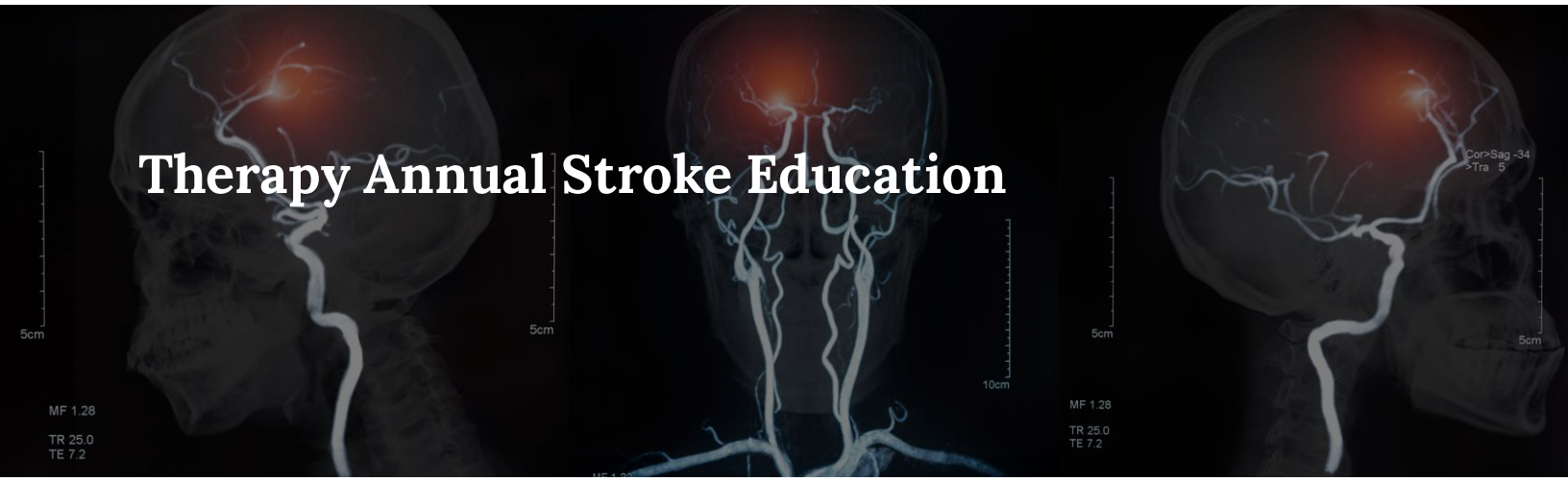


Therapy Annual Stroke Education

This module provides caregivers with a better understanding of the appropriate timelines and contraindications for early stroke and ICU intervention.

- **Course Objectives**
- **Introduction**
- **Acute Stroke Treatments**
- **Different Types of Strokes**
- **Risk Factors for Stroke**
- **Stroke Deficits**
- **Blood Pressure Management**
- **National Institute of Health Stroke Scale (NIHSS)**
- **ICU Liberation Bundle**

Course Objectives

Upon completion of this module, the caregiver will be able to:

1. Recall acute stroke treatments.
2. Describe different types of strokes.
3. List the risk factors for stroke.
4. Identify right-brain and left-brain stroke deficits.
5. State the importance of blood pressure management.
6. Discuss the National Institute of Health Stroke Scale (NIHSS).
7. Outline the elements of the ICU Liberation Bundle.
8. Explain the importance of early mobility and exercise in stroke patients.
9. Recall the B.E.F.A.S.T. signs of stroke.

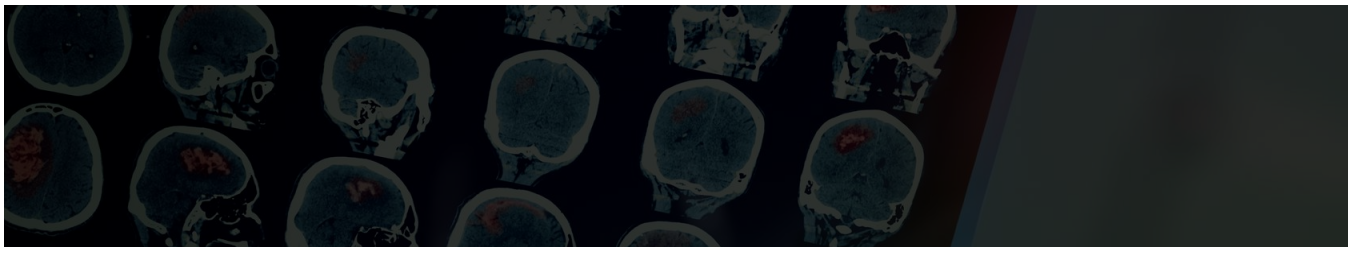
CONTINUE

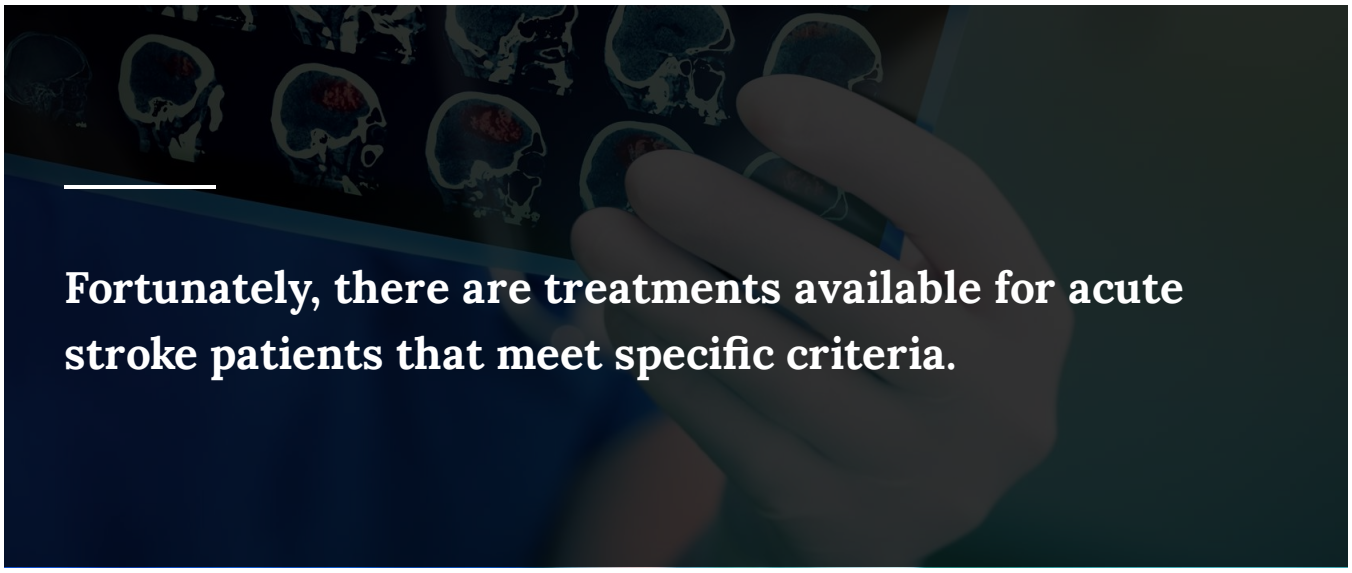
Introduction

U.S. stroke facts:

- Stroke is the fifth leading cause of death in the United States.
- Annually, approximately 795,000 people suffer from a stroke.
- Stroke is the leading cause of serious long-term disability in the US.
- There are over 7 million stroke survivors in the US, and two-thirds are currently disabled.
- Approximately 25% of people who recover from their first stroke will have another within five years.
- 80% of strokes are preventable.

Source: Stroke Awareness Foundation, 2022





Fortunately, there are treatments available for acute stroke patients that meet specific criteria.

CONTINUE

Acute Stroke Treatments

Thrombolytics

Tenecteplase (TNKase)

- Tenecteplase is given to patients that meet criteria for treatment in the Standard window = < 4.5 hours of last known well.
- All Providence ministries switched from Alteplase to Tenecteplase for acute stroke treatment in the STANDARD WINDOW.

Alteplase (TPA)

- Alteplase is given to patients that meet criteria for treatment in the Extended window > 4.5 hours of last known well.
- Sometimes we don't know what time the stroke occurred, like when a patient wakes up with stroke symptoms. In these cases, we use imaging to see if there is brain to save. If we treat in the extended time window, we use Alteplase (TPA).
- Trials for treating with Tenecteplase in the extended window are still pending.

Why did we switch to Tenecteplase for treatment in the standard window?

Tenecteplase:

- is equivalent to alteplase for treatment of acute ischemic stroke (AIS).
- is included as an appropriate option for thrombolytic treatment by the American Stroke Association (ASA).
- showed superiority in treatment of large vessel occlusion (LVO) strokes with better recanalization rates.
- has equivalent or less bleeding complications compared to alteplase.

CONTINUE

Door to Needle Goals

Directions: Click or tap each card below to review the door to needle goals for each unit. Review both to move on.

Comprehensive Stroke Center (CSC)

Primary Stroke Center
(PSC)

Faster treatment saves lives and reduces disability!

For every 15 minutes saved:

- Fewer patients die
- Fewer patients bleed
- More patients go home
- More patients are walking independently at discharge

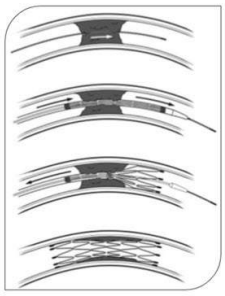
Complete the content above before moving on.

Thrombectomy

When there is a large vessel occlusion (LVO) and patient meets criteria:

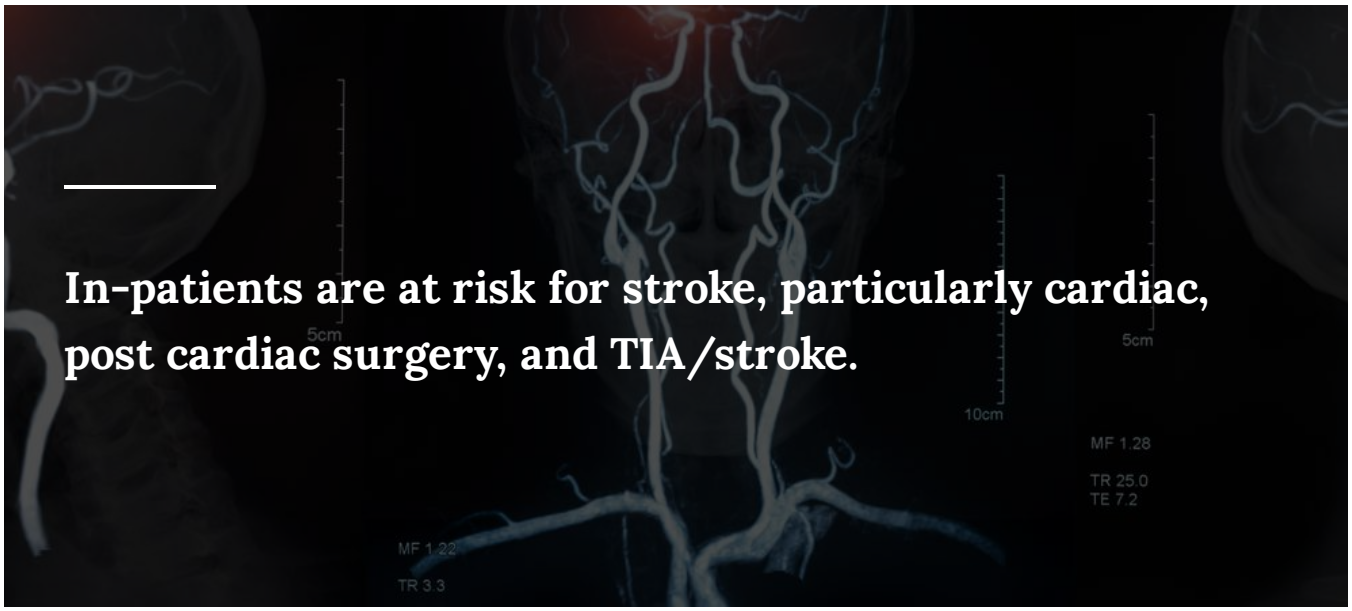
- A thrombectomy can be done with or without IV thrombolytic.
- If a patient meets criteria for endovascular treatment, a catheter is advanced into occluded artery to re-establish blood flow to the compromised brain tissue.
- Studies show treating large vessel occlusion with thrombectomy up to 24 hours after symptom onset can decrease long term disability.

