Palliative and Hospice Care

Evaluating the Quality and Cost of Care in the U.S.

Discussion Document

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Background

The U.S. economy and social fabric will be transformed by its rapidly aging population

- The aging population will place significant stress on our healthcare system, particularly as it relates to end-of-life care (or EoLC)
- EoLC comprises two critical health care services:
  - **1) Palliative care**
  - **2) Hospice care**
- Two separate government administered healthcare programs influence the delivery and cost of services

Medicaid

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA

Medicare

Research Questions

Our objective is to understand the quality, utilization and cost of palliative and hospice service in the U.S.

Key Research Questions

- How extensive are palliative and hospice care services in the United States?
- How are these services distributed across states?
- What are the (1) quality, (2) utilization and (3) cost characteristics of palliative and hospice care services delivered in the U.S.? Is there significant geographic variation?
- How do patient satisfaction levels differ between wealthy and poor regions?

Hypothesis

- Given that palliative services are only partially covered by health care programs in the U.S., we expect that (1) income levels will directly impact the quality and cost metrics, and (2) the demand, quality and cost structure will vary at the state/county level.

Data Preparation

Several disparate data sets were identified from publicly available data

Aggregation of the data entailed significant data wrangling

Quality of Care Data Sets

- Hospice Compare Data
- State-by-State Income Data
- Most Economically Disadvantaged City Data
- Palliative Care 'Report Card' Data

Medicare Data Sets

- Medicare Data Entrepreneurs' Synthetic Public Use Files
  - Inpatient datasets: 10 files
  - Outpatient datasets: 10 files
  - Carrier files: 20 files (split in 2 due to large size)
  - Beneficiary files: 30 files (10 for 2008, 10 for 2009 and 10 for 2010)

U.S Census, Population, Income and Crosswalk/Mapping Data Sets

- Zip Code Characteristics
- FIPS / ZIP Crosswalk
- Medicare Beneficiary Summary File
- SSA State Code / State Abbreviation / State Name Mapping
- SSA / FIPS State County Crosswalk: 2011 County Crosswalk

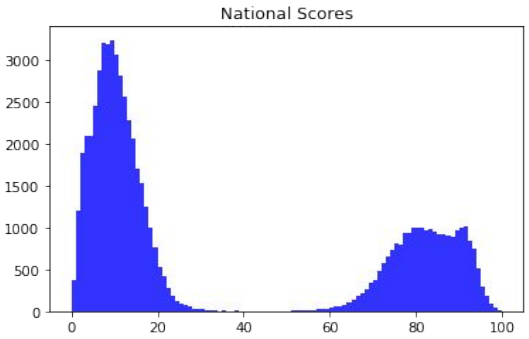
Analysis of Quality of Care

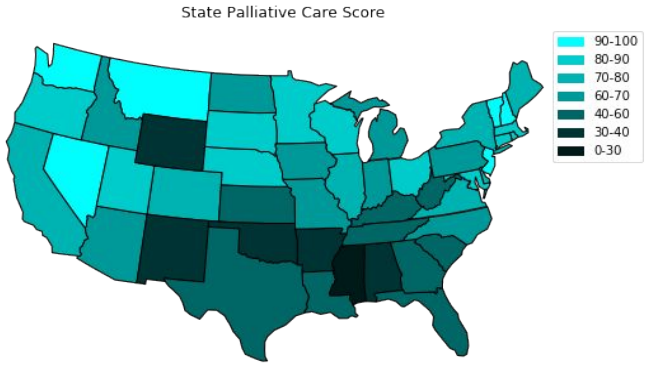
Hospice Care Quality monitoring is Federally Mandated

