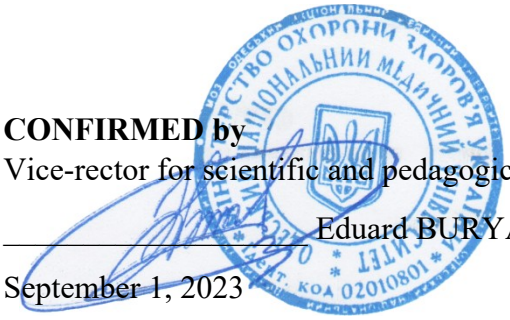
MINISTRY OF HEALTH OF UKRAINE

ODESA NATIONAL MEDICAL UNIVERSITY

Department of simulation medical technologies



CONFIRMED by
Vice-rector for scientific and pedagogical work

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September 1, 2023

METHODICAL RECOMENDATION FOR LECTURES FOR PRACTICE

«SIMULATION MEDICINE (PATIENT CARE)»

Faculty, course: International, 2 year

Educational Discipline: Simulation medicine (Patient care)

Approved:
The methodical recommendation was approved at the meeting of the department of simulation medical technologies

Protocol No. 1 of 28.08.2023

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Lecture № 1

Topic: Sanitary and medical-preventive regime in the hospital. Cleaning of wards and corridors. Preparation of working solutions. Sterilization

The actuality of the topic: Patient care is an important part of the medical care system. At least 50% of treatment success depends on proper and effective care. Mastering nursing skills is the first step in the formation of a doctor, the first step to the clinic. The future doctor should have a good knowledge of the structure and functions of medical institutions, the features of medical documentation, the sanitary and preventive treatment regime in the hospital, the rules for cleaning wards and corridors, the basics of preparing working solutions, sterilization and other things that will enable him during practical activities to control and to organize the work of junior and mid-level medical personnel, to prevent mistakes that can lead to undesirable consequences, to promote the creation of optimal conditions for the fastest and full recovery of patients already at the first stage of their stay in a medical institution.

Aim: Master the basic knowledge of sanitary and medical and preventive regimes in medical and preventive institutions; determine the features and properties of various forms and dilutions of disinfectant solutions; to understand the importance and role of cleaning the premises of a medical and preventive institution; learn the peculiarities of sterilization and types of sterilization methods in a medical and preventive institution; to establish the relationship, the dependence between the benefit of sanitary and treatment-prophylactic regimes and the quick recovery of patients.

Basic concepts: Sanitary - anti-epidemic regime; Disinfection (Types of methods, modes); Rules for using medical gloves; Hand washing; Preparation of working solutions; Types of cleaning.

Plan and organizational structure of the lecture:

Sanitary - anti-epidemic regime:

- Safety rules for the work of medical workers.
- Rules for using medical gloves.
- Hand washing.

Transient microflora.

Hygienic asepsis of hands.

Disinfection:

- Sections of disinfection (Sterilization).
- Disinfection methods.
- Preparation of working solutions.
- Types of disinfection and its implementation in the medical and preventive institution.
- Carrying out quality control of disinfection.

Types of cleaning.

Accounting for disinfectants according to surface areas.

Area of medical equipment during cleaning.

Content of lecture material (lecture text)

Sanitary - anti-epidemic regime is a complex of organizational, sanitary-prophylactic and anti-epidemic measures that prevent the occurrence of intra-hospital infection.

Sanitary - the anti-epidemic regime includes requirements for the sanitary condition of the territory where the hospital is located, internal equipment, lighting, heating, ventilation, and the sanitary condition of the facility's premises.

The main elements of the set of measures aimed at ensuring a sanitary and hygienic regime in medical institutions are disinfection, sterilization, strict compliance with the requirements of asepsis and antiseptics.

Safety rules for the work of medical workers.

Medical workers must strictly use personal protective equipment, these are:

Use of gloves. Gloves should be used if there is a minimal possibility of contact with blood or liquid secretions, mucous membranes or damaged skin of any patient, as well as in the presence of cuts or other damage to one's own skin. They need to be changed between contacts with different patients, in case of contamination with secretions and excrement during patient care.

Using:

- surgical - used during invasive medical interventions and during surgical interventions;

- examination - ensure the protection of medical personnel during examination of the patient, diagnostic and therapeutic manipulations;

- household - provide protection for medical personnel when handling equipment, contaminated surfaces, tools, when working with waste of medical origin.

Sterile medical gloves must be used for:

- all surgical interventions;

- invasive manipulations;

- administration of medicinal forms with a sterile needle into deep tissues or body fluids (intravenous infusions, obtaining bio-samples for research);

- installation of a catheter or conductor through the skin;

- manipulations related to the contact of sterile material with intact mucous membranes (cystoscopy, bladder catheterization, etc.);

- primary examination of the newborn;

- bronchoscopy, endoscopy of the gastrointestinal tract, remediation of the trachea;

- vaginal examination;

- introduction of a peripheral intravenous or arterial cannula.

Non-sterile clean gloves are used:

- during a routine examination of a newborn, a woman in labor, a woman in labor, a patient;

- when working with biological material from patients;

- when taking blood;

- during cleaning and disinfection of Chambers.

Rules for using medical gloves:

1. Before putting on and after taking off gloves, you must wash your hands or treat them with an antiseptic.

2. Disposable gloves are not reused. Non-sterile gloves are not subject to sterilization.

3. Gloves are replaced immediately if they are damaged.

4. It is not allowed to wash or treat hands with an antiseptic in gloves in between manipulations.

5. It is not allowed to wash or treat hands with gloves between performing "clean" and "dirty" manipulations, even on the same patient.

6. It is not allowed to wear gloves in the departments of the hospital.

7. Before putting on gloves, you should not use products that contain mineral oils, petroleum jelly, or lanolin.

8. Immediately after use, medical gloves are removed and immersed in a disinfectant solution directly at the place of use of the gloves.

9. After disinfection, disposable gloves must be disposed of.

Use of gloves:

1. for operations - latex, neoprene;

2. for examinations - latex, neoprene;

3. when caring for a patient - latex, polyethylene, polyvinyl chloride;

4. during cleaning and disinfection - nitrile, neoprene;

5. it is allowed to use fabric gloves under rubber ones;

6. it is allowed to use fabric gloves under rubber ones.

Face masks.

Necessary to prevent contamination by airborne droplets, as well as for the possibility of liquid, dust-like substances of the body getting into the mouth and nose. Masks must be changed after the expiration date (after 3 hours) or if they become wet. The mask cannot be lowered to the neck. All masks must completely cover the mouth and nose. Disposable masks should not be reused.

Safety glasses and face shields are necessary to prevent splashes of blood, biological fluids and secretions of the patient from getting into the eyes and face.

Robes and aprons.

With the exception of operating rooms, where sterile gowns are worn to protect patients, the main purpose of gowns and waterproof aprons is to exclude the possibility of pathogens getting onto the clothing and skin of medical personnel. Aprons are used only if there is a possibility of significant contamination of clothing or skin with secretions of the patient.

Washing hands.

After direct contact with a patient or a contaminated person, as well as before contact with a patient prone to infection, a pregnant woman, a woman in labor is the most important and effective preventive measure both for own protection and for reducing the risk of HIV. First of all, it should be remembered that staphylococcus aureus, epidermal staphylococcus, enterococcus, Escherichia coli, salmonella, hepatitis A virus, etc. can be on the hands. Some of the organisms on the skin are permanent, some are non-permanent (transient). Persistent microorganisms (for example, epidermal staphylococcus) not only survive, but also multiply in the surface layers of the skin.

Transient microflora – the result of a fresh infection – has a limited lifespan on the skin. It can be represented by pathogenic microorganisms (Staphylococcus aureus, Escherichia coli), etc., which get on the hands from the colonies of microorganisms of infected patients or infected equipment.

Given the number of pathogenic microorganisms that are transmitted through hands, it is important to understand that hand washing is a serious defense against VLI and a guarantee of the safety of medical personnel.

You need to wash your hands:

- immediately after contact with infected material (blood and other biological fluids), as well as with patients and their care items;
- immediately after removing protective gloves.

There are three levels of hand disinfection:

- social;
- hygienic,
- surgical.

Social level: washing lightly soiled hands with soap and water removes most transient microorganisms from the skin.

Social processing of hands is carried out:

- before eating;
- after visiting the toilet;
- before and after patient care;
- in case of contamination of hands.

It is not necessary to wash hands after surface contact with the patient (for example, blood pressure measurement).

The hygienic level is the most effective method of removing and destroying microorganisms during hand handling.

Hygienic disinfection of hands is carried out before:

- performance of invasive procedures;
- care of patients with weakened immunity;

- wound care and after it;

- bladder catheterization and after it;

- putting on rubber gloves and after removing them;

- after contact with patients' biological fluids or after an important microbial infection.

SEQUENCE OF ACTIONS

1. Remove all jewelry (watch, bracelets, rings).

2. Open the faucet and wet your hands with a stream of comfortably warm water.

3. Apply a portion of liquid soap.

4. Vigorously rub your hands for at least 30 seconds using the following technique:

- rub palm against palm,

- the outer side of the palms first with the right, and then with the left hand,

- crossing the fingers of one hand with the other, rub between the fingers,

- then with one hand cover the other with a "lock" and it is necessary to rub in the metatarsal-phalangeal zone, first of one hand, and then of the other,

- vigorously rub the thumbs of both hands in circular motions,

- rub the palm of the left hand with the fingertips of the right hand and vice versa.

5. Wash off the soap thoroughly under running water.

6. Dry hands with a disposable paper towel (napkin).

7. If the faucet does not have an elbow method of actuation, it is closed with a dry towel (napkin), which is thrown into a trash can intended for collecting paper towels, which should be nearby.

Hygienic asepsis of hands.

Material support:

hand antiseptic registered in Ukraine (accompanying documents for the product - state registration certificate, regulations for use, quality certificate for this batch).

Indications for hygienic hand antiseptics:

1. before and after any manipulation with newborns, women in labor and women in labor,

2. before and after manipulations associated with possible and obvious damage to the patient's skin and mucous membranes (injections, installation of catheters and probes, etc.),

3. before and after contact with wound surfaces, infected wounds,

4. in contact with sterile materials and instruments,

5. after contact with biosubstrates of the patient (blood, cerebrospinal fluid, urine, etc.),

6. after contact with abiogenic objects potentially contaminated with hospital microflora (devices, catheters, probes, etc. after their use),

7. after contact with infectious patients,

8. when caring for a patient, when it is necessary to move to clean areas after treating contaminated areas,

9. before and after putting on gloves,

10. before leaving the ward.

Washing sequence:

1. Apply 3 ml on the palm. antiseptic or the amount specified in the regulations regarding the use of this antiseptic.

2. Rub vigorously until the antiseptic is completely dry, but for at least 15 seconds in the following sequence:

- rub palm against palm,

- the outer side of the palms first with the right hand, and then with the left,

- crossing the fingers of one hand with the other, rub between the fingers,

- then one hand covers the other with a “lock” and it is necessary to rub in the phalanx area of the foot, first of one hand, then the other,

- vigorously rub the thumbs of both hands in circular motions,

- rub the palm of the left hand with the fingertips of the right hand and vice versa.

3. Wiping or drying hands is not allowed.

Modified WHO formulations for surgical hand preparation

Formulation I

Final concentrations: ethanol 80% wt/wt, glycerol 0.725% vol/vol, hydrogen peroxide 0.125% vol/vol.

