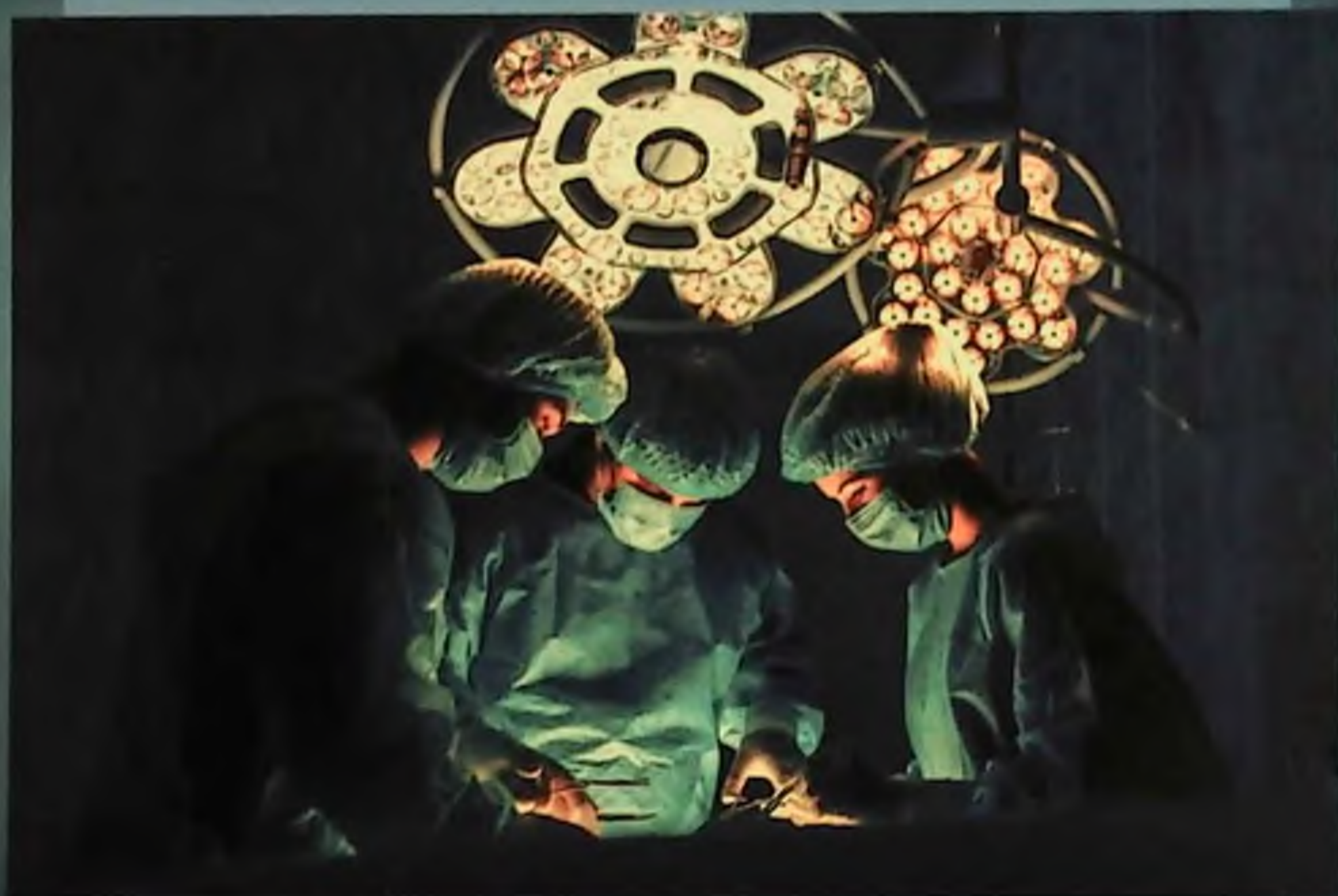




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INTRODUCTION TO THE MEDICAL PROFESSION (SURGERY)



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**MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN
MINISTRY OF HEALTH CARE
REPUBLICAN CENTER FOR THE DEVELOPMENT OF
MEDICAL EDUCATION**

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**INTRODUCTION TO THE MEDICAL
PROFESSION (SURGERY)**

Tutorial

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The textbook contains information about the work and organization of the surgical emergency department, the structure, mode of operation and equipment of the surgical department, medical ethics and deontology in surgery, preparing patients for surgical practice, caring for patients in the postoperative period, the basics of antisepsis and asepsis in surgery, methods of using antiseptics, nosocomial infections, catering for patients in the surgical department, dietary nutrition, methods of prevention and treatment, displaying information about the nutrition of seriously ill patients, in terminal cases and the basics of resuscitation. Control questions, tests, situational tasks, situational drawings on the topic are given. The textbook is intended for students of medical universities, residents of the magistracy, clinical residents.

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INTRODUCTION:

1. The work of the surgical admission department and its organization.
2. Structure, mode of operation and equipment of the surgical department.
3. Medical ethics and deontology in surgery.
4. Preparation of patients for the surgical procedure, care of patients in the postoperative period.
5. Fundamentals of antiseptics in surgery. How to use antiseptics.
6. Fundamentals of asepsis in surgery. Nosocomial infection.
7. Catering for patients in the surgical department. Diet food. Feeding the seriously ill.
8. Terminal states and basics of resuscitation.

Place of training: Training rooms of the department, dressing and manipulation rooms.

Training equipment: Visual aids, phantoms, patients, handouts, equipment.

Training duration: 4 hours.

Timeline of training

No	Stages of learning	Location	Time
1.	Participation in the morning conference of doctors	Conference hall of general surgery SamDTU	5 minutes.
2.	Organizational events	training hall	5 minutes.
3.	Checking elementary knowledge on the topic	training hall	30 minutes.
4.	Patient management	Patient rooms, dressing rooms and operating rooms	30 minutes.
5.	Curatorial discussion of patients	training hall	40 minutes.
6.	Discussion of the topic of the training	training hall	60 minutes.
7.	Monitoring the assimilation of learning	training hall	30 minutes.
8.	Test control training	training hall	20 minutes.
9.	Situational problems and practical skills for solving	training hall	40 minutes.
10.	Preparing for the next session	training hall	10 minutes.

Learning objective: Work and organization of the surgical admission department for students; structure, work order and equipment of the surgical department, medical ethics and deontology in surgery, preparation of patients for surgical practice, patient care in the postoperative period, the basics of antiseptics and aseptics in surgery, methods of using antiseptics, nosocomial infection, catering for patients in the surgical department, dietary nutrition, providing information on the nutrition of seriously ill patients, terminal conditions and the basics of resuscitation.

Functions: To have an understanding of the work activity of students of the surgical department, its structure, medical ethics and deontology in surgery, preparing patients for surgical practice, caring for patients in the postoperative period, the basics of antiseptics and aseptics in surgery, methods of using antiseptics, nosocomial infections, catering patients in the surgical department, dietary nutrition, nutrition of seriously ill patients, terminal states and the basics of resuscitation.

The student should know: about the work and organization of the surgical admission department, the structure, mode of operation and equipment of the surgical department, medical ethics and deontology in surgery, preparing patients for surgical practice, caring for patients only after surgery, the basics of antisepsis and asepsis in surgery, methods of application antiseptics, nosocomial infection, catering for patients in the surgical department, dietary nutrition, treatment of severe and chronic diseases, the basics of patient nutrition, terminal conditions and resuscitation, principles of first aid.

The student must be able to: have the skills of proper consultation and transportation of patients, compliance with medical ethics and deontology, preparing patients for surgical intervention, caring for patients after surgery, the basics of antisepsis and asepsis in surgery, methods of using antiseptics, nosocomial infection, catering for patients in the surgical department, dietary nutrition, nutrition of critically ill patients, the basics of terminal illness and resuscitation, the basics of primary health care, establishing the principles of care.

Interdisciplinary dependence: in order to master the topic, it is necessary to have knowledge gained in the field of biology, microbiology. In order to prevent diseases that may appear, students should be advised to use aseptic, antiseptic methods.

The content of the topic: the work and organization of the surgical admission department, the structure, mode of operation and equipment of the surgical department, medical ethics and deontology in surgery, preparing patients for surgical practice, patient care in the postoperative period, the basics of antisepsis and asepsis in surgery, methods of using antiseptics, nosocomial infection, catering for patients in the surgical department, dietary nutrition, nutrition of critically ill patients, information on patient nutrition, terminal conditions and the basics of resuscitation.

WORK OF THE SURGICAL RECEPTION DEPARTMENT AND ITS ORGANIZATION



Fig 1. - Admission department.

The reception area is designed to receive patients referred from polyclinics and ambulance stations or who seek help on their own.

The Reception Department performs the following tasks:

- round-the-clock examines all those who entered or applied to the admissions department;
- makes a diagnosis and provides highly qualified medical and advisory assistance to those who need treatment;
- conducts an initial examination and, if necessary, consultations of several specialists to clarify the diagnosis;
- dynamic monitoring of patients with an indefinite diagnosis;
- carries out triage hospitalization of patients in specialized departments of the hospital;
- after providing primary health care to non-core patients, they are transferred to departments according to the profile of the disease or injury; or are referred for outpatient treatment at the place of residence.
- maintains constant communication with all operational medical services in the city.

In the reception area: there is a waiting room, an office, an information room and examination rooms. Reception departments maintain close contact with laboratories, diagnostic departments, isolation rooms, operating rooms, dressing rooms, etc.

Cleaning requirements: Cleaning of the premises of the admission department is carried out with a wet method at least 2 times a day, and in the prescribed manner, using cleaning and disinfecting agents. Cleaning equipment must be labeled and used for its intended purpose. After use, it is washed in a disinfectant solution, rinsed in water, dried and stored in a specially designated room. After examining each patient: couches, oilcloths, pillows are treated with a solution, in accordance with the current instructions. In the examination room, bed linen is changed after each patient. Wet cleaning in the operating room, dressing room, and also in small operating rooms is carried out 2 times a day with a 6% hydrogen peroxide solution and 0.5% detergent or deodorant. After use, the coils (mattresses) are treated with a disinfectant in accordance with the current instructions.

Waiting room: designed for the patient and his close relatives. This room should have a certain number of chairs, armchairs, wheelchairs (for transporting patients). There are signs on the wall that display the work of the medical department, the visiting hours of the attending physician, the list of products that can be brought to patients, and the phone numbers of the reference hospital. The days and hours of visiting patients should be indicated here.

Office of the nurse on duty: it is the registration of patients and the preparation of the necessary documents. There should be tables, chairs and sets of necessary documents.

Examination Room: Designed for examination of patients by a physician and can also be used by nurses for thermometry, anthropometry, larynx examination, and sometimes other examinations (ECG).



Fig 2. - Inspection room

Observation room equipment:

- couch with checkered lining (place of observation of the patient)
- stadiometer (growth meter)

- medical scales
- thermometers
- tonometer
- spatulas
- sink for washing hands
- desk
- chair
- medical history sheets.

Room for medical practice: designed to provide emergency care to patients (shock, visceral colic, etc.).

Arrangement of premises for medical practice:

- couch
 - chairs
 - a medical cabinet that stores: a first aid kit for shock, disposable syringes, disposable systems, anti-shock solutions, antispasmodics and other medicines
 - sterile dressing material, preservative bix, sterile tweezers stored in a disinfectant solution (for working with bix)
 - Sterile gastric tubes, rubber urinary catheters and enema tips.
- operating and dressing room:** designed for small operations:
- performing primary surgical treatment of an accidental injury
 - reduction of a dislocated bone
 - reposition of normal fractures and their immobilization
 - opening of small purulent foci, etc.



Fig 3. - Dressing room

The place of the sanitary inspection, the duties of which include:

- sanitary and hygienic treatment of the sick and wounded;
- accept clothes and other items, keep an inventory and storage clothing and items;
- distribution of hospital clothes.

For sanitary and hygienic treatment of the seriously ill and wounded, there is an equipped bathroom with a portable shower.

The place of sanitary and hygienic treatment should include toilets, showers, washrooms that meet sanitary standards and are intended for receiving patients with gunshot wounds.

For the deceased in the reception room: it is necessary to allocate a room with a separate entrance, where there should be an opportunity for short-term (until the morning) storage of several corpses.

Responsibilities of the Admissions Nurse:

1. Registration of a medical card for each hospitalized patient (title page, exact place of admission of the patient, as well as filling out documents indicating the diagnosis of the medical institution that referred the patient);

2. Examination of the skin and skin, determining the presence of pediculosis on the hairy areas of the skin, measuring body temperature;

3. Follow the doctor's instructions.

Responsibilities of the Receptionist:

1. Examination of the patient, examination, determination of the urgency of the surgical procedure, conducting the necessary additional examinations;

2. Filling in the medical history, making a preliminary diagnosis;

3. Determining whether sanitization is necessary;

4. Transfer to a specialized department indicating the type of transportation;

5. In the absence of indications for hospitalization, the organization of outpatient care is necessary.

Rules for the admission of surgical patients:

Patients admitted to the hospital undergo anthropometric examinations. They consist of: measurement of body parameters. Medical personnel measure the weight of patients (usually on an empty stomach, in the morning, after emptying the bladder and rectum). This is of particular importance, as it is used to observe the dynamics of the pathological process. For example, an increase in body weight indicates an increase in edema, and a decrease in body weight indicates malnutrition, severe inflammation, and blood clots. The next anthropometric indicator, height measurement, knowing body weight, you can calculate the body mass index, ideal body weight, etc. These indicators are important when prescribing strong drugs. The next indicator, which is determined in the emergency department, is the circumference of the chest. This indicator reflects the general condition of the subcutaneous fat and the skeletal system.

Patients must be sanitized upon admission. Full sanitization includes bathing the patient in a bath or shower, disinfection and disinfestation of underwear, as well as sanitary and hygienic treatment of the premises.

Partial sanitization - includes partial body wash and change of underwear. After patients are given a change of underwear, they enter the department. At present, this rule is not always observed, mainly in special and military hospitals this custom has been preserved. This is due to the fact that many patients take a shower before arriving at the hospital.

Accepted patients bathe in a bath or shower. First, the bath is treated with a 0.5% chlorine solution or a 1-2% chloramine solution. Then the bath is filled by washing it thoroughly with hot soapy water. The temperature of the water in the bath should be about 42 degrees.

To avoid excessive evaporation, cold water is first poured into the bath, and then hot water is poured. Patients in serious and critical conditions are seated on benches in the bath and filled with water.

The sequence of washing body parts:

- head;
- arms and chest;
- the area between the hips, the abdomen and waist;
- legs.

Patients after sanitation and anthropometry: together with the medical staff go to the examination rooms, after which the tactics of diagnosis and treatment are determined.



Fig 4.- Anthropometry

The doctors of the admission department, together with the nursing staff, fill out the medical history: (patient card). Its title page contains:

- Full Name
- age (and date of birth)
- place of residence

- place of work
- phone numbers or addresses of close relatives
- certificate of disability, certificate of allergy to medicines, blood group, period of onset of the disease (for emergency hospitalizations).
- Enter the diagnosis of the sending institution, the original diagnosis on admission, the clinical diagnosis and the date of diagnosis.

The title page specifically records information about the presence of viral hepatitis in the patient's history, the presence of signs of pediculosis in objects received from him, and in the patient himself.

The patient signs, indicating that he is familiar with the rules of the hospital schedule and agrees not to violate them.

When examining a patient by doctors-specialists of the admission department, the data collected by them are recorded in the medical history, instructions are given on the appointment of additional examination methods.

Doctors must follow the rules for conducting examinations: first, non-invasive methods should be used, and then they should be prescribed as complications progress, the severity of the disease. Before using more traumatic methods, it is always necessary to use less traumatic methods.

