

A Comparative Analysis of Historical Pandemics through Data Visualization

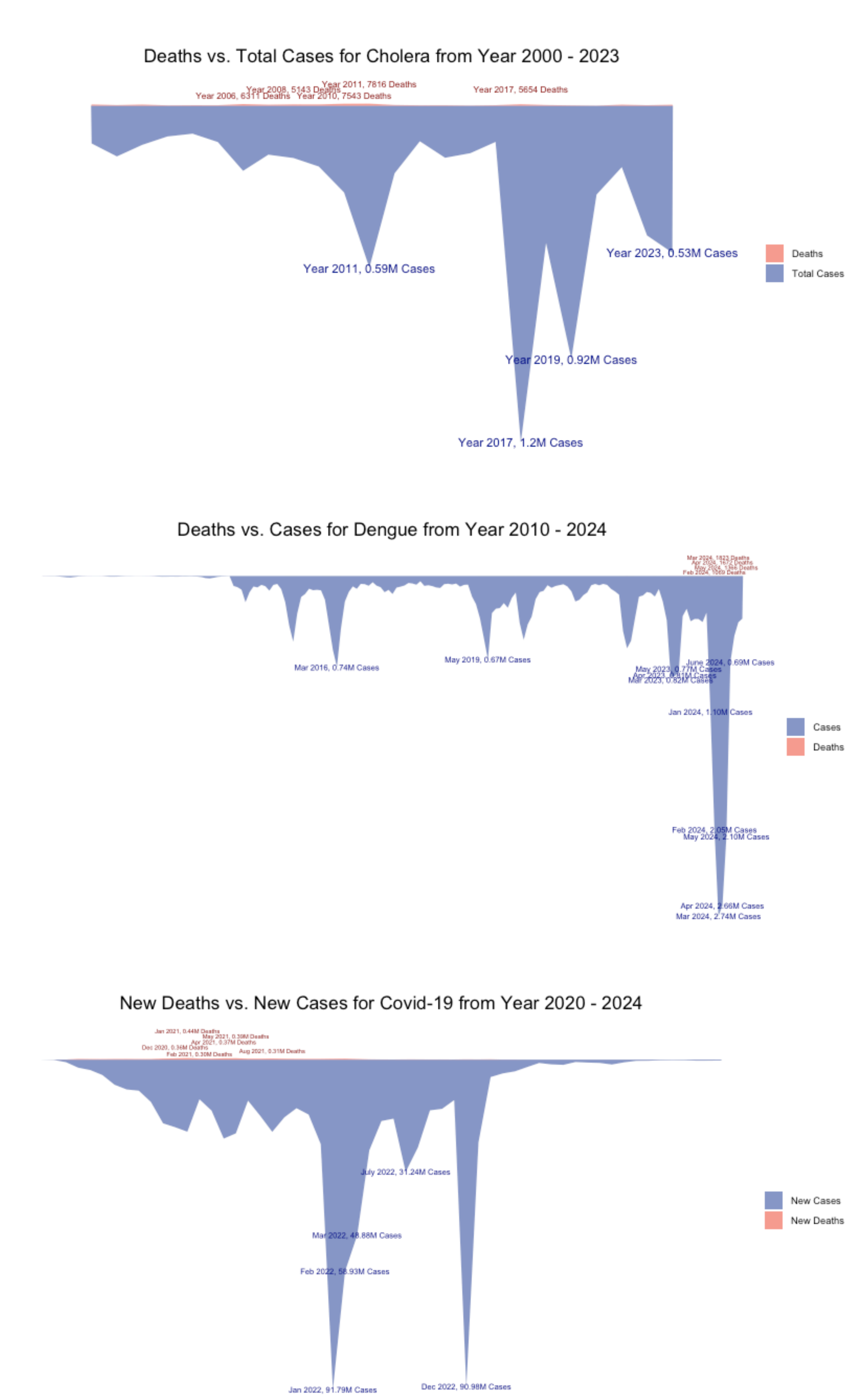
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Introduction

