ASSIGNMENT 3

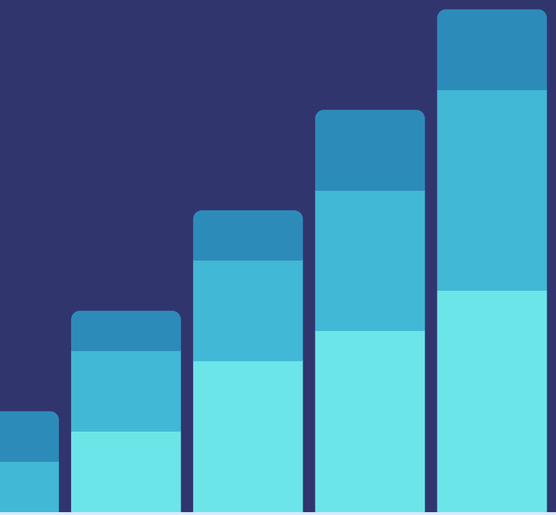
NEW YORK STATE COVID-19 SURVEILLANCE SUMMARY (LAST 7 DAYS FROM 2023/5/10)

Ge Zhu gz2385

Tableau Workbook Link:

https://github.com/zhugejugher/zhugejugher.github.io/blob/main/Assignment%203.twb

GOAL

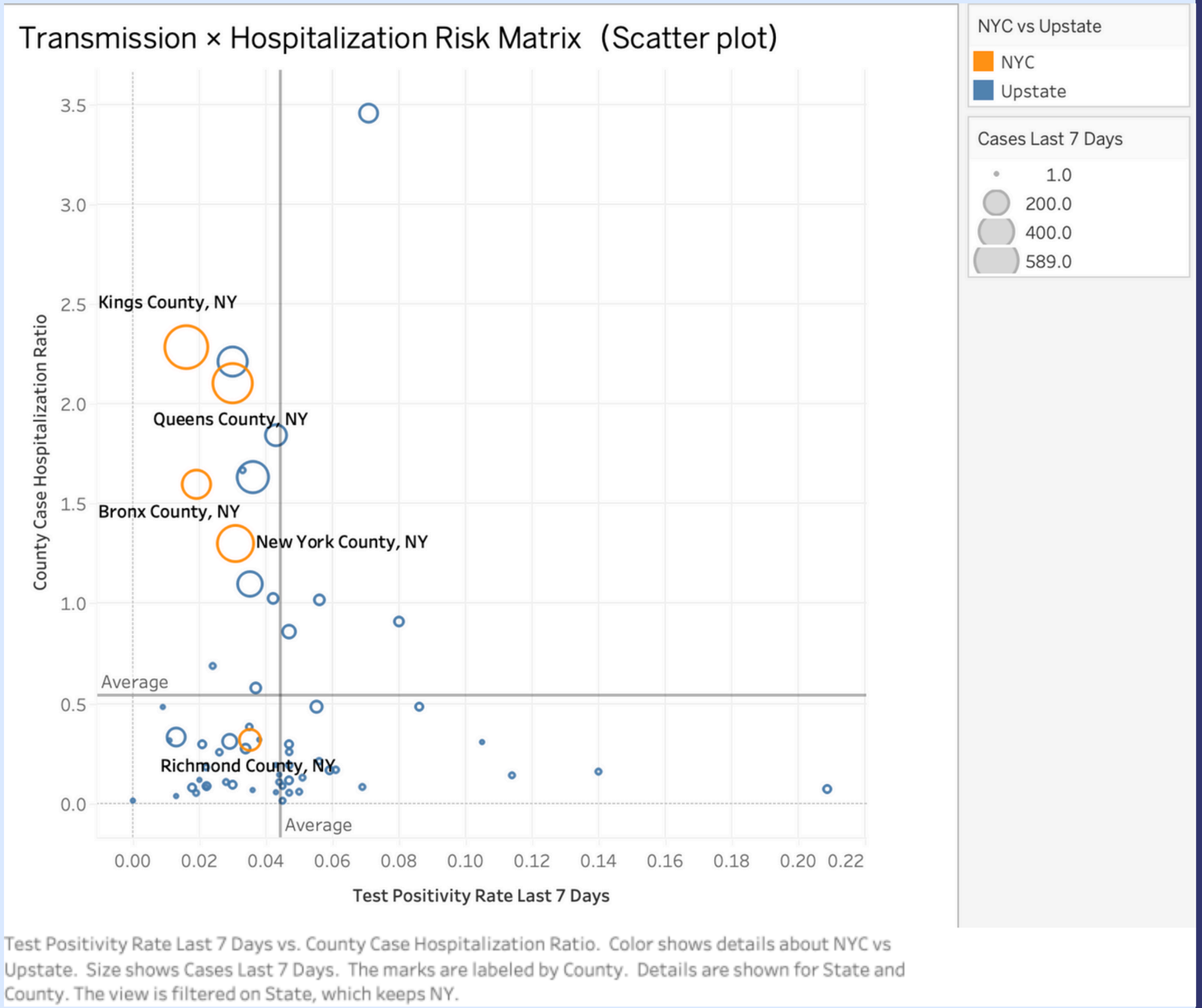


Analyze county-level COVID-19 surveillance data in New York to understand recent trends in:

- Transmission risk
- Hospitalization burden
- Spatial differences between NYC and Upstate counties

KEY QUESTIONS

1. Which counties show higher transmission intensity?
2. Where is hospitalization burden the highest?
3. How do NYC vs. Upstate counties differ?
4. Which counties deviate significantly from the state average?
5. What counties may require targeted interventions?



Test Positivity Rate Last 7 Days vs. County Case Hospitalization Ratio. Color shows details about NYC vs Upstate. Size shows Cases Last 7 Days. The marks are labeled by County. Details are shown for State and County. The view is filtered on State, which keeps NY.

TRANSMISSION × HOSPITALIZATION RISK MATRIX (SCATTER PLOT)

- Test Positivity Rate (Last 7 Days): The share of all COVID-19 diagnostic tests that returned positive results in the past 7 days.

- County Hospitalization Ratio: = Confirmed COVID Hospitalizations (7-day) /Cases Per 100K Last 7 Days

