


ОҢТҮСТІК-ҚАЗАҚСТАН <b>MEDISINA          AKADEMIASY</b> «Оңтүстік Қазақстан медицина академиясы» АҚ		 SOUTH KAZAKHSTAN <b>MEDICAL          ACADEMY</b> АО «Южно-Казахстанская медицинская академия»
Department of "Propaedeutics of Internal Diseases"		47/11 - 2025
Control and measuring instruments in the discipline "Respiratory system in pathology"		1p. from 12

## CONTROL AND MEASURING INSTRUMENTS

Questions of the program for the midterm control 1,2

Discipline: "Respiratory system in pathology"

Discipline code: RSP 3305

OP Title: 6B10115 "Medicine"

Amount of study hours/credits: 150 hrs (5 credits)

Course and semester of study: 3 course, 5th semester


Shymkent, 2025

The contrjl and measuring tools were developed in accordance with the working curriculum of the discipline (sillabus) and discussed at a department meeting.

Protocol: № 11 « 26 » 06, 2025y.

Head of department, d.m.s., professor Bekmurzaeva E.K. Бекмурзаева Е.К.



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<p style="text-align: center;">Department of "Propaedeutics of Internal Diseases"</p>		<p>47/11 -2025</p>
<p>Control and measuring instruments in the discipline "Respiratory system in pathology"</p>		<p>3p. from12</p>

### Midterm control №1

#### 1. An assignment to demonstrate practical skills.

1. Questioning patients with respiratory diseases.
2. General examination of patients with diseases of the respiratory system.
3. Palpation of the chest. Determination of vocal fremitus
4. Definition of chest pain
5. Determination of chest wall resistance
6. Methods and techniques for conducting auscultation of the lungs.
7. Questioning of patients with pulmonary tissue compaction syndrome.
8. General examination of patients with pulmonary tissue compaction syndrome.
9. Questioning of patients with bronchial obstruction syndrome
10. General examination of patients with bronchial obstruction syndrome
11. Name the laboratory and instrumental research methods for compaction of lung tissue.
12. Name the laboratory and instrumental research methods for bronchial obstruction.

#### Situational tasks:

History: fell ill 3 days ago after hypothermia. Took paracetamol on his own.

Objectively: Respiratory rate - 26/min. Blood pressure 140/100 mm Hg. The right side lags behind in the act of breathing.

Percussion: dull percussion sound in the lower right lobe. Auscultation: bronchial breathing in the same area, crepitation, increased vocal fremitus. Temperature - 38.3 °C

#### Questions:


1. Make a preliminary diagnosis 2.  
Determine the leading syndrome
  3. Demonstrate the technique of performing lung percussion
  4. Make a survey plan
2. The patient is a woman, 45 years old. She consulted a doctor with complaints: fever up to 39 °C, headaches, cough with "rusty" colored sputum, pain in the right side when inhaling, general weakness.
- History: fell ill 2 days ago after hypothermia. Took ibuprofen on his own. Objectively: palpation of the chest: increased vocal fremitus in the lower right lobe
- On percussion of the chest: dull sound over the same area. On auscultation of the chest: bronchial breathing, crepitation. Respiratory rate - 28/min.

#### Questions:

1. Make a preliminary diagnosis
  2. Identify the leading syndrome
  3. Demonstrate the technique of performing auscultation of the lungs
  4. Make a survey plan
3. A 45-year-old patient came to the clinic complaining of a cough with difficult to expectorate sputum, shortness of breath during physical exertion, and general weakness. He has been suffering from bronchospasm pathology for 15 years. He has been smoking since he was 17. Objectively: his fingers resemble "drumsticks", his chest is barrel-shaped, his breathing is harsh, his exhalation is prolonged, and dry wheezing is heard in all his lungs. Respiratory rate is 23 per minute. Blood pressure is 130/80 mm Hg.

#### Questions:

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of palpating the lungs
4. Make a survey plan

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4. A 34-year-old female patient was admitted to the department. She works as a teacher. Complaints: shortness of breath at rest, increased shortness of breath during physical exertion, an increase in body temperature by 37.9 C, the release of slight rusty-colored sputum when coughing, pain in the right chest associated with breathing. On examination - diffuse cyanosis, herpetic eruptions on the lips. The right chest is thicker than the act of breathing. Respiratory rate is 36 times per minute.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of palpating the lungs
4. Make a survey plan

