



Hospital Charges Data Analysis

Project 01 - Advanced Excel
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Introduction



Problem Statement: What are the most expensive treatments, where are they located, and what conclusions can be drawn by comparing the charges across the country?



Goal: Identify and understand the behaviour of the top three most expensive treatments.



Task: Data Cleaning, Data Analysis, Data Visualization, and Conclusion.



Data: It presents variations in hospital charges across the United States for the 100 most common treatments and covers 7 million patients. It contains records from over 3000 healthcare providers in 2000 cities of the 50 states.

Top 3 most expensive treatments

The top three most expensive treatments in the U.S. have been identified as:

1. **Clinical conditions Respiratory diagnosis with ventilator support for 96+ hours.**
2. **Septicemia or Severe Sepsis with mechanical ventilation for 96+ hours.**
3. **Infectious and parasitic diseases with O.R. procedure with MCC (Major Complications and Comorbidities).**

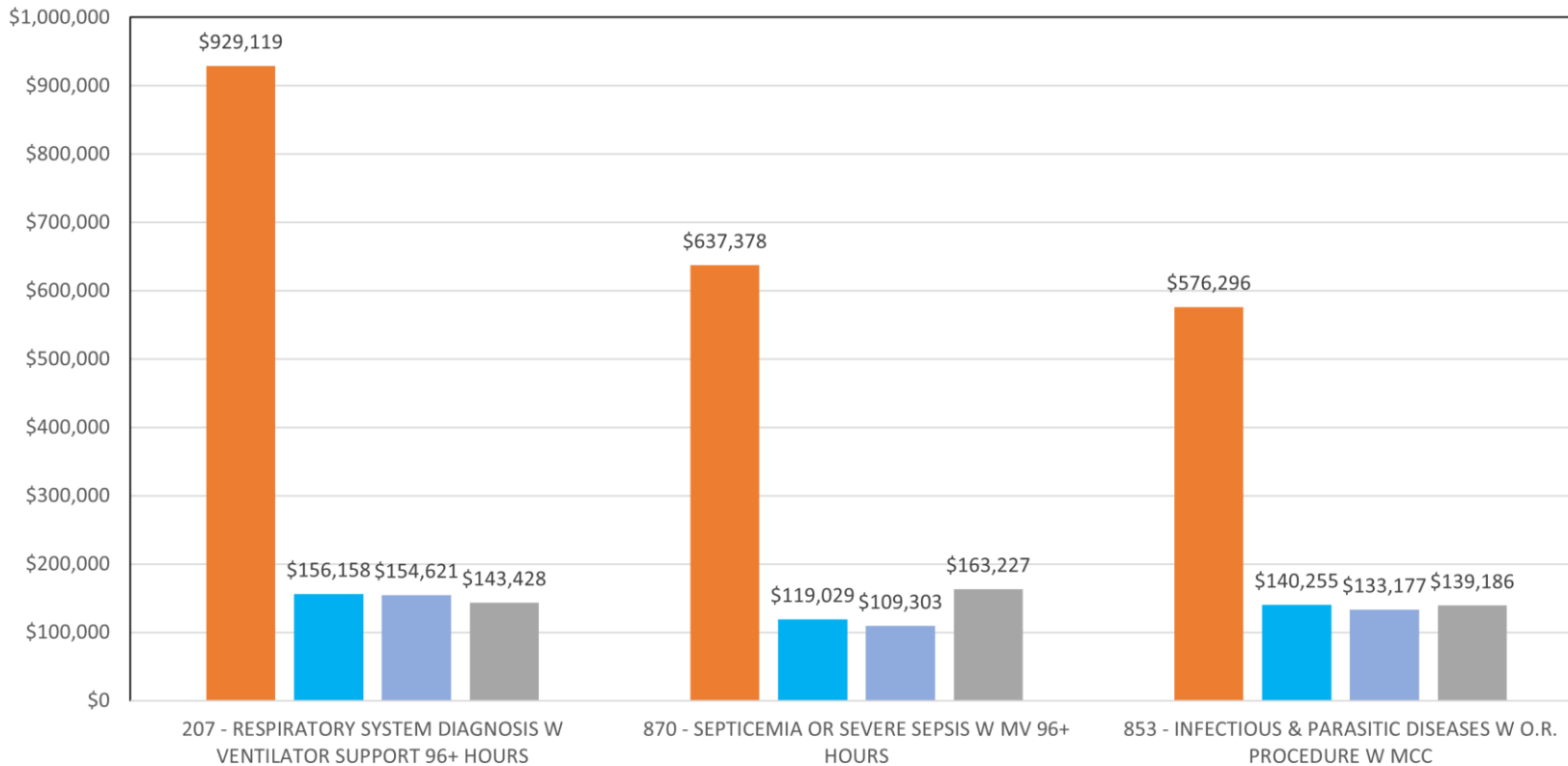
These treatments have the highest Average Covered Charges and Average Total Payments in the country. This can be attributed to their high clinical complexity, requiring extensive and expensive medical resources.