Please review the thrombectomy images below.



CONTINUE

In-Patient Stroke Code



In-patients are at risk for stroke, particularly cardiac, post cardiac surgery, and TIA/stroke.

If your patient experiences new stroke symptoms, **ACTIVATE YOUR EMERGENCY RESPONSE PROCESS!**

You have the responsibility to activate **RAPID RESPONSE** or a **CODE STROKE** when a patient has changed!

CONTINUE

Providence Stroke Statistics

In 2023, the Providence South Division (California) cared for:

- More than 6,00 ischemic stroke patients (primary dx).
- More than 1,400 hemorrhagic stroke patients (primary dx).

The South Division also treated over 800 patients with thrombolytics and performed over 500 thrombectomies.

Source: Providence Stroke Data Mart

CONTINUE

Different Types of Strokes

Directions: Click or tap each tap to review details, signs, and symptoms of each type of stroke. Review all to move on.

ISCHEMIC STROKE | HEMORRHAGIC STROKE | TRANSIENT ISCHEMIC ATTACK (TIA)

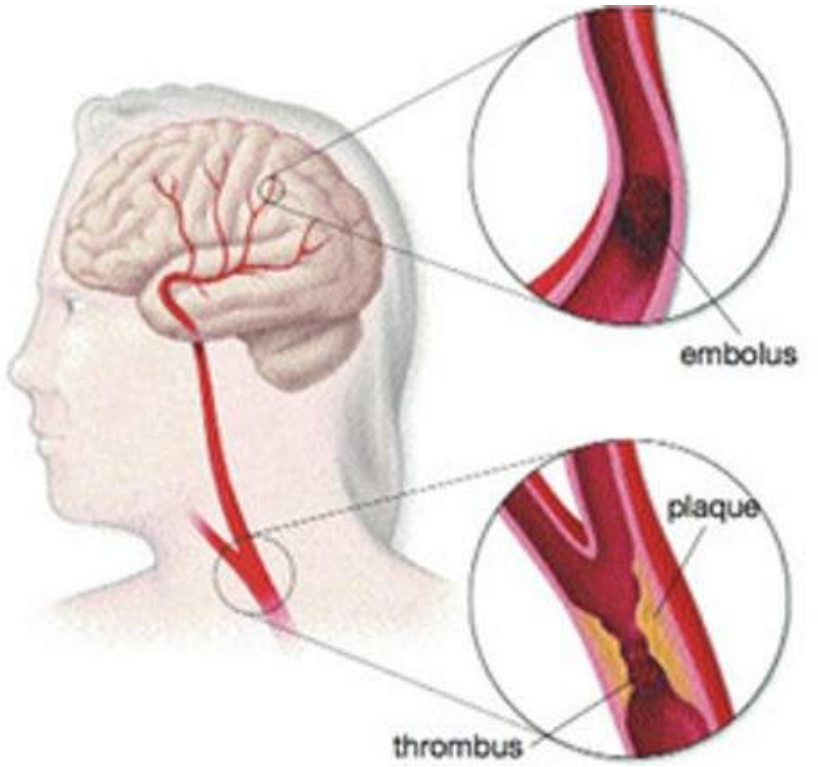
An ischemic stroke occurs when a vessel supplying blood to the brain is obstructed. *87% of strokes are ischemic*.

EMBOLIC stroke-clot forms at another location in the circulatory system and travels to the brain.

THROMBOTIC stroke-blood clot develops at the fatty plaque within the blood vessel.

Signs and symptoms:

- Sudden weakness of the face, arm or leg (often one side of the body).
- Sudden numbness of the face, arm or leg (often one side of the body.
- Sudden confusion, trouble speaking, or understanding speech.



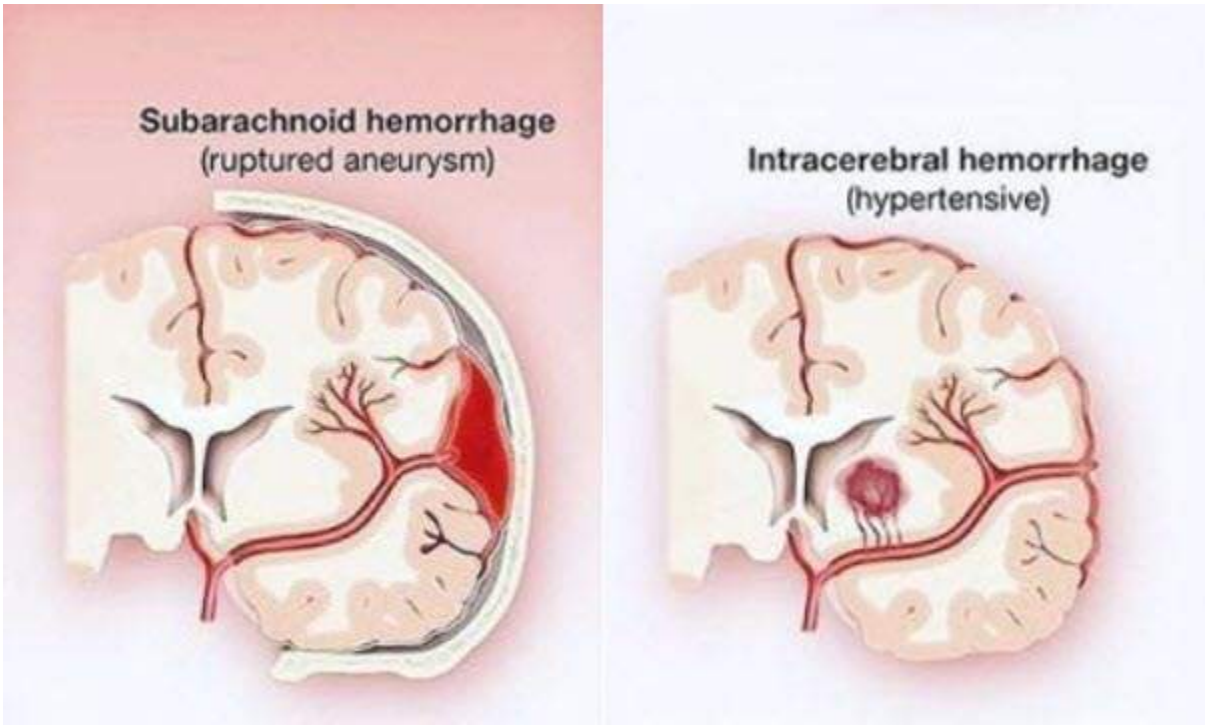
ISCHEMIC STROKE	HEMORRHAGIC STROKE	TRANSIENT ISCHEMIC ATTACK (TIA)

Weakened blood vessel ruptures and bleeds into the surrounding brain. *13% of strokes are hemorrhagic*.

Subarachnoid hemorrhage: blood leaks into the space between the brain and the skull (subarachnoid space). Blood accumulates and compresses the surrounding brain tissue and causes blood vessels to spasm. SAH is usually caused by a burst aneurysm.
Intracerebral hemorrhage: blood leaks into brain tissue, causing brain cells to die. High blood pressure is the most common cause of ICH.

Signs and symptoms:

- Sudden trouble seeing in one or both eyes.
- Sudden trouble walking, dizziness or loss of balance or coordination.
- Nausea and vomiting.
- Neck pain.
- Sudden severe headache with no known cause, “worst headache of my life.”
- Loss of consciousness.



ISCHEMIC STROKE	HEMORRHAGIC STROKE	TRANSIENT ISCHEMIC ATTACK (TIA)

- Symptoms are temporary and do not leave permanent damage in the brain.

- Can be caused by temporary or partial blockage of blood vessels.
- Warning sign of progressive stroke risk.
- Symptoms usually last less than 5 minutes, but can last up to 24 hours.
- Patients often report having a “mini-stroke” or “an episode.”
- Requires urgent medical attention to reduce risk of a full-blown stroke.

Signs and symptoms:

- Difficulty speaking or understanding.
- Generalized weakness.
- Reversible ischemic neurologic deficit.

Risk Factors for Stroke

Directions: Click or tap the plus sign (+) next to each statement to read what risk factors fall into each category. Review both to move on.

Modifiable Risk Factors

- High Blood Pressure
- Smoking
- Diabetes
- Diet
- Physical Inactivity
- Obesity
- High Blood Cholesterol
- Carotid Artery Disease
- Peripheral Artery Disease
- Atrial Fibrillation
- Sickle Cell Anemia

Uncontrollable Risk Factors

- Age
- Race
- Genetics
- Gender
- Prior Stroke, TIA, or Heart Attack

Complete the content above before moving on.

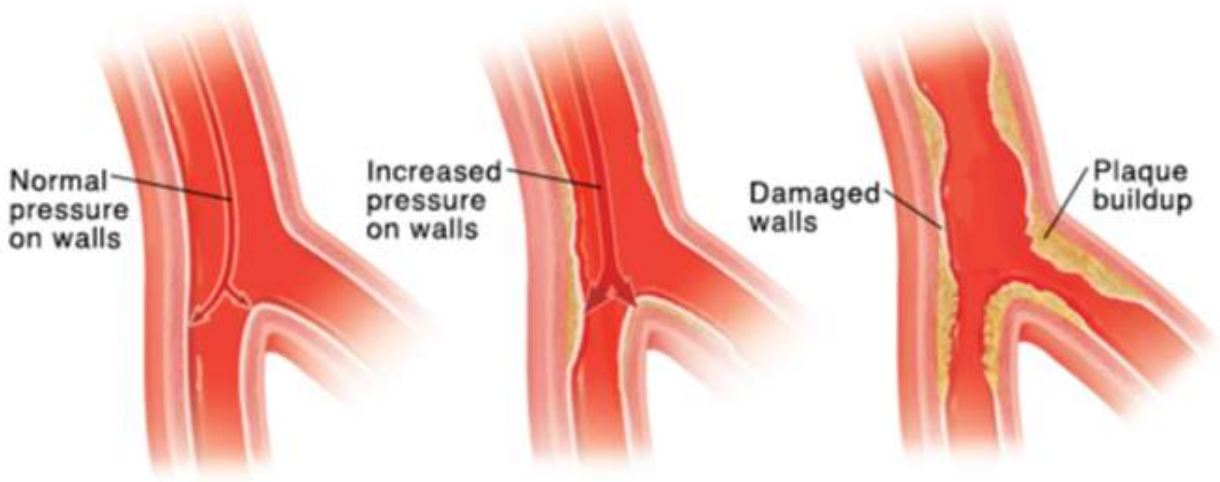
Modifiable Risk Factors

High Blood Pressure

High blood pressure adds to your heart's workload and damages your arteries and organs over time.

