Foodborne Illness

Nashville Software School
DDA4 Capstone Project
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Motivation

I have chosen foodborne illness as the subject for my capstone project. I have worked in the food manufacturing industry in the past and that experience has brought about a passion for the subject as well as knowledge I can use to bring to light the seriousness of this issue. There are a system of programs and safeguards in place at every step from the farm to the table, but foodborne illness still occurs. I plan to explore possible reasons for that.

Questions to Answer

- What effect does foodborne illness have on people in the United States?
- What are the monetary costs associated with foodborne illness?
- What are the preparation locations where safer food handling practices can make food safer for consumption?

Data Sources

- https://data.world/cdc/foodborne-outbreak-database/workspace/file?filename=FoodData.xlsx
- https://www.ers.usda.gov/data-products/cost-estimates-of-foodborne-illnesses.aspx
- Hoffmann, Sandra, Michael Batz, J. Glenn Morris Jr. 2012. "Annual Cost of Illness and Quality-Adjusted Life Year Losses in the United States Due to 14 Foodborne Pathogens." J. Food Protection 75(7):1291-1302
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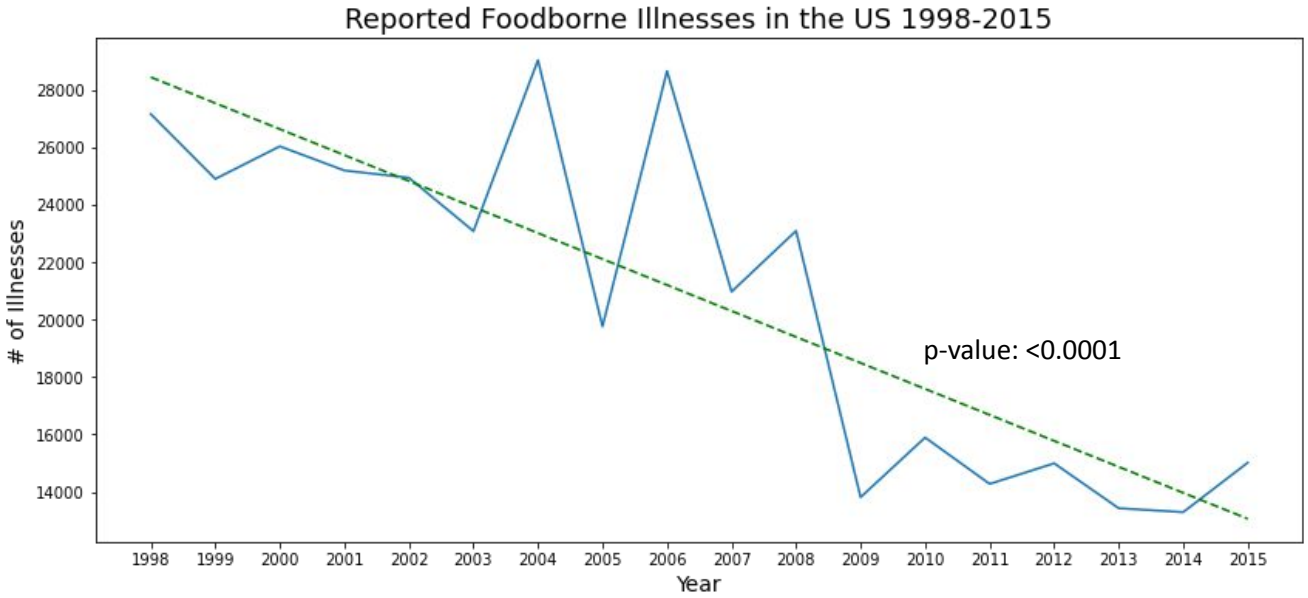
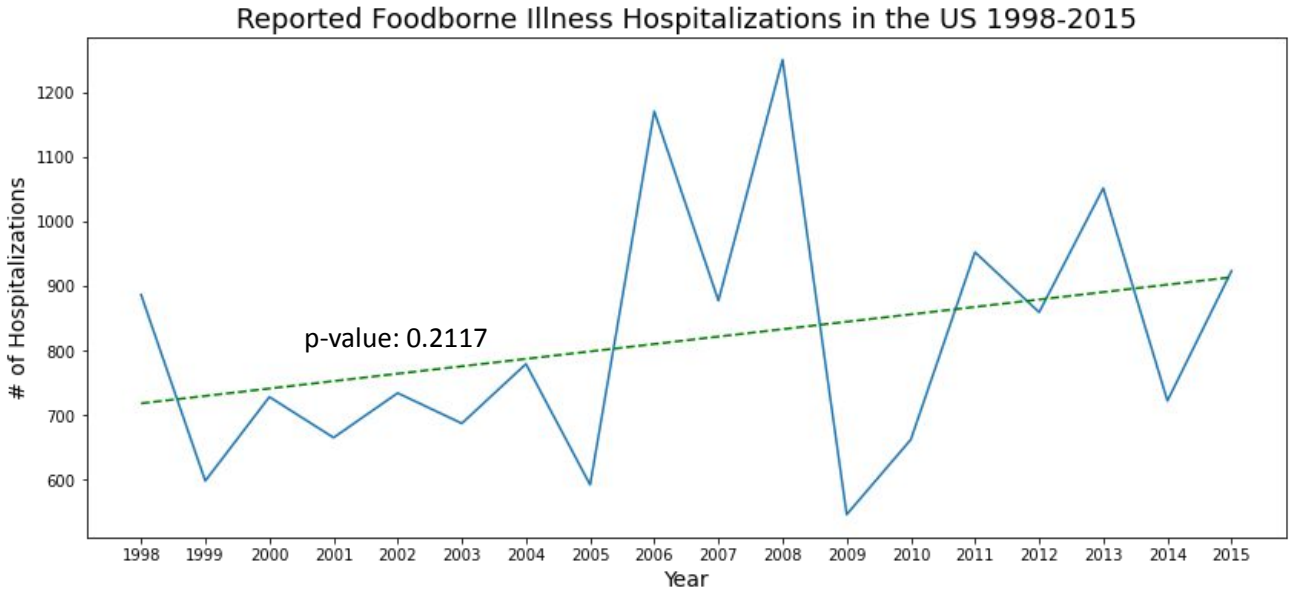
Effects of Foodborne Illness on the U.S.