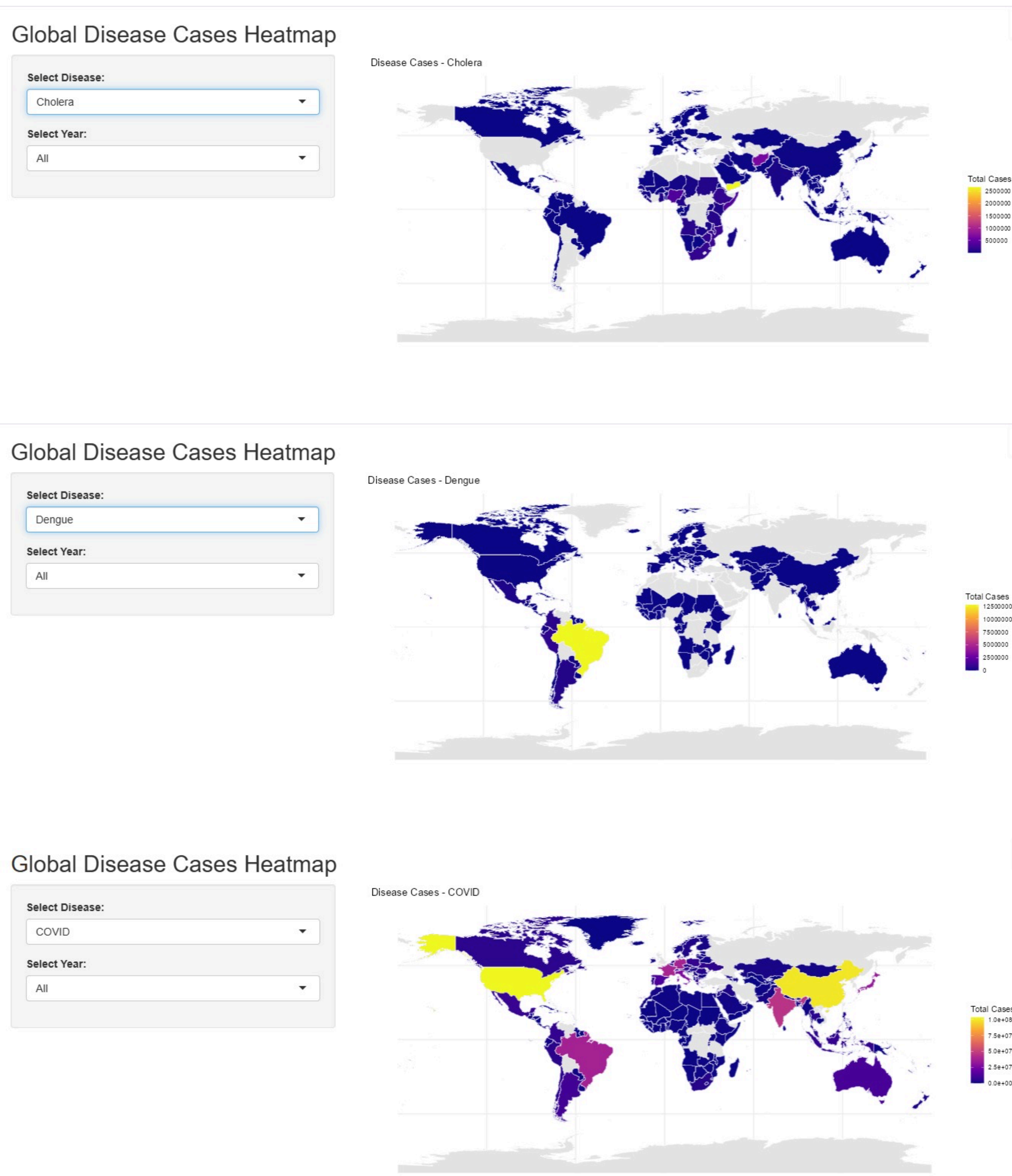
We use data visualizations to explore the similarities and differences among some significant pandemics from human history, including Cholera, Dengue, and COVID-19.