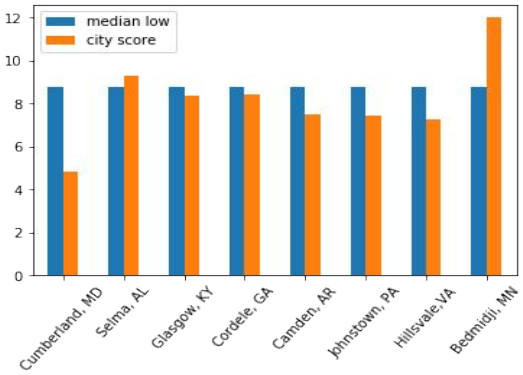
Despite that fact, the data suggests that there is little variation between states

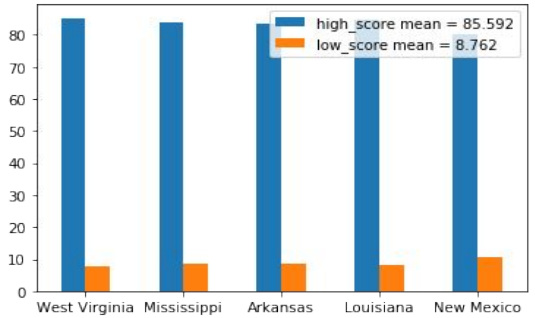
This is a profound contrast to palliative care measurements

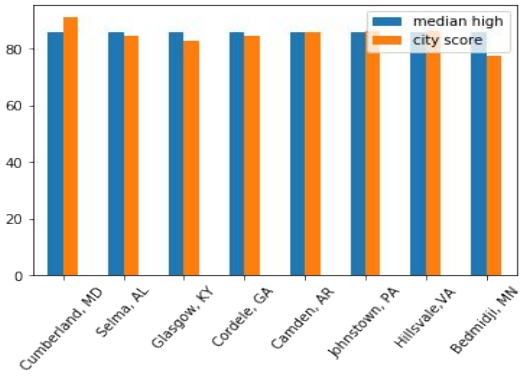
This suggests that the measurement tools are inadequate to the task

