

BRIEFING (FIVE MINUTES) ON US VIRAL OUTBREAK : The Spread of COVID-19 in the US as of March 25, 2020 (Source: CDC*, USA)

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1 Project Question

Assume you are the only data scientist or biostatistician among a team of 30, dedicated to working on the current viral outbreak in the US. Your input at every meeting is to provide your team with the current number of reported cases and deaths from this outbreak as reported on the CDC website. You always have 5 to 10 minutes to brief your team of these numbers, and they expect an accompanying short report of at least 5 sentences describing these numbers, a heat map of US showing the intensity of spread of COVID-19, and possibly a bar plot showing order of states in decreasing order of reported cases.

Note no modeling of cases is expected just a summary of these numbers as reported at CDC website. Using either R, SAS or Python build a report that supports your 5 minutes briefing at your usual daily meeting. It's expected that when needed report be reproducible and be able to update old report with new numbers as and when reported cases change on CDC website.

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US VIRAL OUTBREAK BRIEFING (Source: CDC*, USA):

The Spread of COVID-19 in the US as of March 25, 2020

As of March 25, 2020 there has been a total of 54,453 COVID-19 confirmed cases in the US, of which 986 were transmitted through close contact relations and 584 travel related while the remaining 52,883 are under investigation for method of transmission. Total deaths is on the increase and currently stands at 1.4 % (737) of total confirmed cases.

Spread across states

Confirmed cases of this outbreak across states range 0 to 26358, with New York having the highest number of cases while 5 states (American Samoa, Marshall Islands, Micronesia, Northern Marianas and Palau) have no reported cases as of now. Arranging states in decreasing order of impact of COVID-19 outbreak revealed the top 15 (25%) states have reported cases that ranged 618 and 26358 while the bottom 15 states have cases less than 53. With median reported cases currently at 230, implied 29 states have cases below this mark, Figure 1, 2 and 3.

