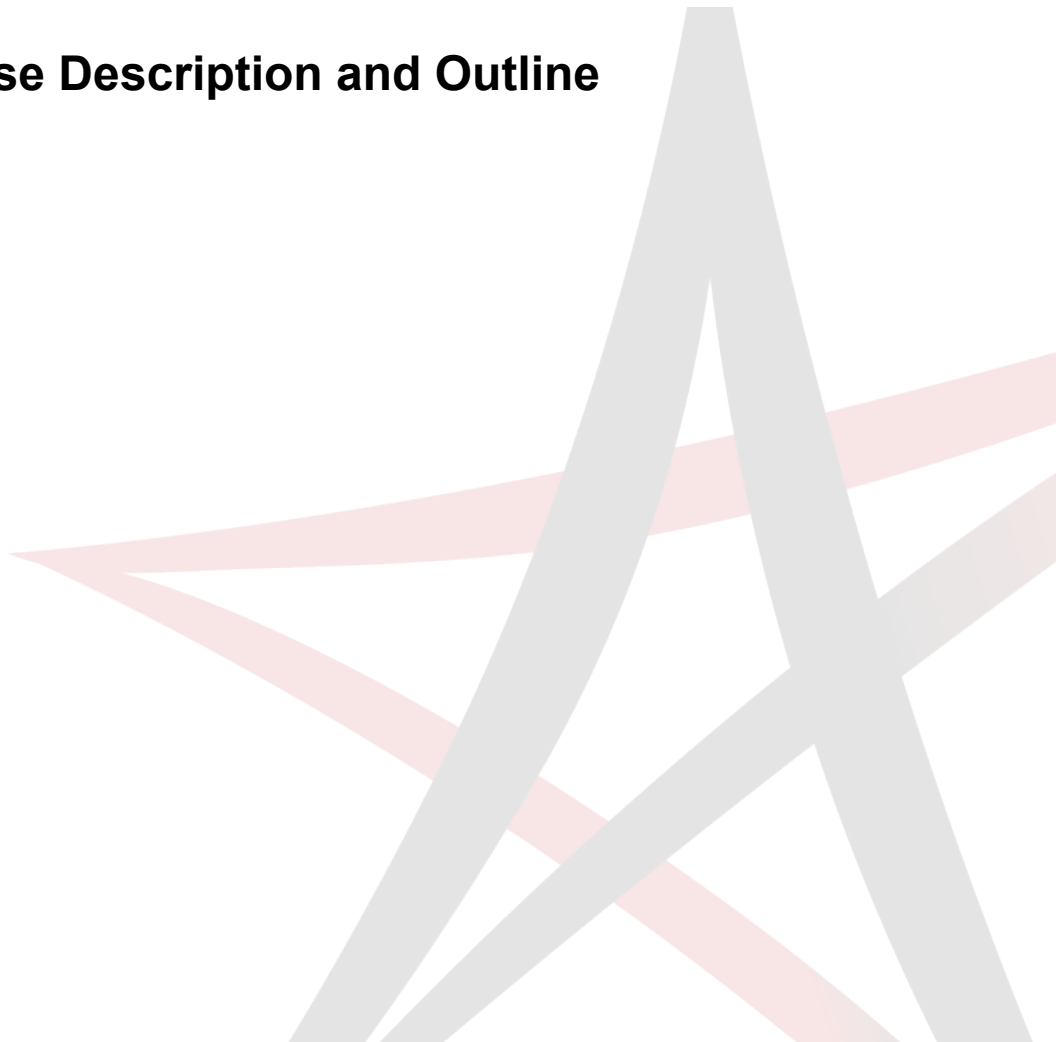


The logo for Hemispheres 2.0 features a stylized black star with a red outline and a black arc above it. To the right of the star, the text "Hemispheres 2.0" is written in a bold, black, sans-serif font, with a registered trademark symbol (®) to its upper right. Below this, the text "STROKE COMPETENCY SERIES" is written in a bold, red, sans-serif font.