- Seems to be decreasing over this timeframe
- Change in reporting process in 2009…
- Change in population has not been considered



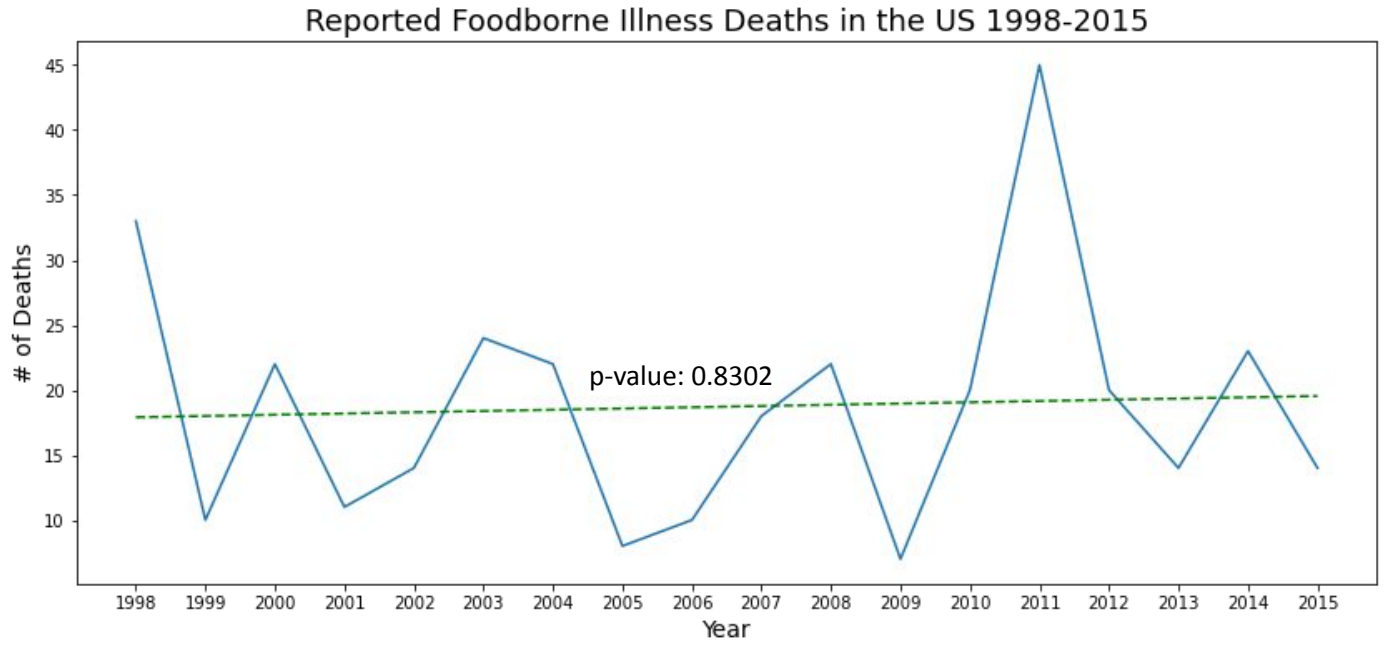
Effects of Foodborne Illness