All patients admitted to the surgical hospital must have:

- general blood analysis
- blood test for syphilis
- fluorography
- ECG (elderly).

The rest of the studies are carried out in accordance with specific instructions. To do this, the receptionist has with him:

- x-ray room
- ultrasound room
- endoscopy room
- emergency laboratory, etc.

The doctor on duty of the department, if necessary, can invite specialists from other departments of the hospital for a consultation. Patients who are admitted for planned inpatient treatment should be examined at the polyclinics that sent them to the hospital. They come to the admission department with the volume of examinations performed at the outpatient stage (ultrasound, general analysis, radiograph, etc.).

Patients arriving in serious condition, with unstable homeostasis, first aid is provided in the emergency department.

Transportation of surgical patients.

If necessary, the patient can be immediately transported from the emergency department to the surgical or intensive care and anesthesia department or to the operating room.

Transportation of patients is determined by the doctor and will depend on the condition of the patient and the characteristics of the disease.

Patients who can move independently go to the surgical department on foot with an accompanying nurse or nurse. Seriously ill patients are transported using stretchers or wheelchairs lying down.

Proper patient transport can prevent complications. Therefore, the following methods of transporting surgical patients are distinguished:

1. In case of skull fractures, the patient is transported with the head end of the stretcher lowered; the patient lies on his back, without pillows. A pillow is made around the head from a blanket or clothes.

2. In case of a fracture of the spine, the patient is transported, laying on the board. For example, if the stretcher is simple, the patient is placed on his stomach. In case of closed injuries of the cervical spine, the head and neck are immobilized with stair splints, and a soft cotton bandage is put on around the neck.

3. In case of fractures and dislocations of the hand, the arm is bandaged by placing it on the chest with the help of a splint for transportation, or a pillow is placed under it

4. In case of fractures of the lower extremities, blankets are placed under the fracture area.

5. In case of fractures of the ribs, the patient is given a semi-sitting position.

6. In case of fractures of the pelvic bones, the patient sits in the "frog" position - leaning back, the knee is bent and extended, a pillow is placed under the knee (pillow or quilt)

7. In case of bleeding from the extremities, after installing the tourniquet and transport immobilization of the injured arm or leg, an elevated position is given, and transportation is performed in this position.

8. In case of chest injury, the patient is transported in a semi-sitting position with a blanket under the knees.

9. In case of abdominal injuries and internal bleeding, the patient is laid on his back to relax the muscles of the anterior abdominal wall, blankets are placed under his feet, and in case of large blood loss, the head is also lowered.

10. They try to lay down burn patients with an unburned part of the body. The burnt area is covered with sterile gauze or a sheet.

11. Unconscious patients are transported in the prone position with a pillow under the forehead and chest, or in the supine position to prevent aspiration of vomit.

Test questions:

1. What are the cleaning requirements for the reception area?
2. What is the purpose of the waiting room in the reception area?
3. The concept of an observation room and its arrangement?
4. What are the 7 tasks of the admission department?
5. What do you understand by the operating and dressing room in the emergency department and what is it intended for?
6. Reception department - sanitary checkpoint. What are the 5 main tasks?
7. What are the 3 main responsibilities of an admissions nurse?
8. Specify the rules for the admission of surgical patients?
9. What are the main responsibilities of an admissions doctor (5)?
10. How are patients transported in case of bone fractures, fractures and dislocations of limbs, bleeding from the arms and legs, injuries and bleeding of the chest and abdominal organs?
11. How are burn patients and unconscious patients transported?

Test questions:

1. The main premises of the admission department of the hospital include:

- A. treatment room
- B. sanitary pass
- C. insulator
- D. all specified

2. The hospital admissions nurse fills out:

- A. cover page of the hospital patient's medical record
- B. temperature sheet
- C. treatment sheet
- D. certificate of temporary incapacity for work

3. A patient lying in a hospital is sanitized:

- A. before medical examination
- B. before registering a patient
- C. after examination by a doctor
- D. after patient registration

4. Determines the type of sanitization:

- A. receptionist
- B. doctor
- C. head nurse

D. junior nurse

5. Determines the type of transportation of the patient to the hospital:

A. Receptionist

B. Doctor

C. head nurse

D. junior nurse

6. How long does it take to treat the scalp with pediculosis with a solution:

A. 20 minutes

B. 30 minutes

C. 40 minutes

D. 60 minutes

7. How many degrees should the temperature in the bathroom not fall:

A. 24-25°C

B. 36-37°C

C. 40-41°C

D. 44-46°C

8. When transporting a patient up stairs on a wheelchair:

A. when walking on your feet

B. with legs up

C. head down

D. with feet down

9. The blade over the couch is processed:

A. in warm water with detergent solution

B. in 0.5% chlorinated lime

C. in 1% chloramine solution 2 times with an interval of 15 minutes

D. in 3% chloramine solution

10. What should be the temperature of the water for a hygienic bath:

A. 20-25°C

B. 30-35°C

C. 35-37°C

D. 37-40°C

Situational tasks:

Task 1: Patient C, was admitted to the emergency department with a carbuncle in the shoulder area. When examining the scalp, lice were found. The patient categorically refuses to have a haircut. What measures should be taken by the patient?

Task 2: Patient G. was brought to the emergency department with signs of a closed craniocerebral injury (craniocerebral injury-contusion). The patient's condition is severe, unconscious. What sanitization is performed on the patient? Specify the method of transporting the patient to the neurosurgery department?

Task 3: The nurse wants to clean the reception rooms. She wants to use a chloramine B solution. How do I prepare the necessary solution for this?

Task 4: Patient Ch. bloody-purulent discharge oozed from the wound in the area of the knee of the right leg on the couch, which he laid down when he arrived at the emergency department. What needs to be done with the oilcloth thrown over the couch?

Task 5: A patient with signs of a thoracic vertebral fracture lies on a couch on a wooden mattress. The patient was scheduled for an X-ray examination of the spine. How to transport a patient to the X-ray room?

STRUCTURE, MODE OF WORK AND EQUIPMENT OF THE SURGICAL DEPARTMENT.

The surgical department is one of the main divisions of the medical institution and in its activities

divided by 2:

- specialized: (departments of cardiac surgery, angiosurgery, thoracic surgery, coloproctology, purulent surgery, etc.)
- medical and diagnostic: (physiotherapeutic, radiological, functional diagnostic, laboratory, etc.).

The surgical department includes the following rooms:

- patient room
- room for dressings and minor surgeries
- treatment room
- patient monitoring room
- enema room
- room for mobile devices
- head office
- staff room
- head nurse's office
- canteen
- a storage room for cleaning products and detergents.

The ratio of the area of the room and auxiliary premises should be more than 1:1 or more auxiliary premises; this serves to maintain the necessary sanitary and anti-epidemic control.

Most often, the surgical department is planned in such a way that wards are located on one side of the corridor (at least 2.5 m wide), and nurses' posts are located in a well-lit area of the corridor.

In modern hospitals, canteens for patients are organized. Patients whose movements are not restricted from a hygienic point of view are strictly forbidden to eat in beds.

The department must have sanitary corners (in modern departments in each ward), a shower room, a dining room, a room for collecting bed linen.

The most important places in the hospital are the ward and the patient's bed.

Here are the difficult moments of the patient's life, and it is in this place that the patient needs peace and care. In many hospitals, due to the excess number of patients in the wards and in the corridors, they put extra beds, and in these beds, patients stay for 1-2 days, usually these are patients requiring immediate hospitalization. Sometimes there is no need to isolate the patient; such patients must be removed from the general ward; the cause

may be a negative effect on other patients (for example, severe coughing or snoring). The decision to transfer the patient from the ward is made by the doctor, and the patient will need to inform the doctor himself. For the convenience of the patient lying in the corridor, a cabinet is placed in front of the bed and limited by a screen. Rooms should be bright. Walls must be painted white which ensures wet cleaning. Heaters should also be painted (preferably attached to the wall).

For rooms and corridors, floors covered with plastic or linoleum are most hygienic. The best material for floors and walls of utility rooms is tile. All furniture in the section should be reasonable, first of all, its purpose should be comfortable, simple and easy to clean. The best materials for hospital furniture and upholstery are modern synthetics, light, smooth metal, or lacquered wood. Carpets can only be installed in the break room and must be cleaned daily with detergent. Several plants in canvas can be placed in the corridors and in the recreation room. Access to the beds in the ward should be convenient from all sides, bedside tables are placed between the beds. In the evenings, the wards are lit with electric lamps. It is desirable that small lanterns be placed above each bedside table in addition to general lighting. It should be borne in mind that at night the patient's sensitivity increases, anxiety increases, and even light lighting can cause anxiety in the patient, leading to sleep disturbance.

A very important element in the corridor is the alarm system, which gives a signal from each ward to the nursing station or corridor: it can be a sound signal (slow sound noise) or a light signal (red light), and the medical worker must immediately come to the patient's call.

Air microclimate in the room.

Temperature, humidity, air movement, an important part of the regime. Good ventilation is a prerequisite for maintaining a room. In hospitals built according to modern standard models, air conditioning and artificial lung ventilation (ALV) devices are installed. The supply of fresh air must be from top to bottom, and the supply and exhaust points must be located in such a way that there are no places in the room where air is not exchanged.

The air supplied to the premises of the surgical hospital must be processed, purified (mechanical cleaning in filters, heating or cooling, humidification or drying) and disinfected. Bacteriological air purification is carried out by passing it through antibacterial filters.

In the absence of an air conditioning system, ventilation of the premises is provided by regular ventilation through large transoms. The negative attitude of patients to cool air is unreasonable and requires an appropriate explanation and sanitary and educational work in this regard. There are thermometers in each room, the optimum room temperature is +21

+24°C. The hospital bed is the most important place for the patient, and the patient spends a lot of time in it, while severe and post-operative patients spend all their time in this bed.

The patient's bed is not only a place to sleep or rest, but also a place to receive various procedures, such as feeding the patient (sitting, half-sitting), so the patient's bed should be comfortable. In intensive care and intensive care units, as well as in some modern hospitals, the patient's place is considered a functional bed. Its advantages are the presence of wide orthopedic mattresses, the possibility of lifting the head and foot parts of the bed, and the possibility of transportation. In addition, the beds are equipped with special restraints that prevent the patient from falling.

Each bed, including unoccupied ones, must have clean linens and:

- mattress
- pillow
- bed sheets
- mattress-sheet
- towel.

A sign is placed on the bottom of the bed, which will indicate the following information:

- last name, first name, patronymic of the patient
- table number (diet)
- date of bed linen change
- special signs that attract the attention of employees.

In most hospitals, the temperature sheet is indicated on the plates.

Tufting is placed in front of each patient's bed, and under the patient's bed, on a low bench, there is a vessel covered with a lid.

In the bedside table are:

- cup
- containers for drinking water
- Toothbrush
- soap
- toothpaste
- comb
- lotion, etc.

Severe and postoperative patients may have:

- device for drinking water
- cup with mouthwash solution

It can also store non-perishable food and personal items (paper, pens, watches, books). Often the patient is ashamed of his roommates, and because of this, he cannot realize his physiological need in time, it is difficult for him to rest in a lighted room. In such cases, the beds are separated using

curtains, screens. These simple measures are often used in the department. Surgical and intensive care units have one centralized oxygen supply to beds.

Sanitary corner. An important element of the chamber is the proper arrangement of the sanitary corner. These include:

- detergent (bidet)
- an enema couch (if this room is not allocated, it should be covered with a screen)
- rooms for storing enemas, as well as dishes in which material for analysis is collected. Staff must wear rubber gloves and aprons.

Handrails for weak patients should be placed in toilets and bathrooms. The toilet door should open outward so that help can be reached immediately if necessary.

Dressing room - a specially equipped room for repairing injuries and examining injuries, as well as for various procedures.

Minor surgeries can be performed in the dressing room:

- primary surgical treatment of small wounds
- pleural and abdominal puncture.

If the dressing room is intended for the treatment of purulent wounds, then small superficially located abscesses can be opened.

The dressing device depends on the specialization of the site, but the basic universal rules must be observed:

- Floors and walls should be covered with ceramic tiles for clean humidification
- sufficient natural and artificial lighting
- furniture necessary for work
- good ventilation.

The basic principle of operation of the dressing room: strict adherence to the rules of asepsis. Everything that comes into contact with the wound must be sterile. If there is no separate room for patients with purulent wounds, then first "clean" patients, with uninfected wounds, are treated and bandaged; then patients with purulent wounds and intestinal fistulas.

Work in dressing room. The daily work of a nurse in the dressing department consists of preparing the room, personal training, conducting procedures, cleaning the room.

Work in the dressing department begins 1-1.5 hours before the procedure. First, it begins with the delivery of sterilized instruments, bedding and dressings. Before placing surgical instruments on the instrument table, it is necessary to wash the floor and wipe all horizontal surfaces with an antiseptic solution.

Uniform of a nurse working in the dressing room

surgical suits, hood, mask, clean (non-sterile) surgical clothing. After the wet cleaning is completed, the dressing room nurse uses one of the hand cleaning methods, putting on sterile clothing and getting ready to work on the instrument table. To do this, the table is covered with several layers of sheets that are sterilized. Then the tools and part of the dressing material (balls and napkins) are exposed from the bixer. Tools are placed on the table in groups:

- scissors
- clamp
- tweezers
- scalpels
- special dishes

The dishes placed on the table are covered with sterile sheets. A container with a disinfectant solution is placed on a separate table, in which tweezers (2-3) are placed, and through the forceps the nurse receives sterile instruments and dressing material prepared from the table. In order not to violate the rules of asepsis during the dressing process, the nurse must prepare a separate tray for each patient and put everything necessary for this procedure in it (after agreeing with the doctor in advance):

- scalpel or scissors
- tweezers
- clamps
- balls and napkins moistened with an antiseptic solution.

Trays are placed next to the patient, and the doctor receives the necessary tools for his work. Used instruments are placed in a container with a disinfectant solution for their subsequent disinfection and sterilization. The used dressing material is placed in a special container, and at the end of the working day it is disposed of according to the method adopted in this hospital. Instruments that have not been used during the working day are re-sterilized. In recent years, continuous UV chambers have been increasingly used for the storage of sterile instruments. Basically, the camera is a dashboard, glued to all sides, inside which a UV radiator is constantly lit, which maintains an abacterial environment in the camera. After each procedure, it is necessary to process the couch and cover with a new sheet. After treatment of patients with extensive purulent-necrotic processes, intestinal fistulas, the premises are cleaned and short-term (30 min) quartzization is carried out.

At the end of the working day:

- soaking clothes with disinfectants;
- wash the instruments and place them in sterilization boxes;

• put bedding and instruments in bixes and carry them to the sterilization room. In the evening and at night, a UV radiator is turned on in the utility room.

The agenda of the surgical department. The order (schedule) of the surgical department and its strict observance is one of the most important elements of the organization of the surgical clinic. The regime regulates the conduct of medical and diagnostic measures and forms the basis of the work of the hospital. In addition, this mode is a regulatory factor for patients and staff. All newly admitted patients (except medical workers) should be familiarized with the agenda. In the corridor, in the dining room, and in each room there will be a sign with the daily schedule adopted in this department.

Approximate schedule of the day of the surgical department.

