

Stroke Risk Rate Under 65

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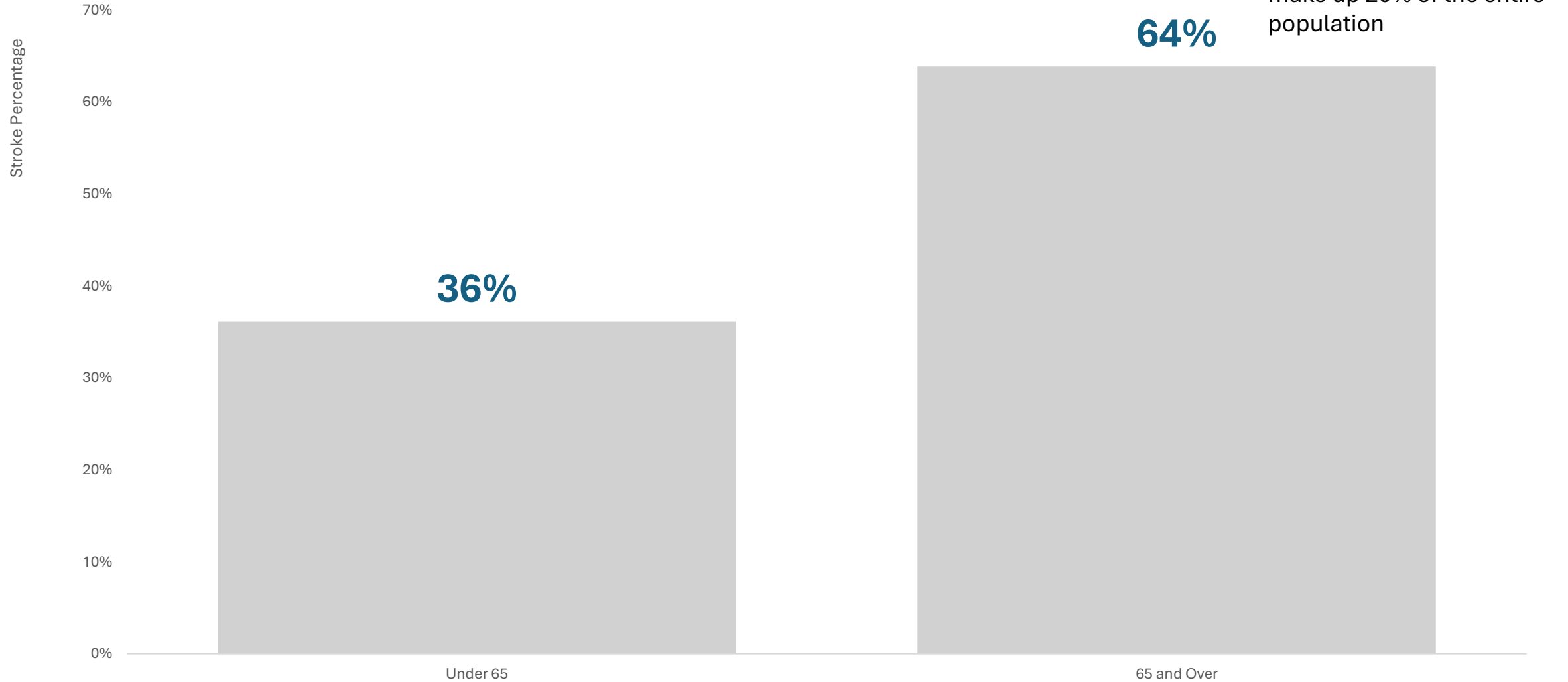
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Goals:

- Explain **why** we are focusing on patients **under 65** years old
- Identify **the top risk factors** that contribute to stroke cases under 65
- Identify the relationship between **the top risk factors** and **age**
- Explore recommendations for **preventive care** and **health care planning** for patients under 65

Why 65 and Under?