Upper-left

Low transmission but high hospitalization
→ possibly vulnerable populations

NYC boroughs

Upper-right

High transmission + High hospitalization
→ highest risk

Lower-left

Low transmission, low hospitalization
→ lowest risk

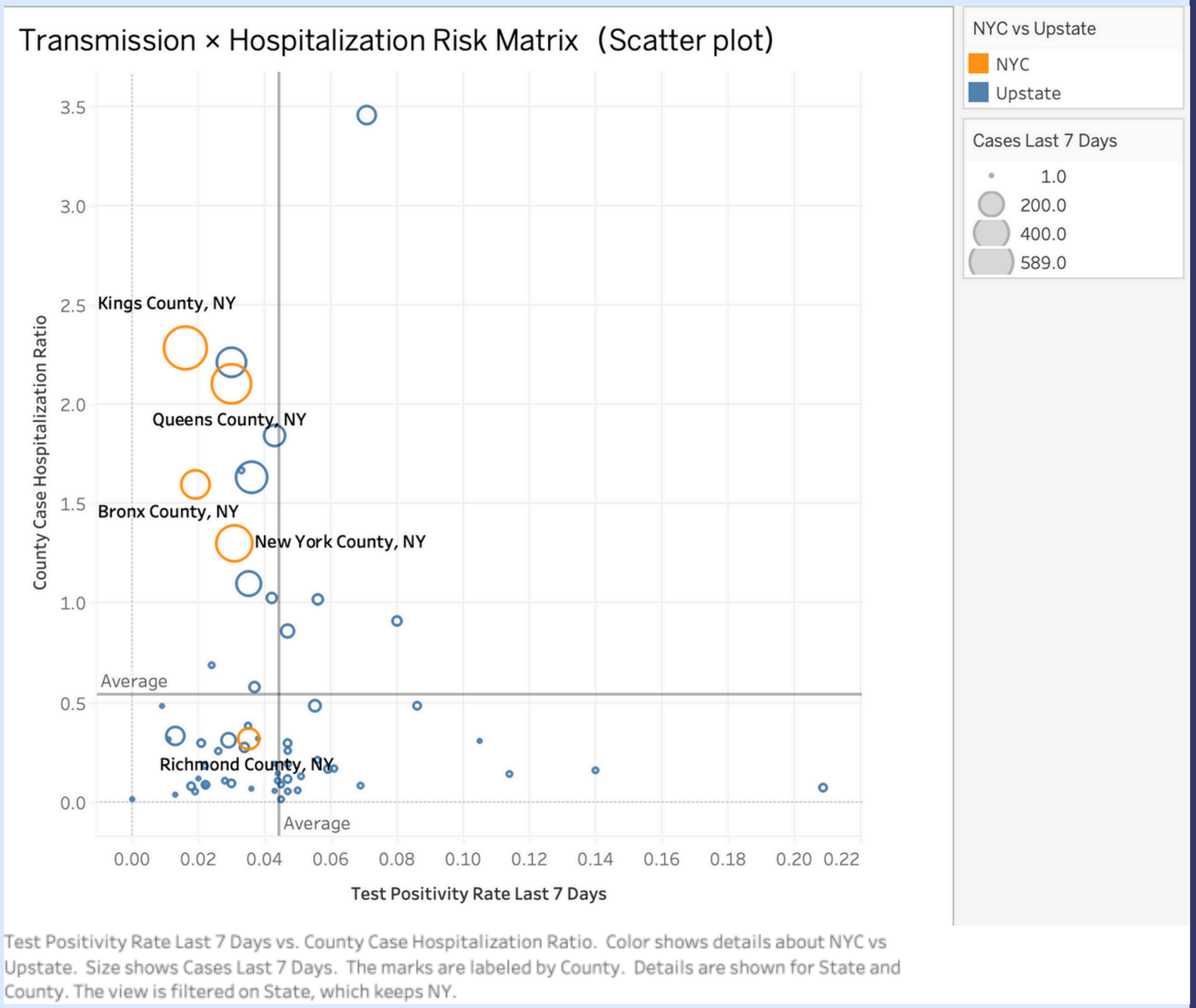
Majority of Upstate

Lower-right

High transmission but low hospitalization
→ younger or recently infected populations

Severity Indicator

