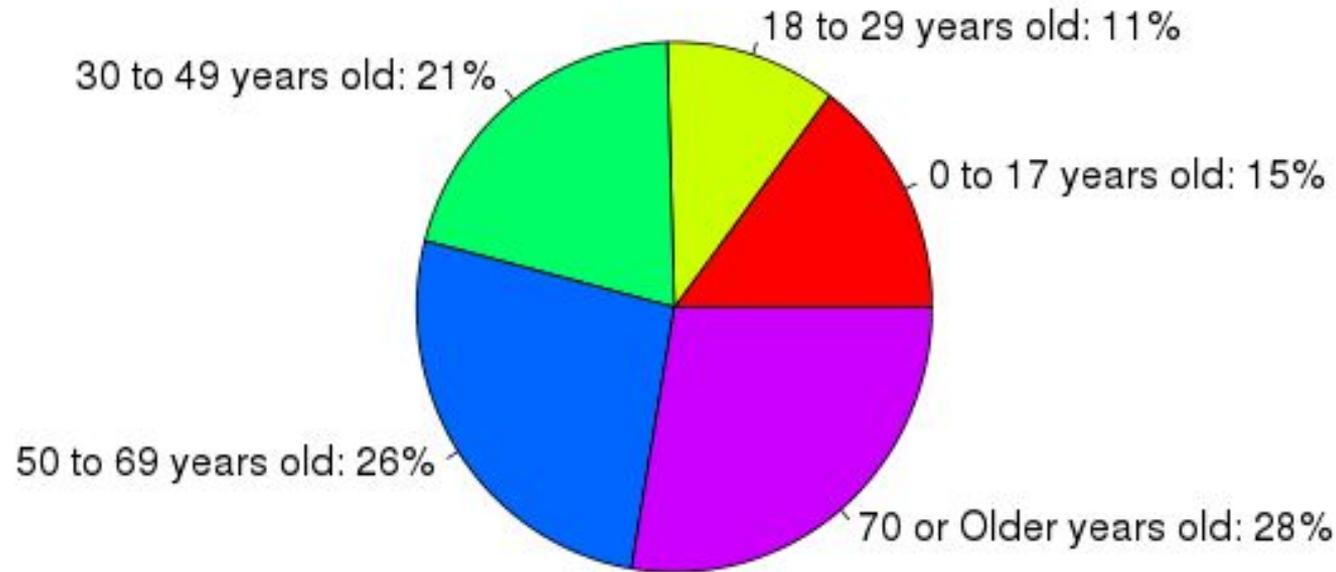# 2011 NYS SPARCS Hospital Record Survey

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The Workshop

- For the past two weeks, we have been learning R, and how coding ties to other sciences
- We used this knowledge to perform functions to the SPARCS data set
  - About 2.5 million de-identified patient records in NYS hospitals
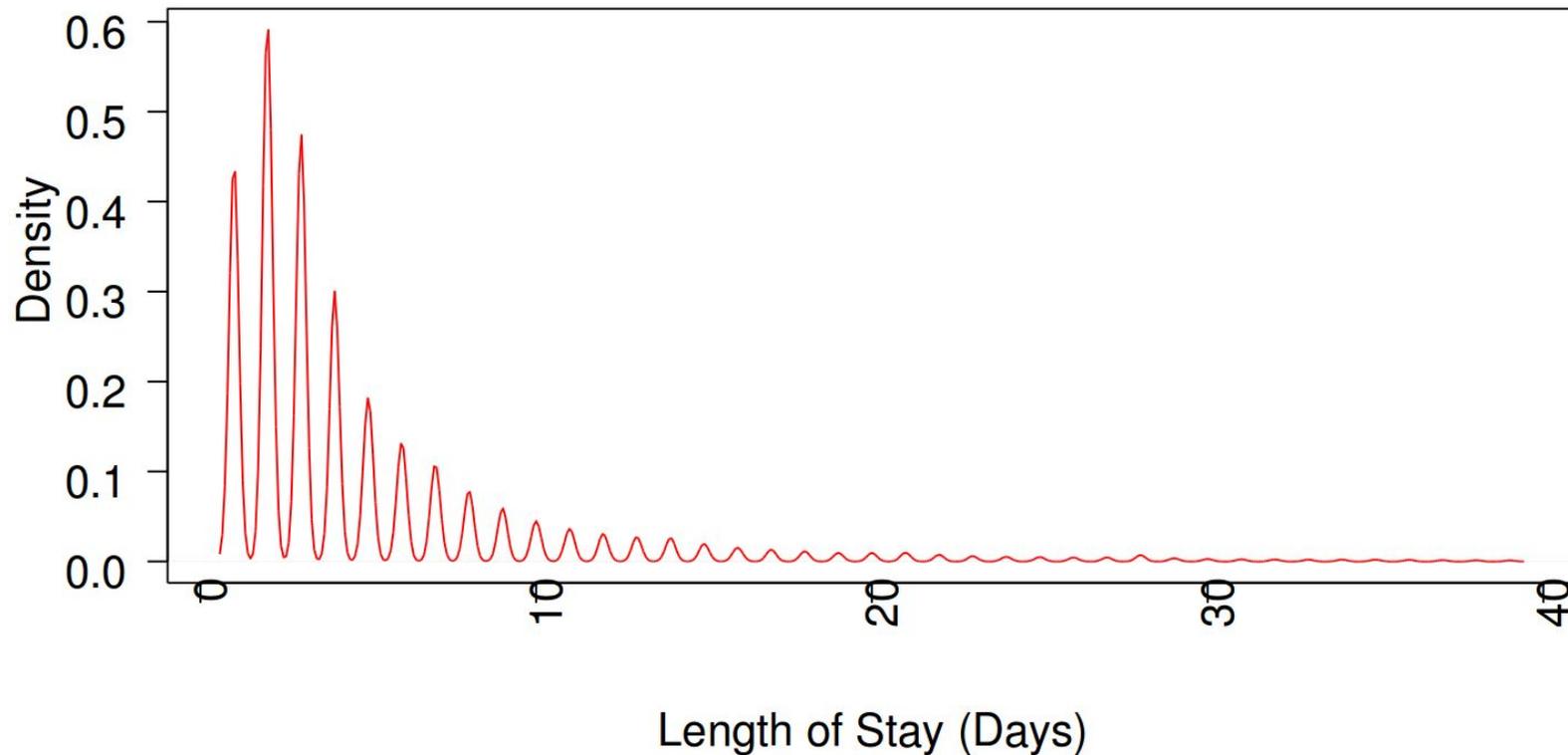- Our focus was mainly in the survey aspect

	hospital_county	facility_name	age	sex	race	length_of_stay	type_of_admission	patient_disposition
1	Albany	Albany Medical Center Hospital	30 to 49	M	White	3	Emergency	Home or Self Care
2	Albany	Albany Medical Center Hospital	0 to 17	M	White	1	Emergency	Home or Self Care
3	Albany	Albany Medical Center Hospital	18 to 29	F	White	2	Emergency	Home or Self Care
4	Albany	Albany Medical Center Hospital	0 to 17	F	Black/African American	1	Emergency	Expired
5	Albany	Albany Medical Center Hospital	18 to 29	F	Black/African American	3	Emergency	Psychiatric Hospital or Unit of Hosp
6	Albany	Albany Medical Center Hospital	18 to 29	F	Black/African American	4	Emergency	Home or Self Care
7	Albany	Albany Medical Center Hospital	0 to 17	M	Other Race	6	Emergency	Home or Self Care
8	Albany	Albany Medical Center Hospital	30 to 49	F	White	3	Emergency	Home or Self Care
9	Albany	Albany Medical Center Hospital	0 to 17	M	Black/African American	15	Emergency	Home w/ Home Health Services
10	Albany	Albany Medical Center Hospital	50 to 69	M	Black/African American	10	Emergency	Home or Self Care