Ingredients:

1. ethanol (absolute), 800 g

2. H2O2 (3%), 4.17 ml

3. glycerol (98%), 7.25 ml (or 7.25 x 1.26 = 9.135 g)

4. top up to 1000 g with distilled or boiled water

Formulation II

Final concentrations: isopropanol 75% wt/wt, glycerol 0.725% vol/vol, hydrogen peroxide 0.125% vol/vol.

Ingredients:

1. isopropanol (absolute), 750 g

2. H_2O_2 (3%), 4.17 ml

3. glycerol (98%), 7.25 ml (or 7.25 x 1.26 = 9.135 g)

4. top up to 1000 g with distilled water

Quality assurance and efficacy must be assured

Disinfection (from the French word dez - denial and Latin infektionio - infection) is the destruction of pathogenic microorganisms (bacteria, viruses, rickettsia, protozoa, fungi, toxins) in the environment that surrounds a person. (that is, to influence the possibly existing factors of transmission of infection in order to break the transmission paths).

Sections of disinfection:

- actual disinfection – destruction of pathogenic microorganisms;

- disinsection is methods and means of fighting arthropods (insects, flies, mites), it can be preventive (creating conditions that promote their reproduction) and exterminating;

- deratization is measures to combat rodents;

- sterilization – destruction of all microorganisms and their spores.

Methods of disinfection.

During disinfection, two main methods are used: physical and chemical. However, this division is conditional and it can also be distinguished into a third one - combined, when disinfection methods are used at the same time.

The mechanical method is reduced to the removal of pathogenic microbes by washing, cleaning, wet cleaning, washing, airing, filtering. However, the mechanical method is only the transfer of microorganisms from the most dangerous, in a specific situation, object to a less dangerous one.

The physical method includes:

- action of high temperatures - boiling, sterilization, burning, exposure to steam at increased or normal pressure of moist or dry air, drying, burning;

- the action of radiant energy – ultraviolet radiation, ultrasound, radioactive and ionizing radiation, current of ultrasonic frequency;

The chemical method is based on the use of chemicals and their combination with detergents. All chemicals used for disinfection can be divided into several groups:

Chlorine-containing, haloids:

Chlorine lime is a white dry powder with a sharp characteristic smell of chlorine. The active component is free chlorine. Perchloric lime, which contains at least 15% active chlorine, is

suitable for disinfection. Chlorine decomposes in the sun, air and under the influence of moisture, losing chlorine. Therefore, it should be stored in a dry, dark, cool place. Even with proper storage of chlorinated lime, the loss of active chlorine is 1-3% per month. Therefore, it is necessary to determine the content of active chlorine every 3 months.

Chlorine lime is a reliable disinfectant. It destroys not only vegetative, but also spore forms of pathogenic microorganisms.

One kilogram of dry perchloric lime is poured into an enameled container with a lid and filled with 9 liters of cold water. Water is added to the lime in small portions, stirring with a wooden spatula. The dish with the solution is left in a dark room for one day. During the first hours, the solution must be stirred several times. Then the upper (settled) part of the solution is poured into another dish through several layers of gauze. After that, it is poured into dark dishes with lids. The solution is labeled, where it is indicated: the name of the solution, the concentration, the date of manufacture, as well as the name of the person who prepared this solution. With proper storage, such a solution has a shelf life of 5-10 days, and is suitable for preparing working solutions from it.

Working solutions are prepared by diluting the mother solution with water immediately before use and are used only once.

Preparation of working solutions of chlorinated lime:

Preparation of a concentrated (mother) 10% solution of perchloric lime.

The concentration of chlorinated lime in the working solution, %	Amount of 10% lime solution, ml	Volume of water, liters
0,5	500	9,5
1	1000	9000
3	3000	7000
5	5000	5000

Chloramine B is a white crystalline powder with a chlorine smell. Contains 26% active chlorine. Chloramine is a stable substance that, in the absence of light and moisture, retains the initial amount of active chlorine for a long time.

Working solutions of chloramine are prepared immediately before use by diluting it with water. If water is used at a temperature of 50°C, chloramine will dissolve faster.

Preparation of working solutions of chloramine

Concentration of chloramine in solution	Amount of chloramine in grams	Volume of water in liters
0,2	2	998
1	10	990
3	30	970
5	50	950

Iodine is grayish-black plates with a metallic sheen, with a peculiar smell. Iodine is volatile. Soluble in 96% ethyl alcohol, poorly soluble in water, but easily soluble in aqueous solutions of iodides. In surgery, it is used to treat skin, especially contaminated wounds. For hand treatment without washing water;

Lugol's solution is a solution of iodine with sulfates in ethyl alcohol or distilled water.

Iodonate is a complex compound of iodine with sulfates. A dark brown aqueous solution with a weak iodine smell, has bactericidal properties. They are used to treat the operating field and hands.

Oxidizers:

Hydrogen peroxide solution is a transparent, colorless liquid that quickly decomposes with the release of oxygen when it comes into contact with alkali and organic substances. use a 3-6% solution.

Phenols:

Potassium permanganate - dark red or purple crystals with a metallic luster, soluble in water. A weak solution of potassium permanganate is used to wash wounds, a concentrated solution is used to treat burns. Weak solutions have an astringent effect and eliminate bad odors.

Carbolic acid is colorless needle-like crystals with a peculiar smell that turn pink in air. It is used to prepare a triple solution, which is used to store cutting surgical instruments and maintain sterility.

Lysol is a solution of technical cresol in potassium soap. Acts bactericidally on vegetative forms of microorganisms. Used for the most polluted polluted premises, deodorization of baths.

Salts of heavy metals:

Mercury dichloride is a white powder or crystals, soluble in water, alcohol, glycerin. It has antiseptic properties, a strong poison that is kept under lock and key (list A). It is not used today.

Silver nitrate (or lapis lazuli) is a strong antiseptic, especially after coccal flora. It is used to treat purulent wounds, inflammation of the bladder. Concentrated solutions and a pencil are used for cauterization during the growth of unhealthy granulations.

Group of alcohols and aldehydes:

Ethyl alcohol is an active antiseptic liquid, its maximum effect is manifested at a concentration of 70% and 96%. It is used for treatment of the operating field, sterilization and storage of silk, cutting and pricking surgical instruments.

Formaldehyde (formalin) - 40% solution - is colorless with a peculiar smell. It is a strong antiseptic, kills vegetative forms of bacteria and their spores. It is part of the triple solution.

Group of dyes:

Diamond green is a greenish-golden powder dissolved in water and alcohol, forming a green color. It is highly bactericidal against staphylococcus aureus and diphtheria bacillus. 1% aqueous or alcohol solutions are used for treatment of the operative field, superficial wounds, in the treatment of purulent rashes on the skin.

Ethacridine lactate (rivanol) is a yellow, fine crystalline powder, well soluble in water and alcohol. Aqueous solutions are unstable, so it is necessary to use freshly prepared ones. Acts on the coccal flora, is used in the treatment of wounds of purulent skin diseases.

Metallic blue - used to treat the mucous membrane in stomatitis.

Group of detergents:

Detergents are detergents (derived from the Latin word - to clean) - they are synthetic substances with disinfecting and washing properties and high surface activity. They are divided into neonogenic and ionogenic, the latter are divided into cations - (quaternary ammonium compounds) and anions - soap) and amphoteric.

Soap, as well as salts of fatty acids, contribute to enhanced mechanical cleaning, as a result of which up to 60-90% of microflora can be removed from objects. Depending on the composition of the soap, they can have bactericidal properties that increase when the temperature rises.

Rules for preparation of disinfectant solutions.

Material support: rubber gloves, gown, mask, cap, rubberized fabric apron, safety glasses, ShB-1 "Petal" respirator or RIG-67 type respirator with B brand cartridge, marked container, measuring containers, water, disinfectant, registered for use in Ukraine, accompanying documents for it (certificate of state registration, application regulations, quality certificate for this batch of the product).

Sequence of actions:

1. Wear protective clothing. Movement in protective equipment outside the department is prohibited
2. Pour the required volume of water at room temperature into the marked container.
3. Using a measuring container, measure the disinfectant, the amount of which corresponds to the selected concentration according to the mode of its use. Add it to the water.
4. Stir until the concentrate is completely dissolved.
5. On the container, indicate the name of the disinfectant solution, its concentration, and the date of manufacture.
6. Store in a tightly closed, opaque container in a cool place.
7. Make the working disinfectant solution immediately before use, use it during the shift.
8. For disinfection of medical products, the solution is used once.

Types of disinfection and its implementation in the LPZ

There are two types of disinfection:

- preventive,
- in the focus of infection (focal)

Preventive disinfection is carried out constantly, regardless of the presence of an infectious disease. Its purpose is to prevent the emergence and spread of infectious diseases and the accumulation of pathogens of these diseases or their vectors in the environment.

Preventive disinfection is carried out in individual objects, areas and large areas, medical facilities, especially in public places, as well as in crowded places at transport stations, theaters, children's institutions, schools, dormitories, hotels, recreation centers, health centers, sanatoriums. saunas, swimming pools. According to its content, preventive disinfection can have the character of current disinfection (this is washing of glasses and dishes for general use after each use) and final disinfection (chlorination of water, pasteurization of milk, which may contain pathogens of infectious diseases.

Focal disinfection depends on the stage of transmission of the causative agent and is divided into:

- current - which is carried out in the focus of infection, in the presence of the patient or bacillus carrier. Its purpose is the immediate destruction of the causative agent after its removal from the body of the patient or carrier, in order to prevent the spread of the causative agent in the environment and the occurrence of intra-hospital infection; and

- final - which is carried out in the focus of infection after isolation of the patient or bacillus carrier. Its purpose is complete disinfection of objects that may have been infected with an infectious agent. The final disinfection is carried out in the cells of those infectious agents that are stable in the environment. These include: plague, cholera, typhoid, rickettsiosis, KU fever, paratyphoid, salmonellosis, tuberculosis, diphtheria, meningococcal infection, fungal diseases, worm infestations and some others.

Carrying out quality control of disinfection:

- visually (sanitary and hygienic condition of premises, institution, territories);
- chemical (testing the activity of disinfectant solutions and preparations);
- bacteriological method (seeding of material for the presence of microflora).

Disinfection of medical products:

The purpose of disinfection	**Disinfectant agent**	**Disinfection mode, °C**	**Concentration of the solution, %**	**Disinfection time, min**	**Recommendations for use**	**Disinfection conditions**	**Necessary equipment**
Boiling	Distilled water	98	-	30	Products made of glass, metal, heat-resistant materials, rubber, plastic mass	Completely immersed in water	Disinfection kettle
	Distilled water with sodium bicarbonate	98	2	15			
Steam	Saturated water vapor	110	-	20	Products made of glass, metal,	Conducted in sterilizat	Steam sterilizer

	under excessive pressure (0.5 kg/cm2)				heat-resistant materials, rubber, plastic mass	ion boxes	
Air	Dry hot air	120	-	45	Products made of glass, metal, porcelain	They are held without packaging on a metal grid	Air sterilizer
Chemical	chloramine	At least 18	3	60	Products made of glass, corrosion-resistant material, polymer materials, rubber	Completely immerse in the solution, or wipe twice with a napkin made of gauze or calico with an interval of 15 minutes	Closed containers made of glass, plastic mass or covered with enamel (without damage to the enamel)
	Hydrogen peroxide		6	60			
	Formalin (by formaldehyde)	4	60				
	Dezoxon-1		0,5	60			
	Neutral calcium hypochlorite		0,5	60			

Types of cleaning:

There is a distinction between current and general cleaning of premises in medical and preventive facilities.

