

Materials on preparation for the OSKE station "Emergency assistance in pediatric practice" (tasks and algorithms for performing practical skills and abilities) for state attestation in the specialty 7.12010001 "General Medicine", 7.12010002 "Pediatrics", 222 "Medicine"

Situation No. 1

In the manipulation room of the somatic department of the hospital, a 5-year-old child lies on the couch, his head is on a pillow, his eyes are closed. During the intravenous administration of the antibacterial drug, the child began to complain of nausea, feeling unwell. Drug administration is discontinued. The peripheral venous catheter is connected to the system for infusion therapy.

Initial assessment: the child sluggishly reacts, breathes, pale.

Primary assessment:

A. Airway: free .

B. Breathing: SpO₂ - 94%, RR - 36 in 1 min., without effort, without chest indrawing and abnormal breath sounds, is carried out on both sides.

C. Circulation: HR - 120 in 1 min. The central pulse is normal, the peripheral pulse is weak, the capillary filling is 4 seconds, the extremities are cold, BP- 75/55 mm Hg.

D. Neurological status: responds to voice.

E. Exposure: the skin is clean, no edema. Weight - 20 kg

Task: Take immediate and secondary emergency steps

Algorithm 1	
Anaphylaxis (shock) in a child is 5 years old	
Primary treatment	
1	Take a syringe with adrenaline and say loudly: "I inject a solution of adrenaline at a dose of 0.3 ml intramuscularly into the pre-lateral area of the thigh and loudly call the time of injection"
Second-line treatment	
2	Put a pillow under feet
3	Put an oxygen mask on the patient's face and say loudly: "Flow 100% oxygen 6-8 l/min."
4	Take a saline solution in a soft vial and attach to the system for infusion and loudly say: "0.9% sodium chloride solution in a dose of 10 ml / kg, squeeze the bottle for a quick introduction"
Third-line treatment	
5	Take the syringe with GCS and loudly say «Insert intravenously hydrocortisone 2 mg/kg (methylprednisolone or 1 mg/kg)»
6	Say loudly: <ul style="list-style-type: none"> • Next, I check the vital functions using the ABCDDE algorithm. • Hospitalization in the intensive care unit

Situation No. 2

You are a doctor of the primary care center; you have been summoned to a manipulation room, where is a 4-year-old child is on the couch, bitten by bees 30 minutes ago.

Initial assessment: the child opens his eyes, languidly hoarsely crying, breathing, the skin of the face and hands with red swollen areas.

Primery assessment:

A. Airway: breathing is difficult, noisy, there is swelling of the tongue.

B. Breathing: RR - 44/min., difficult, noisy sound on the inhale (stridor), retraction of compliant areas of the chest, is carried out on both sides, SpO₂ - 88%.

C. Circulation: HR - 160 per 1 min., central pulse is present, peripheral - weak filling, capillary filling for more than 3 s, cold extremities, BP - 65/20 mm Hg.

D. Neurological status: consciousness - responds to voice (V), no seizures, blood glucose with a glucometer - 4.2 mmol/l.

E. Exposure: abundant urticarial rash on the skin, body t - 36.7 °C. Weight - 16 kg. IV-line is inserted.

Task: assess the symptoms and provide emergency care. All actions that you will perform, you must voice.

Algorithm 2	
Anaphylaxis after a bee sting in a child 4 years	
№	Action Required
1.	Take a syringe with adrenaline and say loudly: "I inject a solution of adrenaline at a dose of 0.3 ml intramuscularly into the pre- lateral area of the thigh and loudly call the time of injection"
2.	Put a pillow under feet
3.	Put an oxygen mask on the patient's face and say loudly: "The flow of 100% oxygen is 6-8 l/min."
4.	Take a saline solution in a soft vial and attach to the system for infusion and loudly say: "0.9% sodium chloride solution in a dose of 10 ml/kg, squeeze the bottle for a quick introduction"
5.	Take the syringe with GCS and loudly say «Insert intravenously hydrocortisone 2 mg/kg (methylprednisolone or 1 mg/kg)»
6.	Take the syringe and say loudly: "I inject diphenhydramine at a dose of 1 mg/kg (maximum 50 mg) intravenously"
7.	The ambulance crew for the hospitalization of the child in the intensive care unit is called. Next, I check the vital functions using the ABCDDE algorithm and stabilize the child's condition before the arrival of the ambulance crew

Situation No. 3

You are a doctor in the emergency room of the hospital. Enrolled child 5 years old, suffering from bronchial asthma.