Hemispheres 2.0

STROKE COMPETENCY SERIES

Course Description and Outline



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Level I – Brain Anatomy and Physiology

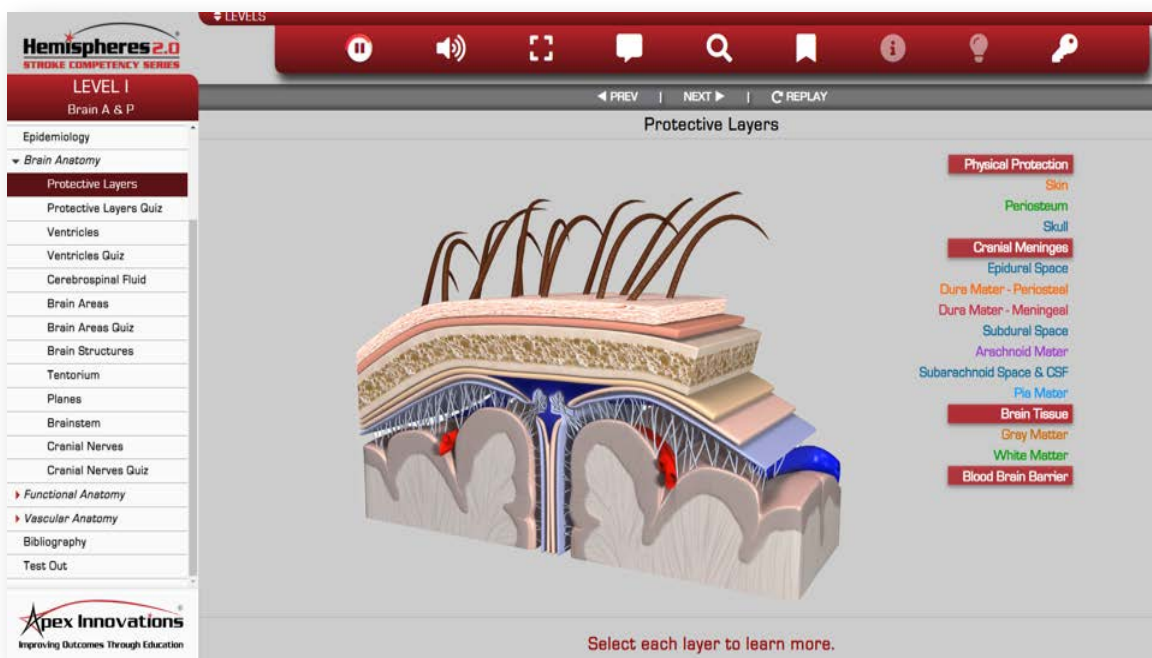
Course Description

Level I of Hemispheres 2.0® provides a foundational look at basic brain anatomy, its supporting structures, and brain physiology. This educational experience presents anatomy, cranial nerves, and cerebral circulation using 3D interactive graphics to enhance your learning experience. Learn brain areas, sensory-motor function and blood vessels, which supply these areas. Test your knowledge throughout the course with quizzes to reinforce learning.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Recognize anatomical structures of the brain.
2. Explain the functions of each major area of the brain.
3. Describe brain physiology, including motor and sensory functions.
4. List the bodily functions controlled by specific cranial nerves.
5. Identify structures of the cerebrovascular circulation.
6. Correlate cerebral vasculature with anatomical structures of the brain.



