

Final Writing Assignment  
INTD-100  
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An interesting thing taught during Module I was about vaccines and the growing research done on Covid-19. Because of the danger of the disease, scientists have been focusing on developing a cure and researching the rate of the spread of the disease in order to figure out the best ways to prevent the disease from spreading any further. Unfortunately, the process of creating a vaccine is very lengthy and requires lots of research in order to perfect it. This is a big issue as the demand for this vaccine is very high considering the circumstances. During these troubling times, the world must come up with ways to prevent the spread of disease as the development of the vaccine continues in order to prevent any more deaths from happening. Thankfully, multiple companies have taken up this challenge and are working to develop a vaccine that works as soon as possible, and there are many ways that the disease could be prevented as a vaccine is in the works.

There are multiple factors that need to be considered when developing a vaccine. One important factor is whether or not the vaccine will have any long term effects on a person. In order to ensure there are no negative effects, vaccine research must be conducted over a long period of time. This creates an issue as Covid-19 is a growing problem in today's society. Unfortunately, despite the big demand for this vaccine, more time must pass before a suitable vaccine is released. Thankfully, multiple researchers and companies have taken up this challenge and are already working on developing a suitable vaccine for this growing pandemic. Figure 2 is a table from source 2 that illustrates the amount of organizations working on developing vaccines and the regions of these organizations. As shown, multiple geographical locations are working on this project and the organizations vary from non-profit companies to Universities. This is a good thing as having multiple people conducting research contributes to the amount of knowledge and information we can receive about this new virus.

Another factor to consider is the effectiveness of the vaccine. Of course before releasing a vaccine one must make sure that it is effective against the virus and that it helps prevent the virus from spreading any faster. Many tests must be conducted in order to ensure this. The best way to ensure the effectiveness is by conducting many trials with the pre developed vaccine and recording the results of these tests. Researchers must also make sure to perform these tests on the right animal to ensure that the vaccine will work on humans as well (1). The vaccine may work on one specific animal but it does not ensure that it will work on humans. Unfortunately, this takes time as testing a vaccine requires multiple days to do. This also may be difficult to do because every location and area is different, so multiple tests need to be performed on multiple different locations and ensure that the vaccine works well in every populated area (3). Once the vaccine is approved as effective, then it can be spread around.

The last important factor that needs to be considered before releasing an effective vaccine is how expensive it is to develop. Not only does developing a vaccine take a lot of time, but it takes a lot of money too. The right amount of funds need to be set aside to research the materials needed for vaccines and organizations need to make sure that they are well equipped to start developing their own vaccine. Organizations may take money from the government or they could raise money in order to start developing the vaccine. Multiple organizations run this differently, such as the non-profit organizations, universities, or private companies. Thankfully, many companies are playing their own part and helping in creating a vaccine. The main developers are also diverse as they are distributed across 19 countries, which makes up for  $\frac{1}{3}$  of the population (2). The diverse nature of these organizations is helpful as data is allowed to be collected in many different countries which helps with the issue of populations. Each population will be able to benefit from this vaccine because of the diversity in research being conducted.

For the time being, it is important to know how to prevent the pandemic from becoming worse. Along with developing a vaccine for Covid-19, researchers have also begun examining certain locations to determine how quickly the virus spreads in order to catch a better glimpse of how dangerous this virus is. Knowing how the virus spreads is essential because it allows researchers to figure out the best ways to prevent the disease from spreading more and helps determine ways to stop the spread of disease as the world awaits a vaccine. It is important to take precautionary measures to prevent the spread while the vaccine is developed so the pandemic does not worsen over time. Since the vaccine will take a while to be developed fully, the best ways to prevent the disease from spreading more is essential to know as the development continues. A few examples of how to prevent the disease from spreading is to wear masks, practice social distancing, and make sure to wash hands whenever possible. Thankfully multiple states and countries have adopted laws in order to help prevent the spread of disease for the time being.

In short, developing a vaccine in order to cure the ongoing Covid-19 pandemic takes time, money, and multiple trials in order to become complete. For the time being, however, there are luckily ways to prevent the spread before a vaccine is finalized. As long as these precautions are taken, a vaccine will be available in no time. Thankfully many researchers and organizations have taken the responsibility to research how to develop a vaccine in order to help stop this ongoing, dangerous pandemic. Hopefully the vaccine will become readily available in the near future and this pandemic will finally come to an end.

- 1) Lurie, Nicole, et al. "Developing Covid-19 Vaccines at Pandemic Speed: NEJM." *New England Journal of Medicine*, 8 Oct. 2020, [www.nejm.org/doi/full/10.1056/NEJMp2005630](http://www.nejm.org/doi/full/10.1056/NEJMp2005630).
- 2) Le, T. Thanh, et al. "The COVID-19 vaccine development landscape." *Nat Rev Drug Discov* 19.5 (2020): 305-306.
- 3) Nicole Lurie, MD. "Safeguards Needed for Development of COVID-19 Vaccines." *JAMA*, JAMA Network, 4 Aug. 2020, [jamanetwork.com/journals/jama/article-abstract/2768156](http://jamanetwork.com/journals/jama/article-abstract/2768156).