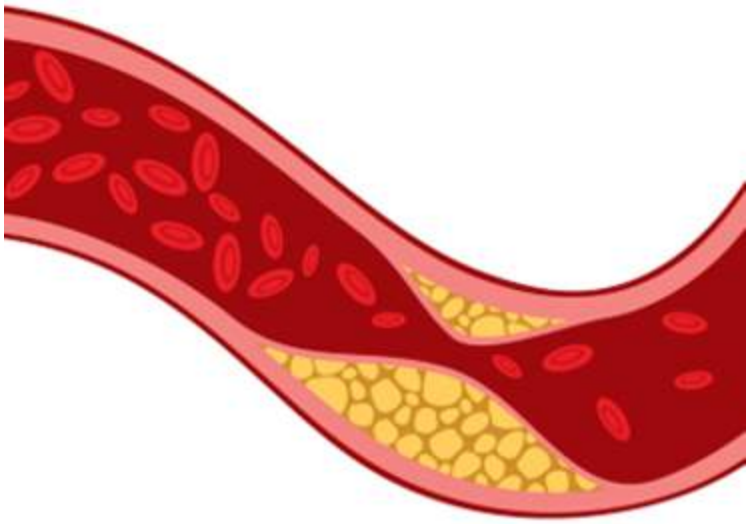
Blood vessels become scarred and damaged, increasing risk of blockage, clots, and hardened, weakened arteries.

Compared to people whose blood pressure is normal, people with high blood pressure are more likely to have a stroke.



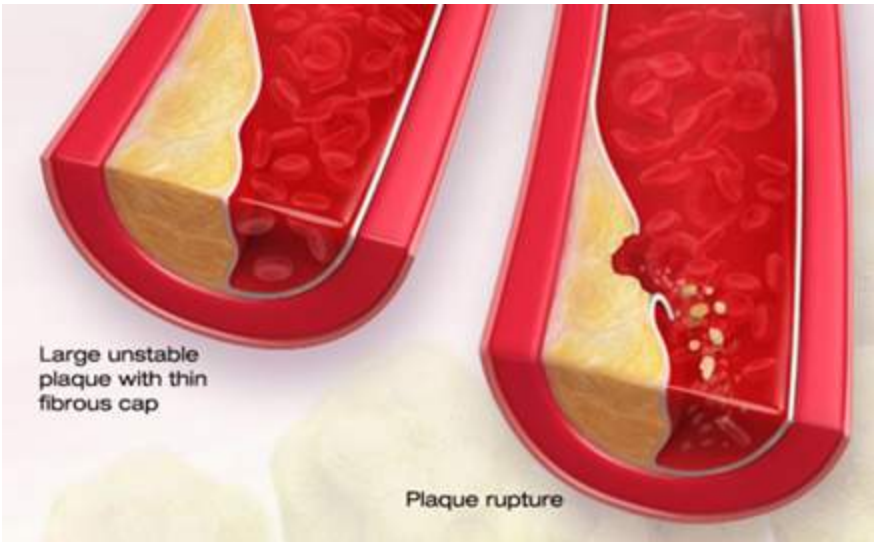
High Cholesterol

High Cholesterol is excess cholesterol in your blood. The cholesterol can develop fatty deposits in your blood vessels, and over time, can make it difficult for enough blood to flow through the stiff and narrow arteries. It also increases the chance of a blood clot developing.



Atherosclerosis

Atherosclerosis is the process that causes the artery wall to get thick and stiff. The disease process begins when LDL ("bad" cholesterol) deposits cholesterol in the artery wall.

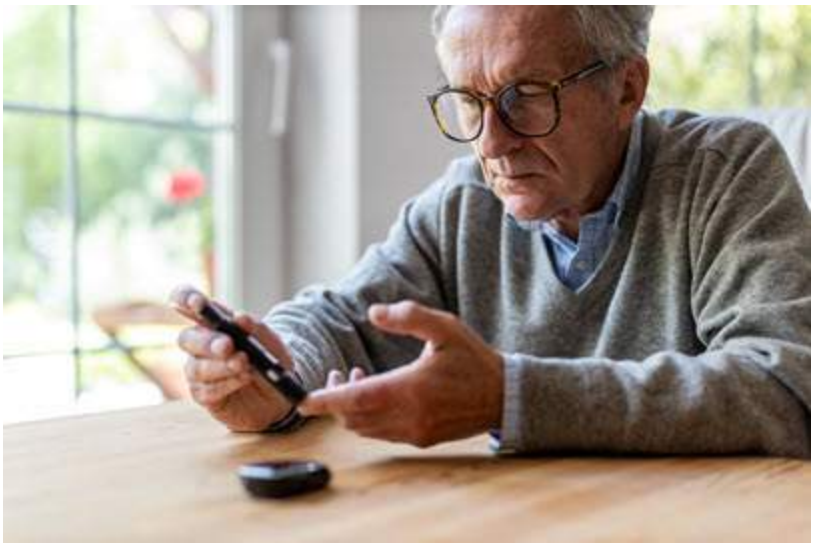


Smoking

Smoking raises triglycerides and lowers your good cholesterol. It makes blood sticky and more likely to clot and damages cells that line the blood vessels. Smoking also causes thickening and narrowing of blood vessels and increases the buildup of plaque.

Diabetes

Adults with **diabetes** are 1.5-2 times more likely to have a stroke than adults without diabetes. Over time, high glucose levels can damage the body's blood vessels. Adults with diabetes are also more likely to have heart disease, high blood pressure, high cholesterol, and be overweight.



Atrial Fibrillation

Atrial fibrillation is an irregular rhythm of the heart, where the upper chamber of the heart quivers instead of beating effectively. This allows blood to pool and clot. If a clot breaks travels to the brain, the result is a stroke. People with this condition are usually on a blood thinners. A-Fib makes you five times more likely to have a stroke.

CONTINUE

Social Determinants of Health

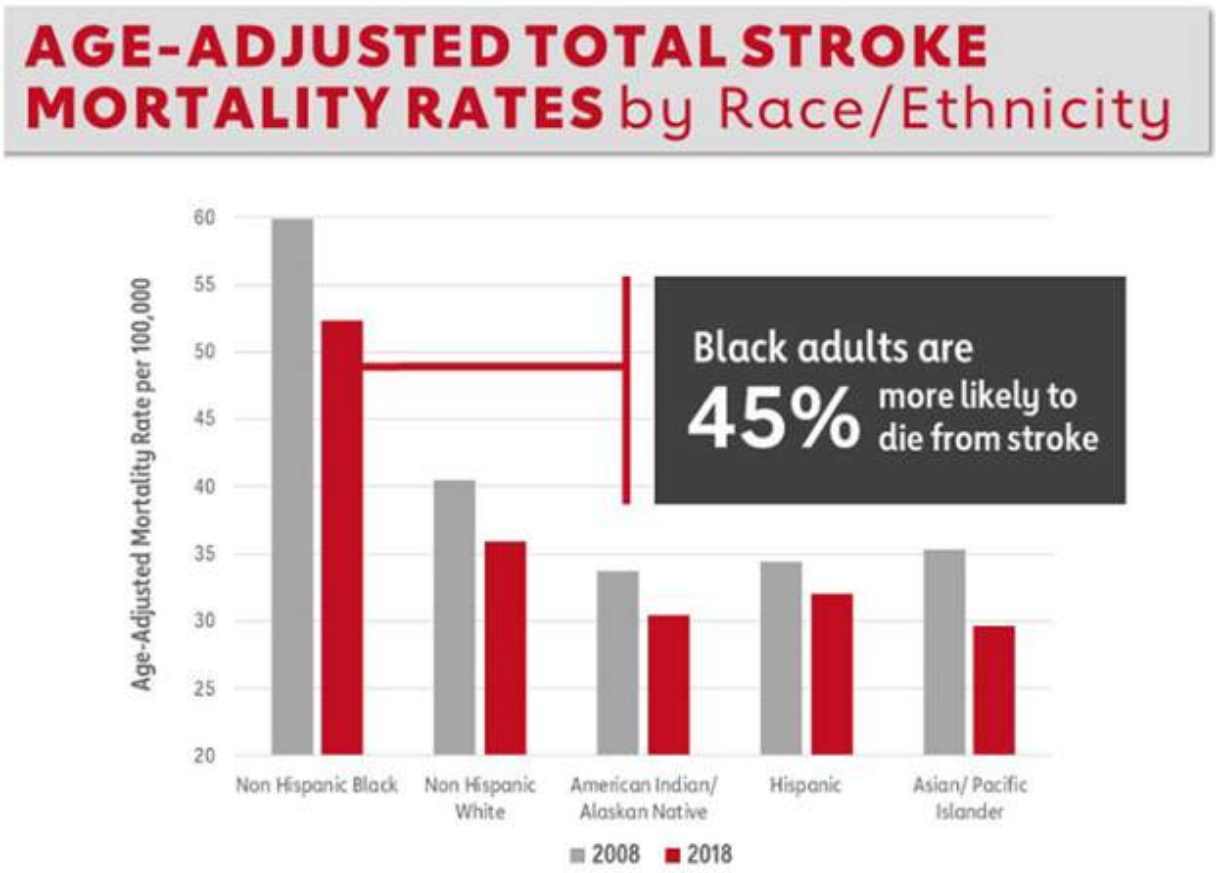


Image source: American Heart Association

- Many people of color and others suffers because of social factors beyond their control. In fact, people in some under-resourced ZIP codes have shorter life expectancies than their neighbors just a few miles away.

- COVID-19 has illuminated these unacceptable health disparities and worsened the problems. The pandemic and economic hardships have disproportionately harmed the health of Black, Latino, and Native American people.

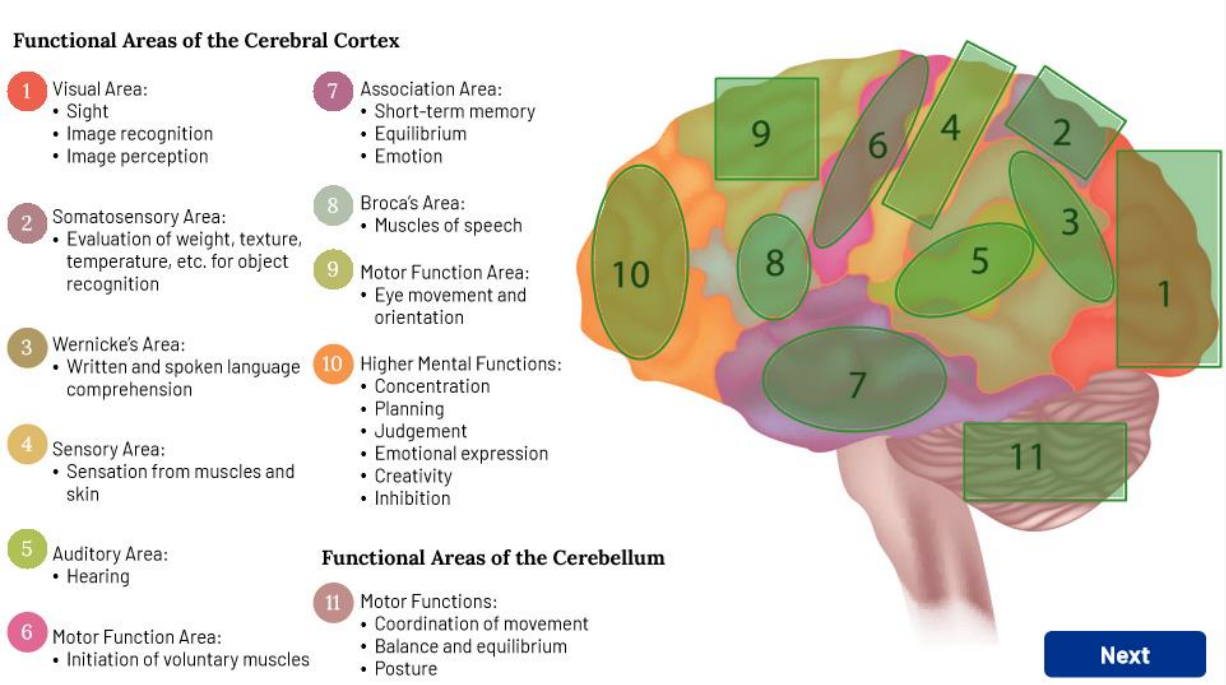
"As champions for health equity, the American Heart Association will advance cardiovascular health for all, including identifying and removing barriers to health care access and quality."

