

Data Analysis & Visualization

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Data Selection

Infectious Diseases by Disease, County, Year, and Gender

- This data set contains data focusing on infectious diseases in California between 2001 and 2023.
- The data is grouped by disease, county, number of cases (female, male, total), year, population, rate, lower 95% CI, upper 95% CI
- <https://catalog.data.gov/dataset/infectious-diseases-by-disease-county-year-and-sex-6e856>

Importance

Why is this infectious disease data important?

- Ensuring effective disease control
- Management of health systems and policy making
- Ensuring appropriate, timely, and evidence-based public health responses

Analyzing The Data

- Three angles chosen to represent the data:
 - Focusing on the top 10 most prevalent diseases, show case numbers for each disease over the years
 - For each county, show total case numbers of a specific top 10 disease
 - Focusing on the top 10 most prevalent diseases, show total number of cases for females, males, and both genders

Angle 1 - Disease Trends

Why is it important?

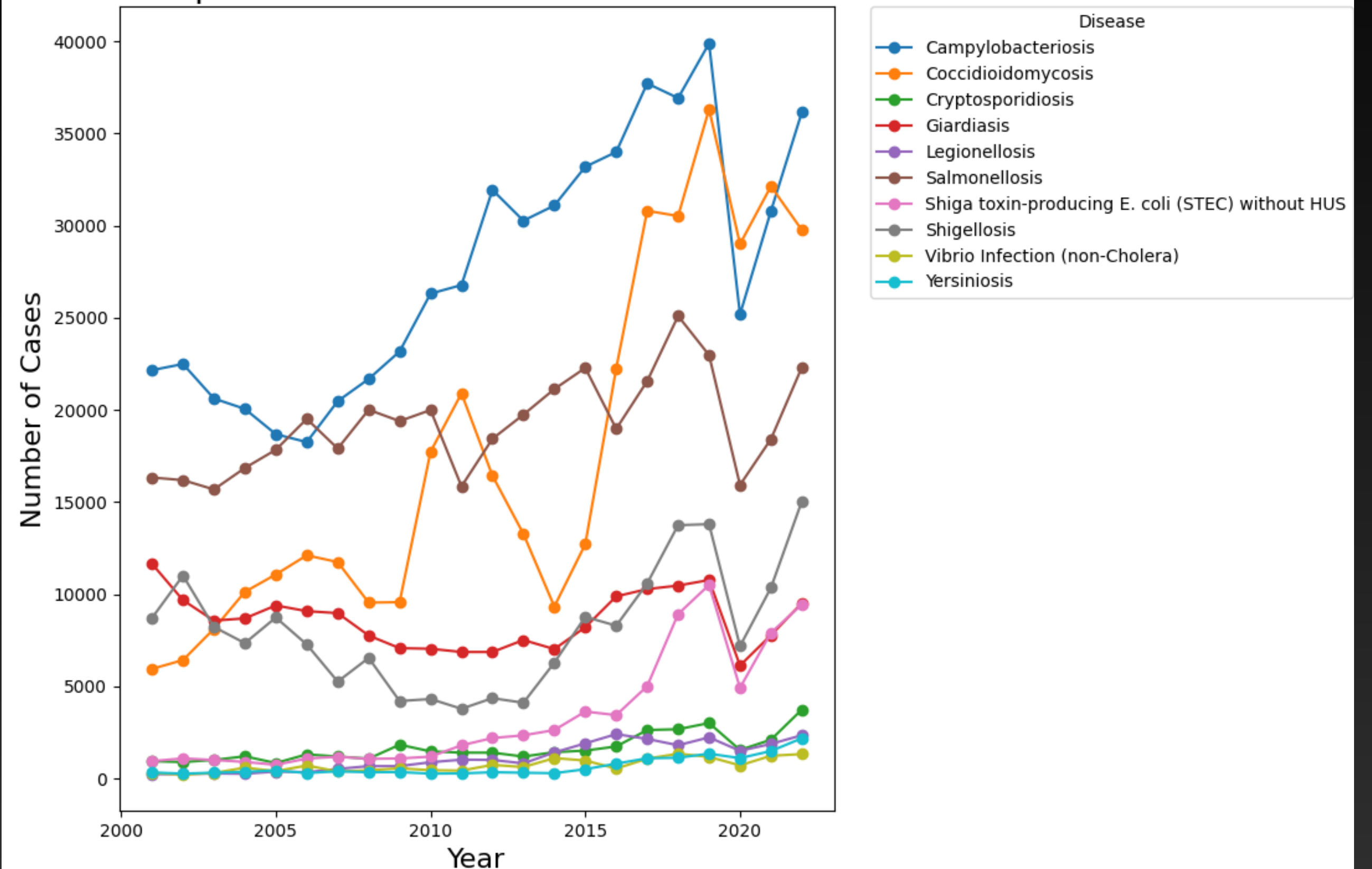
- Tracking trends in infectious diseases is important for a multitude of reasons:
 - Early detection of outbreaks, allowing for early intervention
 - Identify patterns and predict future outbreaks
 - Vaccine development
 - Public awareness & education, behavioral/lifestyle changes

