

# A LEARNER-CENTERED APPROACH TO STROKE EDUCATION

Debbie Lombardi Hill  
4<sup>th</sup> Annual Comprehensive Stroke Care Summit  
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## DISCLOSURES

- ✦ Principal, Lombardi Hill Consulting Group
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- ✦ Subject Matter Expert, ICF International
- ✦ Independent Contractor, American Heart Association/  
American Stroke Association (AHA/ASA)



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## OUR PROBLEM

**Delays in arriving to the hospital is a major factor in stroke treatment ineligibility.**

Does the public know the warning signs of stroke?

How can we overcome the barriers to calling 911?

How can we engage people to learn, remember AND BE ABLE TO ACT QUICKLY AND APPROPRIATELY to the signs and symptoms of stroke?



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## STROKE KNOWLEDGE DEFICITS

### WHAT WE KNOW

“Up to 75% of people cannot name one stroke sign or symptom.”

STROKE BELT STUDY - 1999

#### Numerous studies validate:

- Most individuals cannot spontaneously name a stroke sign without prompting
- Women are unfamiliar with stroke warning signs
  - 51% identified sudden weakness
  - 44% identified speech difficulty
  - 23% identified sudden severe headache
  - 18% identified sudden vision loss
- Gender, race and educational level all factor into stroke awareness
- Education messaging is fairly generic vs. tailored to cultural norms

\*Alberts, M. Improving public education about stroke. Ann. N.Y. Acad.Sci.(2012) 1268: 45-50  
\*Marx, J.J. Klavitter B. Faldum A., et al. Gender-specific differences in stroke knowledge, stroke risk perception and the effects of an educational multi-media campaign. J Neurol 2010; 267: 367-374  
\*Vaughn, S. Stroke and Heart Disease Prevention Education via Telenovela: A Focus Group's Evaluation. Reh Nurs 2012; 37:5; 215-219  
\*Sallig, AM. Stroke prevention: awareness of risk factor for stroke among African American residents of the Mississippi delta area. J Natl Med Assoc 2010 Feb; 102(2): 84-94



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## PRINCIPLES OF INSTRUCTION

### WHAT WE KNOW

“The only source of knowledge is experience.”

ALBERT EINSTEIN, PHYSICIST

#### Learning is promoted when:

- Learners are engaged in solving real-world problems
- New knowledge is demonstrated to the learner
- Learners are assessed as part of the training
- New knowledge is applied by the learner
- New knowledge is integrated into the learner's world

\*Merrill, M. D. (2009). First Principles of Instruction. In C. M. Reigeluth & A. Carr (Eds.), Instructional Design Theories and Models: Building a Common Knowledge Base (Vol. III). New York: Routledge Publishers.  
\*Glonek, K. L., & King, P. E. (2014). Listening to Narratives: An Experimental Examination of Storytelling in the Classroom. International Journal of Listening, 28(1), 32-46. doi:10.1080/10904018.2014.861302  
\*Brusso, R. C., Wisler, R. A., Paddock, A., Hatfield, J. ICF (2014) International, Best Practices and Provisional Guidelines for Integrating Mobile, Virtual, and Videogame-Based Training and Assessments; www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA586660



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## AVATAR-BASED LEARNING

### WHAT WE KNOW

“The traditional paradigm of passive learning is rapidly being supplanted by novel approaches to foster active learning.”

JOURNAL OF VIRTUAL WORLD RESEARCH

#### Advantages of avatars include:

- Consistent delivery of information or messages
- Customization to learner characteristics
- Enhanced learner attention and engagement
- Increased retention of information
- Effectiveness in skills/proficiency training
- Cost-effective to develop and maintain

\*Falloon G. (2010). Using avatars and virtual environments in learning" what do they have to offer? British Journal of Educational Technology, 41(1):108-122  
\*Danforth, D., Procter M., Heller R., et al. (2009) Development of patient simulations for medical education. Journal of Virtual Worlds Research, 2(2) #D Virtual Worlds for Health and Healthcare, 2-9  
\*Creutzfeldt J, Hedman L., et al. (2010) Effects of pre-training using serious game technology on CPR performance – an exploratory quasi-experimental transfer study. Scandinavian Journal of Resuscitation Emergency Medicine. <http://www.sjtem.com/content/20/1/79>




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## NATIONAL PUBLIC CAMPAIGNS AMERICAN STROKE ASSOCIATION

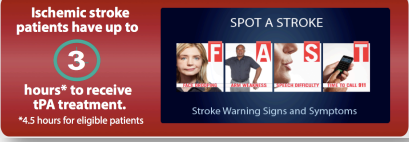


**THINK YOU ARE HAVING A STROKE? CALL 9-1-1 IMMEDIATELY!**  
F.A.S.T. is an easy way to remember the sudden signs of stroke. When you can spot the signs, you'll know that you need to call 9-1-1 for help right away. F.A.S.T. is:


**F**ace Drooping – Does one side of the face droop or is it numb? Ask the person to smile. Is the person's smile uneven?  
**A**rm Weakness – Is one arm weak or numb? Ask the person to raise both arms. Does one arm drift downward?  
**S**peech Difficulty – Is speech slurred? Is the person unable to speak or hard to understand? Ask the person to repeat a simple sentence, like "The sky is blue." Is the sentence repeated correctly?  
**T**ime to call 9-1-1 – If someone shows any of these symptoms, even if the symptoms go away, call 9-1-1 and get the person to the hospital immediately. Check the time so you'll know when the first symptoms appeared.