5. On examination of the patient: the chest is barrel-shaped. The epigastric angle is more than 90°, the ribs are horizontal. The supraclavicular and subclavicular fossae are aligned. Palpation of the chest: vocal fremitus is the same on both sides, with a slight weakening. Percussion of the chest: box-shaped percussion sound. The lower border of the lungs is lowered, the upper border is raised. Auscultation of the lungs: equally weakened vesicular breathing over both lungs without extraneous breathing noises.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of performing lung percussion.
4. Determine the examination plan

6. A 33-year-old woman consulted a doctor complaining of a fever of 39.9, chills, dry cough, and chest pain on the right that intensifies with coughing and deep breathing. History: she became ill acutely 3 days ago. Objectively: in the lower parts of the right lung - increased vocal fremitus, shortened percussion sound, harsh breathing, and fine bubbling rales.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of performing lung percussion.
4. Make a survey plan

7. A 35-year-old woman presents to a doctor with complaints of coughing with the release of a large amount of purulent sputum, sometimes "a mouthful" with an unpleasant putrid odor, lethargy, irritability, decreased performance. From the anamnesis, she notes chronic bronchitis since childhood. On examination - fingers in the form of "drumsticks", nails in the form of "watch glasses". Auscultation of the lungs reveals weakened vesicular breathing, in the middle lobe on the right - moist rales of different sizes.

**Questions:**


1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of performing lung percussion.
4. Make a survey plan

8. A 55-year-old man complains of cough with difficult-to-separate sputum and shortness of breath during physical exertion. He has suffered from bronchopulmonary pathology for 20 years and is a smoker. Objectively: breathing is harsh, dry buzzing rales are heard throughout the entire respiratory system, exhalation is prolonged.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome



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3. Demonstrate the technique of performing lung percussion.

4. Make a survey plan

9. Woman, 56 years old. Complaints: Attacks of suffocation, occurring mainly at night, wheezing, difficulty exhaling, cough with difficult to separate mucous sputum.

History: Has suffered from bronchial asthma for over 10 years. Has been hospitalized several times due to exacerbations. Has not taken inhalation medications in recent days.

Objectively: The patient's position is sitting, leaning his hands on the bed (orthopnea)

Palpation: symmetrical vocal fremitus. Percussion: box-like sound over both lungs.

Auscultation: breathing is harsh, exhalation is prolonged, dry wheezing on exhalation. Respiratory rate is 30 per minute. Pulse is 110 beats/min. O<sub>2</sub> saturation is 92%.

#### Questions:

1. Make a preliminary diagnosis

2. Identify the leading syndrome

3. Demonstrate the technique of performing pulmonary auscultation

4. Make a survey plan

10. A 63-year-old man came to the clinic with complaints of gradually increasing shortness of breath, dry cough, feeling of "underbreathing" for 3 weeks, weakness. Anamnesis: A smoker for 40 years (a pack a day), recently noticed weight loss, appetite has worsened. No fever. Objectively: The patient's position is forced, breathing is shallow. Palpation: vocal fremitus is weakened in the lower lobe of the right lung. Percussion: dullness in the lower right lobe. Auscultation: breathing is not conducted in the same area. X-ray: shadow in the projection of the right main bronchus, atelectasis of the lower lobe.

#### Questions:

1. Make a preliminary diagnosis

2. Identify the leading syndrome

3. Demonstrate the technique of comparative percussion of the lungs

4. Make a survey plan

11. Male, 65 years old. Complaints: gradually increasing dyspnea, dry cough, decreased performance. No fever. Anamnesis: smoker with over 40 years of experience. Lost 6 kg in the last 2 months. Periodically weakness, cough "without sputum" appears. Objectively: Position - forced (sitting, slightly leaning forward). Palpation: vocal fremitus is weakened in the lower lobe on the right. Percussion: dullness of sound in the lower right lobe. Auscultation: breathing is not performed in the same area. Chest X-ray: homogeneous darkening of the lower lobe of the right lung, with retraction of the intercostal spaces.

#### Questions:

1. Make a preliminary diagnosis

2. Identify the leading syndrome

3. Demonstrate the technique of performing topographic percussion of the lungs.

4. Make a survey plan


12. Male, 62 years old. Complaints: Constant dry cough, increasing shortness of breath, feeling of "congestion" in the right half of the chest.

History: Smokes for over 40 years. Lost 5 kg in the last month. Had several episodes of hemoptysis. Temperature is normal.

Objective data: General condition: satisfactory. Respiratory rate: 26/min. Palpation: vocal fremitus is weakened in the lower right lobe. Percussion: dullness of percussion sound on the right below. Auscultation: breathing is not conducted in the lower right lobe, no wheezing. X-ray: darkening of the lower lobe of the right lung, shift of the mediastinum to the affected side. CT: obstruction of the lumen of the lower lobe bronchus of the right lung.