Angle 1

Disease Trends

- Observation in data trends:
 - In 2020, a significant decrease is observed in all infectious diseases....
 - Maybe due to social distancing/isolation during COVID?
 - This is meaningful to scientists and public health professionals

Trend of Top 10 Disease Cases Over Years in California



Angle 2 - Cases By County

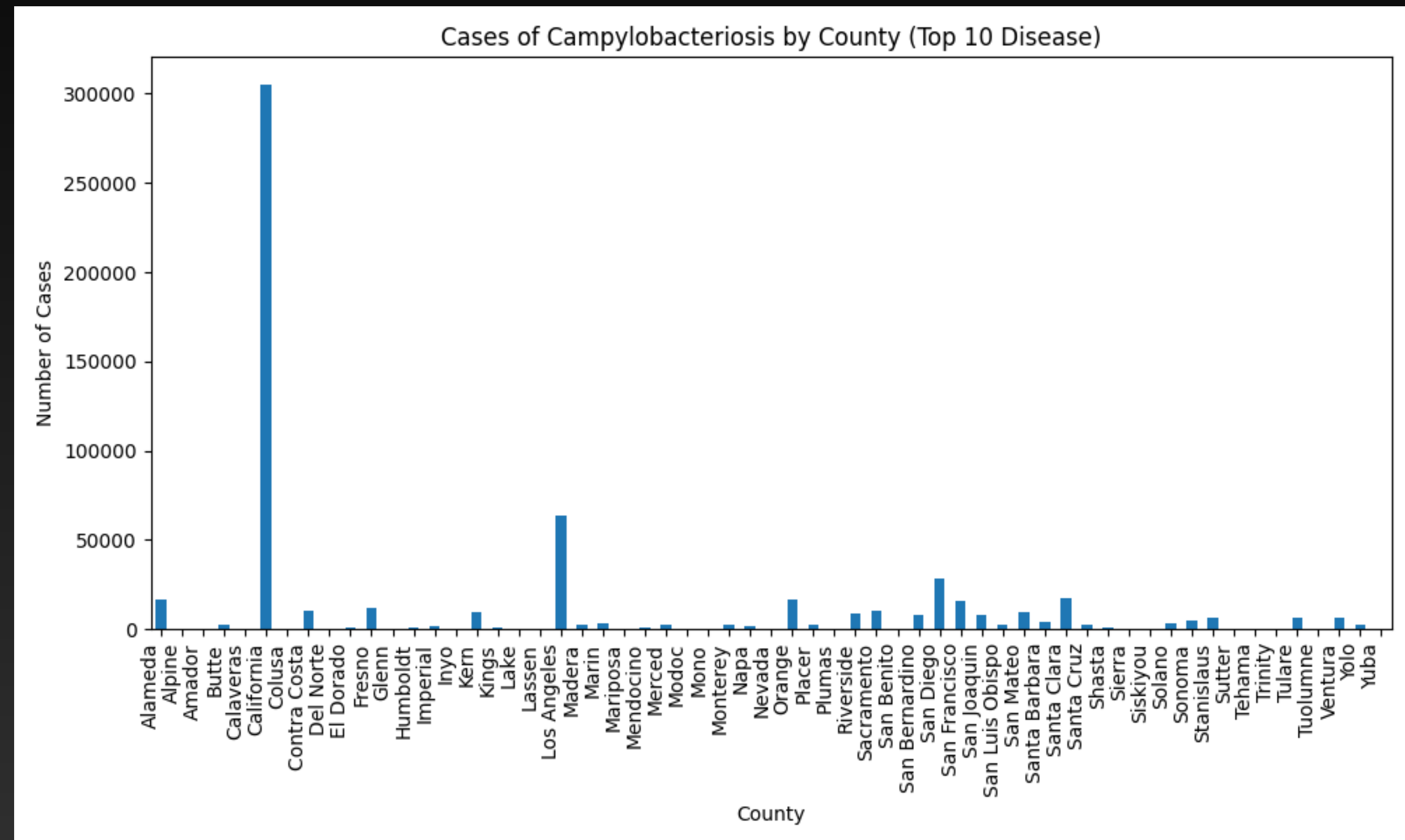
Why is it important?

- Tracking infectious disease cases by county provides numerous benefits to scientists and public health professionals:
 - Detect localized outbreaks and prevent further spread
 - Tailor public health responses to county demographics, population, etc.
 - Allocate resources to counties most affected by disease outbreak
 - Monitor and track patterns for specific areas

Angle 2

Cases By County

- Observation in cases of Campylobacteriosis by county:
- Roughly 300,000 cases in California county between 2001 and 2023
- This is a significant increase compared to the other counties
- Why....?



