

# A Comparative Analysis of Historical Pandemics through Data Visualization

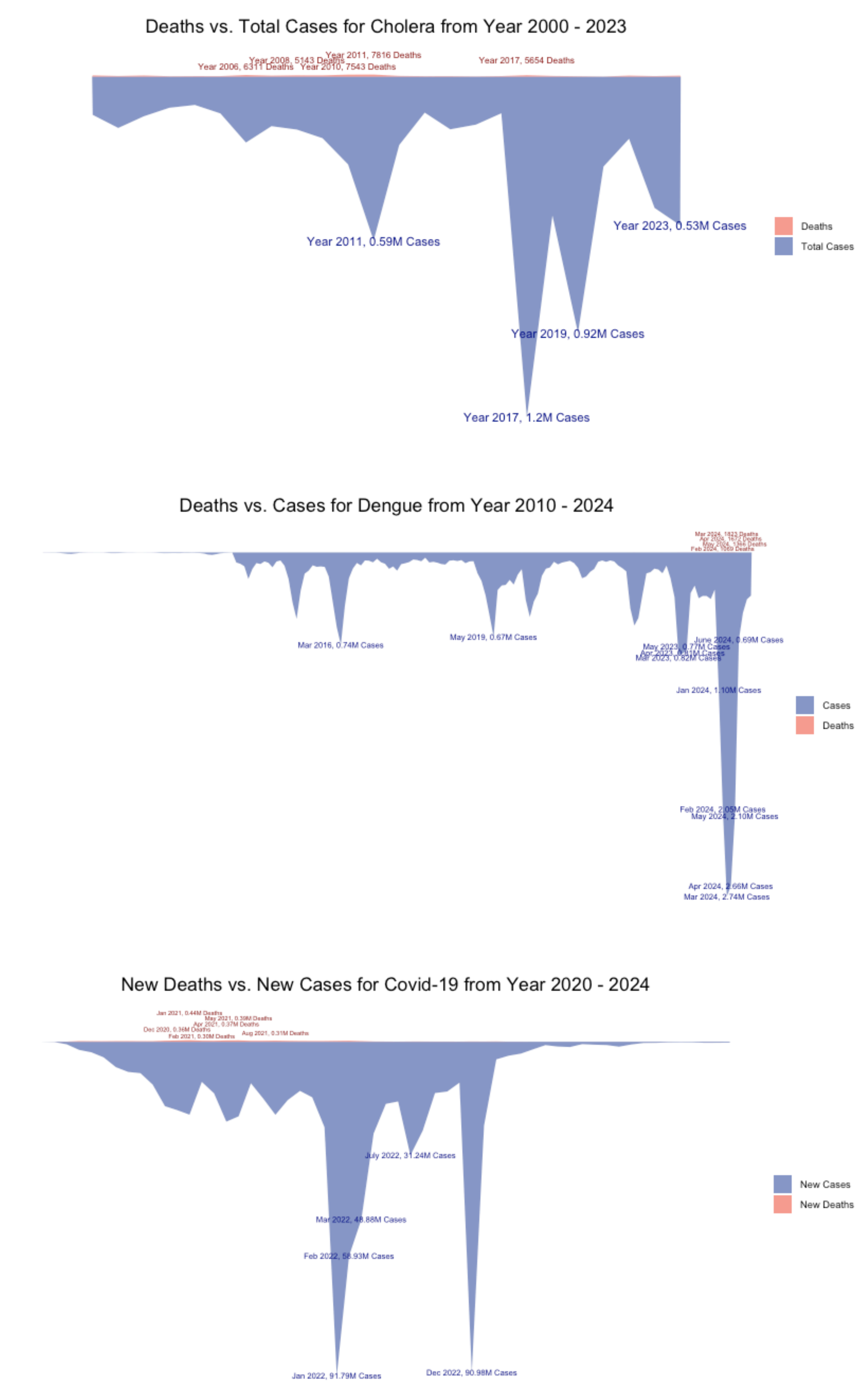
Epidata — Yitian Qian, Li Mi, Meghana Maringanti, Rohit Surya

