



Heart Attack and Stroke: Signs & Symptoms

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Introduction

Coronary Heart Disease (CHD) and Stroke

As with the nation as a whole, coronary heart disease (CHD) and stroke are the number one and number three killers in New York State. CHD is the leading cause of death for both men and women, regardless of their race.¹ Stroke is the fourth leading killer of men and the third leading cause of death for women in New York State.

Coronary Heart Disease, sometimes called Ischemic Heart Disease, refers to a reduction of blood flow due to thickening and hardening of the arteries that supply the heart muscle. Heart cells are dependent on blood flow through these arteries to provide oxygen and to carry away metabolic products. If the supply is reduced, a person can experience angina (chest pain or discomfort). Complete cut off of the blood supply results in the death of heart cells, and a heart attack is experienced.

During 2003, an estimated 1.1 million Americans will have a first or recurrent heart attack, and approximately 700,000 people will experience a new or recurrent stroke. Many of the deaths associated with these diseases will occur before the victim can receive adequate medical treatment. Approximately 250,000 people will die of CHD and 350,000 people will die of a stroke in the U.S. without being hospitalized.² In 1998, 20,585 people died of CHD in New York before ever reaching the hospital. Another 6,637 died of CHD in the emergency room. In that same year, 2,514 people died of a stroke in New York outside of a hospital, with another 234 dying in an emergency room.

Copies may be obtained by contacting:

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New York State Department of Health
Bureau of Chronic Disease,
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New York State Department of Health
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Commissioner

Delay in Treatment of Heart Attack and Stroke

One of the reasons for the high level of CHD and stroke deaths is the lack of recognition by the general public of early warning symptoms and signs of heart disease³ and stroke.⁴ Time is a crucial factor in the identification and treatment of people who are stricken with these conditions.

A **heart attack** occurs when the blood flow to a part of the heart is blocked (often by a blood clot). This happens because coronary arteries that supply the heart with blood slowly become thicker and harder from a buildup of fat, cholesterol and other substances called plaque.

If the plaque breaks open and a blood clot forms that blocks the blood flow, a heart attack occurs. Then the heart muscle supplied by that artery begins to die. Damage increases the longer an artery stays blocked. Once that muscle dies, the result is permanent heart damage.

years. In a recent study, seventy percent of the public knew at least one of five stroke warning signs and less than 20 percent were able to list three or more signs of stroke.⁵ Another recent study found no significant change in delay time to treatment between 1986 and 1997 (4.1 and 4.2 hours, respectively) for heart attack victims.⁶

Signs and Symptoms of Heart Attack and Stroke

Signs of a Heart Attack

Heart attacks do not always present themselves in dramatic fashion. Often a heart attack will start with mild discomfort in the center of the chest. This feeling and other symptoms may come and go in the beginning. Also, people experiencing a recurrent heart attack may not recognize symptoms, because each may not always be experienced in the same way. Heart attack symptoms include:

- Chest discomfort: Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- Discomfort in other areas of the upper body: Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw, or stomach.
- Shortness of breath: This feeling often comes along with chest discomfort. But it can occur before the chest discomfort.
- Other signs: These may include breaking out in a cold sweat, nausea, or lightheadedness.

Stroke (cerebrovascular disease) occurs when a blood vessel bringing oxygen and nutrients to the brain bursts or is clogged by a blood clot. Because of this rupture or blockage, part of the brain does not receive the blood it needs, and nerve cells in the affected area die. Small stroke-like events, called transient ischemic attacks (TIAs), that resolve in a day or less, are symptoms of cerebrovascular disease.

Sudden death is especially a concern with CHD. Sudden death accounts for over half of all heart attack deaths in the nation.² Early recognition and rapid response are also important, because early treatment of heart attacks prevents or limits damage to the heart. Studies show that patients receiving treatment within 3 hours after onset of stroke symptoms benefit substantially from therapy.⁵

Early detection of heart attacks and strokes begins with community awareness. In spite of our knowledge of the importance of quick response to heart attack and stroke symptoms, the delay in time to treatment has not improved in recent

Sudden death is unexpected death resulting from various causes including cardiac arrest, pulmonary embolus (blood clot or other blockage in the lung), aortic rupture, intracranial hemorrhage (bleeding in the brain), etc. Death from sudden cardiac arrest is more properly called **sudden cardiac death**.

Signs of a Stroke

The following are the most common symptoms of stroke. However, the symptoms of stroke may resemble other medical conditions or problems, and each individual may experience symptoms differently. Furthermore, not all of these symptoms may occur with each stroke.

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body.
- Sudden confusion, trouble speaking or understanding.
- Sudden trouble seeing in one or both eyes.
- Sudden trouble walking, dizziness, loss of balance or coordination.
- Sudden, severe headache with no known cause.