Transmission Intensity



Test Positivity Rate Last 7 Days vs. County Case Hospitalization Ratio. Color shows details about NYC vs Upstate. Size shows Cases Last 7 Days. The marks are labeled by County. Details are shown for State and County. The view is filtered on State, which keeps NY.

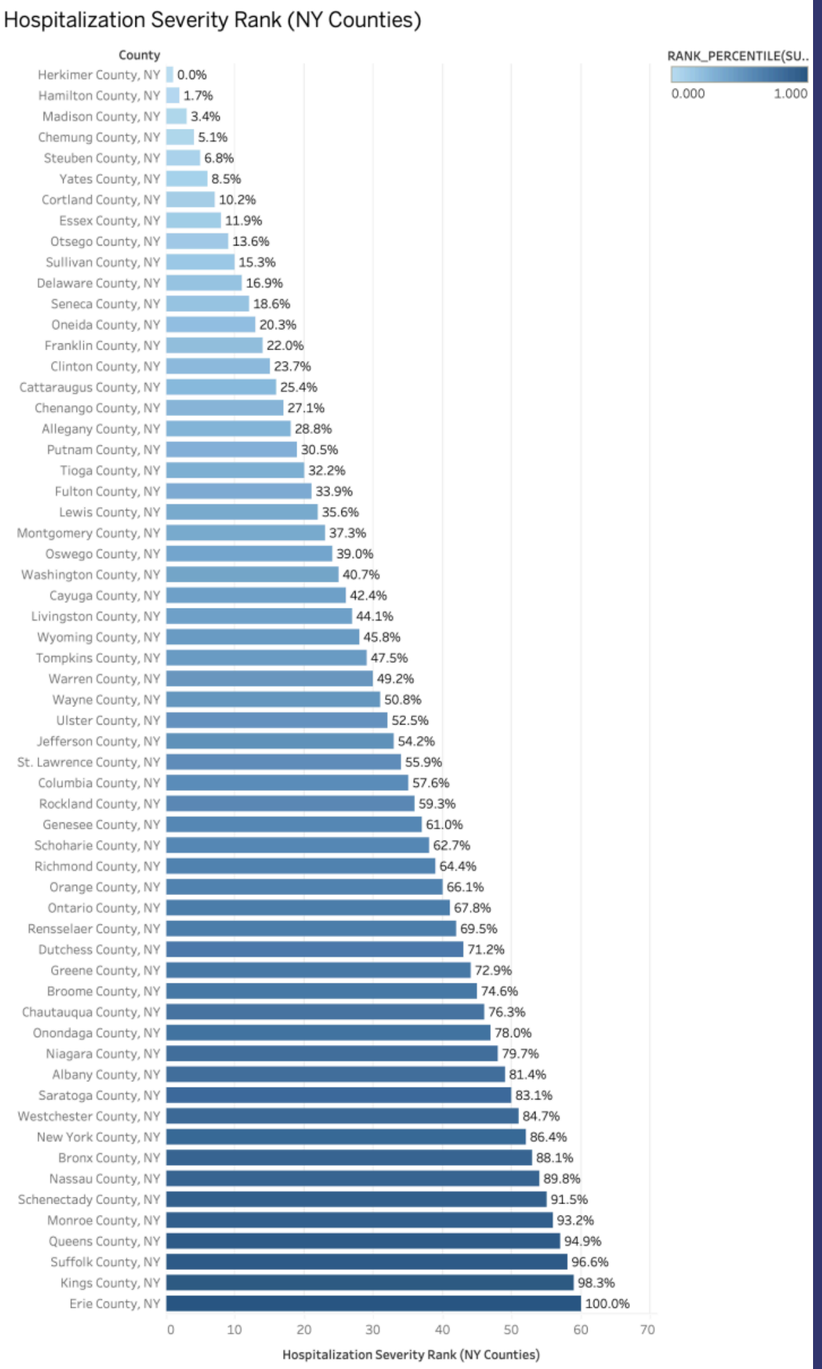
NYC shows systematically higher hospitalization severity even under moderate positivity levels.

