A PERSPECTIVE INTO THE MEASLES EPIDEMIC IN THE UNITED STATES

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What Are Measles?

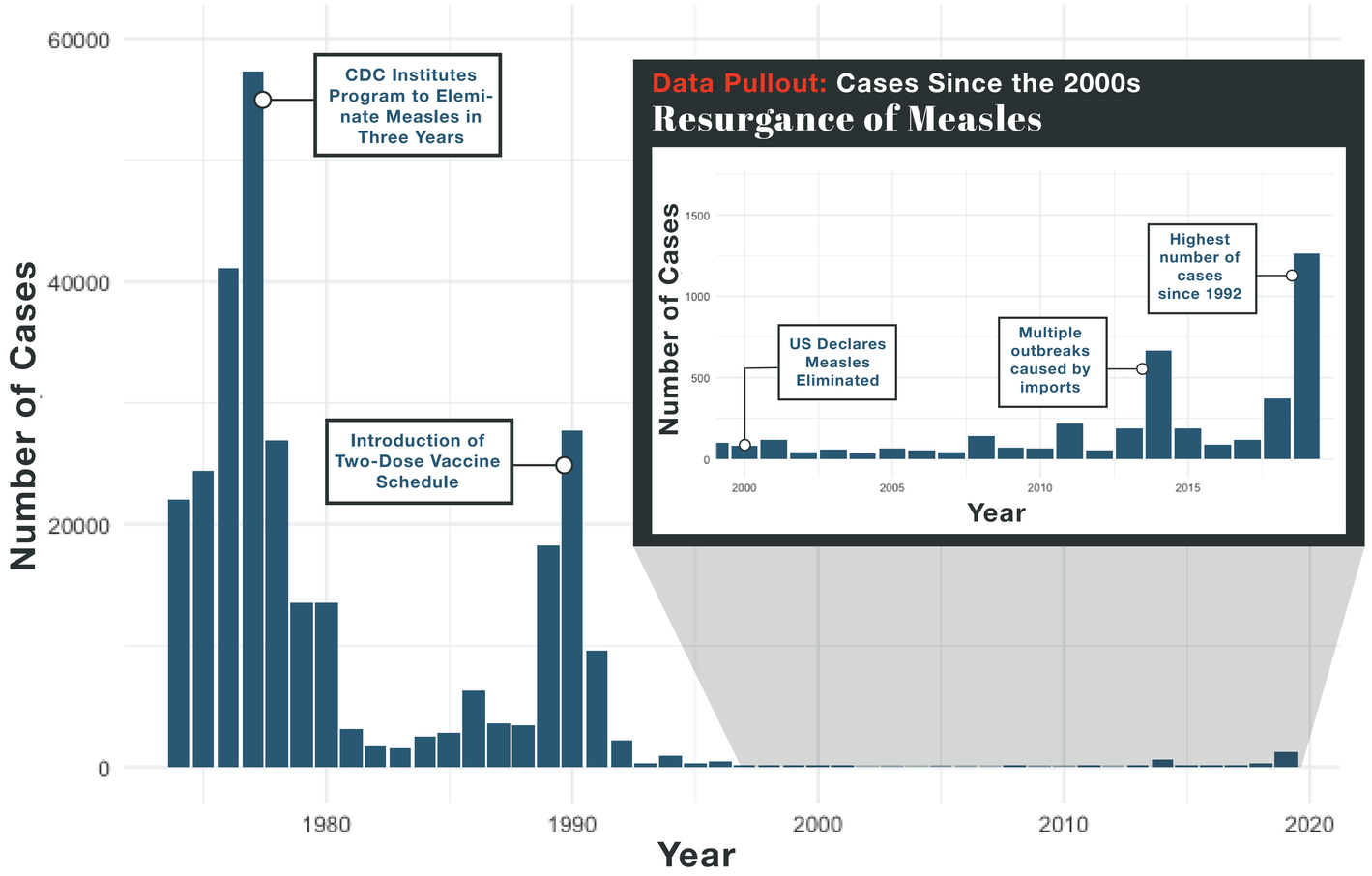
Measles is an infectious disease that spreads through the coughs and sneezes of the infected individuals. It is characterized by symptoms such as an extremely high fever, inflamed eyes, and Koplik's spots (small white spots inside the mouth). Overtime, the body develops a red, flat rash. Common complications are ear infections and diarrhea. Severe complications include pneumonia, encephalitis, and death. Measles are extremely contagious, especially for those that are not immune. It is a disease of humans, as there have not been any reports of the disease by other animal species. Prevention of the disease with the MMR vaccine has to be implemented within the first year of birth for the first dose and then again around age 5 for the second dose. There has been no link between the MMR shot and autism despite the spread of misinformation that there is.