Current cleaning is carried out daily using a wet method. Wet cleaning of premises in the hospital (washing the floor, wiping furniture, equipment, windowsills, doors, etc.) should be carried out at least 2 times a day, and if necessary, more often with the use of detergents and disinfectants in accordance with the requirements of the orders of the Ministry of Health of Ukraine. At the same time, it is recommended to use a modern professional system for cleaning "VERMOP MEDICAL" and disinfectants of the company "Lisoform Medical" (Lisoformin Plus, Blanidas, Lisoformin special). Window glass is wiped at least once a month from the inside and once every 4-6 months from the outside or as it becomes dirty.

When cleaning using water solutions of detergents, you can get rid of 80-90% of bacteria and other microorganisms that are on the surface of walls, floors, equipment, etc. At the same time, 10 liters of aqueous solution are used on no more than 20m² of surface.

Wet cleaning with the use of disinfectants is carried out in accordance with the requirements of the methodological instructions for their use.

However, 3–4 hours after wet cleaning, the microbial contamination of the premises approaches the initial level.

During current cleaning, the bactericidal lamp is turned on for the period calculated according to the passport data of the lamp according to the area of the room, considering the prevailing pathogen.

Necessary tools: protective clothing (gown, hat, mask, rubber gloves), marked inventory (separately for furniture, equipment, walls, floor), broom, mops (for walls and floor), rags, detergents and disinfectants (according to the calculated by the areas specified in the Journal of receipt and expenditure of disinfectants (form No. 290/0)), professional cleaning system "VERMOP MEDICAL", bactericidal lamp.

Performance features:

1. Current cleaning with the use of disinfectants (Lisoformin Plus, Aerodesin, Aerodesin 2000) must be carried out after working with each patient.

2. Dressing, manipulation, swaddling, laboratory tables, gynecological and dental chairs, couches, patient care items, etc. are subject to disinfection.

General cleaning (washing and disinfection) is carried out according to the schedule approved by the head of the department or the head of the institution. If unsatisfactory results of microbial inoculation of the external environment in the hospital are detected during control studies, it is carried out outside the schedule.

It is advisable to use solutions of disinfectants in the concentrations recommended for parenteral viral hepatitis, in anti-tuberculosis institutions - in the concentrations recommended for tuberculosis, in dermatovenerological institutions - for infections of fungal etiology.

Current and general cleaning:

№	Functional premises		Current cleaning	General cleaning
1	Common areas: lobby, help desk, registration, cloakroom, halls, corridor, stairs		2 times a day: 1 time – with detergents, at the end of the shift – with disinfectants (and as needed)	1 time per month
2	Service/administrative premises		1 time a day - with detergents	1 time per month
3	Manipulation, inspection, dressing, procedural		Before starting work, wet cleaning with detergents 2 times in a shift with disinfectants (and as needed)	1 time per week
4	Central sterilization department	Sterile zone	2 times per shift (before removing from the autoclave) with disinfectants	1 time per week
		Non-sterile area	2 times per shift: 1 time with detergents, 1 time with disinfectants at the end of the shift	
5	Operating unit (hall)		After each operation with	1 time per week

		disinfectants (in the absence of operations - once a day with disinfectants)	
6	Buffets, dining rooms	After each distribution of food - with disinfectants	1 time per week
7	Wards of surgical profile	2 times a day with disinfectants	1 time per week
8	Wards of a therapeutic profile	2 times a day: 1 time – with detergents, 1 time (and after changing underwear or discharging the patient) with disinfectants	1 time per month
9	Halls of resuscitation and intensive care units	Before starting work, wet cleaning with detergents, 2 times in a shift with disinfectants (and as needed)	1 time per week
10	Reception departments	2 times a day with disinfectants (and as needed)	1 time per week
11	Sanitary pass	After examining and treating each patient with disinfectants	1 time per week
12	Sanitary rooms, toilets	Before starting work, wet cleaning with detergents, 2	1 time per week

			times in a shift with disinfectants (and as needed)	
13	Offices for endoscopic examinations		Before starting work, wet cleaning with detergents, 2 times in a shift with disinfectants	1 time per week
14	Offices of departments of functional diagnostics		Offices of departments of functional diagnostics	1 time per month
15	Ultrasound offices	Ultrasound examination	1 time per shift with detergents, at the end of the shift – with disinfectants	1 time per month
		With the use of puncture biopsy	Before starting work, wet cleaning with detergents, 2 times in a shift with disinfectants	1 time per month
16	X-ray rooms	Radiology, radiography	1 time per shift with detergents, at the end of the shift – with disinfectants	1 time per month
		With parenteral administration of contrast agents	Before starting work, wet cleaning with detergents, 2 times in a shift with disinfectants	
17	Laboratory department: research rooms (biochemical, clinical, general clinical, immunological, bacteriological)		Before starting work, wet cleaning with detergents, 2	1 time per week

			times in a shift with disinfectants	
18	physiotherapy offices offices: electrotherapy, light therapy, massage, heat therapy, inhalatorium, hydrotherapy, mud therapy, hydrocolonotherapy		1 time per shift with detergents, 1 time at the end of the shift – with disinfectants	1 time per week
19	Polyclinic: offices of therapeutic doctors		1 time per shift with detergents, at the end of the shift – with disinfectants	1 time per month
20	Offices of surgical doctors	Accepting patients only	1 time per shift with detergents, 1 time at the end of the shift – with disinfectants	1 time per month
		Carrying out manipulations	Before starting work, wet cleaning with detergents, 2 times in a shift with disinfectants	1 time per week
21	Pantries for clean linen		1 time per shift with disinfectants	1 time per month
22	Chambers for dirty laundry		1 time per shift with disinfectants (after handing in laundry)	1 time per month
23	Laundry	Delivery of clean linen	1 time per month	1 time per month
		Reception of dirty laundry	1 time per month	
24	Discharge chamber premises	Issue of soft inventory	1 time per month	1 time per month
		Reception of soft inventory	2 times in a shift with disinfectants	
2	Food block		1 time per shift	1 time

5		with detergents, at the end of the shift – with disinfectants	per week

Final disinfection is carried out with the participation of the hospital's disinfectant (on weekends and holidays - junior medical staff under the supervision of a nurse, doctor on duty) after discharge or transfer to another medical institution of a patient with an infectious disease (disinfectant concentration and exposure according to methodological recommendations for infectious agents).

Sanitary and anti-epidemic regime in departments of the Medical and Preventive Institution

Accounting for disinfectants according to surface areas.

Area furnishings during cleaning

№	Name	Area furnishings during current cleaning	Area furnishings during general cleaning
1.	Window frame	1,9 м^2	1,9 м^2
2.	Windowsill	0,5 м^2	0,5 м^2
3.	Battery	1 ребро 0,1м^2	1 ребро 0,1м^2
4.	The table is single-edged	2 м^2	2 м^2
5.	The table is double-edged	2,6 м^2	2,6 м^2
6.	Safe	1,6 м^2	3,5 м^2
7.	Bedside table (new)	0,2 м^2	3,3
8.	Bedside table (old)	0,16 м^2	2,36 м^2
9.	The bed is functional	2,3 м^2	2,3 м^2
10.	The bed is simple	3,9 м^2	3,9 м^2
11.	Aluminum hanger	0,5 м^2	0,5 м^2
12.	The hanger is wooden	1,5 м^2	1,5 м^2
13.	Facing tile	0,02 м^2	0,02 м^2
14.	Washbasin	0,8 м^2	1 м^2

15.	A table in the ward	0,5 м^2	2 м^2
16.	Stool	0,1 м^2	0,6 м^2
17.	A wheelchair with a stretcher	1,2 м^2	2,2 м^2
18.	Wheelchair	0,7 м^2	0,7 м^2
19.	Refrigerator	2,2 м^2	4,5 м^2
20.	Bath	2 м^2	3,3 м^2
21.	Couch	1,2 м^2	1,3 м^2
22.	Chair	0,18 м^2	0,5 м^2
23.	Jalousie	2,3 м^2	2,3 м^2
24.	The bath is gentle	1,2 м^2	1,2 м^2
25.	Toilet with tank	1 м^2	1 м^2
26.	The door to the ward	7 м^2	7 м^2
27.	The door to the toilet	4,6 м^2	4,6 м^2

Area

medical equipment during cleaning

№	**Name**	**Area furnishings during current cleaning**	**Area furnishings during general cleaning**
1.	Glass cabinet	2,7 м^2	7 м^2
2.	Tripod	0,1 м^2	0,1 м^2
3.	Manipulation table	2,6 м^2	2,3 м^2
4.	The table is sterile	0,8 м^2	2,2 м^2
5.	Gynecological chair	1,6 м^2	1,6 м^2
6.	Drying cabinet (humanitarian)	0,83 м^2	0,83 м^2
7.	Drying cabinet	1,5 м^2	1,5 м^2
8.	(SS-200)	0,96 м^2	0,96 м^2

Disinfection of patient care items:

№	Disinfection object	Disinfectant	Disinfection mode		Disinfection method
			Concentration,	Concentration,	

			% Exposure, min	% Exposure, min	
1	Medical devices, devices, equipment with paint, galvanic and polymer coating	septodor forte,	0,2	60	Twice wiping with a solution with an interval of 15 minutes, exposure time - 60 minutes. and subsequent washing with water
		chlorantoin,	0,2	60	
		hydrogen peroxide with 0.5% pH of detergent,	4,0 1,0	60 60	
		chloramine			
2	Care items (warmer, pad, ice pack)	desactin	0,2	60	Immerse in the solution, followed by rinsing in clean water
		septodor forte	0,4	60	
		chlorantoin sulfate	0,1	60	
		chloramine	1,0	60	
		chloramine	3,0	60	
3	Phonendoscopes, cuffs for blood pressure measuring device, pillow for supplying oxygen, centimeter tape	chlorantoin	0,1	30	Twice wiping with a solution with an interval of 15 minutes, exposure time - 60 minutes. and subsequent washing with water
		chloramine	1,0	60	
		hydrogen peroxide	4,0	30	
		sulfachloranti ne	0,2	60	
		chlorantoin			
4.	Medical thermometers	chloramine	1,0	60	Twice wiping with a solution with
		chlorantoin	0,2	60	
		hydrogen	4,0	30	

		peroxide			
		sulfachloranti ne	0,2	60	
					an interval of 15 minutes, exposure time - 60 minutes.
5	Oilcloth from a couch for examining patients, aprons from polymer materials, tarpaulin bags for transporting dirty linen, etc.	chloramine	1,0	60	Twice wiping with a solution with an interval of 15 minutes, exposure time - 60 minutes. and subsequent washing with water, full immersion
		chlorantoin	3,0	60	
		hydrogen peroxide	3,0	30	
		chlorantoin sulfate	0,2	60	
6	Enameled basins, trays for used material	chloramine	1,0	60	Twice wiping with a solution with an interval of 15 minutes, exposure time - 60 minutes. and subsequent washing with water, full immersion
		chloramine	3,0	30	
		chlorantoin	0,5	30	
		chlorantoin sulfate	0,2	30	