- Increasing over this timeframe



Effects of Foodborne Illness

- Slightly increasing over this timeframe



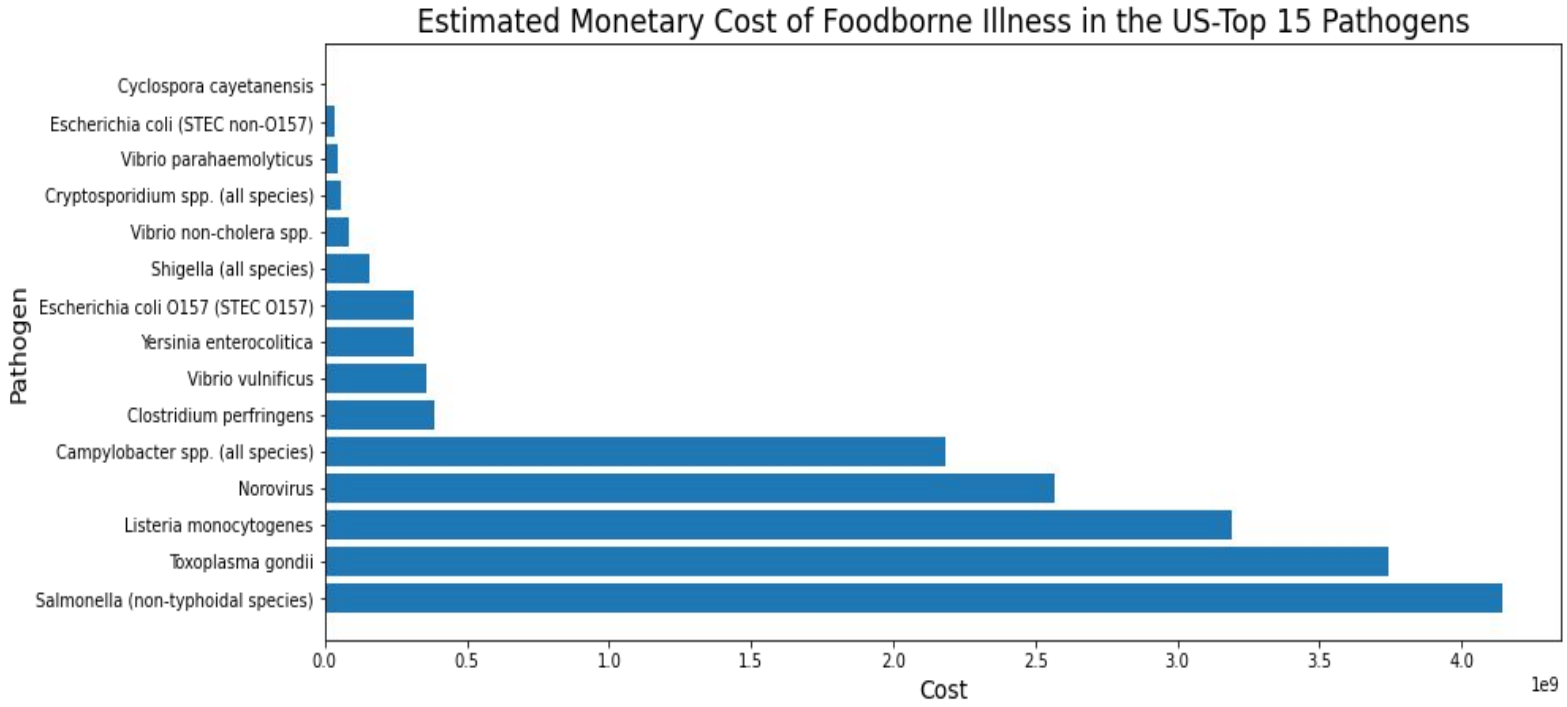
Effects of Foodborne Illness on the U.S. Summary