## Introduction

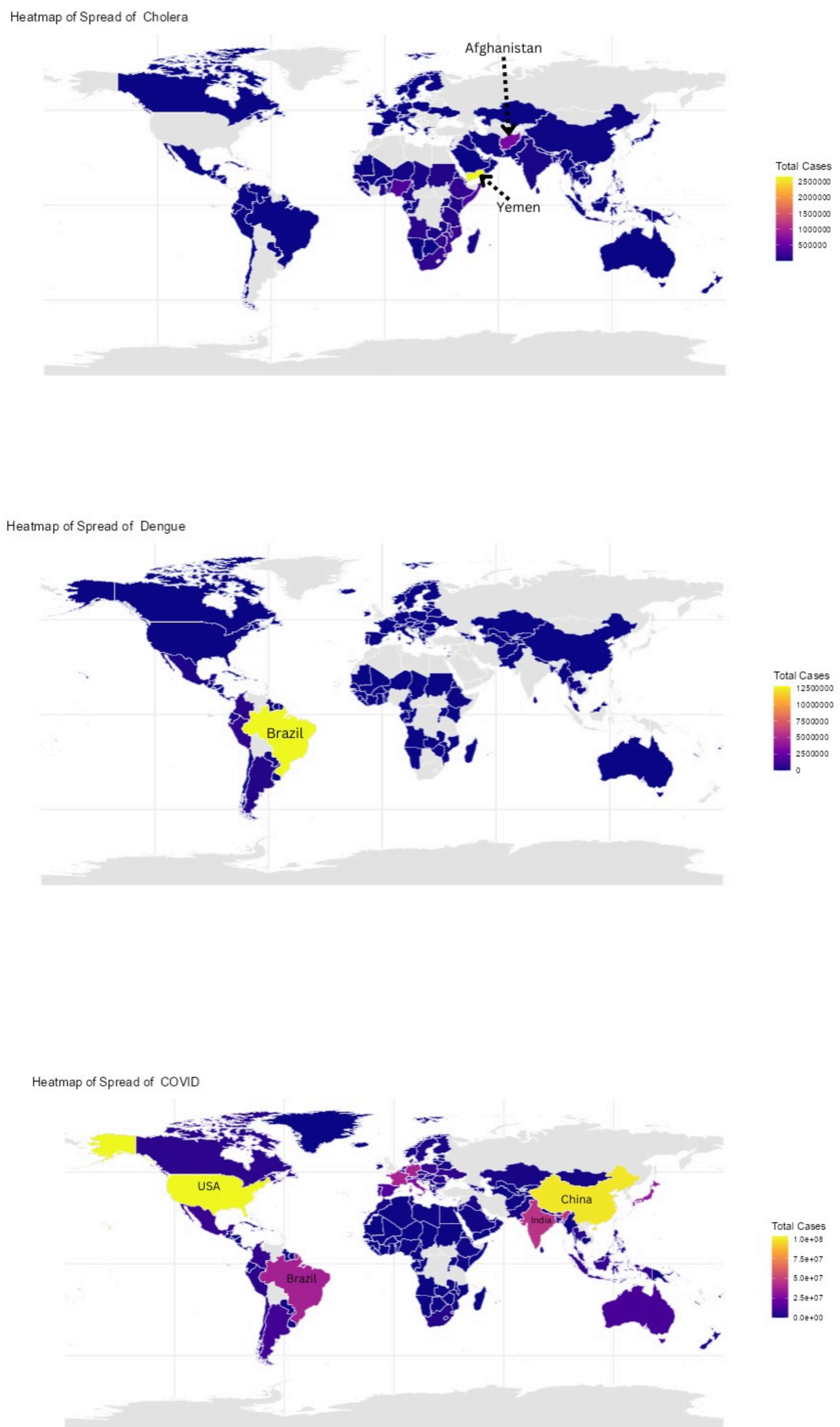
We use data visualizations to explore the similarities and differences among some significant pandemics from human history, including Cholera, Dengue, and COVID-19.