7	Refrigerator (inner surface)	chloramine	1,0	60	Twice wiping with a solution with an interval of 15 minutes, exposure time - 60 minutes. and subsequent washing with water, full immersion
		chlorantoin	0,2	30	
8	The patient's linen (bed and body)	chloramine	1,0 3,0	60 120	Immerse in the solution, followed by rinsing in clean water and washing
		chloramine	0,2	60	
9	Tableware (without leftover food)	chloramine	0,5	30	Immerse in the solution, followed by rinsing in clean water and washing
		hydrogen peroxide	3,0	30	
		chlorantoin	0,1	60	
10	Tableware with leftover food	chloramine	3,0	60	Immerse in the solution, followed by rinsing in clean water and washing
		sulfachloranti ne	0,5	30	
		chlorantoin	0,2	60	
11	Utensils from the discharge of	chloramine	3,0	60	Immerse in the solution,
		sulfachloranti	0,5	30	

		ne			
	the patient (support	chlorantoin	0,2	60	followed by
	vessels, urinals,				rinsing in clean
12	Laboratory dishes	chloramine	3,0	60	Immerse in the solution, followed by rinsing in clean water and washing
		sulfachloranti ne	0,2	120	
		chlorantoin	0,2	60	
13	Excretion of the patient (feces, urine, sputum), etc	chlorinated lime	Dry preparation	60	Fall asleep at the rate of aging of 200 grams/1 kg of secretions, mix, close with a lid
14	Nail clippers, shavers	chloramine	1,0	60	diving
		distilled water		30 minutes from the moment of boiling	boiling
		distilled water with 2% sodium chloride solution		15 minutes from the moment of boiling	boiling
1	Premises (floor, walls,	chloramine	1,0	60	Twice wiping with a
		chlorantoin	0,2	60	

		septodor forte	0,5	15	
5	window frames, doors, solid frames), etc				solution with an interval of 15 minutes, exposure time - 60 minutes. and subsequent washing with water,
16	Sanitary and technical equipment, rags for cleaning	chloramine	1,0	60	Twice wiping with a solution with an interval of 15 minutes, exposure time - 60 minutes. and subsequent washing with water, full immersion
		chlorantoin	0,2	60	

Materials on the activation of students of higher education during the lecture: questions, situational problems, etc. (if necessary):

What is a sanitary and anti-epidemic regime?

In what cases should social hand washing be carried out?

What is disinfection?

What is the basis of the chemical method of disinfection?

How to carry out disinsection for head pediculosis?

What are the sanitary and hygienic requirements for wards?

How to carry out current and general cleaning of the manipulation cabinet?

How are patient care items disinfected?

Questions for self-control:

Name the main elements of the set of measures aimed at ensuring a sanitary and hygienic regime in the LPU.

Name the generalized safety rules for the work of medical workers.

List the Orders of the Ministry of Health of Ukraine on sanitary and anti-epidemic regime.

Name the general requirements for the sanitary-hygienic and anti-epidemic regime of the hospital.

Name the methods of disinfection.

References:

1. Law of Ukraine dated November 19, 1992 No. 2801-XII "Basics of the legislation of Ukraine on health care"

2. Law of Ukraine dated April 6, 2000 No. 1645-III "On the Protection of the Population from Infectious Diseases"

3. Order of the Ministry of Health of Ukraine dated August 19, 2021 No. 1766 "On the approval of the Procedure for carrying out sentinel epidemiological surveillance of antimicrobial resistance"

4. Order of the Ministry of Health of Ukraine dated August 3, 2021 No. 1614 "On the organization of infection prevention and infection control in health care institutions and institutions / institutions providing social services / social protection of the population"

5. Order of the Ministry of Health of Ukraine dated 06.05.2021 No. 882 "On the approval of sanitary and anti-epidemic rules and norms for the use of ultraviolet bactericidal radiation for air disinfection and disinfection of surfaces in the premises of health care institutions and institutions/institutions providing social services/social protection of the population"

6. Order of the Ministry of Health of Ukraine dated 03.08.2020 No. 1777 "On the approval of Measures and Means for the prevention of infection during patient care"

7. Order of the Ministry of Health of Ukraine dated February 1, 2019 No. 287 "On the approval of the Infection Control Standard for health care institutions that provide assistance to tuberculosis patients"

8. Resolution of the Cabinet of Ministers of Ukraine dated 02.03.2016 No. 285 "On approval of the Licensing conditions for carrying out economic activities in medical practice"

9. Order of the Ministry of Health of Ukraine dated 28.12.2015 No. 905 "On approval of criteria for determining cases of infectious and parasitic diseases subject to registration"

10. Order of the Ministry of Health of Ukraine dated June 8, 2015 No. 325 "On the approval of the State sanitary and anti-epidemic rules and norms regarding the treatment of medical waste"

11. Order of the Ministry of Health of Ukraine dated August 11, 2014 No. 552 "On the approval of State sanitary norms and rules "Disinfection, pre-sterilization cleaning and sterilization of medical devices in health care institutions""

12. Order of the Ministry of Health of Ukraine dated April 30, 2014 No. 293 "On the approval of the Instructions for the collection, sorting, transportation, storage, disinfection and washing of linen in health care institutions"

13. Order of the Ministry of Health of Ukraine dated 04/02/2013 No. 259 "On approval of State sanitary norms and rules "Sanitary and anti-epidemic requirements for health care institutions providing primary medical (medical and sanitary) care""

14. Standards of accreditation of health care institutions (Order of the Ministry of Health of Ukraine dated 03.14.2011 No. 142)

15. Suchomel M KM, Kundi M, Pittet D, Rotter ML. Modified World Health Organization hand rub formulations comply with European efficacy requirements for preoperative surgical hand preparations. Infect Control Hosp Epidemiol. 2013; 34(3):245–250.

16. Allegranzi B, Aiken AM, Zeynep Kubilay N, Nthumba P, Barasa J, Okumu G et al. A multimodal infection control and patient safety intervention to reduce surgical site infections in Africa: a multicentre, before–after, cohort study. Lancet Infect Dis. 2018; 18(5):507–515.

Lecture № 2

Topic: Assessment of the patient's general condition. Position in bed. State of consciousness. Body temperature, rules for its measurement and registration. Care of patients with fever

The actuality of the topic: Patient care is an integral part of medicine; therefore, it is quite appropriate to teach this course to students of higher medical educational institutions as an independent discipline. It aims to convey to students the need to care for patients, to give them certain knowledge of the organization of the treatment process in medical institutions, to outline the responsibilities of junior and middle-level medical personnel, who are the direct executors of all measures related to patient care. Students should realize the need to know the general condition of the patient, his body position, condition, etc., during the care of patients of various ages.

Aim: Form concepts, ideas about the general assessment of the patient's condition; to systematize knowledge about various states of unconsciousness of patients; expand knowledge about the position of the patient's body; generalize knowledge about the rules of measuring body temperature and methods of its registration; to establish the relationship, the dependence between the sanitary-epidemic regime and the condition of the patient with fever.

Basic concepts: Assessment of the patient's condition; Consciousness; The patient's body temperature; rules for measuring and registering the patient's body temperature, caring for a patient with fever.

Plan and organizational structure of the lecture:

Assessment of the patient's general condition:

- Diagnostic value of patient examination;

- Conditions and rules for conducting a patient examination;

- General condition of the patient.

Consciousness.

Position of the patient:

- Posture;

- Walking of the patient;

The patient's face (Diagnostic value of the patient's face).

Skin.

Swelling

Body temperature, rules for its measurement and registration.

Care of patients with fever.

Content of lecture material (lecture text)

The role of patient examination in assessing the patient's general condition

The diagnostic value of the patient's examination

External examination is the first and one of the main methods of objective examination of the patient. Examination of the patient is the simplest and most natural method of research, with its help you can objectively assess the actual condition of the patient. Pathological signs detected during the first examination, when the patient just enters the office, provide significant help during questioning and sometimes make it possible to make the correct diagnosis "at first glance" (for example, changes in facial features in acromegaly, "vascular stars" in cirrhosis of the liver). In addition, mutual understanding and trust are formed between the doctor and the patient during the examination. In order to fully use all the possibilities of the examination, the doctor must not only look, but also be able to see, and this must be constantly learned.

Conditions and rules for conducting a patient examination

Despite the simplicity of this method, in order to obtain important and reliable results, the examination requires compliance with certain rules: lighting, technique and examination plan. **Lighting**. The examination is best carried out in diffused daylight, which can be direct or lateral. With the help of side lighting, the relief, contours of various parts of the body and visible pulsation on its surface are revealed. Artificial lighting gives a lot of yellow rays, making it difficult to assess the true color of the skin and sclera. **Examination technique.** The patient, completely or partially naked, at a distance of 2-3 steps from the doctor; gradually turning the patient in front of him, the doctor successively examines him in direct and lateral lighting. It is better to examine the chest in an upright position, and examine the abdomen in vertical and horizontal positions. **Examination plan** ensures obtaining, if possible, comprehensive information about the patient. At the beginning of the study, a general examination is carried out, that is, the patient as a whole, then a special examination, that is, an examination of individual parts of the body (head, face, neck, chest, abdomen, limbs) and systems.

When caring for a patient, the indicators that characterize the main parameters of his vital activity are of greatest importance: general condition, position in bed, gait, posture, facial expression, skin condition, body temperature, anthropometric data, as well as some indicators of a special study of respiratory and cardiovascular vascular system (respiratory rate, pulse, blood pressure).

General condition of the patient

Having approached the patient's bed, the doctor first of all determines his general condition: satisfactory, moderate, severe, extremely severe. The following indicators serve as criteria for assessing the patient's condition: consciousness, position, posture, gait, facial expression, nutritional status, mental status.

A satisfactory state is characterized by clear consciousness, active or active with a limited position, straight posture, confident or partially disturbed (specific) gait, meaningful facial expression, satisfactory or excessive body weight, adequate mental reaction to the surrounding world and one's condition. Observed in the case of recovery, during the period of remission in case of long-term chronic diseases.

The condition of moderate severity is characterized by a change in facial expression and body position (often forced), a partial mental disorder, especially regarding one's condition (exaggeration or underestimation of complaints, symptoms to which the patient does not attach importance, doubts and lack of confidence in treatment). It is observed during the exacerbation of chronic or acute diseases, with injuries, poisoning, etc.

A severe condition is characterized by a disorder of all the above indicators: consciousness is disturbed (darkened, stupor, sopor). The facial expression changes (suffering, fear, indifference), the position of the patient (passive or forced), weight loss or obesity, the psyche changes (inadequate reactions to medical personnel, relatives). This condition is typical for decompensated patients with diseases of the heart, kidneys, endocrine glands and nervous system, oncological and infectious patients, as well as after operations, injuries, wounds.

A very severe condition is characterized by a sharp disturbance of consciousness (sopor, coma), a passive position, an indifferent or suffering facial expression ("Hippocrate's face"), difficulty or lack of contact with those around the patient. Observed in comatose states of various etiologies, shock states, agony.

Consciousness

Consciousness is a higher form of reflection of reality, characteristic only of humans, which is a set of psychological processes that make it possible to navigate in the surrounding world, time, evaluate one's own personality and ensure consistency, unity and variety of behavior. A clear and disturbed consciousness is distinguished.

The criteria for the patient's state of consciousness are:

1. Orientation in the surrounding world and adequacy of behavior.

2. Perception of the world (nature of answers to questions, adequacy of answers, timeliness of answers).

3. State of reflexes (sensitive, tendon, painful) and pupil reaction to light.

Clear consciousness is characterized by correct orientation in space and adequate behavior, timely and correct answers to questions, preservation of all reflexes.

Causes of unconsciousness or pathological conditions causing changes (suppression or disturbance) in the central nervous system:

1. Blood circulation disorder caused by: anemia in the form of unconsciousness, brain hemorrhage in the form of a prolonged comatose state (apoplexic coma), compression of the brain due to swelling, increased intracranial pressure in the form of precomatose states.

