Temple Data Analytics Challenge 2016 - Merck Challenge
Nick Rivera (TUE99247) Fox School of Business, Christopher Dewees (TUG58916) Fox School of Business, Brandon Johnson (TUF37832) Fox School of Business, and Kyle Matusik (TUF02277) Fox School of Business

Our group decided to take on the Merck challenge. We answered the question "What solutions can analytics provide to the worldwide diabetes epidemic?" We extensively looked through various sources of data and crunched about every number we could find in order to turn data into knowledge, and knowledge into information. During our search, we looked for ways in which these statistics could help Merck combat the worldwide diabetes epidemic.

We came up with 3 recommendations for Merck moving forward in the fight against diabetes.
1. Advocate the importance of healthy eating habits. This can be done by supporting organizations like "Let's Move" - Michelle Obama's initiative to solve America's obesity problem.
2. Promote the importance of remaining physically active, and avoiding a sedentary lifestyle, especially at an older age. Merck can do this by piloting a condensed work week or more flexible schedules to give employees more time to spend out of work. By doing this, employees will have more free time to stay active. Merck can offer incentives to employees who show progress on becoming more active.
    1/2a. Two of the main causes of type 2 diabetes are unhealthy eating habits and sedentary lifestyles. Furthering these initiatives can help millions of people every year live stronger lives.
3. Merck can do more to help low-income developing countries fight the Diabetes epidemic. By donating a small portion of supplies and helping aid under-funded hospitals in these countries can help better the lives of millions annually.
    3a. In developing, low-income countries, diabetes is less prevalent, but death rates are higher. Death rates can be lowered by increases in healthcare and funding towards medicine and research.

We saw multiple trends in the data which helped us realize that the economic situation of a country is a huge factor in the effects that diabetes has on a population. After making charts and graphs, we came to huge revelations. After looking through the GDP per capita of multiple nations, we noticed a reoccurring trend. Usually, the higher the GDP per capita, the more likely a country would have a greater percentage of its population suffering from diabetes. However, within a wealthy country like the United States, lower income ethnic groups have a higher diabetes prevalence. So although wealthy countries have higher diabetes prevalence, it is the less wealthy inhabitants that suffer the most from Diabetes. We suspect that this is due to the fact that wealthy countries have more inexpensive, unhealthy foods available. Poor people in these circumstances would spend more money on unhealthy foods due to personal budget constraints. These poor health choices would lead to more individuals from lower income brackets suffering from Type 2 diabetes than people from higher income brackets. We also found through our data that the percent of diabetic related deaths was much higher in developing countries than in countries like the United States. We suspect this is due to the fact that a lot of Type 1 diabetes cases in impoverished countries are unable to be treated due to the population's lack of access to proper medical care and insulin injections.