

Herd Immunity, Explained

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In addition to being a hot topic, herd immunity is a concept with many names. Officially, herd immunity is also known as population immunity or community immunity.*

Herd immunity has been called many other things, depending on who you read. Most notably, it's often understood as the finish line for being able to go back to normal.* It has also been referred to as an [impossible goal](#), a [mirage](#), and a [moving target](#).

This article will define herd immunity and explain how it happens. Then, it will discuss other viruses that we have herd immunity for, and if it is possible to have it for COVID-19. Lastly, this article will outline changing perspectives on when Ontario can claim herd immunity.

What is herd immunity?

According to Public Health Ontario, “Herd immunity refers to a state where a significant proportion of the population is immune to an infection.”* As a result, the number of “people who can be infected and transmit the infection” reduces dramatically.*

We want herd immunity because having a high number of vaccinated people in a community protects “those who can't be vaccinated, such as newborns or those who have compromised immune systems”.* Another group that can't always get the vaccine are people with a history of anaphylaxis and other severe allergic reactions to vaccines in general.*

How does herd immunity happen?

There are two ways to achieve herd immunity: by getting infected or getting vaccinated.*

That's right, being infected does provide you with some immunity to the COVID-19 virus.* Knowing this, Sweden took an unconventional approach by relying on “voluntary social distancing guidelines” instead of lockdowns.*

Early last year, Sweden's top public health official Anders Tegnell claimed that the country was approaching natural herd immunity.* However, over time, it became clear that this idea didn't work out in practice. Throughout the pandemic, Sweden had “one of the highest death rates relative to population size in Europe, and by far the worst among the Nordic nations.”*

Clearly, there are problems with achieving herd immunity through infection.* First, we don't know how long infection-associated immunity lasts, so "even if you have antibodies, it's possible that you could get COVID-19 again."* Second, a high percentage of the population would need to get infected for herd immunity to be achieved, and a high number of infections results in high death counts and an overwhelmed healthcare system.*

Alternatively, you can get a higher level of immunity without getting infected or risking death by getting a COVID-19 vaccine.* Not only that, although we don't know exactly how long immunity from vaccines will last, we know that "vaccines can provide better, longer-lasting immunity against a multitude of coronavirus variants than an actual infection."*

Have we achieved herd immunity for any other viruses?

Yes, we have! Thanks to vaccines, herd immunity has controlled and reduced the severity of many contagious diseases that were once much more widespread than they are today. Some examples include: smallpox, polio, diphtheria, measles, mumps, rubella, and chickenpox.*

However, "you can have outbreaks in pockets that aren't vaccinated" says Kelly Grindrod, who is a pharmacist, university professor, and the pharmacy lead for Waterloo Region's vaccine distribution task force.*

Also, we need to remember that "the disease can still circulate among children and can still infect those with weakened immune systems. This was seen for many of the aforementioned diseases before vaccines were developed."* That's why it's important to avoid having communities with a low number of vaccinated people.

Can we achieve herd immunity for COVID-19? Is it even possible?

Grindrod believes that "Right now, the goal is herd immunity"*; however, other health professionals disagree.

"We're moving away from the idea that we'll hit the herd-immunity threshold and then the pandemic will go away for good," says epidemiologist Lauren Ancel Meyers, executive director of the University of Texas at Austin COVID-19 Modeling Consortium.* Speaking on the topic of new variants, she adds, "The vaccine will mean that the virus will start to dissipate, [but] we may find ourselves months or a year down the road still battling the threat, and having to deal with future surges."*

We will probably need to get vaccinated against COVID-19 on a regular basis like we do with the flu shot, which also mutates often.* The Bloomberg School of Public Health at Johns Hopkins University predicts that "people who get infected will be immune for months to years" referring to "population based studies in places like Denmark [which] have shown that

years, referring to population-based studies in places like Denmark [which] have shown that an initial infection by SARS-CoV-2 is protective against repeat infection for more than six

months.”*

In other words, at this time, COVID-19 variants make herd immunity not a probable reality, but not even herd immunity would cause the virus to disappear right away, and ongoing vaccination will still be needed. However, with vaccination, COVID-19 will become less prominent, leading to fewer people dying and/or being hospitalized.*

When can Ontario claim herd immunity?

The exact percentage of how many people in the community need to be vaccinated before we can claim herd immunity varies from disease to disease.* According to the Mayo Foundation for Medical Education and Research, “the more contagious a disease is, the greater the proportion of the population needs to be immune to the disease to stop its spread.”*

In January, Public Health Ontario estimated that 56% to 89% of Ontario’s population would require vaccination against COVID-19 to achieve herd immunity, which is similar to “the range from several publications estimating 40 to 90% vaccination coverage is required to achieve herd immunity for COVID-19.”* Nowadays, the estimate is as high as 80 to 90%.*

According to federal models, which were done in April and May, provinces could safely begin easing restrictions on movement, physical distancing, and wearing masks without overwhelming hospitals when 75% of eligible Canadians had at least one dose of a COVID-19 vaccine, and 20% had both doses.*

Earlier this week, Canada’s chief public health officer Dr. Theresa Tam said that these percentages need to be readjusted.* She explained that they were created without factoring in the Delta variant, which causes more severe illness, and is expected to become the dominant variant soon.* Dr. Tam stressed that aiming for full vaccination as quickly as possible is more important than ever because we now know that one dose is less effective against this variant.*

Reconsidering Herd Immunity

Though the scientific community is divided on whether or not herd immunity is a reasonable goal, there is consensus that we might want to re-evaluate our expectations of it.

Some epidemiologists believe that having an exact number is not as important as we initially thought, saying that “In practice, ... the closer we get to that threshold — whatever it actually is — the better. And as more people are immunized, life can begin returning to something that feels much more normal.”*

In the words of Samuel Scarpino, an infectious disease scientist at Northeastern University, the herd-immunity percentage is “not a ‘we’re safe’ threshold, it’s a ‘we’re safer’ threshold”.*

The beginning of this article mentioned that herd immunity has been referred to as an

[impossible goal](#), a [mirage](#), and a [moving target](#). Erin Strumpf, a health economics expert at McGill University offers yet another way to think about it.

Strumpf explains that, “Herd immunity has often been likened to a finish line: Once we cross it, the race is over. In reality, the next stage in the struggle against COVID-19 is more like a seesaw: The virus will flare up at different times and in different places, and we will have to respond accordingly in order to knock it back down. But overall, it won’t be nearly as severe as it’s been over the past 14 months.”*

In other words, “the end of the pandemic looks more like a drawn-out affair, rather than a hard stop.”* The CBC that reminds readers not to despair by saying: “It’s not herd immunity or bust.”*

The Bloomberg School of Public Health at John Hopkins University seems to agree, as it shared, “While there is not going to be a ‘herd immunity day’ where life immediately goes back to normal, this approach gives us the best long-term chance of beating the pandemic.”*

Importantly, now that we know that “reaching any herd immunity threshold will not result in an immediate end to the pandemic”, Public Health Ontario advises us to continue to practice “all layers of public health measures for preventing COVID-19.”*

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If you think you may be experiencing symptoms of COVID-19, take the self-assessment at www.ontario.ca/coronavirus. Follow all directions from your medical provider or your local health unit at the following phone numbers:

Telehealth Ontario: 1-866-797-0000

Toronto Public Health: 416-338-7600

Peel Public Health: 905-799-7700

Durham Region Health Department: 905-668-7711

York Region Public Health: 1-877-464-9675