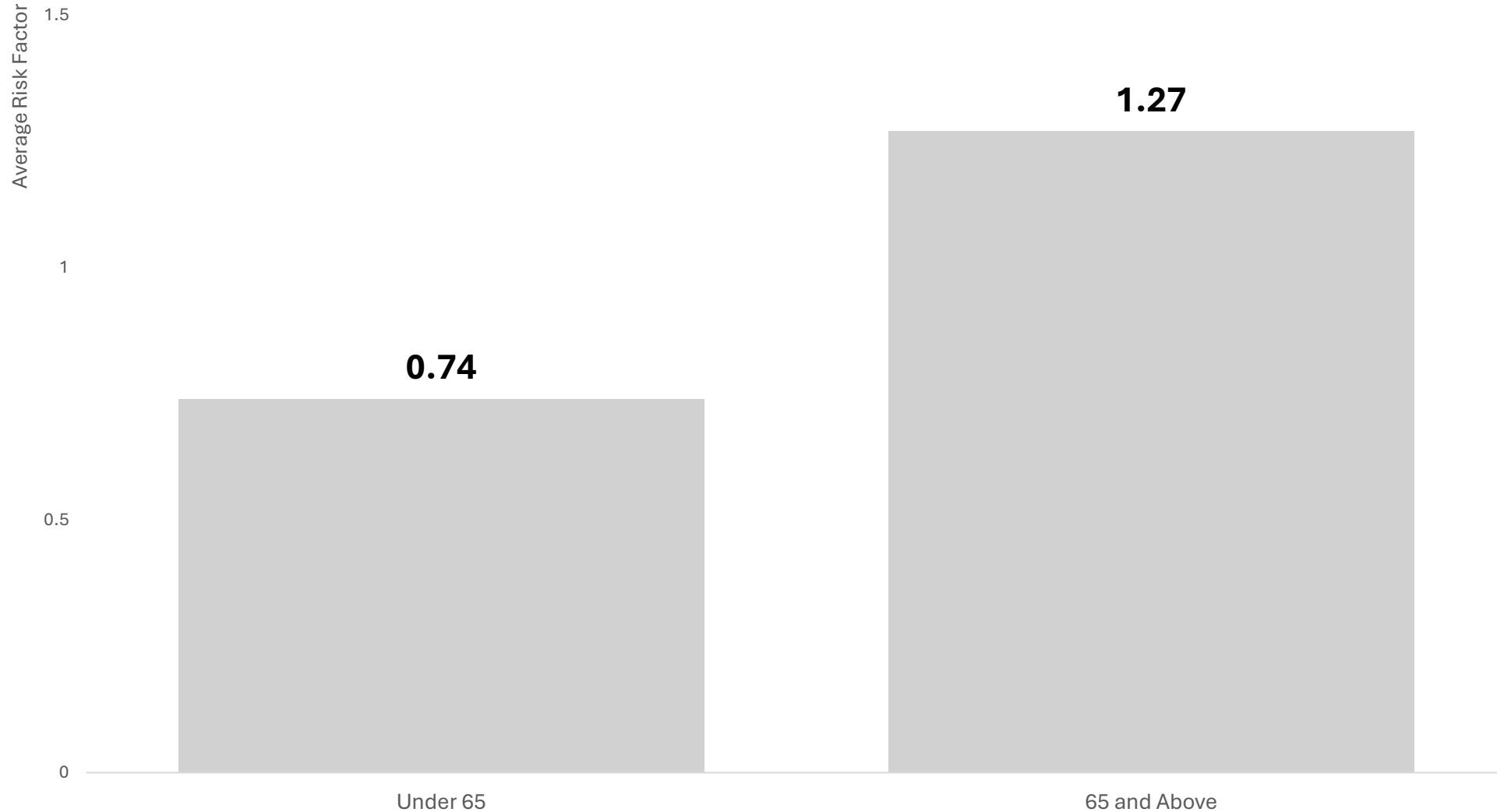
64% of Stroke Cases are Patients 65 and Over



Data: 65 and over stroke cases represent 159 of the 249 total stroke cases

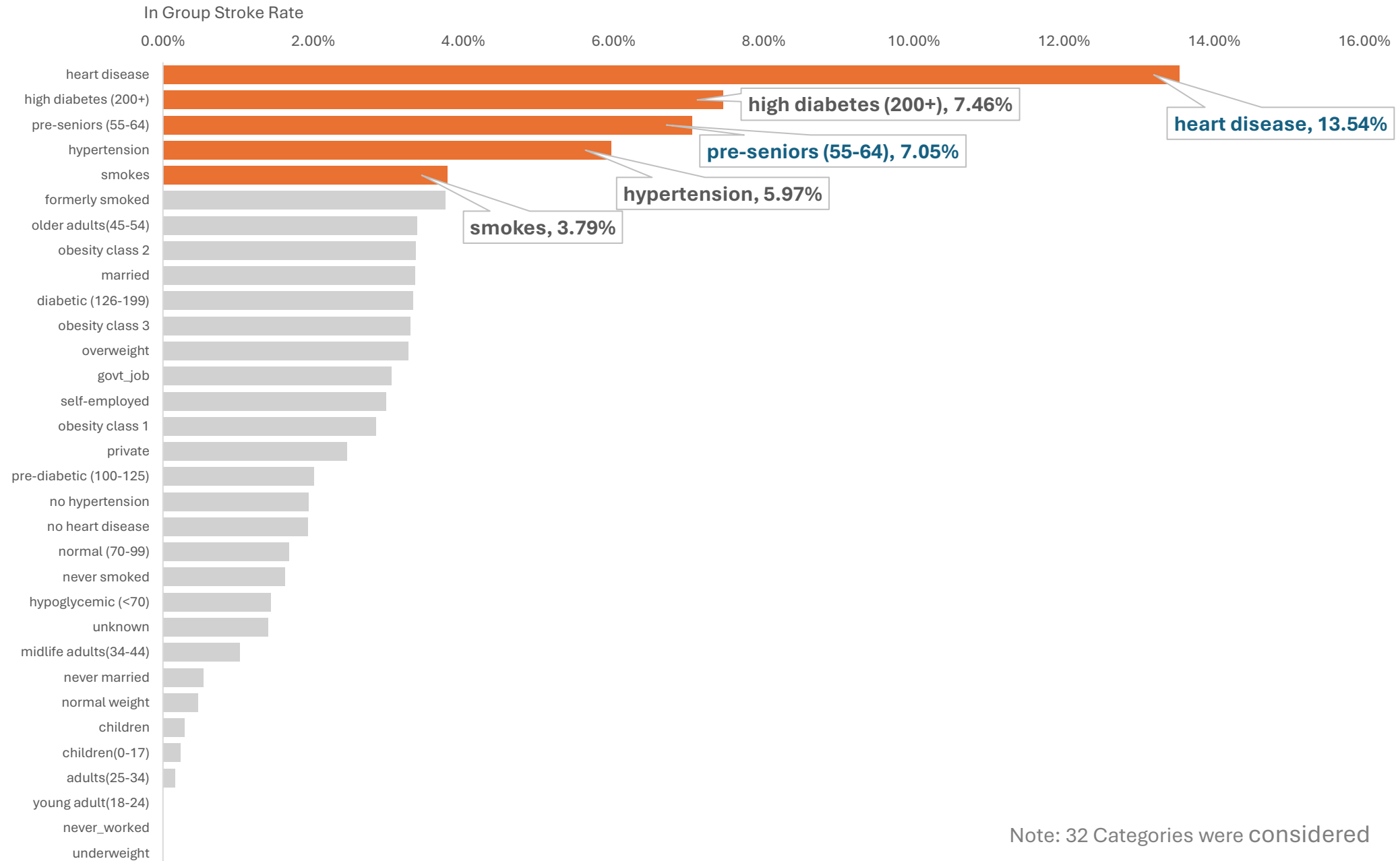
Patients 65 and Above Have an Average of More Than 1 Medically Alterable Risk Factor