- American Heart Association's 2024 Goal

CONTINUE

Stroke Deficits

Directions: Click or tap each number on the interaction below to learn more about the functional areas of the cerebral cortex and the cerebellum. Review all to move on.



Complete the content above before moving on.

Directions: Click or tap each tab to review details of brain deficits.

LEFT-BRAIN DEFICITS | RIGHT-BRAIN DEFICITS

- Bilateral motor apraxia
- Right-sided weakness
- Broca's aphasia (difficulty forming words and sentences, may speak with difficulty or not at all - loss of language but not intelligence)
- Easily frustrated or depressed, aware of deficits
- Wernicke's aphasia (difficulty understanding language)
- Trouble reading or writing
- Confuses left and right
- Impaired judgement and reasoning
- Slow and cautious, needs encouragement

LEFT-BRAIN DEFICITS | RIGHT-BRAIN DEFICITS

- Left-sided unilateral body or visual neglect
- Left-sided weakness
- Will deny the illness or deficit; unaware of problem
- Visual, spatial, and perceptual impairment
- Distorted body image
- Left unilateral motor impairment
- Poor body awareness
- Judgement and memory deficits
- Socially inappropriate behavior
- Impulsive, safety problems
- Short attention span, highly distractible

Directions: Click or tap each card to review details of strategies to accommodate brain deficits.

Strategies to use with left-brain deficits	• Be patient • Eliminate distractions • Keep questions simple (yes/no) • Keep commands and directions simple • Allow extra time for the patient to process
Strategies to use with right-brain deficits	• If vision cut or neglect, encourage patient to scan environment • Minimize clutter and distractions • Offer encouragement • Ensure environment is safe

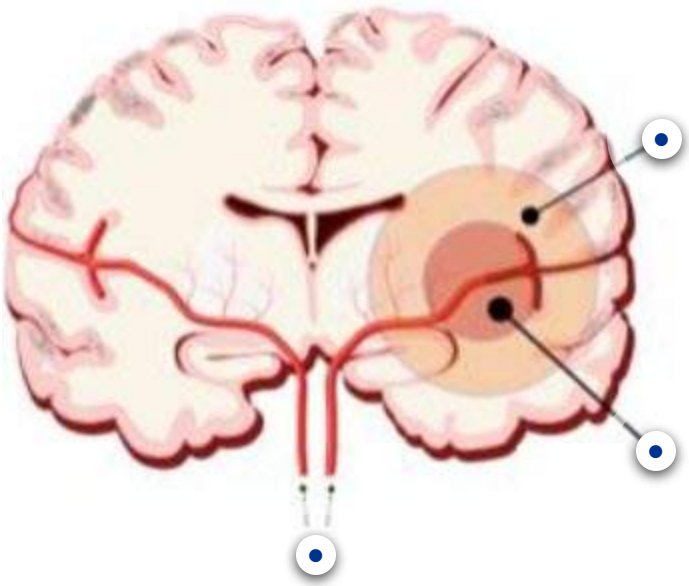
Complete the content above before moving on.

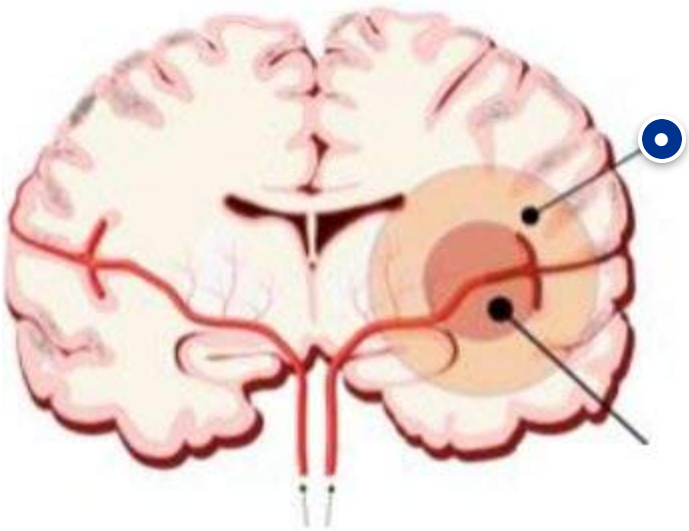
Blood Pressure Management

Blood pressure guidelines for acute stroke allow PERMISSIVE HYPERTENSION during and immediately after an acute stroke.

Elevated blood pressure is the body's response to improve blood flow to the brain.

Directions: Click or tap each glowing indicator below to learn more.

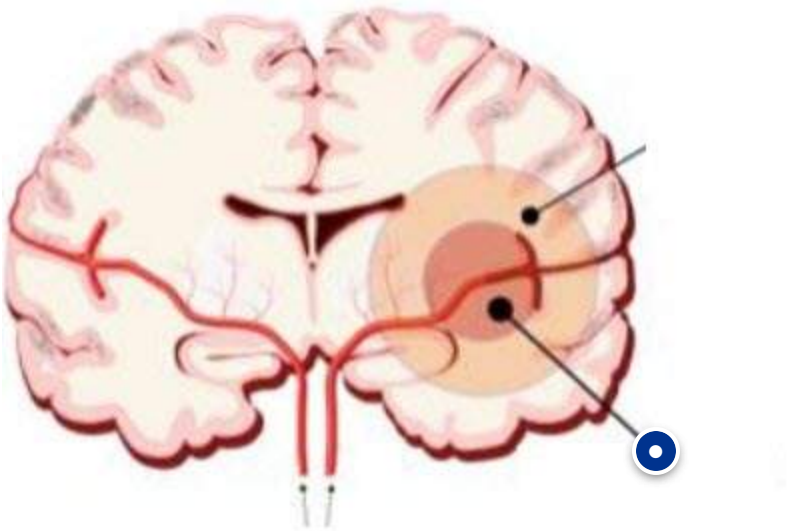




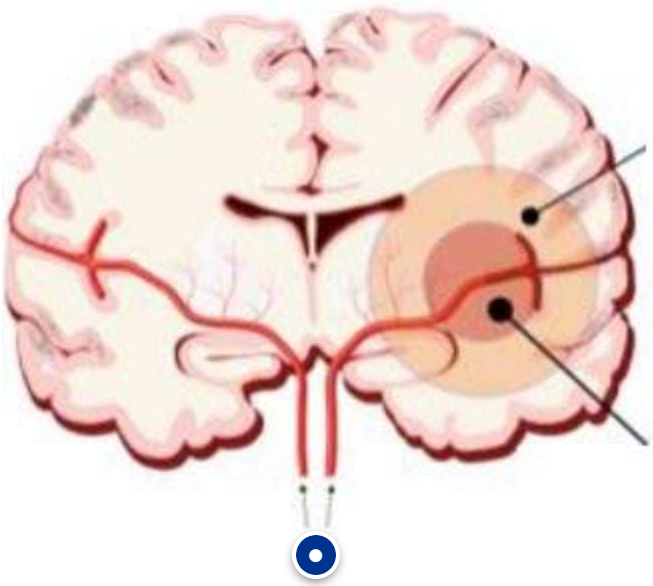
Penumbra

The vulnerable penumbra around the ischemic stroke core is at risk.

Dropping blood pressure too quickly may cause more brain tissue to die.



Ischemic Core



Cerebral Arteries

ALWAYS follow the blood pressure upper and lower parameters for each type of stroke.

TOO HIGH and **TOO LOW** can impact patient outcomes.

Review the general blood pressure parameters in stroke below.

General BP Parameters in Stroke

These are provided as a general guideline. Validate with order set/provider

Diagnosis/treatment	Rationale	BP Target	
Untreated Ischemic Stroke (non-reperfused)	Perfuse past occlusion	**SBP <220**	
Ischemic stroke (prior to treatment withTNK/ Thrombolytic)	Prevent reperfusion hemorrhage	**SBP<185**	**DBP< 110**
Ischemic stroke (during and after treatment with TNK/thrombolytic)	Prevent reperfusion hemorrhage	**SBP<180**	**DBP <105**
Ischemic stroke – after Thrombectomy	Prevent reperfusion hemorrhage	**SBP 100-160**	**DBP 50-100**
Non-Traumatic Intracerebral Hemorrhage	Prevent hemorrhage expansion	**SBP 130-150**	
Non-Traumatic SAH/Ruptured cerebral aneurysm (not yet secured)	Prevent re-rupture	**SBP 100-140**	**DBP <90**

Complete the content above before moving on.

National Institute of Health Stroke Scale (NIHSS)

The NIH Stroke Scale:

- Composed of 11 elements, each scored from 0-2 or 0-4.
    - The higher the score, the more impairment.
    - Highest score is 42.
- The NIHSS is complete by nursing/physician on every shift, with any patient changes, and prior to acute stroke treatment.
- The NIHSS evaluates the severity of the stroke, helps determine treatment, and predicts patient outcomes.
- You can look in the nursing flowsheet to see the NIHSS, areas of impairment, and score progression.

Stroke severity:

- Mild: 1-5
- Mild to moderately severe: 5-14

- Severe: 15-24
- Very severe: > 25

Source: Brott et al, 1989

Outcomes related to NIHSS scores at admission:

- Score < 5: 80% of stroke survivors will be discharged to home.
- Score 6-13: Stroke survivors typically require acute rehab
- Scores > 14 : Stroke survivors frequently require long-term care

Schlegel et al., 2003

NIH Stroke Scale

Click or tap the button to the right to review the NIH Stroke Scale on the NIH website.

CLICK OR TAP HERE

CONTINUE

ICU Liberation Bundle

The ICU Liberation Bundle A-F elements represent the implementation strategy used to provide recommendation.

Directions: Click or tap each plus sign (+) to review what each ICU Liberation element represents.