Level II – Stroke Pathophysiology

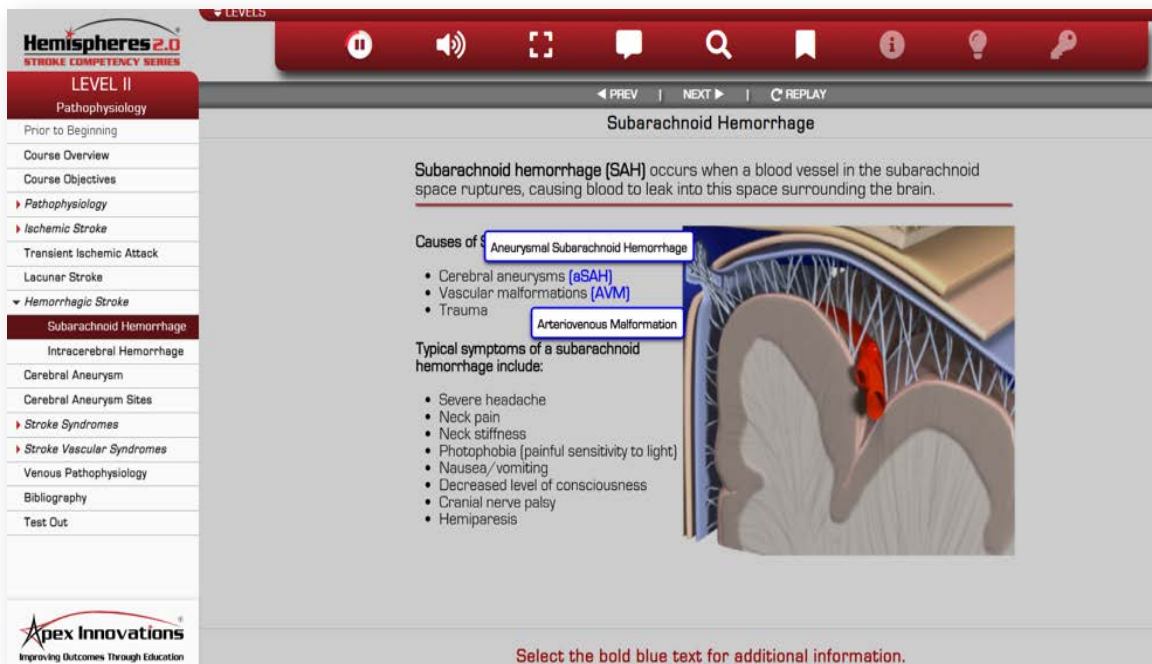
Course Description

Level II of Hemispheres 2.0® stroke pathophysiology, presents cerebral circulation with an emphasis on ischemic and hemorrhagic stroke. Thrombotic, embolic, and lacunar strokes are graphically depicted for review, as well as subarachnoid and intracerebral hemorrhage. Learn about cerebral aneurysms, typical stroke locations, stroke syndromes, and associated deficits. Interactive functionality supports all learning styles and requires active participation by the learner.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Describe the pathophysiology of ischemic and hemorrhagic stroke.
2. Correlate cerebral vasculature with area of brain affected by stroke.
3. Recall major stroke syndromes and associated deficits.
4. Identify stroke location based on symptomatology.
5. Describe types of hemorrhagic stroke and common locations.
6. Explain the etiology of ischemic and hemorrhagic stroke.



Hemispheres 2.0
STROKE COMPETENCY SERIES

LEVEL II
Pathophysiology

Prior to Beginning
Course Overview
Course Objectives
▶ Pathophysiology
▶ Ischemic Stroke
Transient Ischemic Attack
Lacunar Stroke
▼ Hemorrhagic Stroke
 Subarachnoid Hemorrhage
 Intracerebral Hemorrhage
Cerebral Aneurysm
Cerebral Aneurysm Sites
▶ Stroke Syndromes
▶ Stroke Vascular Syndromes
Venous Pathophysiology
Bibliography
Test Out

Subarachnoid Hemorrhage

Subarachnoid hemorrhage (SAH) occurs when a blood vessel in the subarachnoid space ruptures, causing blood to leak into this space surrounding the brain.

Causes of **Aneurysmal Subarachnoid Hemorrhage**

- Cerebral aneurysms [**aSAH**]
- Vascular malformations [**AVM**]
- Trauma

Arteriovenous Malformation

Typical symptoms of a subarachnoid hemorrhage include:

- Severe headache
- Neck pain
- Neck stiffness
- Photophobia (painful sensitivity to light)
- Nausea/vomiting
- Decreased level of consciousness
- Cranial nerve palsy
- Hemiparesis

Select the bold blue text for additional information.