Patient Average Risk Factor By Age Group

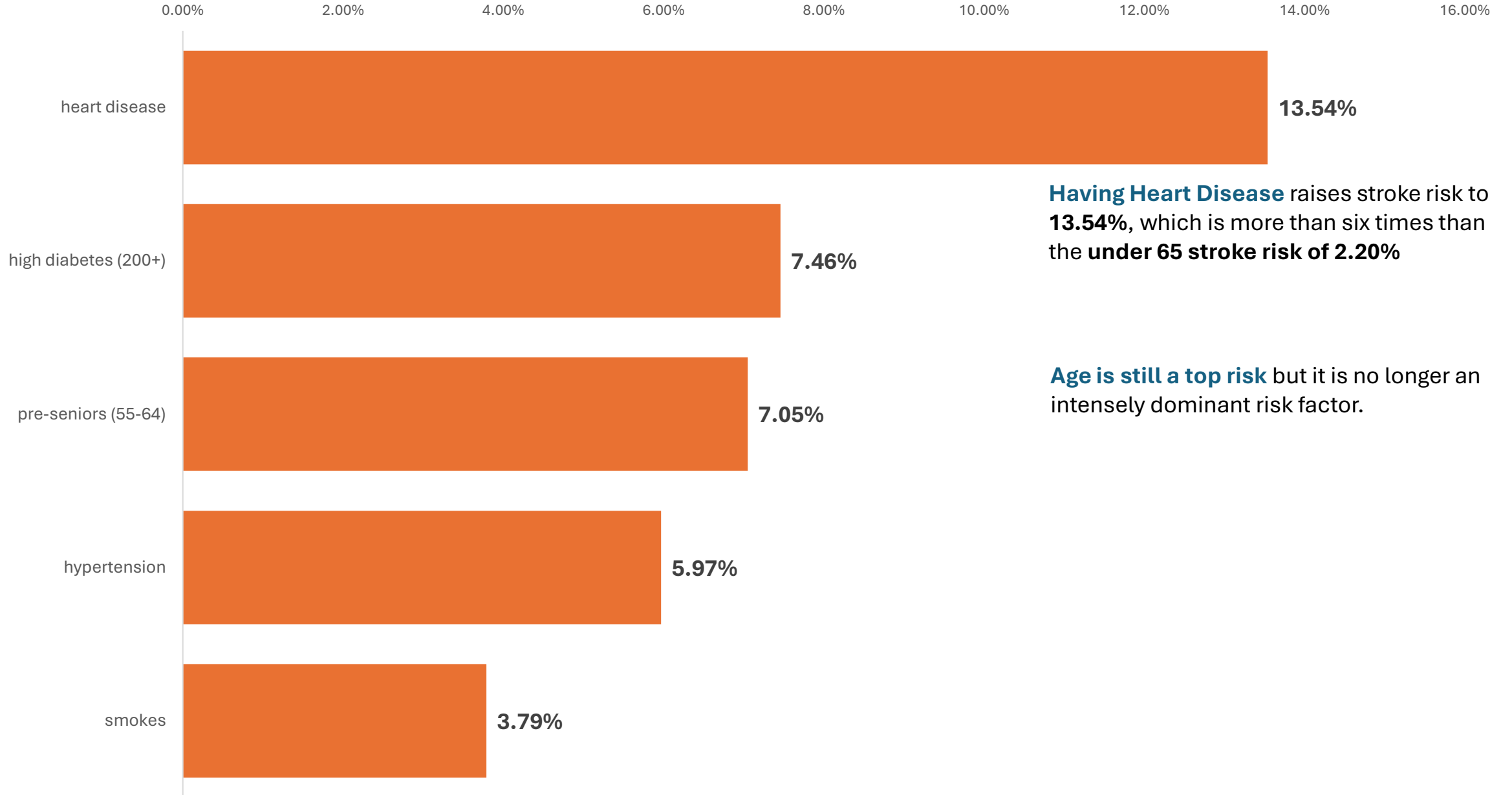


Medically Alterable Risk Factors: heart disease, hypertension, glucose level, smoking, and BMI

Which Groups are Most at Risk of Stroke?