Top 3 most expensive treatments in US

Max of Average Covered Charges Max of Average Total Payments Max of Average Medicare Payments Average of Average Covered Charges

Highest charges in US for the top 3 most expensive treatments



Values

- Max of Average Covered Charges
- Max of Average Total Payments
- Max of Average Medicare Payments
- Average of Average Covered Charges

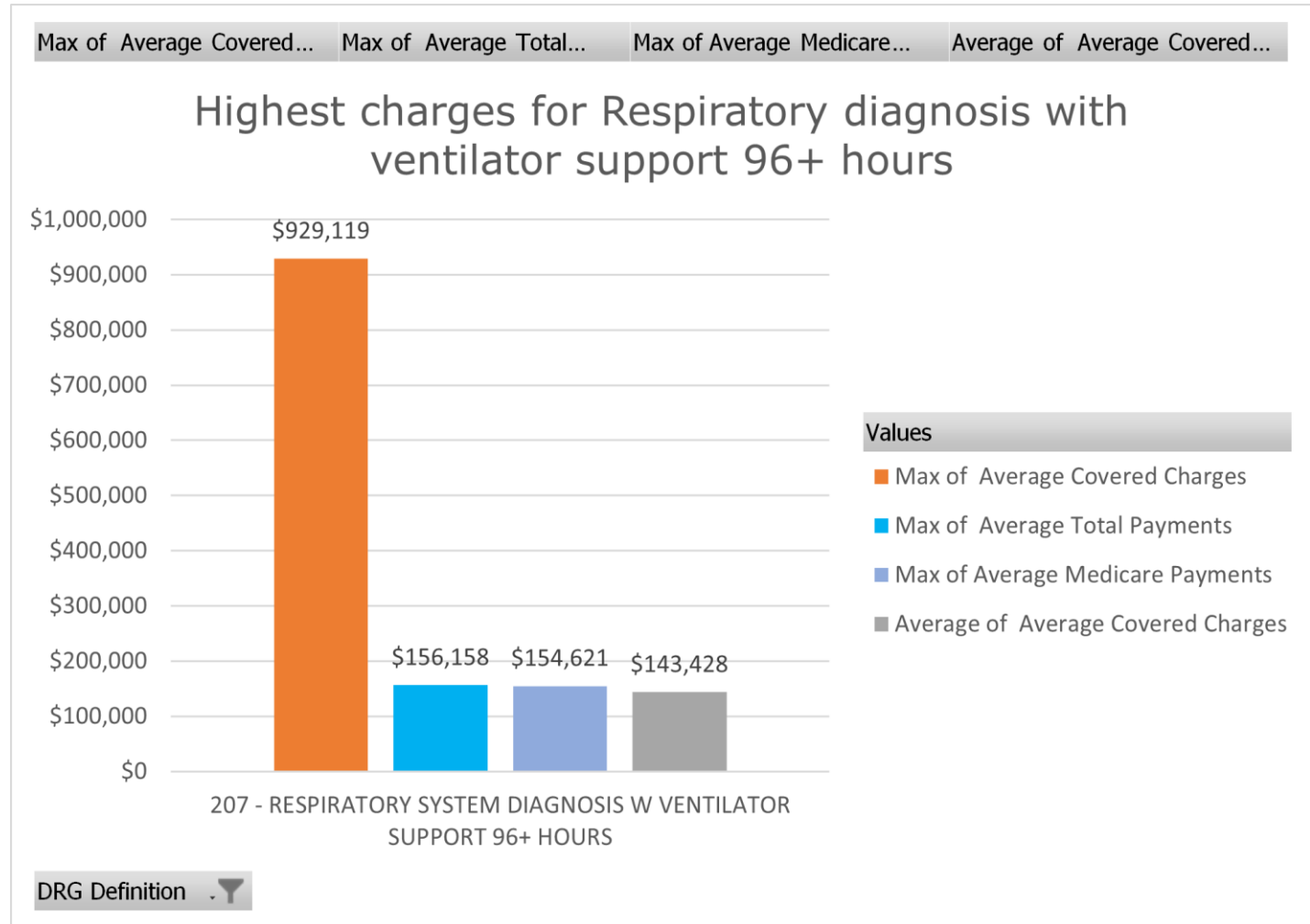
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Respiratory Diagnosis with Ventilator Support for 96+ Hours

The most expensive treatment, "Respiratory diagnosis with ventilator support for 96+ hours," can reach nearly \$1 million, as shown on the bar chart.