A

Assess, prevent, and manage pain

B

Both SATs (Spontaneous Awakening Trials) and SBTs (Spontaneous Breathing Trials)

C _

Choice of analgesia and sedation

D _

Delirium: Assess, prevent, and manage

E _

Early mobility and exercise

F _

Family engagement and empowerment

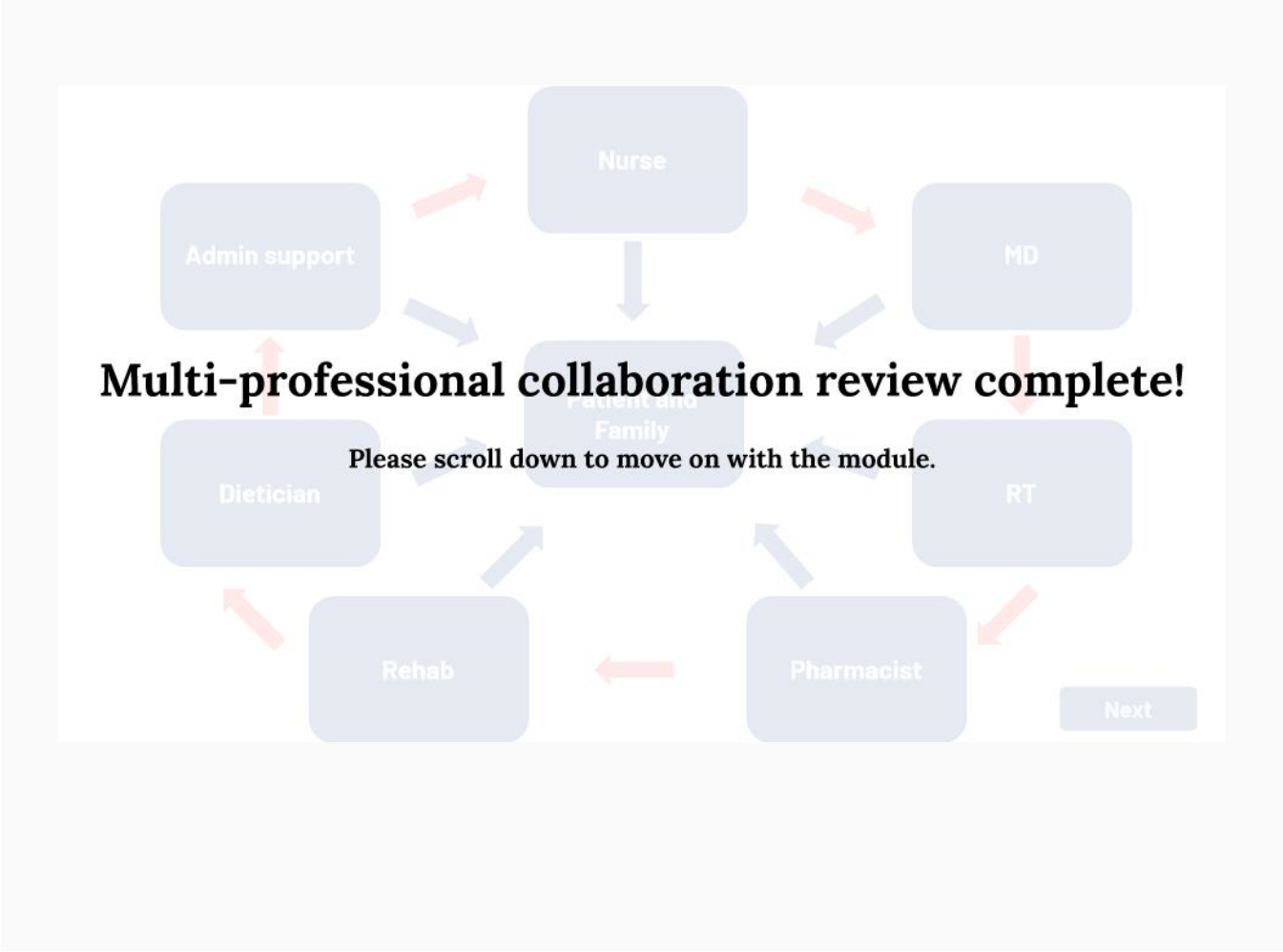
The ICU Liberation A-F Bundle is fully integrated within our current Epic platform (found in flowsheets).

Collaborative documentation benefits the patient and all the caregivers involved in care.

Complete the content above before moving on.

Multi-Professional Collaboration

Directions: Click or tap each blue box, beginning with the ***top center and moving clockwise***, to reveal all steps in the bundle. The box will turn green once selected. Review all to move on.



Complete the content above before moving on.

A

Assess, Prevent, and Manage Pain

- Pain affects most ICU patients. Patients with diminished communication or cognitive capabilities are at risk of experiencing higher levels of pain.

- The ICU Liberation's implementation tools offer a stepwise approach to pain assessment. Assessment is suggested in this order:

1. Attempt to obtain a patient's self-report of pain.
2. Look for behavioral changes.
3. Ask the family to help identify pain behaviors.
4. Assume that pain is present.

Critical-Care Pain Observation Tool (CPOT)

This tool for ICU patients includes evaluation of 4 different behaviors:

- Facial expressions
- Body movements
- Muscle tension
- Compliance with the ventilator for mechanically ventilated patients/ vocalization for non-intubated patients

It is rated on a scale of 0 to 2 with a total score ranging from 0 to 8 in 4 domains. The lower the score, the lower the pain.

Critical Care Pain Observation Tool

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, neutral	0
	Presence of frowning, brow lowering, orbit tightening, and levator contraction	Tense	1
	All of the above facial movements plus eyelid tightly closed	Grimacing	2
Body movements	Does not move at all (does not necessarily mean absence of pain)	Absence of movements	0
	Slow, cautious movements, touching or rubbing the pain site, seeking attention through movements	Protection	1
	Pulling tube, attempting to sit up, moving limbs/ thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness	2
Muscle tension Evaluation by passive flexion and extension of upper extremities	No resistance to passive movements	Relaxed	0
	Resistance to passive movements	Tense, rigid	1
	Strong resistance to passive movements, inability to complete them	Very tense or rigid	2
Compliance with the ventilator (intubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement	0
	Alarms stop spontaneously	Coughing but tolerating	1
OR	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator	2
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound	0
	Sighing, moaning	Sighing, moaning	1
	Crying out, sobbing	Crying out, sobbing	2

Click or tap on the image above to zoom in.

Image source: researchgate.net

B

Both Spontaneous Awakening Trials (SATs) and Spontaneous Breathing Trials (SBTs)

Studies have shown that using SATs and SBTs synergistically helps decrease mechanical ventilation days, necessity for tracheostomy and delirium.

The “B” element focuses on setting a time(s) each day to stop sedative medications, orient the patient to time and day, and conduct an SBT to liberate the patient from the ventilator.

Directions: Click or tap each card below to view the definitions of SAT and SBT.

SAT – Spontaneous Awakening Trial (AKA Sedation Vacation)	A period which sedating medications that are being used to treat an ICU patient is held to determine whether the patient requires ongoing sedation or can be managed without sedatives for the near future.

SBT – Spontaneous Breathing Trial	A period during which mechanical ventilation to treat an ICU patient is held (or decreased to provide only minimal support) to determine whether the patient requires ongoing mechanical ventilation or

C

Choice of Analgesia and Sedation

The "C" element focuses on constructing a safe and effective medication regimen for the management of pain and agitation.

The PADIS (Pain, agitation, sedation/delirium, immobility & sleep disruption) guidelines recommend:

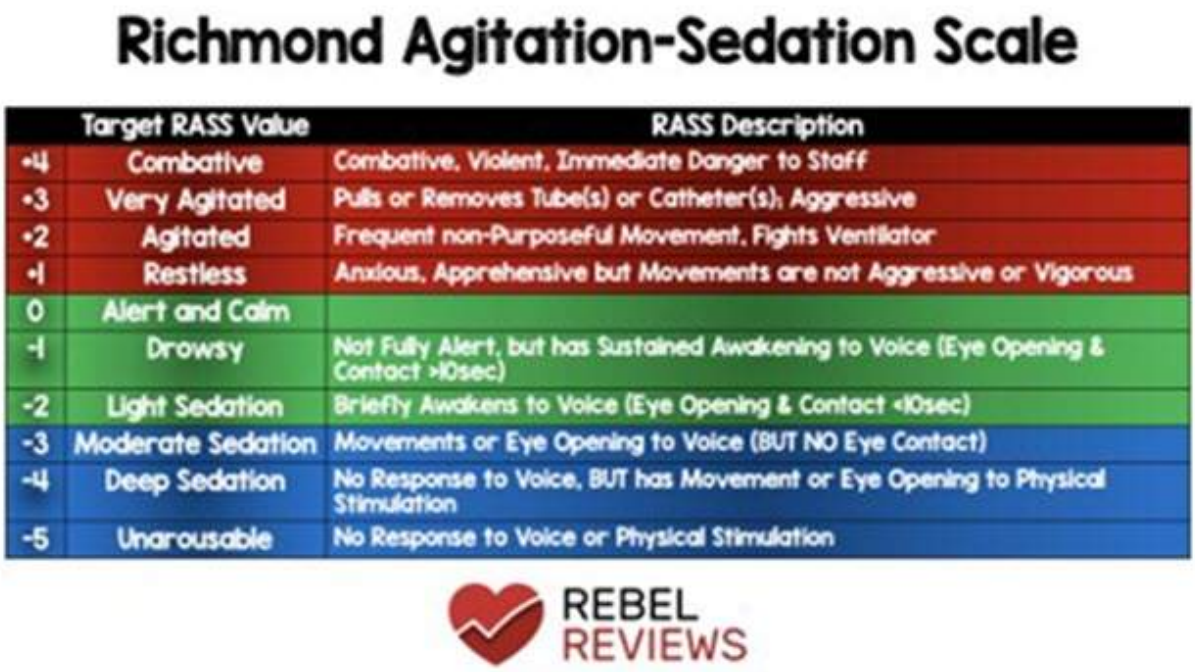
- IV opioids are the first-line drug class for non-neuropathic pain.

- All IV opioids are equally effective when titrated to similar pain scores.
- Non-opioid analgesics should be considered to decrease the amount of opioids administered and the resultant opioid-induced adverse effects.

> **Sedation must be frequently assessed in ICU patients, at least every 4 hours. Choice of sedation and use of Benzodiazepines (Opioids) should be avoided at all costs to treat sedation, as they can cause delirium as well.**

RASS Score

The Richmond Agitation and Sedation Scale is a validated & reliable method to assess patients' level of sedation in the ICU. Scores range from +4 (combative) to -5 (unarousable).



D

Delirium: Assess, Prevent, and Manage

Delirium is experienced by 50% to 80% of mechanically ventilated patients and 20% to 50% of patients with lower-severity illness, resulting in prolonged hospitalization and duration of mechanical ventilation and increased costs.

Long-term effects include increased risk of mortality and long-term cognitive impairment.

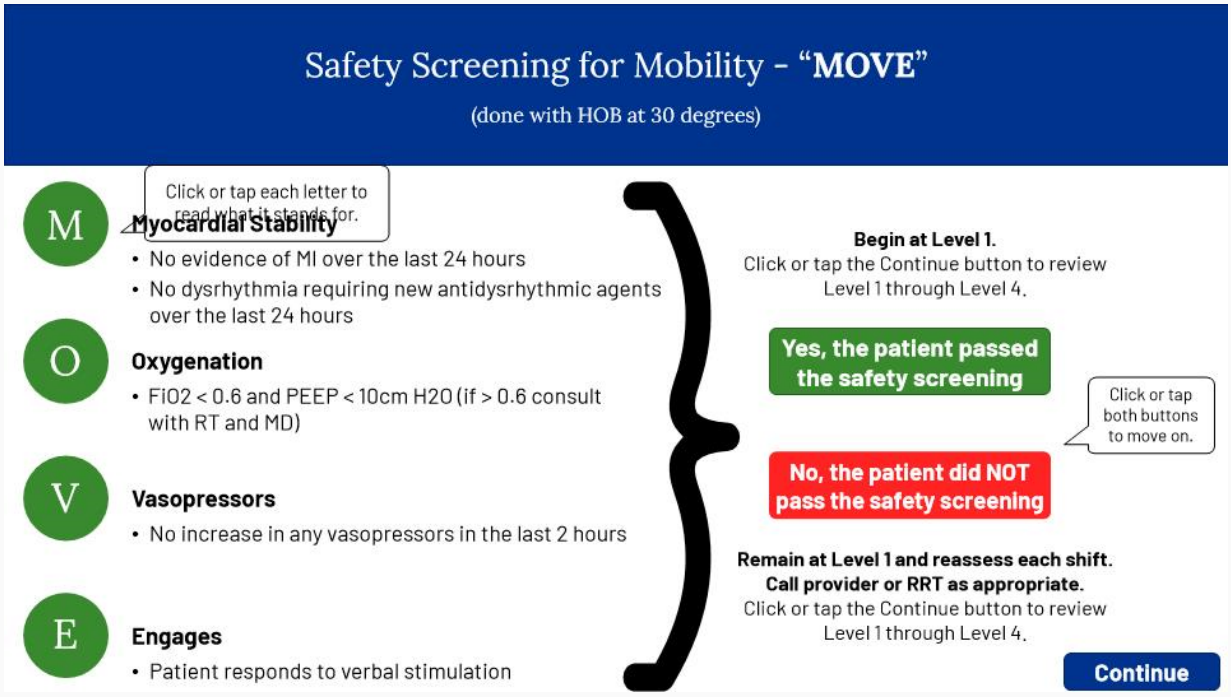
Scoring Systems:

1 **Confusion Assessment Method (CAM) score** for use in ICU patients.

