

Taras Shevchenko National University of Kyiv
Educational and Scientific Centre “Institute of Biology and Medicine”
Department of Pediatrics, Obstetrics and Gynecology

Passport
of the Examination Station
“PEDIATRICS WITH CHILDREN'S INFECTIOUS DISEASES. PRACTICAL
SKILLS”
of the Objective Structured Practical Clinical Examination (OSP(C)E-2)
for applicants for the Master's degree
in specialty 222 Medicine, field of study 22 “Healthcare”

“APPROVED”

by the Scientific and Methodological Commission
of the ESC “Institute of Biology and Medicine”
Taras Shevchenko National University of Kyiv

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Head of the Scientific and Methodological
Commission _____

(Tetiana SHEVCHENKO)

Deputy Director
for Academic Affairs _____



(Olha KHARCHENKO)

Kyiv-2026

Passport
of Examination Station No. 1
of the Objective Structured Practical (Clinical) Examination (OSPC(C)E-2)
for students of the Master's degree in specialty
222 "Medicine" of the field of knowledge 22 "Healthcare"

Discipline Name:

"PEDIATRICS WITH CHILDREN'S INFECTIOUS DISEASES"

Station Name:

"PEDIATRICS WITH CHILDREN'S INFECTIOUS DISEASES. PRACTICAL SKILLS"

Learning Objective: to demonstrate the stages of performing specific practical skills defined by the list of competencies for this station.

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Competencies assessed at the station:

PC02. Ability to determine the required list of laboratory and instrumental studies and evaluate their results.

PC03. Ability to establish a preliminary and clinical diagnosis of the disease.

PC11. Skills of performing medical manipulations

PC16. Ability to maintain medical records, including electronic forms

Learning Outcomes verified and assessed by the checklist:

PLO1. Identify and identify the leading clinical symptoms and syndromes (in list 1); by standard methods, using the preliminary data of the patient's anamnesis, the data of the patient's examination, knowledge about the person, his organs and systems, to establish the most probable nosological or syndromic preliminary clinical diagnosis of the disease (in list 2).

PLO 2. To collect information about the general condition of the patient, to evaluate the psychomotor and physical development of the patient, the state of organs and systems of the body, on the basis of the results of laboratory and instrumental studies to evaluate information about the diagnosis (list 4).

PLO 3. Assign and analyze additional (mandatory and optional) examination methods

(laboratory, radiological, functional and / or instrumental) on list 4, patients with organ and systemic diseases for differential diagnosis of diseases (list 2)

PLO04. Establish a definitive clinical diagnosis by making an informed decision and logical analysis of the received subjective and objective data of clinical, additional examination, conducting differential diagnostics, in accordance with the relevant ethical and legal norms, under the supervision of the doctor-supervisor in the conditions of the medical institution (list 2).

PLO05. To determine the main clinical syndrome or what causes the severity of the condition of the victim (list 3) by making an informed decision and assessment of the human condition in all circumstances (at home, on the street, in a health care institution, in his unit) in conditions of emergency and combat, in the field, in the absence of information and limited time.

PLO06. Determine the nature and principles of treatment of patients (conservative, operative) with diseases (list 2) in the conditions of the health care institution, at home of the patient and during the stages of medical evacuation, incl. in the field, based on a previous clinical diagnosis, adhering to the relevant ethical and legal norms, by making informed decisions on existing algorithms and standard schemes, if necessary to extend the standard scheme, be able to substantiate personalized recommendations under the supervision of a doctor-supervisor.

PLO14. Perform medical manipulations (list 5) in a hospital setting, at home or at work on the basis of a previous clinical diagnosis and / or patient status indicators, by making an informed decision, in accordance with relevant ethical and legal standards

Station Duration

Total station duration – 10 minutes

Time Allocation:

1. Student identification and registration – 15 seconds.
2. Selection of the task (ticket) and familiarization with the chosen scenario and task – 30 seconds.
3. Preparation of supplies for the task – 1 minute.
4. Performance of the task according to the algorithm – 8 minutes.
5. Completion of the exam, review of the result – 15 seconds.

Maximum score obtainable at the station: 5 points

Tasks to be performed by the student at the station:

Analyze the clinical information presented in the scenario, apply practical skills according to established algorithms, evaluate and record the results, and draw the necessary conclusions based on the specific scenario (see appendix1).

Clinical cases (task tickets): Available (see appendix)

Station Organization:

Room Requirements: A room simulating an office/consultation room.

Material and Technical Support (Equipment per 1 student):

Table – 1 pc.

Chairs – 2 pcs.

Couch – 1 pc.

Nomograms for assessing a child's physical development – 1 pc.

Nomograms for assessing a child's blood pressure – 1 pc.

Tonometer (Blood pressure monitor) – 1 pc.

Stethoscope – 1 pc.

Pen – 2 pcs.

Paper – 1 pc.

Hand sanitizer and paper towels.

Portable inhaler (nebulizer) – 1 pc.

Pulse oximeter – 1 pc.

Complete blood count and biochemical blood test result forms – 4 pcs.

Required Simulation Equipment: Needed (infant mannequin).

