

SCRIPT

ACUTE STROKE WITH FIBRINOLYTIC INDICATION AND ARRHYTHMIA



SCENARIO

#31

NAME

DARRYL SAYLOR

SPECIALTY

Neurology

DIFFICULTY LEVEL

ADVANCED

SIMULATION ENVIRONMENT

INTRA HOSPITAL - EMERGENCY ROOM

BODY INTERACT™
VIRTUAL PATIENTS

This patient is not a real patient, and the clinical scenario, while clinically plausible, is fictional.

Scenario

General description of the scenario info. Corresponds to the initial information presented to the trainee when selecting this scenario.

Title

Acute stroke with fibrinolytic indication and arrhythmia

Context

While having dinner at home, Mr. Saylor suddenly felt difficulty in talking and moving his right arm. His wife called the emergency unit as soon as she could.

Briefing

Male, 70 years old. Sudden onset of speech impairment and right-sided weakness two hours ago. Previous hypertension and dyslipidemia.

General learning objective

Recognize acute stroke.

Specific learning objectives

Start vital signs vigilance in acute care

Performance of neurological assessments (NIHSS)

Knowledge of alteplase and tenecteplase dosing protocols

Pre-simulation notes

-

Environment

Intra Hospital - Emergency Room

Specialty

Neurology

Difficulty Level

Advanced

Reviewers

Angels Initiative

Patient characteristics

Characterization of the patient's demographic, habits, behavior and specific status effects.

Avatar



Patient Name

Darryl Saylor

Age

70 years

Race/Ethnicity

European/Caucasian

Smoker

No

Sedated

No

Agitated

No

Facial palsy

100

Renal metabolic compensation

Auto

Gender

Male

Eye color

Brown

Conscious

Yes

Confused

No

Last meal over 2h

No

Speech impairment

Yes

Patient parameters

These parameter values are used by the simulator to initialize this scenario and correspond to a pre-treatment baseline.

Systolic arterial blood pressure (mmHg)

160

Heart rate (bpm)

110

Respiratory rate (/min)

14

Temperature (°C)

36.2

Urinary output (mL/kg/h)

0.57

Height (cm)

178

Diastolic arterial blood pressure (mmHg)

90

O2 saturation (%)

96

Blood glucose (mg/dL)

94

Hemoglobin (g/dL)

14.9

Weight (kg)

106

BMI

33.5

Potassium (mEq/L)

4.1

Sodium (mEq/L)

139

Physical examination

The items below characterize the patient's physical examination and monitoring findings on admission.

Airway

Airway observation

1st Priority

Clear airway. Normal oropharynx. No readily audible abnormal breath sounds.

Breathing

Chest palpation

Not a priority

Normal: 2L - normal; 2R - normal

Chest percussion

Not a priority

Right: 1R- resonance; 2R- resonance; 3R- resonance; 4R- resonance; 5R- dullness.
Left: 1L- resonance; 2L- resonance; 3L- superficial cardiac dullness; 4L- superficial cardiac dullness; 5L- resonance.

O2 Sat (%)

1st Priority

96

Pulmonary auscultation

2nd Priority

Clear to auscultation, with normal vesicular murmurs in all sites.

Respiratory rate (/min)

1st Priority

14

Circulation

Blood pressure (mmHg)

1st Priority

160 / 90

Capillary refill time (s)

Not a priority

1.3

Cardiac auscultation

2nd Priority

Persistent atrial fibrillation

Heart rate (bpm)

1st Priority

110 bpm

Pulse palpation

Not a priority

Carotid- Strong and Irregular;
Radial- Strong and Irregular, equal on both sides;
Femoral- Strong and Irregular, equal on both sides;
Dorsalis pedis- Strong and Irregular, equal on both sides.

Urinary output (mL/kg/h)

2nd Priority

139

Disability

Blood glucose (mg/dL)

1st Priority

94

Glasgow Coma Scale

2nd Priority

12 (E4-V3-M5)

Pupil light reflex

2nd Priority

Right: Size - 4 mm; Right eye light: 2 mm; Left eye light: 2 mm
Left: Size - 4 mm; Right eye light: 2 mm; Left eye light: 2 mm

Exposure

Abdominal auscultation

Not a priority

Normal

Abdominal palpation

Not a priority

Tender, depressible and no pain. No visceromegaly.

Abdominal percussion

Not a priority

6R- tympanic; 7R- tympanic; 6L- tympanic; 7L- tympanic.