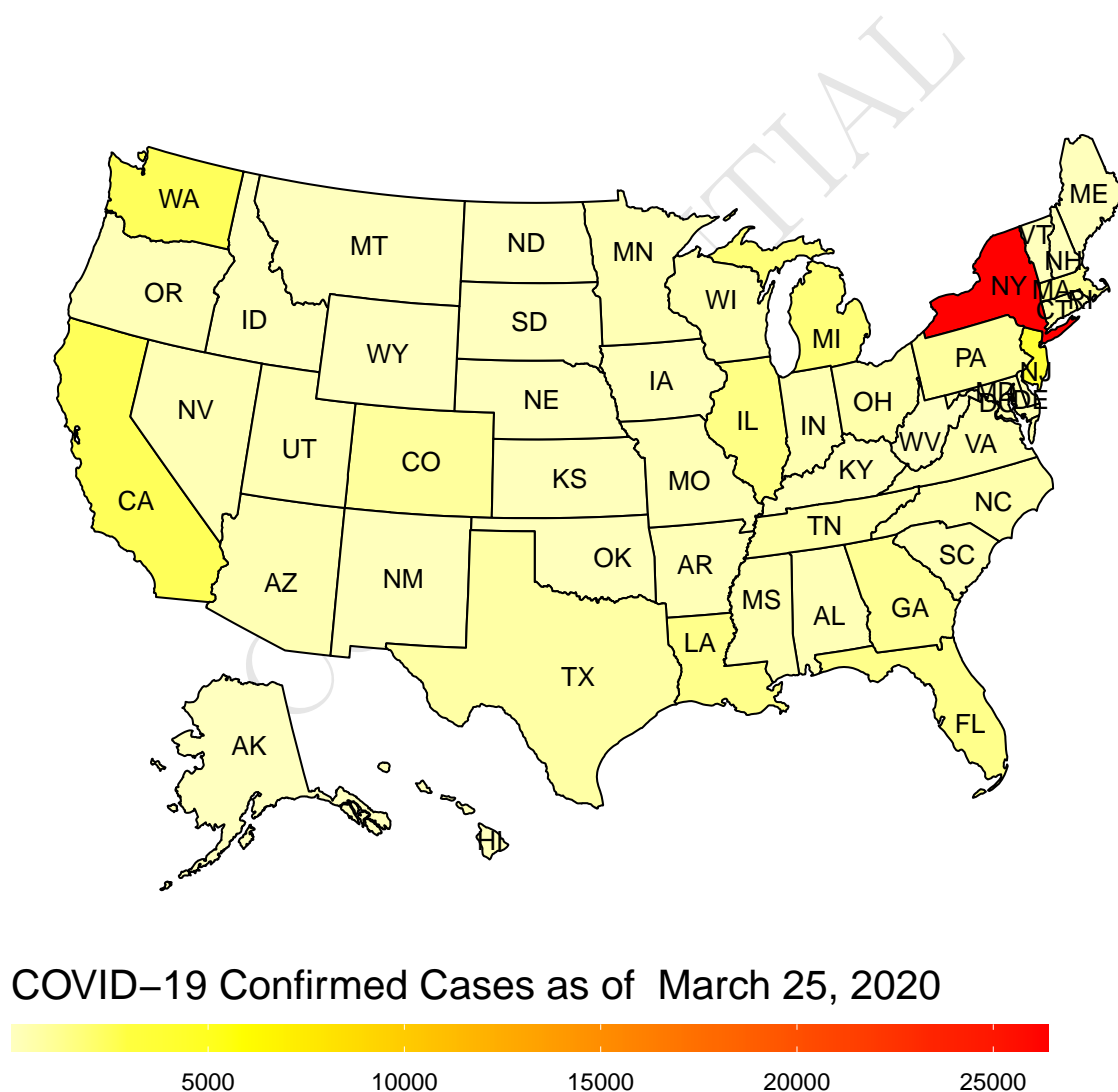


Figure 1: A heat map of US showing the spread of COVID-19 across states

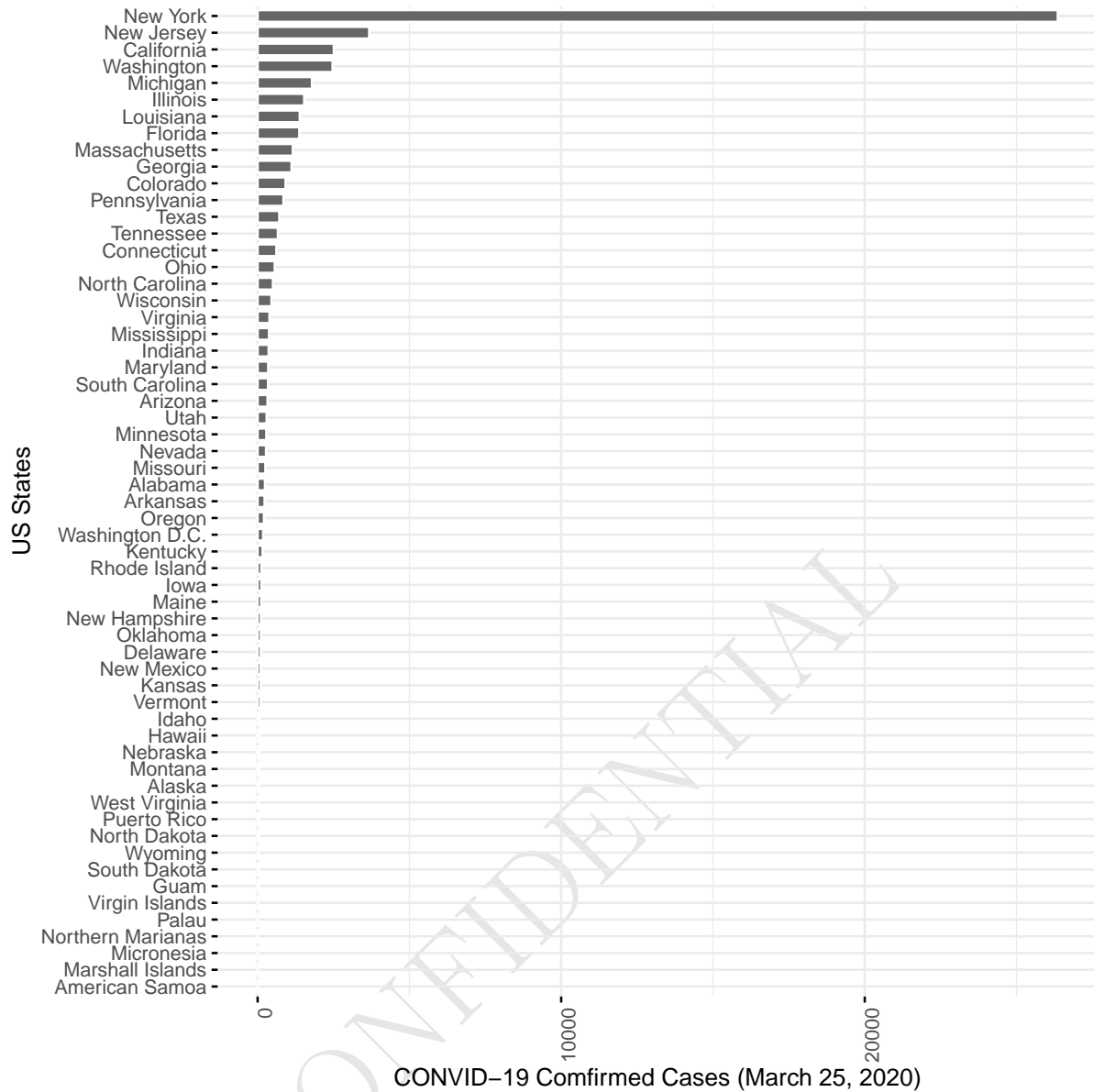


Figure 2: A barplot showing US states in decreasing order of outbreak, with other US territories depicting minimal or no spread of COVID-19

Zooming in on Figure 2 above as:

a) Top 30 states with worse outbreak

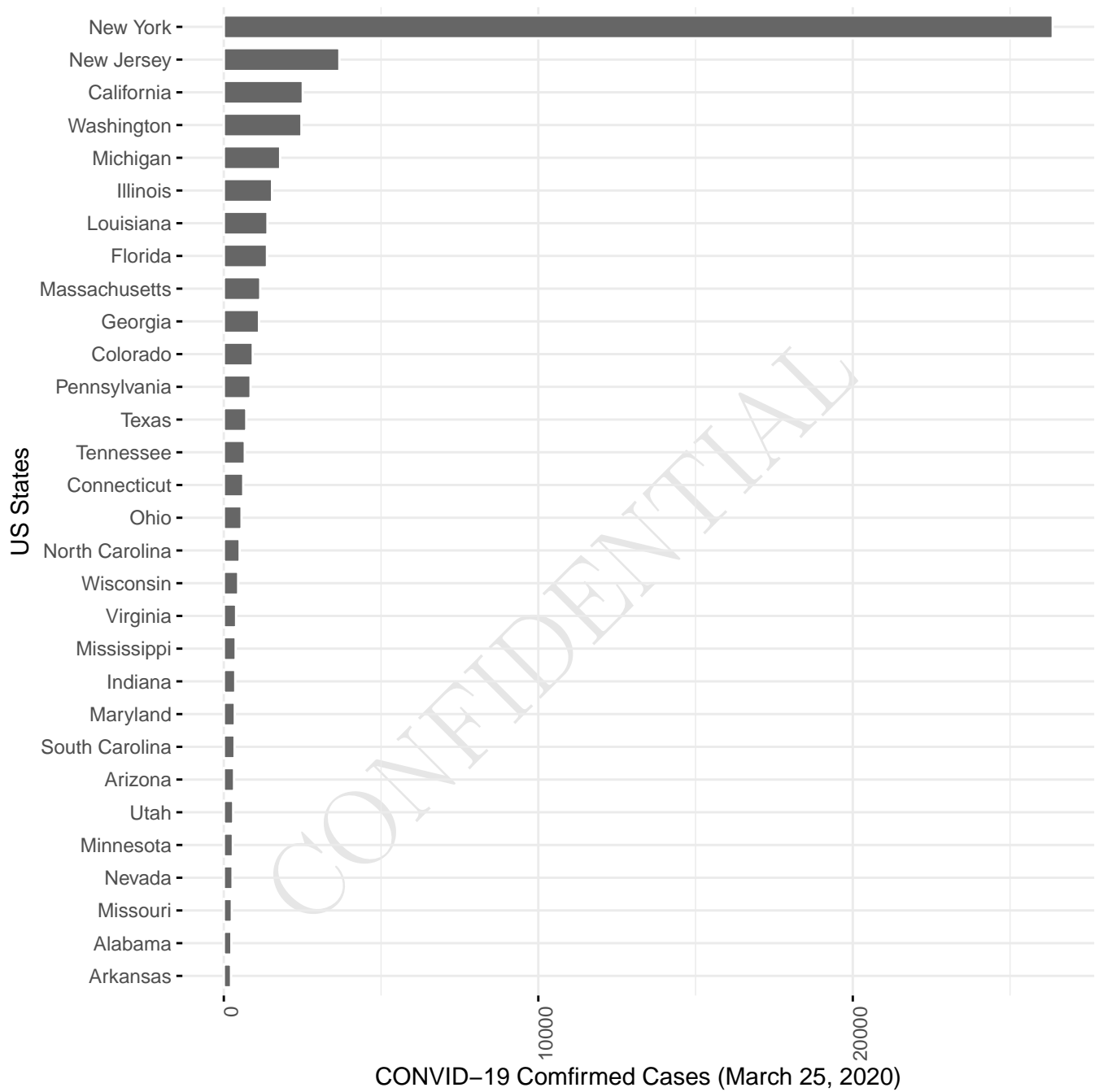


Figure 3: Top 30 states with higher impact by the COVID19 pandemic

b) Bottom 29 states with bad outbreak

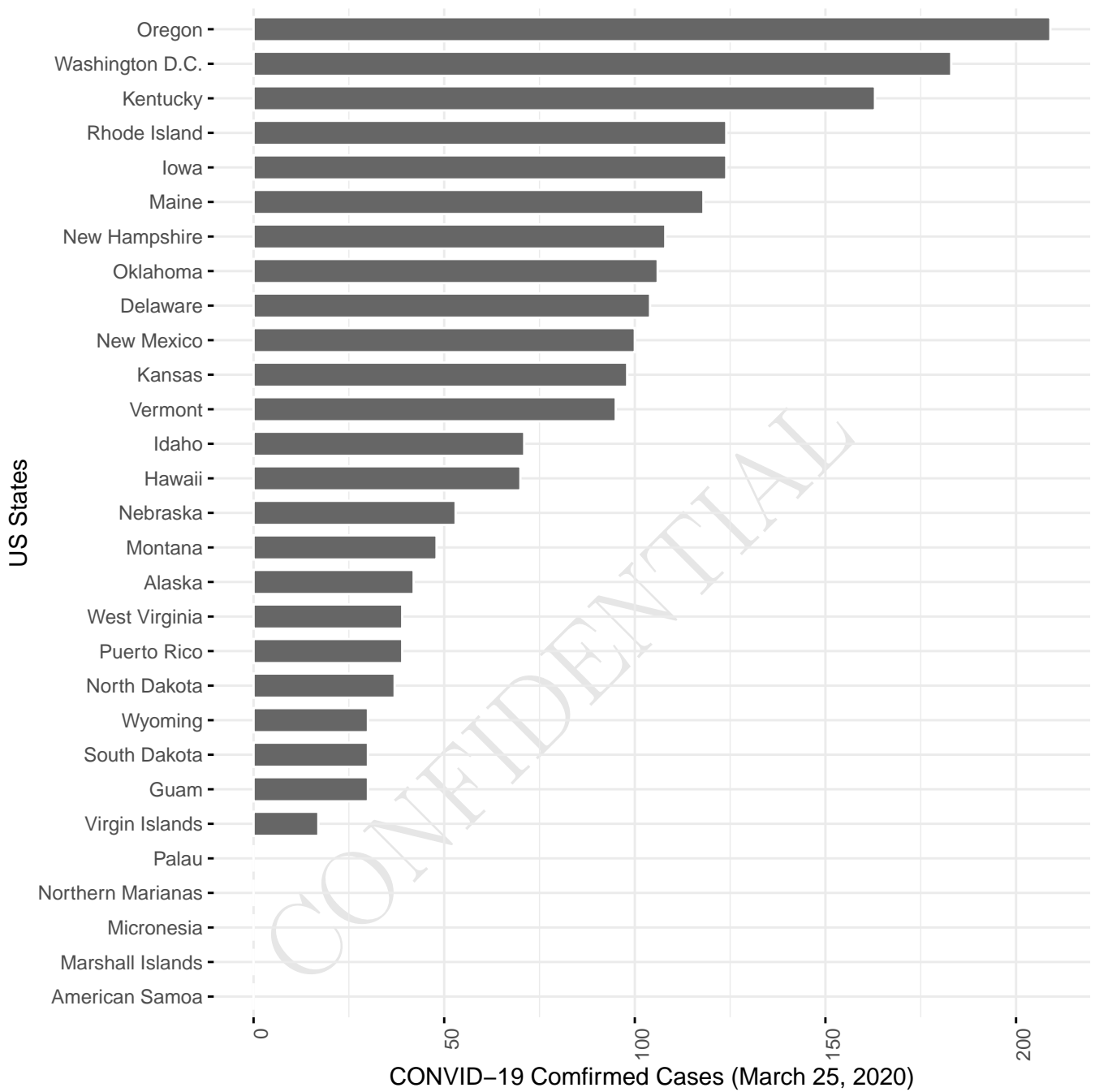


Figure 4: The bottom 29 states less impacted by the COVID19 pandemic

Reference

* <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/>

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Note: CDC website has not had any updates in reported cases of COVID19 as of last report update on March 25, 2020

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