Need for Auxiliary Personnel: None.

Need for a Standardized Patient: None.

Instructions for the Standardized Patient: none

Instructions for the Examiner at the Station:

Identify and register the student.

Allow the student to select a task variant and ask if they understand the task.

Evaluate the performance and fill out the checklist.

Do not communicate with the student; intervene only in case of force majeure (e.g., student's health deterioration, etc.).

Warn the student one minute before the station time expires.

Inform the student that the station is completed and announce the result.

Algorithms for Student Task Performance

**1. Methodology for Measuring Blood Pressure in a Child
Procedure Algorithm:**

- Explain the purpose and steps of the procedure to the child's caregivers or the child and obtain the caregivers' consent for blood pressure measurement.
- Prepare the necessary equipment: Apply the cuff to the patient's bare upper arm, 2–3 cm above the elbow crease (clothing should not compress the arm above the cuff); fasten the cuff so that only one finger can fit between the cuff and the arm.
- Ask the caregivers to hold the child's arm in the correct position: Fully extended with the palm facing upward.
- Check the position of the manometer needle relative to the zero mark on the scale.
- Locate the pulsation of the brachial artery in the antecubital fossa and place the

stethoscope chest piece over this area.

- Close the valve on the bulb by turning it to the right, and inflate the cuff while monitoring with the stethoscope until the pressure in the cuff (according to the manometer) exceeds the level at which Korotkoff sounds disappear by [insert value, e.g., 20–30] mmHg.
- Release air from the cuff at a rate of [insert value, e.g., 2] mmHg per second by turning the valve. Simultaneously listen for sounds over the brachial artery with the stethoscope and monitor the manometer scale.
- At the moment the first sounds (Korotkoff sounds) appear over the brachial artery, note the reading on the scale, which corresponds to the systolic pressure.
- Repeat the measurement 2 more times at 2–3 minute intervals.
- Record the measurement data as a fraction (systolic blood pressure in the numerator and diastolic in the denominator), for example: 100/65 mmHg.
- Document the examination findings.

2. Assessment of a Child's Blood Pressure

Procedure Algorithm:

- Select the appropriate centile chart for assessing blood pressure, taking into account the child's age, sex, and height.
- Indicate the parameter that systolic blood pressure (SBP) corresponds to, according to the table of systolic pressure by age and height in centiles.
- Assess the clinical significance of the child's systolic blood pressure.
- Indicate the parameter that diastolic blood pressure (DBP) corresponds to, according to the table of diastolic pressure by age and height in centiles.
- Assess the clinical significance of the child's diastolic blood pressure.
- Formulate a preliminary diagnosis based on the clinical data of the scenario.

3. Conducting Anthropometric Measurements in Children of Different Ages

Performance Algorithm:

- List the primary and additional anthropometric measurements for children, and the frequency of these measurements according to age.
- Describe the weighing technique for a child, depending on age (as required by the scenario).
- Describe the technique for measuring a child's height (length), depending on age (as required by the scenario).
- Describe the technique for measuring head circumference in young children (as required by the scenario).
- Explain the methodology for using nomograms (growth charts) to assess age, height/length, head circumference, and chest circumference.
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4. Assessment of a Child's Physical Development using Centile Charts

Performance Algorithm:

- Select the centile charts for assessing physical development according to the child's age and sex.
- Locate the point on the weight-for-age chart.
- Assess the weight-for-age and underline the result.
- Locate the point on the length/height-for-age chart.
- Assess the length/height-for-age and underline the result.
- Select the weight-for-height chart and assess the result.
- Calculate the Body Mass Index (BMI) using the formula: $(\text{BMI} = m/l^2)$.
- Evaluate the calculated BMI.
- Formulate a conclusion regarding the child's physical development according to the scenario.

5. Assessment of a Child's Physical Development using Z-scores

Performance Algorithm:

- Select the Z-score charts for assessing physical development according to the child's age and sex.
- Locate the point on the weight-for-age Z-score chart.
- Assess the weight-for-age and underline the result.
- Locate the point on the length/height-for-age Z-score chart.
- Assess the length/height-for-age and underline the result.
- Select the weight-for-height/length chart and assess the result.
- Calculate the Body Mass Index (BMI) using the formula: $(\text{BMI} = m/l^2)$.
- Evaluate the calculated BMI.
- Formulate a conclusion regarding the child's physical development according to the scenario.

6. Analysis of Complete Blood Count (CBC) Results

Performance Algorithm:

- Interpret changes in laboratory parameters in the complete blood count according to the scenario.
- State the age-related characteristics of complete blood count parameters in children during different age periods. Specify the age periods when the leukocyte-lymphocyte crossover (physiological crossover) occurs.
- Formulate a preliminary conclusion regarding the laboratory changes according to the scenario.

7. Analysis of Biochemical Blood Test Results

Performance Algorithm:

- Interpret changes in laboratory parameters in the biochemical blood analysis according to the scenario.

- Formulate a preliminary conclusion regarding the laboratory changes according to the scenario.

