



# THE BATTLE OF NEIGHBORHOODS

APPLIED DATA SCIENCE PROJECT



# Business Problem

- **Alcoholism is on the rise**

A Health Care Insurance company is concerned with an increasing number of people with alcohol and drug dependency year over year. They would like to understand if in addition to socioeconomic factors (education, income and occupation) – proximity to places that sell alcohol is a contributing factor as well.

# Methodology

The road map to answer

## Step 1

Gather the data

- **Inpatient Charge Data provided by Centers of Medicare and Medicaid Services.**
  - Include data with DRG 897 – ALCOHOL/DRUG ABUSE OR DEPENDENCE W/O REHABILITATION THERAPY W/O MCC and Provider State MN - Minnesota.



## Step 2

Identify the population

- **US Census Bureau**
  - Reference demographic data provided to get a better understanding about the population and economic development of the cities.



## Step 3

Study the neighborhoods

- **Foursquare location data**
  - Use Foursquare API to study the neighborhoods of two analogous cities with the highest and lowest discharge rate for DRG 897.
  - Find the most popular venues.



# Analysis

Finding the answer

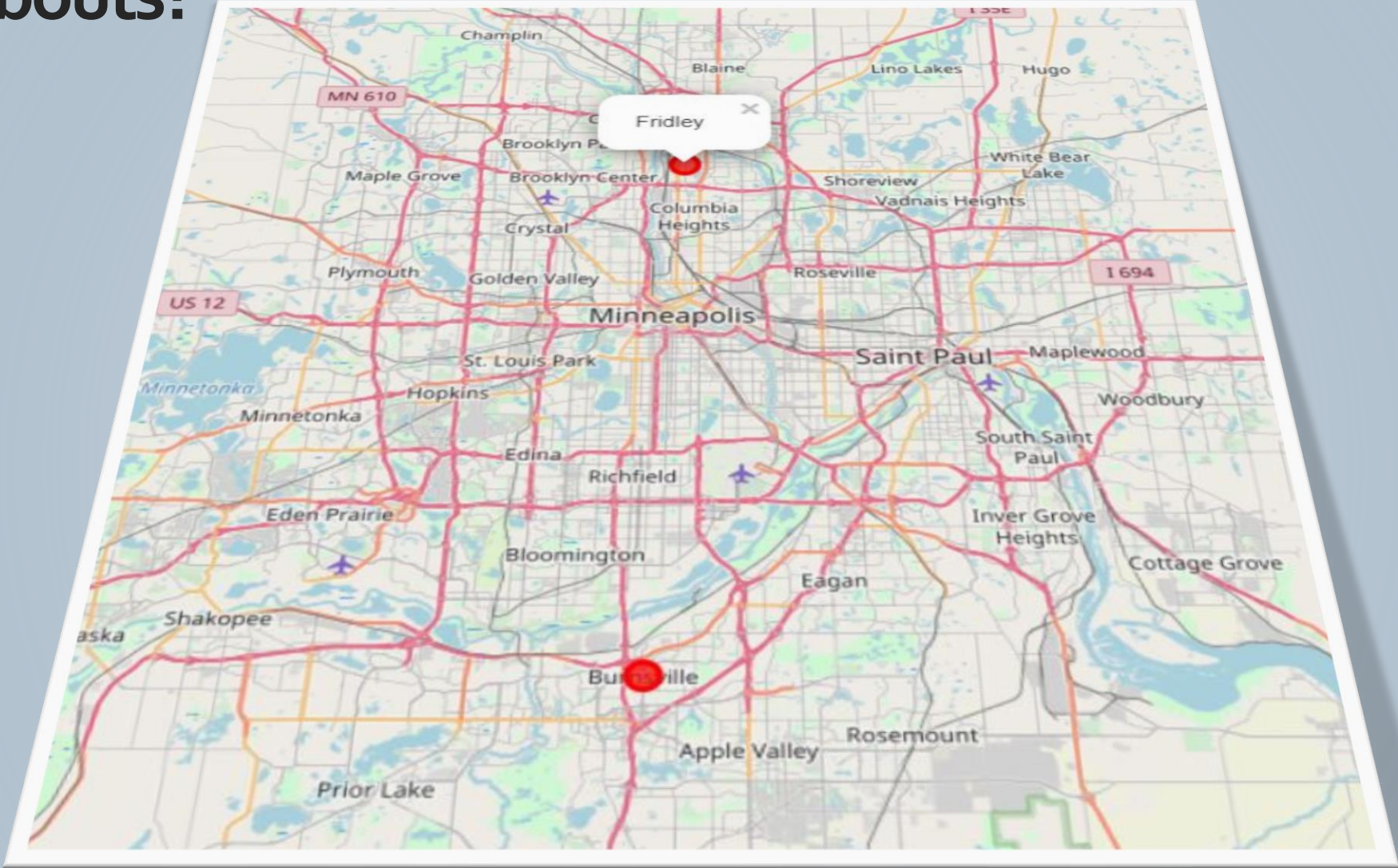


## Total Hospital Discharges

- Fridley, MN 65
- Burnsville, MN 12



# Whereabouts?



# U.S. CENSUS BUREAU QUICKFACTS

BURNSVILLE vs FRIDLEY

## Burnsville city, Minnesota

2018 Population Estimates

**61,203**

*Source: Vintage 2018 Population Estimates*

Median Household Income

**\$ 67,397**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Persons in poverty, percent

**9.3 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Educational Attainment: Percent high school graduate or higher