Age Group Percentages in NYS Hospitals 2011

18 to 29 years old: 11%

30 to 49 years old: 21%

0 to 17 years old: 15%

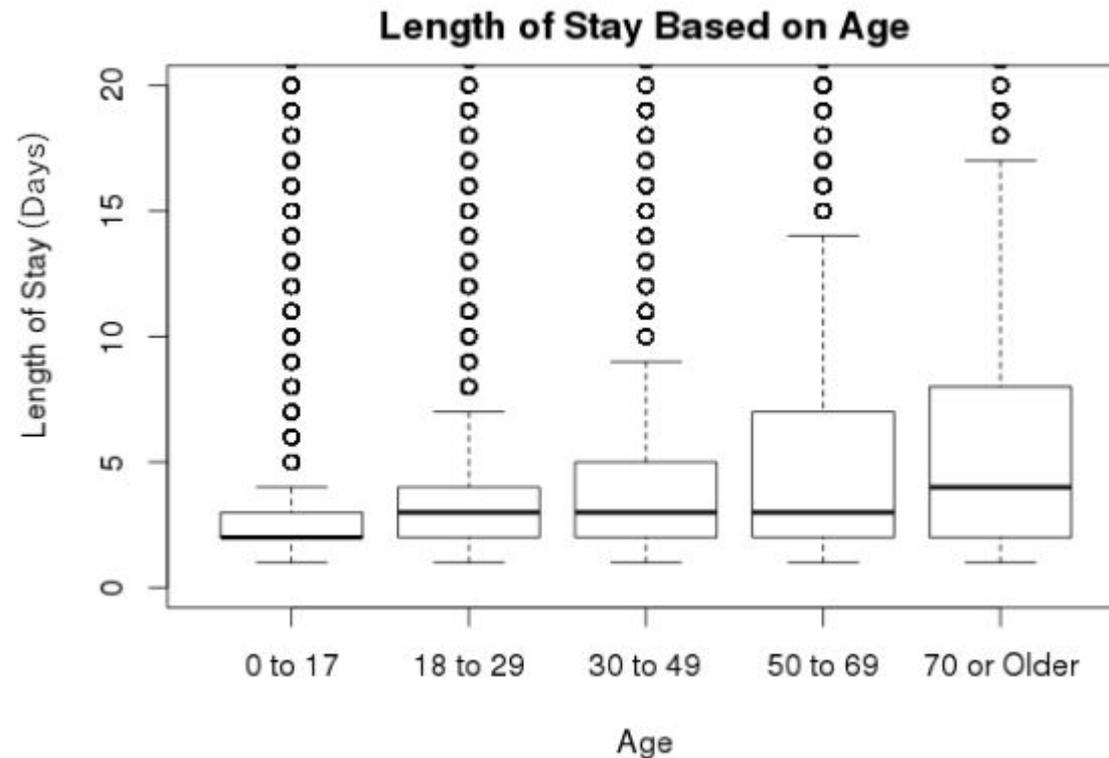50 to 69 years old: 26%

70 or Older years old: 28%

- The two older groups made up the majority of the patients, as expected
  - Older patients often require more overnight stays
- The 18-29 year group composes the smallest portion
  - We can infer that this is the healthiest age