8. Pulse Oximetry Technique for a Child

Performance Algorithm:

- Greet and introduce yourself to the patient and parents.
- Identify the patient (confirm full name and age).
- Explain the purpose and steps of the study, and obtain consent from the patient and legal representatives.
- Prepare the necessary equipment: take the appropriate pulse oximeter, ensure it is functional and sufficiently charged.
- Ensure the limb to be used for the study is warm, without signs of peripheral vasospasm. If necessary, choose a different limb.
- Ask the patient to choose a comfortable position (lying down, sitting, or in the parents' arms); request that they do not move or tense the limb.
- Apply the pulse oximeter to the selected finger and turn it on.
- Wait until the pulse oximeter "captures" the pulse wave and the pulse and saturation readings stabilize (10–20 seconds). Ensure the pulse rate on the pulse oximeter matches the patient's actual heart rate (HR).
- Record the pulse oximetry readings and enter them into the relevant documentation (observation sheet, logbook, or diary).
- Assess the patient's pulse oximetry readings (normal range is 96–99%) and outline a plan for further action according to the scenario.
- Formulate a diagnosis considering the clinical data of the scenario.

9. Inhalation Technique in Children

Performance Algorithm:

- Explain the purpose and steps of the procedure to the patient
- Determine the medication to be inhaled according to the clinical scenario.
- Before working with the inhaler (nebulizer), wash your hands with soap or apply antiseptic, and put on gloves.
- Prepare the nebulizer: connect the air/oxygen supply hose to the compressor. Choose a mask or a mouthpiece depending on the clinical scenario.
- Pour the recommended volume of the selected medication into the medicine cup/reservoir.
- Tightly close the medicine cup, connect the compressor hose to its lower part, and attach the mask to the upper part.
- Turn on the device and ensure that a fine mist (aerosolized medication) is coming out of the mask during operation.
- Holding the medication cup in a vertical position, press the mask as tightly as possible to the patient's face. Inhalation and exhalation must occur within the mask space.

During the inhalation, the child should be in a sitting or semi-sitting position and breathe as deeply as possible to ensure maximum distribution of the medication.

- The duration of the inhalation session depends on the amount of the medicinal substance, as it is performed until the medication in the cup is completely depleted to ensure the recommended dose is received.
- After the procedure is completed, explain to the parents that the child's face should be wiped with wet wipes or washed with clean water.

Checklist example

Scenario (Ticket) No. 1: Methodology for Measuring Blood Pressure in a Child

Student Identification Number: _____

No.	Assessment Components of the Clinical Case	Max Points	Student Score*
1	Explain the purpose and steps of the procedure to the patient	0.5	
2	Prepare the necessary equipment	1.0	
3	Ask the patient to sit correctly and position their arm	0.5	
4	Check the position of the manometer needle	1.0	
5	Perform the measurement	0.5	
6	Repeat the measurement 2 more times at 2–3 minute intervals	0.5	
7	Document the examination data and explain the assessment of results	1.0	
Total	Sum of points	5.0	

Regulatory Documents and Literature used as the basis for student tasks and performance algorithms:

1. Dudnyk VM, Zborovska OO, Demianyshyna VV, Zvenyhorodska HY, Popov VP. (2025). Methods of blood pressure measurement in children: problematic issues and ways to solve them. *Modern Pediatrics. Ukraine*. 8(152): 87-96. doi: 10.15574/SP.2025.8(152).8796.
2. Yegül-Gülner G, Kasap-Demir B, Alparslan C, Çatli G, Mutlubaş F, Yavaşcan Ö et al. (2019). Ambulatory blood pressure monitoring parameters in obese children and adolescents with masked hypertension. *Blood Press Monit*. 24: 277-283. <https://doi.org/10.1097/MBP.0000000000000402>; PMID:31567187.
3. Arterial hypertension in children and adolescents. (2022). Retrieved from: <https://d-l.com.ua/ua/archive/2022/4%2881%29/pages-5-13/arterialna-gipertenziya-u-ditey-i-pidlitkiv>.
4. Order of the Ministry of Health of Ukraine dated October 13, 2024, No. 1590 "On Approval of Criteria for Assessing the Physical Development of Children Under 18 Years of Age".
5. Methodological recommendations: "PHYSICAL DEVELOPMENT OF CHILDREN AND ITS ASSESSMENT" Molochek N.V., Falalieieva T.M., Tsyriuk O.I., 2022.
6. Fundamentals of inhalation therapy: devices that deliver medications to the respiratory tract. (2017). Retrieved from: <https://kiai.com.ua/ua/archive/2017/2%2899%29/pages-18-31/osnovi-ingalyaciynoyi-terapiyi-pristroyi-shcho-dostavlyayut-likarski-zasobi-v-dihalni-shlyahi>.
7. Nebulizer therapy: modern possibilities in clinical practice. Methodological manual for physicians. State Institution "National Scientific Center of Phthisiology, Pulmonology, and Allergology named after F.G. Yanovsky of the National Academy of Medical Sciences of Ukraine" (NSC PPA NAMSU). Compiled by: Rechkina O.O. http://www.ifp.kiev.ua/ftp1/metoddoc/posibnyk_2_2025.pdf.