Key Findings

- **NYC counties** cluster in the upper-left quadrant, indicating higher hospitalization ratios despite only moderate transmission levels.
- **Upstate counties** mostly fall near or below state averages, with lower hospitalization ratios.
- Case volume drives bubble size: NYC counties experience larger caseloads, increasing pressure on hospital systems.

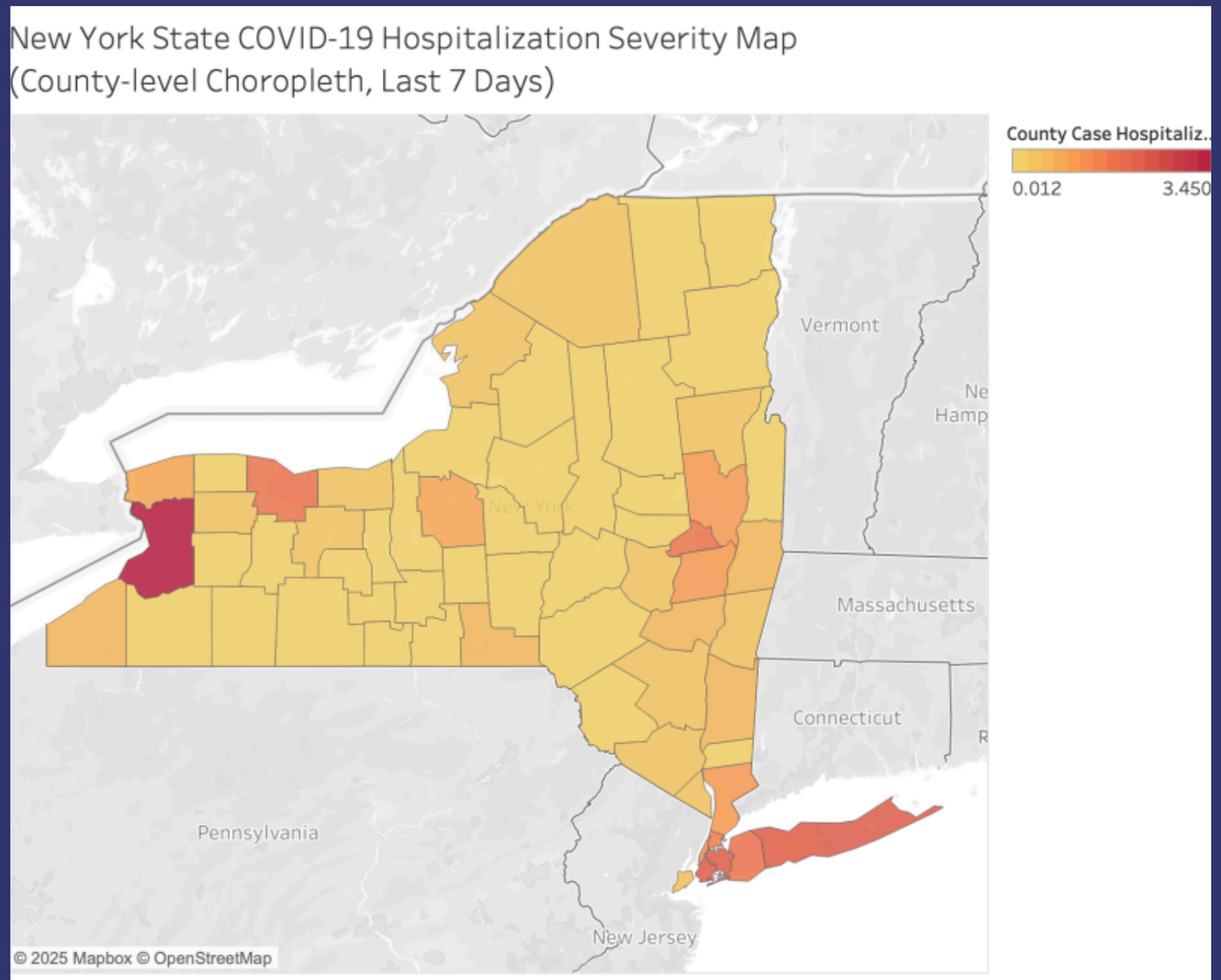
Interpretation

- **A higher hospitalization ratio** in NYC does not necessarily indicate more severe disease, but is likely influenced by:
  - **Higher baseline hospital occupancy** in urban systems