E

Early Mobility and Exercise

- Mobilization of ICU patients can vary based on the strength of activity, from passive stretching to active walking.
- Highest level of Mobility (HLM) is a performance measure of the patient's highest level of mobility achieved. This common language tool provides a straightforward way to standardize the description of patient mobility across multidisciplinary providers. In ICU liberation, the scale is 1-8.



Complete the content above before moving on.

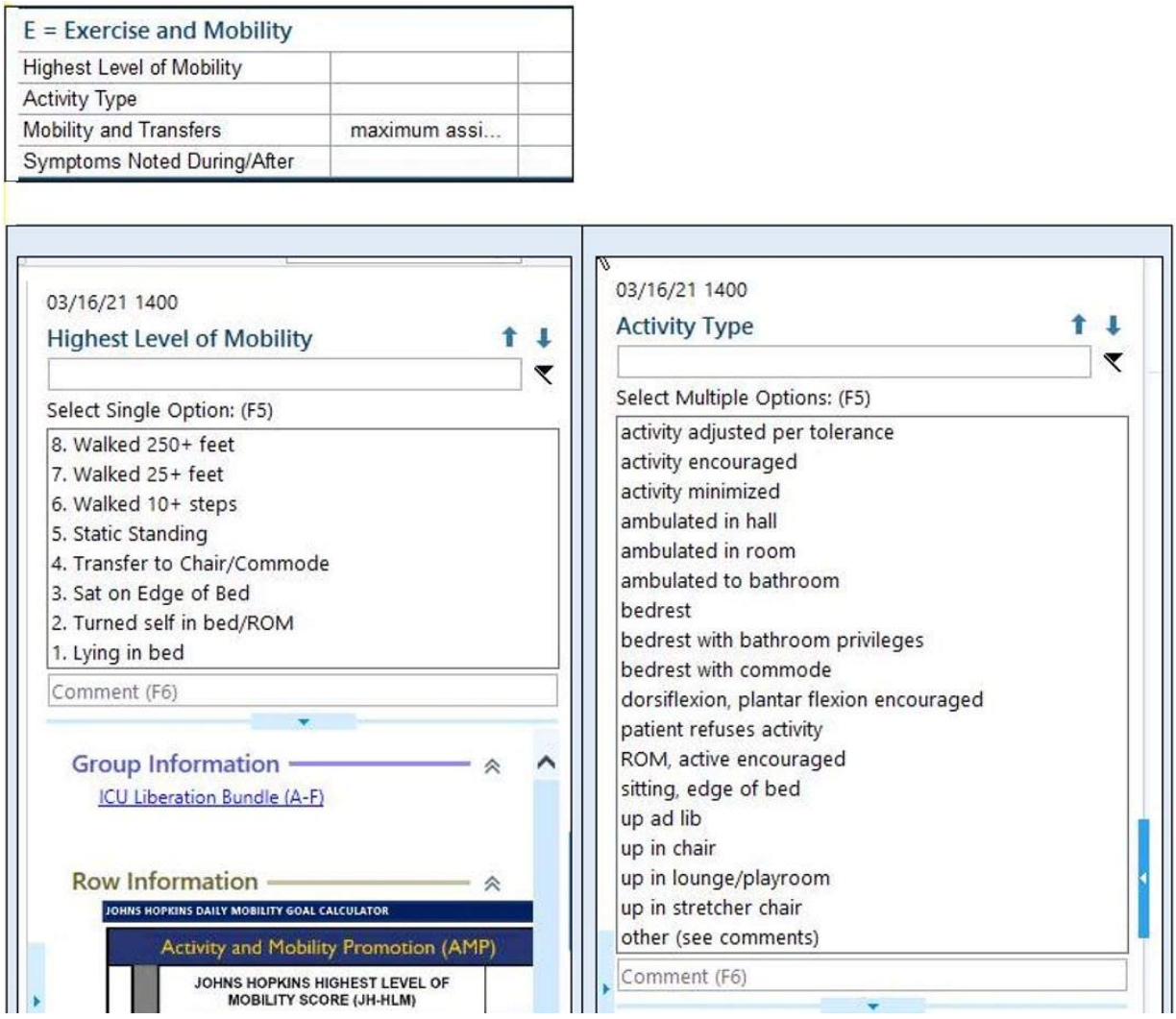
Epic Documentation 'E' Element: Early Mobility and Exercise

E = Exercise and mobility

Nurses should be using this section, and have the row details open to document the Highest Level of Mobility using the Johns Hopkins assessment shown.

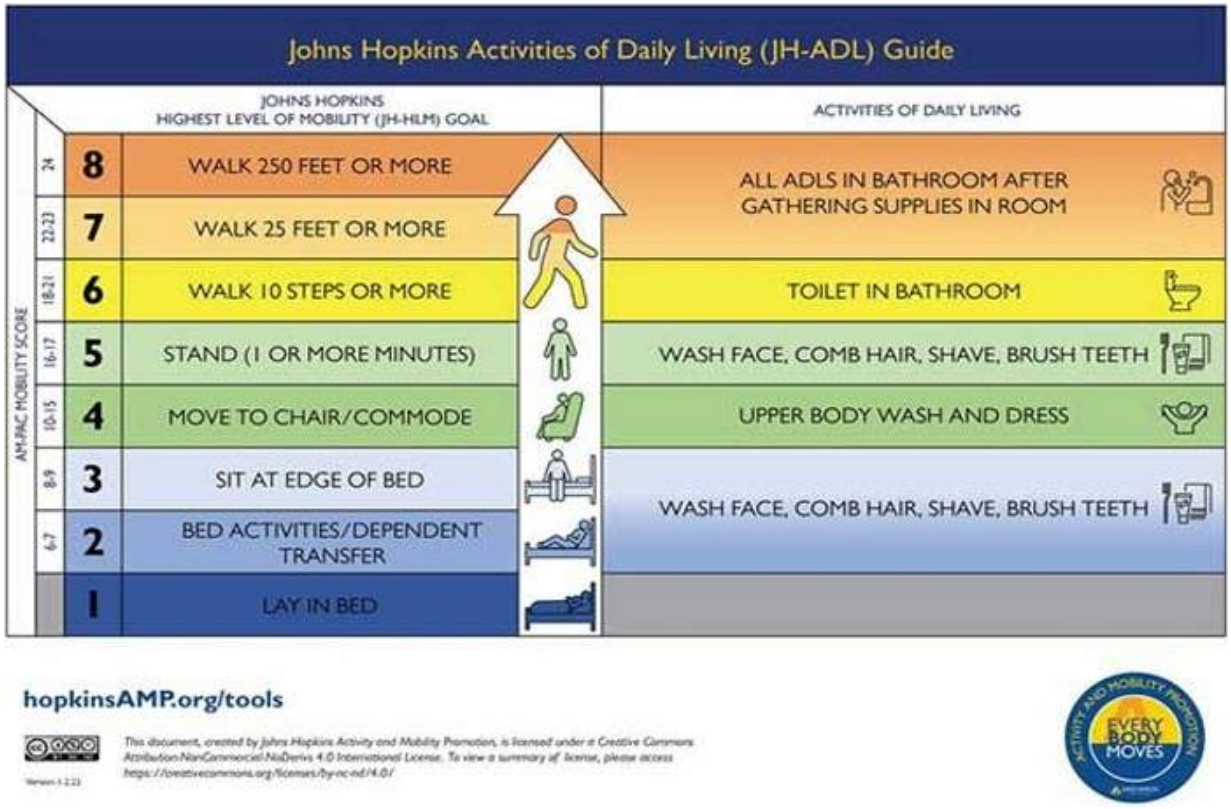
A nice-to-have in the Activity Type row details shows the current Activity Order on the chart, so the nurses can view as they are documenting the current Activity Type.

If there is a mismatch, it should be addressed with the provider.



Click or tap the image above to zoom in.

Activity level in relation to Johns Hopkins HLM



F

Family Engagement and Empowerment

Element F focuses on promoting family presence in the ICU and identifying strategies to engage and empower families. Engaging families in the care of their loved one during critical illness has positive impact on quality and safety and can decrease anxiety, confusion, and agitation.

Element F consists of assessing the family unit and engaging them to provide a holistic assessment of the patient.

- Assess for key family members
- Identify key decision-makers
- Assess family support needs
- Involve the family in goal setting, identifying personal and cultural beliefs and providing other key information to support the ICU team in best understanding the patient.
- If the patient is unable to speak for themselves, engage the family in identifying patient preferences and routines such as music or TV programs and typical sleep/wake cycles

CONTINUE

Stroke Early Mobility

Directions: Click or tap the cards below to flip them and read what the research say about stroke patient mobilization after thrombolytics. Review all to move on.

AVERT Trial (2017)

Cautions against very early HIGH DOSE mobilization.

AHA Abstract TP311 (2018)	Early mobilization within 24 hours after tPA did not worsen functional outcomes and supports very early mobilization to their highest safe level.
AHA Abstract NS6 (2020)	Providing early mobility to patients post thrombolytic therapy does not cause harm or increase adverse events and had a positive impact on patient discharges home.

Sources:

- *Langhorn, P., Wu, O., Rodgers, H., Ashburn, A., & Bernhardt, J. (2017). A very early rehabilitation trial after stroke (AVERT): A phase III, multicenter, randomized*

controlled trial. Health Technology Assessment, 21(54), 1-119. doi:10.3310/hta21540.

- *Gwilliam, J.& McNicholas, M. (2020). Abstract NS6: Early mobility initiated at 12 hours postthrombolytic therapy for stroke increases likelihood for discharge to home. Stroke, 51. https://doi.org/10.1161/str.51.suppl_NS6.*
- *Clark, D., Stuchiner T., Robison J., Lucas, L. and Yanase, L. Effect of Very Early Mobilization After IV Alteplase on 90 Day Functional Outcome. 22 Jan 2018https://doi.org/10.1161/str.49.suppl_1.TP321Stroke. 2018;49:ATP321.*

Complete the content above before moving on.

Did you know...

"The initial half life of Tenecteplase is 20-24 minutes, with a terminal half life of 90-130 minutes."

- U.S. Food and Drug Administration

Providence (Oregon) has completed safety trials for early mobility for post thrombolytic and post thrombectomy patients. They have data to support safe implementation of protocol driven early mobility.

They have safely followed an early mobility protocol for stroke for several years.

Please click or tap the rectangle below to open and review the **Early Mobility and Exercise for Stroke Patients** document, which provides stroke-specific guidance that aligns with the ICU Liberation Bundle.