Level III – Emergency Response to Stroke

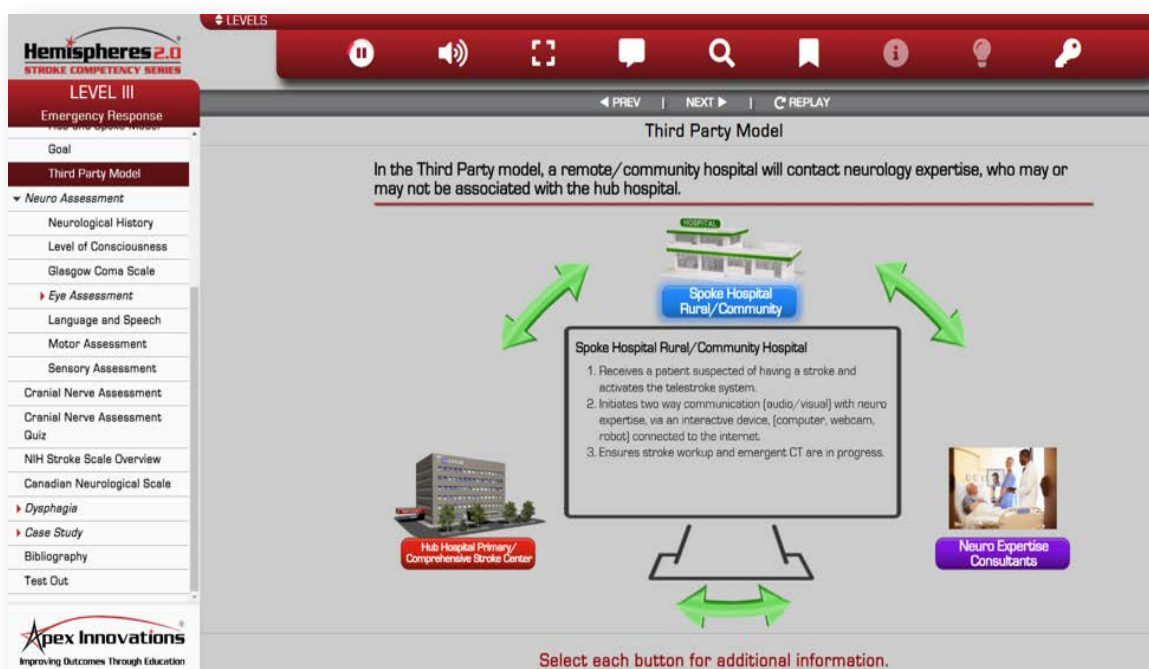
Course Description

Level III of Hemispheres 2.0® addresses the stroke chain of survival from “time last seen normal” through to EMS, emergency department, and disposition. Guideline based, time-sensitive best practices provide current and crucial aspects of emergent stroke care in a comprehensive and logical manner. Learn neurological assessment, stroke treatment modalities, and complications. Interactive graphics encourage exploration and enhance the learning experience. Imaging basics related to CT and MRI, endovascular interventions and possible complications are presented. Periodic quizzes throughout the lesson reinforce presented information.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Explain the components of the stroke chain of survival, including the time sensitive goals and critical actions required for the care of the acute stroke patient.
2. Distinguish typical and atypical signs and symptoms of an acute stroke and conditions that mimic stroke.
3. Summarize pre-hospital assessments and interventions for the acute stroke patients.
4. Identify assessments and interventions for the acute stroke patient in the ED.
5. Describe the comprehensive neurological examinations for patients with an altered level of consciousness.
6. Explain the diagnostic tests utilized in the diagnosis of acute stroke.



Level IV – In-Hospital Ischemic Stroke

Course Description

Level IV of Hemispheres 2.0® admission of the ischemic stroke patient, begins with a multidisciplinary team approach to achieve specific goals, namely to avoid complications, restore function, and improve outcomes. Stroke best practices for needed assessments, diagnostics, interventions, education, nutrition, activity, and consults are presented. These are chronologically organized into therapeutic, personal, psychosocial, and safety needs. In addition, learn to correctly perform a dysphagia screen and modified Rankin scale. Care notes, teaching tips and other helpful patient-caretaker education are incorporated into the course.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Recall key elements of the plan of care in the post ischemic stroke patient.
2. Explain diagnostic tests utilized in the inpatient evaluation of acute ischemic stroke.
3. Describe guideline-based interventions used in the inpatient management of acute ischemic stroke.
4. Identify potential complications and best practice interventions in the inpatient care of acute ischemic stroke.
5. Summarize the role of the multidisciplinary team in the care of the ischemic stroke patient.