#### Questions:

1. Make a preliminary diagnosis

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2. Identify the leading syndrome
3. Demonstrate the technique of performing topographic percussion of the lungs.
4. Make a survey plan

13. Female, 58 years old. Complaints: increased dyspnea with exertion, persistent dry cough, sometimes bloody sputum, pain in the right half of the chest, fatigue, weight loss of 4 kg in 1.5 months. Anamnesis: Smoker, 35 years of experience. No history of chronic bronchitis. Body temperature is normal. Not previously examined. Objectively: general condition: satisfactory. Pulse: 90 / min. Respiratory rate: 24 / min. Palpation: vocal fremitus is weakened in the lower right lobe. Percussion: dull sound in the lower lateral area on the right. Auscultation: breath sounds are not heard in the lower lobe on the right. Radiography: homogeneous darkening of the lower lobe of the right lung, a decrease in its volume. CT scan of the chest organs: a tumor blocking the lumen of the lower lobe bronchus. Bronchoscopy: an intraluminal tumor is confirmed.

#### Questions:

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of comparative percussion of the lungs
4. Make a survey plan

14. Male, 60 years old. Complaints: Increasing shortness of breath, dry cough, weakness, loss of appetite. Notes that he has lost 5 kg over the past month. Sometimes hemoptysis occurs. No fever.

History: has been smoking since age 20, has been smoking for 40 years. No chronic bronchopulmonary diseases have been reported. Symptoms have worsened in the last 2 weeks. Objective examination:

General condition: satisfactory. Active position in bed. Skin of normal color. Respiratory rate: 22 per min. Pulse: 88 beats/min. Palpation: vocal fremitus is weakened in the lower parts of the right lung. Percussion: dullness of sound in the lower parts on the right. Auscultation: breathing is not conducted in the lower lobe on the right, wheezing is not heard. X-ray: homogeneous darkening in the lower lobe of the right lung, displacement of the mediastinum to the affected side

CT: tumor-like formation in the lumen of the right lower lobe bronchus, atelectasis of the corresponding segment.

#### Questions:

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of performing auscultation of the lungs
4. Make a survey plan

#### 2. Defense and completion of the educational medical history.


The form for filling out and defending is attached to the library collection of the department and the academy.

#### Midterm control №2

##### 1. An assignment to demonstrate practical skills.

1. Questioning patients with increased airiness in the lungs syndrome.
2. General examination of patients with increased airiness in the lungs syndrome.
3. Questioning patients with fluid and cavity syndrome in the lung.
4. Questioning patients with respiratory failure syndrome.
5. Questioning patients with acute respiratory failure syndrome.
6. General examination of patients with chronic respiratory failure syndrome.
7. Methods and techniques for conducting auscultation of the lungs
8. Methods and techniques for palpation of the chest
9. Methodology and technique of comparative percussion of the lungs



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10. Determination of the upper border of the lungs
11. Determination of the lower border of the lungs
12. Definition of Krenning fields
13. Definition of lung excursion
14. Definition of vocal fremitus

### Situational tasks:

1. A 66-year-old man, a smoker with 40 years of experience, complains of progressive dyspnea during physical exertion. The cough is dry and rare. No fever.

On examination: the chest is barrel-shaped, the intercostal spaces are widened, expiratory dyspnea, on percussion - a uniformly boxed percussion sound, on auscultation - weakened vesicular breathing, prolonged exhalation, dry wheezing. X-ray: low position of the diaphragm, increased transparency of the lung fields, horizontal position of the ribs.

#### Questions:

1. Make a preliminary diagnosis
  2. Identify the leading syndrome
  3. Demonstrate the technique of performing auscultation of the lungs
  4. Make a survey plan
2. A young man, 24 years old, previously healthy, suddenly felt a sharp pain in the left half of the chest, which intensifies when inhaling, shortness of breath appeared. No temperature.
- On examination: the left half of the chest lags behind in the act of breathing, the intercostal spaces are widened. Percussion: tympanic sound over the entire left half of the chest.

Auscultation: no breathing sounds on the left.

X-ray: in the left half of the chest - absence of pulmonary pattern, displacement of the lung towards the root.