  - Greater reliance on hospital care due to **limited outpatient/primary-care access**
  - **Population density** and demographic risk factors
- Upstate counties show lower hospitalization per case, suggesting less strained healthcare capacity.



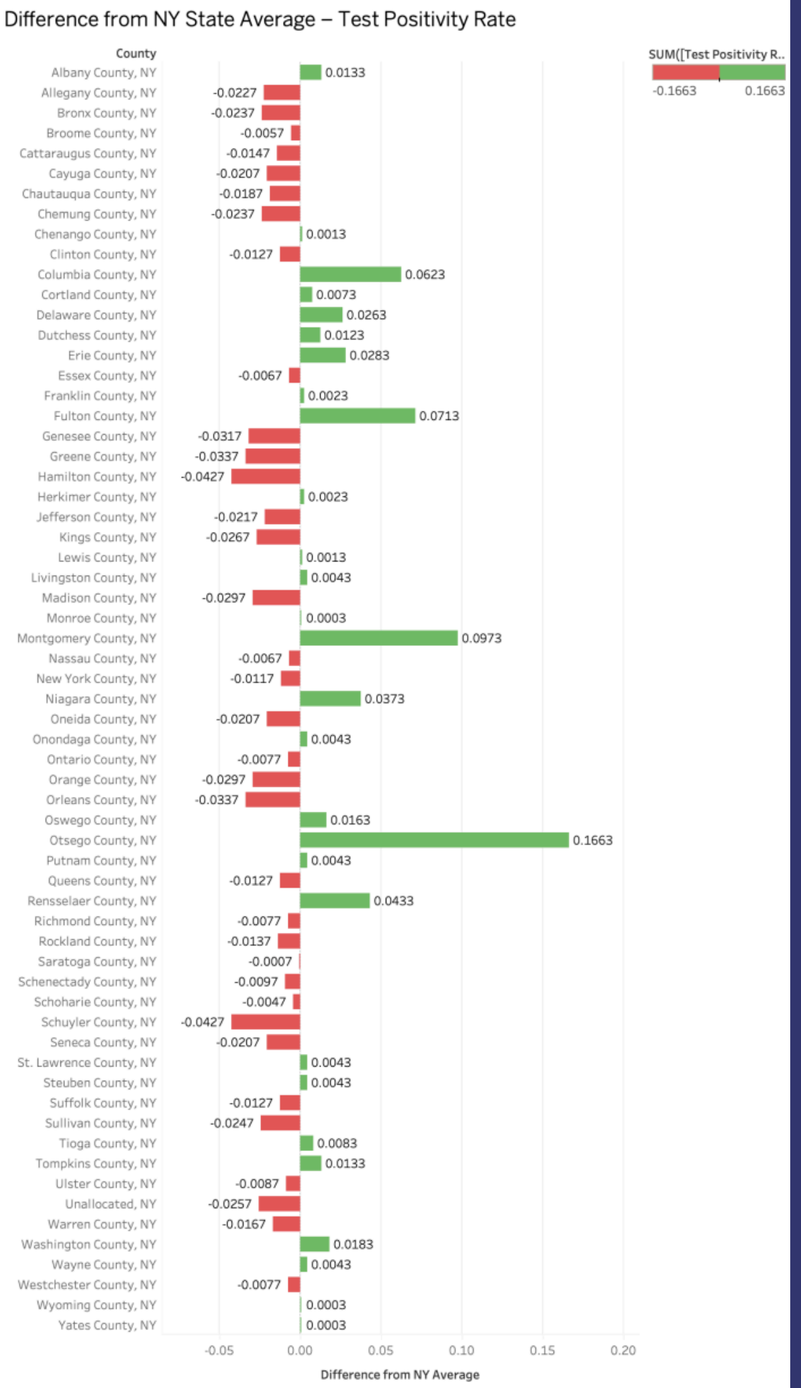
Rank of County Case Hospitalization Ratio for each County. Color shows RANK_PERCENTILE(SUM([County Case Hospitalization Ratio])). The marks are labeled by Percentile of County Case Hospitalization Ratio. The data is filtered on State and sum of County Case Hospitalization Ratio. The State filter keeps NY. The sum of County Case Hospitalization Ratio filter keeps non-Null values only.

