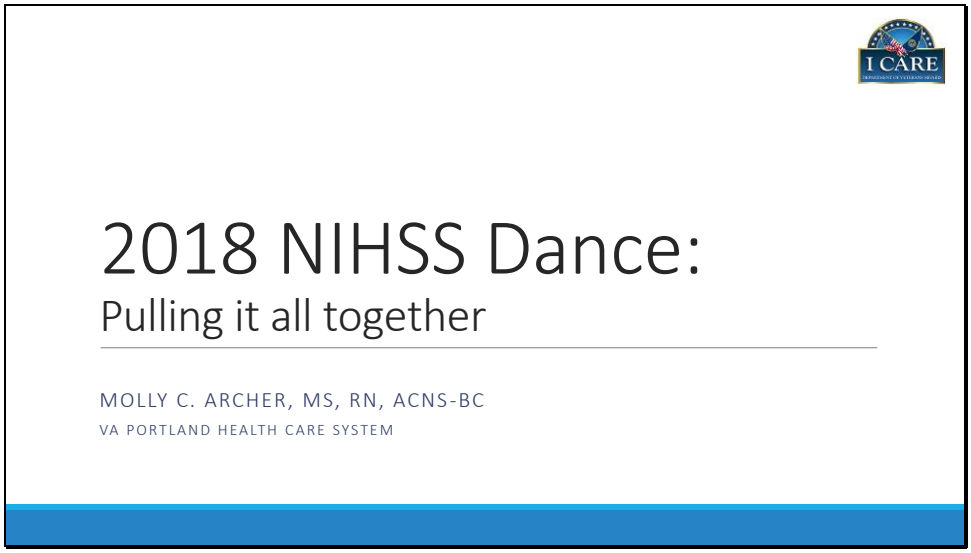
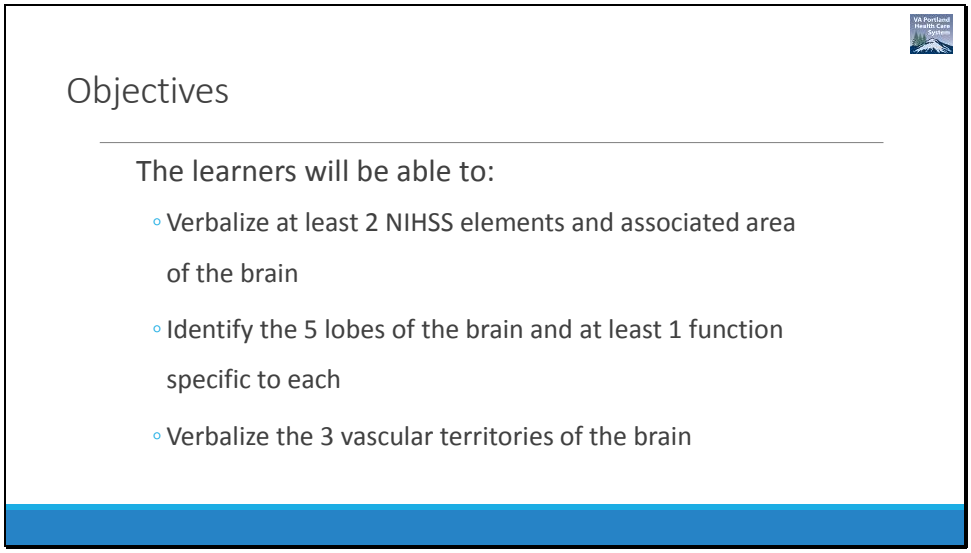
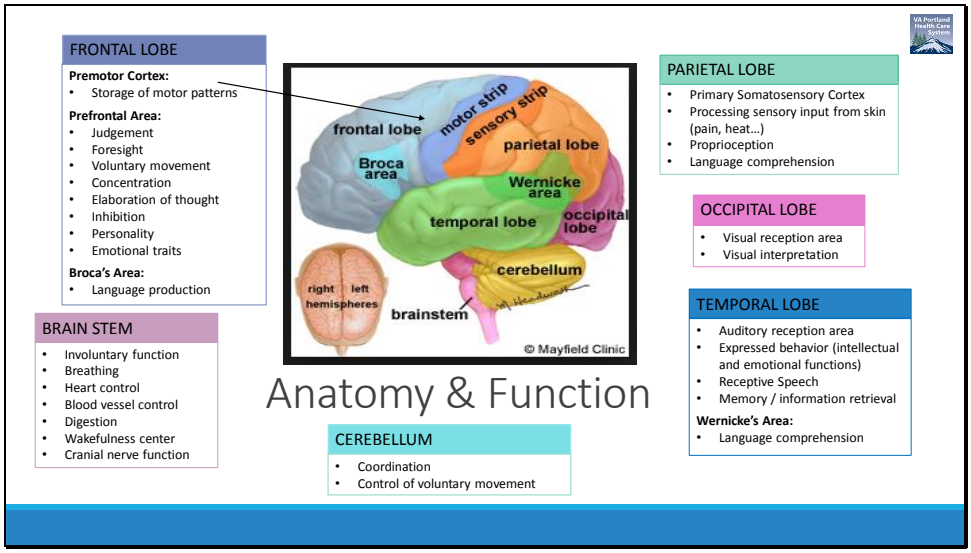
Slide 1