Another warning sign of stroke is a transient ischemic attack (TIA), also called a "mini-stroke." A TIA can cause many of the same symptoms as a stroke, but TIA symptoms generally only last for a few minutes.

Recognizing Signs and Symptoms: New York State Public Awareness

Methods

The data reported below on the signs and symptoms of heart attack and stroke in New York State were collected in the 2001 Behavioral Risk Factor Surveillance System (BRFSS). The following questions were asked to measure the public's knowledge of the signs and symptoms of a heart attack and stroke. The questions in *italics* were included as decoys. They were added to gauge if answering these sets of similar questions was establishing a response set; that is, a tendency to reply to items in a particular way, regardless of the questions' content or the correct answer. People might answer yes because they perceive that having such knowledge is socially desirable. It is also known that people have a tendency to answer yes or give agreement statements rather than to disagree.

Which of the following do you think is a symptom of a heart attack. For each, tell me yes, no, or you're not sure.

1. Do you think pain or discomfort in the jaw, neck, or back are symptoms of a heart attack?
2. Do you think feeling weak, lightheaded, or faint are symptoms of a heart attack?
3. Do you think chest pain or discomfort are symptoms of a heart attack?
4. *Do you think sudden trouble seeing in one or both eyes is a symptom of a heart attack?*
5. Do you think pain or discomfort in the arms or shoulder are symptoms of a heart attack?
6. Do you think shortness of breath is a symptom of a heart attack?

Which of the following do you think is a symptom of a 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 chest pain or discomfort are symptoms of a stroke?*
5. Do you think sudden trouble walking, dizziness, or loss of balance are symptoms of a stroke?
6. Do you think severe headache with no known cause is a symptom of a stroke?

Respondents were also asked the following question to measure the public's awareness to call 9-1-1 when someone is having a heart attack or stroke:

1. If you thought someone was having a heart attack or 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, or
- 5) do something else.

These questions were asked as part of the BRFSS from July through December 2001. This provided for data from 2,056 respondents. Results of the analysis presented below are based on the 2001 data weighted to represent the total population of New York State. Weights were applied to adjust for the selection probabilities and the estimates of the age-sex-race distribution of adults in the state for the calendar year. Analysis consisted of calculating percentages of respondents correctly answering each of the questions reviewed above. The results are presented in Figures 1 and 3. These calculations were also provided for each question by demographic and socio-economic group (Tables 1 and 2). In addition, percentages are provided for the frequency of recognized signs and knowledge to call 9-1-1. Figures 2 and 4 provide this information in two ways. They present bars that report from knowing no items to knowing all 7 items. For example, a value of 3 on the x-axis represents the percentage of people who recognized a total of three items. These figures also include a line chart that reports knowing a minimum of one to all 7 items. A value of 3 on the x-axis in this case represents the percentage of people who recognized 3 *or more* items. Both methods include recognizing the decoy item and knowing to call 9-1-1 used on both the heart attack and stroke scales. Tables 1 and 2 provide two summary tabulations for these scales broken down by socio-economic groups. These tables report the percent of respondents who are aware of the signs and symptoms of heart attack and stroke and know to call 9-1-1 when someone appears to be having a clinical event.

Results

Heart Attack Signs and Symptoms

Recognition of symptoms ranged from 42% to 93 % (Figure 1). Chest pain or discomfort was the most often recognized symptom (93%). Eighty-two percent of adults recognized pain and discomfort in the arms and shoulders and 80% recognized shortness of breath as signs of a heart attack. About half (49%) of all adults identified pain or discomfort in the jaw, neck, or back, and 59% identified that feeling weak, light headed or faint is a heart attack sign. Only 42% of adults recognized that sudden trouble seeing in one or both eyes is not a symptom of a heart attack. Approximately 87% of adults would call 9-1-1 if they thought someone was having a heart attack or a stroke. Nearly all adults (99%) recognized at least one of the heart attack signs (Figure 2). A combination of at least 3 signs and/or calling 9-1-1 when witnessing a heart attack were known by 93% of the adult population. The majority of adults (67%) knew at least 5 of these signs or to call 9-1-1. Recognizing 6 signs dropped to 40% and only 10% of adults were aware of all signs, recognized the decoy item, and knew to call 9-1-1. The drop in recognition from knowing 4 items to knowing 6 was primarily due to the inability to identify pain or discomfort in the jaw, neck, or back as a sign or to identify the decoy item. Only 40% of adults who recognized 5 signs were able to

identify the former and 35% the latter item. Lack of recognition of all 7 items is primarily due to the decoy item alone.