Initial assessment the child is excited, breathing, skin is pale, cyanosis, nasolabial triangle.

Primary score

A. Airway free

B. Breathing RR - 36', carried out on both sides, the exhalation is extended, with the participation of auxiliary muscles, wheezing on the exhalation. SpO₂ - 94%.

Weight - 20 kg.

IV-line is inserted.

Your task is to provide emergency assistance - to stabilize respiratory disorders and evaluate the steps: C - Circulation; D - Neurological assessment; E - Exposure. All actions that you will perform, you must voice.

Algorithm 3		
Asthma attack in a child 5 years old		
№	Action Required	Possible scenarios
1	Put an oxygen mask on the patient's face and say loudly: "The flow of 100% oxygen is 6-8 l/min."	
2	I conduct the first of 3 inhalations of salbutamol (2 puffs) with the help of a spacer	
3	I put an oxygen mask on the patient's face again	
4	2 next inhalations I will spend at intervals of 20 minutes in 1 hour	
5	After the first inhalation, I assess the immediate response - B - breathing : 1. RR 2. Respiratory efforts 3. Chest indrawing 4. Abnormal breath sounds 5. SpO ₂	At this stage, it is necessary to decide further tactics, depending on the examiner's response: 6A: There is an immediate answer. RR - 28/min SpO₂ - 98% 6B: No immediate response. Parameters of breath assessment have not changed
6 A	Go to paragraph 7.	
6 B	I insert prednisolone (30 mg/ml) at a dose of 1 mg/kg i/v slowly (0.7 ml diluted with 3 ml of saline solution)	If the breathing stabilized, go to paragraph 7.
7	I assess C: circulation : 1. Heart rate 2. Central pulse 3. Peripheral pulse 4. Capillary filling 5. Color and skin temperature by the touch 6. BP	If the circulation is stable go to paragraph 8.
8	I assess D: neurological status :	If the parameters of the

	<ol style="list-style-type: none"> 1. AVPU Scale (Alert, Voice, Pain, Unresponsive) 2. Seizers presence 3. Blood glucose level 	neurological status are stable, go to paragraph 9.
9	<p>I assess E: exposure:</p> <ol style="list-style-type: none"> 1. Body temperature 2. Rash on the skin 3. Other signs 	If symptoms are absent: emergency condition stabilized

Situation No. 4

You are a general practitioner. You were immediately summoned to the manipulation room, where a 5-year-old child is lying on the couch.

Initial assessment sluggishly reacts, breathes, skin is pale

Primary score

- A. Airway** free
- B. Breathing** RR - 44 ‘, breathing is difficult on inhalation and exhalation, with the participation of auxiliary muscles, with chest indrawing, weakened breathing is heard on both sides, wheezing, crepitus, SpO₂ - 89%.
- C. Circulation** HR - 110/min. The central pulse is normal, the peripheral is weak, the extremities are cold, capillary filling - 4 seconds, BP - 95/60 mm Hg. Art.
- D. Neurological status** responds to voice (V), no seizures, blood glucose (glucometer) - 3.7 mmol / l, pupils respond to light, symmetrical.
- E. Exposure** body t is 38.9 ° C, the skin is clean
- Weight - 20 kg.
IV-line is inserted.

Your task is to evaluate the clinical symptoms in a child and provide emergency care. All actions that you will perform, you must voice.

Algorithm 4 Severe pneumonia in a child is 5 years old	
№	Action Required
1	Put an oxygen mask on the patient's face and say loudly: "The flow of 100% oxygen is 6-8 l/min."
2	I conduct the first of 3 inhalations of salbutamol (2 puffs) with the help of a spacer. 2 next inhalations I will spend at intervals of 20 minutes in 1 hour
3	Put a pillow under feet
4	Take a saline solution in a soft vial and attach to the system for infusion and loudly say: "0.9% sodium chloride solution in a dose of 10 ml / kg, squeeze the bottle for a quick introduction"
5	I inject antibacterial drugs: <ol style="list-style-type: none"> 1. Ampicillin 50 mg/kg + 2. Gentamicin 7.5 mg/kg i/m
6	I inject an antipyretic drug - a solution of Paracetamol 7.5 mg/kg - 15 ml i/v slowly
7	I call the ambulance crew to hospitalize child in the intensive care unit Next, I check the vital functions using the ABCDDE algorithm and stabilize the child's condition before the arrival of the ambulance crew

Situation No. 5

You are a general practitioner, you are urgently called to a 5-year-old child with frequent paroxysmal "barking" cough.

