Herd immunity does *not* apply to the COVID-19 virus. Why not?
By Adel Beshay, B.Pharm MPH

The term "Herd Immunity" has been used since the dawn of the COVID-19 pandemic. Many politicians and even some researchers mark herd Immunity as an endpoint for the pandemic. But is this really how herd immunity works?

By definition, herd immunity occurs when a large portion of a community (the herd) becomes *immune* to a disease. There are several factors to be considered for this to be a valid measure. Using the correct measure of success is critical to making policy, allocating funds, making programmatic decisions, and messaging to the public. Since resources are limited, both in funding and human capacity, let's dig into why this term does not apply in our efforts to end the spread of COVID-19.

First, let's consider the term itself. What is considered a herd in the context of a global pandemic? Are we speaking of a specific community, a geographic area such as a city, state, or the whole country? Actually, for this virus, the herd includes every human on the planet. What do we mean by immunity? Immunity is nothing more than protection. Herd immunity then means that a defined group of people is protected. A global herd.

How do we acquire herd immunity is by two means alone or in combination. The historical process of our ancestors' ancestors was by natural means where a great number of the community are infected with a specific virus. During infection, the body's immune system develops the arsenal to avoid reinfection. If the virus does not mutate, that specific variant will not reinfect the herd and thus fade away. Many viruses, such as the measles virus, do not mutate. After infection and recovery, people infected with measles develop a long-lasting immunity because their bodies developed an immunity to the *same* version of the virus in circulation. When measles revisits the community, it cannot easily be transmitted because most of the community has natural protection. (AND remember me must account for the 20% who are immunocompromised (like our friends and family fighting cancer.)

The second method to acquire herd immunity is the artificial method, vaccination. This technology has only been broadly available for a few generations. The process of vaccination prepares the body's immune system without having to endure the actual disease. When the majority of the community gains immunity from any infection, then the virus cannot travel among society. When enough of the community is immune to primary infection (vaccinations) or reinfection (without vaccination) then that target number for that virus's herd immunity in that community or region is met. But that is for viruses that do not mutate. For viruses that do mutate, vaccinations must be updated or the community must experience another round of illness to become immune.

The virus that causes COVID-19 can mutate and has several times, so reinfection is common, and will probably result in ongoing waves of reinfection. In a global pandemic, there are 7 billion people for the virus to infect…7 billion people for this virus to test and adapt through mutation. The sheer number of people on this earth accelerates its success. This means natural immunity for those previously infected that survived, including asymptomatic infection with the Omicron variant, becomes outdated. This predictably weakens any vaccine's ability to provide full protection from infection (not just illness). We will not meet herd immunity until this virus is genetically stable. Without preventative measures and social hygiene protocols, the globe remains at risk to waves of new variants. The cycle has not been broken. Because of

Herd immunity does *not* apply to the COVID-19 virus. Why not?
By Adel Beshay, B.Pharm MPH

mutations, breakthrough infections are very common, and unvaccinated *and* vaccinated individuals still need to practice social hygiene. Social hygiene is most important when we are in close contact with each other for a short period of time. The COVID-19 virus travels in the air often on dust and can hang around in a room for several hours after the infected person has left. Strong ventilation, replacing indoor air with outdoor air, standing outside of a 6ft range from those we do not live with, and wearing masks, especially in close contact, are hygienic practices that will stop transmission. Stopping transmission, stopping the spread, through social hygiene, is our protection against a mutating virus, especially as we race to produce effective vaccines. Basically, we must beat the variants in their race around the world. There is no such thing as herd immunity to a mutating virus like COVID-19, but all is not lost!

There is cross-immunity. Cross-immunity develops when there is a similarity between variants. Even though part of the virus mutates, and even changes its shape, there are parts of the virus that rarely change, akin to how our body's physical presentation varies between cultures and geographic ranges – our features differ - but our body's machinery *and* its core programming have predictable variations. Cross-immunity does not equal herd immunity; herd immunity is by far superior. Cross-immunity does protect us from critical illness and death, even if we are still infected or sick.

COVID-19 is here to stay, new variants will come, and reinfections will happen. Now, when we are almost through the worst of a global pandemic of historic proportions, we must be vigilant and practice social hygiene. The Social Safety Initiative's Council of Advisors details these protocols in a short guidebook. The guidebook is available for free in English and Spanish. Disinfecting practices can also be deadly and unnecessary. They have a second free short guidebook to safe Cleaning, Sanitizing, and Disinfecting in the Era of COVID-19 and Beyond to keep your surfaces safe the health-positive way. This free guidebook is available in English and Arabic. You can find these guidebooks at SocialPublicHealth.org. You can find fun and helpful videos on their YouTube channel including a 40min training on social hygiene practices.

Next to learn, endemic. COVID-19 will not become an endemic disease. With the right knowledge and coordinated social practices, together, we will be prepared. Together, we will be ok.

By Adel Beshay, PharmD
Public Health Trainer, Social Safety Initiative