Temperature (°C)

2nd Priority

36.2

Dialogues

This is a complete list of all possible dialogue questions (on the left) and the corresponding responses (on the right).

History Taking

Chief Complaint

01. How are you feeling?

1st Priority

Haaf... weeaak...

[Broca aphasia due to untreated stroke]

I feel weakness on the right side of my body.

[Stroke treated]

02. What happened to you?

After "How are you feeling?"

1st Priority

Coould lii riigh.

[Broca aphasia due to untreated stroke]

I was dinning with my wife at home and suddenly I couldn't lift my right arm to eat.

[Stroke treated]

History of Present Illness

03. When was the last time you had something to eat?

Not a priority

Nee... haa.....

[Broca aphasia due to untreated stroke]

It was a couple of hours ago.

[Stroke treated]

04. What were you doing when you felt ill?

2nd Priority

Nee... haa.....

[Broca aphasia due to untreated stroke]

I was dinning with my wife at home.

[Stroke treated]

05. What was the last thing you ate?

Not a priority

Doo apaa haaf.

[Broca aphasia due to untreated stroke]

I was having meat with potatoes, that my wife cooked.

[Stroke treated]

06. Were you doing any physical activity when you became ill?

Not a priority

Doo apaa haaf.

[Broca aphasia due to untreated stroke]

No, I was only having dinner sitting down at the table.

[Stroke treated]

07. Are you in pain at all?

1st Priority

Doo apaa haaf.

[Broca aphasia due to untreated stroke]

No, just a feeling of weakness on one side of my body.

[Stroke treated]

08. How long has it been since the symptoms started?

After "What happened to you?"

1st Priority

Nee... haa.....

[Broca aphasia due to untreated stroke]

Two hours ago.

[Stroke treated]

Past Medical/Surgical History

09. Do you have any other health problems?

Nee... haa.....

[Broca aphasia due to untreated stroke]

	2nd Priority	I had a heart attack one year ago. [Stroke treated]
10. Do you have high blood pressure?		Coould lii riigh. [Broca aphasia due to untreated stroke]
	2nd Priority	Yes, my doctor told me that I have. [Stroke treated]
11. Do you have high cholesterol?		Nee... haa..... [Broca aphasia due to untreated stroke]
	2nd Priority	No, not that I know of. [Stroke treated]
12. Have you ever been diagnosed as having diabetes?		Thii... boo. [Broca aphasia due to untreated stroke]
	1st Priority	No, not that I know of. [Stroke treated]
13. Have you had any recent illnesses?		Coould lii riigh. Only the heart attack that I had and what I have now.
	2nd Priority	
Medications and Allergies		
14. Are you currently taking any medication?		Thii... boo. [Broca aphasia due to untreated stroke]
	1st Priority	I'm taking atorvastatin, enalapril and aspirin, that my doctor told me to. [Stroke treated]
15. Have you had any side effects from your medication?		Haaf... weeaak... [Broca aphasia due to untreated stroke]
	2nd Priority	I have felt ok with my medication. [Stroke treated]
16. Are you taking any supplements?		Thii... boo. [Broca aphasia due to untreated stroke]

	Not a priority	No, I am not taking any supplements. [Stroke treated]
17. Do you have any allergies?	1st Priority	Doo apaa haaf. [Broca aphasia due to untreated stroke] No, not that I know of. [Stroke treated]
Social History		
18. Can you please tell me what you usually eat?	Not a priority	Coould lii riigh. [Broca aphasia due to untreated stroke] I like eating meat dishes. I guess I don't eat as much fish as I should. [Stroke treated]
19. How active are you?	Not a priority	Coould lii riigh. [Broca aphasia due to untreated stroke] Well, I'm not very active. For example, I only go for a walk very occasionally. [Stroke treated]
20. Have you been under any stress lately?	2nd Priority	Thii... boo. [Broca aphasia due to untreated stroke] No, I'm retired now. [Stroke treated]
21. How often do you consume alcohol?	Not a priority	Haaf... weeaak... [Broca aphasia due to untreated stroke] I normally drink a glass of wine with meals. [Stroke treated]
22. Do you eat snacks between meals?	Not a priority	Coould lii riigh. [Broca aphasia due to untreated stroke] Only occasionally. [Stroke treated]

23. Are you a smoker?

2nd Priority

Doo apaa haaf.