I CARE
2018 NIHSS Dance:
Pulling it all together
MOLLY C. ARCHER, MS, RN, ACNS-BC
VA PORTLAND HEALTH CARE SYSTEM

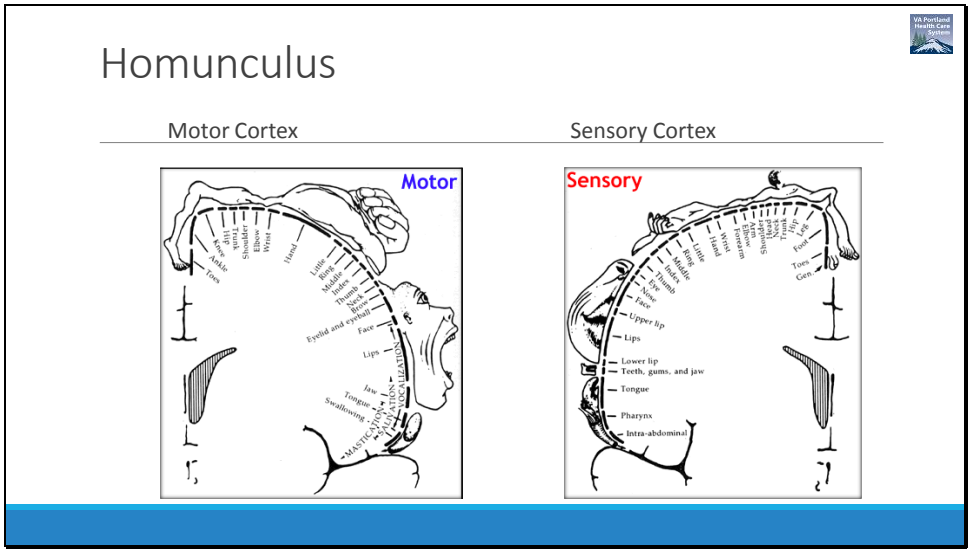
Slide 2


Objectives
The learners will be able to:
◦ Verbalize at least 2 NIHSS elements and associated area of the brain
◦ Identify the 5 lobes of the brain and at least 1 function specific to each
◦ Verbalize the 3 vascular territories of the brain

