



Azerbaijan Medical Simulation Education Association



# THE GUIDE TO THE OSCE

## **Pediatrics**

Practical skills in pediatrics

Specialty: General medicine

## The duration of the station

The total time to complete the skill is 10 minutes.

Accredited person's time at the station is 8.5 minutes (in case of early performance of a practical skill, the accredited person stays inside the station until the voice command "Enter the station, say your ID number and listen to the assignment").

#### Timing of the practical skill

Time of the voice commanding	Voice Command	Action of the accredited person	Skill performance time
0'	Enter the station, say your ID number and listen to the assignment	Listen to the station assignment (briefing). Initiation of the work at thestation	0,5'
8,0'	You have one minute left	Work continuing at the station	8,5'
9,0'	Time is up	Wait for the next command	1'

## List of situations (scenarios)

Nº	Situation
1	Broncho-obstructive syndrome (BOS)
2	Febrile seizures
3	Upper airway obstruction followed by cardiopulmonary resuscitation for 7 months old child
4	Upper airway obstruction followed by cardiopulmonary resuscitation for 6 years old child

The choice and sequence of situations (scenarios) of the station is decided by a member of the commission on the exam day



### Algorithm of examination of a patient in critical condition ABCDE (Scenarios 1 and 2)

Algorithm stages	Actions	
	1	Assessment of the situation
Introductory actions	1.	$\checkmark$ look around with head turning, show a safety gesture
	2.	Assessment of consciousness
	2	✓ without touching the victim
	3. 4.	Providing other helpers (call for help) Provision of laying
	<del>4</del> . 5.	Put on gloves
	<i>6</i> .	Assess the patency of the upper respiratory tract with a tongue blade
		Perform aspiration of the contents of the oral cavity using
	7.	suction (if necessary)
	8.	Provide pulse oximetry
Α	0.	Provide oxygen therapy
	9.	✓ maximum/average/minimum flow
	10.	Perform comparative chest percussion
	11.	Perform comparative electric percession Perform comparative auscultation of the lungs with a phonendoscope
	11.	Evaluate the frequency of respiratory movements for at
B	12.	least 10 seconds
D	13.	Assess the position of the trachea
	13.	Evaluate the refill of the neck veins
	14.	Perform palpation of the pulse on the radial artery
	15.	Palpate the pulse on the carotid artery
	10.	Measure blood pressure (BP) using a cuff
	17.	Perform auscultation of the heart with a phonendoscope
	18.	✓ applying the electrodes correctly
С	19.	<ul> <li>✓ apprying the electrodes correctly</li> <li>✓ interpreting the electrocardiogram (ECG)</li> </ul>
U	20.	Squeeze the pad of a finger to assess capillary refill
	20.	Provide venous access and blood sampling for analysis
	21.	Assess the condition of the skin by palpating
	22.	hands and/or forehead, and/or cheeks, and/or ankles of the patient
	23.	Check the reaction of pupils to light
~	23. 24.	Provide a blood glucose meter
1)	24.	Evaluate muscle tone (by flexion and extension of each
-	25.	arm and each leg)
		Palpate the pulse on the femoral arteries from
	26.	both sides
		Examine the back with a turn to the side and release from
	27.	clothes (imitation)
		Conduct a rectal examination to find
	28.	internal bleeding (if necessary)
E	29.	Look at the lower legs and popliteal areas to find varicose veins
	27.	Perform palpation of the back of the foot and shins for determining
	30.	edema
		Perform a superficial palpation of the abdomenon four sides of the
	31.	navel
	32.	Temperature measurement



#### Scenario 1

## **Broncho-obstructive syndrome (BOS)**

#### Information (briefing) for the accredited person

You are a general practitioner. You have been called urgently to the manipulation room with a 1 -year-old child (10 kg) lying on a couch

#### **Reference information**

(when assessing vital functions that are not independently reproduced by the simulator, the text will be read by a member of the commission)

