

1. Topographic percussion of the lungs (5 min duration).

1. Contact the patient: say hello, introduce yourself, mark your role, explain the course and purpose of the procedure
2. Ask the patient to introduce themselves
3. Check the name patient with medical records
4. Ask about the patient's well-being
5. Make sure that the patient has informed consent for the future procedure
6. Offer or assist the patient to take a manual position while sitting on a chair (preferably) or standing
7. Wash your hands or treat with an antiseptic wipe
8. Ask the patient to release the chest from clothing
9. Invite patient to stand up or sit (preferably) with arms extended along the torso
10. Ask the patient to breathe evenly during the examination (medium depth of breath)
11. Stand up to the side or front of the patient

Perform the procedure

Determination of standing height of the top of the right lung in front:

12. Put the plesimeter in the supraclavicular fossa to the right and perform percussion, moving the plesimeter upwards and medially until a dull sound occurs; Mark the dermatograph on the edge of the plesimeter with clear sound; Using a centimeter tape to determine the height of the top of the right lung in front in centimeters; Emphasize that the data received is the norm.

Determination of height of standing of the top of the left lung in front:

13. Put the plesimeter in the supraclavicular fossa to the left and perform percussion, moving the plesimeter up and medially until a dull sound occurs; mark with a dermatograph on the edge of the plesimeter facing clear sound; Using a centimeter tape to determine the height of the top of the left lung in front in centimeters; Emphasize that the data received is the norm.

Determination of standing height of the tip of the right lung behind:

14. Put the plesimeter in the supraspinal fossa to the right and perform percussion, moving the plesimeter upwards and medially in the direction of the spinous circumference of the seventh cervical vertebra, until a blunt sound occurs; Mark the dermatograph on the edge of the plesimeter with clear sound; Compare the level of the mark with the level of the spinous circumference of the seventh cervical vertebra; Emphasize that the data received is the norm.

Determination of height of standing of apex of the left lung behind:

15. Put the plesimeter in the supraspinal fossa to the left and perform percussion, moving the plesimeter upwards and medially in the direction of the spinous circumference of the seventh cervical vertebra, until a blunt sound occurs; Mark the dermatograph on the edge of the plesimeter with clear sound; Compare the level of the mark with the level of the spinous circumference of the seventh cervical vertebra; Emphasize that the data received is the norm.

Determining the width of the Krenig field of the right lung:

16. Place the plesimeter in the middle of the upper edge of the trapezius to the right and perform percussion by moving the plesimeter in the medial direction until a dull sound occurs; Mark the dermatograph on the edge of the plesimeter with clear sound; Again, place the plesimeter in the middle of the upper edge of the trapezius to the right and perform percussion by moving the plesimeter laterally until a dull sound occurs; Mark the dermatograph on the edge of the plesimeter with clear sound; Using a centimeter tape to determine the distance between the marks and to determine the width of the Krenig field of the right lung centimeters; Emphasize that the data received is the norm.

Determination of left-lung Krenig field width:

17. Place the plesimeter in the middle of the upper edge of the trapezius to the left and perform percussion by moving the plesimeter in the medial direction until a dull sound occurs; Mark the dermatograph on the edge of the plesimeter with clear sound; Again, place the plesimeter in the middle of the upper edge of the trapezius to the right and perform percussion by moving the plesimeter laterally

until a dull sound occurs; Mark the dermatograph on the edge of the pedometer with clear sound; Using a centimeter tape to determine the distance between the marks and to determine the width of the Krenig field of the right lung centimeters; Emphasize that the data received is the norm.

Determination of the position of the lower edge of the right lung with calm breathing

18. Set the pedometer in the 1st intercostal space along the parasternal line to the right, perform percussion by moving the pedometer along each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the pedometer, which is directed to clear sound; Emphasize that the data received is the norm.

19. Set the pedometer in the 1st intercostal space along the mid-clavicular line to the right, perform percussion by moving the pedometer along each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the pedometer, which is directed to clear sound; Emphasize that the data received is the norm.

20. Invite the patient to lift and fold his or her right hands on the nape or side of the body in the lumbar region;

21. Set the pedometer to the right along the anterior axillary line at the lower edge of the axillary fossa, perform percussion by moving the pedometer along each intercostal space, evaluating the percussion sound; When a blunt sound occurs, make a mark on the edge of the pedometer, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

22. Set the pedometer to the right along the mid-axillary line at the lower edge of the axillary fossa, perform percussion by moving the pedometer along each intercostal space, evaluating the percussion sound; When a blunt sound occurs, make a mark on the edge of the pedometer, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

23. Set the plesimeter to the right along the posterior axillary line at the lower edge of the axillary fossa, perform percussion by moving the plesimeter along each intercostal space, evaluating the percussion sound; When a blunt sound occurs, make a mark on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

