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Executive Summary

We performed a rigorous and thorough analysis of the opioid epidemic in the United States. To give some critical context to this time, the healthcare system has been suffering specifically with Medicare, and this federal health insurance provides coverage for millions of older adults and people with disabilities. The problem continued as there was a surge of opioid use, which became known as the use and abuse of prescription painkillers and illegal opioids resulting in a wave of opioid-related hospitalizations, overdoses, and deaths. The response to this epidemic was curbing the distribution of opioid painkillers, which unfortunately led to the shift towards the use of heroin and other synthetic opioids like fentanyl. So, in this executive summary, we will answer the questions stated, and share many of the findings performed in the analysis.

The conclusions that we can draw from this data: lots of data and results focus on North Carolina, South Carolina, and Tennesse (which means that these states have the affected the most by the opioid epidemic); Total Medicare Payments at their highest easily reach over millions of dollars; the top 10 Medicare Organizations consist of laboratories and corporations, which could be a shock that some would expect Walgreens or even pharmaceutical companies to be part of the top 10; Tennessee and North Carolina have roughly 5,000 or more Nurse Practitioners and are the two states that have the most organization Medicare spending, which demonstrates how these two states more established than South Carolina; though Nurse Practitioners may come across as the provider type that is highly valued, we find that in RES06 shows nurse practitioners rank at number four in terms of provider medicare spending; also it is no surprise that opiates are heavily prescribed as the top 10 opiates by total day supply (RES07) come at numbers as high in the millions, and include the synthetic opioids like Fentanyl and Morphine; the drug costs are extremely high so it is necessary to have Medicare and Medicaid as we see in rRES08; Hydrocodone and Oxycodone are no stranger to the big cities in North Carolina, South Carolina, and Tennesee; and more.

What we think would make this analysis more interesting is looking more at the beneficiaries' status and their ties to opioids. For example, if a beneficiary takes opioids, did they die or not? Also, looking more at the beneficiaries' status such as their race, income, how often they visit the doctor, or do they seek opioid alternatives like surgery, acupuncture, physical therapy, and more. RES11-15, try to make an approach to these types of questions and really try to get a better understanding of the typical beneficiary and the types of beneficiaries we are seeing in the United States during the opioid epidemic. We have found that there is a concerning amount of beneficiaries who have identified with all the diseases coming in the physician_summary dataset. Many of the beneficiaries are quite old. The races for the beneficiaries are quite skewed with white and black being the most common.

Now, we think that it makes sense that there can be drastically different rates of opiate prescriptions by city as we saw in RES09 and RES10 that there were many cities in those 3 states performing differently when it came down to sum or mean day supply in Hydrocodone and Oxycodone, and sum or mean day supply for opiates. Again, it's important to note that location, city size, demand, the number of beneficiaries, the Medicare organization spending, provider type spending, and so forth are all factors that contribute to the rates of opiate prescriptions for the cities.

The most striking thing about opiate and non-opiate prescriptions was the daily supply of opiate prescriptions as that truly adds concrete evidence to how bad the opioid epidemic was. Also, as for the non-opiate prescriptions many of the prescriptions covered health issues treated either high cholesterol or high blood pressure, and some treated more unique issues. Now, it is important to note that there are some non-opiate drugs to take that are over the counter like Motrin, Tylenol, and more, which would have been nice to see the usage, consumption, and supply of these medications. Other than that, this was a great opportunity to really learn more about the opioid epidemic and to be wary of what is being prescribed, learning about Medicare spending, and doing research on the prescriptions and the organizations providing.