

# Stroke Predictor

University of Minnesota Data Visualization and Analytics Boot Camp

Team 2 — Janice Courtois, Alex Norgren, Tom Pankratz, Rachel Rautenberg

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# Team 2

Team 2 members all work at Mayo Clinic.



**Janice Courtois**



**Alex Norgren**



**Tom Pankratz**

- Optimization Mgr
- 19 years at Mayo
- Dad of 4
- Never a dull moment



**Rachel Rautenberg**

- Holds MHA
- 14 years at Mayo
- Mom of 4
- Enjoys the chaos

**Have you wondered what  
a stroke is?**

TBD ...

# Top stroke risks ...

TBD ...

# Reasons for selecting stroke mortality

All four team members work in health care at Mayo Clinic, so there was a desire to answer questions related to our industry. Also, several team members have family members who have had strokes, including a grandfather and a father, so the topic is personal as well and any insights gleaned will be helpful to better understand various factors that could lead to a stroke.

# Selected topic: Stroke mortality

The goal of this project is to find out if we are able to predict which factors may correlate (and possibly contribute) to higher **stroke mortality rates** within the United States.

# Potential factors

Factors that were explored, trained and tested through a machine learning model included:

## Health-related factors:

- Smoking
- Obesity
- Access to healthy foods
- Access to exercise opportunities
- Primary care availability
- Availability of mental health providers

## Social-related factors:

- College education
- Unemployment
- Income
- Violent crime rate
- Air pollution
- Length and type of commute to work
- Urban vs. rural

# Source data

Factors that were explored, trained and tested through a machine learning model included:

- **Stroke Mortality Data Among US Adults (35+) by State/Territory and County (2018)**
  - Data.gov
  - Publisher: Centers for Disease Control and Prevention
  - This dataset is intended for public access and use.
  - <https://catalog.data.gov/dataset/stroke-mortality-data-among-us-adults-35-by-state-territory-and-county-2017-2019-d738a>
- **County Health Rankings (2018)**
  - Countyhealthrankings.org
  - Publisher: University of Wisconsin Population Health Institute (Program: County Health Rankings & Roadmaps (CHR&R))
  - <https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation/national-data-documentation-2010-2019>



# Questions hoped to get answered

- Are we able to predict potential stroke mortality rates based on a set of health-related or social-related factors?
- Are there certain factors that are more important than others?

# The data exploration phase

Description coming ...

# The analysis phase


Description coming ...

# The input form and dashboard

Description coming ...

STROKE PREDICTOR   STATS ANALYSIS & BACKGROUND INFORMATION   THE TEAM   CREDITS AND CITATIONS

## Stroke Predictor



Enter any combination of health and social factor values below to predict effect on Stroke Mortality

Percent Smokers\*

 (U.S. counties range: 7-43%) [Learn more](#)

Average Daily Air Pollution Particle Matter\*

 (U.S. counties range: 4.2-15.4) [Learn more](#)

Food Environment Index\*

 (U.S. counties range: 0-10) [Learn more](#)

Percent Unemployed\*

 (U.S. counties range: 1.7-23.5%) [Learn more](#)

Income Inequality Ratio\*

 (U.S. counties range: 2.7-8.9) [Learn more](#)

Required\*

**Predict effect on stroke mortality**

Stroke Mortality per 100,000 people:

**95.9 deaths**

Percent\_Smokers:  
**40.1**

Average\_Daily\_Air\_Pollution\_Particle\_Matter:  
**5.4**

Food\_Environment\_Index:  
**3.8**

Percent\_Unemployed:  
**11.3**

Income\_Inequality\_Ratio:  
**2.9**

Stroke Mortality rates by U.S. counties\* [Get details from Centers for Disease Control and Prevention \(CDC\)](#)

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Stroke Mortality by Tom Pankratz

Stroke Mortality