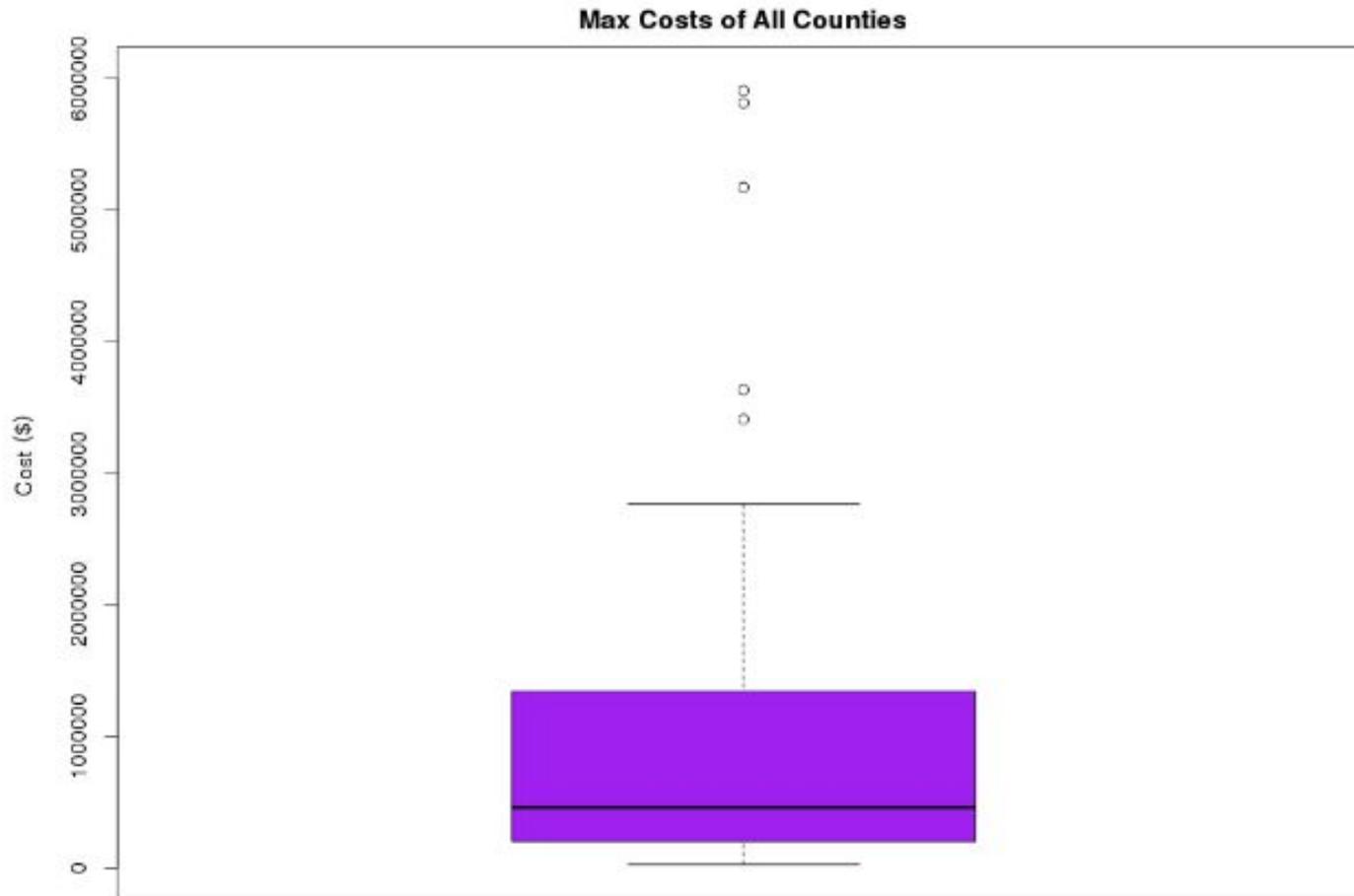Density of Length of Hospital Stay

- The density is greatest at two days, meaning that two days was the most recurrent length of stay
  - Could mean many things; ex. safety protocols
    - Also, many newborns and new mothers stay at the hospital for two days

