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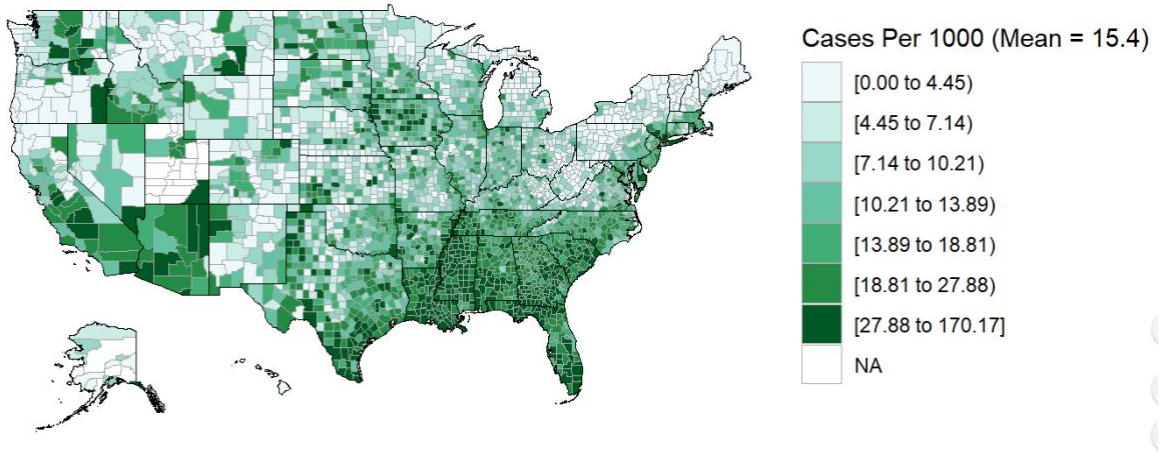
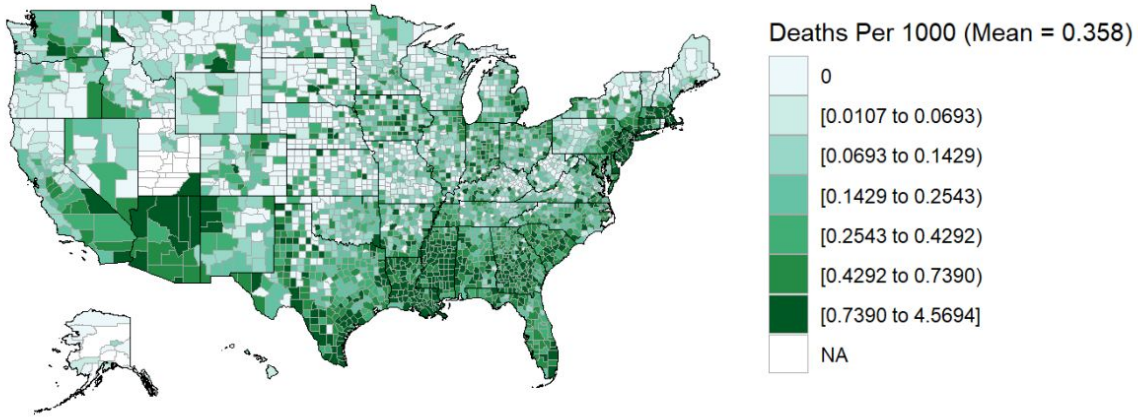
Choropleths Discussion as Part of Exploratory Data Analysis