	Upper respiratory tract patency	The airways are visually
Δ	opper respiratory tract patency	passable
11	Saturation	80%
	When performing O2 insufflation	94%
		70
	Frequency of respiratory rate	70
P		Boxed sound, retraction of
D		the compliant places is observed,
	Lung percussion	additional musculature is
		involved in the act of
		breathing
		Dry wheezing on
	Lung auscultation	exhalation, expiration is
		prolonged
	Trachea	Normal
	Neck veins	Normal
	HR	150
	BP	95/65
	Cardiac auscultation	Tones are muffled
C	ECG	Sinus rhythm
C	Capillary filling	2 seconds
	Intravenous access + tests	+
	Skin	Pale, cyanosis of the
	Skill	nasolabial triangle
	Pupil response	Photoreaction is preserved
D	Muscle tone	Normal
	Blood glucose	5 mmol/L
	Abdominal palpation	The abdomen is soft and swollen
Б	Femoral arteries	Pulse symmetrical, good filling
E	Varicose	Not detected
	Swelling	Not detected
	Back	No visible trauma
	Per rectum	No need
	Body temperature	37.5



	ral blood alysis		
Test	Result	Unit	Reference
Leukocytes (WBC)	4,3	10^9/L	4,00 - 8,80
Erythrocytes (RBC)	5,0	10^12/L	3,80 - 5,30
Hemoglobin (HGB)	130	g/L	117,00 - 160,00
Hematocrit (HCT)	40	%	35,00 - 47,00
Mean corpuscular volume (MCV)	87	fL	81,00 - 101,00
Mean corpuscular hemoglobin (MCH)	30	pg	27,00 - 34,00
Mean corpuscular hemoglobin concentration (MCHC)	325	g/L	310,00 - 360,00
Erythrocyte sedimentation rate (ESR)	7	mm/s	$\begin{array}{cccc} 0,5\text{-}2 \text{ years} & 5\text{-}9 \\ \text{Women:} \\ 10-50 \text{ years} & 0\text{-}20 \\ > 50 \text{ years} & > \\ 30\text{Men:} \\ 10-50 \text{ years} & 0\text{-}15 \\ > 50 \text{ years} & > 20 \end{array}$
Platelets (PLT)	210	10^9/L	150,00 - 400,00
Anisocytosis (RDW-SD)	36	fL	34,00 - 46,00
Anisocytosis (RDW-CV)	12,3	%	11,50 - 14,50
Platelet distribution width (PDW)	9	fL	9,00 - 17,00
Mean platelet volume (MPV)	10	fL	8,00 - 12,00
Platelet large cell ratio (P-LCR)	22	%	13,00 - 43,00
Thrombocrit PCT	0,24	%	0,15 - 0,40
Neutrophils	2	10^9/L	1,88 - 6,34
Lymphocytes	6,0	10^9/L	0,76 - 3,26
Monocytes	0,51	10^9/L	0,12 - 0,97
Eosinophils	0,7	10^9/L	0,02 - 0,44
Basophils	0,01	10^9/L	0,00 - 0,09
Neutrophils	61	%	47,00 - 72,00
Lymphocytes	55	%	19,00 - 37,00
Monocytes	6	%	3,00 - 11,00
Eosinophils	6	%	0,50 - 5,00
Basophils	0,2	%	0,00 - 1,00

## Therapeutic measures

Salbutamol via nebulizer - 1.5mg (0.15mg/kg)
Magnesium sulfate IV - 500 mg (50 mg/kg)

- Prednisolone either oral or IV - 10mg (1-2mg/kg)



#### Scenario 2

## Febrile seizures

#### Information (briefing) for the accredited person

You are a general practitioner. You have been called urgently to the manipulation room with a 2-years-old child (10kg) lying on a couch

#### **Reference information**

(when assessing vital functions that are not independently reproduced by the simulator, the text will be read by a member of the commission)

А	Upper respiratory tract patency Saturation When performing O2 insufflation	The airways arevisually passable 97%
	when performing 02 insufficient	
	Frequency of respiratory rate	60
Ъ	Lung percussion	Clear lung sound
В	Lung auscultation	Vesicular respiration
	Trachea	Normal
	Neck vein	The veins of the neck are swollen
	HR	150
	BP	95/65
	Cardiac auscultation	Tones are muffled
С	ECG	Sinus rhythm
C	Capillary filling	2 seconds
	Intravenous access + tests	+
	Skin	Hyperemic, warm to the touch
	Pupil response	Photoreaction is preserved
D	Muscle tone	Clonic seizures
Ľ	Blood glucose	4 mmol/l
	Abdominal palpation	Abdomen is soft, painless
	Femoral arteries	The pulse is symmetrical
-	Varicose	Not detected
E	Swelling	Not detected
	Back	No visible injuries
	Per rectum	No need
	Body temperature	38.0