24. Ask the patient to lower his / her hand;

25. Set the plesimeter to the right along the scapula at the lower edge of the scapula, perform percussion by moving the scaler on each intercostal space, evaluating the percussion sound; When a blunt sound occurs, make a mark on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

26. Set the plesimeter to the right along the para-axillary line in the 1st intercostal space, perform percussion by moving the plesimeter along each intercostal space, evaluating the percussion sound; When a blunt sound occurs, make a mark on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

Determining the position of the lower edge of the left lung with calm breathing

27. Invite the patient to lift and fold the left hand brushes on the nape or side of the body in the lumbar region;

28. Set the plesimeter to the left along the anterior axillary line at the lower edge of the axillary fossa, perform percussion by moving the plesimeter along each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

29. Set the plesimeter to the left along the mid-axillary line at the lower edge of the axillary fossa, perform percussion by moving the plesimeter along each

intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

30. Position the plesimeter left on the posterior axillary line at the lower edge of the axillary fossa, perform percussion by moving the plesimeter along each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

31. Invite patient to lower hand;

32. Place the plesimeter to the left along the scapula at the lower edge of the scapula, perform percussion by moving the scaler on each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

33. Set the plesimeter to the left along the para-axillary line in the 1st intercostal space, perform percussion by moving the plesimeter along each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Emphasize that the data received is the norm.

Definition of excursion of the right lung

34. Set the plesimeter to the right along the mid-axillary line in the first intercostal space, perform percussion by moving the plesimeter along each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placimeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Ask patient to take a deep breath and hold their breath. To perform percussion downwards,

moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Put the pessimeter on the first mark, the bottom edge to clear sound; Ask the patient to take a deep breath and hold their breath. To perform percussion upwards, moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, determine the position of the mark. Emphasize the conformity of the received norm dataE.

35. Invite the patient to raise and fold his or her right hands on the nape or side of the body in the lumbar region;

36. Position the plessimeter to the right along the mid-axillary line at the lower edge of the axillary fossa, perform percussion by moving the plessimeter along each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Ask patient to take a deep breath and hold their breath. To perform percussion downwards, moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Put the pessimeter on the first mark, the bottom edge to clear sound; Ask the patient to take a deep breath and hold their breath. To perform percussion upwards, moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Using a ruler or centimeter tape measure the distance between the marks and determine the excursion of the lower edge by inhalation, exhalation and total. Emphasize that the data received is the norm.

37. Invite the patient to lower his / her hand;

38. Position the plessimeter to the right along the scapula at the lower edge of the scapula, perform percussion by moving the scaler on each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Ask patient to take a deep breath and hold their breath. To perform percussion downwards, moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Put the pessimeter on the first mark, the bottom edge to clear sound; Ask the patient to take a deep breath and hold their breath. To perform percussion upwards, moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Using a ruler or centimeter tape measure the distance between the marks and determine the excursion of the lower edge by inhalation, exhalation and total. Emphasize that the data received is the norm.

Definition of excursion of the left lung

39. Invite the patient to raise and fold the left hand brushes on the nape or side of the body in the lumbar region;

40. Set the plessimeter to the left along the mid-axillary line at the lower edge of the axillary fossa, perform percussion by moving the plessimeter along each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Ask patient to take a deep breath and hold their breath. To perform percussion downwards, moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Put the pessimeter on the first mark, the bottom edge to clear sound; Ask the patient to take a deep breath and hold their breath. To perform percussion upwards, moving the

pleysimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Using a ruler or centimeter tape measure the distance between the marks and determine the excursion of the lower edge by inhalation, exhalation and total. Emphasize that the data received is the norm.

41. Ask the patient to lower his / her hand;

42. Set the pleyssimeter to the left along the scapula at the lower edge of the scapula, perform percussion by moving the scaler on each intercostal space, evaluating the percussion sound; When a dull sound occurs, marking on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark (in which the intercostal space); Ask patient to take a deep breath and hold their breath. To perform percussion downwards, moving the plessimeter on each intercostal space, evaluating the percussion sound; When a dull sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Put the pessimeter on the first mark, the bottom edge to clear sound; Ask the patient to take a deep breath and hold their breath. Carry percussion upwards, moving the plethysimeter over each intercostal space, evaluating the percussion sound. When blunt sound occurs, make a mark on the edge of the placemeter, which is directed to clear sound, will determine the position of the mark. Using a ruler or centimeter tape measure the distance between the marks and determine the excursion of the lower edge by inhalation, exhalation and total. Emphasize that the data received is the norm.