Stroke Signs and Symptoms

Recognition of stroke signs ranged from 35% to 92%. Sudden numbness or weakness of face, arm, or leg was recognized by 92% of adults as a sign of a stroke (Figure 3). The decoy item, sudden chest pain, was properly identified as not being a stroke symptom by only 35% of adults. Severe headaches (54%) and sudden trouble seeing (61%) were the least recognized signs of stroke. When faced with a person having a stroke, 87% of adults knew to call 9-1-1 immediately. Approximately 99% of adults knew at least one of the signs of a stroke, recognized the decoy item, and/or to call 9-1-1 in case of an emergency (Figure 4). Combinations of at least 3 of these items were known by 90% of the adult population. The majority of adults (66%) knew at least 5 of these signs or to call 9-1-1. Recognizing 6 signs dropped to 43% and only 15% of adults were aware of all signs, recognized the decoy item, and knew to call 9-1-1. The drop in recognition from knowing 4 items to knowing 6 is primarily due to the inability to identify the decoy item. Only 33% of adults who recognized 5 signs were able to identify the decoy. The decoy item was also the primary reason when adults could not recognize all of the items. Only 15% were aware of all signs, recognized the decoy item and knew to call 9-1-1.

Discussion

This analysis gives some suggestions of where future public education efforts might be made or where surveillance needs to be concentrated. First, for both heart attack and stroke, there are symptoms that lag behind in public recognition. For heart attack, pain and discomfort in the jaw, neck, or back and feeling weak, lightheaded, or faint are recognized much less than other signs. For stroke, sudden trouble seeing and severe headache are less well known. Secondly, the data indicate that there are populations that might need special attention (see Tables 1 and 2). The Hispanic population, people from lower income, and lower education groups, appear to lag behind the rest of the state in their recognition of these symptoms and should be considered for targeted health education efforts.

A large proportion of respondents did not recognize the decoy items for both heart attack and stroke signs suggesting that response bias may be affecting the results. The heart attack decoy was incorrectly identified as a sign of a heart attack by 65% of the respondents and the stroke decoy by 58%. It may be an indication that the level to which the measured recognition of legitimate signs and symptoms for heart attack or stroke are overestimated. The high rates of recognition for legitimate signs and symptoms could be the result of measurement error, possibly due to a tendency of people to give socially acceptable answers.

It should be kept in mind that awareness of the signs and symptoms of these conditions is not the only factor that affects the time to treatment. Other factors that need to be considered are the general public's knowledge of cardiopulmonary resuscitation (CPR), the availability of an automated external defibrillator (AED), the time of emergency transportation service to respond, and the established procedures in emergency departments. CPR and a defibrillator are necessary to save victims of sudden cardiac arrest. Sudden cardiac arrest results in the heart suddenly losing its ability to pump blood. If victims receive immediate bystander CPR and defibrillation within a few minutes

after collapse they may survive.² Finally, it cannot be assumed that simply calling 9-1-1 will get the emergency service to the victim in enough time to ensure prompt treatment. Delay in emergency service treatment would still remain a concern.⁶

The New York State Department of Health through the New York State Healthy Heart Program (HHP) is taking action to increase the possibility that heart attack and stroke victims survive an episode and to improve the response time of emergency services. The HHP is committed to ensuring quality care beginning with the first evidence of symptoms of heart attack or stroke. The HHP is working closely with the New York State affiliates of the American Heart Association on Operation Heart Beat and Operation Stroke to improve the public's awareness of the need to seek emergency treatment quickly for both heart attack and stroke. These initiatives also seek to increase the number of New Yorkers trained in CPR. The Healthy Heart Program is working with other programs in the Department of Health including the Bureau of Emergency Services and the Cardiac Services Program to assure that our state's first responders are fully prepared and equipped to properly care for individuals experiencing a heart attack or stroke. Efforts are under way to ensure that our state's hospitals provide the highest quality of care to cardiac patients. HHP is currently assessing the availability of automatic external defibrillators in communities around the state, as well as the training needs of those who may have to use them.

Figure 1 Percent of Adults (ages 18 and over) Correctly Recognizing Heart Attack Symptoms and Action: New York State, 2001

