Measles Prevention

Marisela Ramirez
Dr. Rita Bagwe and Jinho Jung
Biology at Great Basin College Winnemucca, NV

Overview

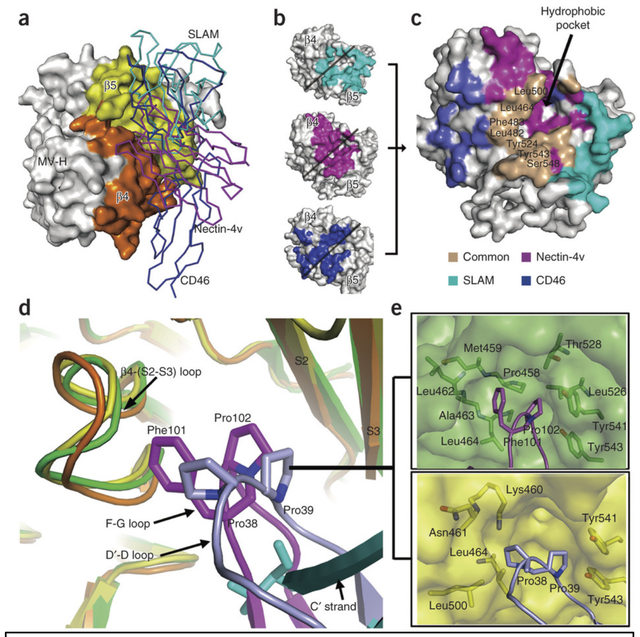
My research consists of a literature based report detailing what the measles virus is how it affects the immunologic system, the preventability of the disease and the methods that could potentially create a rise in vaccination. In order to achieve all of this I read peer-reviewed journals regarding each aspect of my research. I studied the reasons why people chose not to vaccinate and I addressed this issue with methods that I presume may be affective to see change. This research is something that I may be beneficial to me in my path toward working in the medical field. The information that has been found can used to improve vaccination rates and significantly reduce the incidence of preventable diseases.

Introduction

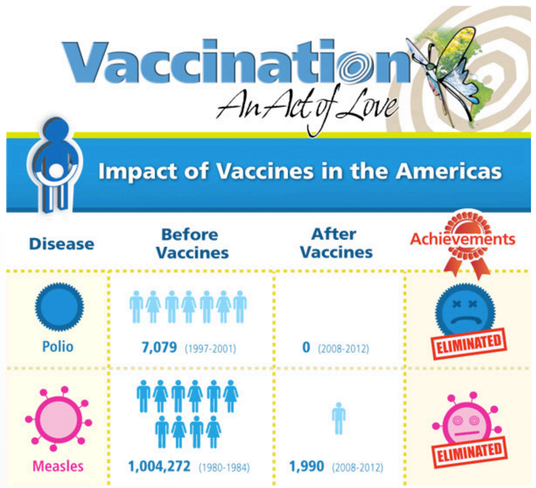
An increase in outbreaks of Measles, such as a recent one that began in Disneyland, prompted my research. Measles can widespread epidemic a virus is successful enough. Measles is highly contagious spread easily through secretions such as sneezing, coughing, and talking and is capable to live on surfaces up to two hours facilitating infection without direct contact with a sick person. No cure exists against the disease but it is preventable through vaccination. Risk of a possible epidemic can be reduced by limiting the people that can serve as hosts. In order to prevent an epidemic a large amount of people need to be vaccinated in order to develop immunity against the Measles virus. By studying the methods of vaccination promotion in Sweden, Honduras, England and Wales, and Kyoto City, Japan I learned what mechanisms increase vaccination rates. Upon studying each countries methods I devised some methods that could work in the United States. Strategies such as the implementation of a vaccination agency; education of the public through peers, medical authorities, campaigns, celebrities and different types of media; and the availability of vaccines either monetarily or geographically are methods I believe to be beneficial. Herd immunity, which occurs when a significant portion of the public is vaccinated and cannot serve as a host to a virus thus limiting its ability to spread, could be obtained through these strategies. If what I have proposed is implemented and is successful then a reduction in virulence should be witnessed.

Method

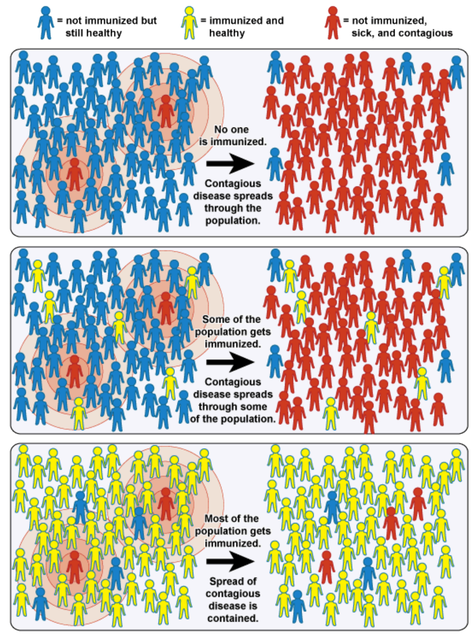
My research was carried out based on a literature-based model. In order to find ways that would increase the rate of vaccination. I decided to research promotional methods to increase vaccination rates. I learned the history of the virus and the vaccine. The *Rubeovax,* the first vaccine, caused serious reactions which were ameliorated with a gamma globulin. The side effects and a flawed link to autism caused people to forgo vaccination. These reasons make education of vaccines is crucial! Vaccinations promotion necessity lead me to study the different methods used to increase vaccinations in other countries. I was able to devise ideas which I believe will be successful if implemented in the U.S.



Picture by: Nature Structural and Molecular Biology
Through my research I learned the mechanism of the virus's infectivity. Some of the very first places that the virus infects are the respiratory mucosae. This is how the virus is so effectively spread through sneezing, coughing, and talking. The virus itself has an H protein on the envelope that interacts with specific receptors in the body. These receptors are Nectin-4, CD 46, and Signal Lymphocyte Activation Molecule. The structure of these proteins in shown in the above picture.



Picture by: Pan American Health Organization
This picture is one used during vaccination week that is meant to illustrate simply the intention of vaccination week. The goal is to vaccinate as many people as possible in order to eliminate the disease. An idea I propose is to have a vaccination week similar to that of South America.



Picture by: vaccines.gov
Herd immunity is a very important concept in my research and for the success of any vaccine. Herd immunity can be obtained when enough of the population is vaccinated that a certain virus is no longer effective at infection and cannot be spread throughout the population. The info graphic describes this concept.

Conclusion

- Measles can be prevented with the MMR vaccine
- Elimination is possible through herd immunity
- A higher volume of people need vaccines for protection against Measles

Fear of autism, mistrust in science, fear of pharmaceutical companies, and not being urged to have reduced vaccination rates.

- Educate the public eliminating the need for mandatory methods like requiring vaccines before children attend school
  - Through: a central group that would be designated to mange vaccinations, vaccination week, celebrity endorsement, physicians and billboards
- Creation of a central agency that monitors vaccinations to try to get people lacking vaccinations to get their vaccinations is essential.
- Ease of receiving a vaccine may increase rates
  - cost-effective or free
  - offered in more places or through mobile posts

Measles can be effectively prevented and even eliminated if the proper attitude is taken to combat the disease.

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