[Learn more stroke signs and symptoms >>>](#)




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**SAVE A MINUTE**  
LEARN the common stroke warning signs, F.A.S.T., and share it with your loved ones.



**TOGETHER, we can end stroke!**

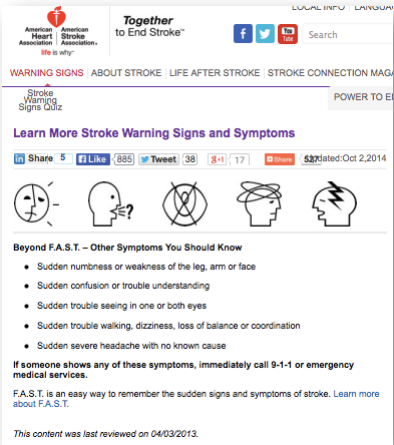


**POWER TO END STROKE**



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**Learn More Stroke Warning Signs and Symptoms**

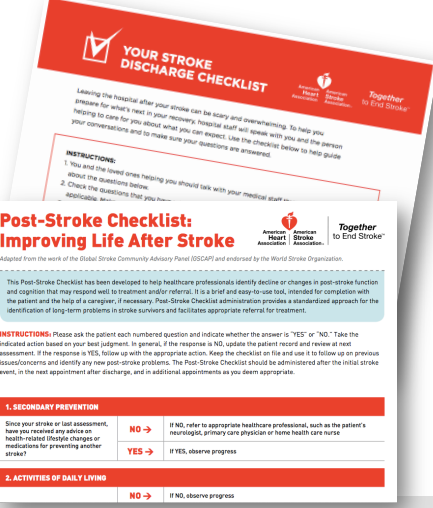
**Beyond F.A.S.T. – Other Symptoms You Should Know**

- Sudden numbness or weakness of the leg, arm or face
- Sudden confusion or trouble 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

**If someone shows any of these symptoms, immediately call 9-1-1 or emergency medical services.**

F.A.S.T. is an easy way to remember the sudden signs and symptoms of stroke. [Learn more about F.A.S.T.](#)

This content was last reviewed on 04/03/2013.



**YOUR STROKE DISCHARGE CHECKLIST**

Leaving the hospital after your stroke can be scary and overwhelming. To help you prepare for what's next in your recovery, hospital staff will speak with you and the person helping to care for you about what you can expect. Use the checklist below to help guide your conversations and to make sure your questions are answered.

**INSTRUCTIONS:**

1. You and the loved ones helping you should talk with your medical team about the questions below.
2. Check the questions that you can answer.


**Post-Stroke Checklist: Improving Life After Stroke**

Adapted from the work of the Global Stroke Community Advisory Panel (GSCAP) and endorsed by the World Stroke Organization.

This Post-Stroke Checklist has been developed to help healthcare professionals identify decline or changes in post-stroke function and cognition that may respond well to treatment and/or referral. It is a brief and easy-to-use tool, intended for completion with the patient and the help of a caregiver, if necessary. Post-Stroke Checklist administration provides a standardized approach for the identification of long-term problems to stroke survivors and facilitates appropriate referral for treatment.

**INSTRUCTIONS:** Please ask the patient each numbered question and indicate whether the answer is "YES" or "NO." Take the indicated action based on your best judgment. In general, if the response is "NO," update the patient record and review at next assessment. If the response is "YES," follow up with the appropriate action. Keep the checklist on file and use it to follow up on previous issues/concerns and identify any new post-stroke problems. The Post-Stroke Checklist should be administered after the initial stroke event, in the next appointment after discharge, and in additional appointments as you deem appropriate.

<b>1. SECONDARY PREVENTION</b>		
Since your stroke or last assessment, have you received any advice or health-related lifestyle changes or medications for preventing another stroke?	NO →	If NO, refer to appropriate healthcare professional, such as the patient's neurologist, primary care physician or home health care nurse
	YES →	If YES, observe progress
<b>2. ACTIVITIES OF DAILY LIVING</b>		
	NO →	If NO, observe progress


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**Am I Having a Stroke?**

**Act FAST**

Learn the many warning signs of a stroke. Act **FAST** and **CALL 9-1-1 IMMEDIATELY** at any sign of a stroke.