#### Questions:

1. Make a preliminary diagnosis
  2. Identify the leading syndrome
  3. Demonstrate the technique of performing lung percussion
  4. Make a survey plan
3. A 16-year-old teenager suffers from bronchial asthma. Complains of an attack of shortness of breath, cough with difficulty exhaling. The attack began after running.
- Examination: anxiety, expiratory dyspnea, forced position.
- Percussion: box-like sound above the lungs.
- Auscultation: prolonged expiration, multiple dry wheezing sounds, audible at a distance.

#### Questions:

1. Make a preliminary diagnosis
  2. Identify the leading syndrome
  3. Demonstrate the technique of palpating the lungs
  4. Make a survey plan
4. A 70-year-old man with many years of smoking experience complains of chronic progressive dyspnea. Cough is rare and unproductive.
- Inspection: barrel-shaped chest, tense jugular veins, exhalation through pursed lips.
- Percussion: uniform boxy sound,
- Auscultation: weakened vesicular breathing, isolated dry wheezing.
- X-ray: hypertransparent lungs, low position of the diaphragm, horizontal ribs.

#### Questions:

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1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of performing lung percussion
4. Make a survey plan

5. A 45-year-old man was admitted to hospital with complaints of high temperature (up to 39.5 °C), cough with the release of a large amount of foul-smelling purulent sputum, pain in the right side, especially when inhaling. History of severe pneumonia 2 weeks ago, alcohol abuse. Objectively: General condition is severe. Temperature - 38.8 °C. Respiration lags in the right half of the chest. Percussion - dullness with a shade of tympanitis in the lower lobe on the right. Auscultation - amphoric breathing, moist large bubbling rales. Chest X-ray: in the lower lobe of the right lung - a cavity with a fluid level, uneven walls, infiltration around.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of performing lung percussion
4. Make a survey plan

6. A 54-year-old patient complained of shortness of breath, pain in the right side that intensifies with breathing, and an increase in body temperature to 38.5 °C. He had been ill for about a week, and had not received any treatment. On examination: General condition is moderate, respiratory rate is 28/min. Percussion: shortening of the percussion sound in the lower sections on the right. Auscultation: weakened vesicular breathing over the lower sections of the right lung, no breathing.

Above the upper limit of dullness there is a splashing noise; when the position of the body changes, the splashing noise moves.

In the upper lobe on the right - amphoric breathing, increased bronchophony, multi-tone moist rales. Radiograph: On the right in the lower lobe - horizontal fluid level with a clear upper border, above - enlightenment with thickened walls.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Demonstrate the technique of performing auscultation of the lungs
4. Make a survey plan


7. A 67-year-old female patient was admitted with complaints of shortness of breath, a feeling of heaviness in the left half of the chest, subfebrile temperature and dry cough. The disease has been developing over the past 10 days. Objectively: Temperature: 37.8 °C. Respiratory rate: 24/min. Percussion: dull sound over the lower sections on the left, clear upper border according to Damoiseau-Ellis. Auscultation: Absence of breath sounds over the area of dullness. Pleural friction rub over the upper border of dullness. Bronchial breathing, increased bronchophony, moist rales of various sizes in the middle lobe on the left. Chest X-ray:

In the left pleural cavity there is abundant darkening with an oblique upper border. In the projection of the middle lobe there is a rounded shadow with a fluid level and air above it.

**Questions:**

1. Make a preliminary diagnosis
  2. Identify the leading syndrome
  3. Show the technique of auscultation of the lungs
  4. Make a survey plan
8. A 32-year-old man complains of a dry cough, night sweats, weight loss of 6 kg over the past two months, and periodic temperature increases to 37.5–38 °C. Over the past week, shortness of breath has



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increased and pain in the right side has appeared when breathing.

Objectively: Temperature: 38.2 °C. RR: 26/min. Percussion: In the lower sections on the right - dull sound. Above the dullness - dullness with a tympanic shade. Auscultation: Above the dull zone - no breathing. In the upper lobe on the right - amphoric breathing, increased bronchophony. In the upper sections - single moist rales

Chest X-ray: In the upper lobe of the right lung there is a rounded clearing with clear contours (cavern). In the lower lobe there is a horizontal level of fluid in the pleural cavity.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Show the technique of palpation of the lungs
4. Make a survey plan

9.A 48-year-old patient was admitted with complaints of severe weakness, pain in the left half of the chest, which intensifies with breathing, shortness of breath, purulent sputum with an unpleasant odor, and high temperature (up to 39.4 °C). He had been ill for about 2 weeks, and had been self-treated for a "cold", without effect. Objectively: Temperature: 39.1 °C. Heart rate: 108 beats/min. Respiratory rate: 30/min.