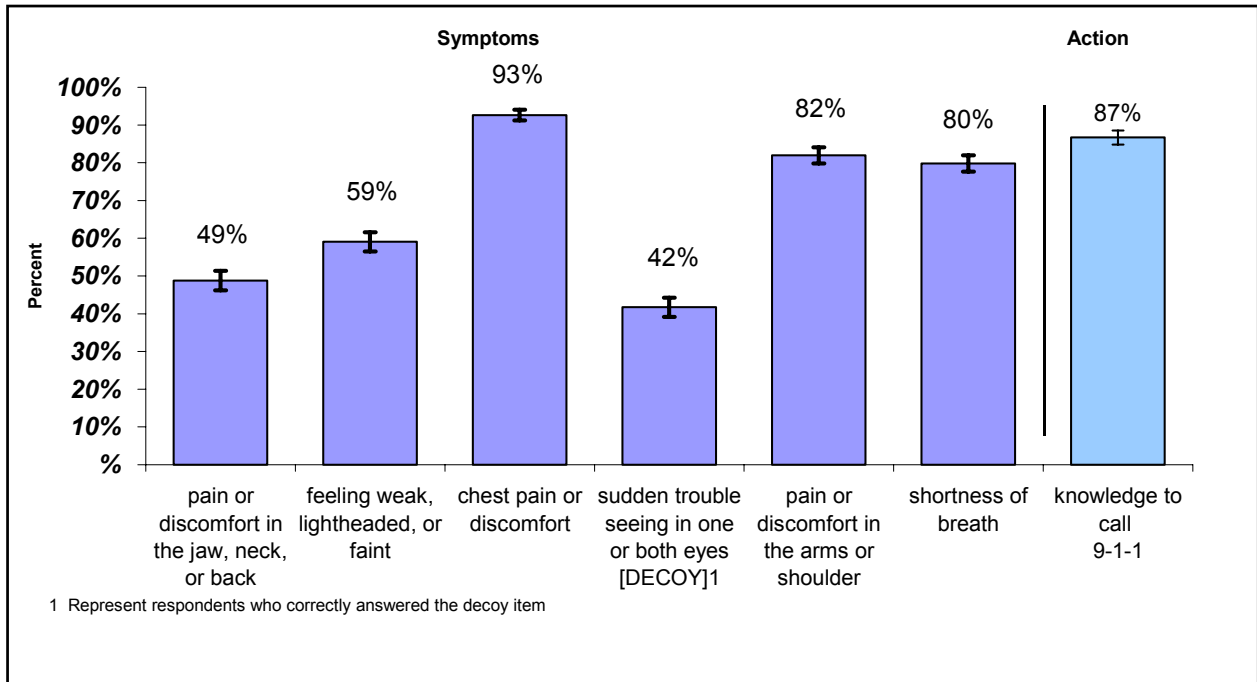


Figure 2 Minimum Number of Heart Attack Signs Recognized and Knowing to Call 9-1-1: New York State, 2001¹

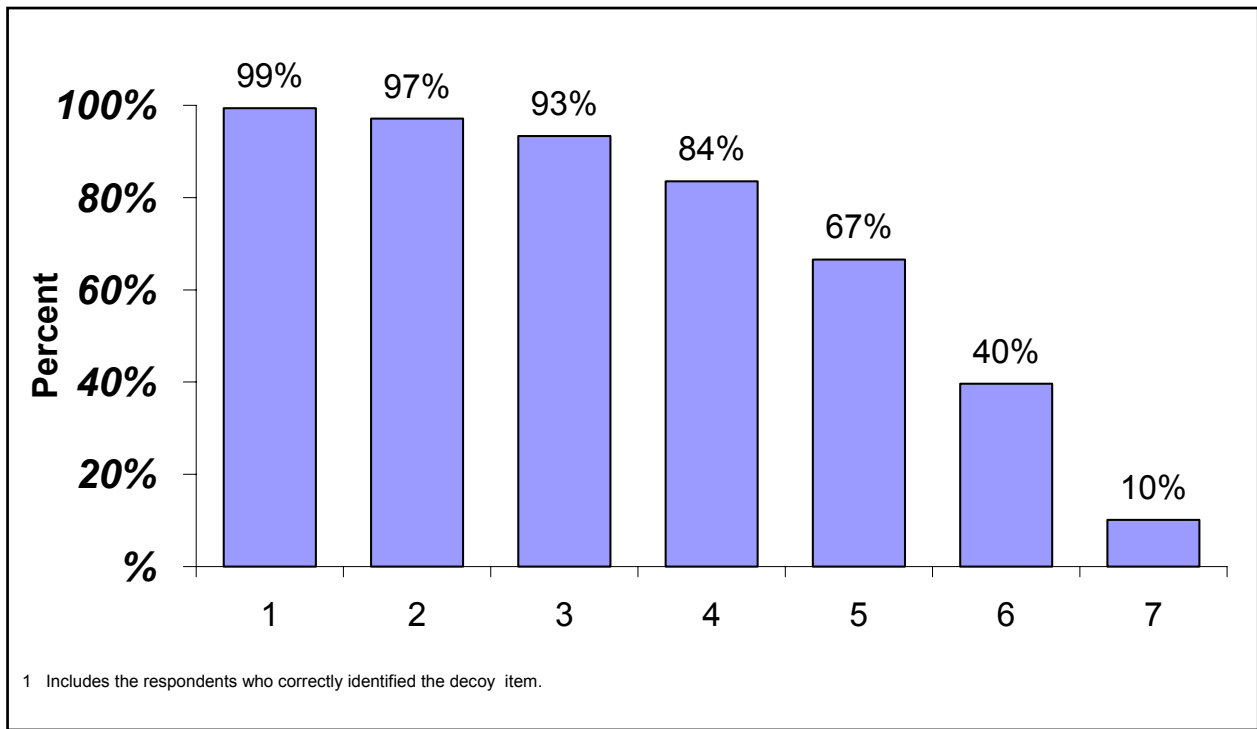


Figure 3 Percent of Adults (ages 18 and over) Correctly Recognizing Stroke Symptoms and Action: New York State, 2001