Initial assessment excited, breathing, pale skin, hoarse voice

Primary score

- A. *Airway* impaired
 - B. *Breathing* RR - 44 ", loud breathing on inhalation, prolonged inhalation, participation of auxiliary muscles, harsh breathing is heard on both sides, a large number of moist rales. SpO₂ - 90%.
 - C. *Circulation* HR - 120 / min. Central and peripheral pulse is of normal filling. Extremities are warm. Capillary filling - less than 2 sec. BP - 95/55 mm Hg Art.
 - D. *Neurological status* responds to voice (V), no seizures, blood glucose (glucometer) - 4 mmol/l, pupils respond to light, symmetrical.
 - E. *Exposure* body t - 38.9 ° C, the skin is clean
- Weight - 20 kg.
IV-line is inserted.

Your task is to evaluate the clinical picture and provide emergency care. All actions that you will perform, you must voice.

Algorithm 5	
Severe pneumonia with a stridor in a child for 5 years	
№	Action Required
1	I inject dexamethosone 0.6 mg/kg - 3 ml i/m
2	Put an oxygen mask on the patient's face and say loudly: "The flow of 100% oxygen is 6-8 l/min."
3	I inject antibacterial drugs: 1. Ampicillin 50 mg/kg + 2. Gentamicin 7.5 mg/kg i/m
4	I inject an antipyretic drug - a solution of Paracetamol 7.5 mg/kg - 15 ml i/v slowly
5	I call the ambulance crew to hospitalize child in the intensive care unit Next, I check the vital functions using the ABCDDE algorithm and stabilize the child's condition before the arrival of the ambulance crew

Situation No. 6

You are in the delivery room. You are wearing sterile gloves and clothing. Full-term baby born inactive - no breathing, muscle tone is absent. The amniotic fluid is clean. The midwife cut the umbilical cord and gives you a child to provide the initial help.

Your task: to demonstrate the first necessary actions and provide the child with initial assistance in the first 30 seconds. of life.

Algorithm 6	
Full-term newborn born inactive with clear amniotic fluid	
Immediate action	
1	Call for help - say loudly: "Necessary help, all here"
2	Inform the mother that the child will be assisted - say loudly: "Your baby does not breathe, we provide the necessary help"
Initial help	
3	Put the baby on a resuscitation table and ensure the correct position of the head on the surface
4	Put a flat diaper under the shoulder and back
5	Suck up the contents of the upper respiratory tract with a rubber bulb in the mouth-to-nose sequence
6	Conduct the final drying of the baby - rub your back and feet for a few seconds
7	Remove (throw) a wet diaper
8	Repeat to ensure the correct position of the head, having folded the flat diaper under the shoulder and back
9	To say loudly what indicators need to be evaluated, according to the help algorithm:
9.1	Evaluate the presence of breathing
9.2	Assess heart rate for 6 sec

Situation No. 7

You are in the delivery room near the resuscitation table. You are wearing sterile gloves and clothing. You have already provided in the first 30 seconds initial assistance for the newborn, born inactive with clear amniotic fluid, he was properly laid down and his condition was assessed. The results of the assessment after the initial care:

- no breathing
- heart rate 7 for 6 seconds.

Your task: to demonstrate the initial resuscitation (stage B - Mechanical ventilation with bag and mask).

Algorithm 7	
Full-term newborn born inactive with clear amniotic fluid	
№	Action Required
1	Ensure the correct position of the baby, put a flat diaper under the shoulder and back
2	Say loudly: "Connect the sensor of the pulse oximeter to the child's right arm" (<i>do not attach to the arm on your own hand, it is performed by another participant of resuscitation</i>)
3	Suck up the contents of the upper respiratory tract with a rubber bulb in the mouth-to-nose sequence
4	Arise from the back or side of the baby's head
5	Put a mask on the child's face from the chin to the nose bridge
6	Conduct mechanical ventilation with Ambu bag and mask with air <u>for 30 seconds</u>
6.1.	Make 20-30 compresses of the Ambu bag with your 4-5 fingers, hold the mask on the face
6.2.	Speak loudly for 30 seconds : "Breathe two - three - breath - two ..."
6.3.	After 30 seconds to say loudly: "It is necessary to assess the condition of the child: heart rate, respiration, saturation, skin color, muscle tone, reflex (Arshavsky or pharyngeal)

Situation No. 8

You are a doctor of the primary care center. You were summoned to a manipulation room; a 3-month-old child, who was brought by the parents, is lying on the couch.