Percussion: in the lower lateral sections on the left - dullness, above - dullness with a tympanic shade. Auscultation: In the dullness zone - no respiratory sounds. Above the upper border of dullness - bronchial breathing, splashing noise, when turning to the other side the noise changes position. Above - different-sized moist rales. Chest X-ray: In the left pleural cavity - a large amount of fluid with a clear level, above - air (air and fluid level). Displacement of the mediastinum to the right.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Show the technique of palpation of the lungs
4. Make a survey plan


10.A 38-year-old man, a heavy smoker (20 years, up to 1 pack per day), suddenly felt a sharp pain in the left half of the chest and increasing shortness of breath. After 30 minutes, the condition worsened sharply - shortness of breath increased, weakness, dizziness, a feeling of fear, tachycardia appeared. Objectively: Pallor, cold sweat. Respiratory rate: 36 / min, shallow breathing. Heart rate: 120 / min, BP: 90/60 mm Hg. Percussion: on the left - a box percussion sound, no mobility of the chest. Auscultation: On the left - no breathing

On the right - increased vesicular breathing. Shift of the borders of the heart and trachea to the right X-ray: The left lung is collapsed, there is a large amount of air in the pleural cavity, without a fluid level. The mediastinum is shifted to the right. In the upper lobe of the left lung there is a bulla (air bubble) with a diameter of about 5 cm.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Show the technique of auscultation of the lungs
4. Make a survey plan

11. A 62-year-old female patient was admitted to the emergency room complaining of increasing dyspnea, suffocation, inability to lie down, and a feeling of shortness of breath. She fell ill with an acute respiratory viral infection 2 days ago, and her condition has worsened sharply today. Her medical history includes bronchial asthma with rare exacerbations. Objectively: Her position is orthopnea, she speaks with difficulty, and her lips are blue. Respiratory rate is 40/min, she is shallow, and her intercostal spaces are retracted. Auscultation reveals sharply weakened vesicular breathing, and numerous dry wheezing

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sounds on exhalation. Percussion reveals a box-like sound. Heart rate is 128/min, blood pressure is 150/90 mm Hg.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Show the technique of auscultation of the lungs
4. Make a survey plan

12. A 58-year-old woman was admitted to the emergency department complaining of sudden sharp pain in the right chest, severe shortness of breath, palpitations, and a feeling of fear. Two weeks before, she had suffered a hip fracture and was on bed rest.

Objectively: Conscious, frightened, cyanosis of the lips. Respiratory rate is 38/min, tachycardia is 130/min, blood pressure is 90/60 mm Hg. Heart sounds are muffled, the second sound is accentuated over the pulmonary artery. Auscultation of the lungs: breathing is weakened on the right, there are no wheezing. ECG: signs of right ventricular overload. CT angiography: thrombi in the branches of the pulmonary artery on the right.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Show the technique of auscultation of the lungs
4. Make a survey plan

13. A 72-year-old patient with coronary heart disease and CHF class II–III was admitted as an emergency. Two hours before admission — dyspnea, which worsens in the supine position, cough with pink foamy sputum, and suffocation. Objectively: the patient is in an extremely serious condition, agitated, skin is pale, lips are cyanotic. Position: sitting, leaning on hands. Respiratory rate is 38/min, heart rate is 120/min, blood pressure is 160/100 mm Hg. Auscultation: moist rales in all fields, especially in the lower sections. ECG shows atrial fibrillation. X-ray shows venous congestion, interstitial and alveolar pulmonary edema.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Show the technique of performing lung percussion
4. Make a survey plan

14. A 42-year-old man complained of a fever up to 39 °C, chills, cough with purulent sputum, pain in the right half of the chest that intensifies with breathing, and severe dyspnea. He became acutely ill 4 days ago. The fever persists, weakness and sweating have appeared. He has been a smoker for over 20 years. He has no chronic diseases. Objectively: The condition is moderate. Temperature is 38.8 °C, respiratory rate is 32/min. The lips are cyanotic, SpO<sub>2</sub> is 88% in air. Percussion reveals dullness of the sound in the lower right lobe. Auscultation: Weakened breath sounds in the right lower lobe. Creptitation, local fine-bubble moist rales. In the complete blood count - neutrophilic leukocytosis, accelerated ESR. X-ray: infiltration in the lower lobe of the right lung, without signs of abscess or effusion.

**Questions:**

1. Make a preliminary diagnosis
2. Identify the leading syndrome
3. Show the technique of auscultation of the lungs
4. Make a survey plan

**2. Defense and completion of the educational medical history.**

The form for filling out and defending is attached to the library collection of the department and



the academy.