2. Intoxication of exo- and endogenous origin (ammonia, morphine, nitrogenous slags).

3. Infectious diseases (botulism, meningitis, tetanus).

4. Violation of metabolic processes (hormonal, mineral, acid-base status).

5. Mechanical injuries (craniocerebral trauma, fractures of skull bones).

There are 4 degrees of suppression of consciousness:

1. Obscured consciousness — a state of stupor in which the patient is poorly oriented in space, indifferent to his condition, answers questions adequately, but with a delay (infectious diseases, endo- and exo-intoxication).

2. Stupor — a state of immobility, stupor, disorientation in space, when the patient answers questions inadequately, with a delay, reflexes are preserved, but slightly slowed down (contusions, intoxication, mental illness).

3. Sopor — a state of deep sleep, from which the patient can be brought out only by a strong stimulus (a shout, a prick), after receiving an unequivocal sound in response, the patient "falls asleep" again, reflexes are preserved, but sluggish (severe febrile state, poisoning).

4. Coma is a state of unconsciousness, which is characterized by a complete loss of reactions to external stimuli: reflexes are absent, all muscles are relaxed, the functions of breathing and blood circulation are preserved at a minimal level.

Position of the patient

The condition of the patient usually indicates the severity of the disease, sometimes it can be determined by the specifics of the pathological process (meningitis, etc.). There are active, passive and forced position of the patient.

An active position is a position that the patient can arbitrarily change (walking, sitting, lying, standing), but unpleasant sensations and pain may appear at the same time. It is especially important to detect the ability to actively move in a lying patient, which indicates the preservation of his consciousness. However, it should be remembered that an active position may not always be a criterion for the severity of the disease (for example, the onset of serious and incurable diseases).

The passive position is a position when the patient, due to sudden weakness, sudden acute anemia or fainting, maintains the given horizontal (lying) position, which is often extremely uncomfortable. In most cases, the passive position indicates a severe, often unconscious state of the patient, although there may be exceptions (unconscious states — short-term unconsciousness). The passive position can be acquired by patients with severe infections, intoxications, with damage to the central nervous system (rash, typhoid and typhoid fever, miliary tuberculosis, comatose states, patients in a state of agony).

Forced position is a certain position that the patient acquires in order to reduce or stop unpleasant sensations (pain, cough, shortness of breath), thereby alleviating his condition.

Sometimes these conditions are so specific and characteristic that at first glance it is possible to determine the disease (meningitis, tetanus, attack of bronchial asthma).

The following types of *forced position* are distinguished: 1) standing; 2) sitting: leaning on the arms; without leaning on the hands; with the body leaning forward; squatting; 3) lying down: on the back; on the stomach; on the side (healthy, sick); 4) knee-elbow; 5) excited.

Patients acquire a forced standing position during an attack of angina pectoris that occurred while walking (sudden and severe pain in the area of the heart, a feeling of lack of air, fear force the patient to stop and "wait out" the attack, which may decrease or stop at rest); patients with obliterating atherosclerosis or angiospasm of the vessels of the lower extremities during walking suddenly stop and remain immobile, waiting for the spasm to stop; such stops may be repeated at first every 100-200 m, and with the progression of the process, this interval is shortened, hence the name "intermittent lameness". The standing position is less often acquired by patients with damage to the bladder and prostate gland.

The forced sitting position (ortopnoea) is caused by severe shortness of breath or shortness of breath. Such a position is acquired by patients with decompensated heart failure or a sharp limitation of the respiratory surface of the lungs, during an attack of bronchial and cardiac asthma. Orthopnea with resting on the hands is a characteristic forced position of the patient during an attack of bronchial asthma, caused by bronchospasm.

This position helps to ease shortness of breath due to smooth movements of the diaphragm in a sitting position, due to the uniform expansion of the chest during inhalation in all directions; fixation of the shoulder girdle (when leaning on the arms) and additional participation of auxiliary respiratory muscles. Patients with cardiac decompensation, including during an attack of cardiac asthma, acquire the orthopneic position without leaning on the arms.

Reduction of shortness of breath and relief of the patient's condition are achieved as a result of: a) redistribution of blood from a small circle of blood circulation to a large one due to its relative deposition in the vessels of the lower extremities and a decrease in the venous return of blood to the heart, which facilitates its work; b) the lowering of the diaphragm and the increase in the volume of the chest facilitates the work of the heart and lowers the pressure in the small circle of blood circulation; c) simultaneous improvement of blood circulation in the vessels of the brain, which reduces the excitability of the respiratory center and reduces shortness of breath.

In addition to the conditions listed above, patients can acquire a forced sitting position in case of narrowing of the respiratory tract, a sharp decrease in the respiratory surface of the lungs, a high position of the diaphragm with increased intra-abdominal pressure; in case of severe cardiac decompensation, partial paralysis of respiratory muscles.

Patients with exudative pericarditis, aortic aneurysm, pancreatic cancer, and severe abdominal pain acquire the sitting position with *the body bent forward.* in this position, the work of the heart and lungs improves.

Patients often acquire a *crouching position* during an exacerbation of peptic ulcer disease.

The forced position lying on the back is more often acquired by patients with an acute abdomen (peritonitis, perforation of a stomach and duodenal ulcer, gastrointestinal bleeding, acute appendicitis, acute cholecystitis). At the same time, patients often bend their lower limbs in the knee joints, thereby reducing the tension in the muscles of the abdominal wall. The forced position of the patient lying on his back (almost complete immobility) is observed in the articular form of acute rheumatism, as well as in weakened patients in a state of unconsciousness. The forced position of the patient lying down with a high headboard is typical for patients with decompensated heart defects (mitral stenosis) and heart failure (acute and chronic II-III stages).

Patients with a tumor of the head of the pancreas, acute thrombosis of the splenic vein, peptic ulcer of the stomach with localization of the ulcer defect on the back wall, as well as trauma

or tuberculosis of the spine, bedsores on the back and buttocks can acquire *the forced position of the patient lying on his stomach.*

Forced position of the patient: on the affected side with lesions of the respiratory organs: croup pneumonia, massive lung tumor, exudative pleurisy - to reduce shortness of breath by reducing pressure and ensuring hyperventilation of a healthy lung; lung abscess, tuberculous cavity, bronchiectasis - in addition to the reasons listed above, it reduces cough due to the delay in the release of sputum and cavity contents: dry pleurisy - to reduce pain by limiting the friction of pleural sheets. Also, patients with acute appendicitis can lie on the affected side, thereby reducing the tension of the mesentery of the excited appendix and, as a result, reducing pain. A forced position on the healthy side is acquired by patients with rib fractures, intercostal neuralgia, as well as patients with cardiovascular diseases.

Forced position of the patient in the "lying dog" position. "chicken position" , "question mark position" (lying on the side with the head thrown back and the legs bent at the knees) is typical for patients with cerebrospinal meningitis. This position is due to the stiffness of the occipital muscles and, if possible, provides a reduction in the tension of the meninges and spinal membranes to relieve pain.

Forced knee-elbow position of the patient is characteristic of patients with exudative pericarditis (to reduce shortness of breath and pain, due to reducing pressure on the inferior vena cava and facilitating diastolic blood filling of the heart), pancreatic tumor, gastric ulcer with localization of the ulcer on the back wall (to reduce the pain syndrome by reducing pressure and irritation of the solar plexus).

Forced excited (restless) position of the patient (the patient is in continuous motion: constantly turns over in bed: now sits down, then lies down again, rolls on the floor, runs) is observed with severe pain, especially with renal, hepatic, intestinal colic.

Posture

Posture is the usual position of the body when standing, walking, or sitting. Posture is determined by the state of muscle tone, the ligamentous apparatus, as well as their innervation and blood supply, the patient's well-being and mood, and characterizes the general tone of the body. And the posture is also influenced by the profession ("military" posture) and constitutional features (in hypersthenics, due to increased muscle tone, strength of the ligamentous apparatus, and immobility of the joints, the posture is straight, and in asthenics, due to the opposite features, the sign of a normal posture is considered to be a downy head, lethargic drooping shoulders and arms, hunched back).

Straight posture - "Gordian posture" - smooth gait, free, unforced movements indicate the well-being of the body. Physiological straight posture is observed in healthy people, hypersthenics, military personnel. Straight posture as a pathology is observed in Bekhterev's disease, ascites, massive tumor of the abdominal cavity.

Sluggish posture - drooping shoulders, difficult gait, sluggish movements indicate a serious condition physical or mental condition. Physiological lethargic posture is characteristic of asthenics, old people, persons engaged in hard physical work, it is observed in diseases of the nervous, endocrine systems and musculoskeletal system, as well as in injuries.

The patient's gait

Gait is a set of features of posture and movements during walking. Individual features of gait consist of step size, walking speed, body and head position, joint hand movements. In addition, the gait depends on the state of the musculoskeletal system, the nervous system, as well as on the

constitutional type, temperament, upbringing, profession (the gait of soldiers, sailors, dancers). The gait of a healthy person is firm, confident, without special tension and effort.

Depending on the state of the musculoskeletal system and its innervation. local painful sensations, less often - from the damage of internal organs, a number of varieties of specific gait are observed, which help in the diagnosis of this or that pathology.

Hemiplegic gait (mower's gait) is characterized by excessive insertion of the affected leg to the side, as a result of which the patient describes a semicircle during each step, and the corresponding arm is bent at an angle and brought to the body; characteristic of patients with central hemiparesis.

Rooster's gait is characterized by a high lifting of the leg, throwing it forward and a sharp lowering with a slap to the floor, observed in the case of damage to the peroneal nerve. Cerebellar gait is characterized by a wide spread of the legs while walking, swinging of the trunk, balancing with upward movements; observed in case of damage to the cerebellum, intoxication, large blood loss, nervous stress, severe cooling. The duck gait (wobbly) is characterized by slow, uncertain small steps "rolling over", difficulty in lifting the legs, which is compensated by tilting the trunk in the opposite direction; it is observed in myopathy, subluxation of the hip joint, osteomalacia of the hip joint, residual poliomyelitis. Proud gait - when walking, the upper part of the trunk deviates back to maintain balance during pregnancy, ascites, tumor of the abdominal cavity. Senile, senile gait is characterized by small shuffling steps, with uncertain and uncoordinated joint movements of the hands; characteristic of patients with pronounced cerebral atherosclerosis. Lameness is a gait disorder characterized by asymmetric movement of the legs. Intermittent ischemic lameness — periodic paresthesias and pain in the lower legs when walking, forcing the patient to stop; characteristic of obliterating atherosclerosis of the vessels of the lower extremities.

The patient's face

You can learn a lot from facial expressions. The doctor can obtain quite important diagnostic and prognostic data, reveal the patient's experiences. Age, gender, and constitution affect facial expression. At a young age, the face is mobile, expressive, frank, at a mature age, it is calmer, restrained, and at an old age, the features of the face harden, it loses its expressiveness. Men's facial features are larger, distinguished by secondary sexual characteristics (beard, mustache), while women's features, on the contrary, are smaller and softer.

Specific facial changes may be a sign of some pathological conditions. For example, the discrepancy between biological and passport age: the appearance of patients with rheumatism, congenital heart defects, hypofunction of sexual and endocrine glands is younger, and patients with peptic ulcers, oncological diseases, on the contrary, are older than the passport age.

The diagnostic value of the patient's face

The face of a patient with pneumonia is characterized by a unilateral blush on the side of the inflammation (due to reflex expansion of blood vessels), a slight puffiness with an aged expression, a grimace that occurs during coughing (due to soreness) with the "play" of the wings of the nose (as a result of shortness of breath), often with herpes blisters on the lips.