Use **FAST** to remember the warning signs:

- F** **FACE:** Ask the person to smile. Does one side of the face droop?
- A** **ARMS:** Ask the person to raise both arms. Does one arm drift downward?
- S** **SPEECH:** Ask the person to repeat a simple phrase. Is their speech slurred or strange?
- T** **TIME:** If you observe any of these signs, call 9-1-1 immediately.

It is important to recognize stroke symptoms and act quickly by **CALLING 9-1-1**.

**Am I Having a Stroke?**

**Stroke Warning Signs**

Stroke symptoms can also include:

- SUDDEN** numbness or weakness of 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

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**Stroke: The REALITY, Part 1: What does it really mean?**

Stroke by many is thought of as something that affects the elderly. But in reality, stroke can happen to anyone, at any age, and at any time. Learn about the impact of stroke and arm yourself with life-saving information.

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9-1-1

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# NATIONAL PUBLIC CAMPAIGNS MENDED HEARTS

**WARNING SIGNS OF STROKE FOR THOSE WITH AFIB**

Learn the many warning signs of a stroke. Act **FAST** and **CALL 9-1-1 IMMEDIATELY** at any sign of a stroke. Use **FAST** to remember warning signs:

- F** **FACE:** Ask the person to smile. Does one side of the face droop?
- A** **ARMS:** Ask the person to raise both arms. Does one arm drift downward?
- S** **SPEECH:** Ask the person to repeat a simple phrase. Is his or her speech slurred or strange?
- T** **TIME:** If you observe any of these signs, call 9-1-1 immediately.

**NOTE THE TIME WHEN ANY SYMPTOMS FIRST APPEAR.** If given within *three hours* of the first symptom, there is an FDA-approved clot-buster medication that may reduce long-term disability for the most common type of stroke.

**LEARN ABOUT MORE SUDDEN SIGNS OF STROKE AT [WWW.STROKE.ORG/SYMP](http://WWW.STROKE.ORG/SYMP)**

**Monitor Your Stroke Risk** Because you have atrial fibrillation (Afib), your risk of stroke is increased by at least five times. Bring this card with you to each healthcare appointment. Mark the appointment date and fill out the notes portion with your healthcare professional to manage your risk of stroke.

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# NATIONAL PUBLIC CAMPAIGNS NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE (NINDS)

The screenshot displays the NINDS website interface for the 'KNOW STROKE' campaign. It features a search bar, navigation tabs, and several content blocks:

- Home:** Includes a search bar and navigation options like 'Home', 'About the Campaign', 'Health Professional Resources', 'Research Programs', and 'Research Spotlight'.
- About the Campaign:** Features a central graphic with four warning signs: 'TROUBLE WALKING', 'WEAKNESS ON ONE SIDE', 'TROUBLE SEEING', and 'TROUBLE SPEAKING'. Below this is a 'Video Transcript' section with text: "Weakness on one Side, Trouble Speaking, Trouble Seeing, Trouble Walking. Know Stroke. Know the Signs. Act in Time. Remember: Most people know what to do in the case of a medical emergency... call 911... call 911... but don't know that stroke is a medical emergency. 'Stroke! I don't know!' What you need to do is get to a hospital as quickly as possible. Every minute counts. When her husband Robert had a stroke, Alma Shantley knew just what to do. Alma Shantley: 'He sat down in the chair and he kept staring at me and I thought he was holding around with me at first, and I said to her this is not funny Robert.' Robert Shantley: 'I could not speak. All I know, who was my wife and I reached over and took her hand and I couldn't remember the names of my grandchildren or my daughters. It was a complete blank.' Alma Shantley: 'And I said to him you're having a stroke, stay here, I'm calling an ambulance'."
- Research Spotlight:** A section titled 'Research Spotlight' with a sub-heading 'Video Transcript' and a small image of a person.
- Ataque Cerebral Video:** A section titled 'Ataque Cerebral Video' with a sub-heading 'Video Transcript' and a small image of a person.
- Ambulance Video:** A section titled 'Ambulance Video' with a sub-heading 'Video Transcript' and a small image of an ambulance.
- SPANISH VERSION:** A label indicating that the content is available in Spanish.