[Broca aphasia due to untreated stroke]

No, I don't smoke.

[Stroke treated]

24. Any recent weight changes?

Not a priority

Haaf... weeaak...

[Broca aphasia due to untreated stroke]

I don't think my weight has changed.

[Stroke treated]

25. Have you felt any changes to your appetite?

Not a priority

Haaf... weeaak...

[Broca aphasia due to untreated stroke]

No, I've been eating pretty much as normal.

[Stroke treated]

Medical Tests

The items below describe the possible test results in this scenario, including rules that may affect those results.

Decision aids

Stroke scale (NIHSS)

1st Priority

[On admission, untreated stroke] 14 - Moderate stroke

[Untreated stroke deteriorated to severe status] 24 - Moderate stroke

[Therapeutic fibrinolytic dose administered] 2 - Minor stroke

[Fibrinolytic overdose] 24 - Severe stroke

Electrophysiology

12-Lead ECG

2nd Priority

Atrial fibrillation

Imaging

Cerebral CT angiography

1st Priority

Distal left MCA occlusion

Cerebral perfusion CT

2nd Priority

Mismatch in a small area of the left parietal lobe

Chest CT

Not a priority

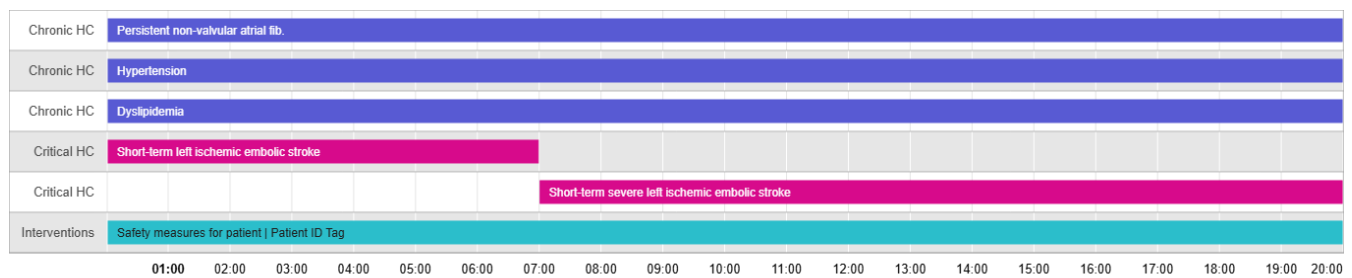
Absence of significant changes of pulmonary parenchyma density and pleural effusion.

Chest X-Ray	Not a priority	The lungs are clear. The heart is normal in size. The mediastinum is within normal limits.
Head CT	1st Priority	No visible lesions
Neck Doppler ultrasound	2nd Priority	No significant alterations
Transcranial Doppler	2nd Priority	An occlusive TIBI 3 flow is visible in the left middle cerebral artery with increased flow in the ipsilateral anterior cerebral artery. These data indicate occlusion in the M2/M3 segment of the left middle cerebral artery, with good collateral flow.
Transesophageal echocardiogram	Not a priority	Irregular atrial contraction; increased heart rate; ejection fraction: 45%
Transthoracic echocardiogram	Not a priority	Irregular atrial contraction; increased heart rate; ejection fraction: 45%
Lab tests		
Arterial blood gas	Not a priority	Blood pH - 7.39 Hemoglobin (g/dL) - 14.9 PaCO ₂ (mmHg) - 42 HCO ₃ ⁻ (mEq/L) - 24.6 BE (mEq/L) - 0.02 O ₂ sat (%) - 96 Na ⁺ (mEq/L) - 139 K ⁺ (mEq/L) - 4.1 Lactate (conventional) (mg/dL) - 9.0
Biochemistry	2nd Priority	BUN (mg/dL) - 19 Na ⁺ (mEq/L) - 139 K ⁺ (mEq/L) - 4.1 AST (IU/L) - 21 ALT (IU/L) - 32 AP (IU/L) - 78 CK (IU/L) - 113 CRP (mg/L) - 2.3
Cardiac biomarkers	Not a priority	CK-MB Mass (ng/mL) - 2 Troponin I (ng/mL) - 0.01 Myoglobin (ng/mL) - 17
Coagulation tests	2nd Priority	aPTT (s) - 36 Prothrombin time (s) - 12.0 INR - 1.0
Complete blood count	2nd Priority	Leukocytes (/μL) - 8500