Slide 3

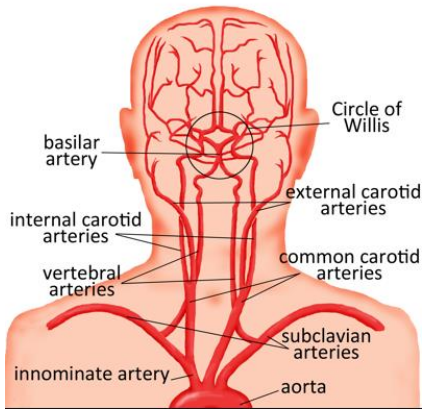

FRONTAL LOBE
Premotor Cortex:
• Storage of motor patterns
Prefrontal Area:
• Judgement
• Foresight
• Voluntary movement
• Concentration
• Elaboration of thought
• Inhibition
• Personality
• Emotional traits
Broca's Area:
• Language production
BRAIN STEM
• Involuntary function
• Breathing
• Heart control
• Blood vessel control
• Digestion
• Wakefulness center
• Cranial nerve function
frontal lobe
motor strip
sensory strip
parietal lobe
Broca area
Wernicke area
temporal lobe
occipital lobe
cerebellum
right hemisphere
left hemisphere
brainstem
© Mayfield Clinic
PARIETAL LOBE
• Primary Somatosensory Cortex
• Processing sensory input from skin (pain, heat…)
• Proprioception
• Language comprehension
OCCIPITAL LOBE
• Visual reception area
• Visual interpretation
TEMPORAL LOBE
• Auditory reception area
• Expressed behavior (intellectual and emotional functions)
• Receptive Speech
• Memory / information retrieval
Wernicke's Area:
• Language comprehension
Anatomy & Function
CEREBELLUM
• Coordination
• Control of voluntary movement

Slide 4


Homunculus
Motor Cortex
Sensory Cortex
Motor
Sensory
Toes
Ankle
Knee
Hip
Trunk
Shoulder
Elbow
Wrist
Hand
Little
Ring
Middle
Index
Thumb
Neck
Brow
Eyelid and eyeball
Face
Lips
Jaw
Tongue
Swallowing
MASTICATION
SALIVATION
VOCALIZATION
Upper lip
Lips
Lower lip
Teeth, gums, and jaw
Tongue
Pharynx
Intra-abdominal
Foot
Toes
Gen.

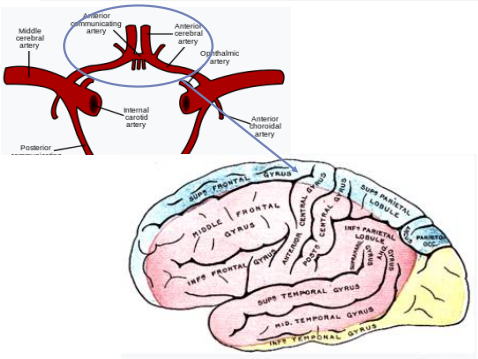
Slide 5

Cerebral Circulation
(Anterior aspect)



Slide 6

Anterior Cerebral Artery Territory



Carries 20% of blood flow to brain from internal carotid arteries

Accounts for ~7%

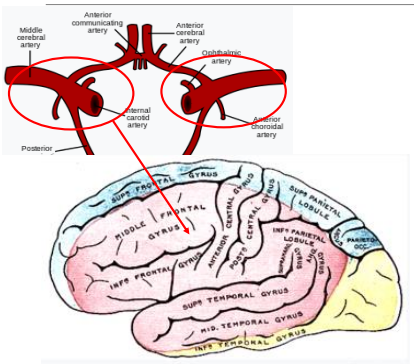
Supplies (ACA Syndrome):

- Frontal lobes, medial surface and the upper border
- Superior medial parietal lobes
- Front four–fifths of the corpus callosum
- Deep structures:
  - Anterior limb of the internal capsule
  - Part of the caudate nucleus
  - Anterior part of the globus palidus

Jichici, D. (2015). Medscape: Anterior circulation stroke 2015,

Slide 7

Middle Cerebral Artery Territory



Largest branch of Anterior Circulation

Carries 65% of blood flow to brain from common carotid arteries

Accounts for ~63%

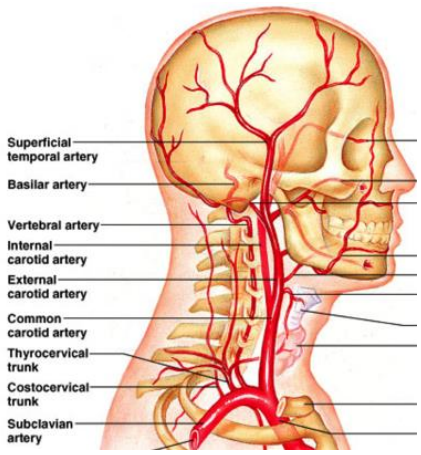
Supplies (MCA Syndrome):

- Lateral surface of the hemispheres; (except for the superior inch of the frontal **and parietal lobe,** and the inferior part of the temporal lobe
- Antero-inferior frontal lobe (Broca's area)
- Lateral temporal lobe (Wernicke's area)
- Basal ganglia and internal capsule