Initial assessment eyes closed, does not react, breathes, there is a central pulse, the skin is pale.

Primary score

- A. *Airway* free
- B. *Breathing* RR - 56/min, without effort and additional noise, without the participation of auxiliary muscles and chest indrawing, is performed on both sides, SpO₂ - 93%.
- C. *Circulation* HR - 180/min. The central pulse is weak, the peripheral is absent, the extremities are cold, capillary filling - more than 3 seconds, BP - 50/20 mm Hg. Art.
- D. *Neurological status* reacts to pain (P), no seizures, blood glucose (glucometer) - 3.6 mmol / l, pupils respond to light, symmetrical.
- E. *Exposure* skin is dry, sunken eyes, skin fold is straightened very slowly (more than 2 s), large diaper rash on the buttocks, body t - 38.7 ° C.

IV-line is inserted.

The task: to assess symptoms and provide emergency assistance. All actions that you will perform, you must voice.

Algorithm 8	
Hypovolemic shock/severe dehydration in a child for 3 months	
№	Action Required
1.	Put an oxygen mask on the child's face and say loudly: "The flow of 100% oxygen is 6-8 l/min."
2.	Put a pillow under feet
3.	Take a saline solution in a soft vial and attach to the system for infusion and loudly say: "0.9% sodium chloride solution in a dose of 10 ml/kg, squeeze the bottle for a quick introduction"
4.	Loudly say, "I continue Ringer -Laktat infusion at a dose of 20 ml/kg over the next 50 minutes according to the plan B of the treatment of severe dehydration (total 30 ml/kg for the first hour of treatment)
5.	I inject an antipyretic drug - a solution of Paracetamol 7.5 mg/kg - 15 ml i/v slowly
6.	I call the ambulance crew to hospitalize child in the intensive care unit Next, I check the vital functions using the ABCDDE algorithm and stabilize the child's condition before the arrival of the ambulance crew

Situation No. 9

You are a general practitioner. The parents came to you with the child of 3 years, they said that 4 hours ago, the child's well-being began to deteriorate quickly, he became inhibited.

Initial assessment sluggish, sluggishly reacts to others, breathes, pale.

Primary score

A. Airway free

B. Breathing RR - 40/min, without effort and additional noise, without the participation of auxiliary muscles and chest indrawing, is performed on both sides, SpO₂ - 93%.

C. Circulation HR - 140/min. The central pulse is weak, the peripheral is filiform, the body is hot to the touch, the extremities are cold, capillary filling - 4 seconds, BP - 50/20 mm Hg. Art.

D. Neurological status responds to voice (V), no seizures, blood glucose (glucometer) - 3.9 mmol / l, pupils are narrow, symmetrical.

E. Exposure On the skin of the limbs and buttocks stellate hemorrhagic rash with elements of necrosis, body t - 39.9 ° C.

Weight -14 kg

IV-line is inserted.

Task: assess the clinical symptoms in a child and provide emergency care.

Algorithm 9	
Meningococccemia, an infectious-toxic shock in child 3 years old	
№	Action Required
1	Provide a child's horizontal position (put a pillow under feet)
2	Put an oxygen mask on the child's face and say loudly: "The flow of 100% oxygen is 6-8 l/min."
3	Provide venous access and start infusion
4	Take a saline solution in a soft vial and attach to the system for infusion and loudly say: "0.9% sodium chloride solution in a dose of 20 ml/kg"
5	Take a syringe with prednisolone and say: "I inject intravenous prednisolone 10 m/kg = 4,5 ml i/v"
6	Take a syringe with ceftriaxone and say: "I inject ceftriaxone(first dose) at a dose of 50 mg/kg intramuscularly"
7	I inject an antipyretic drug - a solution of Paracetamol 7.5 mg/kg - 15 ml i/v slowly
8	Say loud: <ul style="list-style-type: none">• Next, I check the vital functions using the ABCDDE algorithm and stabilize the child's condition before the arrival of the ambulance crew• Emergency hospitalization in the intensive care unit of the hospital

Situation No. 10

You are a general practitioner. You were immediately summoned to the manipulation room, to 2 year old child with convulsions that occurred during a fever and lasted more than 5 minutes.

