

# SCRIPT

EIGHT HOURS DELAY



SCENARIO

#650

**NAME**

MARIA JONES

**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

Eight hours delay

## Context

Mrs. Jones lost her consciousness and collapsed at home. Her son, who came home after work, did not witness the collapse but found his mother on the floor, awake, confused, and slightly short of breath.

## Briefing

Female, 79 years old, who lost consciousness and collapsed at home. The son did not witness the collapse but estimated that he last saw his mom well when he left for work 8 hours ago, and EMS responded within 10 minutes.

## General learning objective

In this scenario, the learner should:

Recognize acute stroke.

Evaluate eligibility for thrombectomy after more than six hours.

## Specific learning objectives

Important when questioning the patient:

Characterize the main complaints reported from the relative, and determine the onset time (more than six hours), past medical history, current medication

Fundamental in ABCDE:

Perform vital signs vigilance in acute care (blood glucose, blood pressure, oxygen saturation)

Evaluate the presence of stroke mimics

Perform neurological assessments using the NIHSS scale and detect neurological deficits

Complementary diagnostic exams you should order and interpret:

Complete blood count, cardiac biomarkers, and coagulation tests: no alterations

Head CT: identify occlusion in middle cerebral artery (MCA) territory

Cerebral CT angiogram: occlusion of the M1 segment on the left middle cerebral artery

Cerebral CT perfusion: decreased CBF and increased MTT in the territory of the left MCA, indicating a significant area of perfusion mismatch

About the treatment:

Evaluate eligibility for thrombectomy

Call for differentiated help - stroke unit and thrombectomy procedure through interventional neuroradiology

## 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

Maria Jones

## Age

79 years

## Race/Ethnicity

European/Caucasian

## Eye color

Brown

## Conscious

Yes

## Confused

Yes

## Last meal over 2h

Yes

## Speech impairment

Yes

## Renal metabolic compensation

Auto

## Gender

Female

## Main hair color

Light gray

## Smoker

No

## Sedated

No

## Agitated

No

## Facial palsy

100

## Eyelid closure

20

## 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)

170

### Heart rate (bpm)

90

### Respiratory rate (/min)

20

### Temperature (°C)

37.1

### Urinary output (mL/kg/h)

0.8

### Height (cm)

165

### Potassium (mEq/L)

4.1

### Diastolic arterial blood pressure (mmHg)

95

### O2 saturation (%)

94

### Blood glucose (mg/dL)

95

### Hemoglobin (g/dL)

14.9

### Weight (kg)

68

### BMI

25.0

### Sodium (mEq/L)

133

## Other character

Characterization of the other character included in the scenario can be healthcare professional, relative, friend or other.

### Non-Player Character

Relative: Patient's son

## Physical examination

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

### Airway

Airway observation

1st Priority

Airway is open, not obstructed and safe.

### 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 - resonance  
Left: 1L - resonance; 2L - resonance; 3L - superficial cardiac dullness; 4L - superficial cardiac dullness; 5L -

|                           |                |                                                                                                                                   |
|---------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| O2 Sat (%)                | 1st Priority   | resonance<br>94%                                                                                                                  |
| Pulmonary auscultation    | 2nd Priority   | Clear to auscultation, with normal vesicular murmurs in all sites.                                                                |
| Respiratory rate (/min)   | 1st Priority   | 20 /min                                                                                                                           |
| <b>Circulation</b>        |                |                                                                                                                                   |
| Blood pressure (mmHg)     | 1st Priority   | 170/95 mmHg                                                                                                                       |
| Capillary refill time (s) | 2nd Priority   | 2 seconds                                                                                                                         |
| Cardiac auscultation      | 2nd Priority   | Regular rate and rhythm, normal S1 and S2 sounds, no murmurs, gallops or rubs.                                                    |
| Heart rate (bpm)          | 1st Priority   | 90 bpm                                                                                                                            |
| Pulse palpation           | Not a priority | Central - Amplitude: normal; Rhythmic;<br>Peripheral - Amplitude: normal; Rhythmic.                                               |
| Urinary output (mL/kg/h)  | Not a priority | 0.8 mL/kg/h                                                                                                                       |
| <b>Disability</b>         |                |                                                                                                                                   |
| Blood glucose (mg/dL)     | 1st Priority   | 95 mg/dL                                                                                                                          |
| Glasgow Coma Scale        | 2nd Priority   | Initial: 11 (E-3; V-3; M-5)<br>HC active Severe Left Ischemic Embolic Stroke: 9 (E-2; V-2; M-5)                                   |
| Pupil light reflex        | 2nd Priority   | Right: Size - 4 mm; Right eye light: 2 mm; Left eye light: 2 mm<br>Left: Size - 7 mm; Right eye light: 2 mm; Left eye light: 7 mm |
| <b>Exposure</b>           |                |                                                                                                                                   |
| Abdominal auscultation    | Not a priority | Normal hydro-aerial sounds without abdominal murmurs.                                                                             |
| Abdominal palpation       | Not a priority | No rigidity. No pain. No guarding or signs of peritoneal irritation. No masses or palpable organomegalies.                        |
| Temperature (°C)          | 1st Priority   | 37.1°                                                                                                                             |