7:00	-rise
7:00-7:30	-morning exercises and toilets.
7:30-8:30	-body temperature measurement, distribution of medicines, procedures, cleaning.
8:30-9:00	-breakfast
9:00-10:00	-examination (bypass) at the doctors
10:00-13:30	-fulfillment of appointments
13:00-14:00	-conversation between doctors and relatives of the patient
13:30-14:00	-lunch
14:00-15:30	-day rest
15:30-17:00	-procedures
17:00-17:15	-temperature measurement
17:15-19:00	-visiting relatives
19:00-19:30	-dinner
19:30-20:30	-room cleaning
20:30-21:30	-performing procedures
21:30-22:00	-evening hours
22:00	-lights out.

This regimen is followed by all walking patients. There are also other modes:

- bed
- strict bed
- semi-sitting
- personal

Strict sleep schedule.

Active sleep mode - in the first days after abdominal surgery, most patients can be given instructions, bend the knees, raise the head. The bed rest gradually passes into the general mode.

For the first time after the operation, the patient is strictly forbidden to go to the toilet, changing room, etc. on his own. He must be accompanied by a nurse or nurse.

Some patients are prescribed semi-bed rest. Most often, bed rest is prescribed for patients under observation. The patient is forbidden to eat (you can only drink water) and walk (only to the toilet). Therapeutic-protective regimen involves the creation of favorable conditions for effective treatment, spiritual and mental rest, ensuring the confidence of patients in a speedy and complete recovery and includes:

- Strict adherence to the regime, which should be built in the interests of the patient. Thus, during sleep and rest of patients: medical and diagnostic manipulations should not be disturbed and cleaned in the rooms. If the patient is undergoing treatment at night, then it is better to turn on individual lighting, and not general. After 22.00 it is necessary to turn off the TV in the hall, radios and TVs in the rooms to ensure a comfortable sleep.

- Changing the external environment of the hospital - the department should be clean, warm, comfortable and quiet. Health care workers should speak in a low voice and monitor patients.

- Careful attitude of medical personnel to the patient. Address by name, the ability to keep "secrets", the ability to hear and listen. Analysis and exchange of opinions outside the Chamber; conversation with the patient on the eve of the operation, as well as with the operating surgeon performing the operation, as well as in the following days, in the postoperative period;

- Elimination of stressful situations - the medical staff must make sure that there is no irritating factor around the patient.

Office cleaning. The office is cleaned twice a day. In the department, nurses are cleaned, and corridors and utility rooms are cleaned by a cleaner.

The nurse makes sure that the orderlies wear gloves. Furniture, panels, radiators in the section, as well as window blinds, were cleaned with a damp cloth. Before starting work, medical personnel should carefully study the instructions for use of the selected disinfectant, paying attention to the spectrum of antimicrobial action (the agent ensures the death of all microorganisms) and toxicity parameters (is it possible to use the drug in front of patients, what measures can be taken when working with them, etc.). whether it has a detergent effect, and its characteristic properties are also studied.

Disinfectants are prepared in a special room equipped with a ventilation device.

Training personnel should use clothing, suit, gauze, rubber gloves and, if instructed, appropriate respirator and goggles. The disinfectant is prepared

by mixing it with running water in a special container. If the product has a corrosive effect (chlorine, active oxygen-containing substances), use containers made of corrosion-resistant materials (plastic, glass, harmless, enamel). More convenient to use containers that allow you to dose mixed ingredients.

To prepare the working solution, special measuring spoons are used, measured according to the amount of the required disinfectant in the form of a powder or attached to the package. To prepare a solution, disinfectants in the form of aqueous or alcohol concentrates are measured with a special measuring cup, pipette or syringe.

Usually, when preparing a working solution, the required amount of water is first poured into the container, after which a disinfectant is added, which, after complete dissolution, is closed with a lid. For the preparation of working solutions, it is more convenient to use disinfectants that are available in the form of tablets or in separate packages.

Depending on the chemical composition, working solutions of some products can be prepared for storage and stored in a closed container in a special room for a certain time (a day or more) before use, while others should be used immediately after preparation.

Surfaces in rooms (walls, doors, etc.), hard furniture, equipment, tools are wiped with a cloth soaked in a disinfectant solution, or disinfected by spraying the solution.

Sanitary equipment is cleaned with rags or brushes moistened with a disinfectant solution, or detergent-disinfectants are used in the form of cleaners, pastes, gels or other preparations, most often these are substances containing active chlorine or oxygen.

Cleaning equipment - rags, sponges, napkins after use are placed in a disinfectant solution; after a certain time, they are washed with water, dried and stored in a certain place. All means for cleaning the premises should be located in a separate room, each in its intended place and accordingly determined by what object and what room it should provide. There should be separate cleaning equipment in each room and at individual facilities.

In the surgical hospital, general cleaning is carried out according to the schedule (tent departments - once a month, operating room, dressing room, procedural rooms - once a week). Each compartment should have a set of tools, depending on the number of rooms in which cleaning is carried out.

General cleaning is carried out with open windows, in the absence of patients.

• First, rubbish and medical waste are removed from the premises in collected containers.

- Move furniture.
- Walls, doors, etc. are thoroughly cleaned, paying special attention to lids, doorknobs, locks.

Using a rag moistened with a disinfectant solution, they wipe and dust off lamps, heaters, furniture, etc.

Washing the inner parts of windows once a month (the outer part of the window is washed once every six months). Starting from the far corner of the room, the corners, skirting boards and floor around the perimeter of the room are thoroughly washed. In rooms requiring strict adherence to asepsis rules (operating rooms, intensive care units), after wet cleaning, ultraviolet treatment is carried out.

The hygienic regime includes ventilation of the premises: in any weather, the windows are opened 4-5 times a day for 10-20 minutes. In this case, patients should leave the room while bedridden patients should cover their heads with a towel. During the summer months, the windows are covered with mosquito nets and can be left open during the day. If there are patients in the room who object to its ventilation, the nurse should have a short conversation about the benefits of fresh air, ventilation of the room, so that the patients themselves monitor the ventilation of this room and help the staff.

So, if the doctor pays attention to the air climate in the ward during morning and evening rounds, it is advisable to note its usefulness to patients.

Nosocomial infection.

Nosocomial infection - infectious diseases and complications caused by infection in the hospital during the patient's stay, also cover all cases of infectious diseases that developed in the hospital; Iatrogenic infections develop directly as a result of medical manipulations.

The most common nosocomial infections are:

Streptococcus aureus et pyogenus

Klebsiella pneumoniae

Enterobacter species

E. Coli

Proteus species

Candida albicans, viruslar.

Sources of infection can be:

- Patients
- visitors
- medical staff of the institution.

Test questions:

1. What is a treatment room and what should be its arrangement?
2. What are the 8 rules of conduct for a medical worker in the surgical department?
3. What premises are included in the surgical department?
4. What do you understand - the air climate of the ward?
5. What do you understand by the word - bed?
6. What is a bedside table?
7. What is a dressing room and what is its structure?
8. How is the department cleaned?
9. What do you understand by cleaning equipment?
10. What is a nosocomial infection?
11. Specify the diseases caused by nosocomial infection?
12. What is the peculiarity of nosocomial infection?
13. How is nosocomial infection prevention carried out?
14. What are the 5 main requirements for the preventive treatment regimen of the surgical department?

Test questions:

1. Why are patients not allowed to wear woolen clothes and shoes in the surgical department?

- A. can only be worn in the wards
- B. You can wear woolen clothes and shoes
- C. they are difficult to disinfect and wash
- D. in the surgical department, patients can walk in any clothes

2. What should the nurse regularly monitor in the surgical department?

- A. Patients need to determine the blood group
- B. must check nightstands and refrigerators
- C. Blood typing of patients is not the responsibility of the nurse
- D. she must monitor patients who are in the surgical department, changing dressings every day.

3. To prevent infection, how many types of wet mats should be at the front door in hospitals?

- A. 2
- B. 3
- C. 4
- D. 5

4. In hospitals, wet mats are used in front of the entrance doors to prevent infection from entering. What are the types of these rugs?

- A. clean and dirty
- B. rubbery and wet
- C. rubber and foam
- D. aseptic and antiseptic

5. How many groups are surgical departments divided into according to cleanliness?

- A. Urgent and Scheduled
- B. Clean and dirty
- C. Urgent and Purulent
- D. Clean and Purulent

6. Not included in the structure of the surgical department?

- A. dressing room
- B. ECG room
- C. procedural
- D. enema room

7. Not included in the structure of the operating unit?

- A. Dressing room
- B. Operating room
- C. Tool storage room
- D. Anesthesia machine storage room

Pictures:

1. Not included in the structure of the operating unit?



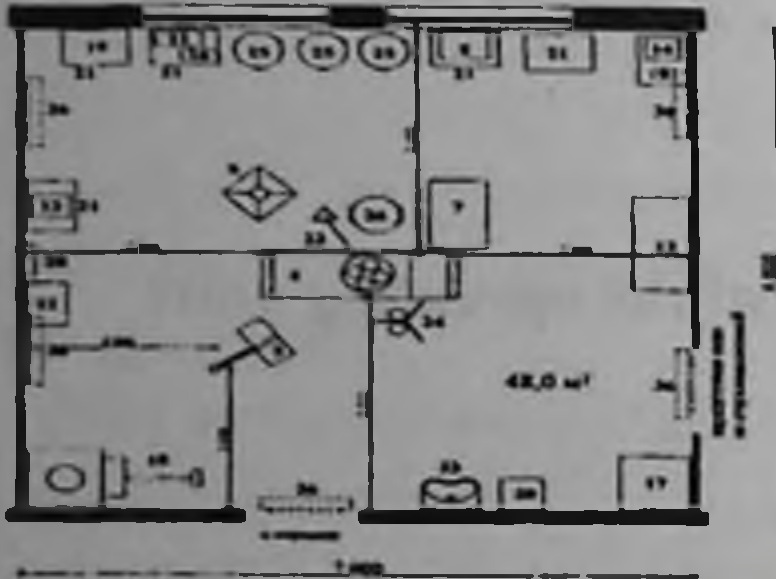
- A. Dressing room
- B. Operating room
- C. Tools stored in the room
- D. Anesthesia machine storage room

2. Not included in the structure of the surgical department?



- A. Enema room
- B. dressing room
- C. procedural
- D. ECG room

3. Zones of the operational block include:



- A. common area
- B. Cauti sterile area
- C. sterile restricted area
- D. sterile area
- E. Empty mode zone.

4. The main types of operating room assembly:



- A. initial
- B. continued
- C. after surgery
- D. final
- e. common

MEDICAL ETHICS AND DEONTOLOGY IN SURGERY

Medical ethics - a set of ethical standards of medical personnel.

Deontology is a set of ethical standards for the performance of their duties by medical workers.

Doctor and patient. The main goal of the doctor is to improve the health of the patient. The doctor must approach each patient individually. In relation to the doctor, it is necessary to take into account the general condition, character, culture, education of each patient. Some groups of people, especially young women, need to be more attentive, more polite, flatter when necessary. Others, especially men who have served in the military, should be spoken in a sharp, commanding tone. The third group, people with a low intellectual level, needs to explain the operation in simple terms that the patient can understand. The main thing is that the surgeon should be able to convince the patient that he is recovering, that he believes in the possibility of healing and that the treatment will be effective. In all cases, patients need support, but the doctor must inform the patient that his condition is serious, complications may arise. There are exceptional cases, it happens with cancer patients.

The doctor must inform the patient about even the smallest changes, which will reassure the patient. It is important to note that any invasive procedures require written consent from the patient and will be attached to the medical record. In the absence of the patient's signature in the medical history, the case on the part of the patient's relatives can be legally considered in court.

Doctor and relatives of the patient. The next of kin of the patient (relatives of the 1st line) the doctor must provide information about the nature of the disease, the type of operation, possible complications, risk aspects of the operation.

The closest relatives are:

- Patient's wife
- Patient's children
- Patient's parents.

Through them, other relatives and acquaintances, if there is a request from them, are given general information about the patient's condition. The following rule must be strictly observed: only the patient himself can give legally binding consent to the operation. Consent to surgery in minor children is given only by close relatives, when the patient is in an unconscious state, cannot independently make decisions as a result of a

mental illness. The surgeon must be in constant contact with the close relatives of the patient. This will prevent various complaints and disappointments in fatal cases.

The question of deontology in oncology. The surgeon must convince the patient from the first minutes of a conversation with a cancer patient that he can recover. There are ongoing discussions about whether a patient should be told they have cancer. From a legal point of view, the patient has the right to know all the information about his disease. In Western European countries and America, the patient is clearly told that he has cancer. But many cancer patients become psychologically depressed, thinking that the disease can progress. Therefore, many surgeons hide the nature of their disease from the patient using a previously used method. In medical reference books, the diagnosis is written in Latin, patients are hospitalized in general wards for chemotherapy.

Doctor's secret. The doctor and other medical professionals should not disclose information about the disease, family and sexual life of the patient, which is known to them, while they are performing their professional duties.

They should not show in their scientific research the name of the patient, his photographs, without hiding the face.

Alternatively, the doctor must report to the sanitary authorities about infections, sexually transmitted diseases, and poisoning. He must inform investigators when a murder occurs, when there are patients with injuries, gunshot and other wounds.

The doctor must inform the patient where he should not work in any area due to illness (patients with tuberculosis, venereal diseases in food-related areas, epilepsy in drivers).

Relationships between workers in a healthcare facility. Relations between employees of medical institutions must comply with the following principles of universal ethics:

- honesty
- sincerity
- respect and submission to an experienced and senior colleague, etc.

In medical institutions there should be a situation that does not injure the mental state of the patient as much as possible and creates an atmosphere of trust in the doctor. Negligence and disrespect on the part of the authorities, blind obedience on the part of the staff, ignorance of mistakes, reduce the quality of medical care. On the one hand, the patient should not discuss medical errors with relatives, on the other hand, the discussion of

medical tactics at various conferences will lead to the correction of errors and the improvement of the quality of medical care. In a surgical clinic, there should always be a process of introducing modern scientific achievements into practice.

The principle of mentoring must be respected: an experienced surgeon trains a young specialist. The next main principle is the logical responsibility in making a decision: if the diagnosis is unclear, then a specialist with professional experience is invited. At the same time, if the surgeon cannot make his own decision, his patients will not stay. Relations between senior, middle and junior medical personnel should be based on mutual trust and respect for each other. At the same time, the decision should not be biased.

Physician and Society. One of the most serious problems of medical deontology is the relationship between medical personnel and society. It is necessary to create boards of trustees at medical institutions, which should include senior officials, representatives of industrial and large agricultural enterprises capable of providing material assistance to a medical institution. In turn, medical institutions assume obligations for the treatment and diagnosis of employees of enterprises.

It is important to remember the corporate ethics of medical personnel, that a team of different specialists works in the hospital, that a positive assessment of a medical institution comes from the good name of all employees.

Rules of conduct for medical personnel.

The behavior of medical personnel may consist of the following general rules:

1. Medical staff should dress tastefully and neatly;
2. Hair should be collected under a medical cap;
3. Nails should be short;
4. Excessive cosmetics and jewelry should be avoided;
5. The use of perfumes should be limited, especially those that have a pungent odor (in addition to subjective unpleasant sensations, the patient may develop an allergic reaction, cause an attack of bronchial asthma, etc.);
6. It is very important that the health worker constantly monitor facial expressions, manner of speaking and behavior; that the doctor behave in a friendly and calm manner; all this has a positive effect on the mood of the patient and guarantees the success of the treatment;
7. When you are caring for an affective, easily irritable or, conversely, non-communicative, depressed patient, you need to be patient, emphasizing

again and again that everything is done to improve the patient's condition. When communicating with such patients, it is necessary to repeatedly repeat different information about the patient's recovery from different points of view.