Jichici, D. (2015). Medscape: Anterior circulation stroke 2015,

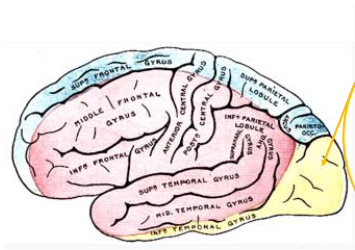
Slide 8

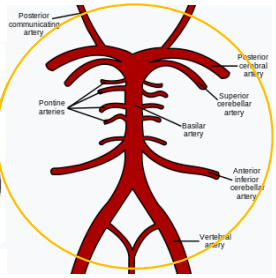
Cerebral Circulation
(Lateral View)



Slide 9

Posterior Cerebral Artery Territory





Carries 15% of blood flow to brain from vertebral arteries

Accounts for ~30%

Supplies (PCA Syndrome):

- Temporal lobes, inferior portion
- Occipital lobes
- Cerebellum
- Midbrain
- Brain stem

Jichici, D. (2015). Medscape: Anterior circulation stroke 2015,

Slide 10

BEFAST

BE FAST was developed by Intermountain Healthcare, as an adaptation of the FAST model implemented by the American Stroke Association. Reproduced with permission from Intermountain Healthcare. Copyright 2011, Intermountain Health Care.

Since your last assessment:

BALANCE	Sudden loss of coordination	
EYES	Sudden change in vision	
FACE	Sudden weakness on *one side* of face	
ARM	Sudden weakness on *one side* of body (arm, leg, or both)	
SPEECH	Sudden difficulty speaking	
TIME	CALL AN RRT!! *47	

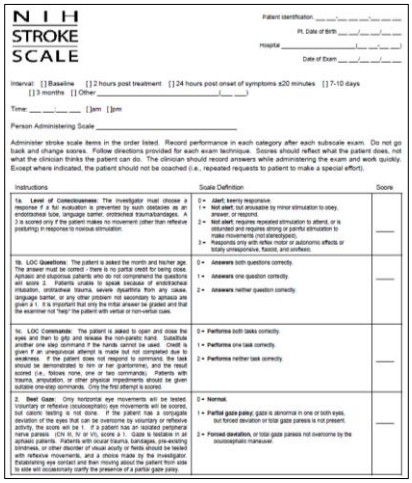
STRICT NPO! Until Dysphagia Screen Completed!!

Slide 11

NIH Stroke Scale

What it tells us:

- General~
  - Diagnostic
  - Prognostic
- Specific~
  - Area of the brain
  - Vascular territory involved



N I H
STROKE
SCALE

Patient Identification ___ ___-___ ___-___-___ ___ ___
Pt. Date of Birth ___ ___/___ ___/___ ___
Hospital _____ (___ ___-___ ___)
Date of Exam ___ ___/___ ___/___ ___

Interval: [ ] Baseline [ ] 2 hours post treatment [ ] 24 hours post onset of symptoms ±20 minutes [ ] 7-10 days
[ ] 3 months [ ] Other _____ (___ ___)

Time: ___ ___:___ ___ [ ]am [ ]pm

Person Administering Scale _____

Administer stroke scale items in the order listed. Record performance in each category after each subscale exam. Do not go back and change scores. Follow directions provided for each exam technique. Scores should reflect what the patient does, not what the clinician thinks the patient can do. The clinician should record answers while administering the exam and work quickly. Except where indicated, the patient should not be coached (i.e., repeated requests to patient to make a special effort).