The face of a patient with pulmonary tuberculosis is thin, pale, with a bright blush on the cheeks, with wide-open "burning" shiny eyes, often with a bluish tint to the sclera, with a half-open

mouth, dry lips and an excited expression. The face of a patient with adenoids is characterized by an open or half-open mouth, a slightly drooping lower lip, and scrotum (caused by congestion in the nasopharynx); more often observed in children.

"Aortic face" is characterized by pallor of the skin (as a result of the relative lack of blood in the large circle of blood circulation - "aortic pallor"); observed in aortic defects, more often in stenosis.

"Mitral face" - youthful, puffy, with stagnant (cyanotic, cherry) blush on the cheeks in the form of a mitral butterfly and pronounced acrocyanosis; characteristic of decompensated mitral defects, especially mitral stenosis.

Corvisar's heart face: bloated, the eyes seem to be constantly watering, the look is dull and sleepy, the complexion is a mixture of yellowish paleness and blueness, the mouth is constantly half-open, the lips are slightly protruding; characteristic of severe heart failure.

Acromegalic face: sharp development of the eyebrow arches, disproportionately large nose, lips, ears, chin, excessive development of the lower jaw, which causes the teeth to diverge; observed in acromegaly.

Base face: mobile, with rich facial expressions, quickly reddens, moist, large, wide-open, bulging, non-blinking, shiny eyes (exophthalmos), which give the face an expression of frozen fright, fear, anger; characteristic of thyrotoxicosis, Basedov's disease.

Myxedematous face: broad, round like the moon, with dry pale yellow skin, devoid of the outer parts of the eyebrows, with vague features, deep set eyes. Sometimes a blush appears on the bloated and motionless pale face (resembles the face of a doll); characteristic of hypothyroidism and myxedema.

Cushingoid face: round, moon-shaped, with intense red shiny skin and hypertrichosis phenomena (mustache, beard in women); characteristic of Cushing's disease or Itsenko-Cushing syndrome, or in the case of long-term use of glucocorticoid drugs.

Lupus face: erythema in the form of a lupus butterfly, the body of which is located on the back of the nose, and the wings are on the shocks; characteristic of systemic lupus erythematosus.

*"Face of Hippocrates" (*peritoneal face): pale as a dead man, with a bluish earthy hue, with sharply sharpened features, with deep sunken, tormented eyes, large drops of cold sweat on the forehead; characteristic of conditions accompanied by collapse caused by purulent peritonitis, severe enterolith, vascular paralysis in dying patients. "Hippocrate's face" is an unfavorable prognostic sign.

Nephrotic face: sharply swollen, pale gray shade, with swollen eyelids and narrow eye slits, distorted beyond recognition; characteristic of edematous forms of acute glomerulonephritis.

An asymmetrical face is characterized by one-sided flattening of the nasolabial fold, lowering of the opposite corner of the mouth; caused by damage to V-VII cranial nerves; observed in patients who have suffered a stroke, neuritis of the trigeminal or facial nerves.

Skin

The skin is the outer covering of the body, which performs the functions of body protection, metabolism, thermoregulation, and is an organ of sense. Examination of the patient's skin is carried out by examination in daylight. During the examination, it is worth paying attention to such features of the skin as color, the presence of skin elements (including hemorrhages, bedsores, ulcers), changes in subcutaneous veins.

Skin color. In healthy people, the skin is flesh-colored, without scars and rashes, moderately moist, elastic, with preserved turgor. The color of the skin is determined by the presence of pigment and depends on the degree of development of the vascular network, the amount of blood, the chemical composition of the blood, the thickness of the skin itself, and its innervation.

In pathological conditions, the skin can change its color, which depends on thickness, blood supply, innervation and can be temporary in physiological conditions (fear, high or low ambient temperature); yellowness, bluishness, bronze color, gray-earthy and aspid color of the skin are usually caused by a change in the chemical composition of the blood (increase in carbon dioxide, bilirubin) and occur only in pathology, with the exception of physiological jaundice of infants (in the first days after birth).

Physiological paleness can occur in the case of a decrease in the content of pigment in the skin or its congenital absence (albinism), a decrease in transparency and weak development of the vascular system; and can also be caused by vasomotor reactions of central (fear, fear) and peripheral (effect of low temperatures) origin.

Pathological paleness of the skin can be caused by a change in its qualitative composition or volume of circulating blood: blood diseases (anemia, leukemia, etc.); acute and chronic infections with hemolysis of erythrocytes (malaria, sepsis, bacterial endocardium); chronic intoxications (malignant neoplasms, chronic poisoning); an absolute decrease in the amount of blood due to blood loss or internal bleeding; a relative decrease in the amount of blood due to spasm (shock, collapse, fainting, arterial hypertension) or compression of blood vessels (non-inflammatory edema of renal and cardiac origin, myxedema).

The speed of development of pallor is of great diagnostic and prognostic importance: sudden sharp pallor ("on the eyes"), which is accompanied by an unconscious state, a different decrease in blood pressure and a thread-like pulse, indicates acute internal bleeding, which threatens life and requires urgent help.

Physiological hyperemia can be observed with the surface location of vessels or with vasomotor reactions (work in hot workshops, exposure to the sun, excitement, drinking alcohol) in the form of spots on the skin (more often on the face and neck); characterized by lability and unevenness.

Pathological hyperemia is observed in chronic diseases of hematopoietic organs due to an increase in the number of erythrocytes, an increase in the level of platelets, hemoglobin; as a result of vasodilation in febrile conditions; Itsenko-Cushing's disease; bilateral blushing of the face is characteristic of mitral stenosis, systemic lupus erythematosus, pulmonary tuberculosis; one-sided blushing is observed with pneumonia, migraine on the affected side, diffuse hyperemia — with the use of drugs (nicotinic acid, atropine, opium and morphine drugs).

Cyanosis or cyanosis is a bluish-purple color of the skin and mucous membranes, caused by a change in the quality of the blood (excessive content of carbon dioxide and reduced hemoglobin) or venous stasis. Depending on the prevalence, diffuse, peripheral (acrocyanosis) and local cyanosis are distinguished.

Diffuse (general) cyanosis is observed as a result of impaired gas exchange in the lungs during respiratory diseases (broncholitis, severe pneumonia, emphysema, edema, lung atelectasis, bronchial asthma attack, pulmonary embolism, etc.); poisoning with hemolytic poisons (Bertolet salt, nitrobenzene); mixing of blood in congenital defects (non-union of the interventricular and interatrial septa); peripheral cyanosis or acrocyanosis is observed with venous stasis and accumulation of reconstituted hemoglobin in the blood of patients with heart failure. Local cyanosis

is observed as a result of compression of vessels and paresis of vasomotor nerves in patients with thrombophlebitis.

Jaundice of the skin and mucous membranes is due to an increase in the content of bilirubin in the blood (bilirubinemia). The color of the skin depends on the degree of bilirubinemia (from light lemon to yellow-hot and greenish). It is better seen in daylight. Physiological, pathological and pseudojaundice are distinguished.

Physiological jaundice is observed in infants in the first 5-7 days (physiological jaundice of infants), caused by hemolysis of an excessive number of erythrocytes as a result of the body's restructuring and adaptation to external breathing. Pseudojaundice can occur in case of excessive use of carrots and oranges, use of acrichin and picric acid; it is more often localized on the palms and feet (the mucous membranes never turn yellow).

Pathological jaundice, depending on the causes, is conditionally divided into the following types: suprahepatic or hemolytic, caused by increased hemolysis of erythrocytes (malaria, sepsis, poisoning with hemolytic poisons); hepatic or parenchymal, due to damage to hepatocytes (viral hepatitis, poisoning with hepatotoxic poisons); subhepatic or mechanical, caused by a violation of the outflow of bile due to compression of the bile ducts (tumor of the pancreas, cicatricial changes in the area of the large papilla of the duodenum - fatter).

Yellow color in pathological jaundice appears first of all on the soft palate, sclera, mucous membranes of the lips, then the skin turns yellow, and finally the skin of the palms and feet; these manifestations disappear in the reverse sequence.

Swelling (Edema)

Edema - excessive accumulation of fluid in the tissues of the body, caused by increased permeability of the vascular wall (allergic, inflammatory, toxic); an increase in intravascular pressure due to stagnation and retention of fluid in the body (congestive, lymphatic, renal); a decrease in oncotic pressure (cachectic, renal); hypothyroid edema (myxedematous). Common edemas include cardiac, renal, cachectic, angioneurotic. inflammatory (rheumatoid arthritis), and local - congestive (thrombophlebitis), inflammatory (pus, infiltration), allergic (insect bites).

Methods of detecting edema:

• visual: smoothing of the contours is observed, the skin is swollen, shiny, sometimes transparent with dystrophic changes;

• palpable: pits appear after pressing on the skin, which persist for 1-2 minutes, with the exception of myxedema (pits do not remain);

•weighing: determination of body weight in dynamics to detect hidden swellings.

The expansion of the subcutaneous veins on the anterior abdominal wall forms a peculiar pattern, which has received the name "jellyfish head", this is caused by the formation of cava-caval anastomoses with increased pressure and congestion in the portal vein system. It is observed in patients with portal cirrhosis of the liver, with heart failure (blood stasis in a large circle of blood circulation).

BODY TEMPERATURE.

RULES OF MEASUREMENT AND REGISTRATION.

CARE OF PATIENTS WITH FEVER.

The role of temperature homeostasis in ensuring the vital activity of the organism. Body temperature is an important diagnostic and prognostic indicator of the patient's condition, since its increase in most cases indicates the development of the disease, the peculiarities of its course and the body's reaction to the pathological process. Under normal conditions, the constant temperature of the human body (36.4-36.8 °C) is maintained due to the balance of heat production and heat transfer processes thanks to heat regulation, allowing daily fluctuations only within 1 °C.

The basis of thermoproduction is the chemical processes of metabolism in the liver and muscles (chemical thermoregulation), and the basis of heat transfer (physical regulation) is radiation from the surface of the skin (70%), sweating (16%), release of heated air during breathing (13%), and 1% of heat is released with urine and feces. The nervous-vegetative (hypothalamic-pituitary system and sympathetic fibers of the central nervous system) and endocrine systems (thyroid gland and adrenal glands) take part in the mechanism of thermoregulation. Maintaining a constant body temperature (temperature homeostasis) makes it possible to ensure the vital activity of the organism in a wide range of environmental temperature fluctuations.

Measuring body temperature is called thermometry (from the Greek thermos — heat, heat, nutreo — to measure). A distinction is made between thermometry: direct (by touch) using the back surface of the hand (applying to the skin of the back) and indirect using a medical thermometer.

Methodology of thermometry. Thermometry is carried out using a medical thermometer with a shortened scale from 35 to 42 degrees Celsius with divisions of 0.1 °C. The level of the mercury column of this thermometer does not fall during cooling, but remains at the maximum height due to the narrowing of the glass capillary at this moment. To reduce the level of mercury in the capillary, the thermometer must be shaken.

Time of measurement — twice a day: in the morning from 6 to 8 a.m. (morning minimum of daily temperature fluctuations) and in the evening from 5 to 7 p.m. (evening maximum). If the need arises (short-term or irregular increases, crises in sepsis, rheumatism, tuberculosis), thermometry is carried out every 2-3 hours during the day, including night time, but without burdening the patient.