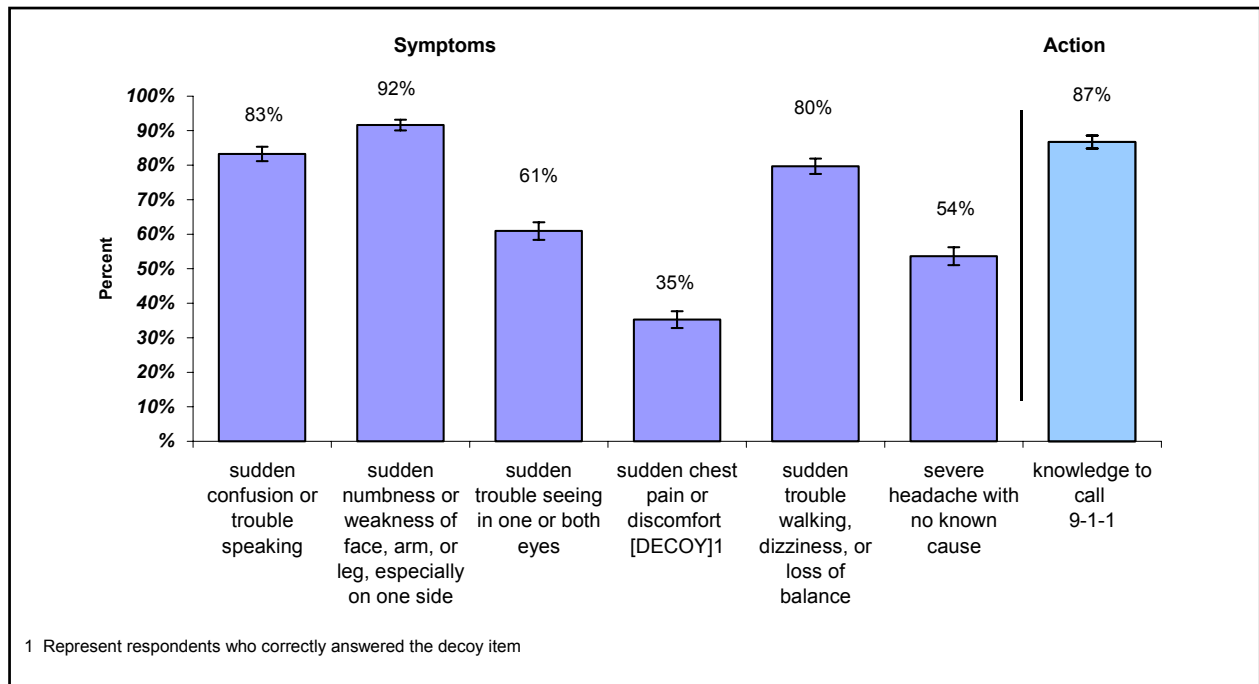


Figure 4 Minimum Number of Stroke Signs Recognized and Knowing to Call 9-1-1: New York State, 2001¹