Instructions	Scale Definition	Score
1a. **Level of Consciousness**: The investigator must choose a response if a full evaluation is prevented by such obstacles as an endotracheal tube, language barrier, orotracheal trauma/bandages. A 3 is scored only if the patient makes no movement (other than reflexive posturing) in response to noxious stimulation.	0 = **Alert**, keenly responsive. 1 = **Not alert**; but arousable by minor stimulation to obey, answer, or respond. 2 = **Not alert**; requires repeated stimulation to attend, or is obtunded and requires strong or painful stimulation to make movements (not stereotyped). 3 = Responds only with reflex motor or autonomic effects or totally unresponsive, flaccid, and areflexic.	____
1b. LOC **Questions**: The patient is asked the month and his/her age. The answer must be correct - there is no partial credit for being close. Aphasic and stuporous patients who do not comprehend the questions will score 2. Patients unable to speak because of endotracheal intubation, orotracheal trauma, severe dysarthria from any cause, language barrier, or any other problem not secondary to aphasia are given a 1. It is important that only the initial answer be graded and that the examiner not "help" the patient with verbal or non-verbal cues.	0 = **Answers** both questions correctly. 1 = **Answers** one question correctly. 2 = **Answers** neither question correctly.	____
1c. LOC **Commands**: The patient is asked to open and close the eyes and then to grip and release the non-paretic hand. Substitute another one step command if the hands cannot be used. Credit is given if an unequivocal attempt is made but not completed due to weakness. If the patient does not respond to command, the task should be demonstrated to him or her (pantomime), and the result scored (i.e., follows none, one or two commands). Patients with trauma, amputation, or other physical impediments should be given suitable one-step commands. Only the first attempt is scored.	0 = **Performs** both tasks correctly. 1 = **Performs** one task correctly. 2 = **Performs** neither task correctly.	____
2. **Best Gaze**: Only horizontal eye movements will be tested. Vertical gaze is not tested. If the patient has a conjugate deviation of the eyes that can be overcome by voluntary or reflexive activity, the score will be 1. If a patient has an isolated peripheral nerve palsy (CN III, IV or VI), score a 1. Gaze is testable in all aphasic patients. Patients with ocular trauma, bandages, pre-existing blindness, or other disorder of visual acuity or fields should be tested with reflexive movements, and a choice made by the investigator. Establishing eye contact and then moving about the patient from side to side will occasionally clarify the presence of a partial gaze palsy.	0 = **Normal.** 1 = **Partial gaze palsy**; gaze is abnormal in one or both eyes, but forced deviation or total gaze paresis is not present. 2 = **Forced deviation**, or total gaze paresis not overcome by the oculocephalic maneuver.	____

Slide 12

Slide 13

Scenario 1

You respond to the call-bell of a right handed 70 y.o. female Veteran that you had given meds to 20 minutes ago. When you get to bed side you assess that she has word finding difficulties, but she is able to convey that she has numbness and tingling to her right arm, severe weakness to her right arm and exhibits noticeable right facial droop.

Bonus Question:

What vessel is occluded?

Slide 14

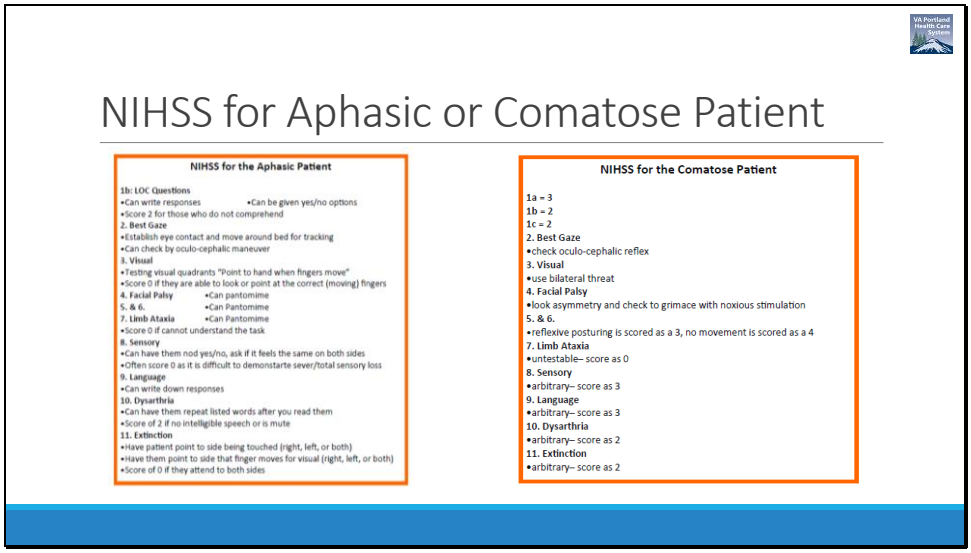
Scenario 2

Starting your shift you enter the room of your 69 y.o. male, left handed patient. As you approach you realize he doesn't seem to see you. When you say good morning he turns his head so he is facing you and responds with slurred speech. You instantly think stroke and go through a quick NIHSS exam and realize he also has ataxia in 2 extremities.