43. Announce to the patient that the study is complete

44. Ask about the patient's well-being

45. Invite patient to dress

46. Hand hygiene treatment of skin antiseptic

47. Put used napkin in a Class B medical waste container

48. Record the result of the examination in the patient's medical record

2. Comparative percussion of the lungs (5 min duration).

ALGORITHM OF ACTION for comparative lung percussion

1. Say hello, introduce yourself and indicate your role.
2. Clarify the patient's last name, first name, and age.
3. Explain the purpose and course of the procedure, obtain consent.
4. Treat your hands and suggest that the patient undress while standing. Ask if he is comfortable.
5. Stand in front of the patient face to face.
6. Place a finger-pleximeter in the right supraclavicular fossa above the collarbone parallel to it, apply 2 strokes of medium strength on it, then transfer the finger-pleximeter to the symmetrical point of the left supraclavicular fossa, inflicting 2 percussion strokes there, comparing the percussion sound at symmetrical points.
Further, the student applies percussion strokes directly to the right and left collarbones, and then percusses along the intercostal spaces to the third along the midclavicular line.
7. Having finished percussion in front, ask the patient to raise his hands behind his head and percussion of the lateral surfaces of the chest from top to bottom, starting from the lower edge of the right axillary fossa, placing a finger pleximeter parallel to the ribs along the mid axillary line, comparing the sound at symmetrical points.
8. Ask the patient to turn his back.
9. Install a finger-pleximeter in the supraspinatus fossa parallel to the spine of the scapula and inflict percussion strokes sequentially left and right, comparing the percussion sound.
10. Before percussion in the interscapular region, ask the patient to cross his

arms in front of him and tilt his head slightly forward. Perform percussion in the interscapular space, placing the finger-pleximeter parallel to the spine sequentially left and right.

11. Perform percussion below the angles of the shoulder blades, placing the finger-pleximeter again horizontally, alternately left and right to the IX intercostal space.

12. Ask the patient about their health.

13. Ask the patient to get dressed.

14. To draw a conclusion about the results of percussion, evaluating the nature of percussion sound and its symmetry over the lungs.

3. Auscultation of the lungs (5 min duration).

1. Contact patient: hello, mark your role.
2. Ask the patient to introduce themselves.
3. Explain the course and purpose of the examiner procedure .
4. Ensure that the patient has informed informed consent for the future procedure.
5. To set mannequin-patient standing position.

Prepare the necessary tools and materials for the survey

6. Ask the patient about his or her well-being.
7. Make sure the phonendoscope is in working position.
8. To speak: « I process olives and a phonendoscope membrane with an antiseptic wipe”.
9. Ask the patient to release the breast cage of clothing.
10. Invite patient to stand up or sit (preferably) with arms extended along the torso.
11. Ask the patient during the examination breathe smoothly (medium depth of breath) through the nose.

12. To speak: "I treat my hands with antiseptic".
13. Stand up to the side or front of the patient.

Perform the procedure

14. Insert phonendoscope olives into external auditory passages.
15. Hold the phonendoscope with the first three fingers and press it firmly against the skin of the patient with the entire surface.
16. Place the membrane of the phonendoscope in symmetrical areas in front of the right and left half of the chest at the points of comparative percussion in the sequence, listen to everyone point for one complete breathing cycle - 3-4 seconds:
 17. in the supraclavicular fossa right and left,
 18. in the 1st intercostal space (subclavian area) on the middle-clavicular line right and left,
 19. in the 2nd intercostal space along the middle-clavicular line right and left ,
 20. in the 3rd intercostal space along the middle-clavicular line right and left,
 21. 4th and 5th intercostal space along the middle-clavicular line to the right,
22. Invite patient to lift and fold hands on the back of your neck or in front of him.
23. Place the membrane of the phonendoscope in symmetrical areas at the point of comparison percussion right and left along the mid-axillary line, starting from the top of the axillary fossa (at the point where the scalp ends) and ending in the eighth intercostal space.
 24. Ask the patient to lower their hands.
 25. Stand behind the patient.
26. Place the phonendoscope membrane in symmetrical areas behind the right and left half of the chest at the point of comparative percussion in the sequence:
 27. in the suprascapular area right and left,
 28. then ask the patient to lean forward, fold his arms over his chest, resting his palms on his shoulders.

29. Continue auscultation: at the top between the scapular area to the left and to the right,
30. in the middle between the scapular area left and right ,
31. at the bottom between the scapular area to the left and to the right,
32. in the subscapularis, in the 8th intercostal space, left and right,
33. in the subscapularis, in the 9th intercostal space, left and right.
34. Ask the patient to lower their hands.
35. Inform the patient that the examination is complete and can be dressed.
36. Ask the patient about his or her well-being and feelings.
37. Say goodbye to the patient
38. To speak: «After examination my hands and treating with skin antiseptic».