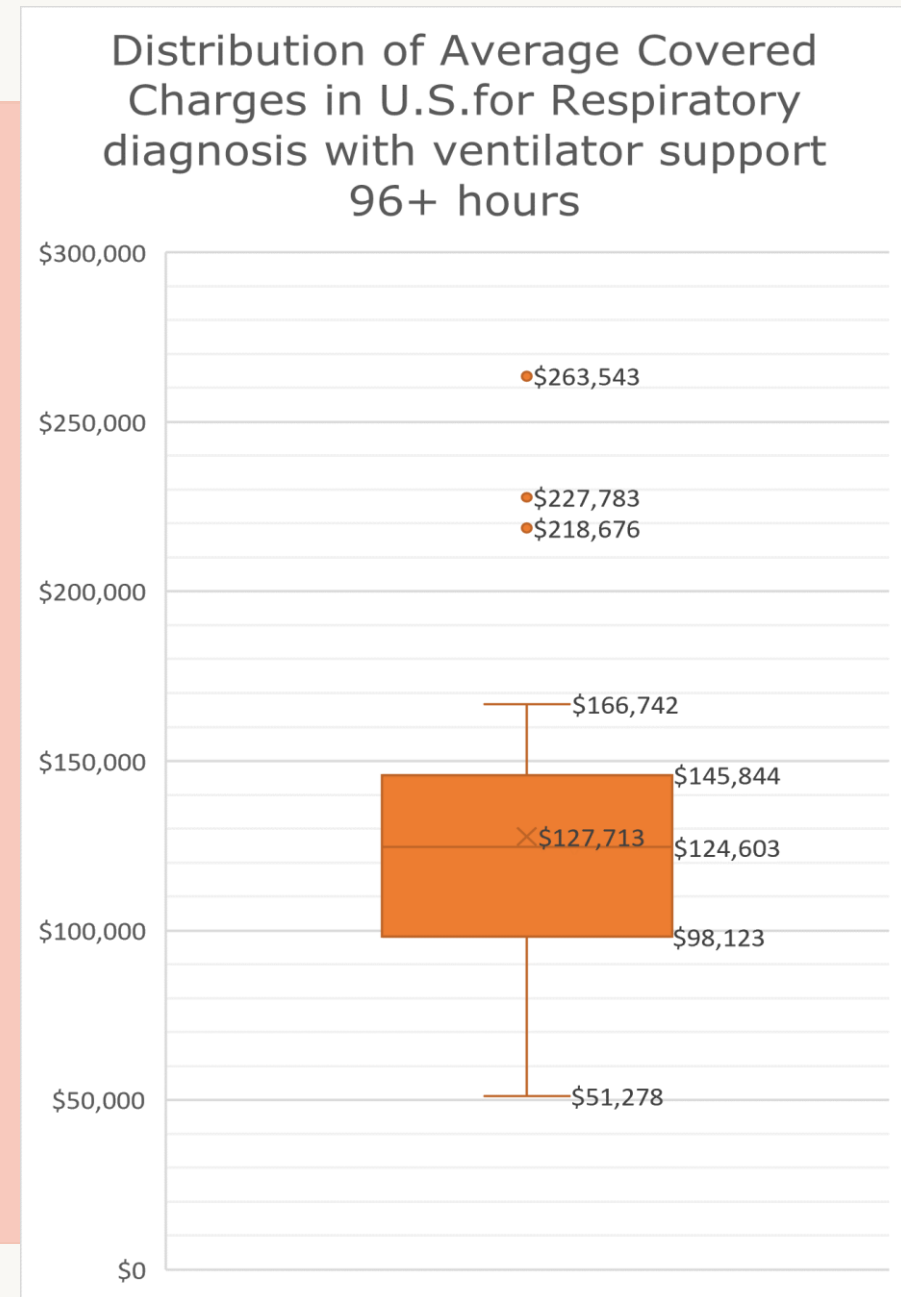
However, the hospital typically receives only 17% of this amount, which is consistent with the maximum paid by Medicare and Medicaid programs.

These figures likely result from negotiations but align more closely with the average billed amount nationwide, which is 15% of the initial request.

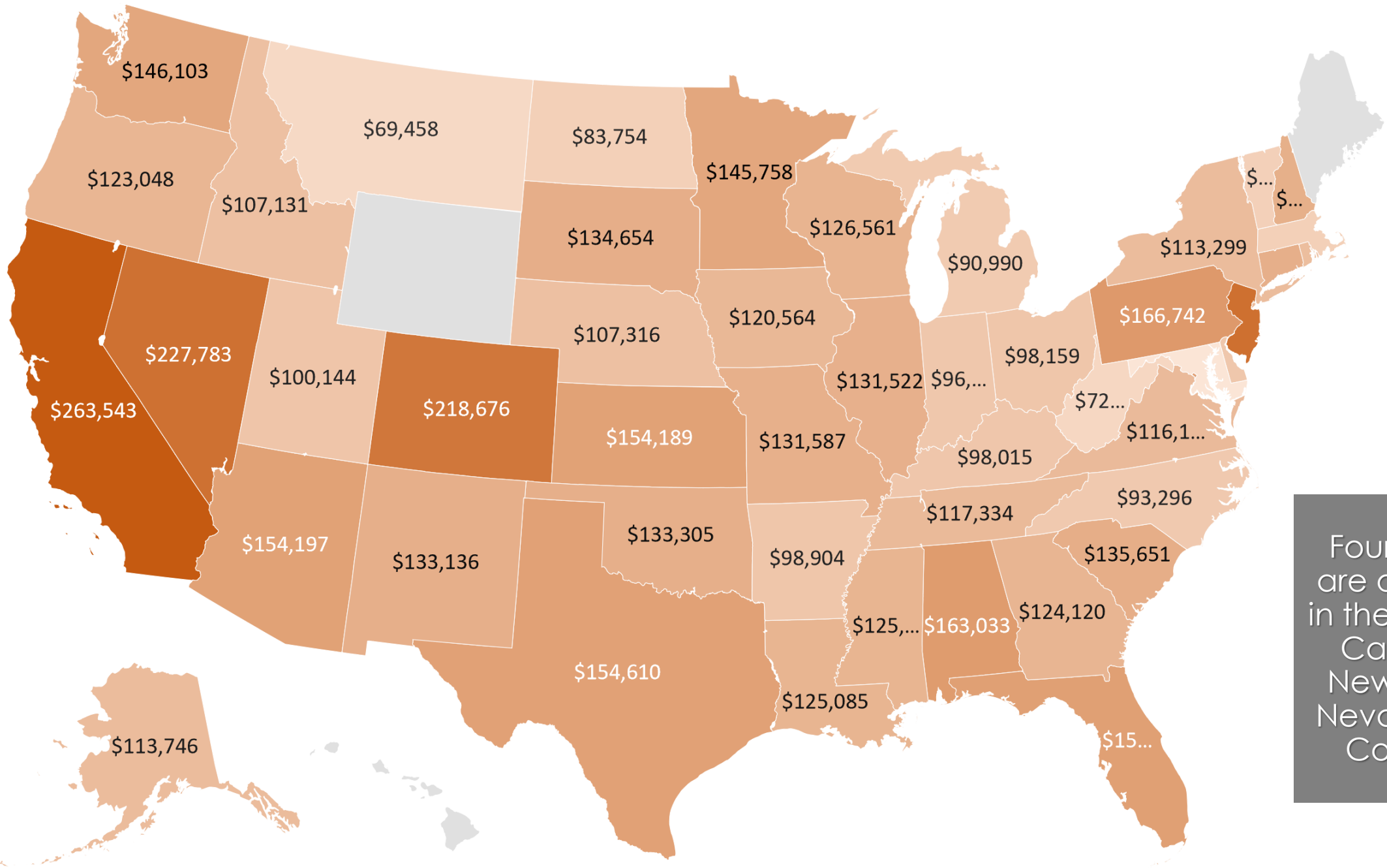
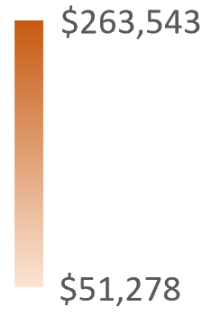