		Neutrophils (/μL) - 4500 (53%)
		Lymphocytes (/μL) - 3200 (38%)
		Monocytes (/μL) - 410 (5%)
		Eosinophils (/μL) - 280 (3%)
		Basophils (/μL) - 110 (1%)
		Immature granulocytes (/μL) - 0 (0%)
		Erythrocytes (×10 ⁶ /μL) - 4.8
		Hemoglobin (g/dL) - 14.9
		Hematocrit (%) - 44
		MCV (μm ³) - 92
		MCH (pg/cell) - 30
		MCHC (g/dL) - 35
		RDW (%) - 12.0
		Platelets (×10 ³ /μL) - 222
Lipid profile	Not a priority	Total cholesterol (mg/dL) - 171
		Triglycerides (mg/dL) - 145
		HDL cholesterol (mg/dL) - 69
		LDL cholesterol (mg/dL) - 73
		Cholesterol ratio - 2.5
Urinalysis	Not a priority	Specific Gravity - 1.024
		pH - 6.0
		Urine color - Yellow
		Appearance - Clear
		WBC Esterase - Negative
		Protein - Negative
		Albumin - Negative
		Glucose - Negative
		Ketones - Negative
		Erythrocytes - Negative
		Bilirubin - Negative
		Urobilinogen, Semi-Qn - 0.0
		Nitrite, Urine - Negative
		Intoxicants - Negative

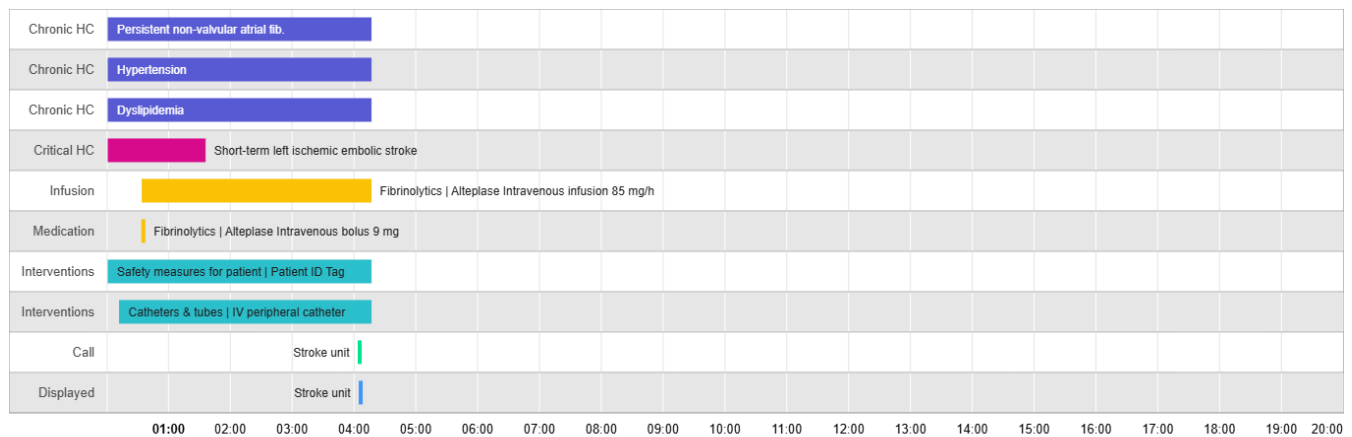
Baseline

This section is automatically generated and predicts scenario behavior assuming no actions by the trainee, which usually represents the worst-case scenario.



Optimal clinical approach - International

This section previews how the optimal approach resolves the scenario successfully. Comparison with Baseline may be useful to understand the scenario behavior.



Management

The items below represent management actions relevant to solving this clinical scenario. Notes: 1st Priority – Mandatory items required for a successful outcome. 2nd Priority – Optional items considered adequate but not essential. Not a Priority – Unnecessary items that are inadequate or a waste of time.

i.1 - Administer a fibrinolytic

1st Priority

Medications | Fibrinolytics |
Alteplase

Medications | Fibrinolytics |
Tenecteplase

i.2 - Call Stroke unit

1st Priority

Call | Stroke unit

i.3 - Request a thrombectomy

2nd Priority

Call | Interventional
neuroradiology

i.4 - Request a thrombectomy by interv. neuroradiology

2nd Priority

Call | Thrombectomy

i.5 - Oxygen supplementation

2nd Priority

Interventions | Oxygen | High
flow mask

Interventions | Oxygen | Nasal
cannula

Question(s) during the simulation

Questions presented to the trainee in order to have a more detailed evaluation of the use of the clinical scenario.