Initial assessment unconscious, breathing, skin red, generalized tonic-clonic convulsions.

Primary score

A. Airway free

B. Breathing RR - 35/min, without effort and additional noise, without the participation of auxiliary muscles and chest indrawing, is carried out on both sides, SpO₂ - 95%.

C. Circulation HR - 132/min. Central and peripheral pulse is satisfactory filling, the extremities are cold, capillary filling - 2 seconds, BP - 100/60 mm Hg. Art.

D. Neurological status unconscious, generalized tonic-clonic convulsions blood glucose (glucometer) - 3.9 mmol / l, pupils are symmetric, react to light..

E. Exposure body t - 39.9 ° C, skin is clean, without rash. Meningeal symptoms are negative. There are catarrhal phenomena. No visible damage.

Weight -14 kg

IV-line is inserted.

Your task: assess the clinical symptoms in a child and provide emergency care.

Algorithm 10	
Febrile convulsions in a child 2 years old	
№	Action Required
1	Take a syringe with Diazepam , say "I inject: Diazepam 0.5% 0.5 mg/kg = 2 ml i/v slowly OR i/m"
2	Put the child on the side in a safe position
3	Put an oxygen mask on the child's face and say loudly: "The flow of 100% oxygen is 6-8 l/min."
4	I inject an antipyretic drug - a solution of Paracetamol 7.5 mg/kg - 10, 5 ml i/v slowly ml"
5	I call the ambulance crew to hospitalize child in the intensive care unit Next, I check the vital functions using the ABCDDE algorithm and stabilize the child's condition before the arrival of the ambulance crew
6	I check A: airway
7A.	Free. Going to the next evaluation
7.	In the respiratory tract, there is obstruction of mucous. I remove mucus from the upper respiratory tract with a rubber aspirator
8.	I assess B:breathing : 1. RR 2. Respiratory efforts 3. Chest indrawing 4. Abnormal breath sounds 5. SpO ₂
9.	I assess C: circulation : 1. Heart rate 2. Central pulse

	<ol style="list-style-type: none"> 3. Peripheral pulse 4. Capillary filling 5. Color and skin temperature by the touch 6. BP
10.	<p>I assess D: <i>neurological status</i>:</p> <ol style="list-style-type: none"> 1. AVPU Scale (Alert, Voice, Pain, Unresponsive) 2. Seizers presence 3. Blood glucose level
11.	<p>I assess E: <i>exposure</i>:</p> <ol style="list-style-type: none"> 1. Body temperature 2. Rash on the skin 3. Other signs

Situation No. 11

You are a doctor of the primary care center. You were immediately summoned to the manipulation room, where the 6-year-old child is unconscious. Suffering from diabetes type 1. In the morning, 28 insulin units were injected. Did not finish the breakfast.

- Initial assessment** Unconscious, breathes, skin is pale pink.
- Primary score**
- A. Airway** free
 - B. Breathing** RR - 22/min, without effort and additional noise, without the participation of auxiliary muscles and chest indrawing, is carried out on both sides, SpO₂ - 97%.
 - C. Circulation** HR - 96/min. Central and peripheral pulse is satisfactory filling, the extremities are cold, capillary filling - 2 seconds, BP - 105/65 mm Hg. Art.
 - D. Neurological status** unconscious, no seizures, blood glucose (glucometer) – 1,7 mmol / l, pupils are symmetric, react to light..
 - E. Exposure** body t - 36.7° C, skin and mucous membranes are clean, moist, no edema. No visible damage.
- Weight -22 kg
IV-line is inserted.

Your task is to provide emergency pre-hospital care to the patient. All actions that you will perform must be voiced.

Algorithm 11		
Hypoglycemic coma in a child 6 years old, emergency prehospital care		
№	Action Required	Possible scenarios
1	Name the diagnosis: Type 1 diabetes mellitus, hypoglycemic coma	
2	I inject: Glucagon 1 mg at a dose of 1 ml i/m OR	If you can not use this medication, you can go to the next paragraph
3	I provide venous access, I inject: 10% glucose solution 2 ml/kg in a dose 44 ml intravenous bolus	
4	I call the ambulance crew to hospitalize child in the intensive care unit	
5	I check the vital functions using the ABCDDE algorithm before the arrival of the ambulance crew	