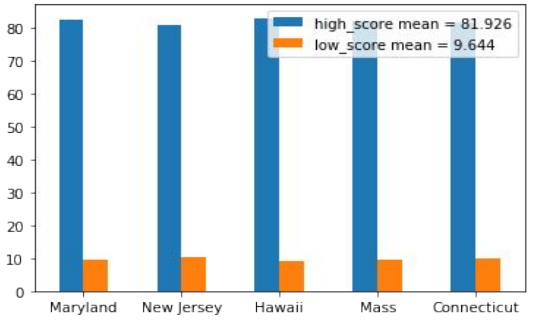










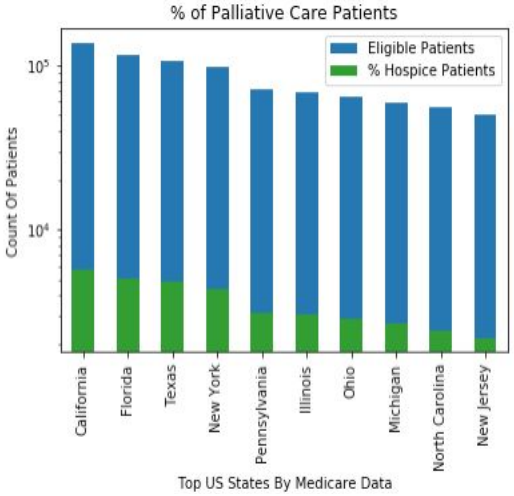


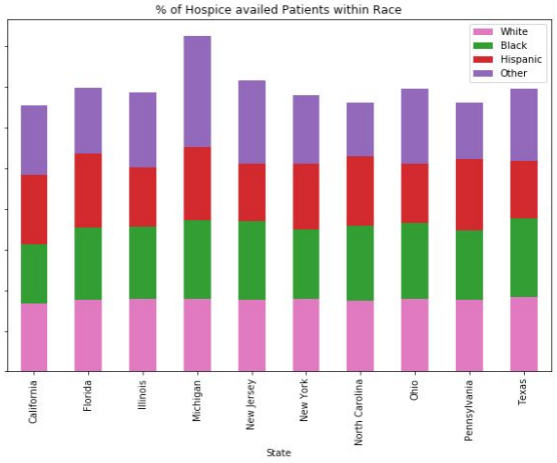
Analysis of Services

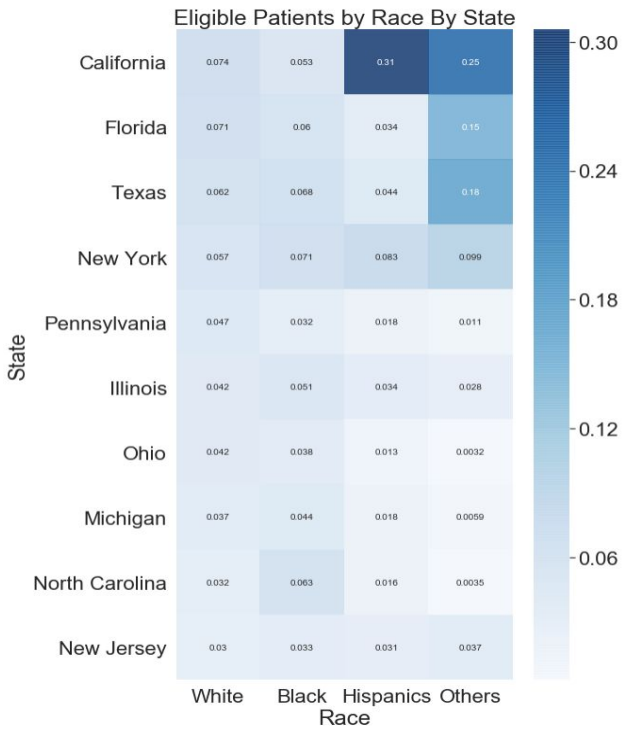
Synthetic Data confirmed that palliative care is administered more or less uniformly across states, in terms of utilization

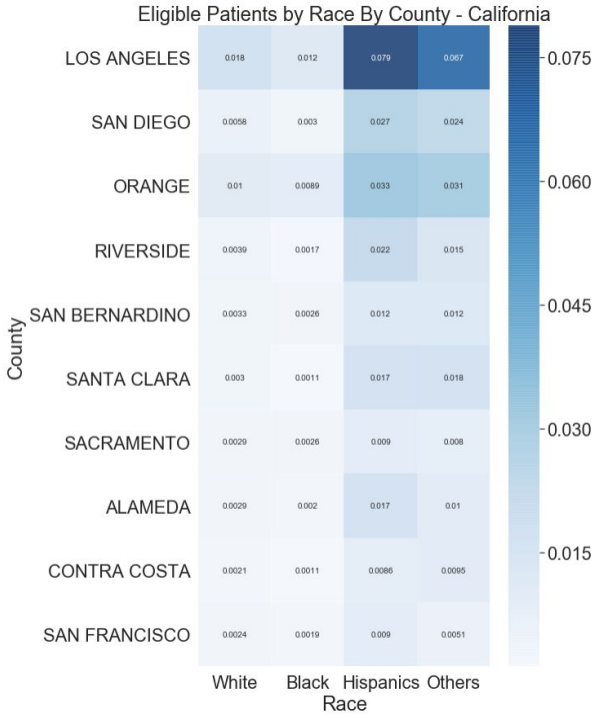
In terms of the percentage of palliative demographics, some states had more hispanic and others than whites

It is hard to know if there are granular differences, since these synthetic data are quite coarse