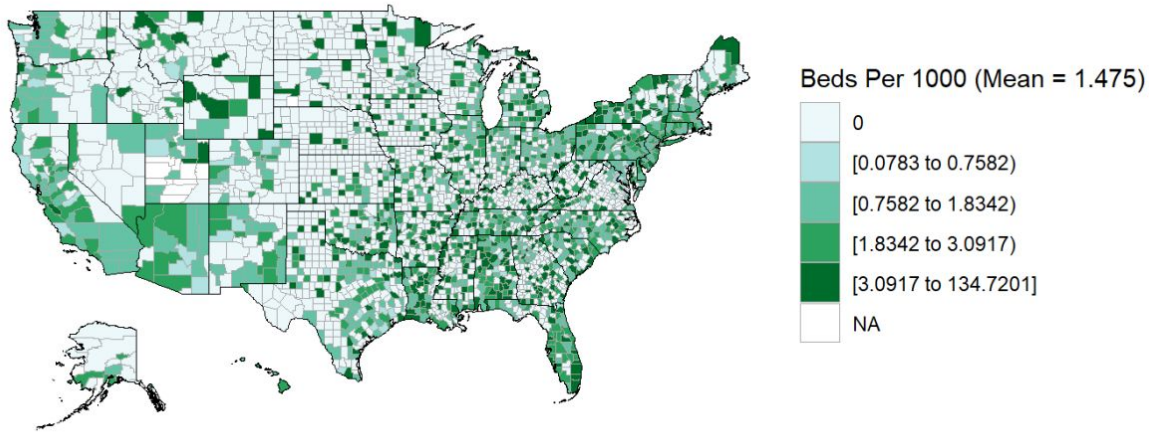
US Covid Cases Per 1000 by County

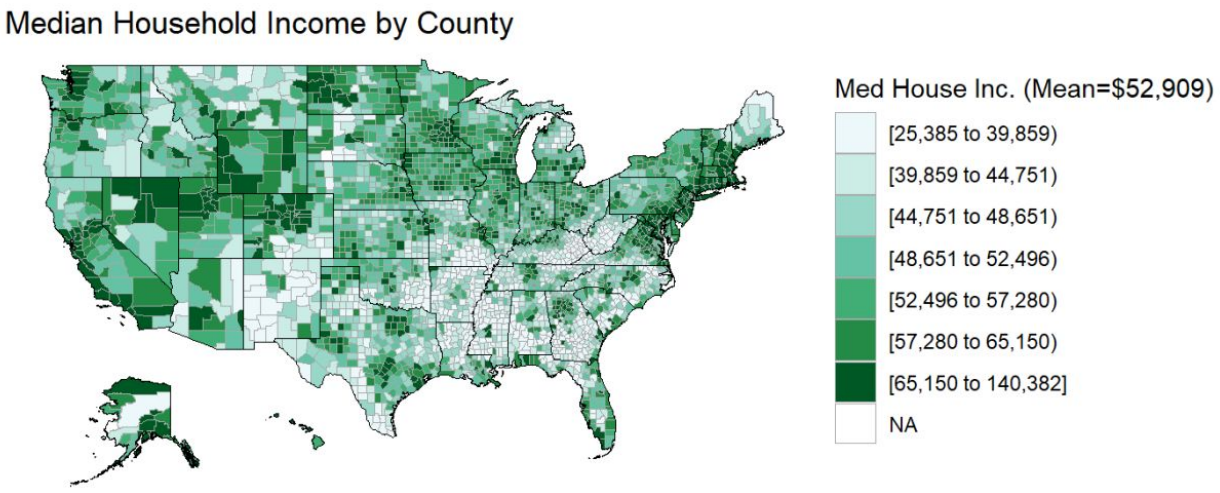


US Covid Deaths Per 1000 by County



US Number of Beds Per 1000 by County





I used the Choroplethr and Ggplot2 packages in R to make these visualizations. From these choropleths, we see that there is a direct relationship between the number of cases per 1,000 and number of deaths per 1,000. Counties with a high number of cases per 1,000 (such as those in the New York City boroughs or the southern states) also tend to have a higher number of deaths per 1,000.

In terms of bed counts, there is less of a relationship between beds and cases or beds and deaths, as there are so few beds per 1,000 in general. However, it is interesting to note that, with an average case per 1,000 at 15.4, and beds per 1000 at 1.475, we have a problem if even 10% of the cases require hospitalization, as that will overload the hospital bed capacity.

In looking at major cities in general, I saw that most cities were in the 1.8-3.09 beds per 1,000 range, including LA, NYC. However, cities in predominantly rural states had the highest number of beds per 1000, with Boise *county* Idaho having the highest rate at 134 beds per 1000 (as it is the largest city and serves nearby counties without hospitals, while this county itself still only has a population of about 7,800).

Finally, when examining median household income per county, it is interesting to note that this map appears to be the inverse to the cases and deaths maps. Aside from the greater NYC region (which had a high rate of cases per 1,000 and also had a high median household income) areas which are in darker green on this map appear to be in lighter green on the cases and death maps. From this, one could suggest that in general, areas which have a higher median household income also tend to have lower cases per 1,000 and deaths per 1,000.