**Group Final Project Executive Summary**

Section B Team 13

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**Data Cleaning:**

There are blanks in Drug Prescribed. However, these blanks have the Drug ID of a54655, which corresponds to “Potassium replacement solutions” in Drug Prescribed. Therefore, we replace all blanks with “Potassium replacement solutions”. Additionally, the alias for “Under 15 years” and “75 years and above” of age category is deployed as “0-15 years” and “75 years and up” respectively.

**Analysis:**

We explore the data from a visual perspective to provide the management with some insights into the overall status, operation performance, potential issues, and areas of improvement of the healthcare providers across the country.

The analysis aims to understand the patient base to improve the services’ efficacy. First, we break down the patient numbers by age, gender, race, and ethnicity. To get a general overview, the dashboard provides the top reasons for visiting a hospital. Progress visit i.e., follow-up visits is the top reason. Drilling down “Progress visit”, we observe “Depressive Disorder” as the main reason for recurrence of patient visits. To glean insights, analysis of the top 3 diseases per age category has been provided, leveraging ICD data points. Based on this, we notice that “Depressive disorder” shows an upward trend, peaking in the age category of 45-64 years. Furthermore, it has the second-largest number of diagnoses in the Diagnosis & Drug dashboard. We can take a deeper view by clicking “Depressive disorder” in the Top 5 Diagnoses bar chart, this filters data to patients who have depression and we are able to see Top 5 Drugs Prescribed and a timeline trend for depression. Apparently, there was an increasing trend for the number of depression visits until April 2021 because of the Covid-19 lockdown. Then, the visits dropped because the lockdown was over. Therefore, National Health Group management could better allocate supply for those drugs throughout the nation if another incident causes visits for depression to rise. Also, similar analyses could be done on other diagnoses.

Another aspect of the operations is illustrated by The Operation Efficiency Analysis dashboard. There has been a nationwide downward trend in the Days from Visit to Lab Results (DVLR) since March 2020 (the breakout of COVID-19). On average, oncology requires the longest time before a lab result is available. Only a few states, however, have records for providers specialized in oncology, and all of them have very high average DVLR across the timeline. It is the intrinsic characteristics of oncology that require a longer period of time for lab analyses. Some states have significantly higher average DVLR compared to others, and most of them tend to be adjacent to each other, clustering in the south and around the Lake Michigan area.

One thing that is also important for the management to look into is the payment type. The Payer Type Analysis dashboard helps the management understand payments by illustrating how payer type changes over time and how it relates to age groups, geographic features, gender by using different types of charts with filters. The dashboard also includes how possibly payer type is associated with the actual pandemic environment.

With the above analysis, National Health Group Management could easily understand what is happening throughout the country regarding diagnosis, drug, lab results, payer types, and etc. Thus, able to assist healthcare institutions to improve the allocation of drug supply, the efficiency of daily operation, and so on.