

PREDICTING STROKES: WHAT ARE YOUR CHANCES?

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AGENDA



1

Prevalence Of Strokes

2

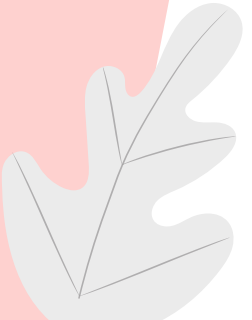
Key Factors

3

Predictive Model Results

4

Recommendations



1

Prevalence of Strokes



PREVALENCE OF STROKES



DEFINITION



Blood flow stops flowing to the brain

The brain cells die eventually

SYMPTOMS



Facial drooping

Arm drifting

Slurred speech

Time to call ambulance

HIGH-RISK



#2 highest cause of death

#3 highest cause of disability

Strokes every **40 seconds**

Stroke death every **4 minutes**

ALTHOUGH...



80% of strokes are **preventable**

Find ways to mitigate and reduce risk

DATA SEGMENTS



Demographic

- 1) Age
- 2) Gender
- 3) BMI



Medical

- 1) Hypertension
- 2) Heart disease
- 3) Glucose level
- 4) Smoking status



Non-Medical

- 1) Marital status
- 2) Residence type
- 3) Job type

2

Key Factors



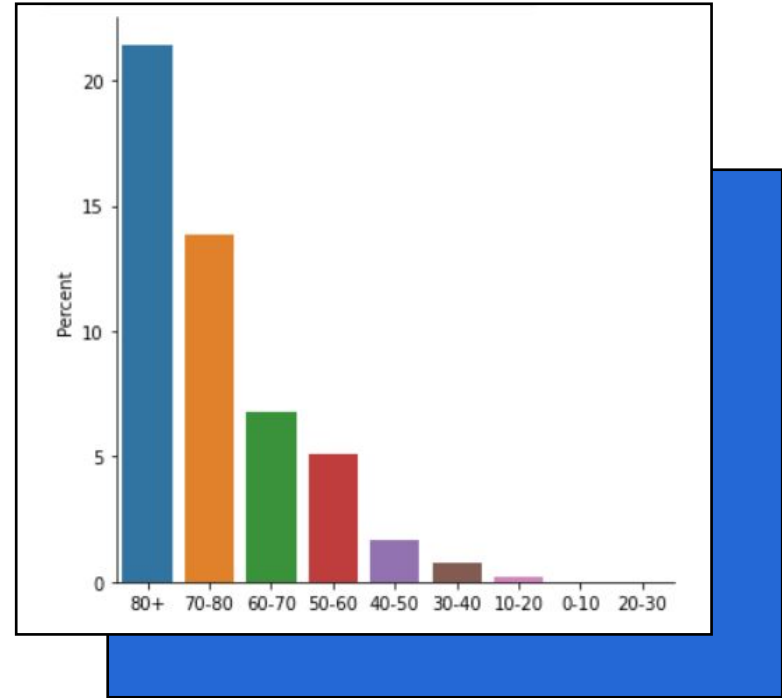
KEY FACTORS: DEMOGRAPHICS



Age

Patients **+70 years and above** were significantly more at risk of getting a stroke.

Strokes are often associated to **additional health problems**.