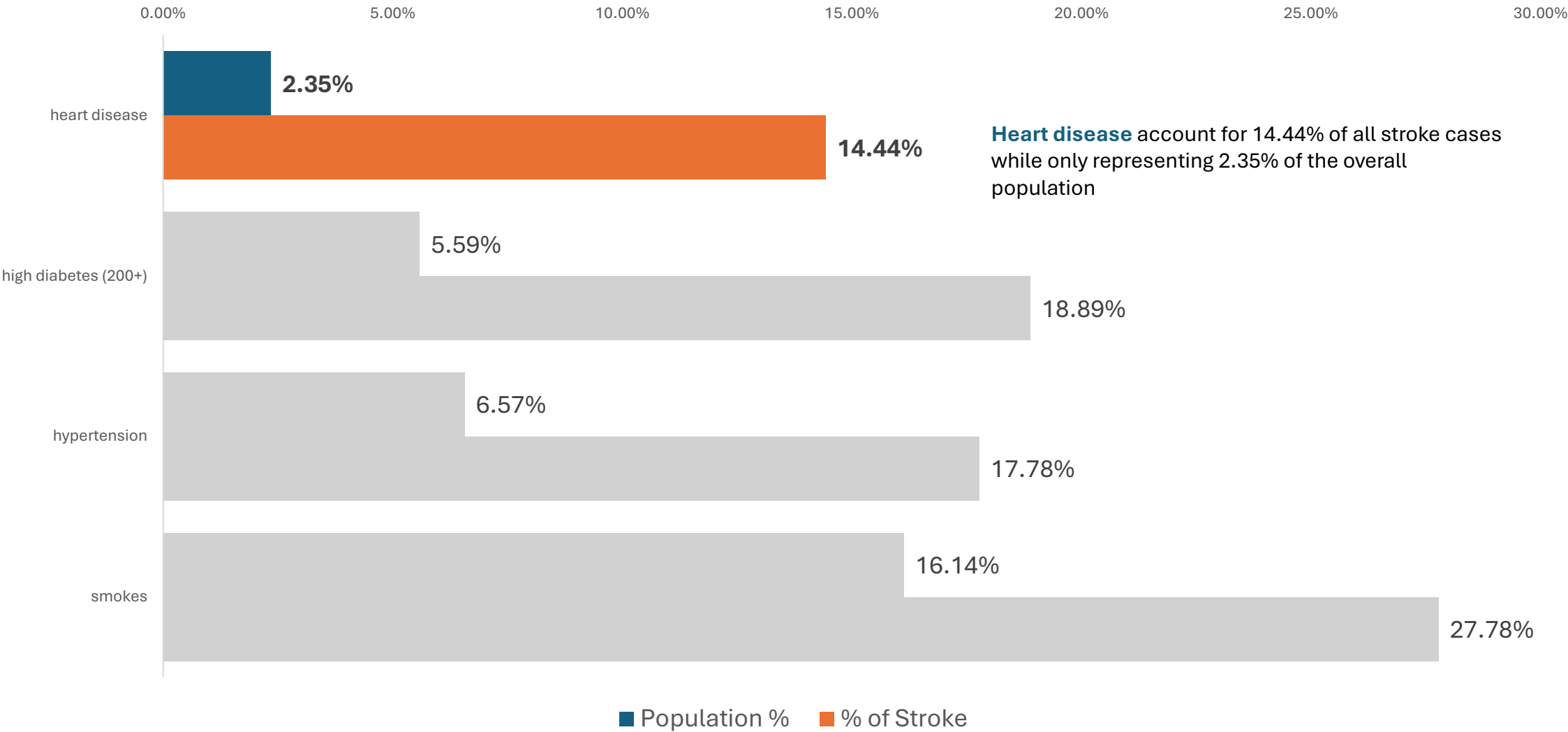


Top Risk Factors: Stroke Rate for Having the Condition

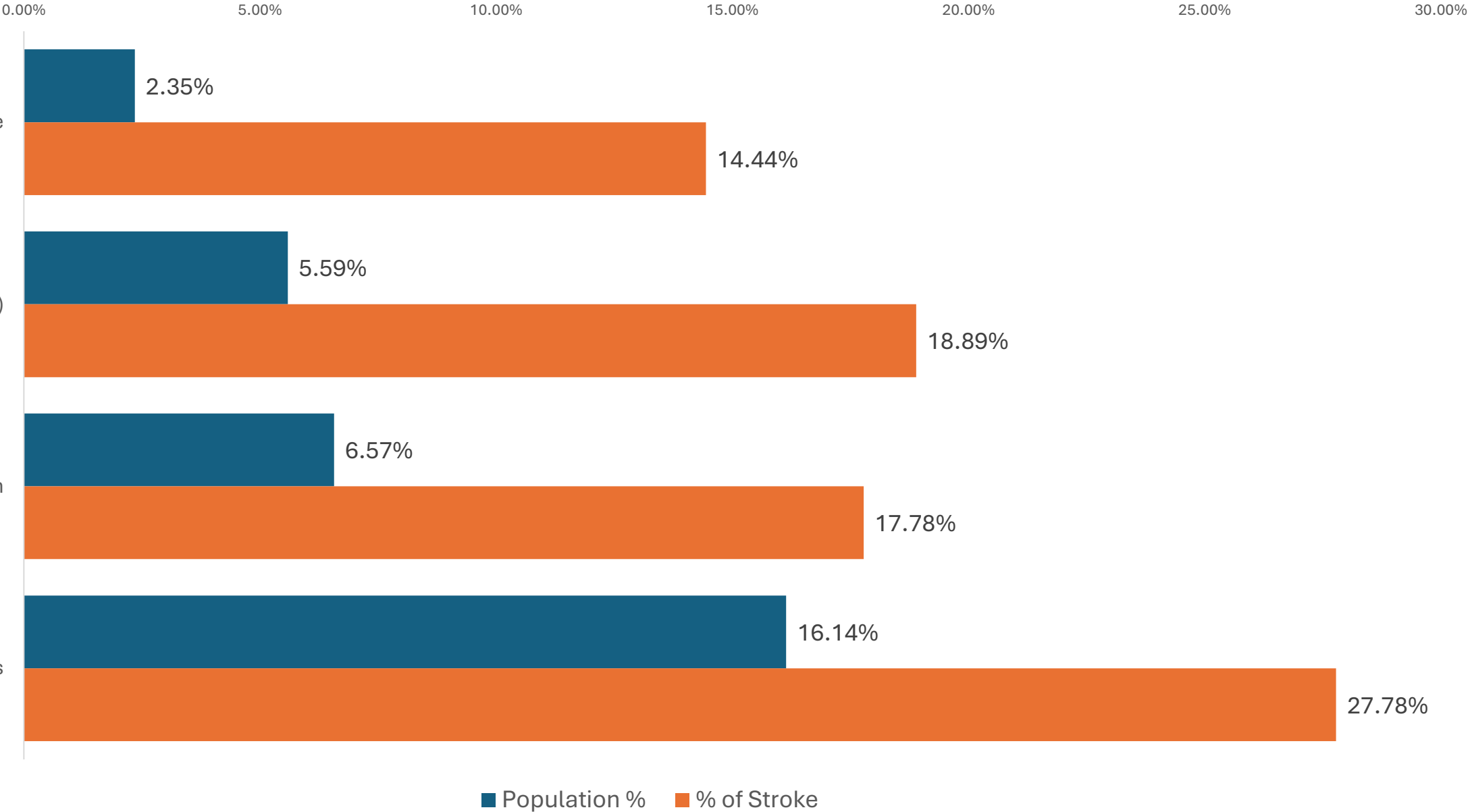


The Top Risk Factors Account for 2 to 7 Times More Stroke Cases than their Population Share