Communication with seriously ill, non-recovery, environmentally insensitive patients creates difficulties

(nonoperable or incurable cancer patients, patients with severe cardiovascular disease, patients who cannot move as a result of a stroke, etc.). With such patients, it is desirable to find contact while they are cared for by a medical worker. In this case, you should try in every possible way to maintain the mood of the patient.

A nurse should never show a medical history to a patient or to another person who is not involved in the treatment process. Often there were unpleasant cases when medical personnel provided information about the disease without the permission of the attending physician.

"**Doctor's Secret**" is a concept that applies not only to doctors, but to all medical professionals involved in the treatment process.

A healthcare professional should not provide any information about a patient over the phone, no matter who they claim to be.

Test questions:

1. What is medical ethics and deontology?
2. What is the peculiarity of deontology in oncology?
3. What should be the relationship between the doctor and the patient's relatives?
4. What should be the interaction of staff in a medical institution?
5. What is meant by the relationship between the doctor and society?
6. What is the doctor's secret?

PREPARATION OF PATIENTS FOR OPERATION. CARE OF PATIENTS IN THE POSTOPERATIVE PERIOD.

In general, the collection of the patient's personal effects should be reduced by a moderate amount. Thus, whenever possible, new items should consist of new used items and new used items, new newspapers and magazines instead of old books, paper napkins should be new instead of fabric fibers. The patient's personal belongings are stored in cabinets with closed doors. Constantly used personal belongings of the patient (glasses, hair, toothbrush, toothpaste, soap in a soap dish, hearing aid for the deaf, scissors, etc.) are disinfected.

If necessary, the patient is given personal medical supplies: a waste container, a container for spitting, etc. These dishes are taken out of the room immediately after use and washed thoroughly. After completion of the treatment of the patient, personal care products are disinfected according to one of the accepted methods. In the surgical department, patients are strictly forbidden to wear clothes and shoes made of wool, since such clothes are difficult to disinfect and wash. The day-to-day monitoring of the patient's personal belongings will be monitored by the ward nurses and the head nurse.

Hygiene distribution of food and clothing to patients. The department strictly controls the transfer of food and items provided by the hospital office for surgical patients by mid-level medical personnel. Each section lists patients with each patient's dietary schedule. In places where patients rest, at reception and distribution points, instructions are posted indicating the products that can be sent to patients.

In each section, it is forbidden to carry old books and unused items that cannot be disinfected, maintain proper food storage conditions. High-calorie and perishable foods obtained in fresh plastic bags are prohibited for one to two days to avoid weight gain and food poisoning. Alcohol and spicy foods should be absolutely excluded. It is strictly forbidden to store food in closed cabinets. The nurse should regularly check the bedside tables and refrigerators in the hospital.

Hygiene of visiting the patient. In the surgical department, it is recommended to reduce the contact of the patient with relatives as much as possible in order to prevent the spread of infection and limit the spread of infection. The development and implementation of certain rules for the protection of patients and visitors should be under constant supervision. Access of relatives to the patient's room should be carried out one at a time,

and the use of special gowns and shoe covers should be carried out under the strict supervision of the junior and middle

medical personnel. Visitors should be made aware of the level of risk to which patients are exposed, especially the risk of epidemics in the region, such as infectious diseases. During peak periods of acute respiratory diseases, visits to patients in the department are as limited as possible. Visiting the surgical department with small children is prohibited. Direct access is allowed only to patients lying in the department. It is strictly forbidden to visit patients undergoing treatment in the intensive care unit. In hospitals, wet mats are used in front of entrance doors to prevent infection from entering.

They prevent the spread of infectious diseases. Rugs are of two types: rubber and foam rubber. When processing them, the following solutions are used: 1) 0.75% solution of chloramine. 2) in a 0.75% solution of chloramine, 0.5 grams with a detergent in a 2% solution of dichlor-1 or 0.5% solution of chloramine dissolve within 30 minutes. 3) 3% hydrogen peroxide solution with 0.5 grams of detergent. Visitors are warned to take precautions, such as washing hands or wearing protective clothing, when visiting patients who are particularly susceptible to infectious diseases or at high risk of infection. Visitors to the surgical departments at the entrance must change their shoes and put on special suits.

Hygiene of the sick body. Maintaining personal hygiene, cleanliness of wards and beds contributes to a faster recovery of patients. Proper care is of great importance. The heavier the patient, the more difficult it is to take care of him, the more difficult it will be to take care of the oral cavity and ears. It is necessary to clearly know the techniques of manipulation, be sure to know their implementation. Proper care for the seriously ill, care for the sick - medical measures aimed at improving the patient's condition and contributing to his recovery - the shortest way to his recovery. The components of a patient's personal hygiene during patient care include an environment in which the patient is unable to maintain himself due to his illness. Currently, physical and chemical methods based on manual work are mainly used. Patient care is divided into general and special. In general care, there are activities necessary for the patient, regardless of the nature of the existing pathological process (nutrition of the patient, change of clothes, personal hygiene, preparation for diagnosis and treatment.

Special care can be provided to a certain category of patients (surgical, cardiological, neurological, etc.) - this is a series of measures applied. Surgical care is a medical activity for the implementation of personal and

clinical hygiene in a hospital, aimed at satisfying the patient's basic needs of life and providing assistance in pathological conditions. Thus, the main tasks of surgical care are: 1) providing optimal living conditions for the patient, promoting the positive course of the disease; 2) implementation of the procedures prescribed by the doctor; 3) acceleration of the patient's recovery and reduction of complications. Surgical care is divided into general and special. General surgical care consists in the organization of sanitary-hygienic and medical-protective regimes in the department. The sanitary and hygienic regime includes: 1. Organization of cleaning of premises; 2. Ensuring patient hygiene; 3. Prevention of nosocomial infection. Therapeutic-protective mode: 1. Creation of a comfortable environment for the patient; 2. Provision of medicines, their correct dosage and use as directed by a doctor; 3. Organization of high-quality nutrition of the patient in accordance with the nature of the pathological process; 4. Correct manipulation and preparation of patients for a specific and surgical intervention.



5 - drawing. Items used by the patient.

If the patient is weak and unable to clear the nasal cavity on their own, the caregiver should remove the crusts formed daily. To do this, a piece of gauze moistened with vaseline oil, glycerin or an oil solution is carefully inserted into the nasal passages and left for 2-3 minutes, after which a piece of gauze is removed in a circular motion, and crusts are removed from the nasal cavity with it. The patient is asked to blow his nose on a handkerchief. With nasal congestion, you can drip 2-3 drops of adrenaline or other vasoconstrictor.

Oral care. Patients who cannot brush their teeth and rinse their mouth daily need regular oral care. The patient is comfortably seated or laid on one side: a wedge-shaped apron is put on the chest, the lower part of which is

covered with a sheet, and a basin is placed on the knee. The teeth are treated with movements from left to right and from top to bottom with a napkin fixed on a forceps and moistened in one of the solutions. By pressing a spatula on the root of the tongue, they take care of the throat and tongue. If the patients are conscious, it is suggested to spit out the liquid, rinse the mouth and repeat the procedure.

If the patient is unconscious, the mouth and throat are blotted with a napkin. After all cases, lips, tongue and mouth must be lubricated with oil (vegetable, sea buckthorn, etc.). If the patient cannot stick out the tongue forward, then the tongue is lifted, holding the tongue with a napkin, and processed completely. After each meal, clean and wipe the mouth and teeth with a cotton swab dipped in a weak solution of potassium permanganate, boric acid, soda or boiled water.

The tongue and mouth are wiped with a gauze swab, and then the mouth is rinsed. You can also rinse your mouth in a sitting position. The removable denture is removed, washed with soap and stored in a glass of water. To rinse the mouth, use a solution of soda (sodium bicarbonate), sodium carbonate, boric acid, hydrogen peroxide (solution not more than 3%), potassium permanganate (1: 1000) and mineral water. The temperature of the liquid used for rinsing should be 20-40 ° C, the patient is given a special container for salivation.

The mucous membrane of the mouth and tongue is wiped with a piece of gauze moistened with a 1% solution of glycerin or chamomile tincture. In addition to rinsing, you can use the application and sanitation. Application-imposition of sterile gauze soaked in a solution of furacillin for 3-5 minutes. This procedure is repeated several times a day. Sanitation is carried out with a syringe-Jane or Esmarch's mug. In a semi-lying position, an oilcloth is placed on the patient's chest, a basin is given to the patient in his hand, they are told to hold it under his chin so that the water drains.

With a spatula or spoon, they pierce the handle in turn, open the left, then the right lunge and rinse the mouth, inserting the support tube. Esmarch's mug should be 1 meter above the patient's head.

Skin care. The presence of a focus of infection in the area of the proposed incision is a contraindication to a planned operation, and if urgent measures occur, the prognosis worsens. Often, especially in elderly patients, we can see dermatitis caused by fungal flora in the skin folds, in the armpits and in the groin. In the preoperative period, all such processes must be eliminated with the help of daily hygienic baths, wipe the affected skin folds with alcohol.

It is necessary to apply powder products Nystatin and Levorin. To prevent bedsores, it is necessary to change the position of the body every 4 hours so that the patient does not lie on the same parts of the body.

Nail care. Nails are cut with small scissors, treated with alcohol or a 0.5% solution of chloramine.

Washing the patient. Patients who do not take weekly hygienic baths, as well as those who suffer from urinary and stool retention, should bathe several times a day. For washing the patient it is necessary: 1. Hot water, disinfectant solution (weak solution of potassium permanganate, furacillin, rivanol, etc.); 2. forceps, sterile cotton pad; 3. oilcloth; 4. bed. Technique of the procedure: a solution is prepared at a temperature of 30-35 ° C, the patient is placed with bent knees, an oilcloth and a vessel are placed under the buttocks. With the left hand, the attendants hold a container from which water is poured into the intermediate zone. disinfectant solution. With the right hand, a cotton swab is directed 1-2 times from the genitals to the anus, then the cotton wool is thrown away. The procedure is repeated 2-3 times. Dry cotton pads wipe the skin in the same direction. The curl of the ears is treated with petroleum jelly or baby powder. This area is lubricated with vaseline oil or baby cream.

Patient care in the postoperative period.

Care of patients after abdominal surgery.

In surgery, the operation is the most important event for the patient. Each procedure associated with surgery and anesthesia is referred to as operative stress, and their complications are considered as a postoperative condition or postoperative disease. Such stress is caused not only by direct surgical trauma, but also by a complex of various complex influences: fear, exposure, pain, exposure to drugs, trauma, wound formation, refusal to eat, the need to comply with bed rest, etc. The postoperative period is the period after the operation, preceding the complete recovery of the patient or his transfer to disability. The postoperative period is of great importance, and it is at this time that the patient needs maximum attention and care. The main goal of the postoperative period is to ensure the development of the processes of regeneration and adaptation observed in the patient in the postoperative period, as well as the prevention, early detection of possible complications. Only after an uncomplicated operation, a number of functional changes occur in the main organs and systems of the body. This is due to: psychological (mental) stress, pain in the area of postoperative trauma, foci of necrosis in the area of surgery and tissue trauma caused by factors such as the patient's compulsive state, hypothermia, malnutrition.

When the postoperative period proceeds normally, reactive changes in the body are usually moderate and last about 2-3 days. The main tasks of the postoperative period are:

1. Correction of changes in the body;
2. Control of the functional state of organs and systems;
3. Carrying out activities aimed at eliminating possible complications.

The organization of postoperative care after elective surgery requires constant and high-quality monitoring of the patient. Observation can help prevent complications, unfavorable postoperative course or the fact that the patient does not respond adequately to medical procedures, and at the same time prevent various complications. Particular attention is paid to the functional position of the patient. Muscles in the area of postoperative trauma should be as relaxed as possible. After surgery on the abdominal organs, the patient takes a semi-sitting position. For this, beds with a slightly raised head are used. Wearing a bandage can also help reduce soreness in the wound area, especially when moving and coughing. Taking care of the patient's body, along with washing the face and hands, also includes treating the skin with an alcohol solution of camphor 1-2 times a day. If necessary, skin folds are also sprinkled with talc or baby powder. Early activity of the patient is critical. To do this, it is often necessary to change the position of the body in the prone position, to perform passive and active movements. The care of the area in which the surgical practice was carried out includes monitoring the correct application of an aseptic dressing to the upper part of the wound, as well as strict adherence to asepsis when applying a dressing.

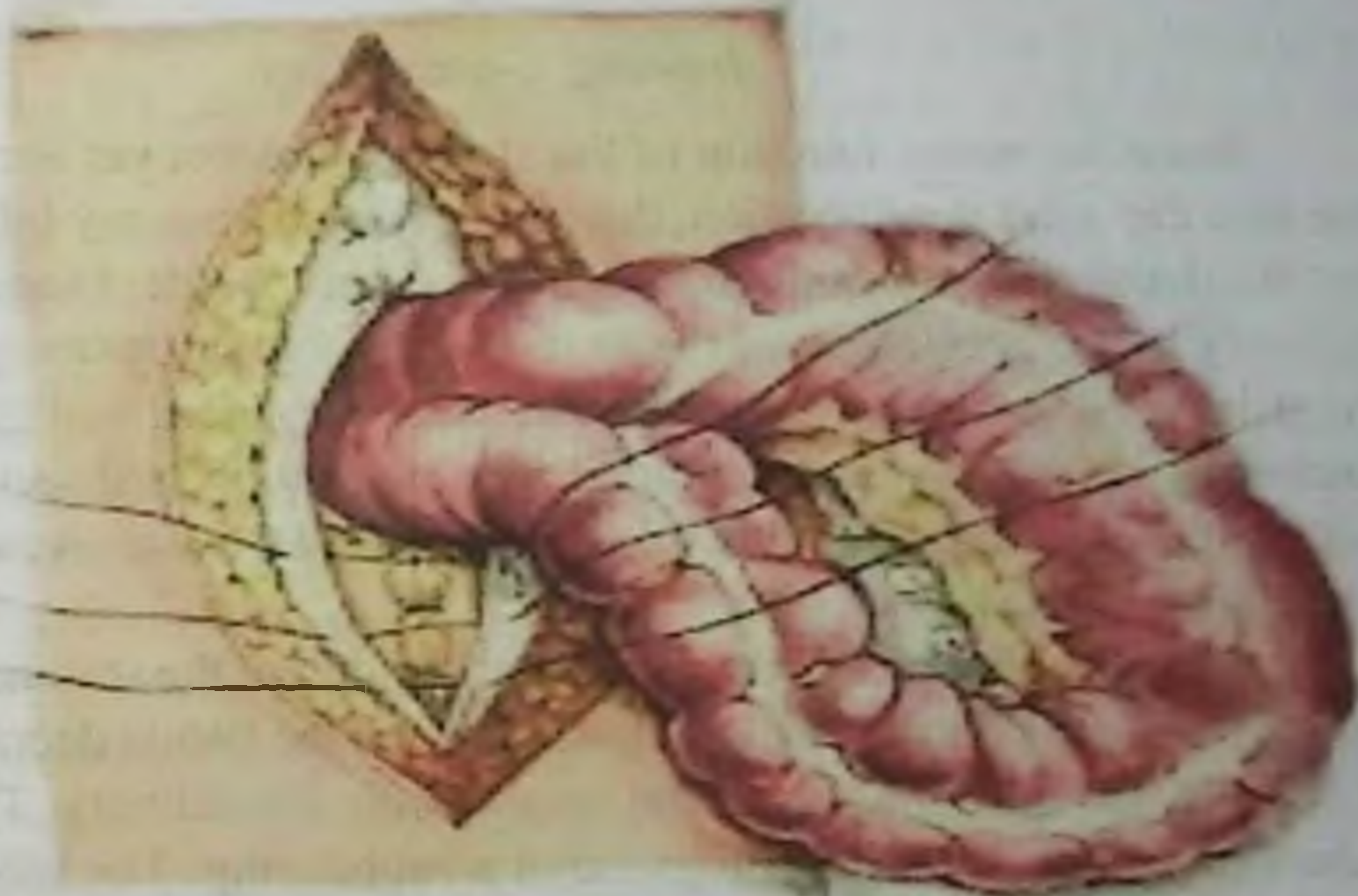
By dressing, we mean a medical and diagnostic procedure, which consists in removing previous dressings (napkins) from the wound, preventing the development of infections, conducting diagnostic and therapeutic procedures, and applying a new dressing. General care of patients in the initial postoperative period includes:

- Observation of the patient's condition;
- Use of prescription drugs;
- Use of urinary catheters and cannulas in patients on bed rest;
- Control of a condition of a drainage;
- Control of the urinary catheter;
- Feeding patients;
- Timely change of skin care products, underwear and bed linen;
- Prevention of bedsores (changing the position of the patient, frequent treatment with camphor alcohol areas where bedsores occur);

- Monitoring the state of the surgical wound: excessive soaking of dressings with blood, expansion of the edges of the wound, protrusion of the abdominal organs into the wound cavity (eventration), prevention of excessive wetting of dressings with pus, intestinal fluid;

- Control of the drainage compartment;

Postoperative wound care: application of aseptic dressings, ointment dressings; performing certain manipulations as prescribed by the doctor, depending on the type of surgical procedure - caring for patients with a colostomy, patient activity, feeding from a tube, etc.