The screenshot displays the Hemispheres 2.0 educational interface. At the top, there is a navigation bar with icons for play, volume, zoom, search, and other controls. Below this, the course title 'LEVEL IV Ischemic Stroke' is visible. A sidebar on the left lists various topics, with 'Interventions' currently selected. The main content area is titled 'Interventions' and features a central 'Therapeutic' button. To the right, there is a 'Care Note' icon and a 'Warning Tip' icon. The main content area contains a list of interventions ordered to:

- Treat the pathophysiological process
- Save as much brain as possible
- Avoid secondary complications
- Prevent future recurrences

Below this list, there are two callout boxes. The first is titled 'Indwelling urinary catheter' and contains the following text:

- If possible, the placement of indwelling bladder catheters **should be avoided** due to the increased risk of UTI.
- If an indwelling catheter was required during the acute phase, discontinue as soon as stable.
- External catheters and the use of incontinence pants may lessen risk of infection.
- Intermittent catheterization every 4-6 hours (or based on post voiding residuals) may be needed.

The second callout box is titled 'Safety' and contains the following text:

Interventions per protocol or as ordered:

- Post tPA bleeding prevention
- Limit use of **indwelling urinary catheter**
- Exercise to prevent venous thromboembolism (VTE)
- **Dysphagia screen** (aspiration)
- Gag reflex, cough on demand
- Seizure precautions
- **Modified Rankin Scale** - ADL ability
- Fall precautions
- **Smoking cessation** (if smoker)
- Rehab/disposition plan
- Home environment for safety

At the bottom of the interface, there is a red text prompt: 'Select each button and bold blue text to learn more.'

Level V – In-Hospital Hemorrhagic Stroke

Course Description

Level V of Hemispheres 2.0® presents hemorrhagic stroke, specifically, subarachnoid and intracerebral hemorrhage. Clinical grading scales provide valuable information and are used as outcome predictors. As outcomes are affected by etiology, interventions received, and any subsequent complications of hemorrhage, we will review these in relation to best practice guidelines. We look at management of increased intracranial pressure, blood pressure, and brain supportive therapies. Common complications such as hydrocephalus, vasospasm, and rebleeding are also addressed. Throughout the course, pharmacological, surgical, and endovascular interventions are graphically and interactivity presented to enhance the learning experience.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Identify and describe the clinical grading scales used in the evaluation of patients with subarachnoid and intracerebral hemorrhage.
2. Describe the management and rationales in the care of patients with subarachnoid hemorrhage.
3. Describe the management and rationales in the care of patients with intracerebral hemorrhage.
4. Explain key measures and rationales for the prevention of complications in patients with hemorrhagic strokes.
5. Summarize the treatment of complications in patients with subarachnoid and intracerebral hemorrhage.

The screenshot displays the Hemispheres 2.0 educational platform. The interface includes a navigation menu on the left with categories like 'Subarachnoid Hemorrhage', 'Clinical Grading Scales', and 'SAH Interventions'. The main content area is titled 'SAH Interventions' and contains text explaining that patients with aneurysmal subarachnoid hemorrhage should have the aneurysm secured urgently by endovascular coiling or microsurgical clipping. It also discusses the decision to clip or coil an aneurysm and lists advantages and disadvantages of early clipping. Two red buttons, 'Surgical Clip' and 'Coiling', are visible. An anatomical illustration of a brain with a clip is shown on the right. The footer includes the Apex Innovations logo and the text 'Select each button for more information.'

Level VI – Stroke Prevention

Course Description

Level VI of Heart Failure – Comprehensive 2.0™ presents guidance for the healthcare team on communication, planning, and coordination for a successful transition of the HF inpatient to the next appropriate level of care. Strategies and current quality and performance measures are provided for the heart failure program team to achieve program excellence. Visual and interactive patient and family HF education, self-care and caregiving management, healthy lifestyle goals, and follow-up information are discussed.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Differentiate modifiable and non-modifiable risk factors for stroke.
2. Explain risk management strategies for reduction of primary stroke risk.
3. Summarize modifiable risk management strategies for the reduction of secondary or recurrent stroke.
4. Identify recommended drug therapies for modifiable risk factors that can reduce the risk of recurrent stroke.
5. List pathophysiological conditions which can lead to stroke.