- Illnesses: Mean 20,752/year
  - Seems to be declining over time
  - p-value: <0.0001 therefore there is a significant decline of this timeframe
  - Change in the reporting process in 2009
- Hospitalizations: Mean 816/year
  - Seems to be increasing over time
  - p-value: 0.2117
- Deaths: Mean 19/year
  - Seems to be increasing over time
  - p-value: 0.8302

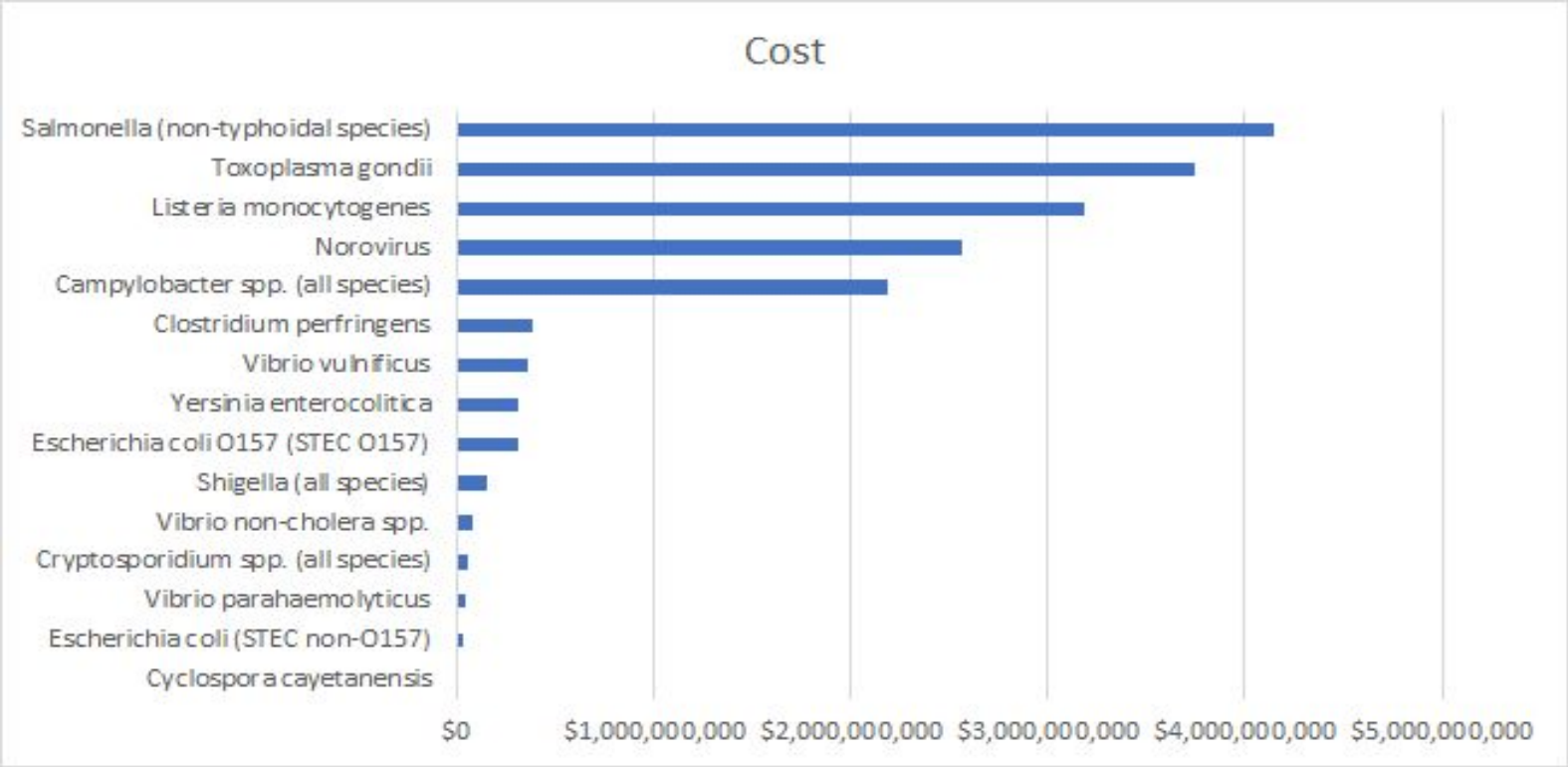
Monetary Costs of Foodborne Illness

- According to the USDA ERS, estimated mean monetary costs associated with the top 15 agents causing foodborne illness in 2018 was $17,571,792,712
  - Deaths $
  - Hospitalizations $
  - Illnesses $

