

# BRFSS Brief

Number 1709

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual statewide telephone survey of adults developed by the Centers for Disease Control and Prevention and administered by the New York State Department of Health. The BRFSS is designed to provide information on behaviors, risk factors, and utilization of preventive services related to the leading causes of chronic and infectious diseases, disability, injury, and death among the noninstitutionalized, civilian population aged 18 years and older.

## Awareness of Stroke Signs and Symptoms

New York State Adults, 2016

### Introduction and Key Findings

Stroke occurs when blood flow to the brain is restricted because a blood vessel is blocked by a clot or a blood vessel bursts (aneurysm). Stroke is the fourth and fifth leading cause of death in New York State (NYS) and the United States (US), respectively, and a cause of significant disability, including paralysis, speech difficulties, and emotional disturbances.<sup>1-3</sup> In the US, approximately 133,000 people died from stroke in 2014, and 6,100 of those people were New Yorkers.<sup>3,4</sup>

The onset of a stroke is often accompanied by numbness or weakness of the face, arm or leg on one side of the body; confusion and trouble speaking or understanding; trouble walking, dizziness or loss of balance or coordination; trouble seeing in one or both eyes; or severe headache without a known cause. Individuals who arrive at a hospital within three hours of first stroke symptom onset can receive treatments that return blood flow to areas impacted by a clot. These stroke patients are more likely to be healthier three months after a stroke than those patients whose care is delayed.<sup>5</sup> To ensure stroke victims receive timely care and reduce death and disability due to stroke, it is important to educate the public to be familiar with the symptoms of stroke, recognize signs of stroke in others and respond to signs and symptoms by calling 9-1-1 immediately. Emergency Medical Services staff members who respond to 9-1-1 are trained to recognize stroke patients and transport them to one of over 100 state-designated stroke centers in NYS with special expertise in caring for stroke patients.<sup>6</sup>

#### Key Findings

In 2016, two out of five NYS adults (38.2%) recognized all five common signs and symptoms of stroke correctly, and only one-third (34.2%) recognized all five stroke signs and symptoms and identified calling 9-1-1 as the first action to take in response to stroke. NYS adults with household incomes less than \$50,000, adults with a high school degree or less, and adults who live in the New York City region were significantly less likely to be aware of all five stroke signs and symptoms. Males and Hispanics were significantly less likely to be aware of all five signs and symptoms and calling 9-1-1 as the first action to take responding to stroke symptoms.

### BRFSS questions

#### Stroke awareness questions:

*Which of the following do you think is a symptom of stroke? For each, tell me "Yes", "No", or you're "Not sure".*

1. Do you think sudden confusion or trouble speaking are symptoms of a stroke?
2. Do you think sudden numbness or weakness of face, arm, or leg, especially on one side, are symptoms of a stroke?
3. Do you think sudden trouble seeing in one or both eyes is a symptom of a stroke?
4. Do you think sudden trouble walking, dizziness, or loss of balance are symptoms of a stroke?
5. Do you think severe headache with no known cause is a symptom of a stroke?

Respondents were identified as "aware" of each of the five valid stroke awareness questions if they answered "yes" to the question about that symptom.