4. Palpation of the pericardial region (5 min duration).

1. Say hello to the patient, introduce yourself and define your role,
2. Ask for the patient's name and age.
3. Explain the purpose and course of the procedure and obtain the patient's consent.
4. Invited the patient to undress and to stand, to ask whether the patient was comfortable.
5. Stand to patient, face to face.
6. Palpation of the apical thrust in the precordial region so that the base of the palm rests on the sternum, and the index, middle and ring fingers are respectively in the fourth, fifth and sixth intercostal space. When examining a woman's apex impulse, if necessary, she asks her to raise her left breast
7. Determine the properties of apex impulse:
 - localization
 - area
 - height

- force
- resistance.

8. Detection of cardiac impulse between the left edge of the sternum and the left nipple (breast). The end phalanges of the index, middle and ring fingers should be in the third intercostal space.

9. Detection of breast (retrosternal) ripple in the jugular fossa

10. Determination of chest tremor ("cat's purring") at the top of the sternum just below the jugular fossa.

11. Determination of epigastric pulsation in the adrenal region just below the thoracic outgrowth of the sternum. With his left hand, the doctor holds the patient's back. Gently pressing on the anterior abdominal wall with his right hand and shifting it upwards, turns his fingertips under the xiphoid process and tries to feel the ripple.

12. Ask the patient about well-being.

13. Ask the patient to dress.

14. Conclude the results of palpation of the precordial area.

5. Determination of the boundaries of the heart by percussion

(5 min duration).

1. Take contact with the patient. Say hello. Introduce yourself, indicate your role.

2. Ask the patient to introduce himself

3. Explain the aims and purpose of the procedure, obtain consent to its implementation

4. Propose for patient to take a comfortable position while sitting on a chair, standing or lying on his back

5. Ask patient to release chest a cage from clothes.
6. Wash and dry your hands or treat your hands in a hygienic way with a skin antiseptic.
7. Stand in front of the patient
8. Determine the position of the diaphragm on the midclavicular line on the right. To do this, place the third finger of the left hand in the first intercostal space on the right so that its middle phalanx is located on the midclavicular line.
9. Apply double blows with the third finger of the right hand on the middle phalanx of the third finger of the left hand and evaluate the sound received.
10. Transfer the third finger of the left hand to the second intercostal space so that its middle phalanx is located on the midclavicular line. Apply double blows with the third finger of the right hand on the middle phalanx of the third finger of the left hand and evaluate the sound received.
11. Move the third finger of the left hand in the third intercostal space so that its middle phalanx is located on the midclavicular line. Apply double blows with the third finger of the right hand on the middle phalanx of the third finger of the left hand and evaluate the sound received .
12. Transfer the third finger of the left hand to the fourth intercostal space so that its middle phalanx is located on the midclavicular line. Apply double blows with the third finger of the right hand on the middle phalanx of the third finger of the left hand and evaluate the sound received.
13. Transfer the third finger of the left hand to the fifth intercostal space so that its middle phalanx is located on the midclavicular line. Apply double blows with the third finger of the right hand on the middle phalanx of the third finger of the left hand and evaluate the sound received.
14. Transfer the third finger of the left hand to the sixth intercostal space so that its middle phalanx is located on the midclavicular line. Apply double blows with the third finger of the right hand on the middle phalanx of the third finger of the left hand and evaluate the sound received.

15. To determine the place of dullness of sound.
16. After detecting a blunt percussion sound at the level of the VI rib (lower border of the right lung) move the finger-plessimeter one intercostal space up (in the IV intercostal space).
17. Put the finger-plessimeter parallel to the studied boundary and, moving medially, percussion until a blunt sound is obtained.
18. To determine the place of dullness of sound.
19. Palpate apical beat
20. Put the finger - plessimeter in the intercostal space where the apical beat is located, along the anterior axillary line and percussion medially until apical beat.
21. To determine the place of dullness of sound.
22. Put the finger-plessimeter perpendicular to the sternum near its 2 cm left border and percussion down to dullness, placing the finger-pessimeter in the intercostal space.
23. To determine the place of dullness of sound.
24. Tell the patient that the study is finished and that you can dress. Say goodbye.
25. Treat hands hygienic skin antiseptic

6. Auscultation of the heart (5 min duration).

1. The student greeted the patient and introduced himself to the patient.
2. The student asked the name and age of the patient.
3. Explained the essence of the survey and received consent to its implementation.
4. He suggested the patient to undress to the waist and sit down or lie down on the couch, and asked if the patient was comfortable.
5. The student washed his hands, handles the membrane and olives of phonendoscope with sterile napkin.
6. The student stands in front of the patient.

