

SCRIPT

STROKE INDICATED FOR
THROMBOLYTIC THERAPY



SCENARIO

#33

NAME

NORMA KAYLEE

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

Stroke indicated for thrombolytic therapy

Context

While having a meal, Norma suddenly felt right-sided weakness and couldn't express herself. Her son noticed her face was drooping to the side and immediately called the emergency unit.

Briefing

Female, 78 years old. Sudden onset of speech impairment and right-sided weakness two hours ago.

General learning objective

Recognize acute stroke.

Specific learning objectives

Start vital signs vigilance in acute care
Performance of neurological assessments (NIHSS)
Blood pressure management in acute stroke
Knowledge of contraindications to thrombolytic therapy

Pre-simulation notes

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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

Norma Kaylee

Age

78 years

Race/Ethnicity

European/Caucasian

Smoker

No

Sedated

No

Agitated

No

Facial palsy

100

Renal metabolic compensation

Auto

Gender

Female

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)

219

Heart rate (bpm)

80

Respiratory rate (/min)

13

Temperature (°C)

36.4

Urinary output (mL/kg/h)

0.59

Height (cm)

174

Diastolic arterial blood pressure (mmHg)

118

O2 saturation (%)

97

Blood glucose (mg/dL)

94

Hemoglobin (g/dL)

14.7

Weight (kg)

87

BMI

28.7

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 inspection

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

97%

Pulmonary auscultation

2nd Priority

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

Respiratory rate (/min)

1st Priority

13/min

Circulation

Blood pressure (mmHg)

1st Priority

219/118 mmHg

Capillary refill time (s)

Not a priority

1.3 seconds

Cardiac auscultation

2nd Priority

Persistent atrial fibrillation

Heart rate (bpm)

1st Priority

80 bpm

Pulse palpation

Not a priority

Carotid- Amplitude: strong; Rhythm: arrhythmic;
Radial- Amplitude: strong; Rhythm: arrhythmic, equal on both sides;
Femoral- Amplitude: strong; Rhythm: arrhythmic, equal on both sides;
Dorsalis pedis- Amplitude: strong; Rhythm: arrhythmic, equal on both

Urinary output (mL/kg/h)	2nd Priority	sides 0.59 mL/kg/h
Disability		
Blood glucose (mg/dL)	1st Priority	94 mg/dL
Glasgow Coma Scale	2nd Priority	HC Severe intracranial hemorrhage active: 9 (E2-V2-M5) HC Short-term severe left ischemic embolic stroke active: 9 (E3-V1-M5) After fibrinolytic: 13 (E4-V3-M6) Default: 12 (E4-V2-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 hydro-aerial sounds without abdominal murmurs.
Abdominal palpation	2nd Priority	No rigidity. No pain. No guarding or signs of peritoneal irritation. No masses or palpable organomegalies.
Abdominal percussion	2nd Priority	6R- tympanic; 7R- tympanic; 6L- tympanic; 7L- tympanic.
Temperature (°C)	2nd Priority	36.4°C

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	Boo... streen... Speech impairment I'm not feeling very well on the right side of my body.
02. What happened to you?		Haavv... laa... Speech impairment

After "How are you feeling right now?"

1st Priority

I was having lunch when suddenly I felt my right arm and leg become weak.

History of Present Illness

03. What were you doing when you felt ill?

2nd Priority

Diabee...knoow..

Speech impairment

I was having lunch with my husband and son.

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

Not a priority

Remeen... leeff..

Speech impairment

It was at lunchtime.

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

Not a priority

Remeen... leeff..

Speech impairment

No, I was sitting at the table having lunch at home.

06. What was the last thing you ate?

Not a priority

Remeen... leeff..

Speech impairment

It was beef with roasted potatoes.

07. Are you feeling any pain?

1st Priority

Stree... boo...

Speech impairment

No, I don't feel any pain. I only feel weakness.

08. When did your symptoms start?

1st Priority

Remeen... leeff..

Speech impairment

Two hours ago.

Past Medical/Surgical History

09. Do you have any other health problems?

Remeen... leeff..