- This boxplot shows that the older the people are, the longer they tend to stay
  - Certain factors like pregnancy and long term care drastically affect the data
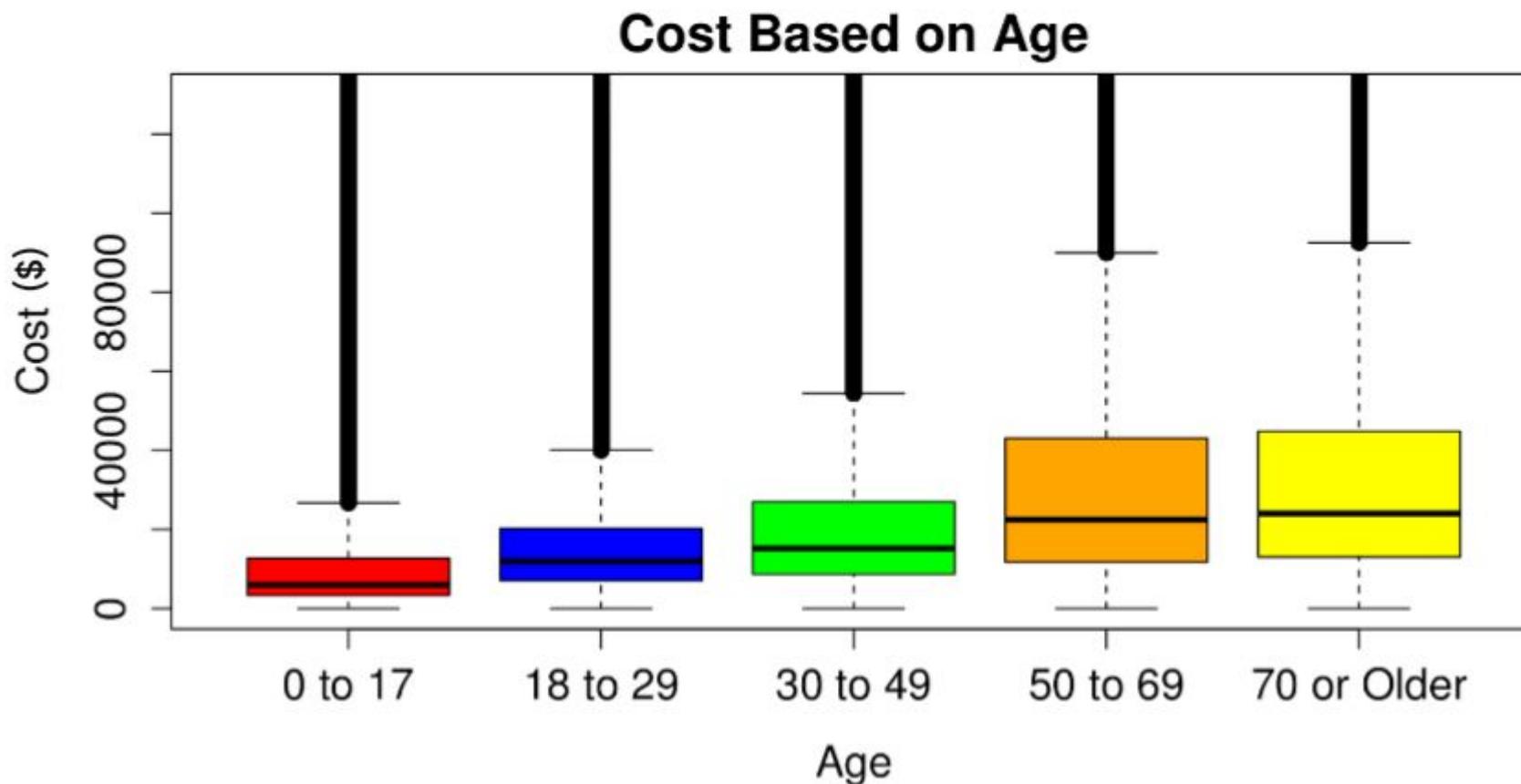
Length of Stay Based on Age