Respiratory Diagnosis with Ventilator Support for 96+ Hours

The box plot suggests that the hospital charges for this respiratory treatment average around \$130,000, with four notable outliers: \$263,543 (CA), \$229,751 (NJ), \$227,783 (NV) and \$218,676 (CO).



Average Covered Charges for Respiratory diagnosis with ventilator support 96+ hours

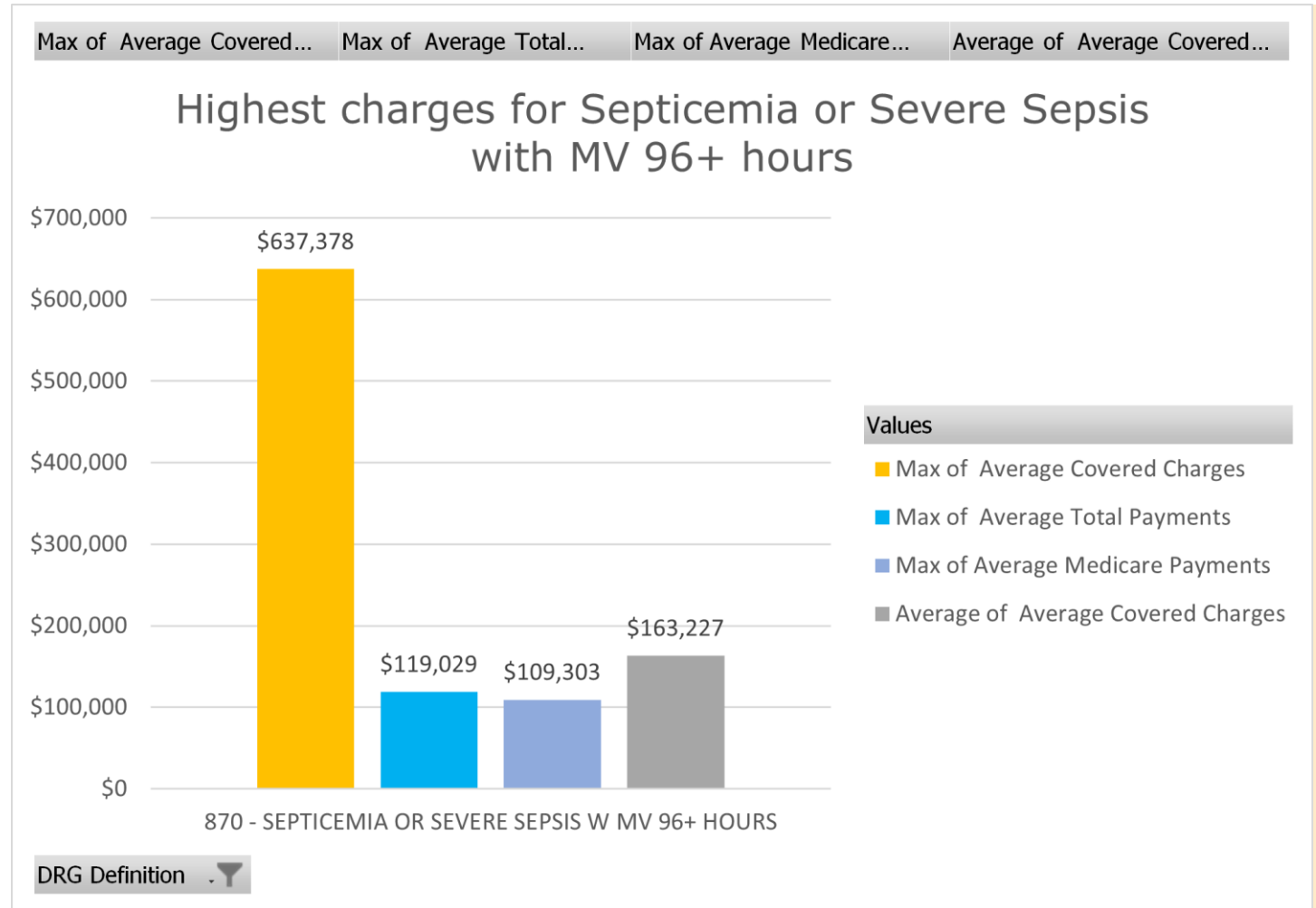


Four outliers are observed in the states of California, New Jersey, Nevada, and Colorado

Septicemia or Severe Sepsis with MV 96+ Hours

The second most expensive treatment, "Septicemia or Severe Sepsis with mechanical ventilation for 96+ hours," can result in medical bills of up to \$637,378.