	ral blood 1alysis		
Test	Result	Unit	Reference
Leukocytes (WBC)	4,3	10^9/L	4,00 - 8,80
Erythrocytes (RBC)	5,0	10^12/L	3,80 - 5,30
Hemoglobin (HGB)	130	g/L	117,00 - 160,00
Hematocrit (HCT)	40	%	35,00 - 47,00
Mean corpuscular volume (MCV)	87	fL	81,00 - 101,00
Mean corpuscular hemoglobin (MCH)	30	pg	27,00 - 34,00
Mean corpuscular hemoglobin concentration (MCHC)	325	g/L	310,00 - 360,00
Erythrocyte sedimentation rate (ESR)	7	mm/s	$\begin{array}{ccc} 0,5-2 \ years & 5-9 \\ Women: & & \\ 10-50 \ years & 0-20 \\ > 50 \ years & > 30 \\ Men: & \\ 10-50 \ years & 0-15 \\ > 50 \ years & > 20 \end{array}$
Platelets (PLT)	210	10^9/L	150,00 - 400,00
Anisocytosis (RDW-SD)	36	fL	34,00 - 46,00
Anisocytosis (RDW-CV)	12,3	%	11,50 - 14,50
Platelet distribution width (PDW)	9	fL	9,00 - 17,00
Mean platelet volume (MPV)	10	fL	8,00 - 12,00
Platelet large cell ratio (P-LCR)	22	%	13,00 - 43,00
Thrombocrit PCT	0,24	%	0,15 - 0,40
Neutrophils	2	10^9/L	1,88 - 6,34
Lymphocytes	6,0	10^9/L	0,76 - 3,26
Monocytes	0,51	10^9/L	0,12 - 0,97
Eosinophils	0,03	10^9/L	0,02 - 0,44
Basophils	0,01	10^9/L	0,00 - 0,09
Neutrophils	61	%	47,00 - 72,00
Lymphocytes	55	%	19,00 - 37,00
Monocytes	6	%	3,00 - 11,00
Eosinophils	0,6	%	0,50 - 5,00
Basophils	0,2	%	0,00 - 1,00

## Therapeutic measures

If seizures persist for more than 5 minutes, administer the first dose of benzodiazepines
- Midazolam IM 2mg (0.2 mg/kg)
or Lorazepam IV 1mg (0.1mg/kg)
If seizures last more than 20 minutes:
- Levetiracetam IV 400mg (40-60mg/kg)
Or Phenytoin IV 200mg (20mg/kg)
Or Valproic acid IV 400mg (40mg/kg)
Or Phenobarbital IV 200mg (20mg/kg)



## Upper airway obstruction followed by cardiopulmonary resuscitation

#### Information (briefing) for the accredited person

You were called for help while walking. As you came closer, you saw a 7 months/6 years old child with an upperairway obstruction. Your assignment is to help him within the limits of your skills.

## Sample texts of introductory in the framework of the dialogue between the member of the commission and the accredited

N⁰	Action of the accrediting	Introductory text
1	When an accredited person demonstratesgesture"Environmentalinspection"	"There is no danger"
2	When trying to assess the type of obstruction	"No coughing, no crying, no vomiting, cyanosis is detected"
3	When trying to assess the child's condition after manipulation	"Manipulation was ineffective"
4	In attempting to assess consciousness	"No reaction"
5	When attempting to assess breathing	"No breath"
6	When contacting the Emergency Medical Service (EMS) by telephone	Imitate an ambulance dispatcher: "Ambulance listening, what's wrong?"
7	In case the accredited person names the correct and complete information for the EMS: address; one victim, nearly 7 months or 6 years old child, unconscious, not breathing, the cause is not clear, proceed to CPR	The short answer is, "Accepted!"
8	In case the information is incomplete	Asking questions on behalf of Dispatcher to clarify: Location (address), age, sex, name of the