KEY FACTORS: MEDICAL

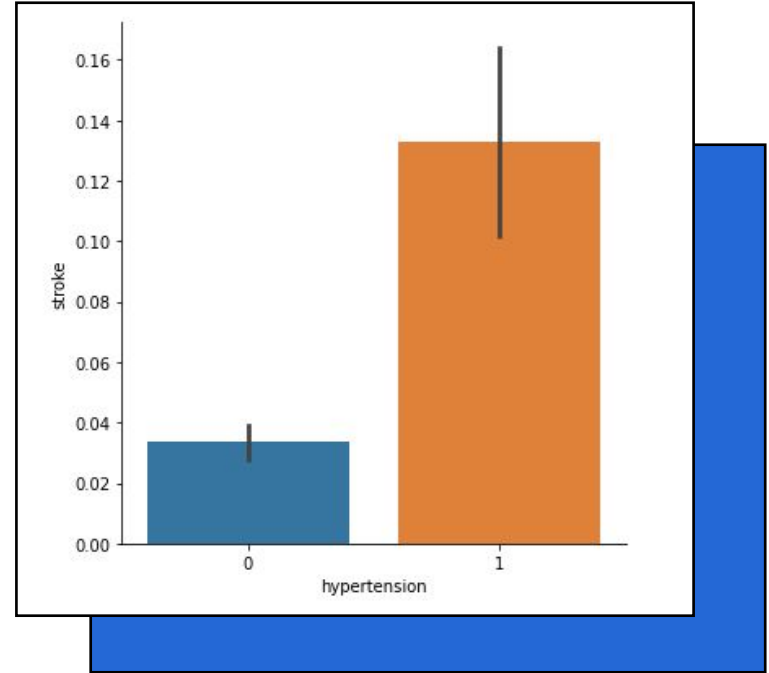
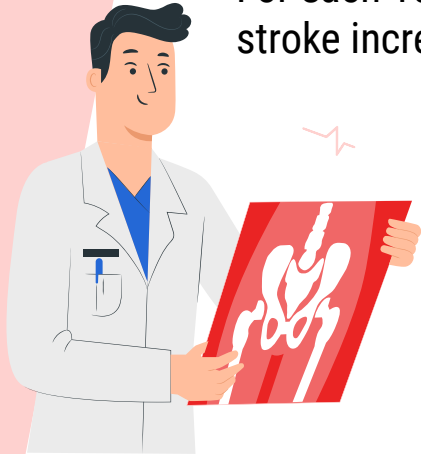


Hypertension

High Blood Pressure

13% of individuals with hypertension suffered from **stroke**.

For each 10 mm **rise** in pressure, risk of stroke increases by **28% to 38%**.



KEY FACTORS: MEDICAL



Glucose Level

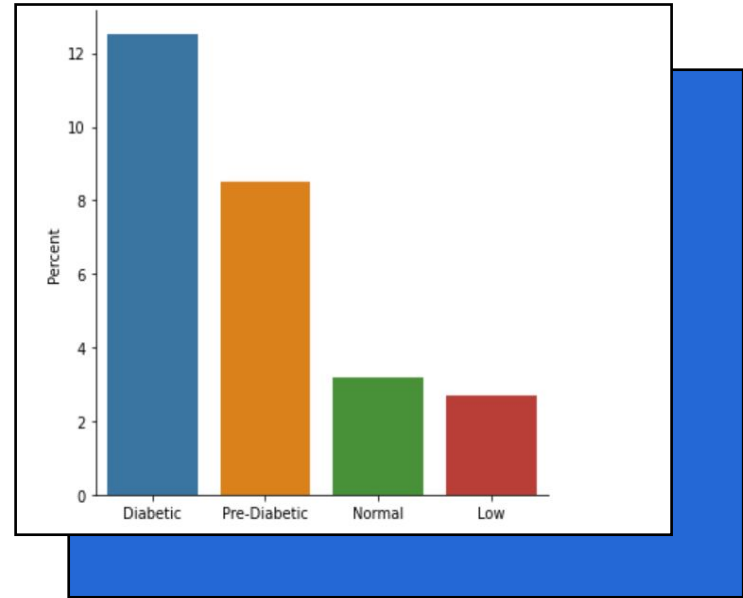
Blood Sugar Level

High glucose levels is becoming increasingly common in patients due to sedentary lifestyles

For people with diabetes, **severity of stroke** is greater.

Stroke Rate :

- **12.5%** for people who are **diabetic**
- **8.5%** for people who are **pre-diabetic**



KEY FACTORS: MEDICAL



Heart Disease

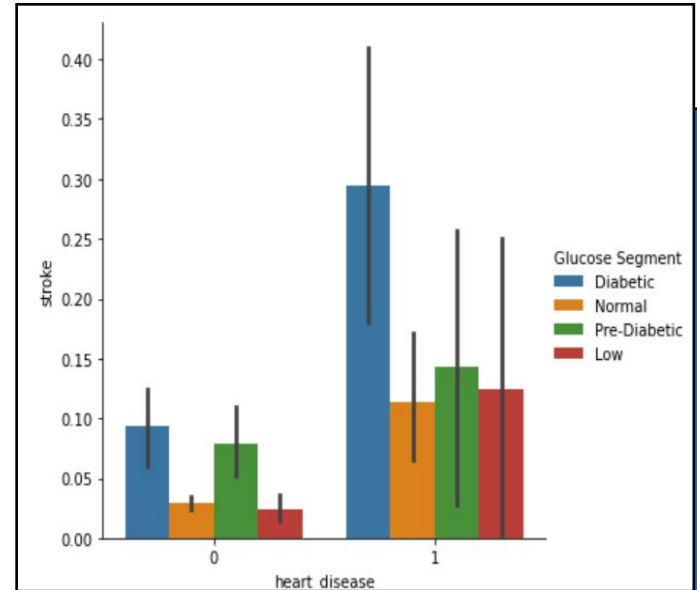
Cardiovascular Conditions

Most **important factor** concerning strokes

15% of people who have **heart disease** got a **stroke**.