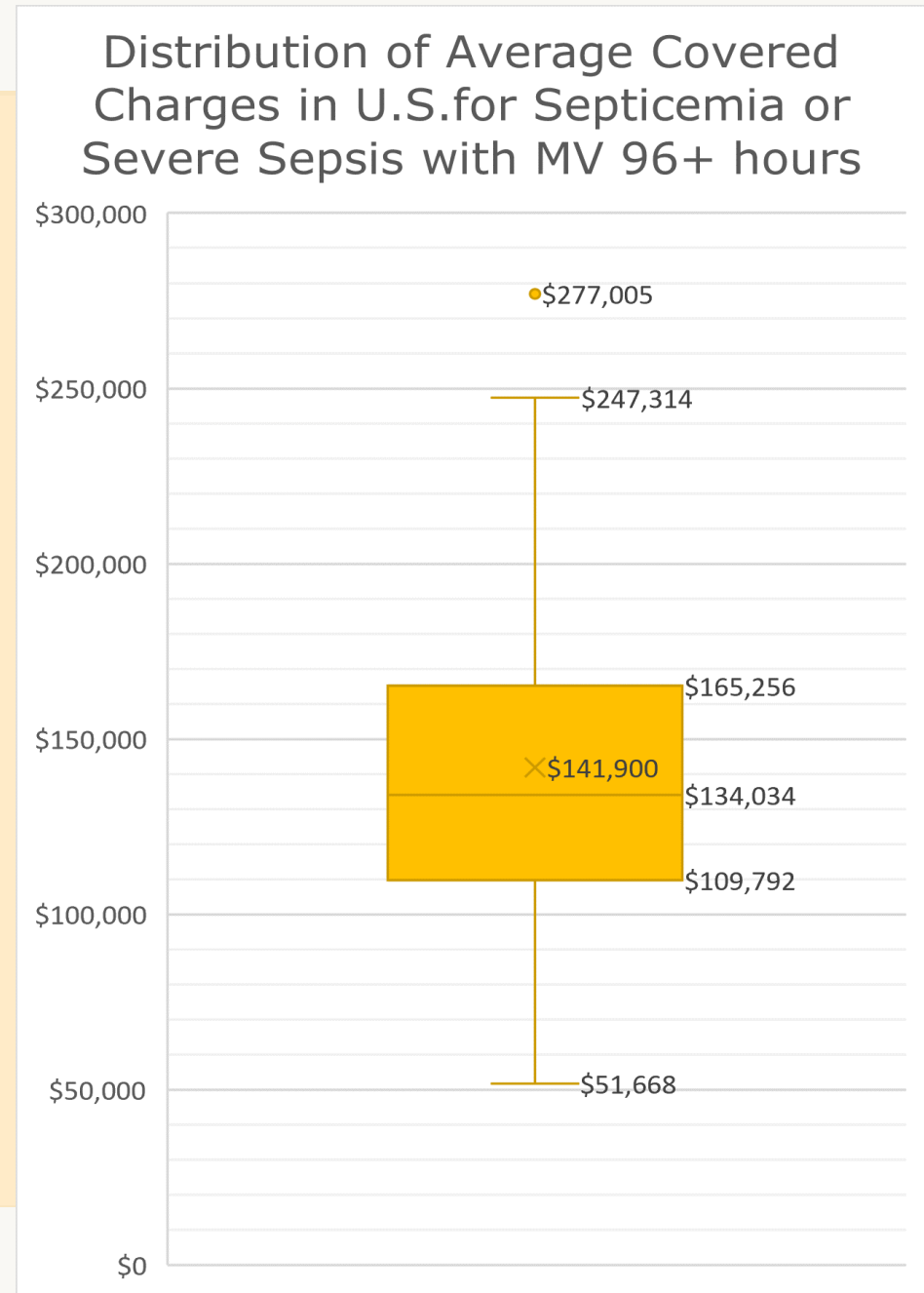
However, the hospital typically receives only 19% of this amount, slightly more than the maximum paid by Medicare or Medicaid (17%), but less than the national average billed amount, which is 26%.