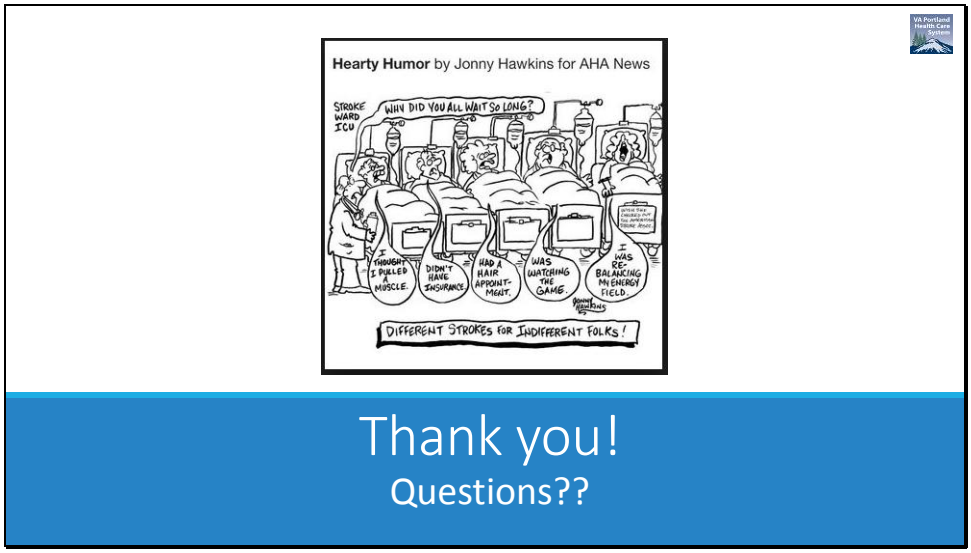
Bonus Question:

What vessel is occluded?

Slide 15


NIHSS for Aphasic or Comatose Patient
NIHSS for the Aphasic Patient
1b: LOC Questions
•Can write responses
•Can be given yes/no options
•Score 2 for those who do not comprehend
2. Best Gaze
•Establish eye contact and move around bed for tracking
•Can check by oculo-cephalic maneuver
3. Visual
•Testing visual quadrants "Point to hand when fingers move"
•Score 0 if they are able to look or point at the correct (moving) fingers
4. Facial Palsy
•Can pantomime
5. & 6.
•Can Pantomime
7. Limb Ataxia
•Can Pantomime
•Score 0 if cannot understand the task
8. Sensory
•Can have them nod yes/no, ask if it feels the same on both sides
•Often score 0 as it is difficult to demonstarte sever/total sensory loss
9. Language
•Can write down responses
10. Dysarthria
•Can have them repeat listed words after you read them
•Score of 2 if no intelligible speech or is mute
11. Extinction
•Have patient point to side being touched (right, left, or both)
•Have them point to side that finger moves for visual (right, left, or both)
•Score of 0 if they attend to both sides
NIHSS for the Comatose Patient
1a = 3
1b = 2
1c = 2
2. Best Gaze
•check oculo-cephalic reflex
3. Visual
•use bilateral threat
4. Facial Palsy
•look asymmetry and check to grimace with noxious stimulation
5. & 6.
•reflexive posturing is scored as a 3, no movement is scored as a 4
7. Limb Ataxia
•untestable– score as 0
8. Sensory
•arbitrary– score as 3
9. Language
•arbitrary– score as 3
10. Dysarthria
•arbitrary– score as 2
11. Extinction
•arbitrary– score as 2

Slide 16


Hearty Humor by Jonny Hawkins for AHA News
STROKE WARD ICU
WHY DID YOU ALL WAIT SO LONG?
I THOUGHT I PULLED A MUSCLE.
DIDN'T HAVE INSURANCE
HAD A HAIR APPOINTMENT.
WAS WATCHING THE GAME
I WAS RE-BALANCING MY ENERGY FIELD.
DIFFERENT STROKES FOR INDIFFERENT FOLKS!
Thank you!
Questions??