The severity is not random—NYC counties occupy the highest 80–100% percentiles statewide.



Map based on Longitude (generated) and Latitude (generated). Color shows sum of County Case Hospitalization Ratio. Details are shown for Fips. The data is filtered on State, which keeps NY. The view is filtered on Latitude (generated) and Longitude (generated). The Latitude (generated) filter keeps non-Null values only. The Longitude (generated) filter keeps non-Null values only.

Hospitalization severity is highly concentrated in NYC counties, indicating structural disparities in clinical burden and healthcare resource pressure compared with Upstate regions.



High severity in NYC persists despite below-average positivity—evidence of structural healthcare disparities.

Insights

- **Many NYC counties have lower-than-average positivity rates.**
- **The highest above-average positivity rates come from smaller Upstate counties:** Small-population counties exhibit spikes that stand out more dramatically relative to their size.
- **Transmission does not align with hospitalization severity.**
  - high positivity ≠ high severity
  - outbreaks may be occurring in lower-risk or better-supported populations
- **NYC's lower positivity but higher hospitalization ratio indicates structural drivers:**
  - larger vulnerable populations
  - hospital congestion
  - chronic disease prevalence
  - delayed access to care

CONCLUSION

1. Which counties show higher transmission intensity?
Transmission hotspots are primarily in smaller Upstate counties (e.g., Otsego, Montgomery, Fulton, Columbia), which exceed the statewide positivity average by wide margins. NYC counties generally show below-average or moderate positivity rates.

2. Where is hospitalization burden the highest?
Hospitalization severity is highly concentrated in NYC counties and Erie County, which occupy the highest 80–100% severity percentiles statewide.

3. How do NYC vs. Upstate counties differ?

- NYC: Lower transmission but much higher severity, indicating structural clinical burden.
- Upstate: Higher transmission in several counties but lower hospitalization severity, suggesting more stable healthcare capacity or lower-risk populations.

4. Which counties deviate significantly from the state average?

- Above-average positivity: Otsego, Montgomery, Fulton, Columbia, Niagara
- Below-average positivity but high hospitalization: All five NYC boroughs

➔ **Transmission patterns and severity patterns are not aligned.**

5. What counties may require targeted interventions?

- NYC counties: Require resource strengthening due to structural vulnerabilities
- Select Upstate hotspots (e.g., Otsego, Montgomery, Fulton): Require surveillance & outbreak control due to unusually high positivity spikes.
- Erie County: Needs monitoring due to persistently elevated hospitalization severity.