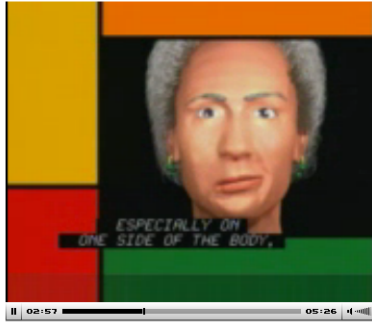
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# NATIONAL PUBLIC CAMPAIGNS NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE (NINDS)

You are here: [Know Stroke Home](#) » [Stroke Materials](#) »

You are here: [Know Stroke Home](#) » [Stroke Materials](#) »



VIDEO



VIDEO

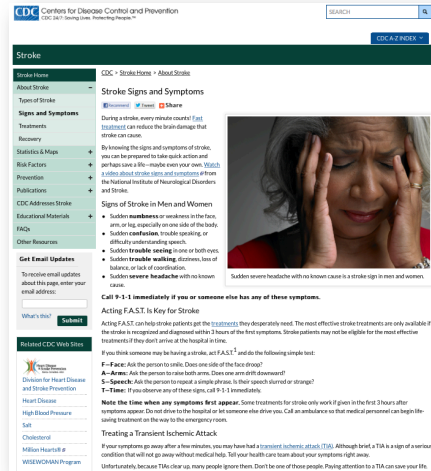


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# NATIONAL PUBLIC CAMPAIGNS CENTER FOR DISEASE CONTROL (CDC)





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## NATIONAL PUBLIC CAMPAIGNS MAYO CLINIC





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Find a Job  
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- Translated Content
- Spanish
- Portuguese
- Arabic
- Mandarin

**Stroke**

Overview | Symptoms and causes | Diagnosis and treatment | Self-management

**Symptoms and causes**

By Mayo Clinic Staff

**Symptoms**

Watch for these signs and symptoms if you think you or someone else may be having a stroke. Note when your signs and symptoms begin, because the length of time they have been present may guide your treatment decisions.

- **Trouble with speaking and understanding.** You may experience confusion. You may slur your words or have difficulty understanding speech.
- **Paralysis or numbness of the face, arm or leg.** You may develop sudden numbness, weakness or paralysis in your face, arm or leg, especially on one side of your body. Try to raise both your arms over your head at the same time. If one arm begins to fall, you may be having a stroke. Similarly, one side of your mouth may droop when you try to smile.
- **Trouble with seeing in one or both eyes.** You may suddenly have blurred or blackened vision in one or both eyes, or you may see double.
- **Headache.** A sudden, severe headache, which may be accompanied by vomiting, dizziness or altered consciousness, may indicate you're having a stroke.
- **Trouble with walking.** You may stumble or experience sudden dizziness, loss of balance or loss of coordination.

**When to see a doctor**


**Seek immediate medical attention** if you notice any signs or symptoms of a stroke, even if they seem to fluctuate or disappear.

Think "FAST" and do the following:


- **Face.** Ask the person to smile. Does one side of the face droop?
- **Arms.** Ask the person to raise both arms. Does one arm drift downward? Or is one arm unable to raise up?
- **Speech.** Ask the person to repeat a simple phrase. Is his or her speech slurred or strange?
- **Time.** If you observe any of these signs, call 911 immediately.

Call 911 or your local emergency number right away. Don't wait to see if symptoms go away. Every minute counts. The longer a stroke goes untreated, the greater the potential for brain damage and disability.

If you're with someone you suspect is having a stroke, watch the person carefully while waiting for emergency assistance.



**TRANSLATION**



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## NATIONAL PUBLIC CAMPAIGNS METHODIST HOSPITAL - DALLAS



**Stroke Animation**

**Stroke Patient Education Animation**

Watch the patient education animation below to learn more about types of stroke, stroke risk factors, stroke symptoms and stroke treatment.

**F.A.S.T. Stroke Warning Signs**

**Stroke Warning Signs and Symptoms**

All-star stroke care at Methodist Health System

Methodist Dallas, Methodist Chariton, Methodist Mansfield, and Methodist Richardson medical centers are proud to announce being designated **Advanced Primary Stroke Centers** by the Joint Commission and the American Stroke Association.

The designation means we're optimally prepared to provide the highest level of quality health care to stroke patients — a game changer, and another reason care is shining at Methodist Health System.

**What is stroke?**

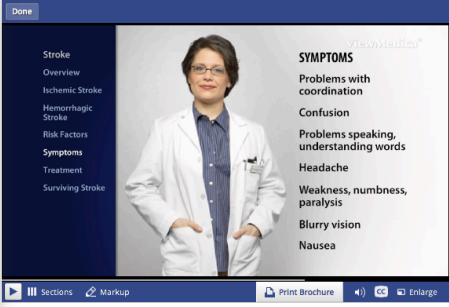
Stroke is an emergency. Do you know stroke warning signs. Think F.A.S.T. Think Methodist.

**FACE** – Does one side of the face droop?  
**ARMS** – Is one arm weak or numb?  
**SPEECH** – Is the speech slurred?  
**TIME** – Time is critical.

Call 911 or get to the hospital immediately

Additional symptoms of stroke include:

- Sudden numbness or weakness in the face, arm, or leg
- Sudden vision change
- Sudden speech problems
- Sudden confusion or trouble understanding simple statements
- Sudden problems with walking or balance
- Sudden severe headache that is different from past headaches.