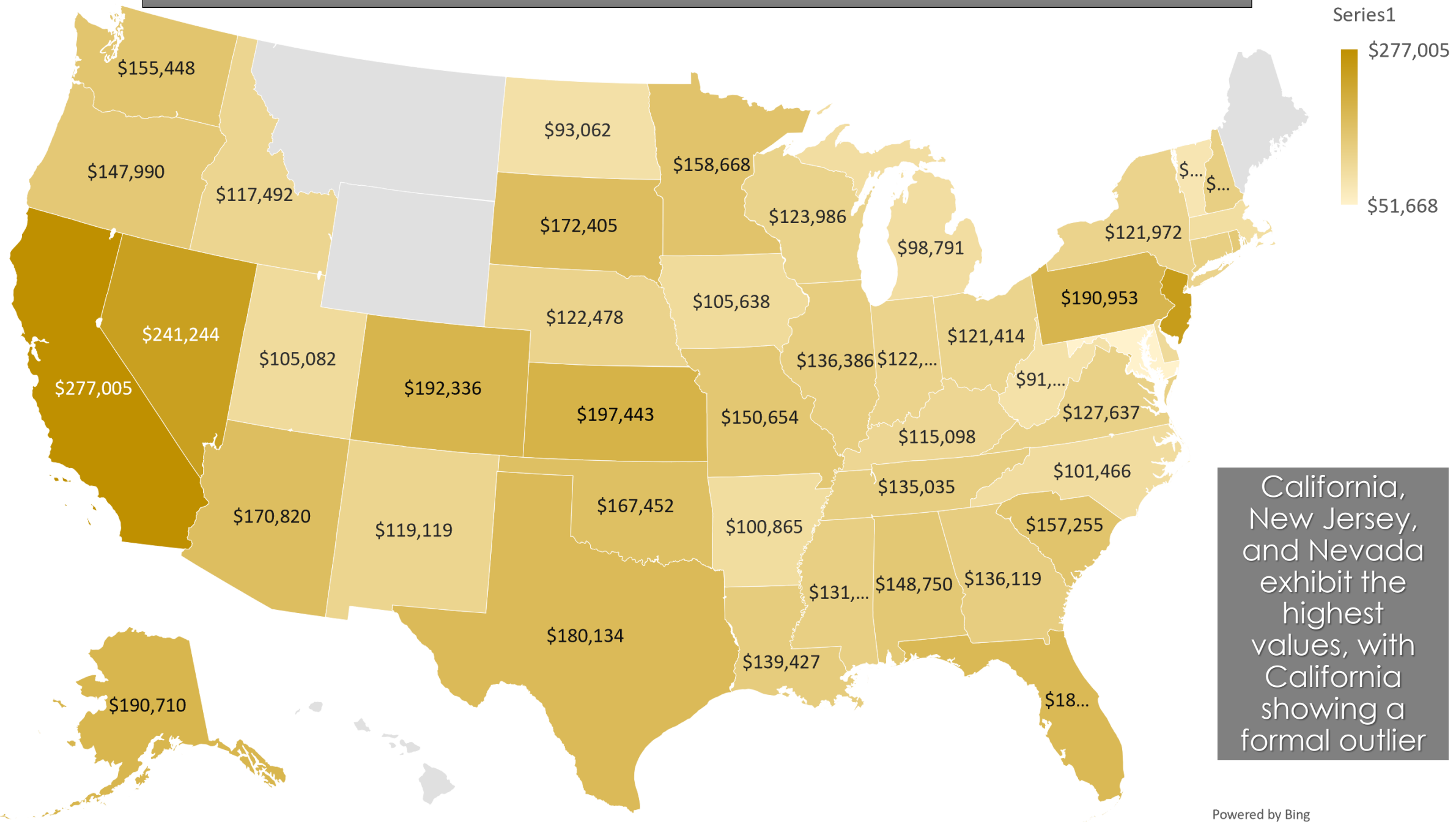
Septicemia or Severe Sepsis with MV 96+ Hours

The average cost of this treatment is nearly four times higher than the mean of approximately \$142,000, as indicated by the box plot.

Once again, California, New Jersey, and Nevada exhibit the highest values, with California showing a formal outlier of \$277,005, nearly double the mean.



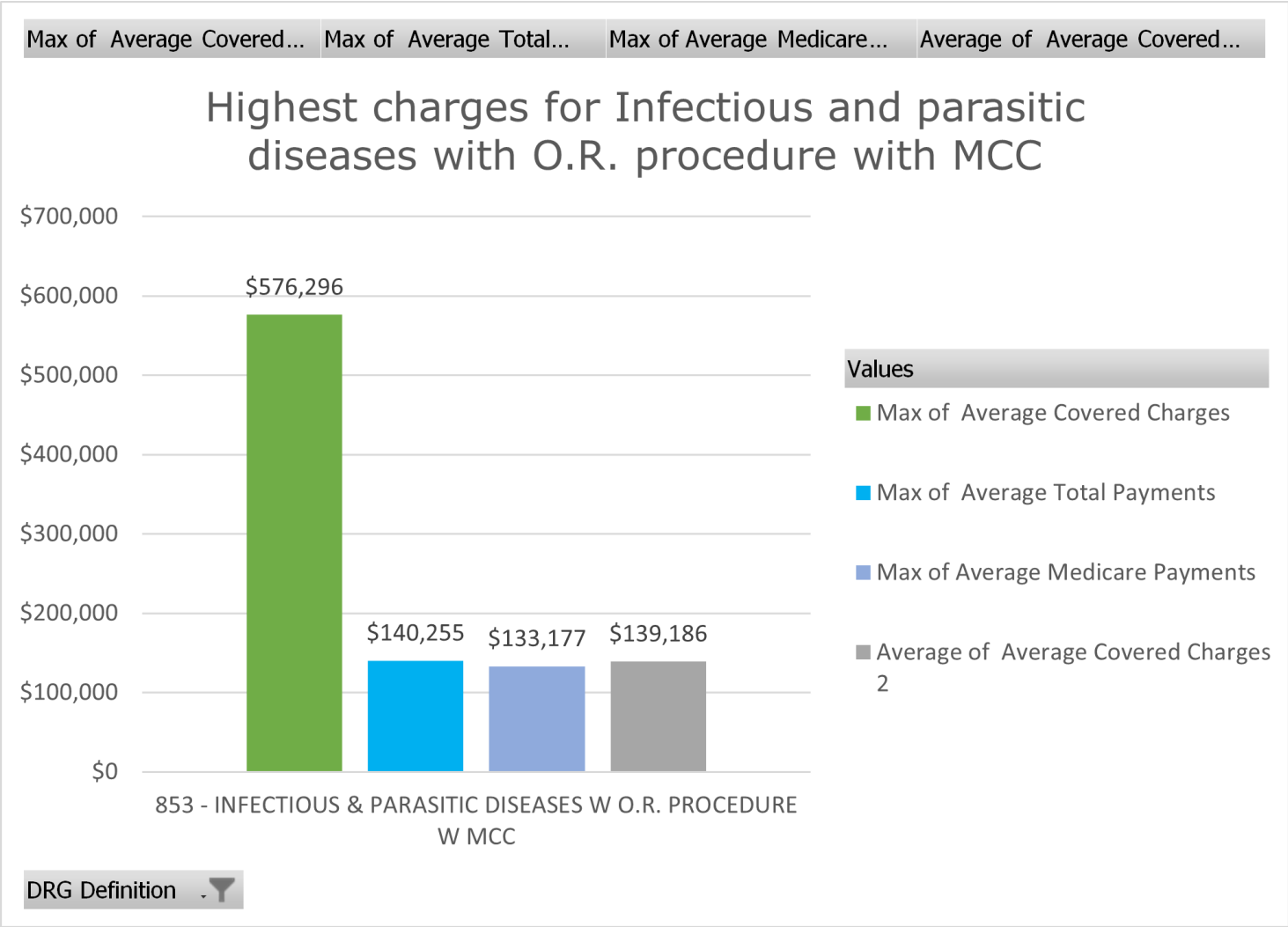
Average Covered Charges for Septicemia or Severe Sepsis with MV 96+ hours per state in U.S.