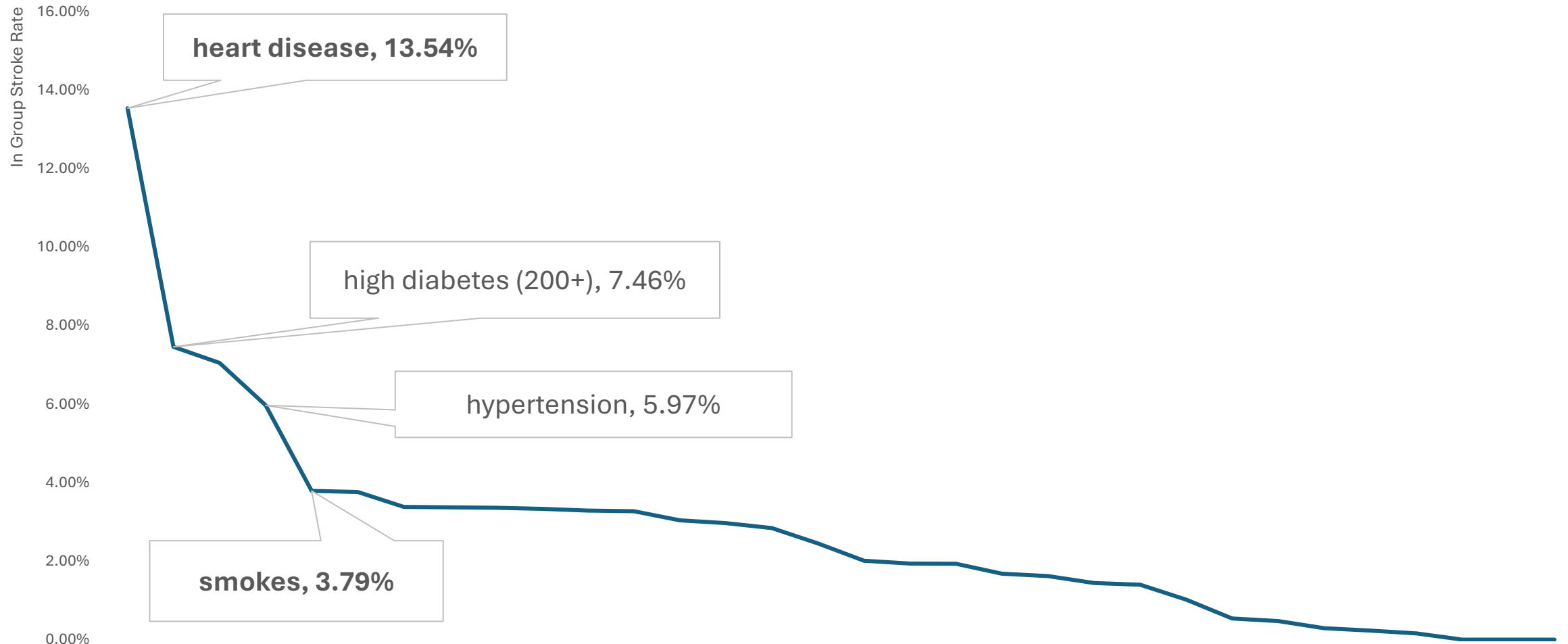
Disproportionate Stroke Burden by Risk Group



Top Risk Groups Show Disproportionate Stroke Burdens



The Decline in Stroke Rate Slows Dramatically Starting at "Smokes"