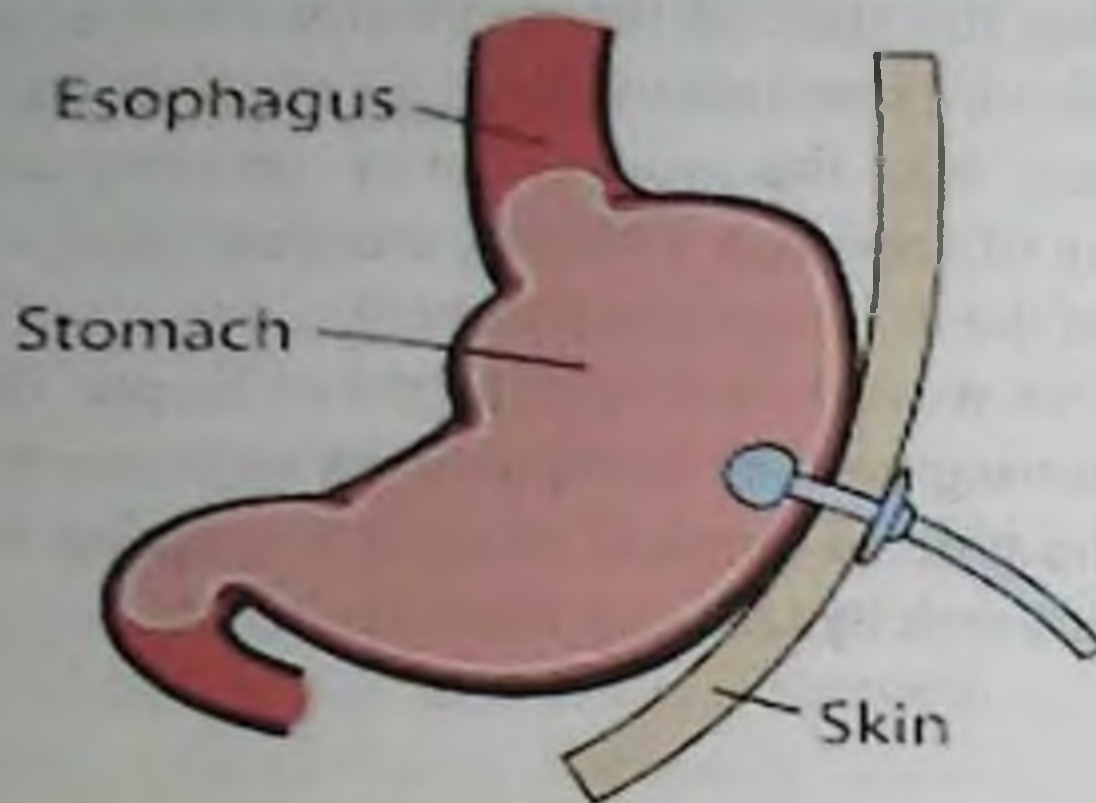


6 - drawing. Eventration.

- When caring for elderly patients, the following deontological and psychological aspects are taken into account. When talking with a patient, there is often a memory impairment, in which long-term memory is preserved, and a weakening of short-term memory, hearing loss, and vision. This not only makes it difficult to communicate with the patient, but also requires control of the time of taking medications.

Care of patients with gastrostomy.

A gastrostomy (fistula in the stomach) is placed on temporary or permanent nutrition, when it is not possible to take food through the mouth - the esophagus is completely clogged with tumors or connective tissue formations.



7 - drawing. Gastrostomy.

Since the motor function of the stomach has not yet been restored on the first day after the operation, the end of the gastrostomy tube is left open for its decompression and placed in an empty bottle located below the patient's body. The length of the outer part of the gastrostomy tube should be at least 20 cm above the skin. The amount of received gastric fluid is measured and its color is determined. The amount of fluid secreted from the fistula is usually small, and its role is compensated by intravenous fluid and hypertonic solutions.

As a rule, after a day, the emptying function of the stomach is restored, and therefore the outflow of secretions through the fistula decreases sharply. After that, the tube is blocked and opened only for delivery. To do this, the tube can be bent and tied with gauze or a rubber ring. The second option is preferable to the first, since the gauze quickly gets dirty and will have to be changed often.

The neck of the tube must be closed with a rubber stopper. The cork should have the end of the cork protruding from the tube so that it can be easily opened and used when needed. Metal clamps should not be applied to the pipe as they will damage the tube and cause discomfort on cold days. If the tightness of the gastrostomy is compromised, gastric fluid begins to flow between the tube and the anterior abdominal wall. Gastric juice accumulates hydrochloric acid and proteolytic enzymes, and therefore, after getting on the skin, after 2-3 hours it causes enzymatic dermatitis. This is manifested further by redness and swelling of the skin, the appearance of small sores. The pain inflicted on the patient causes additional suffering. With advanced dermatitis, zinc (zinc) ointment, Lassar paste, 10% aqueous solution of tannins are applied to the inflamed area, sprinkled with dry

tannin powder, talc, gypsum. Do not apply a bandage to this area, leave it open to dry in the air. Sterile gauze balls are left next to the patient's bed and they immediately wipe the product that has flowed out of the stoma. If you apply a bandage, the bandage will quickly become saturated with gastric juice, and the symptoms of dermatitis will become more severe.

When applying pastes and protective ointments (creams) to the skin, care must be taken to ensure that they fit snugly against the skin. If it does not adhere tightly to the skin, gastric juices can flow underneath. In the following bandages, the damaged areas of the paste are removed and a new one is applied. When these methods do not help, gastrostomy tightness is ensured by placing various kinds of obturators - connectors between the gastrostomy tube and the gap. The simplest of these is the application of foam tape along the tube, which increases the diameter of the tube to the desired size.

When the gastrostomy tube extends beyond the gap, it must be immediately inserted back into the stomach cavity. If this work is not done in time, within a few hours this path will change its direction due to the contraction and destruction of the tissues it contains. Inserting a gastrostomy tube is a procedure performed by a doctor. First, using a long clip with a pointed end-forceps, the direction of the wound path is checked, after which the fallen-off gastrostomy tube is reinserted into place. At the same time, one must be very practical, because one should not insert the tube into the free abdominal cavity, creating a false path. If it is necessary to replace the tubing, the new tubing must first be prepared by disinfection in an autoclave or by boiling, or by sterilization in a chemical antiseptic solution.

Ileostomy care. An ileostomy is formed after complete removal of the colon in patients with polyposis or ulcerative colitis. The terminal ileum is located in the area between the right chest and abdomen. The care of such patients consists in the collection of small intestine secretions, the prevention of enzymatic dermatitis, the choice of a diet aimed at reducing intestinal fluid, and the prevention of salt and vitamin deficiencies. The amount of intestinal fluid coming out of the fistula is usually a significant amount, from 1.5 to 2 liters per day, and has a mushy consistency. When it comes into contact with the skin, it causes reddening of the skin within an hour, and after 3-4 hours - maceration. In addition to protecting the skin from the enzymes of the small intestine, thick food, a special diet, parenteral nutrition, and drugs are prescribed. Dry food is eating a thick consistency, limiting the daily amount of liquid, taking liquid inside 30 minutes-1 hour before or after a meal. Foods that reduce the flow of fluid from the wound

are foods such as rice porridge, boiled rice, potatoes, pasta, white bread, apple juice. Avoid foods that increase the flow of fluid from the wound, such as fresh fruits and vegetables, spicy foods, whole grain breads, fruit juices, beer, alcohol, chocolate, and caffeinated drinks. Exposure to the skin around the wound can be caused by: citrus fruits, fresh apples, peas, celery, walnuts, sweet corn, coconut.

With a large outflow of fluid from the wound, fluid intake and nutrition should be limited. To compensate for these limitations, it is necessary to intravenously administer sodium chloride solutions, protein preparations, fat emulsions (for parenteral nutrition).

Colostomy care. A colonic fistula is called a colostomy and is caused by:



8 - drawing. Colostomy.

1. Mainly with obstruction of the colon due to tumor etiology (up to obstruction), to remove gases and stools; 2. When the large intestine is completely removed as a result of a tumor process, the sigmoid colon cannot be lowered to an intermediate position. The fistula of the colon can be unicorn and bicornuate. A fistula of the caecum (cecostoma) produces a mostly liquid discharge, while a fistula of the colon produces formed stools.

Skin lesions (dermatitis) only occur with caecal fistulas because they contain small intestine enzymes. 3-5 days after surgery, intestinal motility usually recovers. From this point on, the protection of the postoperative wound from intestinal products is carried out with the help of stool recipients (faeces). Patients with a colostomy need to empty their bowels regularly. If possible, this procedure should always be carried out at the same time. This is achieved through diet, drugs, enemas.

It is optimal that defecation is 1-2 times a day, in portions. If the stool is passed frequently and in liquid form, the patient is transferred to a

maintenance diet. It consists of white bread from small grains, rice, butter, cottage cheese, mashed potatoes, sugar, meat products. Products with a laxative effect are limited: wholemeal bread, raw fruits, vegetables, milk, fresh kefir, honey. When stools stop flowing, stool softeners made from plant sources (plant leaves, sea buckthorn bark, garlic water) are prescribed, and an enema is often administered. First, a gloved finger is inserted into the fistula, on which petroleum jelly is applied, and the direction of the intestinal mesentery is determined. After that, the end of the nozzle or tube is inserted in the same direction. For softening use 500-600 ml of water or 100-150 ml of 10% sodium chloride solution or 200 ml of vaseline oil solution. To eliminate the unpleasant odor emitted by gases from the intestines, it is necessary to use a colostrum (colostomy bag) with a filter, follow a diet that prevents gas formation, and use deodorants. Gas emission is enhanced by beer, mineral water, carbonated drinks, dairy products, fresh vegetables, onions, dry beans. With increased gas formation, activated charcoal is prescribed actively, in the amount of 0.25-0.3 g 3 times a day, while excluding these products from the diet. A stool collector (colostomy bag) is a tool for collecting secretions from an ileostomy or colostomy. Fecal collectors (stool bags) are sticky and attached to the patient's body with a strap. There are three types of sticky bags: one-piece, two-piece (clear or non-glossy), and mini-bags. In addition, the cover is used to close the external opening of the fistula (stoma). A one-component colostomy bag is covered with an adhesive plate attached to it, with which it is fixed on the skin. A two-component colostomy bag consists of two parts: a bag and an adhesive plate. First, a plate is attached to the skin, which acts as a "second skin", and then a bag is attached to it. The mini bag is structured like a one-piece bag, but will be very small. When the drain colostomy bags are full, the locking device at the bottom of the bag closes, opening and emptying several times during the day. Through the fixing device, the bag is washed out of the stoma in a non-separable state with running water or a nozzle. The drain self-adhesive colostomy bag is disposable and is replaced every 3-6 days. Replacement of a non-draining bag is repeated many times after the bowel is sufficiently filled with secretions.

Care of patients after chest surgery. The patient, discharged from the operating room, is placed in the recovery room. During transport, the patient is accompanied by an anesthesiologist to assist if the patient develops complications. Possible complications: vomiting, aspiration, difficulty breathing, cardiac arrest, etc. Usually, a private nurse is assigned to the patient in the first two days after lung surgery. Every hour, blood pressure,

pulse and the number of breaths are measured, X-rays are systematically taken, and blood and urine tests are taken. This allows you to identify acute or progressive complications. All this information is recorded on a special sheet, which will contain hourly instructions drawn up by the attending physician. In addition, diuresis and the amount of fluid consumed in the first two days are determined. The patient, who came from the operating room, is placed on a heated bed, covered with a warm blanket, and a heating pad is placed on his feet. Given the presence of hypoxia, oxygen therapy is performed after lung surgery. To do this, humidified oxygen is supplied into the patient's nose using rubber tubes. 6-8 hours after anesthesia, the patient is transferred to a semi-sitting position, raising the head of the bed. Walking around the ward is recommended every 2-3 days. After 2-3 days, it is recommended to inflate balloons (3-4 times a day) to better expand the rest of the lungs. There is nothing special about the food. The first 2-3 days after the operation - diet and juices are recommended. With the activation and improvement of the general condition of the patient, the diet is intensively expanding. One of the main tasks after a partial lung resection is to ensure complete and rapid expansion of the lungs. Drainage of the pleural cavity after lung resection is considered mandatory. 2 drains placed at standard points are considered preferable: the second in the midvertebral line and the seventh in the posterior axillary line, placed between the ribs. 1. Upper drainage provides expansion of the lung due to the evacuation of air from the pleural cavity.



9 - drawing. Flushing drain.

2. Lower drainage is necessary for the release of inflammatory exudate and blood. The clinic uses underwater drainage using the Bobrov apparatus. If the lungs cannot expand after the operation, the oxygen supply does not stop, active aspiration is used (at least 15 cm in water thickness) with a slight vacuum. Control of lung expansion is carried out by observation of drainage, as well as auscultation, percussion and fluoroscopy. The flow of air through the drainage indicates that the lungs are not dilated and the pathology of the bronchi is not significantly disturbed. The cessation of air intake can be caused by three reasons: 1. Complete expansion of the lungs 2. Atelectasis 3. Violations in the aspiration system. The method of fluoroscopy is preferable in the early postoperative period. This helps to examine the patient in several projections, identify functional symptoms, accurately determine the horizontal level of the fluid and determine the puncture point of the pleura. When removing the drains, care must be taken to prevent air from entering the pleural cavity.

To avoid this, drains should only be removed during active suction. It is recommended to apply 1-2 silk sutures to the wound on the skin after removal of the drainage. After the operation, the chest should be tightly sutured. This is especially important for total lung removal. Leakage of the wound leads to the fact that the air from the pleural cavity when coughing out under the skin, causing the development of subcutaneous emphysema. Due to the increase in subcutaneous emphysema, negative pressure increases in the residual pleural cavity, the chest cavity shifts towards the lesion. Subsequent wound care includes the prevention of infection because it easily enters the pleural cavity and often causes secondary empyema. Even at the slightest sign of infection, it is necessary to partially dissolve the skin sutures and ensure that the pus comes out, otherwise it can enter the pleural cavity. In such cases, the edges of the wound are wiped with an antibiotic solution. This will help fight the beginning of the infection.

