

APPROVED

The First Pro-Rector for Scientific and Pedagogical Affairs
Danylo Halytsky Lviv National Medical University

Assoc. Prof. Iryna SOLONYNKO

APPROVED

by the joint meeting of the Academic Councils of the Medical Faculties No. 1 and No. 2 and the Faculty of Foreign Students of Danylo Halytsky Lviv National Medical University, Minutes No. 1/02-2023 of 28.02.2023.

Dean of Medical Faculty No 1 _____ Prof. Victoria SERGIENKO

Dean of Medical Faculty No 2 _____ Prof. Alexander NADRAGA

Dean of Foreign Students _____ Assoc. Prof. Eugene VARYVODA

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At the meeting of the specialized methodical committee on pediatric disciplines Protocol No. _1_ of "09"
February 2023

The Chairman of the specialized
methodical commission _____ Prof. Lesya BESH

**ALGORITHMS
of the examination station OSP(C)E
Neonatal Resuscitation
Specialty 222 «Medicine»
discipline "Pediatric diseases with pediatric infectious diseases"**

Performance Algorithm No. 1

STUDENT		EXAMINER
1. To introduce yourself		
“Receives” a baby in blanket from a midwife		
2. INITIAL STEPS OF CARE		
1	To provide the correct position on the resuscitation table, suction mouth and nose, if necessary (<i>asks examiner if the baby has any respiratory disorders or a significant amount of oral content</i>) ¹ , dry with towel or blanket, remove wet linen, stimulate by rubbing back or extremities, provide the correct position of the head	«The baby does not breath»
3. ASSESSMENT OF THE NEED FOR RESUSCITATION		
2	To check breathing: <i>asks examiner if the infant breaths or has gasping respirations</i>	«The baby does not breath»
4-5. PROVIDING EFFECTIVE POSITIVE-PRESSURE VENTILATION (PPV)		
3	To begin PPV not later than in 1 min after receiving the baby	PO probe is attached «15 seconds passed» «HR is bradycardic and not increasing» Examiner confirms the presence or absence of chest movements in the infant
4	To call for help	
5	To ask assistant to attach a pulseoximeter (PO) probe to the right infant’s wrist and connect to monitor	
6	Within 15 seconds of beginning PPV, <u>without its interruption</u> , to request check to assess if HR is rising	
7	To evaluate chest movements (<i>asks examiner</i>)	
7.1	If chest movements observed, to continue PPV x 15 sec	
7.2	If NO chest movement observed, to proceed through corrective steps until chest movement: 1) mask adjustment, 2) reposition of the head, 3) to suction mouth and nose, 4) to open mouth, 5) to increase pressure, 6) to indicate the need for alternative airway – endotracheal tube or laryngeal mask To notice and announce the time of appearance of chest movements	
8	To administer effective PPV (with chest movements) x 30 seconds	
6. DETERMINING THE NEED FOR CHEST COMPRESSIONS		
9	To stop PPV, remove the mask from infant’s face, and check HR with a stethoscope To indicate the need for chest compressions and endotracheal intubation To indicate the need to assess the first Apgar score	«HR is about 40 bpm»
7. CHEST COMPRESSIONS		
10	To ask assistant to increase oxygen concentration to 100% (<i>to attach an oxygen tube and oxygen reservoir</i>) and ventilate the baby’s lungs	Examiner confirms ventilation of baby’s lungs
11	To start chest compressions (<u>thumbs technique</u>) with coordinated ventilation, counting “ <i>one-and-two-and-three-and-bag-and</i> ” (rate – 90 per minute; thumbs positioned just below the line between the nipples; compressions one-third of the AP diameter of the chest;	

¹ - information about infant’s condition will be provided by examiner.

STUDENT		EXAMINER
	thumbs stay in touch with the surface; 3 compressions to 1 ventilation every 2 s)	«60 seconds passed»
8. DETERMINING THE NEED FOR MEDICATIONS		
12	To ask if the pulse oximeter detects heart rate and saturation To discontinue chest compressions and ask the assistant to stop ventilation and remove the mask from the face of the infant To check heart rate with auscultation of the heart beats for 6 s (to multiply the result by 10)	“Pulsoximeter is not detecting a signal” “HR is about 30 bpm”
9. ADMINISTRATION OF MEDICATIONS		
13	To indicate the need to insert a catheter into umbilical vein and promptly infuse intravenously 0.1-0.3 ml/kg of epinephrine (0.01% solution) (<i>another assistant is needed</i>)	Confirms performance
14	To continue chest compressions using <u>two fingers technique</u> for 60 s (provides the ability to simultaneously insert the catheter in the umbilical vein and administer medication)	«60 seconds passed»
15	To ask the examiner if the pulse oximeter provides readings for heart rate and hemoglobin oxygen saturation (SpO ₂)	«HR 100 bpm. SpO ₂ 75%»
10. FINAL STEPS		
16	To discontinue chest compressions and evaluate spontaneous breathing (<i>asks examiner</i>)	«No spontaneous respirations»
17	To continue PPV with higher ventilation rate (40-60 breaths/min), reducing the oxygen concentration (<i>to disconnect the oxygen reservoir</i>) To confirm the presence of chest movements	«30 seconds passed»
18	To assess HR, spontaneous breathing, and SpO ₂ (<i>asks examiner</i>)	«HR 120 bpm, spontaneously breathing. SpO ₂ – 85%»
19	To gradually discontinue PPV (<i>after several ventilations with lower frequency and pressure, remove the mask from the infant's face</i>). To assess HR, spontaneous respirations and SpO ₂ after the final cessation of ventilation (<i>asks examiner</i>)	«HR 140 bpm, spontaneously breathing, SpO ₂ – 90%»
20	Specify the need: - for follow-up of the infant's condition (pulsoximetry plus clinical monitoring) - to assess the Apgar score @ 5 minute - to inform the parents about the results of resuscitation - to transfer the infant to the neonatal intensive care unit (ward)	