**93.1 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Persons without health insurance, percent

**6.4 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Median Housing Value

**\$ 224,700**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Total Housing Units

**25,657**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Number of Firms

**6,595**

*Source: 2012 Survey of Business Owners: Company Summary*

Male Median Income

**\$ 41,670**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Female Median Income

**\$ 27,855**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Veterans

**3,791**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Percent of households with a broadband Internet subscription

**85.1 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

[Explanation of Symbols](#)

## Fridley city, Minnesota

2018 Population Estimates

**27,742**

*Source: Vintage 2018 Population Estimates*

Median Household Income

**\$ 56,583**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Persons in poverty, percent

**10.7 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Educational Attainment: Percent high school graduate or higher

**89.3 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Persons without health insurance, percent

**8.4 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Median Housing Value

**\$ 174,000**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Total Housing Units

**11,283**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Number of Firms

**2,449**

*Source: 2012 Survey of Business Owners: Company Summary*

Male Median Income

**\$ 35,863**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Female Median Income

**\$ 25,003**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Veterans

**1,411**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

Percent of households with a broadband Internet subscription

**82.4 %**

*Source: 2013-2017 American Community Survey 5-Year Estimates*

[Explanation of Symbols](#)



# FOURSQUARE API

THE BATTLE OF THE NEIGHBORHOODS  
CONTINUES





# Results

## Burnsville

10 Most Common Venues

|      |                     |
|------|---------------------|
| 1st  | Coffee Shop         |
| 2nd  | Grocery Store       |
| 3rd  | American Restaurant |
| 4th  | Sandwich Place      |
| 5th  | Mexican Restaurant  |
| 6th  | Park                |
| 7th  | Pharmacy            |
| 8th  | Gym/Fitness Center  |
| 9th  | Lingerie Store      |
| 10th | Pizza Place         |



## Fridley

10 Most Common Venues

|      |                      |
|------|----------------------|
| 1st  | Pizza Place          |
| 2nd  | Fast Food Restaurant |
| 3rd  | Coffee Shop          |
| 4th  | Sandwich Place       |
| 5th  | American Restaurant  |
| 6th  | Mexican Restaurant   |
| 7th  | Liquor Store         |
| 8th  | Chinese Restaurant   |
| 9th  | Bakery               |
| 10th | Grocery Store        |



## Top 20 Venues

Mean of the Frequency of Occurrence

| ---Burnsville--- |                           |      | ---Fridley--- |                      |      |
|------------------|---------------------------|------|---------------|----------------------|------|
|                  | venue                     | freq |               | venue                | freq |
| 0                | Coffee Shop               | 0.06 | 0             | Pizza Place          | 0.06 |
| 1                | Grocery Store             | 0.04 | 1             | Coffee Shop          | 0.05 |
| 2                | American Restaurant       | 0.03 | 2             | Fast Food Restaurant | 0.05 |
| 3                | Sandwich Place            | 0.03 | 3             | Sandwich Place       | 0.05 |
| 4                | Mexican Restaurant        | 0.03 | 4             | Chinese Restaurant   | 0.04 |
| 5                | Gym / Fitness Center      | 0.02 | 5             | Mexican Restaurant   | 0.04 |
| 6                | Italian Restaurant        | 0.02 | 6             | American Restaurant  | 0.04 |
| 7                | Lingerie Store            | 0.02 | 7             | Liquor Store         | 0.04 |
| 8                | Gas Station               | 0.02 | 8             | Bakery               | 0.03 |
| 9                | Park                      | 0.02 | 9             | Grocery Store        | 0.03 |
| 10               | Disc Golf                 | 0.02 | 10            | Lingerie Store       | 0.02 |
| 11               | Pharmacy                  | 0.02 | 11            | Park                 | 0.02 |
| 12               | Pizza Place               | 0.02 | 12            | Asian Restaurant     | 0.02 |
| 13               | Cosmetics Shop            | 0.02 | 13            | Bookstore            | 0.02 |
| 14               | Convenience Store         | 0.02 | 14            | Sports Bar           | 0.02 |
| 15               | Asian Restaurant          | 0.02 | 15            | Bar                  | 0.02 |
| 16               | Burger Joint              | 0.02 | 16            | Korean Restaurant    | 0.02 |
| 17               | Shoe Store                | 0.01 | 17            | Thai Restaurant      | 0.02 |
| 18               | Middle Eastern Restaurant | 0.01 | 18            | Library              | 0.01 |
| 19               | Intersection              | 0.01 | 19            | Karaoke Bar          | 0.01 |



# Conclusion

## Summary

- Our analysis confirms the hypothesis that in addition to socioeconomic factors (education, income and occupation) – proximity and easy access to places that sell alcohol contribute to the rate of consumption, and therefore alcohol addiction.
- The insurance company is advised to conduct its own analysis utilizing member health data to study population and environmental influence on it.

# THANK YOU

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