How to deal with pain. Postoperative pain syndrome negatively affects the course of the disease. Patients after chest surgery may experience:

- 1) increased cyanosis, shallow breathing;
- 2) cessation of bronchial secretion as a result of consistent coughing and subsequent development of asphyxia;
- 3) increased cardiac weakness due to anoxemia and displacement of the chest. The most effective measures to combat these pains are the use of narcotic analgesics in combination with non-narcotic analgesics.

Care of patients with skeletal sprain. The skeletal stretch marks that are effective in doing so are the direct effect of stress on the bone. Stretching the skeleton allows you to gain the necessary mass. In the case of lateral stretching, when it is impossible to overcome the longitudinal load, an additional lateral load is applied. The skeletal stretching method holds bone fragments in physiological positions until they are completely fixed. The mass of the load applied during stretching is determined by the age of the patient, the level of muscle development, the amount of absorption: in case of a fracture of the femur, approximately 5th part of the body weight (8-12 kg load) is applied to the stretch, in case of a fracture of the calf bones - 2 - 4 kg. It is not recommended to hang a load on the end of the chain, it is desirable that there be a metal spring between them. For shoulder fractures, stretching is usually provided by elastic bands. The necessary cargo hangs for several days. The direction of traction should coincide with the longitudinal axis of the damaged bone. The duration of the stretch is from 4 to 8 weeks. During this time, the X-ray examination of the state of the bone fragments is repeated and, if necessary, corrected. After the dislocation is eliminated, the mass of the load decreases. You should beware of the development of infection in the places where the needles are applied. The transplantation of skeletal stretch marks should be completed within three days. If this method does not help, it is worth considering practice. Stretching the skeleton requires constant monitoring and care. The area around the spokes should be wiped with alcohol to prevent possible infection. As a result of prolonged exposure of bone fragments to soft tissues, epidermal blisters and bedsores can develop from the inside. Therefore, if a deformity is detected, it must be removed with additional tension in the lateral direction or with sandbags that are placed on the bone fragments.

After transplanting, the weight of the load must be reduced. Prolonged bed rest, especially in the elderly, creates the conditions for the development of terrible complications such as pneumonia and bedsores. To prevent inflammatory conditions of the lungs, the patient needs to perform breathing exercises, massage, stay in

sitting position. For the timely detection of complications that have arisen, it is necessary to periodically auscultate the lungs.

Clinical manifestations of the 4th stage of the development of bedsores:

1-hyperemia of the skin, which does not go away even after the cessation of pressure while maintaining the integrity of the skin.

2-persistent hyperemia of the skin, exfoliation of the epidermis, superficial violation of the integrity of the skin.

3-necrosis of the skin, penetrated to the muscle layer.

4-necrosis of all soft tissues down to the bones.

After special training, nurses take adequate measures against bedsores. Preventive measures include: 1) reduction of pressure on the bone tissue; 2) prevention of friction and tissue injury during patient movements or as a result of his incorrect position; 3) observation of the skin over bony prominences; 4) maintaining cleanliness of the skin and its moderate moisture (it should not be too dry or too wet); 5) Ensuring adequate nutrition of the patient and drinking fluids; 6) to teach the patient methods of self-help when moving; 7) to teach relatives of the patient. Pressure ulcers, which can appear quickly, especially in elderly and debilitated patients, are a serious complication that can be managed with proper care and supervision: ensuring that the patient moves regularly while lying down (the patient must sit frequently); • Treatment and massage of problem areas of the body with an alcohol solution of camphor several times a day; • Maintenance of the mattress in good sanitary condition (the mattress must be dry, without wrinkles, seams, clean), the use of air rollers to reduce pressure on areas of the body where bedsores can form.

Test questions:

1. What is the concept of patient care?
 2. What is general care?
 3. What does special care mean?
 4. What is surgical care?
 5. What is general surgical care?
 6. What is unique about surgical patient care?
 7. What is the specificity of personal oral hygiene patients?
 8. How is the longitudinal change of bed linen seriously ill patients?
 9. How is the transverse change of bed linen for seriously ill patients?
 10. How is the change of clothes (shirt) for seriously ill bedridden sick?
-
1. **What are the types of hygiene of a sick body?**
 - A. early and late
 - B. general and special
 - C. primary and secondary
 - D. acute and chronic
 2. **Is water temperature necessary for bathing a patient?**
 - a. 20-25°C
 - b. 25-30°C
 - C. 30-35°C
 - D. 40-45°C
 3. **Which of them are included in the sanitary and hygienic regime?**
 - A. all answers are correct
 - B. ensuring optimal living conditions for the patient, promoting a positive course of the disease
 - C performing the procedures prescribed by the doctor
 - D. Accelerate patient recovery and reduce complications
 4. **Which of them are included in the sanitary and hygienic regime?**
 - A. Prevention of nosocomial infection
 - B. Cleaning arrangements
 - C. Ensuring patient hygiene
 - D. All answers are correct
 5. **Who cares for patients?**
 - A. Junior and middle medical staff, relatives of patients, each has his own duties

- B. Medical assistant.
- C. relatives
- D. Physician
- E. Nursing staff

6. What does the term "special care" mean?

- A. Economical Patient Care.
- B. Extremely high level of service.
- C. Special Care.
- D. Care requires the participation of additional professionals throughout the process.
- E. Application of additional measures for the care of a patient with a specific disease.

7. For what purpose is a semi-sitting position recommended for a patient with heavy breathing in case of a disease of the cardiovascular system?

- A. In the pulmonary circulation system, the state of stagnation is reduced.
- B. In this case, feeding is preferable.
- C. Tongue retraction is prevented.
- D. prevention of asphyxia
- E. Prevention of the development of pulmonary edema.

8. What is the main essence of a functional bed?

- A. It can be moved easily and quickly.
- B. Allows the patient to assume the most optimal and comfortable position.
- C. Assists medical personnel in the functions of treatment and care.
- D. Prevention of bedsores.
- E. It can be quickly moved.

9. What are the types of surgical care?

- A. common
- B. are divided into two: general and special.
- C into three: general, daily and special.
- D. is divided into two: daily and special.

10. Postoperative period

- A. Foci of necrosis and tissue damage in the surgical area
- B. psychological (mental) stress
- C. pain in the area of the postoperative wound
- D. the period after the operation until the patient's complete recovery or transfer to disability

Pictures:

1. Will the temperature of the water be needed to bathe the patient?



- A. 30-35°C
- B. 20-25°C
- C. 25-30°C
- D. 40-45°C

2. Which of the following indicators are included in the sanitary and hygienic regime?



- A. Prevention of nosocomial infection
- B. Organization of cleaning of premises
- C. Ensuring patient hygiene
- D. All answers are correct

3. In what cases is the functional bed shown in the picture used?



- A. Edema
- B. With traumatic brain injury
- C. For all severe patients
- D. For heart disease
- E. During high temperature

4. What is the name of the process shown in the picture?



- A. Infection prevention
- B. Patient care
- C. Enema to a patient
- D. Bed linen change
- E. Patient treatment

5. What is the name of the process shown in the picture?



- A. Patient treatment
- B. Infection prevention
- C. Enema to a patient
- D. Patient care
- E. Bed linen change

BASICS OF ANTISEPTICS IN SURGERY. WAYS OF APPLICATION OF ANTISEPTICS.

Antiseptics - a set of measures aimed at combating microorganisms in a wound, pathological focus or the body as a whole.

historical explanation. There is no doubt that the scientist correctly assessed the etiopathological factors of purulent complications of wounds, the scientist M.I. Pirogov (Fig. 10).



10 - drawing.
M.I. Pirogov

During the years of the Crimean War (1853-1856), the great scientist wrote: "It can be noted that most of the wounded die not from the wound itself, but from a hospital infection."

The time will come when an in-depth study of traumatic and nosocomial infections will open up a new path of development in surgical science.

So, M.I. Pirogov came to the conclusion that before the role of microorganisms in the etiology of purulent-septic diseases was clarified, the causing factor was some invisible, organic objects that were in the environment, on the hands of the surgeon, tools, and care items.



11 - drawing.
I.F. Semmelweis

Hungarian doctor I.F. Semmelweis began to use the antiseptic in practice in 1847 (11-figure). He suggested that during childbirth, the birth canal of a woman, the hands of a midwife, instruments and all instruments that came into contact with the birth canal be treated with a solution of bleach. This method has reduced mortality in the obstetric clinic by three times.



12 - drawing.
Louis Pasteur



13 - drawing.
Joseph Lister



14 - drawing.
With the help of special equipment, a solution of carbolic acid was sprayed into the operating room

The scientific justification for the development of antiseptic methods in surgery was the discovery by Louis Pasteur in 1863 of the processes of fermentation and putrefaction.

Louis Pasteur discovered that these processes are caused by certain microorganisms (Figure 12).

Studying the causes of death of postoperative patients, the English surgeon Joseph Lister came to the conclusion that these complications were caused by microorganisms that got into the surgical wound, and developed a set of measures that make up the antiseptic methods of 1867 (Figure 13).

1. A solution of carbolic acid was sprayed into the operating room using a special apparatus. (14-figure).

2. Surgical instruments, suture and dressing materials, as well as the surgeon's hand were disinfected with a 2-3% solution of carbolic acid.

3. The working area was treated with 2 - 3% solution of carbolic acids.

4. After the operation, the surgical wound was closed with a special bandage impregnated with 5% carbolic acid.

With the introduction of the Lister method into practice, a new stage of its development began, called the antiseptic period. However, along with the positive aspects of the Lister antiseptic method, negative ones began to be observed. Inhalation of carbolic acid vapors in the air of the operating room led to the poisoning of medical personnel and the patient, the treatment of the surgeon's hands with a 2-3% solution of carbolic acid had a strong effect on the skin, the dressing impregnated with a solution of carbolic acid applied to the surgical wound killed microbes, and also caused extensive tissue necrosis.

As a result of the further development of microbiology, it was proved that microorganisms can also be killed by exposure to high temperatures. Surgeon Subbotin M.S. and E. Bergman proved that microbes on surgical instruments, operating rooms, dressings and suture materials can be removed with boiling water and steam. E. Bergman and his student Shimmelbusch developed asepsis in surgery. At the X International Congress of Surgeons in Berlin in 1900, Aseptica received full recognition after the death of Bergmann. In the early years, the use of asepsis only in practical surgery without antiseptics revealed its shortcomings. Refusal of antiseptics did not justify itself. With the development of chemistry, less toxic antiseptics, which allowed the use of asepsis in combination with various antiseptics.

There are the following methods of antiseptics:

1. Mechanical antiseptic
2. Physical antiseptic
3. Chemical antiseptic
4. Biological antiseptic

Several of these antiseptic methods are performed together and are called mixed antiseptics.

Mechanical antiseptic.

Of great importance in preventing the development of bacteria in the wound is the removal of necrotic tissues from the wound, foreign bodies, which can be a breeding ground for microbes by mechanical methods. To do this, the wound is subjected to primary surgical treatment and a primary surgical suture is applied: the edges and walls of the wound are cut at the border of healthy tissue to the very bottom, and the integrity of the tissue is restored by suturing.

The method of mechanical treatment of the wound was introduced in 1836 by A.A. Charukovsky began to use it.

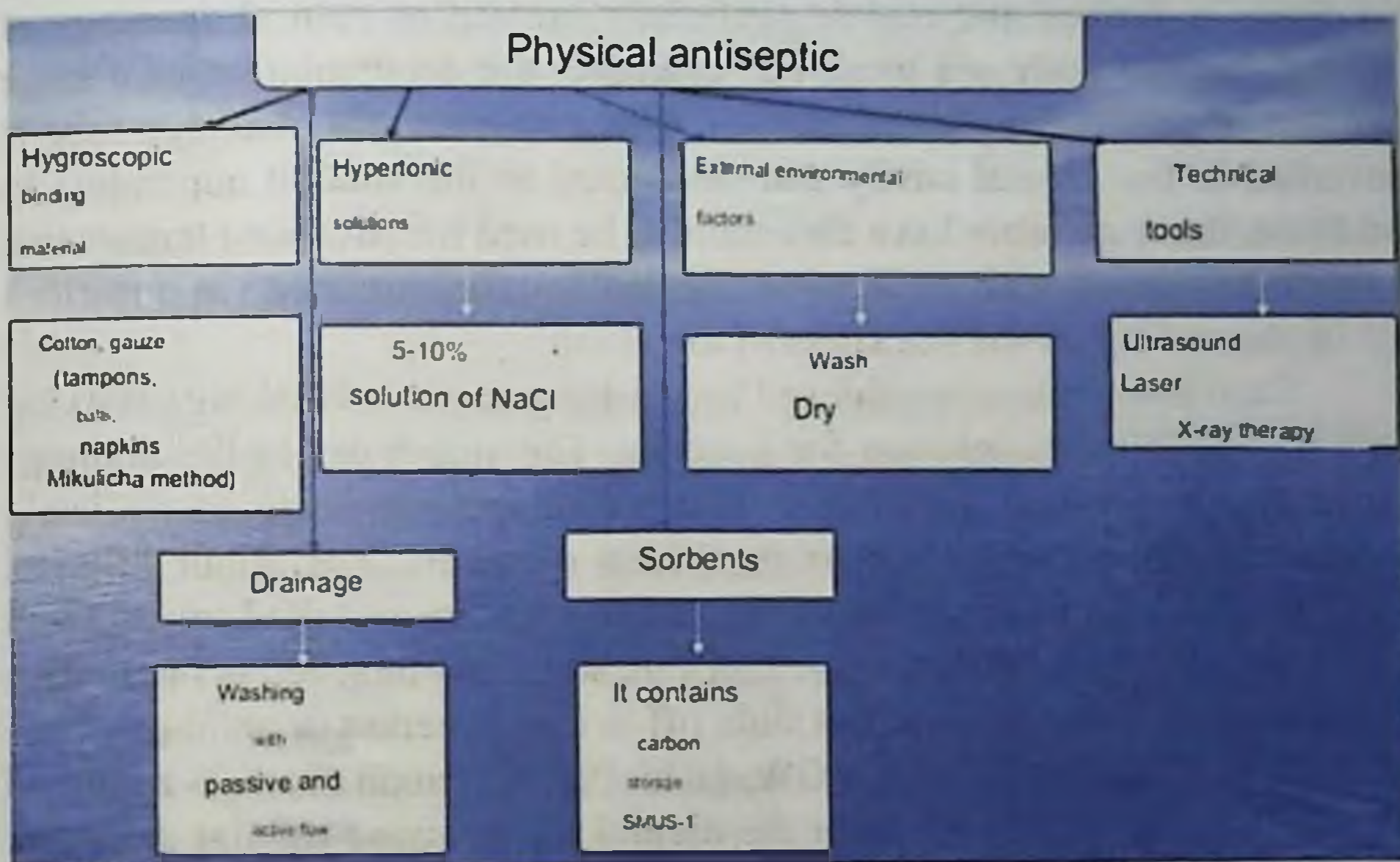
Physical antiseptic.

The use of physical factors aimed at creating unfavorable conditions for the development of bacteria in the wound, reducing the absorption of their toxins and decay products of microorganisms, constitutes a physical antiseptic. The main function of a physical antiseptic is the release and absorption of wound exudate into the dressing, based on the phenomenon of hygroscopicity, which is realized due to the absorption of wound exudate by the medical gauze itself. (M.Ya. Preobrazhensky, 1894).

Table 1.

Types of physical antiseptics are presented in the table below

Types of physical antiseptics.



The method of actively removing exudate from a purulent wound or cavity is called drainage. It is carried out with the help of drainage tubes. The most common type of drainage tube is a gauze tube of various lengths and widths.