## Algorithm of performing the skill

1.	Make sure there is no danger to yourself or the victim and, if necessary, ensure safety
2.	Determine the type of obstruction: <u>Baby 7 months</u> : Place the infant in a face-up lying position, positioned along your forearm (using your hip or knee for support if the baby's weight does not allow you to hold it), pointing the infant's head down and positioning it below body level. Wrap your thumb and middle finger around the corners of the jaw and use your index finger to extend the baby's lower jaw
	Ask a 6 years old child: "How are you feeling?"
	Complete obstruction of the upper airway by a foreign body
3.	If the victim is unable to cough and if he loses consciousness: - <u>Baby 7 months</u> : Place the infant in a face-down lying position, positioned along yourforearm (using your hip or knee for support if the baby's weight does not allow you to hold him/her). The infant's breast should be held in your hand and his jaw with your fingers. It isnecessary to point the infant's head down and place it below the body level. Give 5 sharp strokes with the base of your palm between the shoulder blades
	<ul> <li><u>Child 6 years old</u>: Stand beside and a little behind the victim, holding him with onehand and leaning him forward with the other.</li> <li>Give 5 sharp strokes with the base of your palm between the shoulder blades.</li> </ul>
4.	Check whether the airway obstruction has been eliminated
	Give chest thrusts to infants or abdominal thrusts to children if the foreign body has notbeen removed - <u>Baby 7 months</u> : Place the infant in a face-up lying position, positioned along your forearm (using your hip or knee for support if the baby's weight does not allow you tohold it). Hold the back of the infant's head in your hand. Conduct up to five chest thrusts. Apply chest thrusts with two fingers to the lower half of the sternum, just below nipple level.
5.	<ul> <li><u>Child 6 years old</u>: Stand behind the victim and wrap both arms around him at the levelof the upper abdomen</li> <li>Tilt the torso.</li> <li>Make hand a fist and place it between your belly button and the xiphoid process Wrap the other hand around the fist and make up to five sharp inward and upwardthrusts.</li> </ul>
6.	Check whether the airway obstruction has been eliminated
	If the manipulation was ineffective
7.	Put the child on the ground (flat stable surface) Assess the level of consciousness: - Child age 6: Shake the child by the shoulders, ask, "How are you feeling?"
8.	Assess breathing: Place the palm of one hand on the child's forehead Grasp the child's lower jaw with two fingers of the other handBring the ear close to the child's lips Use your eyes to observe the child's excursion of the chest Evaluate the presence of normal breathing for no more than 10 seconds



Call an emergency medical technician (103)
<ul> <li>Put the phone on speaker mode</li> <li>Report coordinates</li> <li>Number of victims</li> <li>Sex</li> <li>Approximate age</li> <li>Condition of victim</li> <li>Amount of assistance provided</li> </ul>
5 initial breaths
Kneel at the side of the child
Place the palm of one hand on the child's forehead Grasp the child's lower jaw with two fingers of the other hand Tilt the child's head moderately, releasing the airway, draw air into the lungs
Perform 5 rescue breaths <u>Baby 7 months</u> : Seal the baby's nose and lips with your lips (or with the mask of the AMBU bag) <u>- Child 6 years old</u> : With 1 and 2 fingers of your hand on your forehead, pinch the child'snose. Seal the child's lips with your lips (or with the mask of the AMBU bag)
Exhale into the child until the chest rises visibly Release the baby's lips for 1 second Repeat breathing into the childInhale a total of 5 breaths
Assess life signs within 10 seconds
Chest compressions
Start chest compressions as soon as possible
<ul> <li>Perform 15 compressions in a row <ul> <li><u>Child 7 months</u>: (Two-Finger Technique)</li> </ul> </li> <li>Place two thumbs on the lower half of the sternum, pointing the fingertips toward the child's head. With the hands both hands should wrap around the lower part of the child'schest. The fingers should support his back. <ul> <li>The compressions are counted out loud.</li> <li>Depth of compressions - 2 cm</li> <li>Frequency of compressions - 100-120 per minute</li> </ul> </li> <li><u>Child 6 years old</u>: (One-handed technique)</li> <li>Place the base of the palm of one hand on the lower half of the child's sternum</li> <li>Rescuer's arm is vertically</li> <li>Not bent at the elbow</li> <li>Palm does not detach from the child's chest</li> <li>The other hand holds the child's head during compressions</li> <li>Compressions are counted out loud</li> <li>Depth of compressions - 4 cm</li> <li>Frequency of compressions - 100-120 per minute</li> </ul>