**SYMPTOMS**


- Problems with coordination
- Confusion
- Problems speaking, understanding words
- Headache
- Weakness, numbness, paralysis
- Blurry vision
- Nausea



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## KNOWLEDGE ASSESSMENT AMERICAN STROKE ASSOCIATION



**WEB-BASED QUIZ**

**FOUR QUESTIONS**

Question 1 of 4

Why is it important to call 9-1-1 in a stroke emergency?

- A. The less brain tissue, quick treatment may save your life and reduce disability
- B. Receiving treatment within 3-4.5 hours can significantly reduce long-term brain damage
- C. EMS/Paramedics can notify the hospital and arrange for a patient to receive quick treatment once you arrive
- D. All of the above

Correct: **B**

**GIVES CORRECT ANSWER**

---

You completed 2 out of 4 correctly

Keep trying! Take the Spot A Stroke F.A.S.T. Quiz again!


Learn more about the stroke warning signs here.

Subscribe to our newsletter for stroke news, health events and more!

**RETAKE THIS QUIZ**

**OPTION TO RETAKE**

**NO. OF CORRECT ANSWERS**



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## KNOWLEDGE ASSESSMENT METHODIST HOSPITAL - DALLAS

### How Much Do You Know About Stroke?


Stroke is a leading cause of death and a leading cause of serious, long-term disability, according to the American Heart Association (AHA) and the American Stroke Association (ASA). The ASA reports that strokes kill about 137,000 people a year, accounting for about one of every 18 deaths. Find out more about stroke by taking this quiz, based on information from the AHA and the National Institute of Neurological Disorders and Stroke (NINDS).

- What is another name for a stroke?
  - A. Heart attack
  - B. Brain attack
  - C. Myocardial infarction
  - D. None of the above
- An ischemic stroke occurs when a blood clot blocks a blood vessel to the brain. What percentage of strokes is of this type?
  - A. 20%
  - B. 45%
  - C. 65%
  - D. More than 80%
- Which of these is a symptom of stroke?
  - A. Sudden confusion
  - B. Sudden weakness in an arm or leg
  - C. Sudden severe headache with no cause
  - D. Sudden trouble seeing
  - E. All of the above
- Which of these lifestyle factors plays the biggest role in increasing the risk for stroke in younger adults?
  - A. Overweight
  - B. Little or no exercise
  - C. High blood pressure
  - D. Smoking

**WEB-BASED QUIZ**

- Having untreated high blood pressure, or hypertension, increases an older adult's risk for stroke by how much?
  - A. Two times
  - B. Three times
  - C. Four times
  - D. None of the above
- If a person has an ischemic stroke, how quickly should the person be treated to minimize long-term problems?
  - A. Within 30 minutes
  - B. Within 1 hour
  - C. Within 2 hours
  - D. Within 3 hours
- Which type of medication is given to help prevent a stroke?
  - A. Medication to prevent clots from forming
  - B. Blood-thinner medication
  - C. Clot-busting medication
  - D. A and B
  - E. All of the above
- Which of these may be a long-term problem associated with stroke?
  - A. Paralysis or weakness on one side of the body
  - B. Problems with thinking or memory
  - C. Problems with language
  - D. Pain in the hands and feet
  - E. All of the above

**SUBMIT**



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## KNOWLEDGE ASSESSMENT METHODIST HOSPITAL - DALLAS

**EIGHT QUESTIONS**

**How Much Do You Know About Stroke?**

Stroke is a leading cause of death and a leading cause of serious, long-term disability, according to the American Heart Association (AHA) and the American Stroke Association (ASA). The AHA reports that strokes kill about 137,000 people a year, accounting for about one of every 18 deaths. Find out more about stroke by taking this quiz, based on information from the AHA and the National Institute of Neurological Disorders and Stroke (NINDS).

**1. What is another name for a stroke?**

You answered B. Brain attack.

The correct answer is B. Brain attack.

A stroke occurs when the blood flow to the brain is interrupted (ischemic stroke) or a blood vessel in the brain bursts (hemorrhagic stroke). In either of these cases, brain cells begin to die because blood can't reach them and they can't get the oxygen and nutrients they need to function.

**2. An ischemic stroke occurs when a blood clot blocks a blood vessel to the brain. What percentage of strokes is of this type?**

You answered D. More than 80%.

The correct answer is D. More than 80%.

The other type of stroke is hemorrhagic and is caused when a blood vessel in the brain bursts and causes bleeding in the brain. About 15% of strokes are of this type, according to the AHA.

**3. Which of these is a symptom of a stroke?**

You answered B. Sudden weakness in an arm or leg.

The correct answer is E. All of the above.