7. He performed palpation of the apical impulse.
8. Put the phonendoscope at the first auscultation point (fifth intercostal space 1-1.5 cm inwards from linea Medioclavicularis sinistra - the mitral valve auscultation point) and listened during the normal breathing.
9. Placed the phonendoscope at the second auscultation point (the second intercostal space to the right of the sternum is the aortic auscultation point).
10. Placed the phonendoscope at the third auscultation point (the second intercostal space to the left from the sternum is the auscultation point of the pulmonary valve).
11. Put the phonendoscope at fourth auscultation point (the base of the xiphoid process of the sternum is the auscultation point of the tricuspid valve).
12. He performed auscultation at the fifth point of auscultation (Botkin-Erba point - to the left from the sternum, at the site of attachment of the III-IV ribs, an additional point of aortic valve listening).
13. Compared II tone over two auscultatory points of the heart base.
14. Student invited the patient to get dressed, asked him about his well-being.
15. Student made a generalized conclusion about the auscultatory picture of the heart in the patient, including the features of the II tone.
16. Student washed his hands, handled the membrane and gloves of No. Actions of the accredited

7. Blood pressure measurement (5 min duration).

1. Establish contact with the patient: say hello, introduce yourself, explain your role.
2. Ask patient to introduce himself.
3. Inform the patient about the examination. Explain the course and purpose of the procedure.
4. Obtain informed consent from the patient.
5. Propose patient to sit comfortably sitting on chair with back supporting.

6. Provide the patient a 5-minute rest, clarify the presence of a 30-minute pause after smoking or drinking coffee (by talking).
7. Bare the patient's arm above the antecubital fossa.
8. Place the patient's arm on the table, at heart level, palm up.
9. Moisture the hands and membrane of the stethoscope with an antiseptic.
10. Put the cuff of tonometer on the patient's shoulder.
11. Check that between the cuff and shoulder surface fits one finger.
12. Ensure that the lower edge of the cuff is 2 cm above the antecubital fossa.
13. Make sure that the tonometer tubes are on the lateral surface of the shoulder.
14. Put your left hand on your wrist to determine the pulse on the radial artery.
15. Close the tonometer valve with the other hand.
16. To inject air into the cuff by periodically pumping of the tonometer rubber ballon up to the disappearance of the pulse on the radial artery and add 10 mm Hg.
17. Open the valve and slowly let out the air from cuff until a pulse appears on the radial artery.
18. Fix the tonometer values at the moment of the pulse appearance on the radial artery, which corresponds to systolic blood pressure, and completely let out the air from the cuff.
19. Check the pulse on the brachial artery in the antecubital fossa at the medial edge.
20. Put the stethoscope membrane in the antecubital fossa over the projection of the brachial artery.
21. Repeat pumping of the tonometer cuff up to the level, which exceeds the result of systolic blood pressure by palpation, 30 mm Hg higher.
22. Let out the air from the cuff slowly at a speed of 2 mm per second, while saving the position of the stethoscope.
23. Fix the moment of Korotkov's tones occurrence on the tonometer scale - it is the value of systolic blood pressure.

24. Fix the moment of Korotkov's tones termination on the tonometer scale - it is the value of diastolic blood pressure.
25. Continue auscultation until the cuff pressure decreases to 20 mmHg. relatively to the last tone, for control of complete disappearance of tones.
26. Let out the air from the cuff.
27. Speak about the need to measure pressure on the examined arm at least twice, with an interval of 1 min., with the calculation of the average value.
28. Remove the cuff from the patient's arm.
29. Speak about the need to measure pressure on the opposite arm (especially during initial contact with the patient) with a further choice of arm, where the pressure is higher.
30. Inform the patient about the end of the examination and say the result.
31. Interpret the result from the aspects of optimal blood pressure, normal, high normal or arterial hypertension with specification of its degree.
32. Thank the patient. Suggest possible diagnostic and therapeutic measures

8. Interpretation of an electrocardiogram (5 min duration).

When decoding the ECG, first of all, determine:

I. HEART RATE DRIVER (SINUS / NON-SINUS RHYTHM)

Find P-waves on the ECG and answer the following questions:

- 1- Are there P-waves on the ECG?
- 2- If yes, does the QRS complex follow each P-wave?
- 3- P-waves look normal? (Check the duration, direction and shape of the P wave).
- 4- If not, is there atrial activity? For example, the dentate baseline is fluttering waves; chaotic baseline - fibrillation waves; flat line - there is no atrial activity at all.

If P-waves are absent, and QRS complexes have an irregular rhythm, this may indicate atrial fibrillation.

Conclusion: with a positive answer to the first three questions - the sinus rhythm, to the fourth - no.

II. ANALYZE THE RHYTHM OF THE HEART COMPLEXES

The sinus rhythm of the heart can be regular or irregular.

