

83. **EFFECTS OF SOCIAL DISTANCING AND LOCKDOWN PROTOCOLS ON FATALITY RATES OF COVID-19 IN THE U.S DURING THE FIRST YEAR OF THE PANDEMIC.**

Valerie Hardoon¹, Bryant A. Pierce², Solomon C. Mbanefo², Harin N. Shah², Kanav Markan³, Marika L. Forsythe².

¹ MD. American University of the Caribbean School of Medicine, Cupecoy, Sint Maarten.

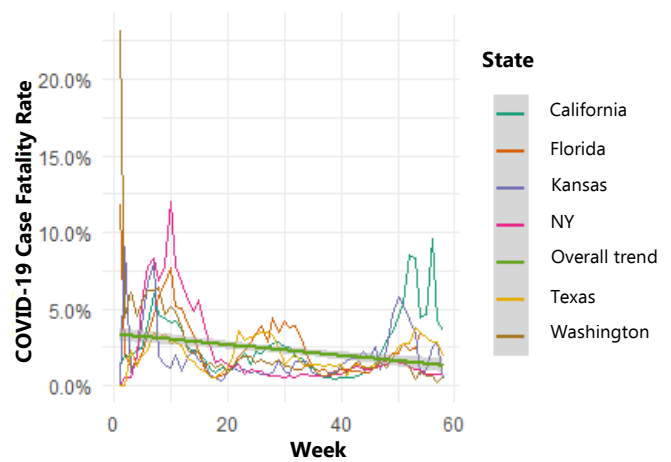
² MD. Saba University School of Medicine, The Bottom, Saba, Caribbean Netherlands.

³ MD. American University of Integrative Sciences School of Medicine, Bridgetown, Barbados.

INTRODUCTION: SARS-CoV-2, the coronavirus strain responsible for the COVID-19 pandemic, can lead to severe respiratory disease and death. Worldwide, government officials tried to protect its citizens by mandating various lockdowns and social distancing policies to curb the spread. In the United States, each state initially implemented a transition or “phasing” policy that included varying degrees of safety protocols. This allowed them to re-open gradually, the goal being to reduce transmission rates while simultaneously allowing for higher degrees of public gatherings and events. The initial lockdown was observed to help suppress the pandemic, and the states—with guidance from the CDC—were left to their own agenda on how to best re-open their economy. This strategy was seen as optimal during the early stages of the pandemic. Our study aimed to determine if there was a correlation between fatality rates and phase transitions across the states. **METHODS:** The states selected for this study allowed for evaluation of different management styles throughout the phase transitions. COVID-19 case rates varied across the U.S.; some states observed higher infection rates than others. Thus, six states, each from regions with different caseloads and safety protocol compliance, were selected for this study: Florida, California, New York, Washington, Kansas, and Texas. Metrics such as incidence and mortality rate of COVID-19 infection were obtained from their respective government websites, allowing fatality rates to be calculated and compared using Bayesian logistic mixed models. **RESULTS:** There are significant outcomes when analyzing the data individually and as part of a meta-analysis. When examining the fatality rates across phases grouped by individual state, there was a downward trend with each transition except in Texas. New York was found to have the lowest median fatality rate (median [IQR]; 0.011 [0.007, 0.017]), followed by Washington (0.014 [0.011, 0.020]), Kansas (0.014 [0.009, 0.021]), Texas (0.018 [0.013, 0.028]), California (0.021 [0.011, 0.037]), and Florida (0.022 [0.011, 0.034]). However, when the states’ data was pooled an overall downward trend was demonstrated, with a median fatality rate of 0.039 [0.019, 0.067] in phase 0, dropping to 0.010 [0.007, 0.013] by phase 4. A decrease in fatality rate odds by about 33.4% through each phase transition was observed when combining all the states. **CONCLUSION:** Based on our results, implemented safety protocols and phase transitions were shown to assist in controlling the spread of COVID-19 as the states re-opened during the first year of the pandemic. Differences in fatality rates throughout the U.S. can likely be explained by how disciplined each state was with quarantine requirements and social distancing policies. This allowed certain states to control the infectious spread more efficiently than others, thus allowing them to progress through the phase transitions at different rates as they returned to normal. Future studies are warranted and can incorporate additional states for a more robust sample size. Further accounting for confounding variables, such as patient comorbidities and the introduction of

COVID-19 vaccines at the end of 2020, would also allow insight into how fatality rates have been affected across the U.S.

Figure. Fatality Rate of the Six Study States in the U.S. over the First 58 Weeks of the Pandemic. There is an Overall Downward Trend over Time.



Key words: COVID-19; Phase transition; New York; Washington; Kansas; Texas; California; Florida (Source: MeSH-NLM).