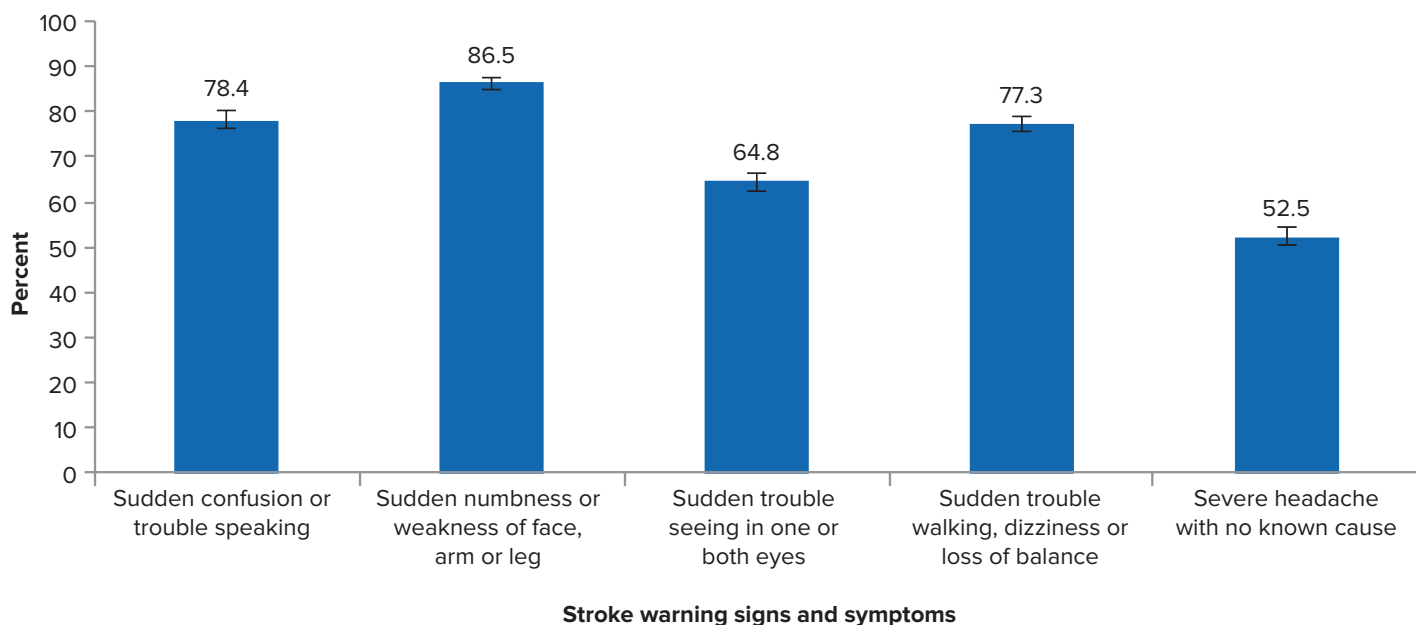
**Respondents were also asked the following question to measure the public's awareness to call 9-1-1 when they thought someone was having a stroke:**

*If you thought someone was having a stroke, what is the first thing you would do?*

Response choices:

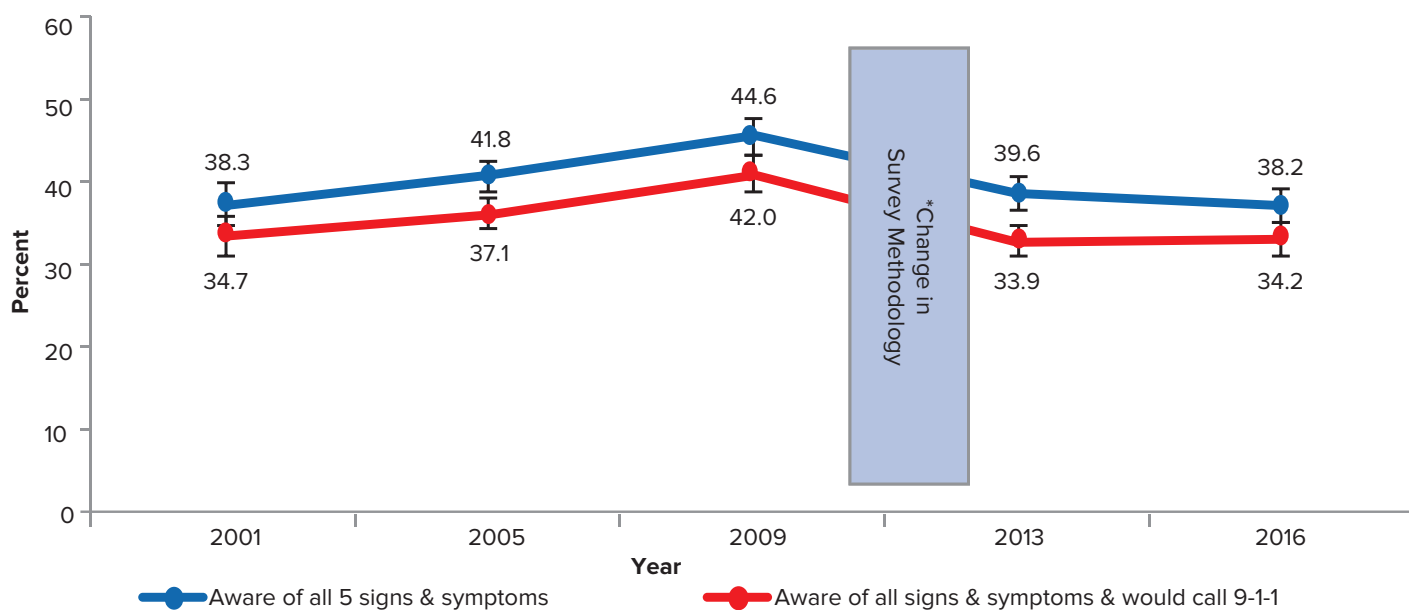
1. take them to the hospital
2. tell them to call their doctor
3. call 9-1-1
4. call their spouse or a family member
5. do something else

**Figure 1. Percentage of adults aged 18 and older aware of certain warning signs and symptoms, New York State BRFSS 2016**



Note: Error bars represent 95% confidence intervals.

**Figure 2. Trends in recognition of stroke symptoms among adults, New York State BRFSS**



Note: Error bars represent 95% confidence intervals.

\*\*Data from 2013 and 2016 are not comparable to prior years because of changes to the BRFSS methods in 2011. See the following link for more information on these changes: [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6122a3.htm?s\\_cid=mm6122a3\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6122a3.htm?s_cid=mm6122a3_w)

## Awareness of certain stroke warning signs and symptoms and of calling "9-1-1" as the first action to take, among New York State adults<sup>a</sup>, 2016 BRFSS