Age and the Top Modifiable Risk Factors

Age - Heart Disease

Category	Group Count	Heart Disease %	Risk Multiplier
children(0-17)	856	0.12%	-
young adult(18-24)	380	0%	-
adults(25-34)	608	0.33%	-
midlife adults(34-44)	688	0.58%	1.76
older adults(45-54)	798	3.88%	6.69
pre-seniors (55-64)	752	7.71%	1.99

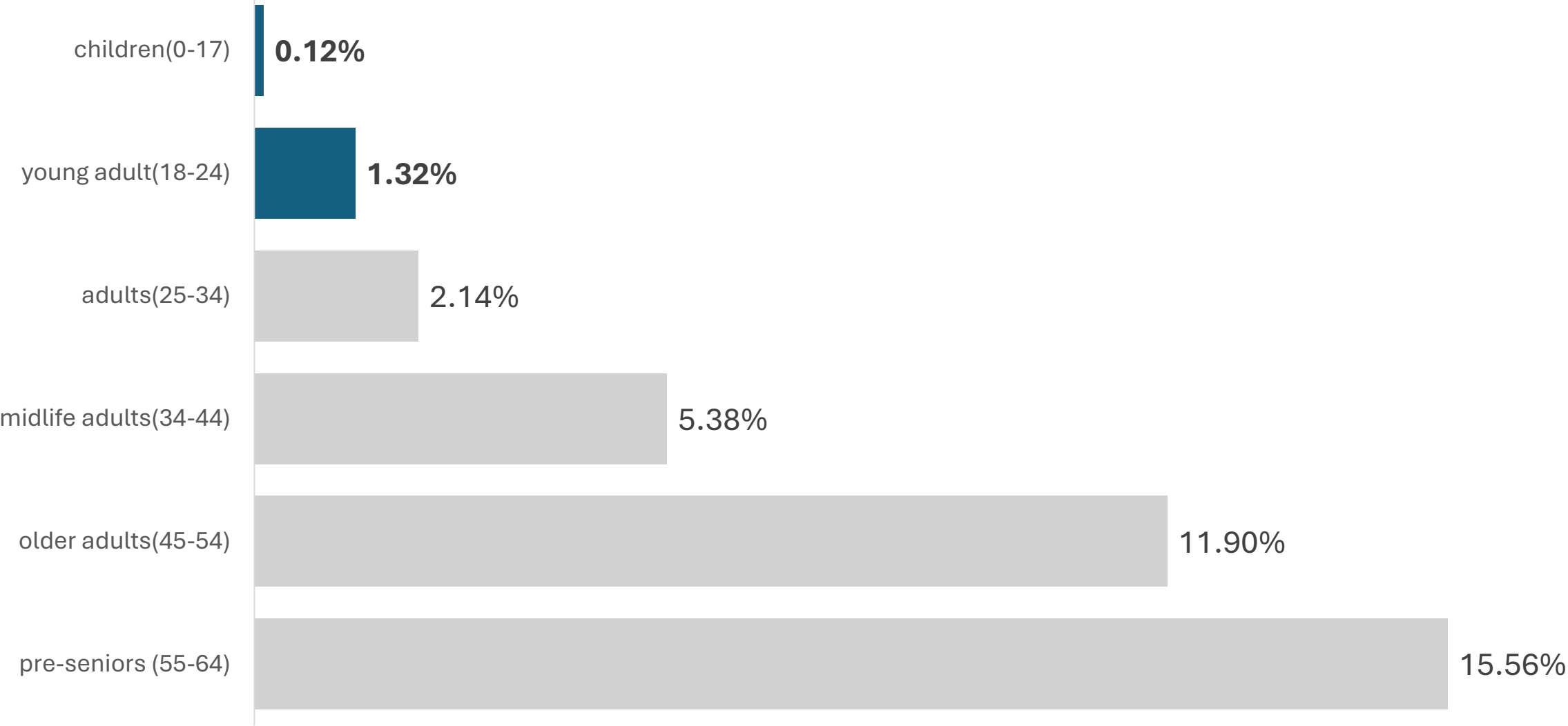
Hypertension Risk Spikes by Age 18, Consistent with CDC Screening Guidelines

Age - Hypertension			
Category	Group Count	Hypertension %	Risk Multiplier
children(0-17)	856	0.12%	-
young adult(18-24)	380	1.32%	11
adults(25-34)	608	2.14%	1.62
midlife adults(34-44)	688	5.38%	2.51
older adults(45-54)	798	11.90%	2.21
pre-seniors (55-64)	752	15.56%	1.31