# Dialogues

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

## Greeting and Introduction

01. Could you please tell me your name?

**Patient:** Haavv... laa...

1st Priority

## History Taking

### Chief Complaint

02. How are you feeling?

**Patient:** Boo... streen...

1st Priority

03. Can you tell me what happened to her?

**Patient's son:** I found her on the living room floor, very confused and short of breath.

1st Priority

04. Is this the first time that this happened?

**Patient's son:** Three days ago she had an episode of numbness and tingling in the right limb, with slight confusion. But it was only for five minutes.

1st Priority

### History of Present Illness

05. When was the last time she had something to eat?

**Patient's son:** I'm not sure, maybe at lunchtime.

2nd Priority

06. Do you know what she was doing when she felt ill?

**Patient's son:** I don't know... I was at work.

2nd Priority

07. Are you feeling any pain?

**Patient:** Diabee...know..

2nd Priority

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

1st Priority

**Patient's son:** I'm not sure, she was fine when I left to work... I think it was eight hours ago.

## Past Medical/Surgical History

09. Does she have any health issues?

1st Priority

**Patient's son:** Yes, she has hypertension for about ten years.

## Medications and Allergies

10. Does she have any allergies?

1st Priority

**Patient's son:** No, nothing.

11. Does she take any medication?

1st Priority

**Patient's son:** She is often non-compliant with her medication, I think she takes a diuretic for hypertension.

## Social History

12. How active is she?

Not a priority

**Patient's son:** She does a few walks around the block, nothing much.

13. Does she smoke?

2nd Priority

**Patient's son:** No, she never smoked.

14. Do you know if she had any changes in weight recently?

Not a priority

**Patient's son:** She has gained a little weight recently, but she still has typical values.

15. Does she drink any alcoholic beverages?

2nd Priority

**Patient's son:** She only drinks occasionally.

16. Has she been under stress lately?

**Patient's son:** No, not really.

2nd Priority

## Medical Tests

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

### Decision aids

Dawn criteria

2nd Priority

If no imaging is done: Dawn criteria is not applicable at the moment  
A table will appear with Group A, B and C left in blank. Data will only appear after NIHSS scale is done and results from CT images. It will be falling into group C.

The following will be filled out:

Age: 79

NIHSS: 20

Core volume: 31ml

Time since onset: 8

Pre-Stroke mRS: 0

%MCA: <1/3

CTA occlusion: M1

Stroke scale (NIHSS)

1st Priority

Initial - 20

HC active Severe Left Ischemic Embolic Stroke - 26

Treatments administered:

Thrombectomy - 4

### Electrophysiology

12-Lead ECG

2nd Priority

Sinus rhythm.

### Imaging

Cerebral CT angiography

1st Priority

Occlusion of the M1 segment of the left middle cerebral artery. No other pathological findings are visible.

Cerebral perfusion CT

1st Priority

Decreased CBF and increased MTT in the territory of the left MCA. Decreased CBV in the left caudate and lenticular nucleus and adjacent corona radiata, with preserved CBV in the remaining territory of the left MCA, indicating a

