

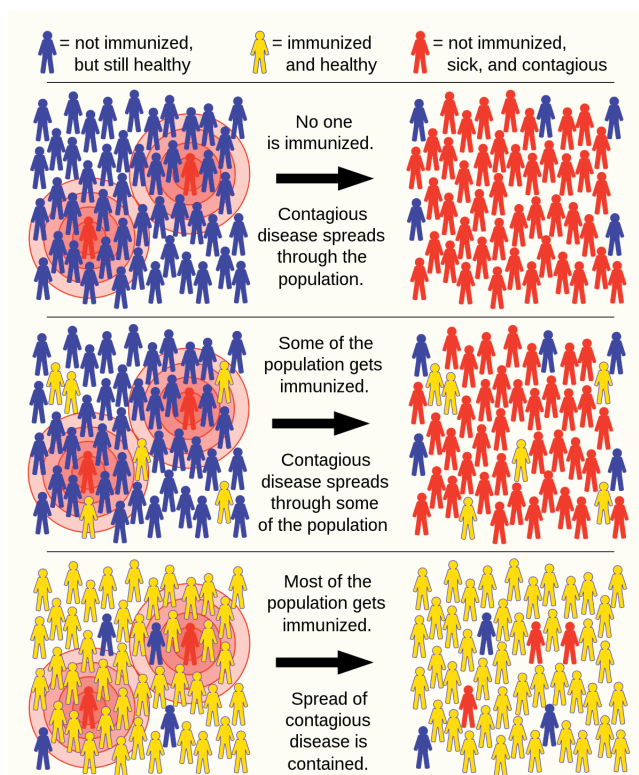
Is Herd Immunity Real?

By Lydia Greene, Back to the Vax

Herd immunity is defined as the way a population gains immunity from a disease by vaccinating a high percentage of their members, so that the disease can not thrive in the community if introduced. As an anti-vaxxer, I wanted to believe the myth that herd immunity was not real. I *needed* to believe this myth. It was how I justified not caring that I was gaining from the herd immunity established by vaccinations. I was hiding in the herd.

Over the years I would look for outbreaks of diseases in vaccinated groups of people in order to justify my choice. "See!!" I would scoff. "Herd immunity isn't real! Vaccines don't work." Well, that is simply not true. Are vaccines perfect? No, but they are pretty amazing. Even in the most vaccinated populations, there are going to be some factors which make people vulnerable to outbreaks. Some people are non-responders to vaccines, and even after multiple boosters, they just do not make antibodies.

Unvaccinated people are vulnerable to catching disease. They fall into two categories. First, there are people that can not get vaccinated due to contraindications, like medications, medical conditions, and children too young for the vaccine. These people are even more vulnerable to the disease and its complications. For instance, I am on immunosuppressant medications and, as a result, I can not be vaccinated with live vaccines. I rely on others to do their part, so I don't get exposed to diseases that I am at an increased risk of having complications with due to my suppressed immune system. Second, there are people that choose not to be vaccinated.

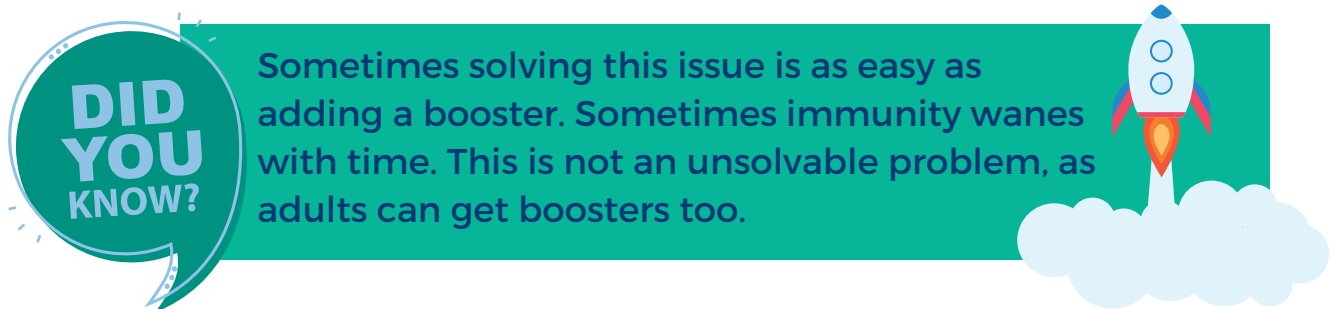


(A graphic representation of how herd immunity can prevent or slow the spread of disease through a population.)

Image: Tkarcher / CC BY-SA)

What makes things worse is that unvaccinated people tend to live in the same areas as each other and send their children to the same schools, leaving the local vaccination rate well below the amount needed for herd immunity to work. So, while the entire town could have a good vaccination rate, one or two schools will not, and that is all it takes to have an outbreak. Then people who were just like me say “SEE! Herd immunity doesn’t work!” and the cycle goes on.

We also find out that immunity wanes sooner than we think. There were mumps outbreaks as a result in mostly young adults, as their immunity waned with age. With the hole in herd immunity, mumps was spreading fast in this group. These issues make it more important to increase vaccine coverage. It does not mean that vaccinations are useless.



DID YOU KNOW? Sometimes solving this issue is as easy as adding a booster. Sometimes immunity wanes with time. This is not an unsolvable problem, as adults can get boosters too.

That said, I only had one MMR vaccine as a child and I still have positive titers at 40 years old. The answer is never to avoid vaccinations because while outbreaks can occur occasionally in highly vaccinated populations, they are still way more likely to occur in under-vaccinated populations. The amount of people needed to be vaccinated to achieve herd immunity depends on the effectiveness of the vaccine and the contagiousness of the disease. Pertussis and measles are highly contagious, so the vaccine uptake must be high. Even today, these two diseases tend to have outbreaks. This is why contributing to the herd immunity threshold is so important.

Disease	R ₀	Threshold (%)
Mumps	4-7	75-86
Polio	5-7	80-86
Smallpox	5-7	80-85
Diphtheria	6-7	85
Rubella	6-7	83-85
Pertussis	12-17	92-94
Measles	12-18	83-94



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