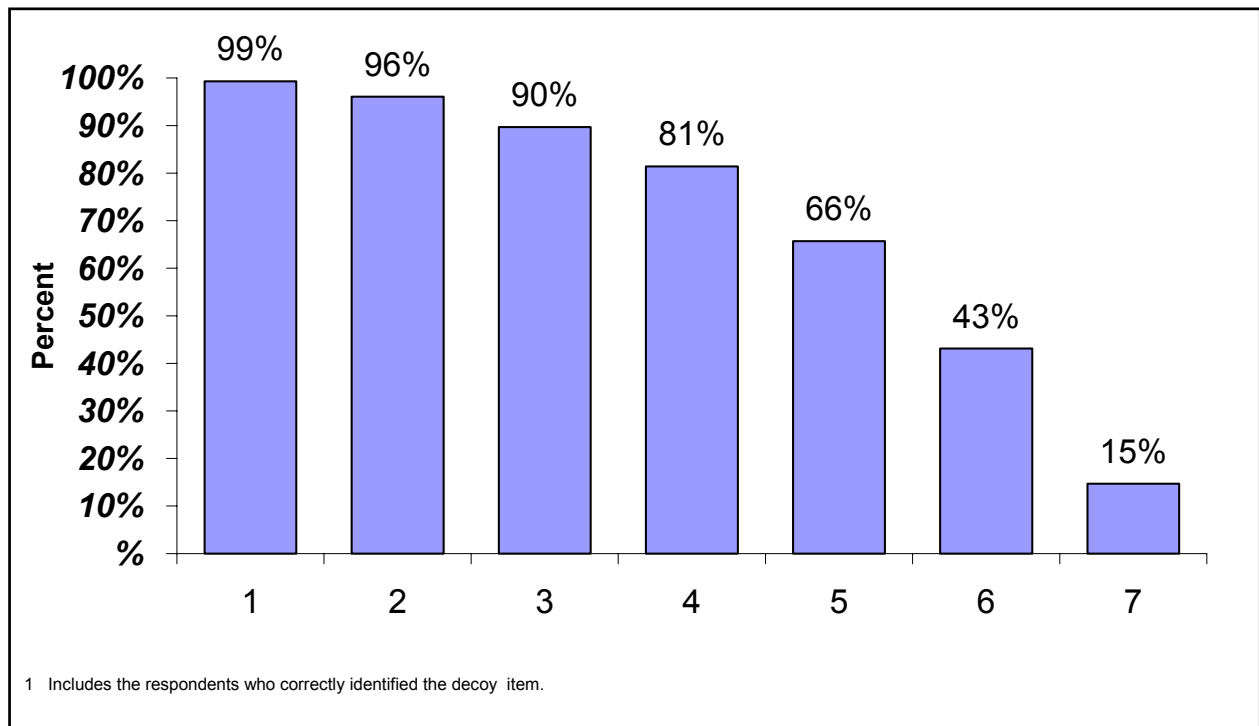


Table 1 Percent of Adult's (Ages 18 & over) Correctly Recognizing Heart Attack Signs and Symptoms, New York State Adults: 2001

	Signs and Symptoms										Action				Summary Tabulations			
	pain or discomfort in the jaw, neck, or back		feeling weak, lightheaded, or faint		chest pain or discomfort		sudden trouble seeing in one or both eyes [DECOY] ¹		pain or discomfort in the arms or shoulder		shortness of breath		knowledge to call 9-1-1		knowledge of all signs, symptoms, and to call 911		avg. number of signs, symptoms, and knowledge to call 9-1-1	
	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI
Total	48.8	2.6	59.1	2.5	92.6	1.4	41.7	2.5	82.0	2.1	79.8	2.2	86.7	1.9	10.1	1.4	4.9	0.1
Region																		
NYS except for NYC	53.2	3.1	62.0	3.0	93.7	1.6	44.5	3.0	86.8	2.3	82.0	2.5	86.3	2.3	12.5	1.9	5.1	0.1
NYC	40.5	4.5	53.5	4.6	90.5	2.8	36.4	4.5	72.9	4.2	75.7	4.1	87.4	3.1	5.6 *	1.9	4.6	0.1
Age																		
18 - 24	30.8	8.0	70.5	8.3	95.7	3.2	37.7	8.6	70.1	8.4	79.2	7.9	84.0	7.5	4.0 *	2.8	4.7	0.3
25 - 34	41.8	5.6	59.4	5.7	92.2	3.4	36.1	5.6	77.3	5.2	78.2	5.0	88.4	3.9	8.2 *	2.9	4.7	0.2
35 - 44	49.5	5.3	57.9	5.3	95.3	2.4	40.7	5.2	84.9	4.2	86.2	3.8	86.9	3.9	13.2	3.4	5.0	0.2
45 - 54	54.9	5.9	64.5	5.9	95.2	2.9	36.3	5.6	89.2	4.3	83.4	4.8	93.3	2.4	11.6	3.4	5.2	0.2
55 - 64	61.4	7.5	53.3	7.4	93.2	3.6	42.3	7.2	90.3	4.4	82.5	5.5	82.2	6.2	8.8 *	3.3	5.1	0.2
65+	51.3	6.4	51.1	6.4	85.1	4.8	55.5	6.4	77.4	5.3	68.7	6.0	83.4	5.0	11.5 *	4.0	4.7	0.2
Race																		
White	54.4	2.9	64.8	2.7	94.8	1.4	44.7	2.9	88.9	1.9	83.3	2.2	88.1	1.8	13.4	1.9	5.2	0.1
African American	41.5	9.1	47.3	9.2	90.7	5.3	36.3	8.9	80.2	6.7	81.1	6.9	88.1	5.8	4.1 *	2.9	4.7	0.2