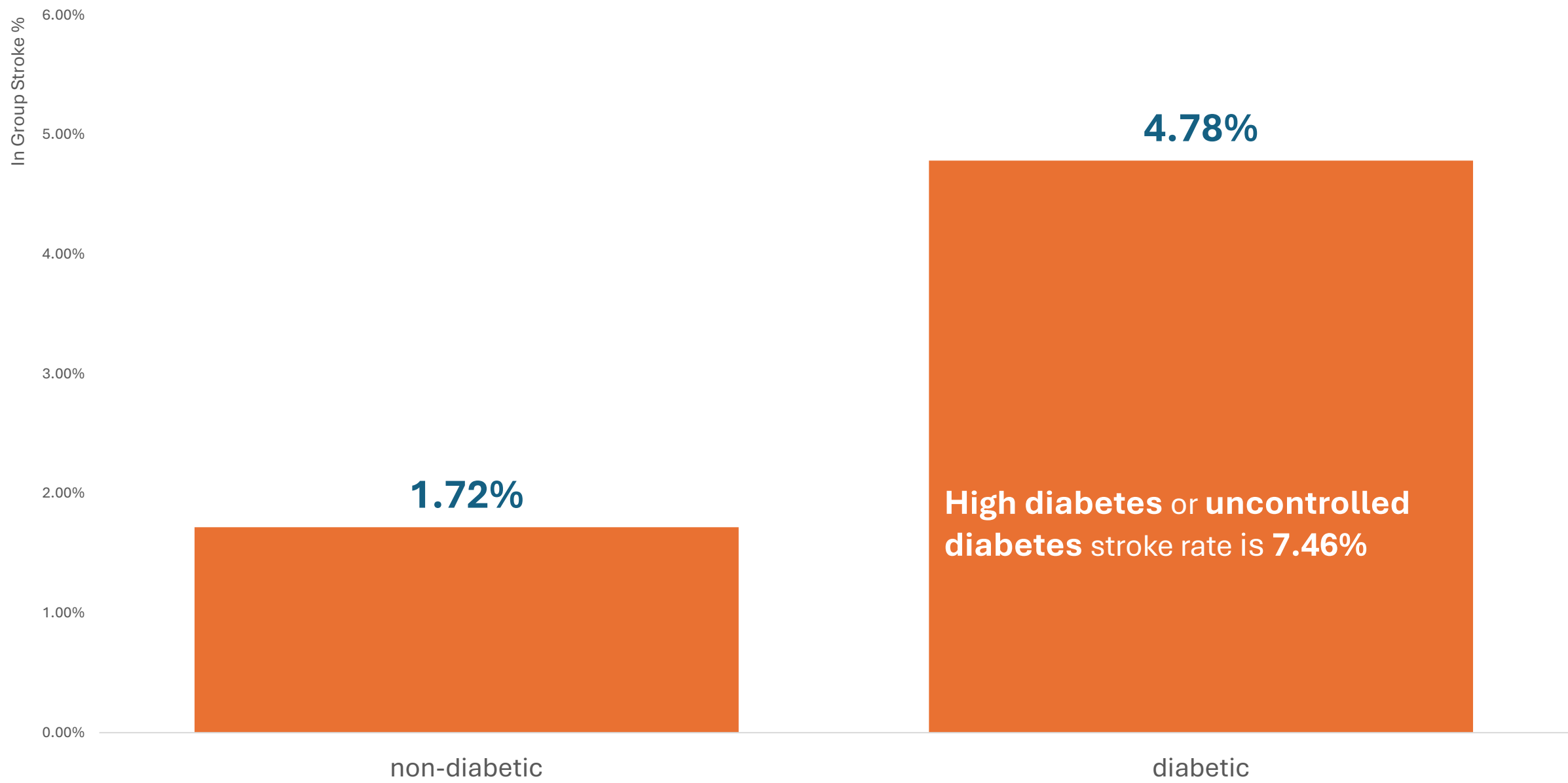
Hypertension Rate Increases by 11 Times from Children to Young Adult Stage

% of Patients with Hypertension

0.00% 2.00% 4.00% 6.00% 8.00% 10.00% 12.00% 14.00% 16.00% 18.00%



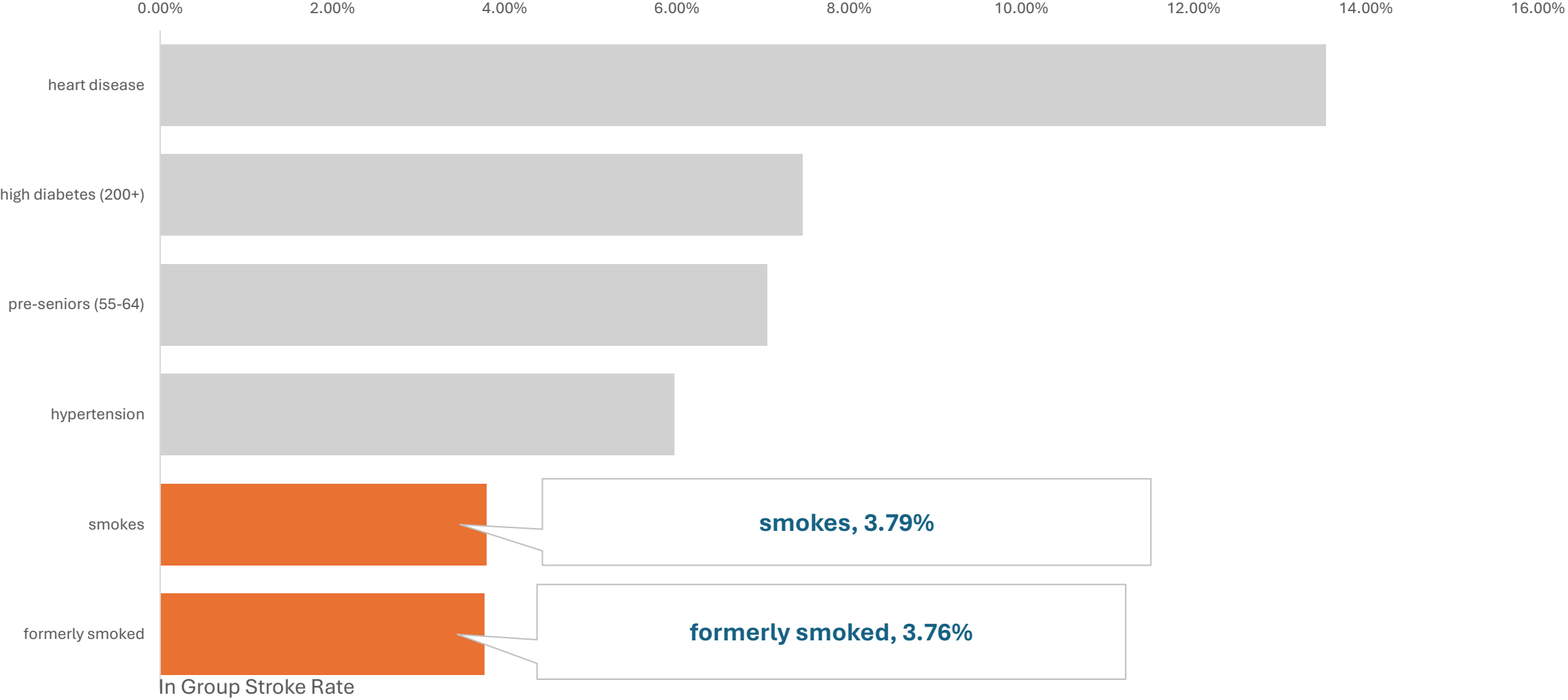
Stroke Rate for Patients with Diabetes is Nearly 3x More



