*Executive Summary*

The American healthcare system has undergone some of the most sweeping, industry-wide regulatory changes over the last eight years with the introduction of the Affordable Care Act in 2010. One of the most influential elements of the law is the MLR (medical loss ratio), which requires insurers to spend 80% of the premiums they collect no matter the outcome of the actual services rendered. Simple logic dictates that to grow the 20%, insurers must spend more of that 80% of a fully-insured market’s premiums. While providers are privy to this, they continue to bill more and more to generate more revenue. This has created a positive feedback loop that usually leaves the employer and their employees financially “in the dust.”

*Motivation*

My motivation to pursue this topic primarily stims from direct experiences dealing with the frustrations seen at my previous position at a health insurance brokerage along with my interest in cost-containment solutions to mitigate these problems for employers that I will be investigating in my new position. Because of the dramatic rate increases being seen in the small business, fully-insured market across the country, reference-based pricing models and self-funding (self-insured) methods are become more financially advantageous for larger swaths of the employer market, demanding more price transparency and accountability beyond the veil of secrecy draped over the health insurance industry.

*Data Question*

At its root, my motivation to explore this topic comes from the desire to explore the misaligned incentives of the modern, American healthcare system. More specifically, the cost discrepancy for procedures and the resulting outcomes. I would like to do most of my analysis, exploration, and preparation in Python to then be able to use this code to create an online data application to highlight the price and outcome discrepancies for procedures within the same market.

1. *Based on the CMS cost and outcomes datasets, what providers provide the best “bang for your buck” within a given zip code in TN and major DRG group?*
   1. *Can I create an application to highlight these comparisons to help a potential patient make a more informed decision on choosing a provider for a procedure?*
      1. *I’m going to start with the TN 2015 inpatient data.*
      2. *If time allows, I’d like to add in 2011 – 2014 for a time series analysis, and add in outpatient facilities.*
   2. *Since the CMS’s recent star rating system has been outed for being statistically incorrect over the past two year, can I create a methodology to create an outcome/quality of care determination for each TN provider? Potential datasets used to determine outcome/quality of care?*
      1. *Patient, consumer star ratings (HCAHPS scores)*
      2. *Complications and Death rates*
      3. *Healthcare associated infections*
      4. *Hospital value-based purchasing (HVBP) total performance scores*

Articles and broader research that have sparked my thinking:

1. http://www.modernhealthcare.com/article/20180615/TRANSFORMATION01/180619933
2. <https://www.huffingtonpost.com/2013/05/08/hospital-prices-cost-differences_n_3232678.html>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4693848/>
4. <http://content.time.com/time/subscriber/article/0,33009,2136864,00.html>
5. <https://www.economist.com/news/leaders/21736138-welcome-doctor-you-revolution-health-care-coming>

*Schedule (5/26 – 7/24)*

1. Proposal Due (5/24/2018)
2. Get the Data (done)
3. Clean, Explore, Prepare data in Python (6/14 – 6/2/28)
4. Build Application 6/28 – 7/19)
5. Demo Day (7/24/2018)

*Data Sources*

1. CMS Inpatient Provider Utilization and Payment Data - <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Inpatient.html>
2. Medicare Hospital Compare Datasets - <https://data.medicare.gov/data/hospital-compare>