Other	42.8 *	10.6	56.0	10.6	89.6	6.1	37.8 *	10.2	63.4	9.9	79.8	8.0	82.5	9.2	7.3 *	5.6	4.5	0.4
Hispanic	34.3	7.2	44.7	7.5	86.9	5.3	35.5	7.3	64.3	7.6	64.7	7.6	82.8	6.6	3.3 *	2.5	4.1	0.3
Gender																		
Male	42.6	3.9	60.2	3.9	91.6	2.3	41.5	3.9	77.9	3.5	78.0	3.4	84.3	3.1	8.4	1.9	4.8	0.1
Female	54.2	3.3	58.0	3.3	93.5	1.8	41.9	3.3	85.5	2.5	81.4	2.8	88.9	2.2	11.6	2.0	5.0	0.1
Income																		
less than \$15,000	34.5	8.2	47.3	9.0	86.8	6.4	40.7	8.9	66.4	8.8	71.7	8.3	84.1	7.8	6.4 *	3.6	4.3	0.3
\$15,000- 24,999	42.3	7.4	56.5	7.5	88.1	4.9	40.0	7.2	75.1	7.0	77.0	6.7	83.6	6.4	6.5 *	3.5	4.6	0.3
\$25,000- 34,999	46.6	7.6	52.4	7.7	90.4	5.4	35.1	7.2	77.3	7.2	74.7	7.3	89.7	4.4	6.3 *	3.1	4.7	0.3
\$35,000- 49,999	55.7	6.5	65.3	6.2	94.4	3.2	46.4	6.5	86.8	4.4	82.6	4.9	87.2	4.7	15.9	4.6	5.2	0.2
\$50,000- 74,999	56.3	6.2	66.5	5.9	98.2	1.5	43.6	6.2	89.6	4.0	87.1	4.5	88.4	4.1	12.8 *	4.0	5.3	0.2
\$75,000+	52.2	5.4	63.0	5.3	97.6	1.7	42.8	5.4	91.4	2.9	86.7	3.6	87.4	3.8	13.0	3.4	5.2	0.1
missing	45.4	6.5	54.3	6.6	87.9	4.3	40.6	6.5	75.9	6.0	72.0	6.2	86.0	4.7	6.5 *	2.7	4.6	0.2
Education																		
Less than H.S.	36.9	9.0	40.6	9.0	79.0	7.7	44.4	9.4	62.3	9.6	60.5	9.6	77.7	8.9	6.0 *	3.8	4.0	0.3
H.S. or G.E.D	47.2	4.9	55.3	4.9	89.7	3.1	41.0	4.8	79.7	4.0	77.6	4.1	87.0	3.5	8.2	2.5	4.8	0.2
Some post-H.S.	53.6	4.9	62.3	4.8	97.0	1.5	42.6	4.9	84.9	3.6	81.5	3.9	89.6	2.9	10.4	2.7	5.1	0.1
College graduate	50.2	4.1	65.7	3.8	95.7	1.7	40.4	4.0	88.1	2.6	86.3	2.8	87.3	2.7	12.9	2.6	5.1	0.1
Disability ²																		
Yes	49.3	3.2	60.5	3.1	95.1	1.4	42.5	3.1	85.2	2.3	77.6	2.7	88.9	1.8	9.8 *	3.4	5.0	0.2
No	48.7	1.4	58.8	1.4	92.1	0.8	41.6	1.4	81.3	1.2	80.3	1.2	86.3	1.1	10.2	1.5	4.9	0.1