Rubber tubing and gaskets are used as drainage tubes to drain festering wounds or cavities. Sometimes in clinical practice, rubber and gauze drains are used together to drain wounds.

The use of gauze is based on the fact that it has hygroscopicity and this property is enhanced by impregnation with a hypertonic (5-10%) sodium chloride solution. Gauze drainage, located in the wound cavity, opens its edges, preventing the accumulation of pus. When draining, the exudate in

the wound can come out passively (into the bandage, into the Bülow drainage in the wound) and active - Redon's vacuum drainage.

Open wound care, the use of ultraviolet rays, laser beams and ultrasound are also part of physical antiseptics.

For open wound care due to the drying of tissues, unfavorable conditions for the reproduction of microbes are created, especially if the surface of the wound is in an abacterial environment created with the help of special devices.

Drainage tubes Tubes with red rubber side holes, proposed by the French surgeon Chassagnac, are used to remove pus accumulated in the wound and wound fluid in general.

Previously used tubes made of glass, aluminum, tin. Currently, the use of drains is limited and mainly artificially created or natural openings of wounds on the body are used. For example, the accumulation of a large amount of pus in the pleural cavity - with empyema, the drainage tube is installed in the pleural cavity and connected to the suction apparatus. In addition, drainage tubes have also come to be used for advanced tumors that cannot be reduced with medication. Typically, tubes are made in quantities of 16, depending on the thickness of the colon.

Their disinfection is achieved by washing in water (shaking), soaking in a 0.5% sublimate solution for 3 weeks. The side holes of the drainage pipes (no more than 1/3 of their circumference) are made immediately before installation with scissors or special secateurs. For minor injuries, fistulas, etc. Instead of drainage pipes, tar pipes are installed, made from longitudinally cut tubes. Drainage tubes are somehow attached to the surface of the wound so that they do not slide off in one direction or another.

Bülow drainage (G. BULOW, 1835-1900, German doctor) - a method for removing fluid and air from the pleural cavity using tubular drainage, which is fixed through the chest wall using a trocar and works on the principle of a capture vessel. At the outer end of the drain is a rubber-gloved valve to prevent re-entry of air.

The most common types of drainage include the Redon drain.

Ultra-violet rays have a bactericidal effect, stimulates the immune system and accelerates the processes of cleansing, regeneration in wounds.

Low Energy Laser Beam

changes chemical reactions in tissues, sensitivity to red and infrared radiation.

Of the other physical factors in clinical practice, diadynamic current (Bernard current), electrophoresis with various antiseptics, and X-ray therapy are widely used.

Ultrasonic method-bactericidal action is based on the process of cavitation - the impact of a pressure pulse on a microbial cell at a speed exceeding the speed of sound.

With a high energy of the laser beam, the following changes occur in the tissues:

- 1) the temperature rises sharply, resembling a thermal burn;
- 2) as a result of a short-term transition of solid and liquid substances to a gaseous state, intracellular and interstitial pressure increases sharply, i.e., an "explosion effect" occurs;
- 3) an electric field arises that changes the electrical characteristics, specific gravity, dielectric constant of tissues, as a result of which a sterile coagulation curtain is formed on their surface, which prevents the absorption of toxins.

Laser ray

Two types of laser beams are used in medicine - high-energy and low-energy.

The high energy laser beam has the following effects:

The temperature in the tissues reaches several hundred degrees. The observed changes in tissues resemble thermal burns;

The "explosion effect" that occurs in the tissues - the "shock jet" - occurs as a result of the instantaneous transition of solid and liquid substances to a gaseous state. As a result, intracellular and tissue pressure rises sharply;

The high energy of the laser beam causes an electrochemical effect in the form of a change in electrical parameters, specific gravity, dielectric constant, etc., which leads to the appearance of an electric field in the tissues. As a result, a sterile coagulation veil is formed on the surface of the tissue, which prevents the absorption of toxins and the spread of infection.

Low energy laser deliberately alters reactions in tissues.

A low-power laser plays the role of an optical catalyst for chemical reactions that are sensitive to red and infrared radiation.

Monochromatic red color has an anti-inflammatory and vasodilating effect, improves metabolic processes, accelerates the process of proliferation of young cells of the bone marrow and spleen, the growth and development of blood vessels.

Antibacterial controlled environment - open method of treatment of wounds and burns; is based on the creation of a sterile environment and microclimate that are moderate for the wound process, but unfavorable for microbes that multiply in the wound. In an abacterial controlled environment, treatment is carried out in combination with active surgical procedures (cutting tissue that has lost viability in the wound, proper drainage) followed by removal of the wound surface with sutures or skin plasty. Special arotherapy devices have been created for an abacterial controlled environment. After filtering the atmospheric air in arotherapy devices, it is freed from fine dust, microbes and becomes sterile. Then the temperature, pressure, air flow and its relative humidity are adjusted individually for each patient. An excess of all physical factors of an abacterial controlled environment reduces arterial blood flow, accelerates venous blood flow, and relieves tissue edema. Thus, a soft, easily removable coating is formed on the surface of the wound. Regular removal of the coating containing germs will lead to cleansing of the wound. Treatment in an abacterial controlled environment reduces the level of reproduction of gram-negative pathogenic microflora by 4-6 times in a short time (5-7 days). The number of microbial bodies per 1 g of tissue in the wound is sharply reduced.

Chemical antiseptic

A chemical antiseptic is said to remove microbes from a wound, a lesion, or the patient's body and the environment of the lesion with the help of chemicals. The use of various chemicals that have a bactericidal or bacteriostatic effect constitutes a chemical antiseptic. The general and local action of chemical antiseptics must be sufficiently safe for the microorganism and its tissue cells and lethal for microbes. Antiseptics have oxidizing, adsorbing, protein denaturing, dehydrating and other actions on microbes. Currently, a large number of antiseptics are used. The substances listed below are best known.

The main groups of chemical antiseptics

halide group

Chloramine B. 1-3% solution is used to disinfect hands, non-metallic instruments, catheters, drains and gloves.

Iodine. 5 - 10% alcohol solution of iodine is a powerful antiseptic agent with bactericidal, bacteriostatic, antipyretic and astringent action.

Yodonat. 1% solution is used when processing the working area.

Iodopyrone. A 0.1% solution is used to treat the surgeon's hand, a 1% solution is used to treat the surgical field, and a 0.5 - 1% solution is used to treat purulent wounds.

Lugol's solution (Iodine - 1 part, potassium iodite - 2 parts, water-17 parts). Catgut is used for sterilization, wiping the throat and larynx in bacteria carriers. When preparing patients with thyrotoxic goiter for surgery, it is recommended to take 10-15 drops 2 times a day inside.

Yodobak. The drug is used in the treatment of mucous membranes, skin, wounds, wounds, bedsores, surgical field. It has bactericidal, sporicidal and virucidal properties. It has the ability to kill *Mycobacterium tuberculosis*.

Chlorane, chlorantoin. This is a tool in the form of powder or tablets, intended for the preparation of disinfectant solutions.

Yoddicerin. Used in the treatment of purulent infection.

Oxidizers

Hydrogen peroxide. When treating wounds, a 3% aqueous solution of hydrogen peroxide is used. On the other hand, a 6% solution is used to disinfect surgical instruments.

Potassium permanganate. It is a strong oxidizing agent. Aqueous solutions are used for rinsing the mouth, washing the stomach, treating purulent wounds (0.1 - 0.5%) and treating burns (2-5%).

Heavy metal salts

Sublimate solution (1:1000-1:2000) has a strong bactericidal effect. Used to sterilize silk, disinfect skin, sheets, clothes, gloves, metal catheters, patient care devices.

Mercury oxycyanide - is a disinfectant and is used in a ratio of 1: 1000 and 1: 5000 for washing the bladder, disinfecting optical instruments, cystoscopes, rectoscopes, laparoscopes.

Diocide. A diocide solution in a ratio of 1: 5000 is used when processing ash. A solution in a ratio of 1:1000 is used for cold sterilization of sewing threads (catgut), nails, and tools.

Silver nitrate. 0.1 - 0.2% solution is used for washing wounds and purulent cavities, 1 - 2% solution for treating wounds and cracks, 5-10% - for cauterizing excess granulate.

Protargol 1 - 5% solution is used in urological practice for rubbing into mucous membranes.

Collargol (colloidal silver). 0.2-1% solution is used to treat wounds. On the other hand, a 2% solution is administered intravenously for sepsis.

Inorganic acids and alkalis

Boric acid. 2 - 3% aqueous solution is used when washing purulent wounds, fistulas, cavities infected with *Pseudomonas aeruginosa*.

A solution of ammonia. A 0.5% solution has an antimicrobial and sporacid effect. It is used when processing the surgeon's hands using the Spasokukotsky-Kochergin method.

Sodium bicarbonate solution. A 2% solution raises the boiling point to 104-106°C, it is used in the sterilization of medical instruments. On the other hand, a mixture of 1% ammonia and 3% hydrogen peroxide is used to disinfect drains and catheters.

Alcohols

Ethanol. A 70% solution is used for disinfection, and a 96% solution is used to disinfect the surgeon's hands, store sterile silk, and disinfect sharp instruments.

Aldehydes

Formaldehyde or formalin solution (Aqueous solution containing 36.5-37.8% formaldehyde). It has a strong bactericidal effect. It is used for disinfection of rubber gloves, drains, medical instruments.

Lysoform. Consists of 40 parts of formalin, 40 parts of potassium soap, 20 parts of ethyl alcohol. It has a disinfectant and deodorizing effect. 1 - 3% solution is used to disinfect medical instruments and surgeon's hands.

Carsolex - Bazik. This tool is designed for disinfection of thermolabile and thermostable medical devices.

Phenols

Phenol, or carbolic acid. 2 - 3% solution is used for disinfection of drains, catheters, gloves, medical instruments.

Lysol. A 10% solution is used to disinfect bed linen, wipe operating rooms and dressing rooms, and a 1-3% solution is used to deodorize hands.

Birch resin (birch tar). It has a disinfectant property, is part of the Vishnevsky Ointment, used in the treatment of wounds.

Picric acid. A 5% solution is used to disinfect the skin.

Ichthyol. It is used in the form of 5-20% ointment, as well as suppositories. Has anti-inflammatory action.

Three-component solution (Krupenin's solution). Ingredients: carbolic acid (3 g), sodium carbonate (15 g), formalin (20 g), distilled water (100 g). It is used for sterilization of sharp cutting instruments, adhesive products, polyethylene tubes.

Organic acids

Salicylic acid. As an antiseptic, 1-2% alcohol solution, 2-5% UPA and 1-10% ointment are used.

Dyestuffs

Brilliant green. 1-2% aqueous or alcoholic solution is used for catgut sterilization, treatment of the surgical field and wound surface.

Ethacridine lactate (Rivanol). An aqueous solution of 0.05-0.1% is used to treat pyoderma.

Methylene Cookies. 1 - 3% alcohol solution is used to treat superficial wounds and treat pyoderma.

Detergents

Serigel. Used for manual processing.

Degmicide. A 1% solution is used in the processing of ash and the working area.

Chlorhexidine. Chlorhexidine is available as a 20% digluconate aqueous solution. When processing with ashes, a 5% alcohol solution is used.

Rocal. A 1:1000 solution is used to treat the surgeon's hands, a 1% solution is used to treat the surgical field, a 1:1000 solution is used to treat surgical instruments, a 10% solution is used to sterilize rubber gloves.

Organic substances of natural origin

Chlorophyllipt. It is used in the treatment of purulent wounds. A 1% alcohol solution is mixed with a 0.25% novocaine solution in a ratio of 1:5.

Nitrofuran Products

Furacilin (Produced in the form of tablets of 0.1 g and 0.02 g). It is used for the treatment of purulent wounds in the form of a 0.02% aqueous solution or 0.066% alcohol solution and in the form of a 0.2% ointment for the treatment of wounds in the phase of dehydration, bedsores, burns.

Furazolidone (trichofurin, tablet 0.05 g). Drink.

Furagin. Produced in the form of tablets of 0.05 g for oral administration.

Furadonin. Produced in the form of tablets of 0.05 g for oral administration.

In clinical practice, also nitrofurantoin, APO nitrofurantoin (nifurantin), nifurtoinol (levantin), nifuroxazides are used.

Sulfanilamide preparations

Sulfonamides are active antimicrobial agents.

They are bacteriostatic but can be bactericidal in high concentrations.

According to the therapeutic effect, sulfonamides are divided into 2 groups:

- 1) drugs used for systemic infections and administered orally;
- 2) drugs used for intestinal infections: sulgin, succinylsulfathiazole, sertalazol, salicylazosulfapyridine, etc.

By duration of exposure:

1. Short-term agents: **norsulfazol** (0.5 g tablet), **norsulfazol sodium** (5% solution), **sulfazine** (0.5 g tablet), **sulfadimezin** (0.5 g tablet), **sulfacyl sodium** (30% solution), **sulfafurazine** (0.5 g tablet), **etazol** (0.25 and 0.5 g tablet), **etazol sodium** (10% and 20% solution).

2. Means with a medium-term effect: **sulfamethoxazole** (0.5 g tablet), **sulfazimosin** (0.5 g tablet), **sulfafenazole** (0.5 g tablet).

3. Long-acting drugs: **sulfadimethoxine** (madribon; tablets of 0.2 and 0.5 g), **sulfamethoxine** (tablet 0.5 g), **sulfapyridazine sodium** (10% solution), **sulfamethoxine** (tablet 0.5 g), (kelfisin; tablet 0.2 g), (18.5% li eritma), **trimethoprim**.

Sulfonamides are also used in the form of ointments: 10% streptocidal ointment, etc.

Quinoxalines

Dioxidine. A 1% aqueous solution is used to wash purulent wounds, and a 5% ointment is used to treat burns and trophic wounds. With sepsis, a 0.5% solution is injected intravenously (the drug is mixed with a 5% isotonic solution of glucose or sodium chloride).

Quinoxidine. Used in the treatment of purulent inflammation.

Nitronidazole products

Metronidazole (available in the form of tablets of 0.25 and 0.5 g, suppositories of 0.5 g, preservative solutions of 500 mg of metronidazole in 100 ml vials).

Naphthyridines and quinolines

Nevigramone (nalidixic acid, negral; in the form of capsules and tablets of 0.5 g). Used for urinary tract infections.

Gramurin (oxolinic acid: tablets of 0.25 g). Used for urinary tract infections.

8-hydroxyquinoline derivatives

Chlorbinaldol (quezil, chlorhexidine; 0.1 g tablets). Intestopan (tablets of 0.2 and 0.04 g). It is used for intestinal infections.

5-NOK (Nitroxoline, nibiol, nitrox; tablets of 0.05 g). Used for urinary tract infections.

Drugs with anti-inflammatory action.

Dimexide (Produced in ampoules of 10 and 25 ml, vials of 50 and 100 ml). A 20-30% solution of dimexide is used in the treatment of deep burns and wounds, a 25-50% solution is used for compresses, a 10-15% solution is used for microclysters.

Sodium salt of mefenamin (Produced in the form of 0.1 - 0.2% aqueous solution or 1% paste).

Other antiseptic agents

Sterilium is a surgical and hygienic hand sanitizer. It has bactericidal and fungicidal action. It inactivates hepatitis B virus, herpes virus, rotavirus, human immunodeficiency virus (HIV). Kills mycobacterium tuberculosis.

Sterilium virugard hand sanitizer. It has a bactericidal, fungicidal and virucidal effect (HIV, hepatitis B virus, etc.). Kills mycobacterium tuberculosis.