Irregular rhythms can be:

- Regularly irregular (i.e. the pattern of irregularity repeats)
- irregularly irregular (i.e. completely disorganized)

If the sinus rhythm is regular - the R-R interval should be the same between consecutive QRS complexes in the same lead or the difference between them is no more than 0.15 s (or 10%). **If the sinus rhythm is irregular - arrhythmia.** If there is a connection with breathing - on and the difference between them is more than 0.15 s (or the inspiration is accelerated, and when exhaled, it calms down, then this is respiratory arrhythmia.

III. CALCULATE THE FREQUENCY OF HEART RATE (HR)

The heart rate can be calculated using the following method (if the rhythm is regular):

- Count the number of large squares in one R-R interval
- Divide 300 by this number to calculate your heart rate.

For example, 4 large squares in the R-R interval: $300/4 = 75$ beats per minute. Heart rate = 75 beats per minute.

- The second option for calculating heart rate (if the rhythm is irregular):

1. Calculate the distance from R to R (in mm) in 4-5 consecutive cycles.
2. Calculate the arithmetic average of the distance found in mm.

3. Calculate the duration of the average R-R interval by multiplying the average distance (in mm) by 0.02 sec. (1 mm duration at a standard belt speed of 50 mm / s) or 0.04 sec. (duration 1 mm with belt speed 25 mm / s)

4. According to the duration of R-R, determine the heart rate (HR) by the formula:
Heart rate = $60 / R-R$.

For example, 20 mm in the arithmetic mean R-R interval at a speed of 25 mm per second. The duration of the arithmetic mean R-R interval in seconds is 0.04 sec. $20 \times 0.04 = 0.8$ sec. Heart rate = $60 \text{ sec. (1 minute)} : 0.8 \text{ sec.} = 75$ beats per minute.

Normal heart rate = 60 - 90 beats per minute

- tachycardia > 90 beats per minute
- bradycardia < 60 beats per minute

IV. DETERMINE THE POSITION OF THE ELECTRIC AXIS OF THE HEART (EAH)

The axis of the heart shows the direction vector of the propagation of electrical excitation in the heart.

In a healthy person, the axis should show the spread of excitation in the direction from 11 o'clock to 5 on an imaginary clock dial.

To determine the axis of the heart, you need to look at assignment I, II and III.

Normal EAH of the heart:

- In the II lead there will be the highest positive deviation (R wave) in comparison with leads I and III.

Deviation EAH of the heart to the right:

- In lead III there will be a higher positive deviation, and lead I may be negative
- This is usually observed in individuals with right ventricular hypertrophy.

Deviation EAH of the heart to the left:

- In lead I there will be a higher positive deviation of the teeth of the QRS complex
- In lead II and III below or negative

Left axis deviation is observed in individuals with cardiac conduction disorders and with left ventricular hypertrophy

V. CALCULATE THE DURATION AND AMPLITUDE OF THE WAVES AND THE DURATION OF THE INTERVALS OF THE HEART CYCLE.

P wave - reflects the electrical activity (coverage of the depolarization process) of the atria. Amplitude - 0.5-2.5 mm, duration - 0.06-0.08 s.

Q wave. Display of excitation of the left half of the ventricular septum. The duration is not more than 0.03 s, the amplitude is not more than 1/4 of the amplitude of the R wave, it follows it in the same lead.

R wave. Induced by ventricular excitation, always positive. Its amplitude in different leads depends on the position of the electrical axis of the heart, with the normal location of the electrical axis of the heart - its largest amplitude is observed in the II standard lead; in the chest leads, the amplitude R increases from the abduction V1 to V4, and then decreases towards the left chest leads. Its duration is 0.05-0.08 s.

S wave - due to the final excitation of the left ventricle. On the ECG, it is intermittent, always negative, its greatest depth is observed in leads V1 and V2.

QRS complex - reflects the complete depolarization of the ventricles; its duration is 0.06-0.08 s (up to 0.1 s).

T wave - reflects the repolarization of the ventricles. Amplitude - 3-8 mm, duration - 0.10-0.25 s.

The interval P-Q (R) is the time from the beginning of the P wave to the beginning of the Q wave (R). Reflects the time of passage of the pulse by the atria, atrioventricular node, bundle and legs of the bundle of His, Purkinje fibers - to the working myocardium. The duration is normal - 0.12-0.20 s.

The ST segment is the segment between the end of the QRS complex and the beginning of the T wave. It corresponds to the period of complete excitation coverage of both ventricles. Normally located on the isoelectric line, but can be horizontally raised above

the isoelectric line to 0.5 mm or lowered under the isoline to 0.5-1 mm, and also obliquely raised above the isoelectric line in the right pectoral leads.

P-R INTERVAL

The P-R interval should be between 0.12 and 0.20 seconds.

Long PR interval (> 0.2 seconds).

An extended PR interval suggests an AV delay (AV block).

AV block of the heart of the first degree.