Monetary Costs of Foodborne Illness



Monetary Costs of Foodborne Illness



Foodborne Illness by State

California - 10.71%

Illinois - 6.61%

Multistate - 6.58%

Florida - 6.17%

Ohio - 5.48%

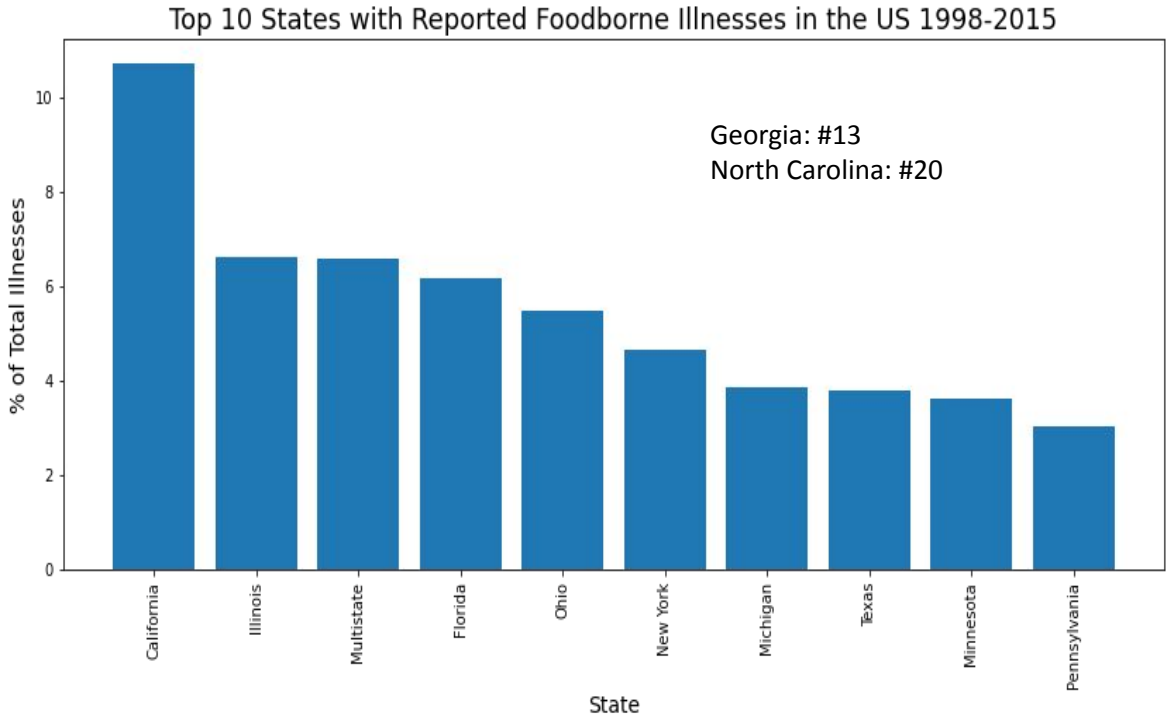
New York - 4.66%

Michigan - 3.87%

Texas - 3.80%

Minnesota - 3.62%

Pennsylvania - 3.04%



Foodborne Illness by Causative Agent

Norovirus - 37.11%

Salmonella - 17.44%

Clostridium - 7.92%

Escherichia - 3.23%

Staphylococcus - 2.39%

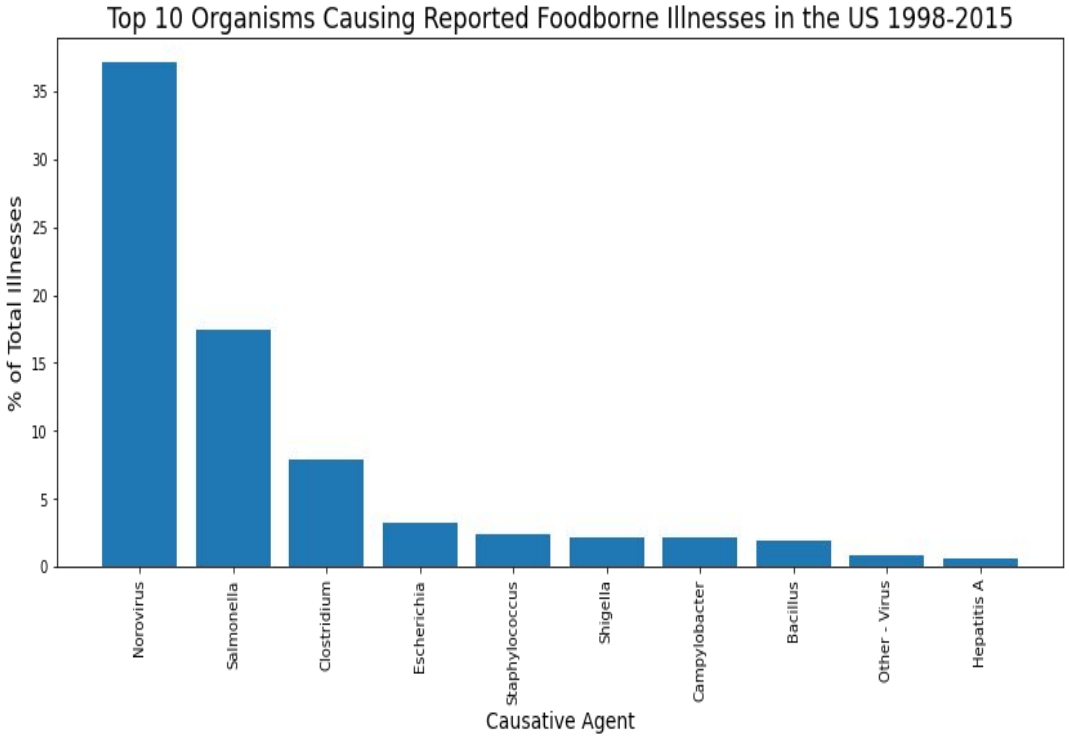
Shigella - 2.17%

Campylobacter - 2.16%

Bacillus - 1.92%

