Measles Incidence in the United States. A Historical Analysis

Introduction

In this report, we explore the historical trends in Measles incidence in the United States, focusing on cases per 10,000 people. The analysis utilizes the **us_contagious_diseases** dataset and employs visualizations to depict the trends over time.

Data Overview

The dataset contains information on contagious diseases reported in the United States, with details such as disease type, state, year, and the number of reported cases. For this analysis, we specifically concentrate on Measles cases and select states of interest.

Trend Analysis

Figure 1 displays the Measles incidence per 10,000 people over the years for selected states. Each grey line represents a state-specific trend, while the blue line represents the national average. The vertical blue line at the year 1963 indicates the introduction of the Measles vaccine.

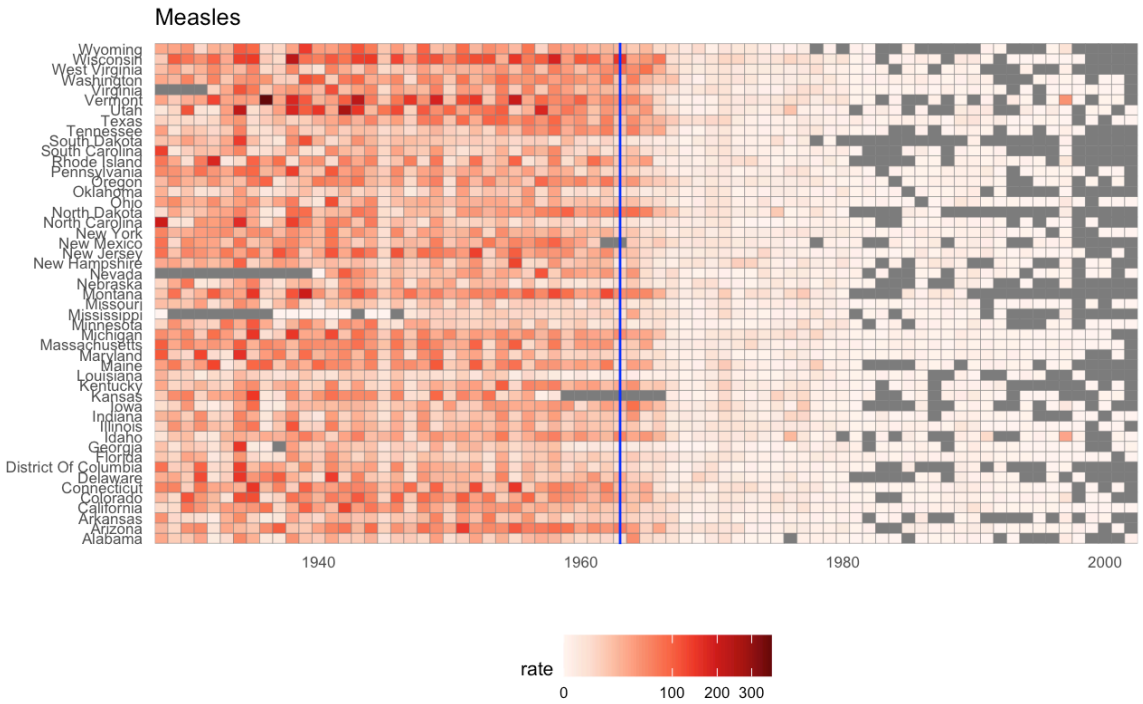

Figure 1.

In addition, Figure 2 provides a closer look at the Measles incidence, incorporating trend lines for individual states and the national average. The grey trend lines for each state use a log transformation to highlight variations while avoiding dominance by high rates.

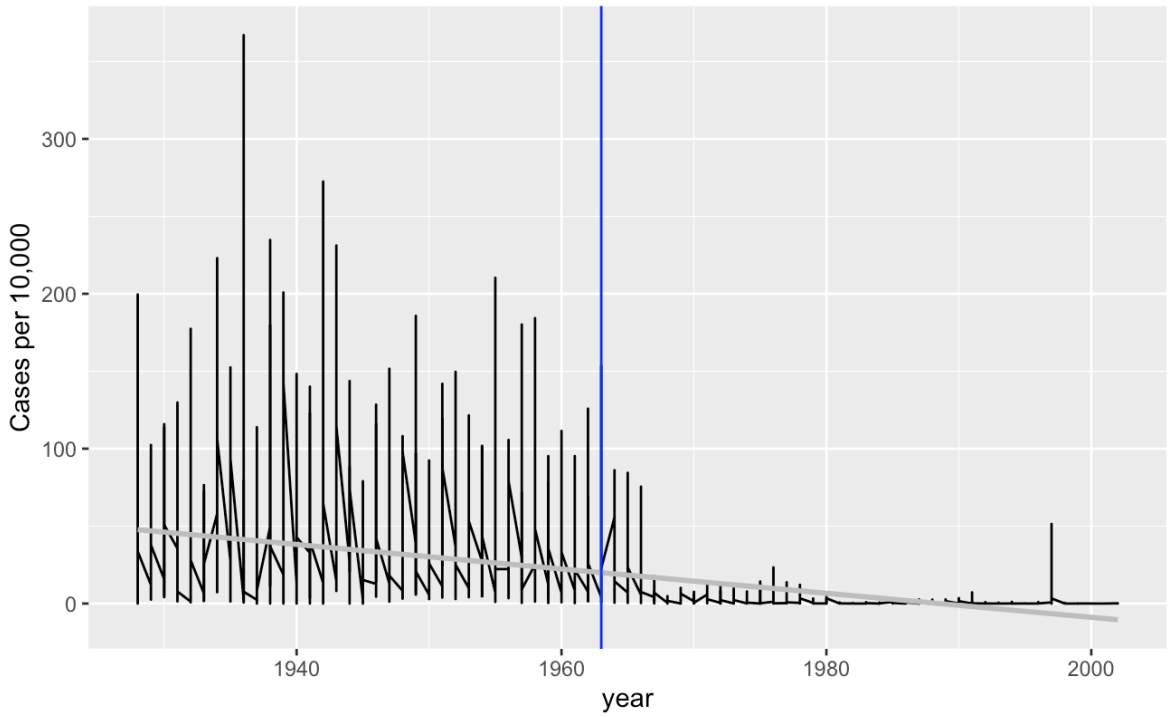

Figure 2.

Observations

1. **Pre-Vaccination Era:** Before 1963, Measles incidence was notably high across various states, with significant variability. The introduction of the Measles vaccine in 1963 marked a turning point.
2. **Post-Vaccination Era:** Following the vaccine introduction, a general decline in Measles cases is observed. However, there are variations among states, indicating different levels of vaccine uptake and regional patterns.
3. **High-Risk Periods:** Despite the overall decline, there are periods of resurgence in Measles cases. These periods might be influenced by factors such as vaccine hesitancy or localized outbreaks.

Conclusion

The analysis reveals the impact of the Measles vaccine on reducing incidence rates in the United States. While the overall trend is positive, understanding regional variations is crucial for targeted public health interventions. Ongoing monitoring and promotion of vaccination are essential to maintaining and further improving public health outcomes.

This report provides a snapshot of Measles trends and serves as a foundation for more in-depth investigations and policy considerations.