¹ Represent respondents who properly identified the item as a decoy.

² All respondents who report activity limitations due to physical, mental, or emotional reasons OR have health problems that require the use of special equipment.

* Estimate based on fewer than 50 observations

Table 2. Percent of Adult's (Ages 18 & over) Correctly Recognizing Stroke Signs and Symptoms, New York State Adults: 2001

	Symptoms												Action		Summary Tabulations			
	sudden confusion or trouble speaking		sudden numbness or weakness of face, arm, or leg, especially on one		sudden trouble seeing in one or both eyes		sudden chest pain or discomfort [DECOY] ¹		sudden trouble walking, dizziness, or loss of balance		severe headache with no known cause		knowledge to call 9-1-1		knowledge of all signs, symptoms, and to call 911		avg. number of signs, symptoms, and knowledge to call 9-1-1	
	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	%	± 95% CI	Mean	± 95% CI
Total Region	83.3	2.1	91.6	1.5	60.9	2.5	35.3	2.4	79.7	2.2	53.6	2.6	86.7	1.9	14.7	1.7	4.9	0.1
NYS except for NYC	87.5	2.3	94.0	1.6	65.0	3.0	38.4	3.0	83.6	2.5	55.5	3.1	86.3	2.3	16.7	2.2	5.1	0.1
NYC	75.4	4.1	87.0	3.3	53.3	4.7	29.4	4.2	72.4	4.2	50.0	4.7	87.4	3.1	11.0	2.7	4.5	0.2
Age																		
18 - 24	71.7	8.3	89.0	4.9	57.2	8.9	31.8 *	8.3	78.8	7.7	48.3	8.8	84.0	7.5	13.2 *	3.1	4.6	0.3
25 - 34	77.3	5.2	89.6	4.3	61.8	5.6	35.8	5.6	78.6	5.0	51.8	5.7	88.4	3.9	14.6	2.0	4.8	0.2
35 - 44	86.1	4.1	94.6	2.6	61.4	5.2	35.1	5.0	81.7	4.2	52.5	5.3	86.9	3.9	15.7	1.9	5.0	0.2
45 - 54	89.6	4.2	95.5	2.8	65.4	5.8	33.6	5.3	82.3	5.3	61.1	5.9	93.3	2.4	16.7	1.9	5.2	0.2
55 - 64	90.3	4.3	92.6	4.0	62.8	7.2	41.0	7.1	86.8	4.9	55.7	7.4	82.2	6.2	17.0	2.5	5.1	0.2
65+	82.2	4.9	87.9	4.3	55.6	6.4	34.5	6.0	72.3	6.0	51.3	6.4	83.4	5.0	11.5 *	2.0	4.7	0.2
Race																		
White	89.8	1.8	94.7	1.4	67.3	2.7	40.7	2.8	85.7	2.1	56.5	2.9	88.1	1.8	18.7	1.1	5.2	0.1
African American	81.3	7.0	92.3	4.6	55.2	9.1	23.4 *	7.4	71.4	8.3	42.3	9.2	88.1	5.8	8.5 *	2.4	4.5	0.3
Other	67.5	9.7	83.4	7.8	51.3	10.7	24.9 *	9.1	75.9	8.9	48.2	10.8	82.5	9.2	7.7 *	2.6	4.3	0.4
Hispanic	66.4	7.5	82.3	6.1	42.9	7.5	25.8	6.6	62.5	7.7	52.2	7.7	82.8	6.6	6.6 *	1.8	4.2	0.3
Gender																		
Male	80.2	3.4	88.9	2.7	59.5	3.9	36.4	3.8	78.4	3.4	49.7	4.0	84.3	3.1	13.5	1.3	4.8	0.2
Female	86.0	2.5	94.0	1.7	62.2	3.3	34.3	3.1	80.9	2.8	57.1	3.3	88.9	2.2	15.9	1.2	5.0	0.1
Income																		
less than \$15,000	75.6	7.8	81.6	7.7	43.7	9.0	29.7 *	8.4	65.1	8.8	44.4	9.1	84.1	7.8	10.1 *	2.8	4.2	0.3
\$15,000- 24,999	77.2	6.9	88.9	4.7	59.3	7.5	33.0	6.8	74.7	7.0	51.5	7.6	83.6	6.4	12.0 *	2.3	4.7	0.3
\$25,000- 34,999	83.4	6.0	89.1	5.1	54.8	7.7	31.2	7.0	72.0	7.6	47.0	7.6	89.7	4.4	8.2 *	2.0	4.7	0.2
\$35,000- 49,999	89.1	4.4	93.0	3.7	60.9	6.4	31.8	5.9	80.2	5.4	47.5	6.5	87.2	4.7	13.4	2.0	4.9	0.2
\$50,000- 74,999	89.4	3.6	98.0	1.6	70.9	5.7	38.0	6.0	89.9	3.6	61.9	6.1	88.4	4.1	19.1	2.4	5.4	0.2
\$75,000+	89.1	3.9	96.9	2.1	72.2	5.1	42.9	5.3	88.0	3.9	61.3	5.4	87.4	3.8	22.5	2.2	5.4	0.2
missing	74.3	5.9	86.9	4.7	52.2	6.6	34.2	6.4	76.5	5.7	52.8	6.6	86.0	4.7	11.5 *	3.9	4.6	0.2
Education																		
Less than H.S.	67.0	9.2	77.7	8.1	38.4	8.9	34.0 *	9.0	57.5	9.7	40.3	9.2	77.7	8.9	5.7 *	11.3	3.9	0.4
H.S. or G.E.D	82.6	4.0	90.6	3.0	55.8	4.9	26.6	4.2	76.9	4.2	48.4	4.9	87.0	3.5	7.9	15.5	4.7	0.2
Some post-H.S.	83.3	3.9	95.3	2.3	63.8	4.7	37.8	4.7	82.9	3.9	54.8	4.9	89.6	2.9	17.2	33.8	5.1	0.2
College graduate	89.3	2.5	94.2	1.9	70.3	3.7	40.5	3.9	86.9	2.7	61.0	4.0	87.3	2.7	21.1	41.4	5.3	0.1
Disability ²																		
Yes	84.3	4.7	93.3	3.4	59.6	6.2	31.2	5.7	79.7	5.0	52.8	6.3	88.9	3.6	10.9	21.4	4.9	0.2
No	83.0	2.3	91.3	1.7	61.2	2.8	36.1	2.7	79.7	2.5	53.8	2.8	86.3	2.1	15.5	30.4	4.9	0.1

¹ Represent respondents who properly identified the item as a decoy.

² All respondents who report activity limitations due to physical, mental, or emotional reasons OR have health problems that require the use of special equipment.

* Estimate based on fewer than 50 observations

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