Increased chance of developing **diabetes**

Stroke in **overweight** people dramatically increases if they have **heart disease**.



KEY FACTORS: NON-MEDICAL

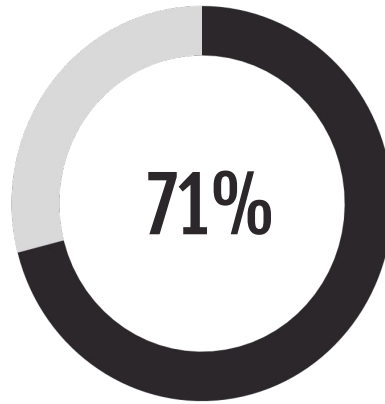
Marriage

Patients with stable marriages had the **lowest** mortality rates.

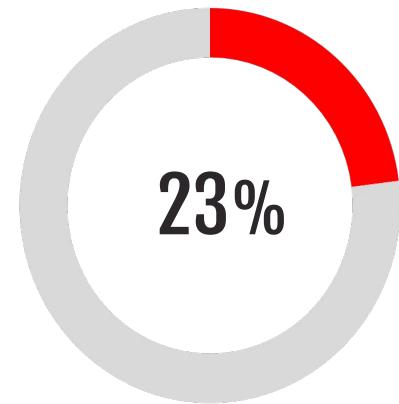
Marital status of patients over 60 years old had drastic effects on individual's stroke rate.



Risk of Death After Stroke



For patients who were never married



For patients who were divorced, widowed or remarried

3

Predictive Model Results



FINDINGS: PREDICTIVE DEMOGRAPHIC MODEL



Age and BMI is **positively related** to stroke

- Age is more significant

With same age and BMI, **males are more likely** to suffer a stroke than females.

- A male getting a stroke is **1.08x more likely** than a female when age and BMI remain constant

```
intercept: -19.332774095693665  
score: 0.9574251375025463
```

	Coefs	Odds
log_age	3.822544	45.720360
log_bmi	0.282796	1.326835
Male	0.076949	1.079987

FINDINGS: PREDICTIVE MEDICAL MODEL



Higher blood sugar is **positively associated** with increased chance of having a stroke.

Those with **heart disease** are **3.07x more likely** to suffer from a stroke (ceteris paribus)

Those with **hypertension** are **2.78x more likely** to experience a stroke

Former smokers are **more likely** to get a stroke compared to current smokers

```
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score: 0.9574251375025463
```

	Coefs	Odds
heart_disease	1.122302	3.071916
hypertension	1.020975	2.775899
log_avg_glucose_level	0.955789	2.600723
formerly smoked	0.285501	1.330429
smokes	0.128875	1.137548
Unknown	-0.596622	0.550669

FINDINGS: PREDICTIVE NON-MEDICAL MODEL



Married people are **2.75x** more likely to suffer from a stroke

People who live in **urban areas** are **1.05x times** more likely to experience a stroke

Self-employed have a **greater chance** of getting a stroke compared to other employed people

Stay-at-home parents are **less likely** to experience a stroke compared to unemployed people



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score: 0.9574251375025463
```

	Coefs	Odds
Yes	1.011444	2.749569
Self-employed	0.786669	2.196069
Private	0.469650	1.599434
Govt_job	0.360038	1.433385
Urban	0.052400	1.053797
children	-1.328423	0.264895

4

Recommendations



RECOMMENDATIONS: HYPERTENSION



Lower your blood pressure levels

DO



Eat food rich in whole grains



Lose weight

DO NOT



Engage in stress-provoking activities



Eat too much salt



RECOMMENDATIONS: HEART DISEASE



DO

Be cautious of your diet



Consult professionals about prescribed medicines

DO NOT



Eat foods high in saturated fat



RECOMMENDATIONS: GLUCOSE LEVELS



Maintain low blood sugar levels

DO



Exercise Often



Receive A1C test every
12 months

DO NOT



Eat a high-carb diets



KEY TAKEAWAYS



Lower your blood pressure levels



Maintain **low** blood sugar levels



Be cautious of your diet



THE END

Do you have any
questions?

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