

## Vaccines Help Everyone- Even the Unvaccinated



“Vaccines are safe. Vaccines save lives,” says Peter Hotez. “They are the most effective public health technology ever invented.” He’s a pediatrician and vaccine scientist at Baylor College of Medicine and Texas Children’s Hospital.

Most people gladly get vaccines for themselves and their children. Yet a small group of people say no. In fact, the percent that turns them down has been climbing. That is putting more children at risk. And it endangers the health of others, from babies to cancer patients and more.

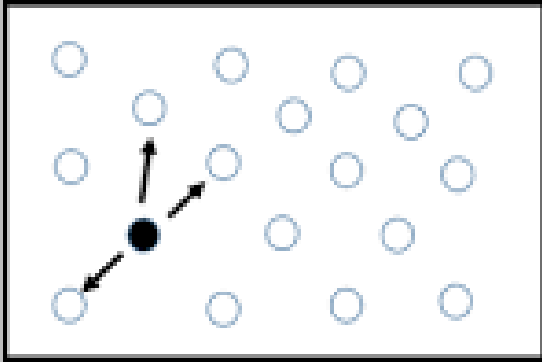
Vaccines work by arming the immune system to fight off a disease. “A vaccine gives your body a little sample of what a virus or bacterium looks like,” explains Danielle Koenig. She’s a health educator with the Washington Department of Health in Olympia. A vaccine prompts the immune system to make germ-killing **antibodies**. Later, if you’re exposed to those germs, “your body has those **antibodies** ready to go.”

But that’s not all. Many vaccines help protect other people from infections. As more and more people get a vaccine, the disease has fewer people it can infect. And that’s the first step in slowing or even stopping its spread. Public health experts call this *herd immunity*.

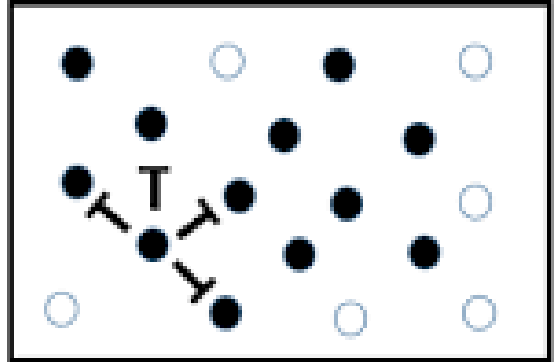
Herd immunity works like a shield or force field to protect those people who are most at risk because they cannot be vaccinated, Koenig says. “The more people who get vaccinated, the stronger that field is.” On the flip side, “if not

enough people are immunized, that force field breaks down and there are holes in it.”

Infected person in a group of uninfected and susceptible people.



Infected person in a group of immune people (natural or vaccinated).



Herd immunity also protects individuals who can't be vaccinated. This includes babies who are too young to get vaccines. It also counts cancer patients and others with weak immune systems. About one in eight U.S. children and teens depend on herd immunity to protect them from diseases. And it counts children whose parents say no to vaccines. These people can still become infected. But they're far less likely to get sick because of herd immunity.

Antibodies: 抗体

References: Kowalski, K. (201)). *Vaccines help everyone- even the unvaccinated*. [online] Science News. Available at: <https://www.sciencenewsforstudents.org/article/vaccines-help-everyone-even-unvaccinated> [Accessed 30 August 2021]