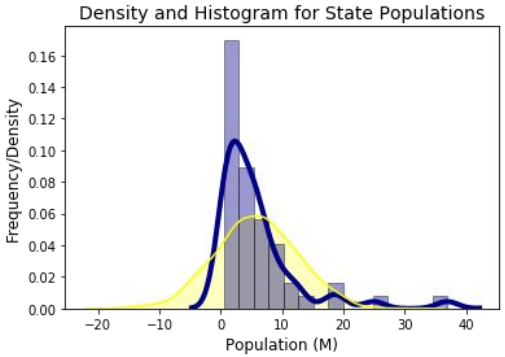


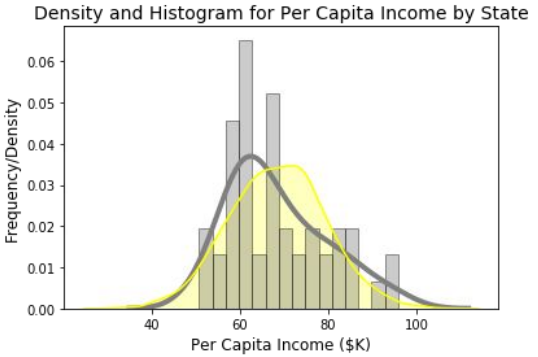


* **Top US States are defined as the States with the most number of Palliative Eligible Patients**

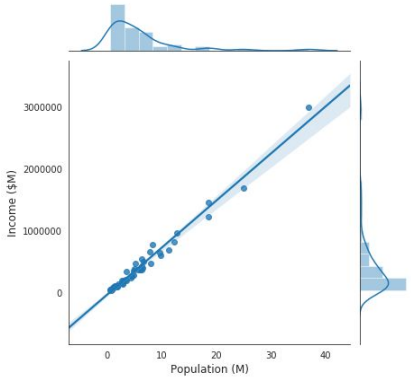
Analysis of Hospice Service Rates and Income

Significant clustering and heteroskedasticity were observed when joint distributions between per capita rate of Medicare hospice services and the log of per capita income

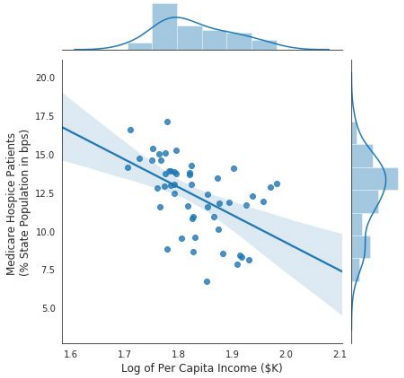




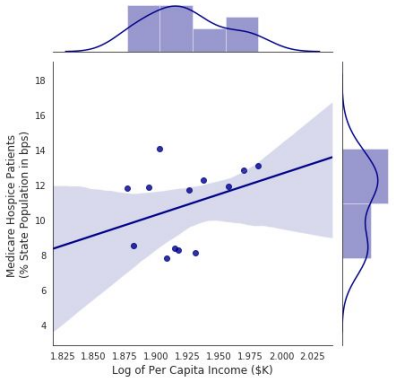
Joint Distribution Between State Income and Population



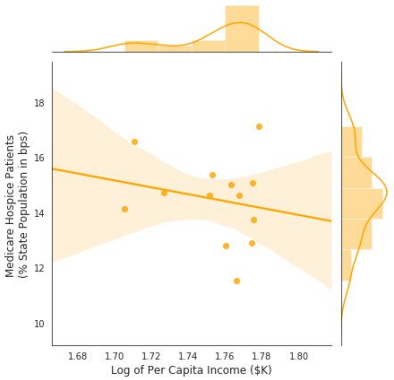
Joint Distribution Between Medicare Hospice Patients as % of Population and Log of Per Capital Income



Top Quartile States by Log of Per Capita Income



Bottom Quartile States by Log of Per Capita Income



Conclusion

Our findings suggest the data quality of the primary source files is questionable

- We expected to find geographical, socioeconomic and racial differences in Palliative Care
- Hospice score and synthetic data did not show any geographical, socioeconomic differences in Palliative Care. As a result, the overlay with Census data proved to be somewhat inconclusive
- Medicare data did not show any racial disparities in Palliative Care
- Based on these findings, we believe that the data quality is questionable
- We believe this suggests further analyses with real Medicare datasets

Q&A

“Information is not knowledge.”
—Albert Einstein