The symptoms of stroke occur suddenly and quickly. The numbness or weakness can also occur in the face; the weakness or numbness also may occur on one side of the body. A person having a stroke may suddenly have difficulty speaking or understanding what someone is saying to them. The person may suddenly have trouble walking and lose his or her balance, sudden dizziness is another symptom. If you are with someone who is experiencing any of these symptoms, seek medical help immediately.

**4. Which of these lifestyle factors plays the biggest role in increasing the risk for stroke in younger adults?**

You answered A. Overweight.

The correct answer is D. Smoking.

Without counting any other risk factors, smoking almost doubles a younger adult's risk for ischemic stroke.

**6. If a person has an ischemic stroke, how quickly should the person be treated to minimize long-term problems?**

You answered D. Within 3 hours.

The correct answer is D. Within 3 hours.

Ischemic strokes are treated with a medication called tPA, which dissolves blood clots blocking blood flow to the brain, according to the NINDS. To work effectively, the drug must be given within 3 hours of the onset of stroke symptoms. Because a person suspected of having a stroke must be evaluated first by hospital staff, the NINDS says that the person must arrive at the hospital within an hour of the onset of symptoms. According to the American Stroke Association, only about 3% to 5% of people who suffer a stroke reach the hospital in time for this treatment.

**7. Which type of medication is given to help prevent a stroke?**

You answered D. A and B.

The correct answer is D. A and B.

Clot-preventing (antiplatelet) and blood-thinner (anticoagulant) medications are given to help prevent a stroke. Antiplatelet medication prevents the blood from clotting by affecting how the platelets do their job, according to the NINDS. Reducing the risk for blood clots cuts the risk for ischemic stroke. Aspirin is the most commonly used antiplatelet medication, although others such as clopidogrel and ticagrelor are available. Anticoagulants also reduce the ability of the blood to clot. Warfarin and heparin are two common anticoagulant medications. Clot-busting (thrombolytic) medication is given to a person having an ischemic stroke, or within three hours of the onset of stroke symptoms, to help prevent damage.

**8. Which of these may be a long-term problem associated with stroke?**

You answered E. All of the above.

The correct answer is E. All of the above.

Most stroke survivors need help with physical and occupational therapy. A person who has had a stroke may need help with how to walk, sit, stand, or lie down, according to the NINDS. The person may also need help with eating, drinking, dressing, bathing, cooking, and using the toilet.

Your score was: 75%

Next

**GIVES CORRECT ANSWER**

**75%**

**LOOPS BACK TO RETAKE THE QUIZ**

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## OUR OWN WEB RESEARCH

**HOW FAR DOES THE STROKE EDUCATION REACH?**

SOURCE	TYPE	RESOURCE TITLE	LANGUAGES OFFERED	DEMOGRAPHIC TARGET
CDC - Center for Disease Control	Federal Government	Division for Heart Disease and Stroke Prevention	English	General; Women; Men; Native American; Alaska Native
National Institute of Neurological Disorders and Stroke	Federal Government	NINDS Stroke Information Page	English; Spanish	General; African Americans
NIH National Institute on Aging	Federal Government	Stroke is an Emergency, Call 911	English; Spanish	General; Elderly
ASA - American Stroke Association	Non-Profit	Spot a Stroke	English; Spanish; Chinese; Vietnamese	General; Women
NSA - National Stroke Association	Non-Profit	Am I Having a Stroke?	English; Spanish	General; Women; African Americans; Hispanic Americans; American Indians; Alaska Natives; Asian Americans; Native Hawaiians; Pacific Islanders
Methodist Health System (Dallas, TX)	Non-Profit	F.A.S.T. Stroke Warning Signs	English	General
Mayo Clinic (MN, AZ, FL)	Non-Profit	Diseases and Conditions: Stroke, Symptoms, Risk Factors	English; Spanish; Portuguese; Arabic; Mandarin	General

**Translated versions difficult to find**

**High risk populations not targeted consistently**

In collaboration with

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## OUR OWN WEB RESEARCH

### HOW ARE WARNING SIGNS PRESENTED?

Learner engagement feature often missing

SOURCE	TEXT (Y/N)	GRAPHICS (Y/N)	PHOTOS (Y/N)	VIDEO (Y/N)	INTERACTIVE (Y/N)
CDC - Center for Disease Control	Y	Y	Y	N	N
National Institute of Neurological Disorders and Stroke	Y	Y	Y	Y	N
NIH National Institute on Aging	Y	Y	Y	Y	N
ASA - American Stroke Association	Y	Y	Y	Y	Y
NSA - National Stroke Association	Y	Y	Y	Y	N
Methodist Health System (Dallas, TX)	Y	Y	Y	Y	Y
Mayo Clinic (MN, AZ, FL)	Y	Y	Y	Y	N