Position of the patient. Thermometry is carried out in a state of rest while sitting, and preferably in a lying position. Places of measurement: armpits, inguinal folds, oral cavity (in children), rectum (state of unconsciousness; excessive disturbances in children; suspicion of simulation). Duration of thermometry — 8-10 minutes.

MEASUREMENT OF THE BODY TEMPERATURE IN THE AXIMAL Fossa AND INCONIC FOLD

1. Check the mercury level in the thermometer. If the mercury is above 34 °C, shake the thermometer several times and check the mercury level again.

2. If the skin in the armpit is wet, wipe it with a towel.

3. Place the end of the thermometer with the mercury reservoir in the armpit and ask

have the patient bring the arm bent at the elbow to the body and hold it like that for 8-10 minutes.

4. Enter the temperature readings in the temperature sheet.

5. Disinfect the thermometer.

6. For young children, the body temperature is measured in the inguinal fold, bent over

leg in the hip joint.

MEASUREMENT OF BODY TEMPERATURE IN THE ORAL CAVITY

1. The reservoir of the thermometer with mercury is stirred under the patient's tongue and asked to

he held the body of the thermometer with his lips.

2. After 5 minutes, enter the thermometer readings in the temperature sheet.

3. Disinfect the thermometer.

MEASUREMENT OF THE BODY TEMPERATURE IN THE RECTUM

1. Put the patient on his side.

2. Lubricate the reservoir of the thermometer with petroleum jelly.

3. Insert the reservoir of the thermometer behind the diverter sphincter.

4. After 5 minutes, determine the reading of the thermometer, enter the data into the temperature record

leaf.

5. Disinfect the thermometer.

Registration of body temperature indicators is carried out after each measurement in the form of a temperature curve and in the patient's medical record. The value of the scale division "T" of the temperature sheet is 0.2 °C. The temperature is plotted in the form of a dot in the graph of the corresponding date, time of day (morning, evening) and temperature indicator on the "T" scale. Connecting these points with lines, we obtain a temperature curve.

Disinfection of medical thermometers

• After using the thermometer in folds, soak it in a 1% solution of chloramine for 30 minutes or in a 3% solution of hydrogen peroxide for 80 minutes.

• Rinse with water and wipe dry.

• After measuring the temperature in the rectum, soak the thermometer in a 3 °C chloramine solution for 1 hour, if necessary, degrease, rinse with water and wipe dry.

Modern thermometers are electric and based on liquid crystals.

The principle of operation of the thermometer on liquid crystals - "Thermotest" - consists in changing the color of liquid crystals when the body temperature changes. This is a polymer plate covered with an emulsion of liquid crystals, which is applied to any part of the body: at a temperature of 36-37 °C, the letter "N" ("Norma") is illuminated in green on the plate, and at a temperature of more than 37 °C - “ F ” (“ Febris ”) is fever.The more sophisticated electric thermometers give an indication of the temperature level in numerical notation.

Normally, the average daily temperature of an adult's body is 36.4-36.8 °C and during the day it fluctuates approximately within 1 °C: from 36.0-37.0 °C (in the armpit) and 36.5-37 .5 °C (in the rectum). The highest body temperature is recorded at 4-6 p.m., and the lowest at 3-6 a.m. Physiological fluctuations in body temperature depend on age: in children, due to the high intensity of metabolism, the average body temperature ranges from 36.9 to 37.2 °C, and in the elderly and

senile, it ranges from 36.0 to 36.5 °C; as well as from the intensity of muscle work, nutrition, emotional state of a person. At temperatures above 42.5 °C and below 33 °C, irreversible metabolic disorders and cell changes occur that are incompatible with life.

A disorder of thermoregulation can lead to either a steady increase in body temperature (if heat production prevails) — hyperthermia, or to its decrease (if heat release processes prevail) — hypothermia.

NB!

The Verkhovna Rada of Ukraine passed a law prohibiting the use and sale of mercury thermometers and batteries.

This was reported by the Ministry of Environmental Protection and Natural Resources of Ukraine.

The Parliament adopted draft law No. 0199 "On the accession of Ukraine to the Minamata Convention on Mercury". According to the document, from January 1, 2024, Ukraine will stop the production, import and export of products containing mercury.

The Minamata Convention on Mercury was adopted in 2013 and entered into force in 2017. The convention was named after the city of Minamata in Japan, where almost 2,000 people were poisoned by mercury from industrial wastewater in the late 1950s. The poisoning caused Minamata disease - a syndrome of impaired vision and hearing, and in severe cases - paralysis and impaired consciousness, the cause of which is poisoning by organic compounds of mercury.

The convention, which has been signed by 140 countries, provides for a phase-out of the use of mercury, namely:

- restriction of supply and trade, gradual rejection of the use of mercury and its compounds;
- prohibition of the creation of new enterprises for the extraction of primary mercury;
- current primary mercury mining enterprises are subject to a ban until 2032;
- gradual stoppage of production processes that use mercury or mercury compounds;
- establishing a ban on production, import and export of products containing mercury.

Products subject to recall include:

- batteries (except silver-zinc button batteries with a mercury content of <2%, zinc-air button batteries with a mercury content of <2%);
- most switches and relays;
- small-sized fluorescent lamps with a power equal to or less than 30 W and with a mercury content of more than 3.5 mg per lamp;
- tubular fluorescent lamps - three-band lamps with a power of less than 60 W, containing more than 5 mg of mercury;
- halophosphate lamps with a power of less than 40 W, containing more than 10 mg of mercury;
- high-pressure mercury lamps;
- various mercury lamps with a cold cathode and fluorescent lamps with external electrodes;
- cosmetic products, in particular for skin lightening, with a mercury content of more than 1 part per million, with the exception of mascara and other eye cosmetics (since there are no available and safe alternatives in this case);
- pesticides, biocides and antiseptics for external use;
- non-electronic devices, such as barometers, hygrometers, manometers, thermometers and sphygmomanometers (devices for measuring blood pressure);
- dental amalgam (material for fillings, which uses the ability of mercury to dissolve some metals).

What to do if a mercury thermometer is broken?

1. Put on rubber, nitrile or latex gloves.

2. Carefully pick up the debris from the thermometer and place it on a piece of paper towel. Roll it up and place it in a resealable plastic bag (or zip-top bag).

3. Use a scraper or piece of cardboard to collect the mercury particles into a small ball. Movements should be calm so that the mercury does not spread uncontrollably around the apartment.

Mercury can travel long distances, so it's important to look around the room and look in all the cracks. Use a flashlight in a dark room.

4. Use a pipette to collect mercury crumbs. Then carefully squeeze the mercury out of the pipette onto a damp paper towel.

Using two sheets of cardboard, wrap the mercury in a towel. Place the towel in a ziplock bag, seal, and label as mercury.

5. After you have collected the large particles, take some shaving cream and apply it to the brush. Brush the infected areas - this will help to collect very small particles of mercury.

As another option, you can use tape to collect the small glass and mercury. It is important to slowly peel it off the surface so that the mercury has time to stick to the adhesive tape.

Also put the tape and the brush in a zip bag and label it.

After cleaning, ventilate the room for 24 hours.

6. All things contaminated with mercury must be taken to disposal points. Their addresses can be found out from the employees of the State Emergency Service of Ukraine or from the district state administration.

WHAT NOT TO DO

Use a vacuum cleaner: it will only disperse the mercury in the air.

Use a brush or broom to clean: this will break the mercury balls into individual particles and spread them around the house.

Do not pour mercury down the drain: it can settle in the water system and cause repair problems in the future. It can also infect a septic tank or sewage treatment plant.

Do not walk in shoes that may be contaminated with mercury. Clothing can also be a source of mercury.

IF COLLECTION OF MERCURY FAILS

If the mercury from the thermometer ended up in hard-to-reach places, or you don't know where it is at all, for example, you found the device broken, and there was no mercury nearby, then you need to call the specialists of the State Emergency Service.

In Kyiv, this can be done by calling 044 353 26 35. In other cities, you should ask for contacts at the State Emergency Service. Specialists will go to the place and measure the presence of mercury vapors and their level. In the event of an increase in the permissible level of vapors, the room will be demercurized with special solutions.

Hyperthermia

Hyperthermia is a sustained increase in body temperature to over 37 °C. It happens much more often and is worse tolerated by patients, because in addition to the harmful effects of high temperature, self-poisoning of the body with products of enhanced intermediate metabolism occurs. An increase in body temperature to more than 41-42 °C threatens a person's life. Typical examples of hyperthermia are sunstroke and heatstroke.

Hyperthermia, which develops under pathological conditions and is accompanied by metabolic disorders, disorders of most body functions (respiration, blood circulation, nervous and endocrine systems, urination, etc.), is called fever. This is a complex protective and adaptive reaction of the body, which occurs in response to the effects of pathogenic stimuli and is expressed by the restructuring of metabolism and thermoregulation, which leads to an increase in body temperature.

All causes of fever can be conventionally divided into the following: infectious processes of various origins (infectious diseases and any infection that causes a local or general reaction of the body): non-infectious processes accompanied by tissue breakdown and the development of autoimmune or aseptic inflammation (myocardial infarction, tumor disintegration , major injuries, burns, operations, blood transfusions); violation of the functions of thermoregulatory systems, endocrine (subfebrile in case of hyperfunction of the thyroid gland); central neuritis, including functional disorders ("thermoregulatory neurosis"), accompanied by subfebrility: increased heat production due to prolonged strenuous muscle work (convulsive syndrome): "fever of unknown origin" syndrome — an increase in body temperature to more than 38 °C lasting no less than 3 weeks

The main clinical symptom of fever, the most vivid and easily determined, is an increase in body temperature, which has great symptomatic and diagnostic value.

Types of fever

Depending on the nature of the temperature increase (altitude, duration, daily fluctuations, time, etiology), the following types of fever are distinguished: by altitude — subfebrile — 37-38 °C; moderate — 38-39 °C; high — 39-41 °C; hyperpyretic or excessive — above 41 °C; by duration — such that it passes quickly (ephemeral), — within a few hours, but no longer than 1-2 days; acute - up to 15 days; subacute — up to 45 days; chronic — more than 45 days.

Classification of fever according to the nature of daily fluctuations:

• constant fever — high, not lower than 39 °C, lasting with slight fluctuations in body temperature (not higher than 1 °C); characteristic of typhoid fever;

• debilitating, or remitive, — fever with a daily fluctuation of body temperature higher than 1 — 1.5 °C, and, decreasing, the temperature drops to 38 °C (not to the normal level); observed in bronchopneumonia, purulent diseases;

• intermittent, or intermittent — alternating periods of high body temperature (39-40 °C) during the day with periods of subnormal temperature (below 36 °C) and rising again for 2-3 days; typical for malaria;

• reversible — fever with a regular change from a period of high fever (up to 39-40 °C and above) to a period of a sudden decrease in temperature to normal lasting several days, then a period of fever and a subsequent decrease in temperature occurs again; pathognomonic for relapsing typhus;

• wave-like, or undulating, — change in periods of gradual increase in body temperature to high numbers and its gradual decrease to subfebrile or normal; characteristic of brucellosis, lymphogranulomatosis;

• hectic, or exhausting, long-lasting fever with a large daily fluctuation of 3-4 °C and a rapid decrease in body temperature to normal or even lower; these fluctuations are accompanied by significant sweating, debilitating weakness, repeated 2-3 times a day, characteristic of the final stage of pulmonary tuberculosis, sepsis;

• inverted — fever with a reversible type of daily fluctuations, when the morning temperature is higher than the evening temperature, usually combined with a debilitating fever, which is observed in the case of a severe course of tuberculosis and septic conditions;

• irregular, or atypical, fever of indefinite duration with irregular and various daily fluctuations; observed in many diseases: (influenza, diphtheria, dysentery, acute rheumatism, endocarditis, tuberculosis, euritis, sepsis, etc.);

• Pele-Ebstein's fever — constant fever lasting 8-10 days, followed by a fever-free period lasting 10-14 days; observed in lymphogranulomatosis.