Exploration

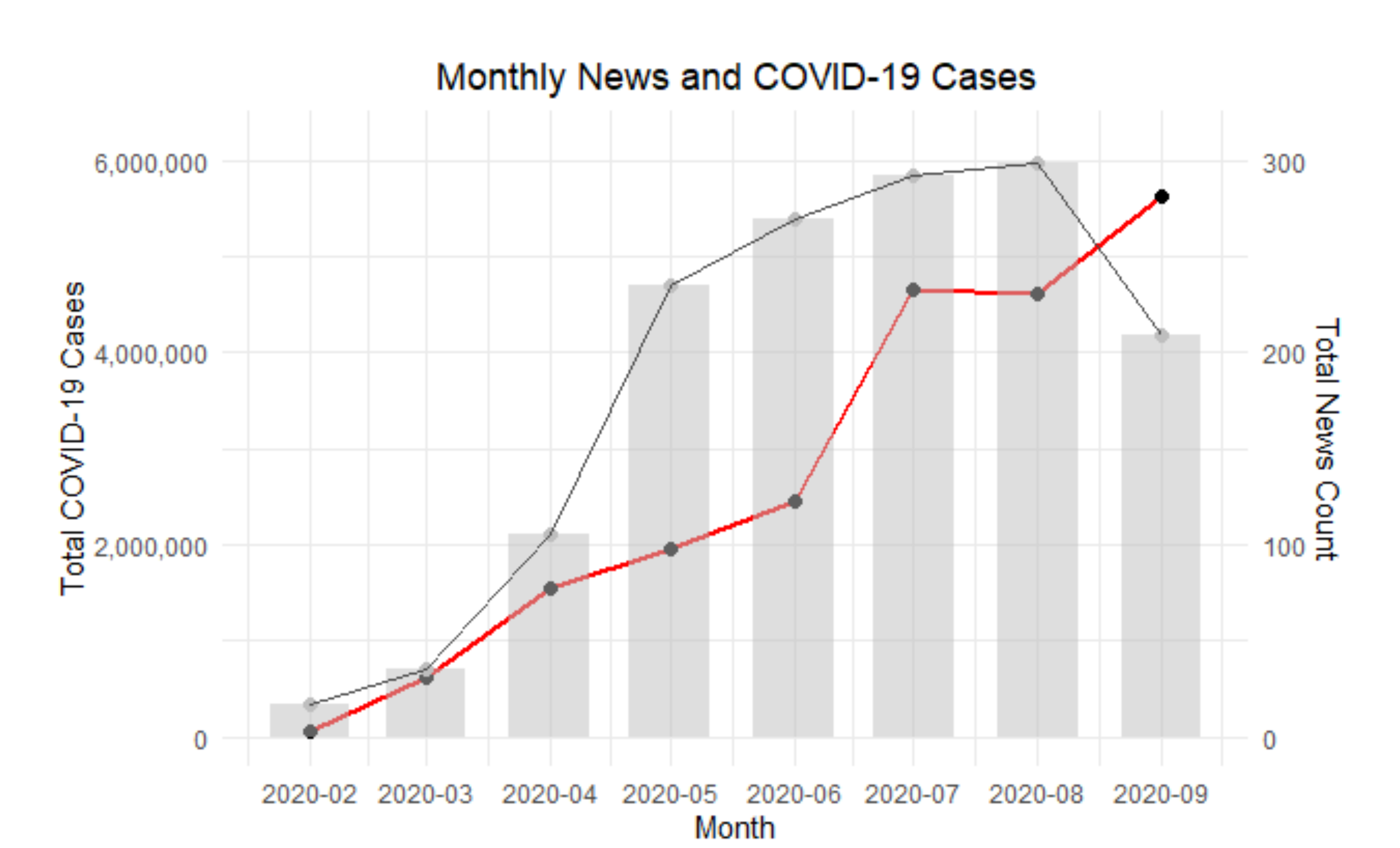
Total cases and deaths over time



Geographical spread of pandemics over time

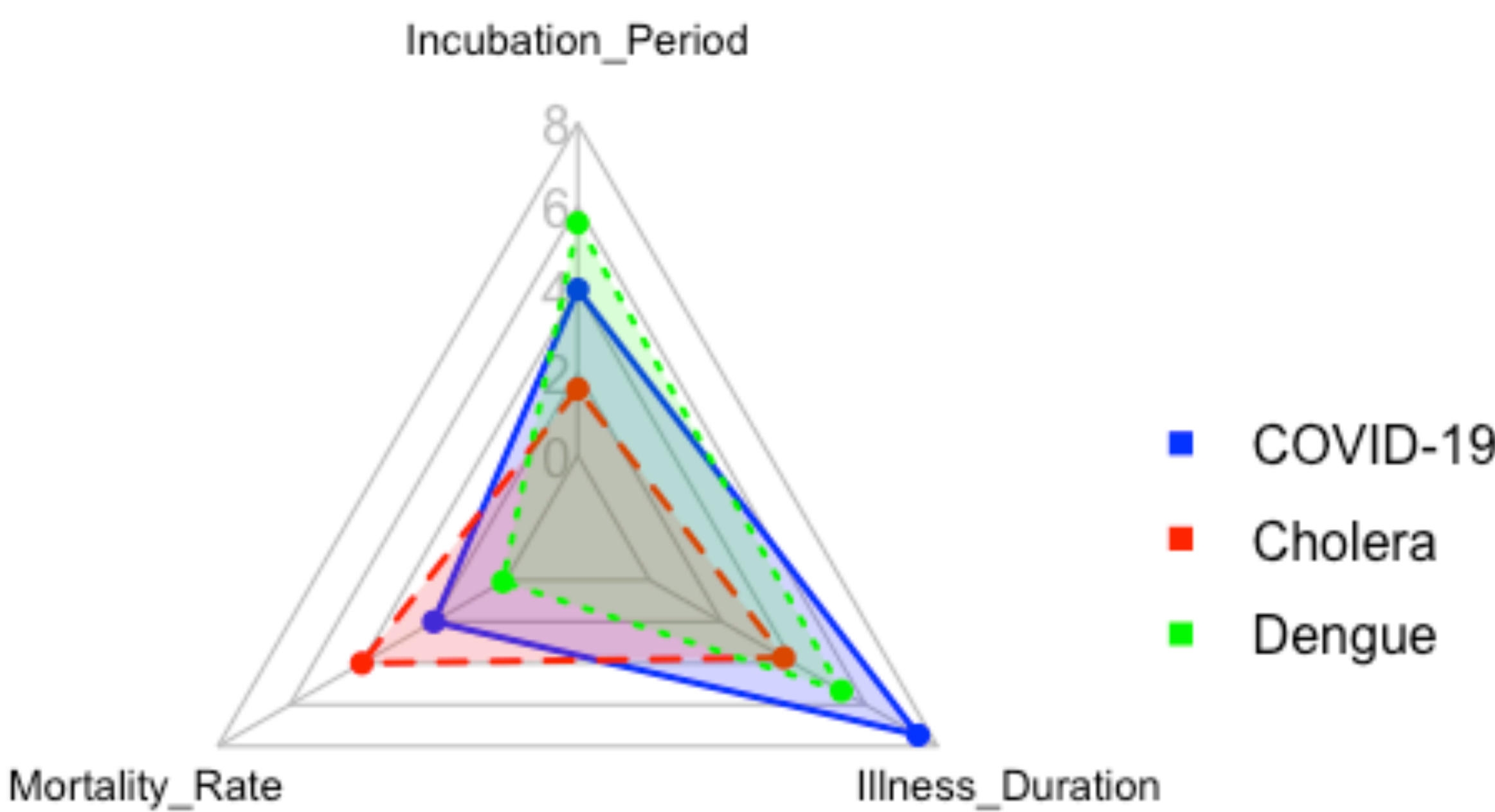


News reports impact on pandemics spread



Differences in disease parameters

Combined Radar Chart for All Pandemics



Conclusions

- Dengue occurred seasonally, mostly late spring to early summer. Cholera outbreaks are closely related to contamination of water sources. COVID-19 had higher mortality rate at the early stage and the total infected cases had spiked at the late stage.
- The monthly number of news articles related to COVID-19 and the month total cases of infected COVID-19 are inversely correlated.
- Among the three pandemics, COVID-19 has the longest illness duration; Cholera has the highest mortality rate; Dengue has the longest incubation period.

Future Directions

- Emphasize on the time stamps of each huge outbreaks and research on the reasons behind them.
- Research on other pandemics and compare the results.

References

- Cholera: https://worldhealthorg.shinyapps.io/page10cholera_data/
- Dengue: https://worldhealthorg.shinyapps.io/dengue_global/
- COVID-19: <https://data.who.int/dashboards/covid19/data>