### WHAT CONTENT IS PRESENTED AND HOW IS IT DESIGNED?

Reading level too high

SOURCE	READING LEVEL	LEARNING OBJECTIVES	ASSESSMENT	S&S FAST	S&S All 5	CALL 911	ADDED SAFETY INSTRUCTION	RISK FACTORS	RISK STRATEGIES
CDC - Center for Disease Control	7.6	N	N	Y	Y	Y	N	Y	Y
National Institute of Neurological Disorders and Stroke	11	N	N	N	Y	Y	N	Y	Y
NIH National Institute on Aging	7	N	N	N	Y	Y	N	Y	Y
ASA - American Stroke Association	7	N	Y	Y	Y	Y	N	Y	Y
NSA - National Stroke Association	6.3	N	Y	Y	Y	Y	N	Y	Y
Methodist Health System (Dallas, TX)	8.9	N	Y	Y	Y	Y	N	Y	Y
Mayo Clinic (MN, AZ, FL)	8.8	N	N	Y	Y	Y	N	N	N

Learning objectives and assessments missing

Preventing harm missing

In collaboration with

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## PRINCIPLES OF INSTRUCTION

WHAT WE KNOW

“The only source of knowledge is experience.”

ALBERT EINSTEIN, PHYSICIST

Learning is promoted when:

- Learners are engaged in solving real-world problems
- New knowledge is demonstrated to the learner
- Learners are assessed as part of the training
- New knowledge is applied by the learner
- New knowledge is integrated into the learner's world

\*Merrill, M. D. (2009). First Principles of Instruction. In C. M. Reigeluth & A. Carr (Eds.), Instructional Design Theories and Models: Building a Common Knowledge Base (Vol. III). New York: Routledge Publishers.

\*Glonek, K. L., & King, P. E. (2014). Listening to Narratives: An Experimental Examination of Storytelling in the Classroom. International Journal of Listening, 28(1), 32-46. doi:10.1080/10904018.2014.861302

\*Brusso, R. C., Wisner, R. A., Paddock, A., Hatfield, J. ICF (2014) International, Best Practices and Provisional Guidelines for Integrating Mobile, Virtual, and Videogame-Based Training and Assessments; www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA596660

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## DEMONSTRATIONS

### DELIVERING BAD NEWS




STROKE – FACIAL DROOP



STROKE WARNING SIGNS



Courtesy of 



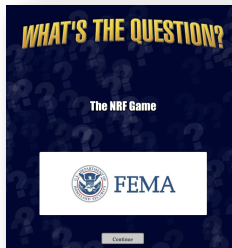
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## GAME-BASED LEARNING

### SortMania!



WHAT'S THE QUESTION?	Team 1	Team 2	Team 3
<b>The NRF Game</b>	0	0	0
Rates and Responsibilities	100	100	100
Liability	200	200	200
Financial Analysis	300	300	300
Accruals	400	400	400
Banking	500	500	500



### The Question

What is 45,000?



Courtesy of 



[https://modsim01.icfconsulting.com/PUBLIC/EPA\\_Sortmania/index.html](https://modsim01.icfconsulting.com/PUBLIC/EPA_Sortmania/index.html)

<https://modsim01.icfconsulting.com/PUBLIC/NRF/>

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## GAME-BASED LEARNING

SCENARIO – MAN ARRIVES HOME FROM WORK; WIFE NOTICES LEFT FACIAL DROOP AND SLURRED SPEECH. CALLS 911 AT 5:55 PM

	Pre-Hospital	Emergency Department	CAT Scan	Emergency Department										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #2e3192; color: white;">LKW</td><td style="background-color: #2e3192; color: white;">5:55</td></tr> <tr><td style="background-color: #2e3192; color: white;">ARRIVAL</td><td style="background-color: #2e3192; color: white;">6:35</td></tr> <tr><td style="background-color: #2e3192; color: white;">TARGET</td><td style="background-color: #2e3192; color: white;">7:35</td></tr> </table>	LKW	5:55	ARRIVAL	6:35	TARGET	7:35	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #2e3192; color: white;">6:15</td></tr> </table>	6:15	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #2e3192; color: white;">6:35</td></tr> </table>	6:35	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #2e3192; color: white;">6:55</td></tr> </table>	6:55	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #2e3192; color: white;">7:20</td></tr> </table>	7:20
LKW	5:55													
ARRIVAL	6:35													
TARGET	7:35													
6:15														
6:35														
6:55														
7:20														
	EMS Calls In	Meet Patient at Door	CT Done	Incl/Excl Criteria										
		Neuro Assess	CT to Radiologist	Start IV										
		MD Assess		Get rt-PA Drug										
		Activate Stroke Alert		Mix rt-PA Drug										
		Register		Infuse Drug										
		Pt Med History		7:45										
		Glucose												
		Patient to CT												