- Boxplot of all the max charges per county
- Kings County had the greatest with almost 6 million dollars spent by one man
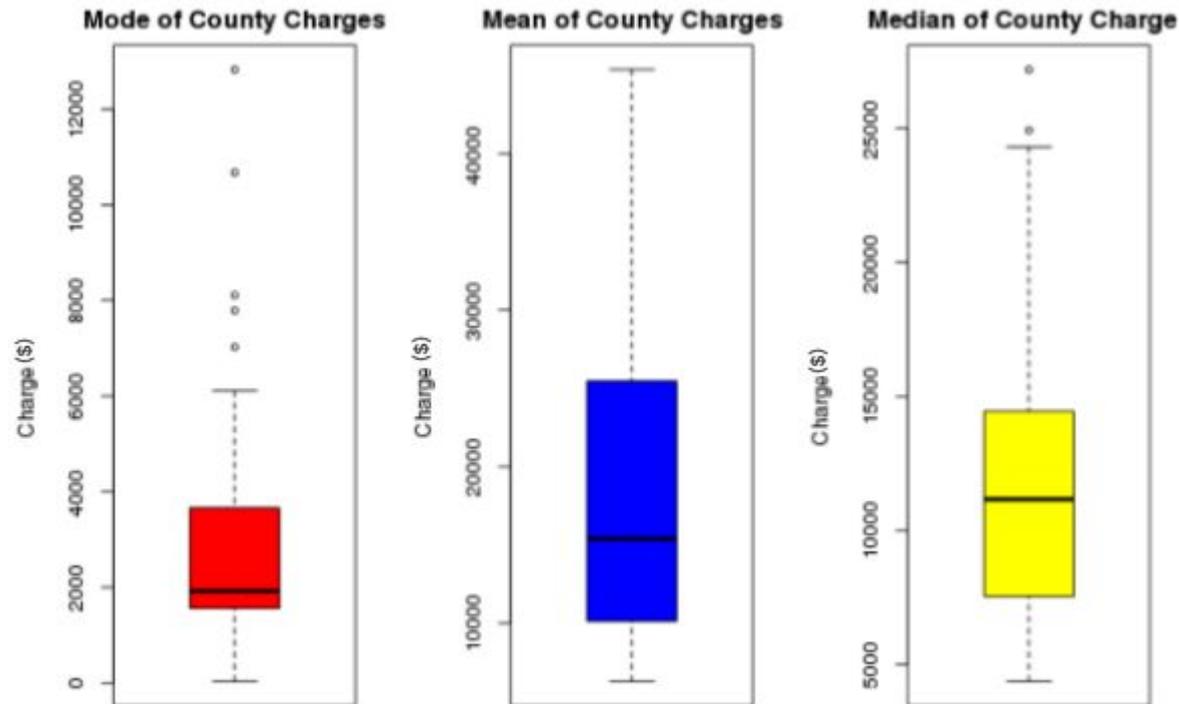- Median is around $500,000