|                      |                |                                                                                                                                                                                                                                                                                           |
|----------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chest X-Ray          | Not a priority | significant area of perfusion mismatch.<br>The lungs are clear. The heart is normal in size. The mediastinum is within normal limits.                                                                                                                                                     |
| Head CT              | 1st Priority   | Spontaneous hyperdensity in the M1 segment of left MCA. Hypodensity of the left lenticular, caudate nucleus, and adjacent corona radiata, compatible with mild early signs of cerebral ischemia in the territory of the left MCA. No other acute lesions are visible. ASPECTS: 8          |
| Transcranial Doppler | Not a priority | Occlusion of the proximal M1 segment of the left MCA. All other intracranial arteries have normal flow.                                                                                                                                                                                   |
| <b>Lab tests</b>     |                |                                                                                                                                                                                                                                                                                           |
| Arterial blood gas   | Not a priority | Blood pH - 7.39<br>Hemoglobin (g/dL) - 12.8<br>PaCO <sub>2</sub> (mmHg) - 42<br>HCO <sub>3</sub> <sup>-</sup> (mEq/L) - 24.6<br>BE (mEq/L) - 0.02<br>O <sub>2</sub> sat (%) - 94<br>Na <sup>+</sup> (mEq/L) - 133<br>K <sup>+</sup> (mEq/L) - 4.1<br>Lactate (conventional) (mg/dL) - 9.0 |
| Biochemistry         | 2nd Priority   | BUN (mg/dL) - 19<br>Na <sup>+</sup> (mEq/L) - 133<br>K <sup>+</sup> (mEq/L) - 4.1<br>AST (IU/L) - 21<br>ALT (IU/L) - 32<br>AP (IU/L) - 78<br>CK (IU/L) - 113<br>CRP (mg/L) - 2.3                                                                                                          |
| Cardiac biomarkers   | 2nd Priority   | CK-MB Mass (ng/mL) - 2<br>Troponin I (ng/mL) - 0.01<br>Myoglobin (ng/mL) - 17                                                                                                                                                                                                             |
| Coagulation tests    | 2nd Priority   | aPTT (s) - 36<br>Prothrombin time (s) - 12.0<br>INR - 1.0                                                                                                                                                                                                                                 |
| Complete blood count | 2nd Priority   | Leukocytes (/μL) - 8500<br>Neutrophils (/μL) - 4500 (53%)<br>Lymphocytes (/μL) - 3200 (38%)<br>Monocytes (/μL) - 410 (5%)                                                                                                                                                                 |

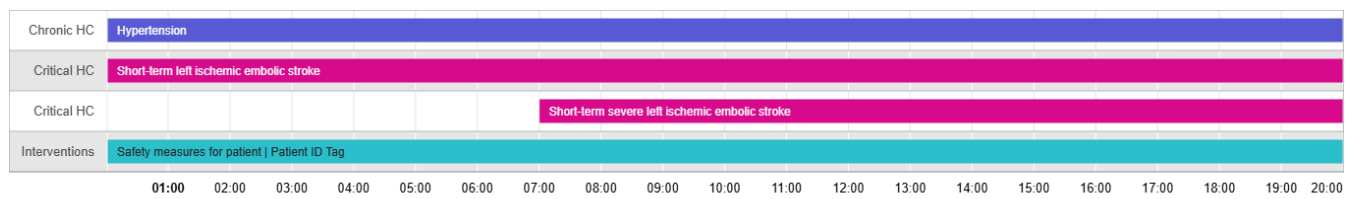
## Urinalysis

Not a priority

Eosinophils (/μL) - 280 (3%)  
Basophils (/μL) - 110 (1%)  
Immature granulocytes (/μL) - 0 (0%)  
Erythrocytes (×10<sup>6</sup>/μL) - 4.8  
Hemoglobin (g/dL) - 14.9  
Hematocrit (%) - 44  
MCV (μm<sup>3</sup>) - 92  
MCH (pg/cell) - 30  
MCHC (g/dL) - 35  
RDW (%) - 12.0  
Platelets (×10<sup>3</sup>/μL) - 222  
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

