is the author's MAIN purpose for including information about the coronavirus?

- (A) to relate the topics of vaccines to a current event
- (B) to explain how vaccines prevent diseases
- (C) to show how scientists create new vaccines
- (D) to provide an example of herd immunity

4 What is the author's point of view?

- (A) People have good reasons to be afraid of getting vaccinated.
- (B) Vaccines can be created quickly when new diseases arise.
- (C) People who wash their hands do not need to be vaccinated.
- (D) Vaccines are an important invention that keep people healthy.