Speech impairment

	2nd Priority	No, nothing.
10. Do you have high blood pressure?		Remeen... leeff... Speech impairment
	2nd Priority	Yes, my doctor told me that I have.
11. Do you have high cholesterol?		Diabee...know.. Speech impairment
	2nd Priority	Not that I know of.
12. Do you have diabetes?		Diabee...know.. Speech impairment
	1st Priority	No, I don't think so.
13. Have you had any recent illnesses?		Boo... streen... Speech impairment
	2nd Priority	Up until now, I've never had anything special.
Medications and Allergies		
14. Are you currently taking any medication?		Stree... boo... Speech impairment
	1st Priority	I'm taking dabigatran, I think it's called, that my doctor prescribed for me at the last appointment.
15. Are you taking your medications strictly as prescribed?		Haavv... laa... Speech impairment
	1st Priority	I ran out of pills and didn't get more, so I haven't taken my medication for three days.
16. Have you had any side effects from your medication?		Haavv... laa... Speech impairment
	2nd Priority	No, I haven't had any side effects from the medication.

17. Are you taking any supplements?

Not a priority

Haavv... laa...
Speech impairment
No, I don't take supplements.

18. Do you have any allergies?

1st Priority

Diabee...know..
Speech impairment
No.

Social History

19. How active are you?

Not a priority

Boo... streen...
Speech impairment
Once in a while, I go for a walk in a park at the end of the day. Also, I usually go shopping at the supermarket.

20. Have you been under any stress lately?

2nd Priority

Boo... streen...
Speech impairment
No, I'm retired now.

21. Can you please tell me what you usually eat?

Not a priority

Boo... streen...
Speech impairment
I usually have meat dishes, with rice and potatoes. I know that i should have more diverse meals, and with more vegetables.

22. How often do you consume alcohol?

Not a priority

Boo... streen...
Speech impairment
I don't drink alcohol at all.

23. Do you eat snacks between meals?

Not a priority

Boo... streen...
Speech impairment
I usually eat tea and cookies.

24. Are you a smoker?

2nd Priority

Boo... streen...
Speech impairment

No.

25. Any recent weight changes?

Not a priority

Boo... streen...

Speech impairment

I don't think my weight has changed.

26. Have you felt any changes to your appetite?

Not a priority

Stree... boo...

Speech impairment

I think my appetite has been the same.

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

Severe intracranial hemorrhage - 28
Short-term severe left ischemic embolic stroke - 25
After fibrinolytic - 8
Default - 16

Electrophysiology

12-Lead ECG

2nd Priority

Atrial fibrillation with cardiac frequency at 80 bpm

Imaging

Cerebral CT angiography

1st Priority

Occlusion of the M2 segment of the left Middle Cerebral Artery. No other pathological findings are visible.

Cerebral perfusion CT

1st Priority

Decreased Cerebral Blood Flow (CBF) and prolonged Mean Transit Time (MTT) in the right frontoparietal lobes; small frontal subcortical area of decreased Cerebral Blood Volume (CBV).

Chest CT

Not a priority

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

Chest X-Ray

Not a priority

No visible alterations.

Head CT

1st Priority

Small hypodensity of left opercular and

insular cortices adjacent to area of intravascular spontaneous hyperdensity in the M2 segment of the left middle cerebral artery. There are no other acute lesions visible including signs of hemorrhage. Cerebral ventricles are of normal shape and size considering the patient's age. ASPECTS: 8.

Neck Doppler ultrasound

2nd Priority

Normal carotid artery flow.

Transcranial Doppler

2nd Priority

Occlusion of the proximal M1 segment of the left MCA. All other intracranial arteries have normal flow. Occlusion of the proximal M1 segment of the left MCA. All other intracranial arteries have normal flow.

Transesophageal echocardiogram

Not a priority

No alterations.

Transthoracic echocardiogram

Not a priority

No alterations found to cardiac morphology. Normal left ventricular systolic function.