Head CT question:

Question

Based on the patient's clinical assessment and the head CT findings, select the most likely diagnosis:

Correct answer

Acute ischemic stroke

2 Incorrect answer(s)

Hemorrhagic stroke

Meningioma

Head CT question:

Question

Does this CT have signs of any intracranial hemorrhage?

Correct answer

No

1 Incorrect answer(s)

Yes

Head CT question:

Question

Based on the neurological assessment, please rate the stroke severity:

Correct answer

Moderate stroke

2 Incorrect answer(s)

Minor stroke

Severe stroke

Head CT question:

Question

Are there any contraindications for thrombolysis?

Correct answer

No, the patient has no contraindications

2 Incorrect answer(s)

Yes, because the patient has a previous diagnosis of hypertension

Yes, because the patient has more than 90kg

Cerebral CT angiography question:

Question

Which vascular lesion is visible?

Correct answer

Occlusion of the left M2 MCA segment

2 Incorrect answer(s)

No occlusion is visible

Occlusion of the left M3 MCA segment

Cerebral CT angiography question:

Question

What is the extent of the established ischemic infarct in the CT scan?

Correct answer

No changes. ASPECTS: 10

2 Incorrect answer(s)

Minor lesion. ASPECTS: 8

Large infarct. ASPECTS: 3

Question(s) after simulation

Questions presented to the trainee in order to have a more detailed evaluation of the use of the clinical scenario.

Summative Multiple Choice Question:

Question

What is the most likely diagnosis?

Correct answer

Ischemic stroke

3 Incorrect answer(s)

Conversion disorder

Epileptic crisis

Cerebral tumor

Formative Multiple Choice Question:

Question

Does this patient have an indication for thrombectomy?

Correct answer

Yes, the patient has a large vessel occlusion

2 Incorrect answer(s)

No, the patient does not have an intracranial occlusion

No, thrombectomy is contraindicated due to the patient's arrhythmia

Formative Multiple Choice Question:

Question

Considering the patient did not have a visible lesion in the 24-hour Head CT scan. When should the patient start oral anticoagulation?

Correct answer

Within 72 hours after stroke

2 Incorrect answer(s)

7-14 days after stroke

More than 14 days after stroke

Formative Multiple Choice Question:

Question

What is the correct option regarding the use of antiarrhythmic medication for this patient?

Correct answer

Antiarrhythmic medication can be administered in the sub-acute phase, considering the patient's evolution

2 Incorrect answer(s)

The patient should start antiarrhythmic medication in the acute phase to restore sinus rhythm

The patient should never use antiarrhythmic medication due to the embolic risk

Handoff question

Question presented to the trainee to assess their ability to effectively communicate patient information during a transition of care. This question is optional.

Question

Summarize this Body Interact scenario using a structured handoff pattern.

Review handoff pattern

SBAR (Situation, Background, Assessment, Recommendation): Includes current condition and reason for handoff, relevant history and context, assessment details, and recommended actions.

SOAP (Subjective, Objective, Assessment, Plan): Covers patient-reported symptoms and history, measurable data and findings, clinical impressions and diagnoses, and the treatment plan.

I-PASS (Illness Severity, Patient Summary, Action List, Situation Awareness and Contingency Planning, Synthesis by Receiver): Encompasses illness status, patient background, tasks and actions, potential changes and plans, and confirmation of understanding.

AT-MIST (Age, Time of incident or onset of symptoms, Mechanism of injury/Medical Complaint, Injuries or

Inspections head-to-toe, vital Signs, and Treatments):
Describes the cause of injury or medical complaint, findings from head-to-toe inspection, vital signs, and treatments provided.

Simulation Ending Messages

Feedback messages shown to the user based on specific successful or unsuccessful approaches, triggered by defined conditional rules.

Title	Type	Message	Conditional
Success	Success	Excellent work! You gathered the full clinical history and ensured comprehensive patient care. This thorough approach guarantees safe and accurate management, allowing you to better meet your patient's needs. Keep it up!	Treating the patient's conditions according to guidelines
Failure 1	Failure	The patient suffered a severe intracranial hemorrhage, and underwent emergency neurosurgery. Recovered with severe permanent disability.	

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