Cardiac blockade of the first degree includes a fixed long interval of PR (> 0.20 s).

AV block of heart of the second degree (Mobits type 1).

If the PR interval slowly increases and the QRS complex periodically disappears (the rhythm will be sinus often irregular), this is AV block II degree Mobits type I (Wenckebach periods).

AV block of heart of the second degree (Mobits type 2).

If the PR interval is fixed, but QRS complexes are blocked, this is an AV block of the heart of the second degree (Mobits type 2 (specify which, by the number of P waves after the missing QRS complex, for example, 2: 1, 3: 1, 4: 1)).

AV block of the heart of the third degree (complete block of the heart).

If the P-waves and QRS complexes are completely unconnected, this is an AV block of the third degree (complete heart block). As a rule, P waves follow in their rhythm (atrial, with a frequency of 60-90), and QRS complexes - in their (ventricular, with a frequency of 30-40).

ST SEGMENT

The ST segment is part of the ECG between the end of wave S and the beginning of wave T.

In a healthy person, this segment should be on the isoelectric line (neither above the isoline, nor below).

Anomalies in the ST segment should be investigated to rule out pathology (e.g., cardiac muscle ischemia).

VII. DETERMINE HYPERTROPHY OF ATRIUMS AND VENTRICLES

Electrocardiographic signs of atrial hypertrophy are:

- the right atrium - an increase in the amplitude and pointedness of the P wave; often called P-pulmonale; - - -
- the left atrium - the expansion of the P wave of more than 0.12 s and its two-humped appearance;
such a wave is called P-mitrale.

HYPERTROPHY OF THE VENTRICLES OF THE HEART

Left ventricular hypertrophy (LVH)

The basis of ECG diagnosis of LVH is the amplitude (voltage) criteria:

- 1 - displacement of the electrical axis of the heart to the left (see above)
- 2 - $RV6 \geq RV5 \geq RV4$
- 3 - tooth $RV5$ or $RV6 > 26$ mm;
- 4 - $RI + SIII > 25$ mm
- 5 - $SV1 (V2) + RV5 (V6) > 35$ mm

Hypertrophy of the right ventricle (RVH).

Diagnosing right ventricular hypertrophy (RVH) is always more difficult than LVH. Since the mass of the myocardium of the right ventricle (RV) is significantly less than the left, changes in the ECG appear only with significant RVH.

Signs of severe hypertrophy:

1. Deviation of the axis of the heart to the right;
2. Increase in the amplitude of the R wave in the right thoracic leads ($RV1 \geq 7$ mm), the QRS complex graph in leads V1-V2 of the type R, qR or Rs;
3. The ratio R / S in the lead V1 ≥ 1 ;
4. An increase in the amplitude of the S wave in the left thoracic leads up to 5 mm and more, with $S \geq R$, the QRS complex in leads V5-V6 of the qRS or RS / rS type;
5. The sum of the amplitudes $RV1$ and $SV5 \geq 10.5$ mm;

6. The amplitude of the S wave in the leads V1-V2 ≤ 2 mm;
7. The oblique displacement below the isoline of the ST segment, which goes into a negative asymmetric tooth T in leads V1-V2, less often also in V3-V4.

9. Superficial palpation of the abdomen (5 min duration).

1. Say hello to the patient.
2. Introduce yourself.
3. Identify your role.
4. Inquire about the well-being of the patient.
5. Ask the patient, checking with the direction:
Surname, name, patronymic.
6. Date of birth.
7. Inquire about the well-being of the patient.
8. Inform the patient about the procedure and obtain consent for its implementation.
9. Inform the patient about two methods of the upcoming examination.
10. To process hands before the beginning of manipulation, using an antiseptic.
11. Wear inspection gloves.
12. Ask questions about complaints and other factors:
 - when the patient last ate;
 - when the patient had recent urination;
 - Does the patient have abdominal pain.
13. Prepare the patient, offer him:
14. Lie on the couch
15. On the back
16. The legs are straightened
17. Hands along the body
18. Sit on a chair next to the patient.

19. Right side to the patient
20. Ask the patient to expose the abdominal area.
21. Examine the patient
22. Say that you want to visually inspect the stomach.
23. Warm hands before examination.
24. Palpate the abdominal wall in the left iliac region.
25. The fingers are directed upward in relation to the patient.
26. Gently bending fingers in the proximal interphalangeal joints, looking at the reaction of the patient, with a slight immersion of the fingers into the abdominal wall by 1-2 cm.
27. Palpate the abdominal wall in the right iliac region.
28. The fingers are directed upward to the right relative to the patient.
29. Gently bending fingers in the proximal interphalangeal joints, looking at the patient's reaction, with a slight immersion in the abdominal wall by 1-2 cm.
30. Palpate the abdominal wall in the left flank of the abdomen.
31. The fingers are directed upward in relation to the patient.
32. Gently bending fingers in the proximal interphalangeal joints, looking at the patient's reaction, with a slight immersion in the abdominal wall by 1-2 cm.
33. Palpate the abdominal wall in the right flank of the abdomen.
34. Fingers pointing upwards to the right of the patient
35. Gently bending fingers in the proximal interphalangeal joints, looking at the reaction of the patient, with a small immersion in the abdominal wall by 1-2 cm.
36. Palpate the abdominal wall in the left hypochondrium.
37. Fingers are pointing upwards in relation to the patient.
38. Gently bending fingers in the proximal interphalangeal joints, looking at the reaction of the patient, with a small immersion in the abdominal wall by 1-2 cm.