Classification of fever by etiology:

• infectious — fever that occurs during infectious diseases, caused by the effect on the body of the products of the pathogen's metabolism or decay, as well as endogenous pyrogens that are formed during infectious processes;

• purulent-resorptive (wound toxic-resorptive, Pirogov-Pasteur-Lister fever) — fever caused by the absorption of toxic products from the focus of inflammation;

• non-infectious - fever not caused by an infectious process, but more often caused by aseptic autoimmune tissue damage, irritation of non-sweat receptor zones, release of pyrogenic substances into the body;

• alimentary — fever in infants, caused by inadequate composition of food, more often in case of lack of water in the body);

• salt fever develops with uncompensated retention of sodium chloride in the body; observed in infants in case of nutritional disorders;

• milk — fever that occurs due to stagnation of milk in the mammary glands.

Stages of fever and their brief characteristics

In the course of fever, 3 stages or periods are distinguished: the stage of increasing temperature or the stage of growth, the stage of maintaining a high temperature or the stage of inflaming, and the stage of decreasing temperature.

The stage of increasing or increasing temperature is characterized by a rapid (within several hours), slow (within several days) or very slow (within a week) increase in body temperature, which is caused by a decrease in heat output due to spasm of peripheral blood vessels. A rapid increase in temperature is often accompanied by chills, headache, aching pain throughout the body; observed with croup pneumonia, rabies, scarlet fever, malaria, typhoid fever, a slower onset is characteristic of typhoid fever.

The incendiary stage or peak is the stage of maintaining the temperature at a high level lasting from several hours to several weeks. During this period, both heat production and heat transfer are simultaneously enhanced. Patients complain of a feeling of heat, general weakness; In the event of a significant increase in temperature, delusions and hallucinations may occur, and sometimes patients may faint. During a fever, the metabolism is disturbed first of all: on the one hand, the appetite, the processes of digestion and absorption of nutrients deteriorate, which is accompanied by the burning of the body's own tissues (carbohydrates of the liver, adipose tissue, the body's proteins break down); on the other hand, the processes of combustion of substances are disturbed (increased decomposition of substances does not occur completely), which leads to the accumulation of underoxidized intermediate substances in the body, which poison the cells and tissues of the body. In connection with a decrease in kidney function, the removal of toxic metabolic products is impaired. Poisoning of the central nervous system by under-oxidized metabolic products is manifested by a headache, and sometimes by impaired consciousness, delirium, and hallucinations. From the side of the cardiovascular and respiratory systems, a decrease in blood pressure (BP), acceleration of the pulse and breathing is observed in proportion to the height of the temperature.

The stage of lowering body temperature can occur with a rapid decrease in temperature within several hours — a critical decrease, crises (croupous pneumonia, malaria) or a gradual decrease over several days — a lytic decrease, lysis (typhoid, scarlet fever). Lytic lowering of body temperature occurs gradually and is safe for the patient. A critical decrease in temperature can have adverse consequences; a sharp decrease in temperature, accompanied by profuse sweating, can lead to the development of acute vascular insufficiency - collapse. The patient's condition worsens sharply: the pulse becomes frequent, weak, breathing is frequent, shallow, consciousness is confused; the patient is pale, covered with cold sweat. If you do not provide immediate help, the patient may die.

After a fever, during the recovery period, a drop-in body temperature to subnormal values with no daily fluctuation (monothermia) is often observed. A temporary increase in temperature in the post-febrile period (cholera, typhoid and typhoid, croup pneumonia) should be considered when differentiating possible complications and relapses.

And, finally, the course of fever and the general appearance of the temperature curve are of great diagnostic value, which is often so characteristic that it makes it possible to draw a correct conclusion about the disease, its type and course (malaria). A typical temperature curve is typical for typhoid fever, typhoid fever, typhoid fever, measles, scarlet fever, smallpox, croup pneumonia, malaria, and brucellosis. Atypical temperature curves are observed with influenza, acute rheumatism, diphtheria, dysentery, tuberculosis, purulent sepsis. Often the abnormal fever itself has a diagnostic value.

Care of patients with fever

CARE OF THE PATIENT IN THE STAGE OF TEMPERATURE INCREASE

- Put the patient in bed.
- Wrap up warmly with a blanket.
- Put heating pads on your feet.
- Give a hot drink (milk with honey, tea with raspberries, viburnum, linden).

CARE OF THE PATIENT IN THE STAGE OF HIGH TEMPERATURE

• Apply a cold lotion (one tablespoon of vinegar to a glass of cold water) on the forehead to relieve headache.

• Feed the patient 6-7 times a day (even at night) with high-calorie, easily digestible, vitaminized liquid or semi-liquid food (broth, mashed potatoes, milk, sour cream, kefir, fruits, berries).

• Give the patient a drink often, but in small portions (broth of rose hips, milk with honey or sodium bicarbonate (baking soda), vegetable, fruit and berry juices, alkaline mineral water) to remove toxins from the body.

• After eating, rinse your mouth with boiled water. Do oral hygiene several times a day. Lubricate the cracks on the lips with St. John's wort or sea buckthorn oil or a 10% solution of borax in glycerin.

• Timely change underwear after sweating; perform skin treatment.

• Prevent bedsores, inflammation of the lungs: make sure that the patient does not stay in one position for a long time, especially on the back; turn him on his side, give a semi-sitting position.

• Regularly ventilate the room, but without drafts, having previously wrapped the patient.

During the entire period of fever, the patient should observe bed rest.

CARE OF PATIENTS IN THE STAGE OF UNCONSCIOUSNESS AND HALLUCINATIONS

Remember! Be very attentive to the patient if he is in a state of delirium and hallucinations, because such a patient can injure himself and those around him.

• At the first signs of fainting, notify the doctor and increase vigilance when caring for such a patient.

• Create complete peace for the patient and, if possible, organize an individual post of a nurse, a junior nurse or the patient's relatives.

• If possible, isolate the patient.

• Fix the patient in bed using special belts.

• Administer medications to the patient (intramuscular 50% analgin solution — 2 ml, 1% diphenhydramine solution — 1-2 ml, 2.5% aminazine solution — 2 ml) as prescribed by the doctor.

• Use physical methods of lowering the temperature: cold lotions and wraps, a bubble with ice on the head, heating pads with cold water on the carotid and brachial artery (at a temperature above 38 °C). The specified cooling methods should be used only after chemotherapeutic agents that eliminate spasm of skin vessels and affect thermoregulation centers; otherwise, cooling will increase heat production and increase hyperthermia.

CARE OF PATIENTS IN THE STAGE OF DECREASING THE BODY TEMPERATURE

During the care of patients in the stage of lowering body temperature, measures are taken, as in the stage of increasing body temperature. Pay special attention to the condition of the patient's cardiovascular system with a critical decrease in high body temperature: in the case of profuse sweating, dehydration of the body occurs, which can cause collapse.

Emergency care in case of collapse

1. Lower the head end of the bed (functional bed), remove the pillow from under the patient's head.

2. Raise the foot end of the bed by 30-40 cm. Call a doctor.

3. Let the patient drink strong sweet tea or coffee.

4. Put a heating pad at your feet.

5. Administer subcutaneously 1 ml of a 10% solution of caffeine-sodium benzoate and 2 ml of a 10% solution of sulfocamphocaine as prescribed by a doctor.

6. When the patient's condition improves, change the underwear and bedclothes.

Materials on the activation of students of higher education during the lecture:

questions, situational problems, etc.

1. How to measure the body temperature of a seriously ill patient?

2. How to disinfect thermometers?

3. What types of temperature curves do you know?

4. Name the periods of fever and the features of patient care in each of these periods.

5. Name options for reducing body temperature in patients with fever.

6. Emergency aid in case of collapse.

Questions for self-control:

1. The value of a general examination in the diagnosis of diseases of internal organs.

2. The patient's condition: types, assessment criteria and diagnostic value. Consciousness: assessment criteria, types of disorders and their causes, diagnostic value.

3. Gait: types, assessment criteria, causes of disorders, diagnostic significance.

4. Position of the patient: types of positions, their causes and diagnostic value.

5. The patient's face: age and features, specific faces with pathologies of various organs and systems; their pathogenesis and diagnostic significance (diseases of respiratory organs, hematopoiesis, endocrine system, kidneys, stomach, congenital pathologies).

6. Skin covers: research methods.

7. Pallor of the skin: physiological, pathological, causes, diagnostic value.

8. Hyperemia of the skin: physiological, pathological, causes and physiological significance.

9. Jaundice of the skin and visible mucous membranes: causes, diagnostic value.

10. Cyanosis: definition, causes, types of cyanosis and their diagnostic value.

11. Swelling: definition, types of swelling, causes, research methods, diagnostic value.

References:

1. Law of Ukraine dated November 19, 1992 No. 2801-XII "Basics of the legislation of Ukraine on health care"

2. Law of Ukraine dated April 6, 2000 No. 1645-III "On the Protection of the Population from Infectious Diseases"

3. Order of the Ministry of Health of Ukraine dated August 19, 2021 No. 1766 "On the approval of the Procedure for carrying out sentinel epidemiological surveillance of antimicrobial resistance"

4. Order of the Ministry of Health of Ukraine dated 03.08.2021 No. 1614 "On the organization of infection prevention and infection control in health care institutions and institutions / institutions providing social services / social protection of the population"

5. Order of the Ministry of Health of Ukraine dated 06.05.2021 No. 882 "On the approval of sanitary and anti-epidemic rules and norms for the use of ultraviolet bactericidal radiation for air disinfection and disinfection of surfaces in the premises of health care institutions and institutions/institutions providing social services/social protection of the population"

6. Order of the Ministry of Health of Ukraine dated 03.08.2020 No. 1777 "On the approval of Measures and Means for the prevention of infection during patient care"

7. Order of the Ministry of Health of Ukraine dated February 1, 2019 No. 287 "On the approval of the Infection Control Standard for health care institutions that provide assistance to tuberculosis patients"

8. Resolution of the Cabinet of Ministers of Ukraine dated 02.03.2016 No. 285 "On approval of the Licensing conditions for carrying out economic activities in medical practice"

9. Order of the Ministry of Health of Ukraine dated 28.12.2015 No. 905 "On approval of criteria for determining cases of infectious and parasitic diseases subject to registration"

10. Order of the Ministry of Health of Ukraine dated June 8, 2015 No. 325 "On the approval of the State sanitary and anti-epidemic rules and norms regarding the treatment of medical waste"

11. Order of the Ministry of Health of Ukraine dated August 11, 2014 No. 552 "On approval of State sanitary norms and rules "Disinfection, pre-sterilization cleaning and sterilization of medical devices in health care institutions""

12. Order of the Ministry of Health of Ukraine dated April 30, 2014 No. 293 "On the approval of the Instructions for the collection, sorting, transportation, storage, disinfection and washing of linen in health care institutions"

13. Order of the Ministry of Health of Ukraine dated 04/02/2013 No. 259 "On approval of State sanitary norms and rules "Sanitary and anti-epidemic requirements for health care institutions providing primary medical (medical and sanitary) care""

14. Standards of accreditation of health care institutions (Order of the Ministry of Health of Ukraine dated 03.14.2011 No. 142)