Hospitals in California

Abstract

ABC Medical Center which operates in the east coast would like to expand its presence into California. This healthcare organization wants to learn about the healthcare landscape in CA so the transition is smooth and profitable. I worked on the dataset downloaded from California Health & Human Services open data portal which contains California hospital data from 2010 to 2015 to uncover information about distribution of hospitals across various counties, reimbursements from insurance and size of the hospitals.

Design

California is the most populated state in the United states with a population of around 39.37 million. Unfortunately, it only offers 1.9 beds per 1000 people which is below the national average of 2.89 and 3rd lowest in the country. With Coronavirus on an unexpected surge last year this capacity was tested to its limits. Moreover, state initiated health plans such as covered california have resulted in a significant decrease in the uninsured which means higher reimbursement for the medical providers which prompted ABC Medical center to expand.

Data analysis has helped the distribution of hospitals across the state and helped uncover the highest payer for each hospital. This information can be used to build a regression model to predict profits for locations that are favourable based on other factors such as real estate.

Data

Downloaded data from the website was cleaned on google sheets, population data from 2010 to 2015 was also added to the workbook. VLOOKUP was used to merge both datasets. Some initial analysis was performed and data was loaded into Tableau where an interactive dashboard was built.

Algorithms

Data exploration in excel and tableau has highlighted some facts like:

- Most hospitals are clustered in an urban setting
- Revenue is not necessarily high in counties with these clusters
- Counties such as Lassen could be targets for a new medical center as there is need for more beds and revenue is competitive compared to other counties

Tools

- Google sheets for data cleaning
- Tableau for visualizations
- Google slides for presentation

Communication

Presentation to the group outlining key findings.

Opportunity

California is the 3rd largest state in the United states with a population of around 39.37 million. Unfortunately, it only offers 1.9 beds per 1000 people which is below the national average of 2.89 and 3rd lowest in the country. With Coronavirus on an unexpected surge last year this capacity was tested to its limits. Moreover, state initiated health plans such as covered california have resulted in a significant decrease in the uninsured which means higher reimbursement for the medical providers.

Given these circumstances, ABC medical center which operates primarily in the east coast would like to expand into California. The goal of this project is to identify ideal locations, sizes and types of insurance contracts that can be most profitable by analyzing past data.

Impact

ABC medical center was able to establish 2 profitable medical centers over a period of 3 years by considering the recommendations given by the built model.

Data Science Solution Path

A regression Model which can predict profits given a combination identified locations, sizes and insurance contracts through the analysis. More features such as expenses will also need to be considered into the model.

Impact Hypothesis

ABC medical center successfully was able to transition into California with profitable medical centers across the state. Predictions from the regression model helped identify most profitable counties, sizes and insurance contracts suitable for the organization.