Performance Algorithm No. 2

STUDENT		EXAMINER
1. To introduce yourself		
“Receives” a baby in blanket from a midwife		
2. INITIAL STEPS OF CARE		
1	To provide the correct position on the resuscitation table, suction mouth and nose, if necessary (<i>asks examiner if the baby has any respiratory disorders or a significant amount of oral content</i>) ² , dry with towel or blanket, remove wet linen, stimulate by rubbing back or extremities, provide the correct position of the head	«The baby does not breath»
3. ASSESSMENT OF THE NEED FOR RESUSCITATION		
2	To check breathing: <i>asks examiner if the infant breaths or has gasping respirations</i>	«The baby is breathing, no gasping»
3	To check the heart rate with a stethoscope, counting the number of heart beats for 6 seconds and multiply by 10	«HR is 90 bpm»
4-5. PROVIDING EFFECTIVE POSITIVE-PRESSURE VENTILATION (PPV)		
4	To begin PPV not later than in 1 min after receiving the baby	PO probe is attached «15 seconds passed» «HR is bradycardic but increasing»
5	To call for help	
6	To ask assistant to attach a pulse oximeter (PO) probe to the right infant’s wrist and connect to the monitor	
7	Within 15 seconds of beginning PPV, <u>without its interruption</u> , to request check to assess if HR is rising	
8	Continue PPV for another 15 seconds, providing a total of effective ventilation for 30 seconds	
6. DETERMINING THE NEED FOR CHEST COMPRESSIONS		
9	To stop PPV, remove the mask from infant’s face, and check HR with a stethoscope To indicate the need for chest compressions and endotracheal intubation To indicate the need to assess the first Apgar score	«HR is about 50 bpm»
7. CHEST COMPRESSIONS		
10	To ask assistant to increase oxygen concentration to 100% (to attach an oxygen tube and oxygen reservoir) and ventilate the baby’s lungs	Examiner confirms ventilation of baby’s lungs
11	To start chest compressions (<u>thumbs technique</u>) with coordinated ventilation counting “ <i>one-and-two-and-three-and-bag-and</i> ” (rate – 90 per minute; thumbs positioned just below the line between the nipples; compressions one-third of the AP diameter of the chest; thumbs stay in touch with the surface; 3 compressions to 1 ventilation every 2 s)	«60 seconds passed»
8. DETERMINING THE NEED FOR MEDICATIONS		
12	To ask if the pulse oximeter detects heart rate and saturation To discontinue chest compressions and ask the assistant to stop ventilation and remove the mask from the face of the infant	“Pulse oximeter is not detecting a signal”

² - information about infant’s condition will be provided by examiner.

STUDENT		EXAMINER
	To check heart rate with auscultation of the heart beats for 6 s (to multiply the result by 10)	“HR is about 30 bpm”
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14	To continue chest compressions using <u>two fingers technique</u> for 60 s (provides the ability to simultaneously catheterize the umbilical vein and administer medication)	«60 seconds passed»
15	To ask the examiner if the pulse oximeter provides readings for heart rate and hemoglobin oxygen saturation (SpO ₂)	«HR 100 bpm. SpO ₂ 75%»
10. FINAL STEPS		
16	To discontinue chest compressions and evaluate spontaneous breathing (<i>asks examiner</i>)	«No spontaneous respirations»
17	To continue PPV with higher ventilation rate (40-60 breaths/min), reducing the oxygen concentration (<i>to disconnect the oxygen reservoir</i>) To confirm the presence of chest movements	«30 seconds passed»
18	To assess HR, spontaneous breathing, and SpO ₂ (<i>asks examiner</i>)	«HR 120 bpm, spontaneously breathing. SpO ₂ – 85%»
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20	Specify the need: <ul style="list-style-type: none"> - for follow-up of the infant's condition (pulsioximetry plus clinical monitoring) - to assess the Apgar score @ 5 minute - to inform the parents about the results of resuscitation - to transfer the infant to the neonatal intensive care unit (ward) 	

Neonatal Resuscitation Algorithm