Infectious and Parasitic Diseases with O.R. Procedure with MCC

The third most expensive treatment is “Infectious and parasitic diseases with O.R. procedure with MCC (Major Complications and Comorbidities)” with a maximum bill of \$567,296.

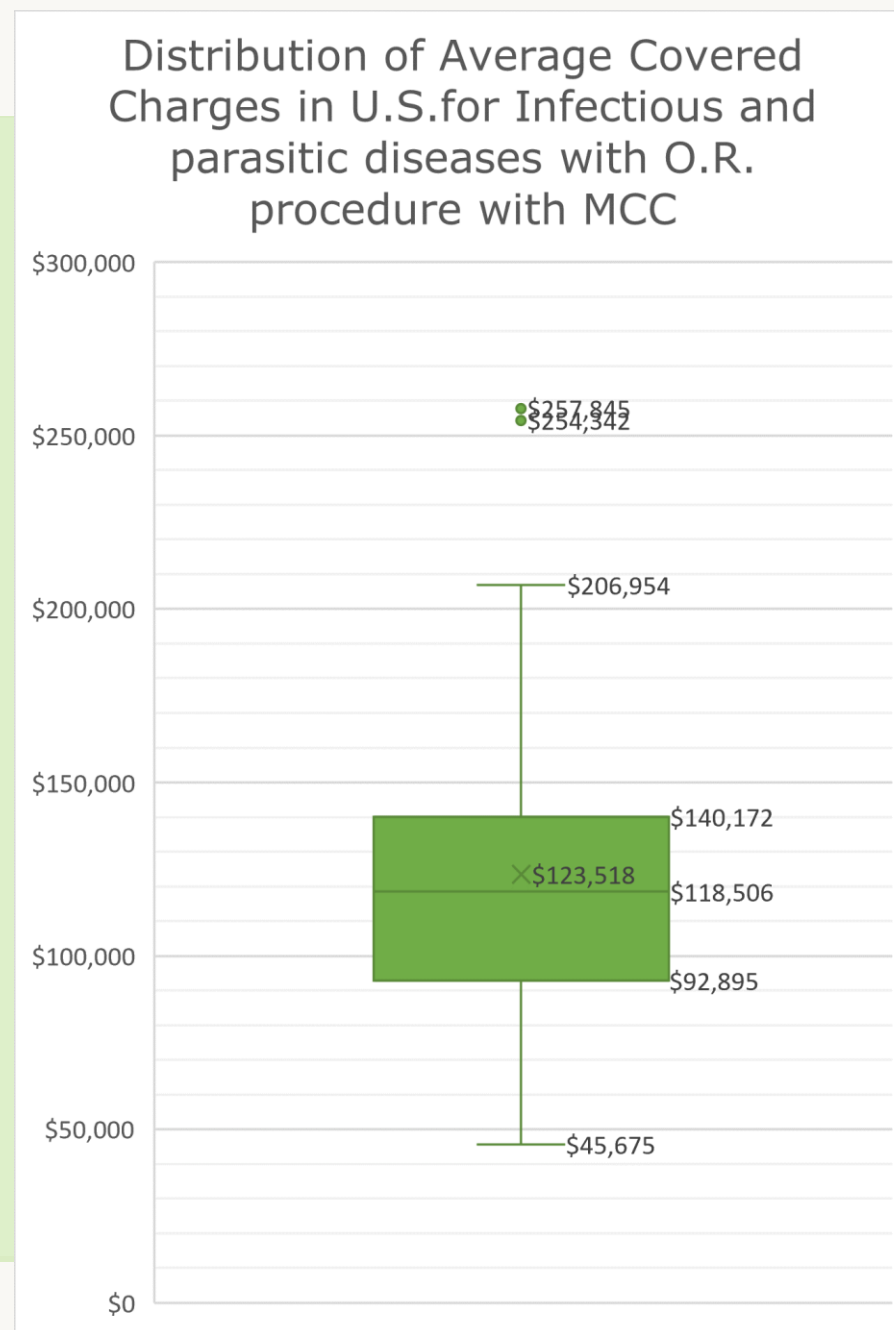
Providers typically receive only 24% of this amount, similar to the average billed amount nationwide and close to the maximum Medicare payment of 23%.