Early Mobility and Exercise for Stroke Patients.pdf
197.1 KB

CONTINUE

First:

Complete safety screening with "MOVE"

Safety Screening for Mobility - "**MOVE**"

(done with HOB at 30 degrees)

M — **Myocardial Stability**
- No evidence of MI over the last 24 hours
- No dysrhythmia requiring new antidysrhythmic agents over the last 24 hours

O — **Oxygenation**
- FiO2 < 0.6 and PEEP < 10cm H2O (if > 0.6 consult with RT and MD)

V — **Vasopressors**
- No increase in any vasopressors in the last 2 hours

E — **Engages**
- Patient responds to verbal stimulation

Second:

Review blood pressure and physician orders

Blood pressure parameters for stroke patients, by stroke type:

Additional safety parameters for stroke patients:

BP paramaters (below are general parameters, always follow MD orders for patient-specific parameters):

ISCHEMIC SBP <220	POST THROMBOLYTICS SBP <180, DBP <105	POST THROMBECTOMY SBP 100-160, DBP 50-100	ICH SBP 130-150	SAH SBP 90-140

Follow blood pressure, RR, oxygen saturation and other parameters per stroke/MD orders.

General guidelines:

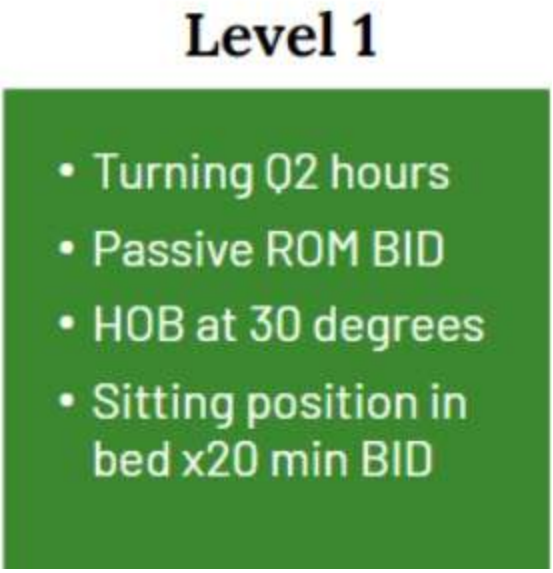
Ischemic stroke/TIA w/o thrombectomy or thrombolysis: mobility progressed from time of admission per neurology orders.
Post THROMBOLYTICS: Mobilty progressed from time of admission per neurology orders.
Post THROMBECTOMY: Mobility progressed 6 hours from the time of admission per Neuro IR and neurology orders.
VENTRICULOSTOMY AND CRANI PATIENTS: Per orders and neurosurgery notes, consult physician as needed.

Next:

If the patient passes the safety screening, has orders, and meets general guidelines, progress to the highest mobility level.

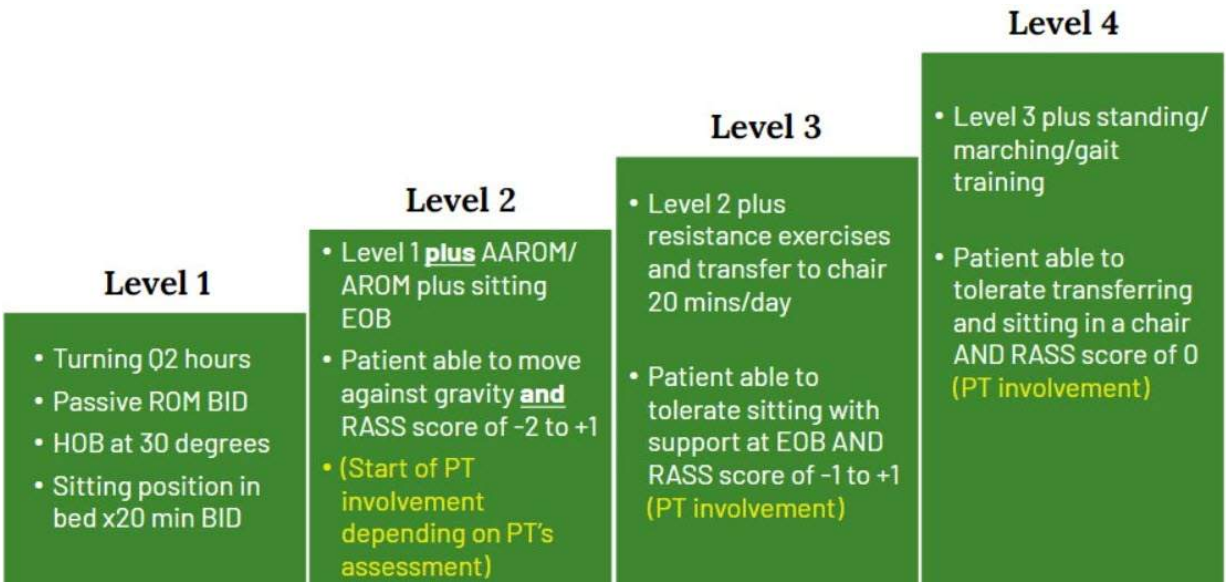
If patient does <u>NOT</u> pass the safety screening:

- Remain at Level 1 and reassess each shift.
- Call provider or RRT as appropriate.



If patient DOES pass the safety screening:

- Begin "Early mobility and Exercise."
- If the patient is not tolerating activity or falls outside the safety parameters, return to bed and alert RN/MD.



Click or tap the image above to zoom in.

Review the table below for more details about the **Richmond Agitation-Sedation Scale (RASS)**.

Richmond Agitation-Sedation Scale

	Target RASS Value	RASS Description
+4	Combative	Combative, Violent, Immediate Danger to Staff
+3	Very Agitated	Pulls or Removes Tube(s) or Catheter(s); Aggressive
+2	Agitated	Frequent non-Purposeful Movement, Fights Ventilator
+1	Restless	Anxious, Apprehensive but Movements are not Aggressive or Vigorous
0	Alert and Calm	
-1	Drowsy	Not Fully Alert, but has Sustained Awakening to Voice (Eye Opening & Contact >10sec)
-2	Light Sedation	Briefly Awakens to Voice (Eye Opening & Contact <10sec)
-3	Moderate Sedation	Movements or Eye Opening to Voice (BUT NO Eye Contact)
-4	Deep Sedation	No Response to Voice, BUT has Movement or Eye Opening to Physical Stimulation
-5	Unarousable	No Response to Voice or Physical Stimulation

CONTINUE

Review the image below for the full early mobility and exercise for stroke patients process.

EARLY MOBILITY AND EXERCISE for STROKE PATIENTS

SAFETY SCREENING FOR MOBILITY- *MOVE* (Done with HOB at 30 degrees)

M -Myocardial Stability: No evidence of MI over the last 24 hours. No dysrhythmia requiring new antidysrhythmic agents over the last 24 hours

O -Oxygenation: FiO2< 0.6 and PEEP< 10cm H2O

V -Vasopressers: No increase in any vasopressors in the last two hours

E -Engages: Patient responds to verbal stimulation

Additional safety parameters for stroke patients:

BP paramaters (below are general parameters, always follow MD orders for patient-specific parameters):

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Follow blood pressure, RR, oxygen saturation and other parameters per stroke/MD orders.

Ischemic stroke/TIA w/o thrombectomy or thrombolysis: mobility progressed from time of admission per neurology orders.
Post THROMBOLYTICS: Mobilty progressed from time of admission per neurology orders.
Post THROMBECTOMY: Mobility progressed 6 hours from the time of admission per Neuro IR and neurology orders.
VENTRICULOSTOMY AND CRANI PATIENTS: Per orders and neurosurgery notes, consult physician as needed.

Passed safety screening? — NO → Remain at LEVEL 1 and reasses each shift. Call provider or RRT as appropriate

YES

Begin "Early mobility and Exercise"

LEVEL 1: Turning Q 2 hours
- -Passive ROM BID
- -HOB at 30 degrees
- -Sitting position in bed (not EOB) x20 minutes BID

LEVEL 2: Patient able to move against gravity AND RASS score of -2 to +1 (*PT/OT involvement*)
- -Level 1 *plus* AAROM/AROM plus sitting at Edge of Bed

LEVEL 3: Patient able to tolerate sitting with support edge of bed AND RASS score of -1 to +1
- -Level 2 *plus* exercises and transfer to chair 20 minutes/day

LEVEL 4: Patient able to tolerate transferring and sitting in a chair AND RASS score of 0
- -Level 3 *plus* standing/marching/ gait training

If patent is not tolerating activity, or falls outside safety parameters, return to bed and alert RN/MD

ACTIVITY LEVEL in relation to Johns Hopkins HLM

JOHNS HOPKINS HIGHEST LEVEL OF MOBILITY GOAL (and ADL)	SAFE PATIENT HANDLING EQUIPMENT RECOMMENDATIONS
1 LAY IN BED	REPOSITIONING DEVICES LATERAL TRANSFER DEVICES MECHANICAL TOTAL ASSIST LIFTS
2 BED ACTIVITIES/ DEPENDENT TRANSFER (WASH FACE, COMB HAIR, SHAVE, BRUSH TEETH)	
3 SIT AT EDGE OF BED (WASH FACE, COMB HAIR, SHAVE, BRUSH TEETH)	SITTING SUPPORT DEVICE
4 MOVE TO CHAIR/COMMODE (UPPER BODY WASH AND DRESS)	
5 STAND (1 OR MORE MINUTES) (WASH FACE, COMB HAIR, BRUSH TEETH)	STAND PIVOT DEVICES (Sara Steady)
6 WALK 10 STEPS OR MORE (TOILET IN BATHROOM)	SIT TO STAND LIFT DEVICE WITH AMBULATION OPTION
7 WALK 25 FEET OR MORE (ALL ADLS IN BATHROOM)	WALKERS CRUTCHES CANES
8 WALK 250 FEET OR MORE (ALL ADLS IN BATHROOM)	

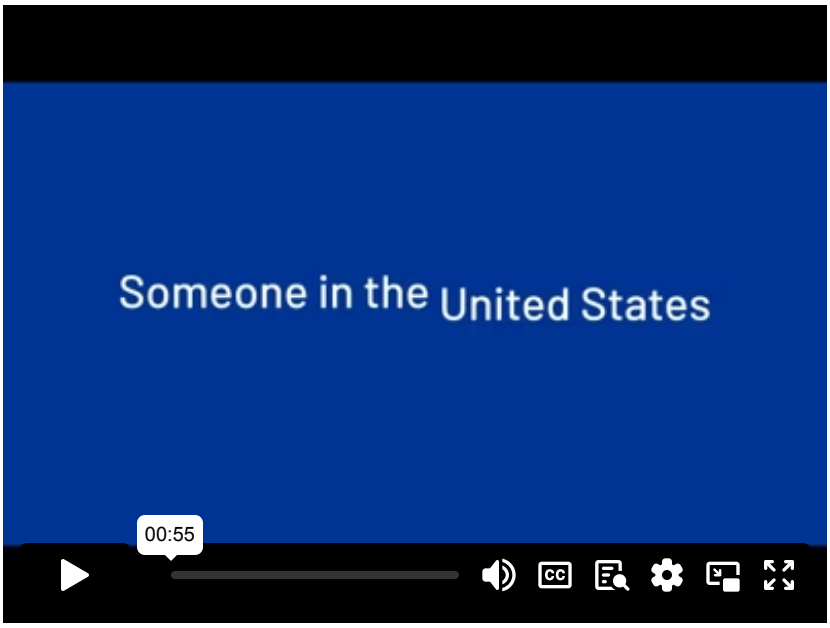
Source: Regional ICU Liberation A-F Bundle

CONTINUE

B.E.F.A.S.T.