Hemispheres 2.0
STROKE COMPETENCY SERIES

LEVEL VI
Stroke Prevention

Prior to Beginning
Course Overview
Course Objectives
Non-Modifiable Factors
Modifiable Risk Factors
Primary/Secondary Prevention
▼ Modifiable Factors - Lifestyle
Alcohol Abuse
Drug Abuse
Oral Contraceptives
Physical Inactivity
Poor Nutrition / Obesity
Smoking
► Modifiable Factors - Pathology
Bibliography
Test Out

Smoking

STROKE RISK

Smoking and exposure to secondhand smoke are known, major risk factors for stroke.

- Smokers have more than twice the risk of stroke than nonsmokers, and the risk increases with the number of cigarettes smoked per day.
- Stroke risk is higher for women smokers than men.
- Stroke risk decreases significantly after two years of smoking cessation and is **at the level of nonsmokers after five years.**

Cigarette smoking increases:

- **Atherosclerosis risk by reducing beneficial HDL cholesterol**
- Arterial wall stiffness and decreases vessel distension and compliance
- Thrombus formation risk due to increased fibrinogen and platelet aggregation

Primary
Avoid Development

Secondary
Avoid Progression or Repeat Stroke

Recommendations:
Smoking and tobacco cessation for all current smokers and family members.
Healthcare team role:

- Inquire about your patient's history of smoking, tobacco use, and exposure to secondhand smoke
- Advise every patient who has smoked in the past year to quit smoking and abstain from tobacco use
- For hospitalized stroke patients

Apex Innovations
Improving Outcomes Through Education

Level VII – Excellence in Stroke Care

Course Description

Level VII of Hemispheres 2.0® presents current best practices and key strategies to support those wishing to provide excellence in stroke care. Stroke center designations, whether acute stroke ready, primary or comprehensive, provide advantages to the organization and the communities they serve. Learn the specific infrastructure, personnel, and quality initiatives which are required to support the certification process. Meet the pre-hospital, emergency department and inpatient stroke multidisciplinary team. Review reportable stroke core measures and their supporting rationale and recommendations. A helpful comprehensive list of stroke resources is linked directly from the course. This interactive program utilizes active participation to make learning fun and complements the learning experience.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Explain key strategies for pre-hospital care of acute stroke patients.
2. Identify best practice strategies recommended for ED personnel in the care of the acute stroke patient.
3. Summarize the roles of the multidisciplinary stroke team for different stroke center designations.
4. Define stroke core measures which must be collected and reported for acute in-patient stroke.
5. Describe useful strategies associated with certification of stroke centers.
6. List the CMS quality of care initiatives that impact hospital reporting and reimbursement.

Hemispheres 2.0
STROKE COMPETENCY SERIES

LEVEL VII
Excellence in Stroke Care

Prior to Beginning
Course Overview
Course Objectives
Advantages of Certification
What is a Stroke Center?
▶ Stroke Centers
Stroke Program Team
Quality Incentive Overview
Stroke Best Practice
EMS Key Strategies
EMS Stroke Metrics
ED Key Strategies
ED Stroke Metrics
Inpatient Stroke Measures
▶ Comprehensive Center Metrics
▶ Stroke Resources
Bibliography
Test Out

LEVELS

EMERGENCY

ED Stroke Metrics

Emergency Department stroke-specific time goals and metrics facilitate the care of the acute stroke patient. Data is collected and compared to these benchmarks in order to:

- validate compliance
- review and change practice
- improve outcomes

Door to physician evaluation
A candidate for acute intervention should have initial physician evaluation within **10 minutes** of arrival at the ED.

Physician Evaluation
Neurologic Expertise
Scan Initiated
Scan Interpretation
Thrombolytic
Symptom Onset
Neurosurgical Expertise
Monitored Bed

Select each button for additional information.

