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A NetLogo COVID-19 Virus Simulation Model for Determining Better Strategies at Handling a Virus Outbreak

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The recent outbreak of COVID-19 generated a significant amount of illness and infection for many individuals worldwide. The pandemic also produced many opposing opinions on how to handle the spread of the virus. While some advocated for strict lockdowns, others criticized this method for its potentially severe consequences and proposed a more relaxed approach. My research project involves a NetLogo model that simulates the transmission of COVID-19 to provide insight into optimal strategies at effectively controlling a virus outbreak. I examine the rate of infection based on movement patterns, health status, vaccination status, and mask-wearing status. Using my results, I aim to determine beneficial methods at controlling the spread of a virus, while avoiding a lockdown. My model shows that the infection rate is highly dependent on the way individuals move in their environment. In other words, the transmission of a virus is not only connected to whether people leave their homes, but where they travel. In addition, people who are healthy, fully vaccinated, and wearers of effective masks can help slow the spread of a virus. Incorporating these strategies will lead to a safer environment for everyone.