	Artificial lung ventilation
17.	<ul> <li>Perform 2 breaths</li> <li><u>Child 7 months</u>: Seal the child's nose and lips with your lips (or with the mask of the AMBU bag)</li> <li><u>Child 6 years old</u>: With 1 and 2 fingers of the hand on the forehead, pinch the child'snose. Seal the child's lips with your lips (or with the mask of the AMBU bag)</li> <li>Exhale into the child until the chest rises visiblyDetach the mouth of the child for 1 second.</li> <li>Exhale into the child again</li> </ul>
18.	Continue chest compressions and ventilations at a 15:2 ratio for 2 minutes
19.	At the command: "One minute left" the resuscitation does not stop
20.	Check for signs of life within 10 seconds - Continue to hold the baby's head and check for vital signs: breathing, crying, movement, blinking

## Scenario 1, 2

N⁰	Action of the accredited	Evaluation Criteria	
1	Made sure there was no danger to himself and the victim and, if necessary, ensured safety.	□ yes	🗆 no
2	Assessed the victim's consciousness level correctly	$\Box$ yes	$\Box$ no
3	Provided the bag and called the assistant (s)	□ yes	$\Box$ no
4	Put on the gloves and suggested to assistant put them on	$\Box$ yes	$\Box$ no
5	A- Correctly assessed airway patency	□ yes	$\Box$ no
6	<b>B</b> - Evaluated saturation, provided oxygen therapy as indicated, assessed frequency of respiratory movements, examined trachea and neck veins	□ yes	🗆 no
7	Performed lung percussion, auscultation of the lungs, and correctly interpreted the result	□ yes	🗆 no
8	C- Correctly estimated peripheral pulse	□ yes	🗆 no
9	Measured BP	$\Box$ yes	$\Box$ no
10	Correctly performed auscultation of the heart and correctly interpreted the result	□ yes	🗆 no
11	Correctly applied ECG electrodes and correctly interpreted the result	$\Box$ yes	$\Box$ no
12	Provided intravenous access, took blood for necessary tests, checked white spot symptom, assessed skin	□ yes	🗆 no
13	<b>D</b> - Correctly assessed pupil response, capillary blood glucose level, muscle tone	□ yes	🗆 no
14	<b>E</b> - palpation of the abdomen, pulse on the femoral arteries, examination of the lower legs and feet for edema and varicose veins, measurement of body temperature, rectal examination (as indicated)	□ yes	$\Box$ no
15	Followed the sequence of ABCDE – examination	□ yes	$\Box$ no
16	Correctly established a preliminary diagnosis	□ yes	🗆 no
17	Prescribed correct and complete treatment (Used only indicated medications, used the correct dosage, optimal method of injection)	□ yes	🗆 no
18	Commented actions out loud	$\Box$ yes	$\Box$ no



#### Scenario 3, 4

Nº	Action of the accredited	Evaluation Criteria	
1	Made sure there was no danger to himself and the victim and, ifnecessary, ensured safety.	$\Box$ yes	$\Box$ no
2	Correctly identified the type of obstruction	$\Box$ yes	$\Box$ no
3	Performed five sharp strokes with the base of the palm between the child's shoulder blades	$\Box$ yes	$\Box$ no
4	Chose the right place to strike	$\Box$ yes	$\Box$ no
5	Checked whether the airway obstruction was eliminated	$\Box$ yes	$\Box$ no
6	Performed chest thrusts on infant or abdominal thrusts on child	$\Box$ yes	$\Box$ no
7	The right place for the thrusts was chosen	$\Box$ yes	$\Box$ no
8	Evaluated the consciousness level	$\Box$ yes	$\Box$ no
9	Evaluated the breathing level	$\Box$ yes	$\Box$ no
10	<ul> <li>Called a specialist (EMC) according to the algorithm</li> <li>Coordinates of the accident place</li> <li>Number of victims</li> <li>Gender</li> <li>Approximate age</li> <li>Condition of victim</li> <li>Amount of your assistance</li> </ul>	□ yes	no no
11	Correctly performed 5 rescue breaths	□ yes	$\Box$ no
12	Correctly performed chest compressions	$\Box$ yes	$\Box$ no
13	Adequate compression depth	$\Box$ yes	$\Box$ no
14	Adequate hand position during compressions	$\Box$ yes	$\Box$ no
15	Full straightening of the chest after each compression	$\Box$ yes	$\Box$ no
16	Adequate compression frequency	$\Box$ yes	$\Box$ no
17	Checked for signs of life	$\Box$ yes	$\Box$ no
18	Followed the sequence of examination	yes	no

## **Regulatory and methodological support for the passport**

European Resuscitation Council Guidelines 2021: Paediatric Life Support https://www.cprguidelines.eu/