

Coronavirus transmission

The number of coronavirus cases in our country is determined by two things: the number of people who were initially infected and the transmission rate. Of these two factors, the transmission rate is by far the most important. A small number of infections

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can balloon to a large number very quickly as the following example will illustrate. Suppose only one person has the virus in the first time period. By the next time period assume that the person no longer has the virus (by recovering or by dying), but the individual infects five people. If this pattern continues, these five people will infect 25 people; these 25 will infect 125, these 125 will infect 625, who in turn will infect 3,125, who will then infect 15,625, and so on. As you can see the number of infections can explode pretty quickly.

If, on average, each person infects more than one person, the number of cases will grow. In contrast, if each person infects

less than one other person, on average, the virus will die out. If we wait long enough, the transmission rate will drop below one transmission per infected person. We will get to this point when many people have caught the virus and gained immunity. When this occurs, a person with the disease will not encounter many people who can still be infected for the first time. However, if we wait for this natural immunity to occur, our country will experience an unacceptable levels of deaths.

Of course, there is a better option than waiting for natural immunity to occur. Several companies are working on vaccines. A successful vaccine will lower the transmission rate enough to cause the virus to die out. The vaccine allows people to build immunity without being infected by the virus. While we all wait for vaccines to become available, our public policy efforts should focus on adopting policies that reduce the transmission rate. On this issue, the Trump administration has performed poorly.

The president has the opportunity to lead by setting a good example. Trump could have vowed to

avoid large gatherings that often cause the widespread transmission of the disease. Instead, he held a large national convention and a political rally in Tulsa. Trump could have worn a face mask and urged others to do the same. Instead, he seemed to go to great lengths to avoid being filmed while wearing one.

The president has the opportunity to provide a clear message to people. Trump could have encouraged an expansion of testing for the virus, encouraging tests for those with symptoms and those without symptoms. With widespread testing, when asymptomatic people learn they have the virus, they can self-quarantine. An act that will cut down on the spread of the virus. Instead, the president has called for less testing.

Until a vaccination or effective treatment is introduced, all levels of government should attempt to adopt policies and messaging that reduces the transmission rate of the coronavirus. Governors and mayors can step in and provide messaging and policies that will reduce the transmission rate and save lives.