Merck Challenge
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## Merck Data Analytics Description

We began our analysis with looking at the current state of global diabetes. Diabetes today is a global disease; frequently, but not always, having higher prevalence in areas with a lower GDP per capita. Diabetes prevalence could be higher in smaller countries purely due to population size. Therefore, an area with higher prevalence may have a relatively small diabetic population. We decided that number of people with diabetes would be the best metric to go by, because it would give us a concrete answer. When we analyzed using number of people with diabetes as our metric, we found that the United States, China and India had the greatest number. Curiously, we found that they will also have the greatest number in 2030, and that they will be the top three economic powers in 2030. Gradually, our analysis teased out that diabetes hits economic powerhouses equally hard. With that in mind, we looked at the economic loss due to diabetes and found that these three countries account for 42.18% of the global loss.

We decided to see how a country's spending affects diabetes. We did several analyses on this topic, comparing spending on diabetes to: GDP per capita; spending on healthcare; and the amount a country is advised to spend, according to the American Diabetes Association. Our analysis showed that countries do not consider the size of their diabetic population when spending on diabetes. Many countries spend similarly based on the GDP per capita, and more importantly, all countries spend on diabetes according to how much they spend on healthcare overall. Unfortunately, proportions are not the right way to approach spending; China, the second top spender globally, spends far less than what is recommended.

Our analysis uncovered three distinct situations. We delved further into each country, taking the unique spending patterns and economic states into account. In the United States, we revealed that despite having a "national" program with 670 locations, most states did not have a single one of these locations. An analysis of China's number of beds versus its population and vast area showed a clear difference in healthcare on the two sides in the country; in Eastern China, there were not enough beds for the dense population, and in Western China, the beds were poorly spread out. Finally, we found that there is already an organization working to improve diabetes in India and similar countries, but that they did not have enough locations to be accessible to all in the country.

Finally, we came to the question of Merck going past 2030. We used India as an example to display how and why India's population exploded using the concept of demographic transition. This analysis allowed us to recommend that Merck going forward should focus on countries going into stage 3 of demographic transition so Merck is there when nations need them most.

Our graphic uses a cartoon style to simplify the complex reality of diabetes. Sections are color blocked to help the reader understand transitions. The entire infographic flows thanks to side comments and leading questions from our depictions of audience members. Many of our visualizations show the size of diabetic populations by color and size, making it easy for the reader to compare countries. When necessary, we added clear pop-up notes to help the reader see the significance of our visualizations.