## Exploration

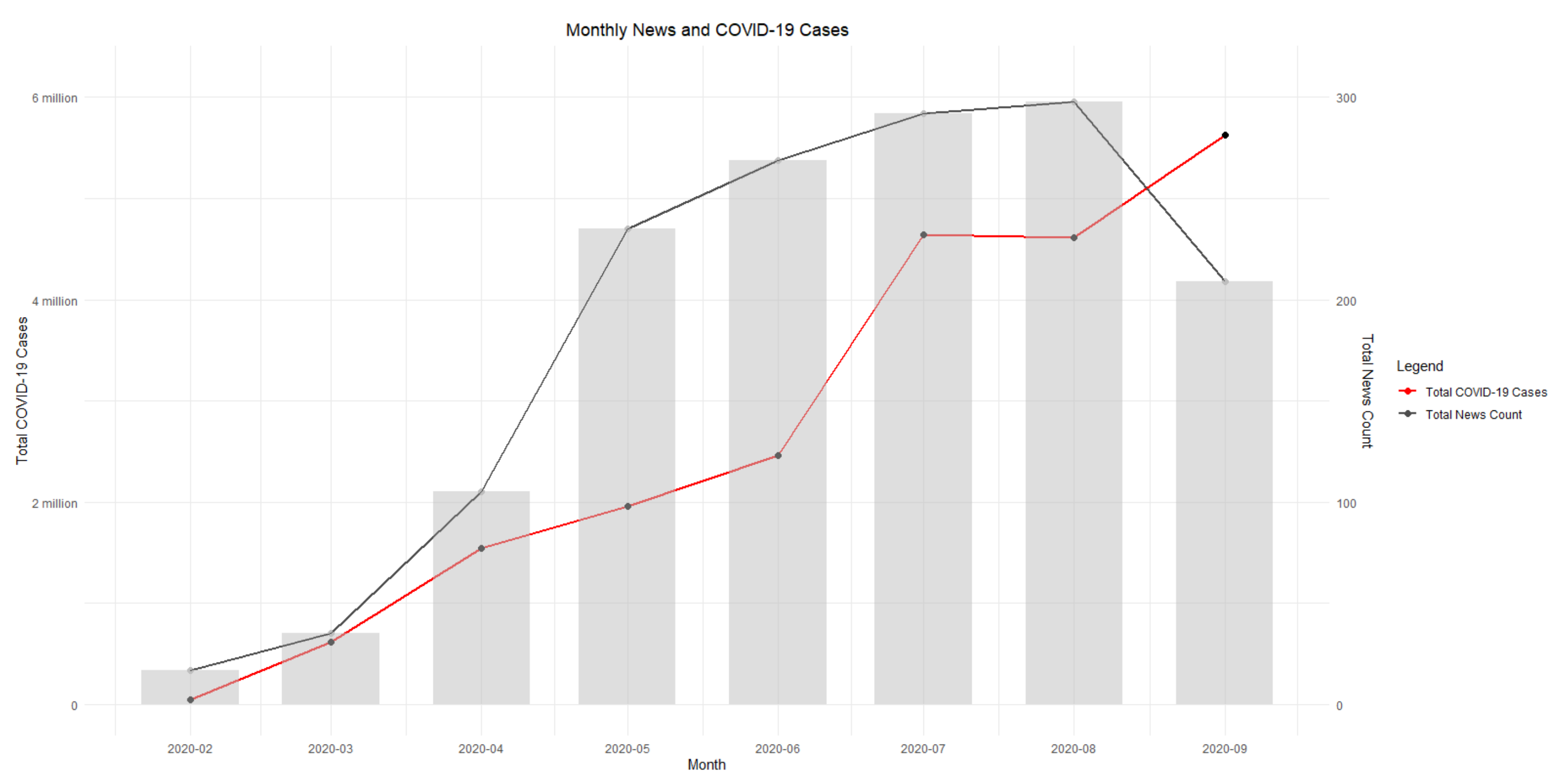
### Total cases and deaths over time



### Geographical spread of pandemics over time

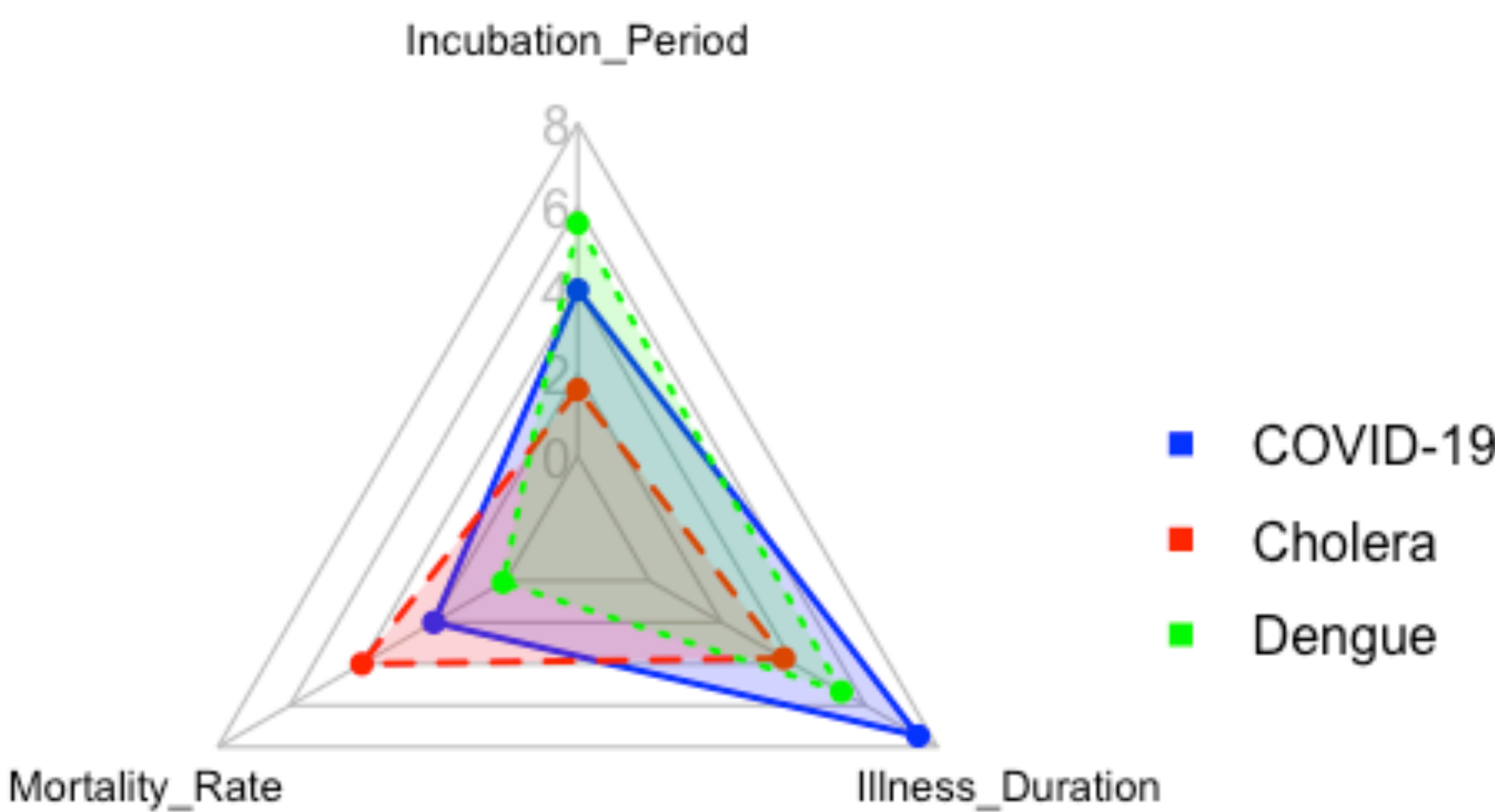


### News reports impact on pandemics spread



### 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/](https://worldhealthorg.shinyapps.io/page10cholera_data/)
- Dengue: [https://worldhealthorg.shinyapps.io/dengue\\_global/](https://worldhealthorg.shinyapps.io/dengue_global/)
- COVID-19: <https://data.who.int/dashboards/covid19/data>