Please review the video below, which outlines the B.E.F.A.S.T. symptoms of a stroke.

VIMEO



BEFAST.mp4

This is "BEFAST.mp4" by Rise on Vimeo, the home for high quality videos and the people who love them.

VIEW ON VIMEO >

CONTINUE

Post-Test

Complete the following quiz with a score of 100% in order to move on with the course. You will have unlimited attempts to achieve the required score.

Question

01/11

True or False:

For patients that meet criteria, the standard treatment window for Tenecteplase is within 4.5 hours of last known well.

- ◯ True
- ◯ False

Question

02/11

Multiple Choice:

The goal for door to needle for Comprehensive Stroke Centers is:

- ◯ 30 minutes
- ◯ 45 minutes
- ◯ 60 minutes

Question

03/11

Multiple Choice:

Studies show treating large vessel occlusions with thrombectomy up to ___ hours after symptom onset can decrease long term disability.

- 4.5 hours
- 12 hours
- 24 hours

Question

04/11

Multiple Choice:

Before entering a patient room, you review the chart and see that the patient was admitted with a stroke and has left upper and lower extremity weakness. After meeting the patient, you notice slurred speech and left facial droop. What is the first thing you do?

- ◯ Activate your emergency response process (Rapid Response or Code Stroke)
- ◯ Call the speech therapist

Question

05/11

Select All That Apply:

What are some deficits you might see with a **right-brain** stroke?

- [ ] Left side weakness
- [ ] Easily frustrated, aware of deficits
- [ ] Highly distractible, short attention span
- [ ] Impulsive

Question

06/11

Select All That Apply:

What are some deficits you might see with a **left-brain** stroke?

- [ ] Right side weakness
- [ ] Broca's aphasia
- [ ] Easily frustrated/aware of deficits
- [ ] Impulsive/highly distractable

Question

07/11

Multiple Choice:

Blood pressure guidelines for acute stroke allow permissive hypertension to help improve blood flow to the vulnerable tissue around the stroke. This area is called:

- ◯ Ischemic core
- ◯ Cerebral arteries
- ◯ Penumbra

Question

08/11

Multiple Choice:

The upper limit for systolic blood pressure for a patient with an acute stroke that did not receive thrombolytic treatment is:

- ◯ 130-150
- ◯ 180
- ◯ 220

Question

09/11

Multiple Choice:

Safety screening for mobility uses MOVE. What does MOVE stand for?

- Myocardial Infarction/Oxygenation/Vasodialators/Engages
- Myocardial Stability/Oxygenation/Vasodialators/Engages
- Myocardial Stability/Oxygenation/Vasopressors/Engages
- Myocardial Stability/Opioids/Vasopressors/Engages

Question

10/11

Multiple Choice:

Which of the two diagnoses can mobility be progressed at the time of admission per MD order?

- Ischemic Stroke and Thrombectomy
- Thrombolytics and Thrombectomy
- Thrombolytics and SAH
- Ischemic Stroke and Thrombolytics

Question

11/11

Select the Two Best Answers:

If a patient does not pass the safety screening, what should be the next step?

- [ ] Request a MD order to initiate early mobility
- [ ] Remain at Level 1, perform the safety screening at the next shift
- [ ] Call provider or RRT as appropriate

References

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- Rick Savel ABCDEF Protocol Critical Care Patient Safety Bundle https://www.youtube.com/watch?v=jdtmGQ-gWml
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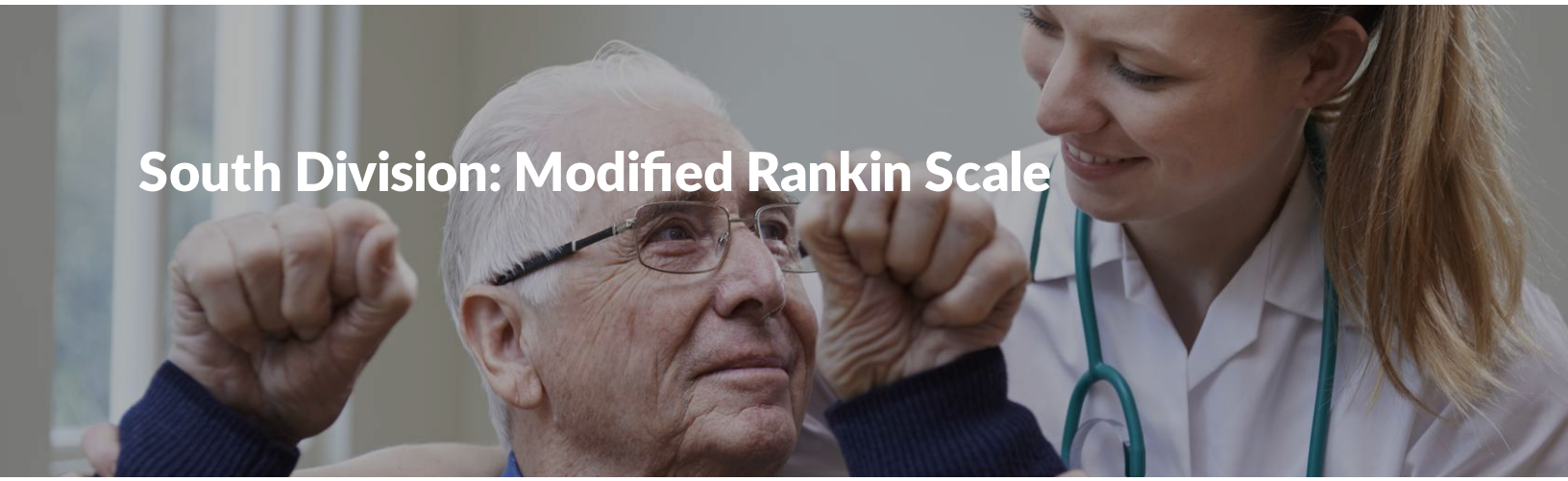
- Zitek, T., Ataya, R., & Brea, I. (2020). Using Tenecteplase for Acute Ischemic Stroke: What Is the Hold Up?. The western journal of emergency medicine, 21(2), 199–202. https://doi.org/10.5811/westjem.2020.1.45279

CONTINUE

Conclusion

You have completed *Therapy Annual Stroke Education* course.

Click 'Exit Course' in the upper right corner to close this window.



South Division: Modified Rankin Scale

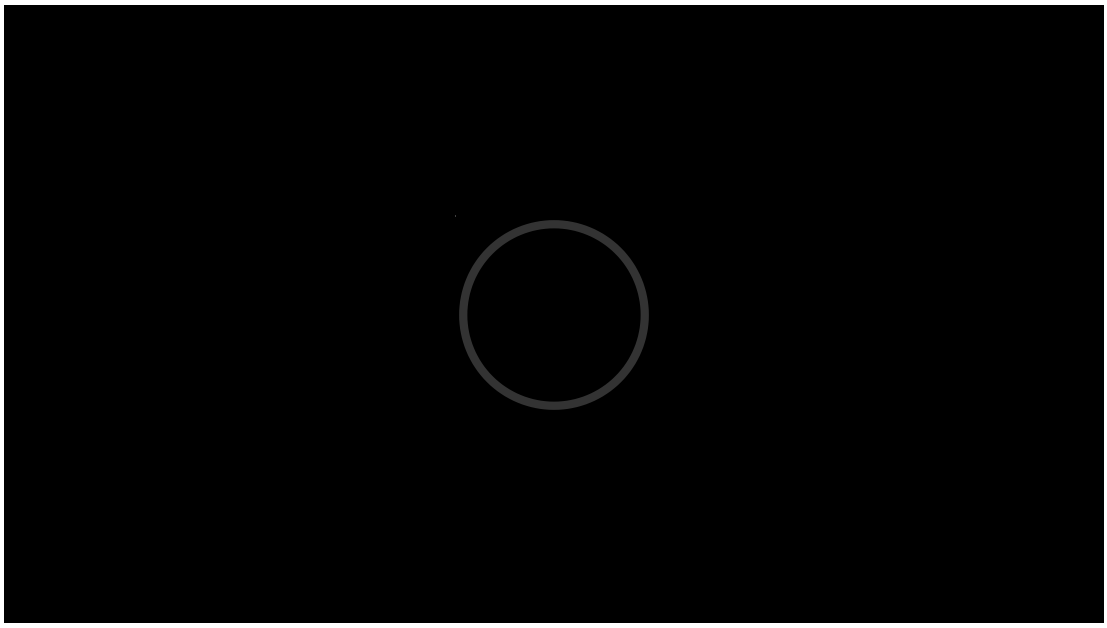
Modified Rankin Scale SLM

Modified Rankin Scale SLM

The Modified Rankin Scale (mRS) is a scale used to assess functional capacity in stroke patients, including cognitive, physical, and daily living activities. The scale is required on all Ischemic Stroke, TIA, and Hemorrhagic Strokes at the time of admission. This information needed for the score is to be based on the **pre-event capabilities of the patient**. Information may be obtained from the family if the patient is unable to answer.

Click the play button below to review the mRS Training Module from NETT.

VIMEO



NETT Modified Rankin Scale (mRS) Training Module

This is "NETT Modified Rankin Scale (mRS) Training Module" by Joy Black on Vimeo, the home for high quality videos and the people who love them.

VIEW ON VIMEO >

CONTINUE

Let's Review

Click on the plus signs (+) below to learn more about each number in the Modified Rankin Scale.

Rankin 0 —

No symptoms at all

Rankin 1

No significant disability despite symptoms: Able to carry out all usual duties and activities.

- Some symptoms - physical or cognitive
    - Speech, reading or writing
    - Physical movement, sensation, vision, swallowing|
    - Mood
- Can continue to take part in all previous work, social and leisure activities
- "Is there anything that you can no longer do that you used to do until you had the stroke?"
- Note: usual activity is defined as done at least monthly

Rankin 2

Slight disability: Unable to carry out all previous activities but able to look after own affairs without assistance.

- Unable to undertake an activity possible before stroke, i.e. driving a car, dancing, reading, working.
- Still able to look after self without daily help
    - Dressing, moving around, feeding, toileting, preparing sample meals, shopping, local travel
- Supervision not necessary
- The patient could be left at home alone for up to one week without concern

Rankin 3 _

Moderate Disability: Requiring some help, but able to walk without assistance.

- Independently mobile. Use of walker or cane OK
- Manages dressing, toileting, feeding, etc
- Needs help for more complex tasks such as shopping, cooking or cleaning. Needs outside help in the home more often than weekly
- Includes advisory help for tasks, i.e. supervision for financial affairs that was not required prior to the stroke

Rankin 4 _

Moderately severe disability: Unable to walk without assistance, and unable to attend to own bodily needs without assistance.

- Not independently mobile
- Needs help with some daily tasks
    - Walking, dressing, toileting, or eating
    - Needs visited at least daily, or
    - Must live in proximity to a caregiver
- Can the patient regularly be left alone for moderate periods during the day (up to two hours)?

Rankin 5 _

Severe disability: Bedridden, incontinent, and requiring constant nursing care and attention.
Note: bedridden does not mean the person does not get up but does require to be lifted into a chair.

- Someone else will always need to be available during the day and at times during the night, though not necessarily a trained nurse.

If you are unsure about a score, i.e. is it a score of 3 or 4, score to the higher number.

Complete the content above before moving on.

Congratulations! You have completed this eLearning module. Click the Exit Course link above to return to HealthStream.