39. Palpate the abdominal wall in the right hypochondrium.
40. Fingers pointing upwards to the right of the patient
41. Gently bending fingers in the proximal interphalangeal joints, looking at the reaction of the patient, with a slight immersion in the abdominal wall by 1-2 cm.
42. Palpate the abdominal wall in the epigastric region.
43. The fingers are directed towards the xiphoid process.
44. Gently bending fingers in the proximal interphalangeal joints, looking at the patient's reaction, with a slight immersion in the abdominal wall by 1-2 cm.
45. Palpate the abdominal wall in the umbilical region.
46. The fingers are directed toward the xiphoid process.
47. Gently bending fingers in the proximal interphalangeal joints, looking at the patient's reaction, with a slight immersion in the abdominal wall by 1-2 cm.
48. Palpate the abdominal wall in the suprapubic region.
49. The fingers are directed toward the xiphoid process.
50. Gently bending fingers in the proximal interphalangeal joints, looking at the patient's reaction, with a small immersion in the abdominal wall by 1-2 cm.
51. Assessment of the state of aponeurosis.
52. Set fingertips along the white line of the abdomen.
53. The fingers are bent.
54. Press to a depth of 1-2 cm.
55. Palpate the white line all over
56. Put the index finger in the umbilical ring.
57. Ask the patient to raise his head and hold it.
58. Hold the index finger in the umbilical ring.
59. Repeat palpation of the white line of the abdomen.
60. Ask the patient to relax.

10. Basic cardiopulmonary resuscitation (CPR) (5 min duration).

Resuscitator Safety

- Look around. Make sure that there is no danger for yourself and the victim.

Diagnostic stage

- Gently shake the victim by the shoulders. Loudly turn to him: "Do you need help?".
- Call for help: "Help, the person is bad!".
- Put the palm of one hand on the victim's forehead and grab the victim's lower jaw with two fingers of the other hand.
- Throw back the victim's head, clear the airways. Bring closer your ear to the victim's lips.
- Visually look for the excursion of the victim's chest and count loud up to 10 (a statement of respiratory and blood circulation arrest should not take more than 10 sec).
- Checking of central pulse - DO NOT waste time doing a separate pulse checking on the carotid artery without breathing evaluation.
- Call for ambulance by tel. 103 (mimic the voice "I am calling ambulance!")
Provide information for the ambulance manager according to the algorithm (introduce yourself, name the coordinates, number of victims, gender, age, condition of the victim, volume of help - "This is the doctor of the admitting department of polyclinic No1 at Lip Street, 1. A 20-year-old man is unconsciousness and without breathing in the admitting department. I begin CPR")

Preparing for chest compression

- Kneel on the side of the victim facing him.
- Release the victim's chest from clothing.

- Put the palm of one hand on the center of the chest of the victim. Put the second palm on the first, connecting the fingers of both hands into the lock.

Chest compressions

- 30 compressions in succession with frequency 100-120 per 1 min and a compression depth of 5 - 6 cm.
- The hands of the resuscitator are straightened at an angle of 90°, do not bend at the elbows.
- The fingers of the upper hand pull up the fingers of the lower.
- The base of the palm should perform pressing.
- Compressions are counted aloud in tens.

Artificial lung ventilation

- Protect yourself (and use a reliable protection - film-valve or other barrier filters).
- Put the palm of one hand on the victim's forehead, and hold the victim's nose with the 1st and 2nd fingers of the same hand.
- Grab the lower jaw of the victim with two fingers of the other hand.
- Throw back the victim's head, rescuing the airways, take air into your lungs.
- Grasp the victim's lips with your lips and exhale into the victim for 1 second without forcing.
- Release the victim's lips for 1-2 seconds.
- Repeat the exhalation into the victim (the exhalation volume is the usual breathing volume of the average person - 500-600 ml with reaching of the chest excursion).
- The duration of the pause between chest compressions for 2 breaths is not more than 10 sec.
- Repeat chest compressions - 30 compressions in succession.
 - Continue resuscitation measures up to the arrival of ambulance (say)