**DTN TIME 70 MIN.**

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## GAME-BASED LEARNING

SCENARIO – MAN ARRIVES HOME FROM WORK; WIFE NOTICES LEFT FACIAL DROOP AND SLURRED SPEECH. CALLS 911 AT 5:55 PM

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LKW	5:55													
ARRIVAL	6:35													
TARGET	7:05													
6:15														
6:35														
6:40														
7:00														
	EMS Calls In	Meet Patient at Door	MD Assess	Incl/Excl Criteria										
	Activate Stroke Alert	Neuro Assess	Pt Med History	Infuse Drug										
	Glucose	Patient to CT	Register	7:05										
		Get rt-PA Drug	Start IV											
		Mix rt-PA Drug	CT Done											
			CT to Radiologist											

**DTN TIME 30 MIN.**

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## SCENARIO – CARLOS AND MARIA



The "story" starts with the acute event.



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## SCENARIO - CARLOS AND MARIA



Maria noticed that Carlos was acting strange.

In the vignette, Maria is asked what she would do.

The correct answer was reinforced:

She should call 911 immediately.



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## SCENARIO - CARLOS AND MARIA



Maria called 911 immediately and an ambulance arrived soon after her call.



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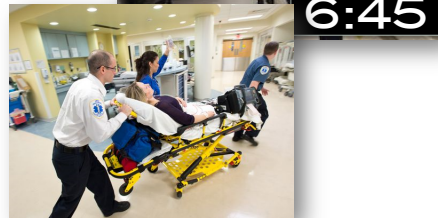
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## SCENARIO - CARLOS AND MARIA



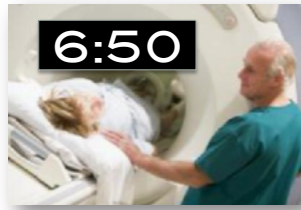
A flurry of activity ensues.



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## SCENARIO - CARLOS AND MARIA



The "story" ends with Carlos and Maria back home.



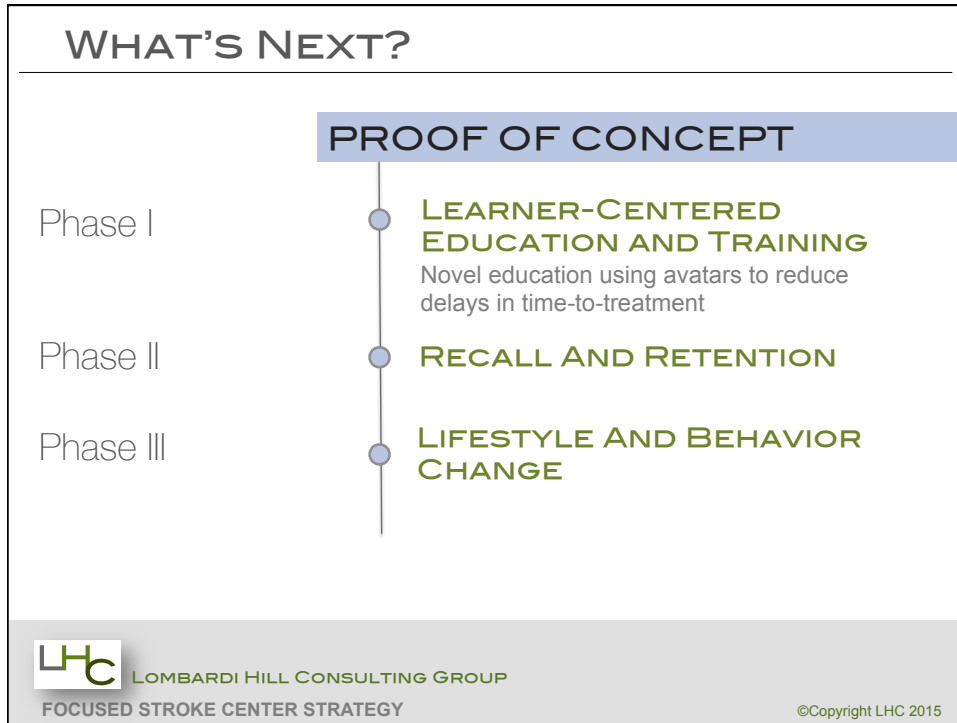
Courtesy of 


## LEARNER-CENTERED EDUCATION

### APPLYING WHAT WE KNOW

"Learning is more effective when it is an active rather than a passive process."


- People can typically remember stories vs. facts
- Increase retention by using relevance to draw the audience in emotionally
- Give opportunities for the learner to engage/interact and provide feedback
- If desired outcome is awareness – discuss and review information
- If desired outcome is behavior change – give concrete strategies to succeed AND a reason for the learner to change



Thanks to ICF International 

DEBBIE HILL  
PRINCIPAL, LHC GROUP

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