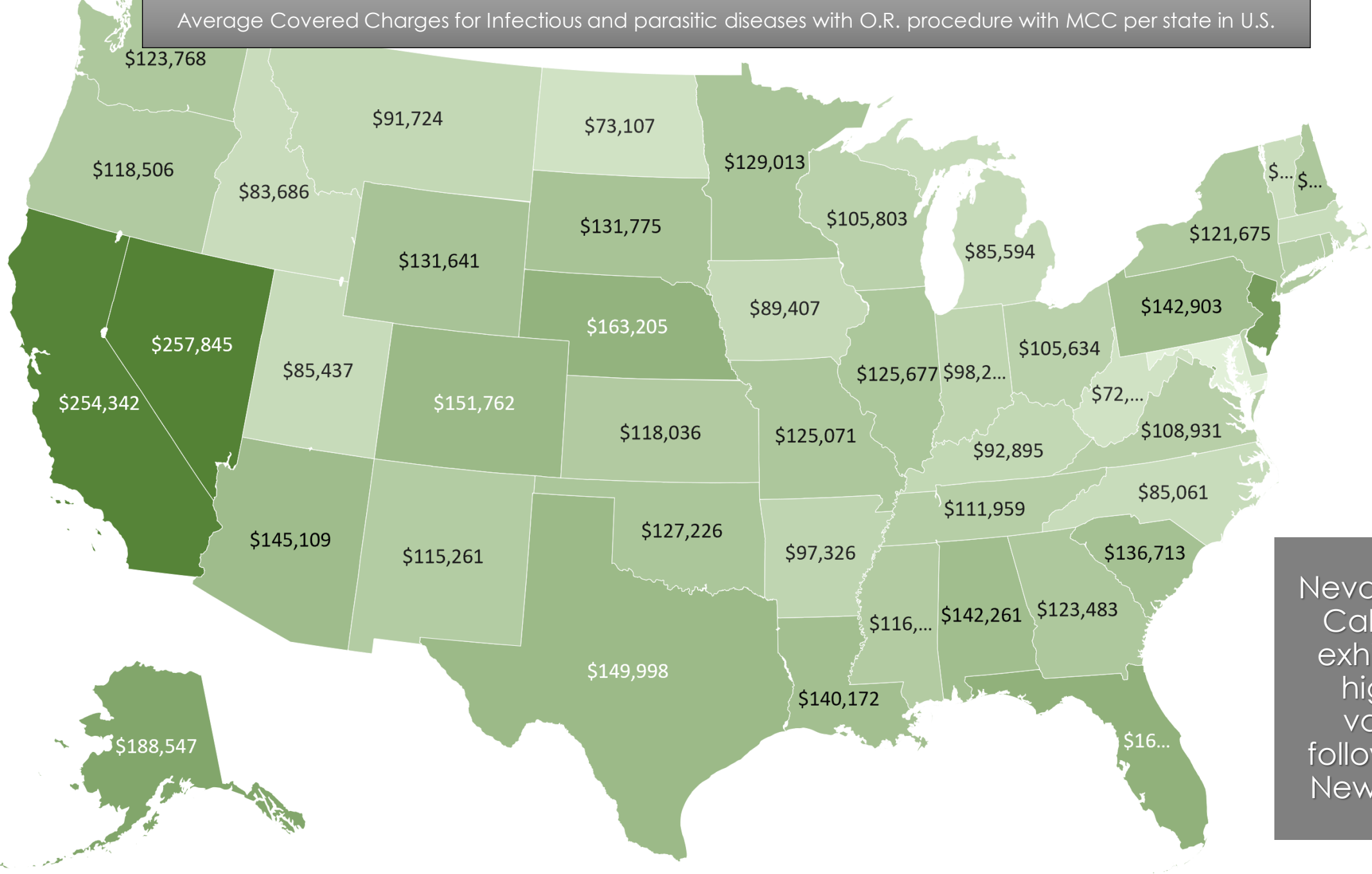
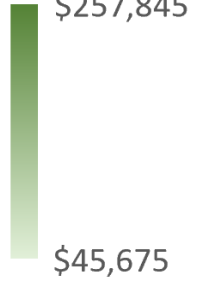
Infectious and Parasitic Diseases with O.R. Procedure with MCC

The estimated national average for this treatment is around \$120,000, with the maximum value of \$206,954 found in New Jersey.

Two notable outliers were observed: \$257,845 in Nevada and \$254,342 in California, both double the mean.



Average Covered Charges for Infectious and parasitic diseases with O.R. procedure with MCC per state in U.S.



Nevada and California exhibit the highest values, followed by New Jersey

Conclusion:

While further analysis is needed for a more precise conclusion, it is evident that California leads in terms of the highest charges, followed by Nevada and New Jersey.

These charges appear to exceed what can be considered statistically acceptable in this study, raising concerns about potentially abusive healthcare service pricing in these regions.

Further investigation is warranted to address this issue.