	Aware of all five signs and symptoms§		Calling 9-1-1 identified as first action		Aware of all five signs and symptoms and indicated calling 9-1-1 as first action	
	% <sup>b</sup>	95% CI <sup>b</sup>	%	95% CI	%	95% CI
<b>New York State (NYS)</b> [n=11,174]	38.2	36.3-40.1	87.7	86.3-89.0	34.2	32.3-36.0
<b>Sex</b>						
Male	35.2	32.4-38.1	85.7	83.6-87.8	31.1	28.3-33.9
Female	41.0	38.4-43.5	89.5	87.9-91.1	37.0	34.5-39.5
<b>Age (years)</b>						
18-24	31.8	24.6-39.0	87.1	82.4-91.8	27.8	20.7-34.8
25-34	34.3	29.1-39.4	88.7	85.4-92.0	31.3	26.2-36.4
35-44	36.1	31.3-41.0	86.2	82.4-90.0	32.9	28.2-37.6
45-54	43.5	38.9-48.1	89.4	86.3-92.4	39.5	35.0-44.1
55-64	44.4	40.2-48.6	89.1	86.3-91.9	39.4	35.4-43.5
65+	36.8	33.6-40.0	85.7	83.2-88.2	32.3	29.2-35.4
<b>Race</b>						
White	44.8	42.5-47.1	87.4	85.9-89.0	39.7	37.4-41.9
Black	35.1	29.1-41.1	87.5	83.0-92.0	31.2	25.4-37.0
Hispanic	19.1	15.0-23.3	85.8	82.0-89.5	17.6	13.5-21.7
Other	32.6	25.0-40.2	90.4	85.7-95.0	30.4	22.9-37.8
<b>Income</b>						
<\$25,000	29.6	26.0-33.3	87.0	84.2-89.8	26.8	23.3-30.4
\$25,000-\$49,999	34.0	29.9-38.1	89.4	86.7-92.0	30.9	26.9-34.8
\$50,000 and greater	47.6	44.6-50.6	87.7	85.7-89.7	42.3	39.3-45.3
missing <sup>c</sup>	29.1	24.0-34.2	86.0	81.9-90.0	25.8	20.8-30.7
<b>Education</b>						
Less than high school (HS)	2.6	0.0-8.3	—	—	2.6	0.0-8.3
High school or GED	33.2	29.3-37.0	87.3	84.5-90.0	29.1	25.4-32.8
Some college	41.8	37.9-45.6	87.7	85.4-90.0	37.6	33.9-41.4
College graduate	47.5	44.4-50.6	89.9	88.1-91.6	43.2	40.1-46.3
<b>Region</b>						
NYS excluding NYC	42.4	40.2-44.6	87.0	85.4-88.6	37.7	35.6-39.9
New York City	30.9	27.4-34.5	88.8	86.5-91.2	28.0	24.6-31.5
<b>Insurance Status</b>						
Private	44.7	42.0-47.5	88.3	86.4-90.1	39.5	36.8-42.2
Medicare	34.3	30.6-37.9	86.7	84.1-89.2	30.5	27.0-34.1
Medicaid	28.5	23.6-33.4	88.6	85.2-92.1	25.7	21.0-30.5
Other insurance <sup>d</sup>	32.1	23.0-41.2	87.9	81.4-94.4	29.8	20.7-38.8
No coverage	28.2	21.3-35.0	83.9	78.5-89.4	26.7	19.9-33.5

§ Five signs and symptoms: 1) sudden confusion or trouble speaking; 2) sudden numbness or weakness of face, arm, leg, esp. on one side; 3) sudden trouble seeing in one or both eyes; 4) sudden trouble walking, dizziness, or loss of balance; and 5) severe headache with no known cause..

a Rows with less than 50 observations and rows that contain a confidence interval with a half-width of greater than 10 have been suppressed.

b % = weighted percentage; CI = confidence interval

c "Missing" category included because more than 10% of the sample did not report income.

d Includes TRICARE, VA/Military, and Indian Health Services

## References

1. Kochanek KD, Xu JQ, Murphy SL, Arias E. Mortality in the United States, 2013. NCHS Data Brief, No. 178. Hyattsville, MD: National Center for Health Statistics, Centers for Disease Control and Prevention, Department of Health and Human Services; 2014.
2. Mozzafarian D, Benjamin EJ, Go AS, et al. Heart disease and stroke statistics—2015 update: a report from the American Heart Association. *Circulation*. 2015:e29-322
3. New York State Department of Health Vital Statistics, 2014; table 31a. Available at [http://www.health.ny.gov/statistics/vital\\_statistics/2014/table33a.htm](http://www.health.ny.gov/statistics/vital_statistics/2014/table33a.htm) Accessed on July 24, 2017.
4. Kochanek KD, Murphy SL, Xu JQ, Tejada-Vera B. Deaths: Final data for 2014. National vital statistics reports; vol 65 no 4. Hyattsville, MD: National Center for Health Statistics. 2016.
5. Lloyd-Jones D, Adams R, Carnethon M, et al. Heart Disease and Stroke Statistics—2009 Update. A Report From the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*. 2009;119:e21–e181.
6. New York State Department of Health Designated Stroke Centers [https://profiles.health.ny.gov/hospital/designated\\_center/Stroke+Center](https://profiles.health.ny.gov/hospital/designated_center/Stroke+Center)

## Program Contributions

New York State Department of Health  
Bureau of Chronic Disease Evaluation and Research  
Bureau of Chronic Disease Control

## Order Information

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