Apex Innovations
Improving Outcomes Through Education

Level VIII – NIHSS

Course Description

The **NIH Stroke Scale Training** is a 11-item neurological examination used to quantify the effects of acute cerebral ischemia on levels of consciousness, vision, motor function (facial and extremities), cerebellar function, sensation, language, and extinction or inattention. This course consists of the NIH Stroke Scale Training and Certification.

Course Objectives

At the conclusion of this educational activity, the participant should be able to:

1. Explain the significance of the NIH Stroke Scale and the importance of proper assessment of the stroke patient.
2. Describe the measurement scale for quantifying neurological deficits in stroke patients.
3. Consistently recognize and appropriately assess neurological deficits in stroke patients.

The image shows a screenshot of a video player interface for the "NIHSS Introduction" course. On the left is a navigation menu with the following items: "NIH Stroke Scale", "Prior to Beginning", "Course Overview", "Course Overview & Objectives", "NIHSS Information", "NIHSS Introduction" (highlighted in red), "Tips for Scoring", "Significance - Stroke Scale", "Relevance to Medical Specialties", "Instruction", "Demonstration Patient A", "Demonstration Patient B", "NIHSS Certification", "Credits", and "Bibliography". The main video area displays a man in a suit and glasses, identified as "JOHN R. MARLER, M.D., Associate Director for Clinical Trials, National Institute of Neurological Disorders and Stroke". Below the video are controls for "Switch Video Player: Vimeo HTML5" and a note: "Audio capability is required on your computer to hear audio instructions and patient demonstrations on how to administer and score the NIH Stroke Scale." At the bottom, a disclaimer reads: "No modifications or edits may be made to the NIH Stroke Scale training videos by anyone other than the National Institute of Neurological Disorders and Stroke (NINDS)."

Hemispheres 2.0

Continuing Education Information

	Levels	Testing Min.	CNE	CME	CPE	CEH	FL CEH	CCH	CE
I	Brain A&P	60	5.00	5.00	2.00	4.00	4.50	5.00	4.00
II	Stroke Patho.	60	5.00	5.00	2.00	4.00	4.50	5.00	3.50
III	Emergency Response to Stroke	60	6.50	6.50	3.50	5.50	6.00	6.50	4.50
IV	In-Hospital Ischemic Stroke	60	4.50	4.50	2.50	4.00	4.00	4.50	2.00
V	In-Hospital Hemorrhagic Stroke	45	4.00	4.00	2.00	3.50	3.50	4.00	3.00
VI	Stroke Prevention	45	4.00	4.00	2.00	3.25	3.50	4.00	2.00
VII	Excellence in Stroke Care	45	4.00	4.00	2.00	3.75	3.50	4.00	2.50
VIII	NIH Stroke Scale	Untimed	3.00	3.00	3.00	--	3.00	3.00	3.00
	TOTAL	375	36.00	36.00	19.00	28.00	32.50	36.00	24.50

JA. In support of improving patient care, Apex Innovations is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

36 CNE. Apex Innovations designates this enduring material for 36 ANCC contact hours for nurses.

36 CME. Apex Innovations designates this enduring material activity for a maximum of 36 AMA PRA Category 1 Credits™. Physicians should claim only credit commensurate with the extent of their participation in the activity.

19 CPE. Apex Innovations designates this knowledge-based enduring material for 19 ACPE contact hours for pharmacists.

28 CEH. This CE activity is accredited for 28 CEH by Apex Innovations, an organization accredited by the Commission on Accreditation for Pre-Hospital Continuing Education (CAPCE).

32.5 FLCEH. Apex Innovations has been approved by the Florida Emergency Medical Services as an educational provider for EMS and Paramedics continuing education hours and have course completion roster and tracking number available on the CE Broker website.

36 CCH. Apex Innovations is recognized by the Physical Therapy Board of California as an approved reviewer and provider of continuing competency courses for The State of California.

24.5 CE. Apex Innovations is recognized by the Ohio Physical Therapy Association as an approved CE sponsor for this activity.

24.5 CE. Apex Innovations has received CE course approval by the Pennsylvania State Board of Physical Therapy for this educational activity.