Lab tests

Arterial blood gas

Not a priority

Blood pH - 7.39
Hemoglobin (g/dL) - 14.7
PaO₂ (mmHg) - 82
PaCO₂ (mmHg) - 42
HCO₃⁻ (mEq/L) - 24.6
BE (mEq/L) - 0.02
O₂ sat (%) - 97
Na⁺ (mEq/L) - 4.1
K⁺ (mEq/L) - 139
Lactate (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) - 40 Prothrombin time (s) - 12.0 IRN - 1.0 D-Dimer (µg/mL) - 0.058
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 - 6.7
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

Initial notifications

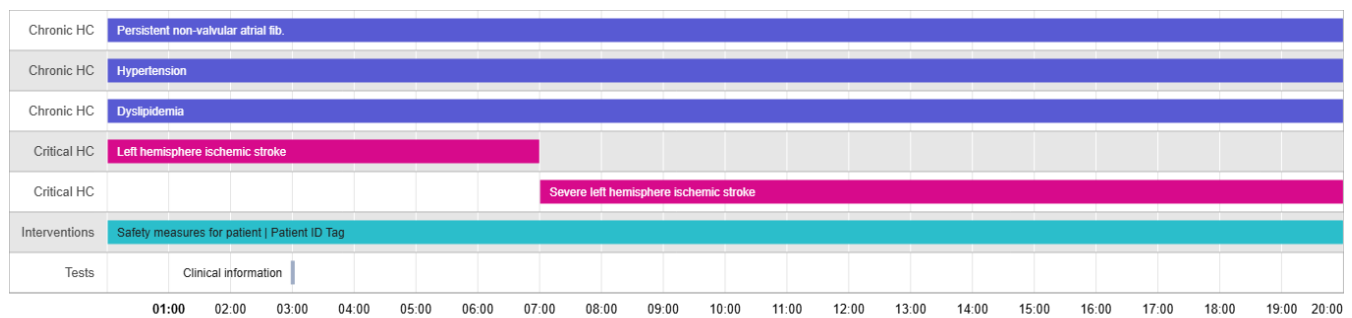
Initial notifications presented to the trainee after a specified amount of time after starting the simulation

Medical test **Time**

Clinical information	03:00	Source: Emergency medical team report Previous medication: Dabigatran, perindopril, furosemide and bisoprolol (reported by family member). Dabigatran last intake: Three days ago. Other information: Onset of speech impairment and right sided weakness 2 hours ago (reported by family member).
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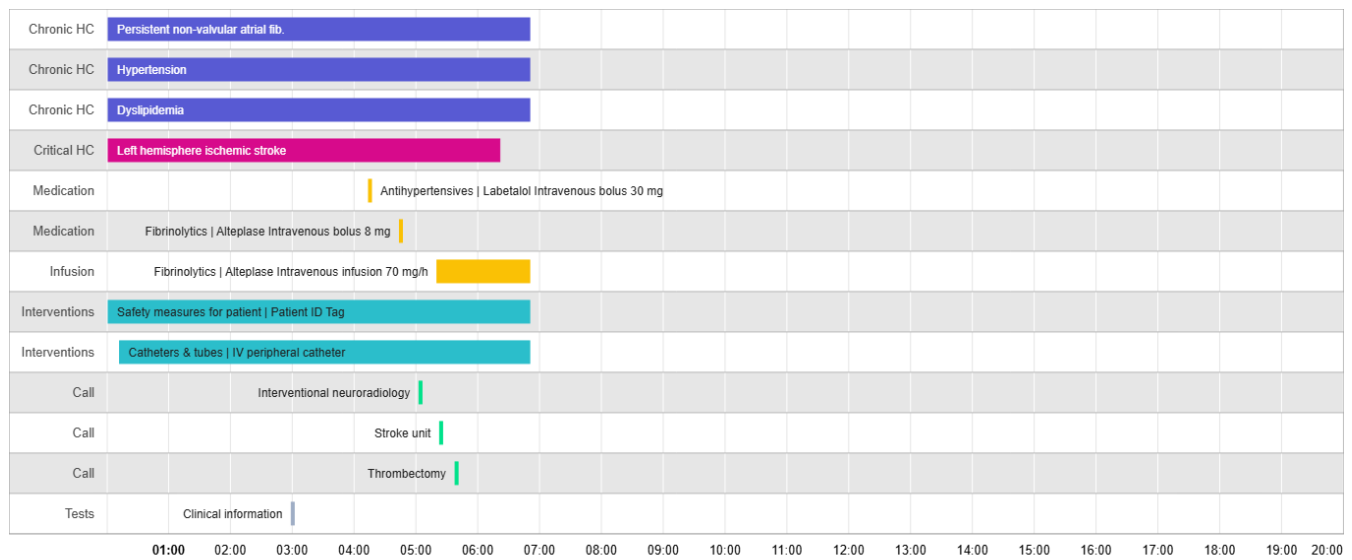
Baseline