Angle 3 - Cases By Gender

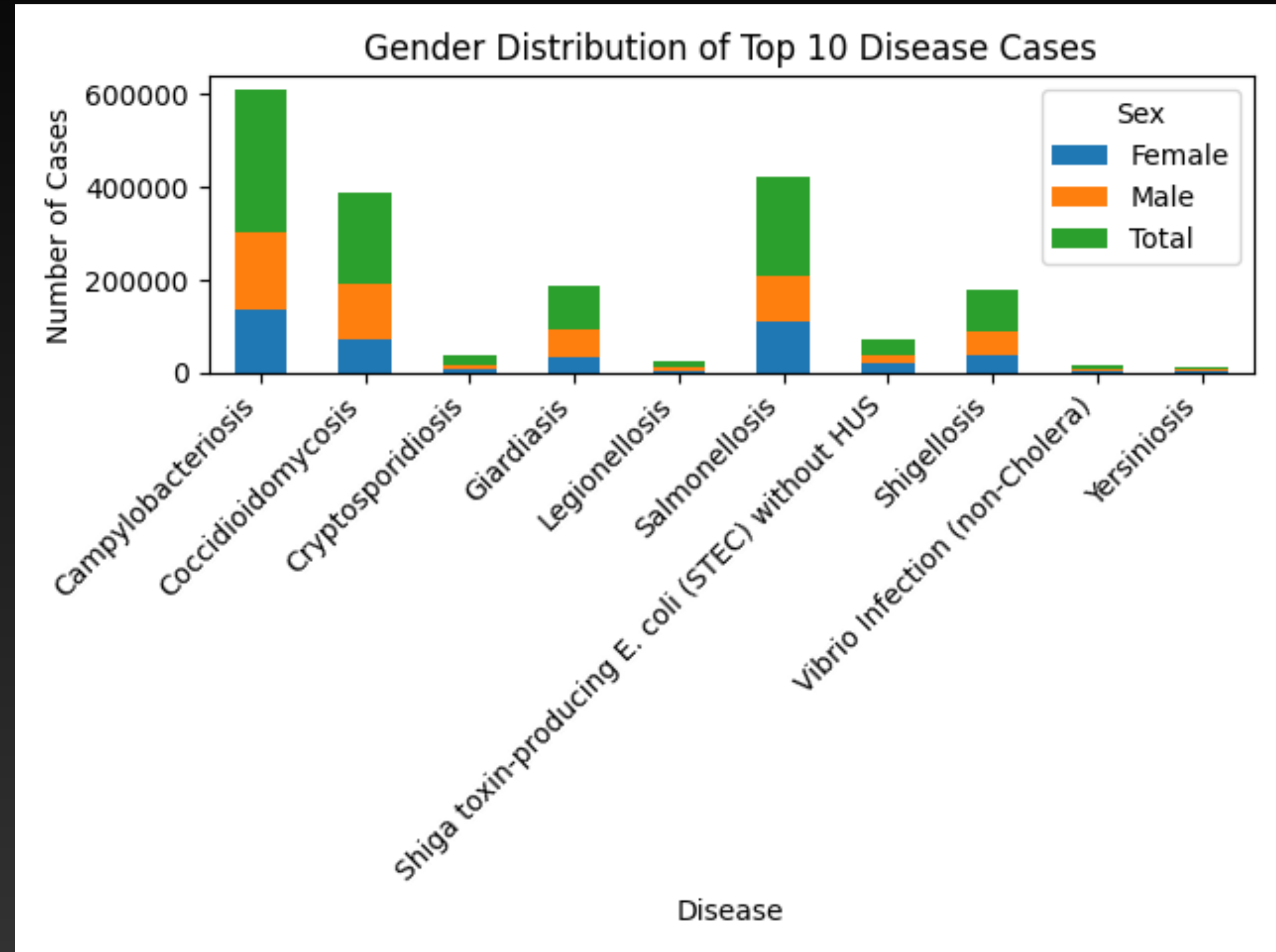
Why is it important?

- Tracking infectious disease trends by gender is important because...
 - Males and females differ...
 - Different immune response to infection
 - Biological differences sometimes result in need for different therapies
 - More research is being conducted in males and females separately due to realization that differences in gender extend far beyond reproduction and hormones (medication effects and effectiveness, pain tolerance, disease occurrence, etc.)

Angle 3

Cases By Gender

- Observation in gender distribution of top 10 disease cases:
 - Hard to tell, but it seems like males tend to have higher burden of disease vs females
 - These trends reveal important questions that scientists and public health professionals would want to explore



Thank You :)