Age - Diabetes

Age Category	Group Count	Diabetes %	Risk Multiplier
children(0-17)	856	10.28%	-
young adult(18-24)	380	10%	0.97
adults(25-34)	608	9.38%	0.94
midlife adults(34-44)	688	14.97%	1.60
older adults(45-54)	798	20.30%	1.36
pre-seniors (55-64)	752	26.60%	1.31

Quitting Helps but Stroke Risk Persists



Age - Smoking

Age Category	Smokes/Smoked	Risk Multiplier
children(0-17)	3.97%	-
young adult(18-24)	23.68%	5.96
adults(25-34)	37.66%	1.59
midlife adults(34-44)	35.03%	0.93
older adults(45-54)	41.98%	1.20
pre-seniors (55-64)	41.89%	0.998

Recommendations:

Heart Disease (13.54% risk)

35

Screening and Preventive Care Plan

Heart Disease Rate Jumps 6x by Age 45

Diabetes

25

Screening and Preventive Care Plan

Diabetes Rate Increases Rapidly Starting at Age 25

High Uncontrolled Diabetes Stroke Rate is 7.46%

18

Hypertension (5.97% risk)

Blood Pressure Screening and Preventive Care Plan

Hypertension Rate Jumps 11x from Child to young adult age

Smoking (3.79% risk)

Anti-Smoking Campaigns and Behavioral Health Intervention

Nearly 1 in 4 Patients Smoked by the young Adult Stage

Stroke Risk Remains Elevated Even After Quitting

Call to Action:

- **Prevention** is better than treatment, stroke risk factors may develop **well before** the age of 65.
- Screening and prevention plans should begin as early as **age 18 to 35**, depending on individual risk factors.
- **Public health leaders** and providers can reduce stroke burden by **updating protocols** and **targeting the right age groups**.
- **Future Work:** Build a **Machine Learning Model** to estimate patient risk using patient's **current health profile**.

Summary and Questions

Top Risk Factors Summary

Category	Population %	% of Stroke	In Group Stroke %
heart disease	2.35%	14.44%	13.54%
high diabetes (200+)	5.59%	18.89%	7.46%
pre-seniors (55-64)	18.42%	58.89%	7.05%
hypertension	6.57%	17.78%	5.97%
diabetic	15.87%	34.44%	4.78%
smokes	16.14%	27.78%	3.79%
History of Smoking	30.48%	52.22%	3.78%

Appendix:

Full Stroke Risk Breakdown by Category

Category	Population %	% of Stroke	In Group Stroke %
heart disease	2.35%	14.44%	13.54%
high diabetes (200+)	5.59%	18.89%	7.46%
pre-seniors (55-64)	18.42%	58.89%	7.05%
hypertension	6.57%	17.78%	5.97%
smokes	16.14%	27.78%	3.79%
formerly smoked	14.33%	24.44%	3.76%
older adults(45-54)	19.55%	30.00%	3.38%
obesity class 2	10.19%	15.56%	3.37%
married	59.14%	90.00%	3.36%
diabetic (126-199)	10.29%	15.56%	3.33%
obesity class 3	8.94%	13.33%	3.29%
overweight	28.47%	42.22%	3.27%
govt_job	12.89%	17.78%	3.04%
self-employed	10.71%	14.44%	2.97%
obesity class 1	18.13%	23.33%	2.84%
private	59.04%	65.56%	2.45%
pre-diabetic (100-125)	20.68%	18.89%	2.01%
no hypertension	93.43%	82.22%	1.94%
no heart disease	97.65%	85.56%	1.93%
normal (70-99)	48.19%	36.67%	1.68%
never smoked	36.38%	26.67%	1.62%
hypoglycemic (<70)	15.26%	10.00%	1.44%
unknown	33.15%	21.11%	1.40%
midlife adults(34-44)	16.85%	7.78%	1.02%
never married	40.86%	10.00%	0.54%
normal weight	26.34%	5.56%	0.47%
children	16.83%	2.22%	0.29%
children(0-17)	20.97%	2.22%	0.23%
adults(25-34)	14.89%	1.11%	0.16%
young adult(18-24)	9.31%	0.00%	0.00%
never_worked	0.54%	0.00%	0.00%
underweight	7.94%	0.00%	0.00%