Other Virus - 0.81%

Hepatitis A - 0.64%



Restaurant/other - 33.39%

Caterer - 9.36%

Other - 9.32%

Private home/residence - 7.50%

Restaurant/sit-down - 7.40%

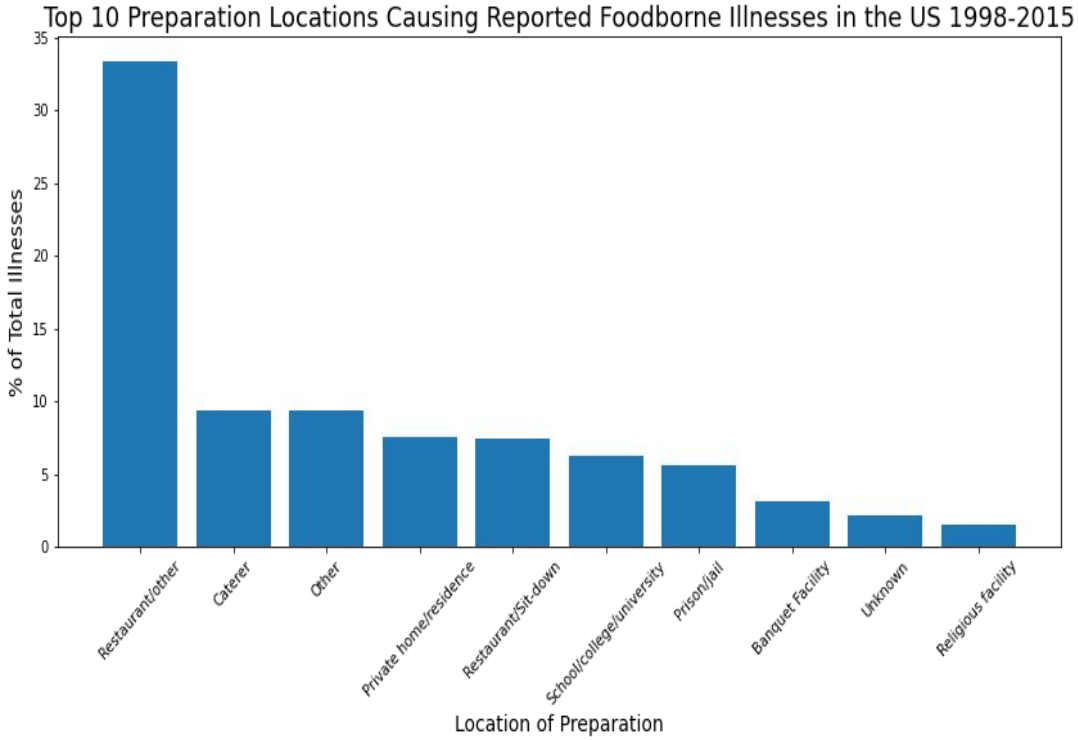
School/college/university - 6.25%

Prison/jail - 5.61%

Banquet facility - 3.11%

Unknown - 2.12%

Religious facility - 1.50%



Multiple foods - 1.46%

Salad, unspecified - 0.71%

Pork, bbq - 0.64%

Tomato, unspecified - 0.63%

Potato salad - 0.58%

Shell egg, other - 0.53%

Chicken, other - 0.49%

Other milk, pasteurized - 0.47%

Salsa, unspecified - 0.46%