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

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 an antihypertensive

1st Priority

Medications |
Antihypertensives | Labetalol
Intravenous bolus = 30 mg

Medications |
Antihypertensives | Labetalol
Intravenous infusion

i.2 - Administer an antihypertensive

2nd Priority

Medications |
Antihypertensives | Clevidipine

i.3 - Administer a fibrinolytic

1st Priority

Medications | Fibrinolytics |
Alteplase Intravenous bolus = 8
mg

Medications | Fibrinolytics |
Alteplase Intravenous infusion
= 70 mg/h

Medications | Fibrinolytics |
Tenecteplase Intravenous bolus
= 22,5 mg

i.4 - Call the stroke unit

1st Priority

The stroke unit has been notified.

Call | Stroke unit

i.5 - Request thrombectomy by interv. neuroradiology

1st Priority

The patient is ready to undergo a thrombectomy. Do you want to proceed?

Call | Interventional
neuroradiology

Call | Thrombectomy

Initially, occlusion of the proximal M2

segment of the left Middle Cerebral Artery is visible (TICI 0).
Procedure: one pass of stentriever.
Final angiographic result: full recanalization was observed (TICI 3).

i.6 - 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.

Clinical information question:

Question

What is the minimum interval between dabigatran's last administration and thrombolysis treatment with good renal function (CrCl >50 mL/min)?

Correct answer

Over 48 hours

2 Incorrect answer(s)

Over 12 hours

Over 96 hours

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

Brain abscess

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 to severe stroke

2 Incorrect answer(s)

Moderate stroke

Severe stroke

Head CT question:

Question

Are there any contraindications for thrombolysis?

Correct answer

No

1 Incorrect answer(s)

Yes

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

Brain abscess

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 to severe stroke

2 Incorrect answer(s)

Moderate stroke

Severe stroke

Head CT question:

Question

Are there any contraindications for thrombolysis?

Correct answer

Yes

1 Incorrect answer(s)

No

Cerebral CT angiography question:

Question

Which vascular lesion is visible?

Correct answer

Occlusion in the proximal M2 segment of the left MCA

2 Incorrect answer(s)

Basilar artery occlusion

No occlusions

**Cerebral CT angiography
question:**

Question

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

Correct answer

Minor lesion. ASPECTS: 8

2 Incorrect answer(s)

No changes. ASPECTS: 10

Large infarct. ASPECTS: 5

**Cerebral CT angiography
question:**

Question

Does this patient have an indication for thrombectomy?

Correct answer

Yes

1 Incorrect answer(s)

No

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)

Subdural hematoma

Meningioma

Encephalitis

**Formative Multiple Choice
Question:**

Question

Which procedures are NOT mandatory before the decision to administer thrombolysis?

Correct answer

Perform a 12-lead-ECG

2 Incorrect answer(s)

Measure blood pressure

Assess capillary glycemia

Formative Multiple Choice Question:

Question

When should this patient have a rehabilitation assessment?

Correct answer

Within 1st week

2 Incorrect answer(s)

Within 1st month

Within 1st year

Formative Multiple Choice Question:

Question

What is the next step to prevent recurrent ischemic events?

Correct answer

Resume oral anticoagulation with dabigatran

2 Incorrect answer(s)

Carotid endarterectomy

Start lifelong antiplatelet therapy

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

Review handoff pattern

scenario using a structured 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 - Hemorrhagic Transformation	Failure	The patient suffered a severe intracranial hemorrhage, and underwent emergency neurosurgery. Recovered with severe permanent disability.	HC active: Severe intracranial hemorrhage

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