Why It May Be Back

The Anti-Vaccination sentiment began around the 2000s, when former physician Andrew Wakefield published a piece linking the MMR vaccine to autism and other health issues. Although it was proven fraudulent in 2011, the article ruined the image for vaccines. Additionally, celebrity "anti-vaxxers" perpetuated the idea that vaccines may be harmful. Travelers from abroad are also at fault for bringing over the airborne disease as it is still prevalent in other communities outside the US. Travel and the lack of immunization threatens herd immunity and young children as there are pockets of unvaccinated individuals who do not have the protection of other individuals who are immune. When this disease is met in these pockets, it spreads rapidly. Measles is so contagious that if one person has it, 9 out of 10 people around that person will also get infected if they are not protected.

Cases of Measles Since 1970s

After the introduction of the two-dose system in 1989, reported cases of measles decreased significantly in the United States. In 2000, the United States declared measles to be eliminated. However, now in late 2010s, measles are making an unfortunate comeback, reaching its highest level of cases in the past 25 years.

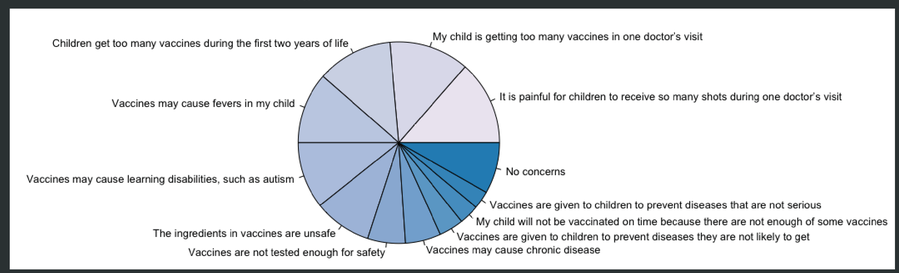


Methods

Datasets regarding the number of reported cases were taken from the Global Health Observatory data repository, Center for Disease Control and Prevention, and surveys by the HealthyStyles organization conducted by Porter Novelli. These datasets were then inputted into R Studio and were then ran with either the Base R graphics or ggplot2 library to create different figures in order to analyze the trends within the data. Furthermore, the Morbidity and Mortality Weekly Reports (MMWR) by the Center for Disease Control and Prevention were also examined in order to pinpoint the different locations that had measles outbreaks.

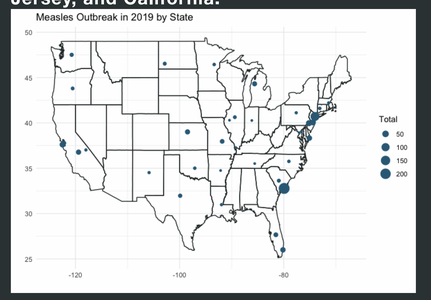
Reasons for Vaccine Hesitancy

Anti-vaccination sentiment is a prominent reason for a lot of the recent vaccine-preventable disease outbreaks. The following survery asked 376 parents with children under 6 about their concerns over vaccinating their children.



Outbreaks in 2019

Outbreaks are most prevalent in Washington, Oregon, New York, Michigan, New Jersey, and California.



Conclusion

Measles outbreaks are a representation of the United States' negligence towards healthcare. There are undeniable facts that:

· The majority of people who got measles were unvaccinated in 2019
· Travelers with measles continue to bring the disease into the U.S.
· Measles can spread when it reaches a community in the U.S. where groups of people are unvaccinated.
· The MMR Vaccine is very safe and effective
· Two doses of MMR vaccine are about 97% effective at preventing measles; one dose is about 93% effective.

The measles epidemic is becoming a greater concern as the number of reported cases and outbreaks grows. In order to sustain measles elimination in the United States there must be greater rates of immunization.

Acknowledgements

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