Max Costs of All Counties

Console ~/

> boxplot(by(s$total_charge,s$hospital_county,max),ylim=c(0,6000000),main="Max Costs By County", ylab="Cost", col="purple")
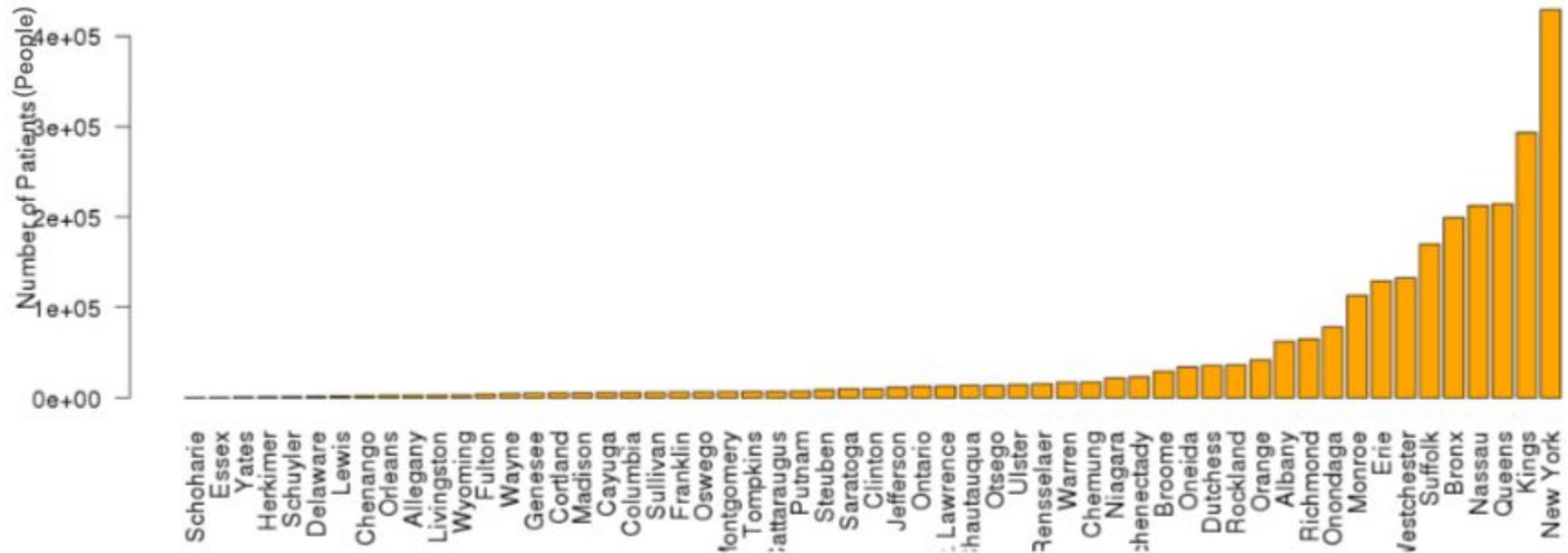
- Average cost for 70 or older is around $20,000, while 0-17 is around $8,000
- Older people tend to need more expensive surgeries possibly because their health starts to deteriorate

Cost Based on Age

- The mode graph shows that the majority of charges was lower costs
- The mean graph is at a higher scale because of generally higher costs
- The median graph explains the median charges of every county

Number of Patients Per County NYS 2011

Highest population per county (2010 census) closely corresponded to most patients per county
However, Kings = Highest Pop., NY = Most Patients
There could be more hospitals or larger hospitals in the county based on how urban it is considered.

- For these, the younger patients were shown to stay fewer nights in hospitals statewide, but people with ages from 30 years or older were more likely to stay more than two nights
- The 18 to 29 age group seems to be a pivotal point, perhaps in their ability to recover or likelihood to have children

Frequency of Age Groups that Stayed 2 Nights (Mode)

Frequency (People) — vertical axis: 0, 50000, 100000, 150000

Age Group (horizontal axis): 0 to 17, 18 to 29, 30 to 49, 50 to 69, 70 or Older

Frequency of Age Groups that Stayed 3 Nights(Median)

Frequency (People) — vertical axis: 0, 25000, 50000, 75000, 100000

Age Group (horizontal axis): 0 to 17, 18 to 29, 30 to 49, 50 to 69, 70 or Older