**Project Notes**

Project Title : Relationship between Patient Experience rating, Mortality Rate, and Number of Hospitals by County

Team Members: Rabia Otry, Vilma Santos, Rohan Mohindroo, Angang Li

**Introduction & Scope of Research**

* The Affordable Care Act (ACA) enacted and signed into law in 2010, has made many changes to reimbursements in healthcare. One involved linking part of hospital pay to Patient Experience / Customer Satisfaction scores.
* In 2012, Centers of Medicare and Medicaid Services, the largest single payor for healthcare, has started to modify payments based on quality performance. This included how hospitals score on [Hospital Consumer Assessment of Healthcare Providers and Systems](http://www.hcahpsonline.org/home.aspx) (HCAHPS), first national, standardized, publicly-reported survey of patients' perspectives of hospital care.
* The pressure on hospital finances has driven some hospitals to close or consolidate and streamline to improve on overall performance.
* With hospitals capability to directly impact outcomes in their service areas, it is equally critical to understand impact of their presence on Mortality Rate.
* The objective of our study is to explore relationships between Patient Experience rating, Mortality Rate, and Number of Hospitals by County.
* Findings will be presented by County and by Year (2016).
* Research Questions to Answer

Is there compelling relationship between Total Hospitals and Hospital Patient Experience? Total Hospitals and Mortality Rate?

Specifically,

* + Does # of Hospitals serving the population affect Hospital Patient Experience?
    - Does Population Size alone affect Hospital Patient Experience?
    - Does # of Survey Responders alone affect Hospital Patient Experience?
  + **Does # of Hospitals serving the population affect Mortality Rate?**
    - Does Population Size alone affect Mortality Rate?
    - **Does # of Hospitals alone affect Mortality Rate?**
  + Is there a direct relationship between # of Hospitals and Population Size?

Note : Evolvement over time not possible since we only have 2016 data

* Methods: (please edit)
  1. Libraries and API: plotly, pandas, numpy, matplotlib
  2. Relational join
  3. Mapping, regression, and plots
* Data Sets:
  1. HCAPHS data, queried by hospital name from data.gov
  2. Google maps
  3. Mortality data
  4. Census data
  5. FIPS and land area data