Question:

How is the business performance of HCPCS code related to different areas in US?

Solution:

I took two columns to into account to answer the question: *average\_submitted\_chrg\_amt* – (Average of the charges that the provider submitted for the service) and *average\_Medicare\_standardized\_amt* (Average amount that Medicare paid after beneficiary deductible and coinsurance amounts have been deducted for the line item service and after standardization of the Medicare payment has been applied).

From the perspective for gaining the profit, it would be better if the charges that providers submitted relatively higher that Medicare covers for the service.

Thus, I made clusters for the performance of those HCPCS codes from different areas in US on the aspect of the amount of charges that providers submitted, and the amount Medicare covers to see if there’s any underperformance cluster need to be improved.

Below table shows a general condition after processing the cluster.

A screenshot of a cell phone

Description automatically generated

After analyzing the data, the sizes of 7 clusters are shown as above. We can clearly see that cluster 2 has the largest size while cluster 4 has the fewest which is 0.0005 times of the cluster2.

So, what is performance that cluster 2 is standing for?

Let’s have a quick review of those cluster’s average data for each column.

A screenshot of a cell phone

Description automatically generated

It shows that the service provided in the South region of US of moderate charges from providers and amount covered by Medicare accounts for the most proportion.

While we can clearly see that there being existing outrageously huge number like cluster 4 and 6 are, are being a very small part of the total number.

As an understanding of small proportion of the service would charge a lot more than other service do and it fits into the common sense, I can’t deny the rationality and chose to keep the data.

And we can see an interesting phenomenon that the clusters are mostly divided in to different areas and perform very much the same in which case, the average amount of the charged providers submitted is about 280, while the average amount that Medicare covers are approximately 65, which forms into a proportion of 4.31:1.

For cluster 4, the proportion is 3.5:1 which is relatively lower than other clusters, and when we dig into the regions, 46.8% of them which is close to the half proportion of the cluster are from the South part. As it might connected to the economic development level and living standard.

For the other high figure cluster, cluster 6 owns a proportion of 6.3:1, which is statistically higher than all the other clusters and is evenly spread in all the areas in US. Further analysis according to this cluster of HCPCS code should be done to see the profit patterns.