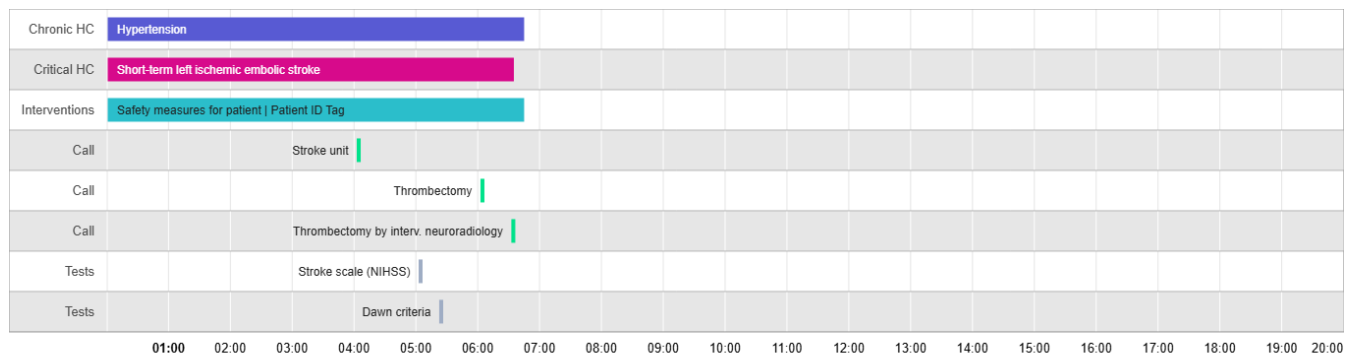
## Baseline

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 - Call Stroke unit

1st Priority

The stroke unit has been notified.

Call | Stroke unit

## i.2 - Call thrombectomy

1st Priority

Call | Thrombectomy

After Dawn criteria is performed and results are given:  
The patient is ready to undergo a thrombectomy. Do you want to proceed?

## i.3 - Request a thrombectomy by interv. neuroradiology

1st Priority

Initial TICl of the left middle cerebral artery was 0. Thrombectomy was successfully performed with a final TICl of 3.

Call | Thrombectomy by interv. neuroradiology

## i.4 - Fibrinolytic treatment is contraindicated

Not a priority

ESO guidelines "For patients presenting directly to a thrombectomy centre with ischaemic stroke of 4.5–9 h duration (known onset) with CT or MRI core/perfusion mismatch and who are eligible for mechanical thrombectomy, the group members could not reach a consensus regarding whether intravenous thrombolysis should be used before mechanical thrombectomy."

Medications | Fibrinolytics | Alteplase

Medications | Fibrinolytics | Tenecteplase

# 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

Cerebral venous thrombosis

### 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

Severe stroke

#### 2 Incorrect answer(s)

Moderate stroke

Minor stroke

### Cerebral perfusion CT question:

#### Question

Are there any contraindications for thrombolysis?

#### Correct answer

No

#### 1 Incorrect answer(s)

Yes

**Cerebral perfusion CT  
question:**

**Question**

Is there a significant perfusion mismatch visible in the CTP?

**Correct answer**

Yes

**1 Incorrect answer(s)**

No

**Cerebral CT angiography  
question:**

**Question**

Which vascular lesion is visible?

**Correct answer**

Occlusion of the M1 segment of the left MCA

**2 Incorrect answer(s)**

No occlusion is visible

Occlusion of the A1 segment of the left ACA

**Cerebral CT angiography  
question:**

**Question**

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

**Correct answer**

Moderate 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)

Hemorrhagic stroke

Brain tumor

Brain abscess

### Formative Multiple Choice

#### Question:

#### Question

What is the minimum NIHSS score required for formal thrombectomy indication?

#### Correct answer

6

#### 2 Incorrect answer(s)

3

9

### Formative Multiple Choice

#### Question:

#### Question

In which of the following cases is CT perfusion useful to guide treatment decisions?

#### Correct answer

Large vessel occlusion with 9 hours since last seen well

## 2 Incorrect answer(s)

Lacunar stroke with 3 hours since last seen well

Large vessel occlusion with 2 hours since last seen well and ASPECTS = 10

## Formative Multiple Choice Question:

### Question

Which of the following criteria are considered in the Dawn trial to extend the thrombectomy treatment window beyond six hours?

### Correct answer

All of the options

## 3 Incorrect answer(s)

ASPECTS score

CT perfusion

Pre-stroke mRS

## 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 |
|--------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Trombectomy administered | 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! |             |

## References

1. Powers WJ, Rabinstein AA, Ackerson T, et al. 2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. *Stroke*. March 2018.
2. Berge E, Whiteley W, Audebert H, et al. European Stroke Organisation (ESO) guidelines on intravenous thrombolysis for acute ischaemic stroke. *European Stroke Journal*. 2021;6(1):I-LXII.
3. Albers GW, Marks MP, Kemp S, et al. Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging. *New England Journal of Medicine*. 2018;378(8):708-718.
4. Nogueira RG, Jadhav AP, Haussen DC, et al. Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct. *New England Journal of Medicine*. 2018;378(1):11-21.