Cutasept is a tool designed to treat the surgical field before and after surgery (colors). It has bactericidal, fungicidal, virucidal action. Kills mycobacterium tuberculosis.

Cutasept F is a (non-coloured) agent intended for the treatment of skin and wounds before and after surgery. It has bactericidal, fungicidal, virucidal action.

Iodobak is a disinfectant for skin, mucous membranes, etc. It has a bactericidal, fungicidal, sporocidal and virucidal effect. Kills mycobacterium tuberculosis.

Baktolin Basic is a universal hand and body wash. Does not contain soap and alkalis.

Biological antiseptic

The founder of biological antiseptics Louis Pasteur. The use of various biological products that have a bactericidal or bacteriostatic effect constitutes a biological antiseptic. The general and local effects of biological antiseptics should be sufficiently safe for the macroorganism and its tissue cells and deadly for microbes.

Biological antiseptics include antibiotics, bacteriophages and toxoids. They create unfavorable conditions for the development of bacteria in and around the wound, reducing the absorption of toxins and tissue decay products.

This group also includes proteolytic enzymes that dissolve dead tissue, fibrin and pus, contributing to faster wound cleansing, as well as reducing swelling and providing an anti-inflammatory effect.

Antibiotics are considered biological antiseptics that affect various stages of microbial cell metabolism.

There are the following groups of antibiotics.

Fluoroquinolones

Oxoflacin (tarivid, zinocin, meneflox; 0.2 g or tablets).

Pefloxacin (abactal, peflobid; 0.5 g tablet; 5 ml ampoules containing 0.4 g pefloxacin).

Ciprofloxacin (arflox, aphenoxin, ificipro, siflox, lyproquin, sifran, cypronal; tablets of 0.25; 0.5 and 0.75 g; 0.2% solution in vials of 50 and 100 ml; 1% solution in ampoules of 10 ml with the addition of 5% glucose solution). **Lomefloxacin** is also used in clinical practice.

Penicillins

Sodium (potassium) salt of benzylpenicillin (Powder for release in vials of 250,000, 500,000 and 1,000,000 TB).

Novocaine salt of benzylpenicillin (Powder for release in vials with a capacity of 300,000, 600,000 and 1200,000 TB).

"**Novocin**" is a mixture of benzylpenicillin with novocaine and sodium salt (available as a powder in vials of 300,000, 600,000, 1,200,000 and 2,400,000 TB).

Bicillin-3 (As a powder in vials of 300,000, 600,000, 900,000 and 1200,000 TB).

Bicillin-5 (As a powder in vials with a capacity of 1,500,000 TB).

Phenoxymethylpenicillin (0.1 and 0.25 g tablets, vials 0.3, 0.6 and 1.2 g powder).

Oxacillin sodium salt (flaconazole 0.25 and 0.5 g, 0.25 and 0.5 g tabs).

Dicloxacillin sodium salt (bottles of 0.125 and 0.25 g in powder form, capsules of 0.25 g).

Ampicillin (Produced as a powder of 5 g in vials for the preparation of tablets and capsules of 0.25 g, suspension).

Ampicillin trihydrate (in the form of tablets and capsules of 0.25 and 0.5 g).

Ampicillin sodium salt (0.25 and 0.5 g of powder in vials).

Ampiox-sodium (0.1, 0.2 and 0.5 g of powder in vials).

Carbenicillin disodium salt (1 g powder in vials).

Unazine (a mixture of sulfabactam and ampicillin; in the form of a powder of 0.75, 1.5 and 3 g in vials).

Azlotcillin (in vials of 0.5; 1.0; 2.0; in the form of a powder of 4, 5 and 10 g).

Amoxicillin (1 g tablet, 0.25 and 0.5 g capsules).

Amoxiclav (amoxicillin + clavulanate; available in the form of tablets of 0.375 and 0.625 g, powder of 0.6 and 1.2 g in vials).

Group of cephalosporins

Cephaloridine (seporin; 0.25 vials; 0.5 and 1.0 g powder).

Cephalosin (reflin, cefzol, Cefazolin biohemi; in vials of 0.25; 0.5; 1.0 and 2.4 g in powder form).

Cephalotin sodium salt (keflin; 0.5 in vials; 1 and 2 g in powder form).

Cephalexin (sporidex); in the form of capsules of 0.25 g and tablets of 0.5 g, powder of 2.5 g in vials (for suspension).

Cefuroxime (zinocephal, cefogen, Zinat; in the form of a powder of 0.75 g in vials).

Cefuroxime-axetil (as a powder of 0.75 g in vials).

Cefotoxin (in the form of powder 0.5 and 2 g in vials).

Ceftriaxone (Rocephin, oframax; as a powder of 0.25 g in vials).

Cefoperazone (medocef; in the form of powder 0.5 - 1.0 g in vials).

Ceftazidime (Fortum; 0.25; 0.5; 1 and 2 g of powder in vials).

Cefpiram (as 2 g powder in vials).

Oframax (in the form of powder 0.25 and 1 g in vials).

Cefobid (in the form of a powder of 1 and 2 g in vials).

Zinacef (250 mg powder in vials).

Aminoglycosides

Neomycin sulfate (tablets of 1 and 0.25 g, in vials of 0.5 g in powder form, 0.5% and 2% ointment).

Monomycin (in the form of a powder of 0.25 and 0.5 g in vials, tablets of 0.25 g).

Kanamycin sulfate (in vials as a powder of 0.5 g, in ampoules 5-10 ml of a 0.5% solution).

Gentamicin sulfate (in the form of powder 0.08 g in vials, 4% solution in ampoules of 1 and 2 ml).

Tobramycin (brulamycin; 40, 50, 75, and 80 mg powder in vials).

Sizomycin sulfate (5% solution in 1 ml ampoules).

Monomycin (in the form of a powder of 0.25 and 0.5 g in vials, tablets of 0.25g).

Amikacin (in 2 ml ampoules).

Neogelazole (neomycin preservative aerosol).

Sofradex (neomycin preservative eye and ear drops).

Garozon (ointment 5 g, drops in vials of 5 ml, preservative gentamicin).

macrolides

Erythromycin (0.1-0.25 g per tab).

Erycycline (0.25 g capsule).

Oleandomycin phosphate (0.125 g per tab).

Oletetrin-combined (oleandomycin phosphate + tetracycline; 0.125-0.25 g in tabs, 0.25 g in caps).

Macropen (400 mg per tab).

Clarithromycin (250 mg per tab).

Lincomycin group

Lincomycin hydrobromide (30% solution of 1 ml in an ampoule, drops of 0.5 g in a vial).

Clindatin (Capsules of 0.25 and 0.075 g).

Streptomycin group

Streptomycin sulfate (in the form of powder 0.25 and 0.5 g in vials).

Streptomycin calcium chloride complex (in the form of powder 0.1; 0.2 and 0.5 g in vials).

Levomycesin group

Levomycesin (Pills 0.25 and 0.5 g, eye drops 0.25%, Levomekol ointment, Levosin, Levovinisol aerosol).

Chloramphenicol stearate (tablets of 0.25 g).

Chloramphenicol succinate (soluble powder, 0.5 and 1 g in vials).

Synthomycin (synthomycin liniment).

"Iruksol" (contains chloramphenicol).

Tetracycline group

Tetracycline (tablets 0.05 and 0.25 g, 0.1% eye ointment).

Tetracycline hydrochloride (0.1 g tablets, eye ointment, 0.1 g powder in vials and 0.25 g capsules).

Oxytetracycline dihydrate (0.25 g tablets, Oxyzon ointment).

Oxytetracycline hydrochloride. It is used for the preparation of "Pokemon" ointment, aerosols "Oxycyclazole", "Oxycort", "Geocorton-spray".

Chlortetracycline hydrochloride (10 g ointment, Eye ointment).

Morphocycline (in the form of powder 0.1 and 0.15 g in vials).

Metacycline hydrochloride (capsules of 0.15 and 0.3 g).

Doxycycline hydrochloride (vibramycin, capsules of 0.05 and 0.1 g).

Rifampicins

RifampicinSV (rifocin; 125 and 250 mg in ampoules of 1.5 and 3 ml with the preservation of the main substance, 500 ml in ampoules of 10 ml with the preservation of the main substance).

Rifampicin (benericin; capsules of 0.05 and 0.15 g).

Thienamycins

Tienam (combination of imipenem and silastin sodium), daily allowance

1 - 2 years

Aztreonam (in the form of powder 0.5 - 1 g in vials).

Meropekam (in the form of powder 0.5 and 1 g in vials).

Antibiotics against fungi

Nystatin (500,000 TB preservative tablets, 30 and 50 g liquid ointment).

Levorin (preservative tablets of 500,000 TB, ointment of 30 and 50 g).

Levorin sodium salt (as a powder 200,000 TB in vials, for inhalation and rinsing).

Amphotericin V (50,000 TB powder, IV and inhalation vials, and ointment).

Amphogluamine (100,000 TB tablets).

Mikoseptin (tablets of 50,000 TB).

Econazole (10 g - 1% cream).

Miconazole (ointment "daktarin" in tubes of 15 g).

Microspor® (bifonazole; 10 g cream).

Lamisil® (Terbinafine; tablets of 125 and 250 mg, 1% cream).

Clotrimazole (15 g of cream).

Antibiotics of different groups

Ristomycin sulfate (as 100,000 and 500,000 TB powder in vials).

Fusidin-sodium (tablets of 0.125 and 0.5 g).

Diethanolamine fusinate (in the form of powder 0.25 and 0.5 g in vials).

Gel "Fusidine" 2% (in tubes of 15 g).

Gel "prefusin" (15 g in aluminum tubes).

Polymyxin-m sulfate (tablets of 500,000 TB, in the form of a powder of 500,000 and 1,000,000 TB in vials, ointment in tubes of 10 and 30 g).

Polymyxin-b sulfate (as a powder of 25 and 50 mg in vials for intramuscular injection).

Gramicidin (2% alcohol solution, gramicidin paste).

Gramicidin c (tablets 0.5 mg - 1500 TB).

proteolytic enzymes.

Animal derived (trypsin, chymotrypsin, ribonuclease), bacterial derived (streptokinase, terrilin, collagenases, ribonuclease, Iruxol, Esperanza) and plant derived (papain, bromelain) are proteolytic enzymes. Proteolytic enzymes can be applied topically (into a wound), intramuscularly, intraosseously, by inhalation and endobronchially.

Active and passive immunization

Active and passive immunization are used to enhance the protective properties of the body and increase immunity.

Active immunization with toxoids (against staphylococcus, tetanus), for passive immunization, drugs are used that retain antibodies against pathogens of surgical infection (anti-staphylococcal gamma globulin, anti-tetanus gamma globulin, anti-tetanus serum).

Means that enhance regeneration processes in the wound by increasing the body's resistance include interferon, prodigiosan, lysozyme, Levamisole, T-activin and Timalin, myeloid, a complex immunoglobulin preparation containing immunoglobulin IgG, IgM and IgA.

Mixed antiseptic.

In clinical practice, the combined use of several antiseptics and the combined use of several different antiseptic methods are often observed. This improves the efficiency of patient care. Because in many cases it is difficult to achieve full effectiveness using one method of antiseptic, and then the combined use of several types of antiseptic is the most preferred method.

Mixed antiseptics are still widely used in practice. For example:

1. During the initial treatment of the wound, necrotic tissue is cut (mechanical antiseptic);
2. The wound surface is treated with ultrasound (physical antiseptic);
3. Gauze swabs are introduced into purulent wounds (physical antiseptic);
4. They are impregnated with a solution of boric acid (chemical antiseptic);
5. Antibiotics (biological antiseptics) are used.

Ways to use antiseptics:

Enteral administration - antiseptic substances are administered through the gastrointestinal tract.

External (superficial) application - antiseptic agents are applied to wounds in the form of powder, ointment and solution.-

Introduction into cavities, by introducing antiseptic substances into the articular, abdominal or pleural cavities.-

- Parenteral administration, by injection into a vein or artery.
- Endoscopic application, through a bronchoscope into the lung abscess cavity, through a fibrogastroscope into the esophagus, stomach and duodenum.
- Endolymphatic application, with peritonitis or purulent processes by introducing an antiseptic substance (antibiotic, enzyme) into the lymph nodes or veins.

Test questions:

- 1. How many times is the room wet cleaned?**
 - A. Every day
 - B. When the need arises.
 - C. As needed, but twice a day
 - D. Three times a day
 - E. As needed, but three times a week
- 2. In which ward should a patient with infiltrate, with signs of fluctuations be hospitalized?**
 - A. Insulator
 - B. To a private room
 - C. Intensive follow-up ward
 - D. To the general ward
 - E. To the chamber of the purulent department
- 3. How often should bed linen and clothes be changed?**
 - A. 1 time in 10 days
 - B. As discomfort increases
 - C. 1 time in 3 days
 - D. Depending on the state of pollution, at least 1 time in 10 days
 - E. Every week, after a shower or bath.
- 4. What complication can be observed after inhalation if the rules of asepsis and antisepsis are violated?**
 - A. Development of post-injection infiltrate and abscess
 - B. Serum hepatitis B, disease C.
 - C. Skin dermatitis
 - D. Air-fat embolism
 - E. Allergic reaction

Situational tasks:

- 1. The patient was admitted to the hospital with complaints of pain in the nose, runny nose, fever up to 38.50 C, general malaise. He was diagnosed with acute purulent sinusitis and had drainage of the maxillary cavity. What type of antiseptic is used in this case?*
 - A. Physical.
 - B. Chemical.
 - C. Biological.
 - D. Mechanical
 - E. Mixed.

2. *After an injection of diclofenac at home, the patient developed a dense painful infiltrate in the buttock area 2 days later, which was opened and drained in the hospital. What group of antiseptics is better to use when opening an abscess of the buttocks?*

- A. Sublimate
- B. Furacillin
- C. Dimexide
- D. Sodium chloride
- E. Hydrogen peroxide

3. *The nail hit the patient in the right leg while working on a construction site. A day later, edema, hyperemia of the right leg and sharp pain appeared. On the surface of the heel there is a wound with a diameter of 0.5 cm, around the wound there is hyperemia, edema, infiltration, purulent discharge. What is the first method of antiseptics that the surgeon should use?*

- A. Biological
- B. Physical
- C. Chemical
- D. Mechanical
- E. Mixed

4. *The patient was admitted to the clinic with a complaint of diffuse abdominal pain. I've been sick for three days now. He did not seek medical attention. On admission, the patient was diagnosed with extensive peritonitis. Preoperative preparation was carried out in the intensive care unit. The patient was sent to the operating room. What mechanical antiseptic was used in this patient?*

- A. Laparoscopy
- B. Laparotomy
- C. Biopsy
- D. Tomography
- E. Fluoroscopy

5. *A 76-year-old patient has been suffering from varicose veins for about 30 years. Three years ago, a trophic ulcer formed on the right leg. The patient used various ointments for treatment, but the wound did not heal. What is a biological antiseptic?*

- A. Introduction of dimexide into the wound
- B. Injection of antibiotics into the wound
- C. Introduction of furacillin into the wound

- D. Injection of dioxin into the wound
- E. Introduction of a proteolytic enzyme into the wound.

6. *A 30-year-old patient was brought to the surgical department 6 hours after the injury with paresis on the left wrist. On examination: on the outer surface of the middle third of the left forearm there is an incision in the skin and subcutaneous tissue measuring 3x7 cm. There are blood clots, fragments of clothing, no bleeding. What method of mechanical antiseptic should be used for wound treatment?*

- A. Primary debridement
- B. Secondary debridement
- C. Removal of wound edges
- D. Section of the bottom and wall of the wound
- E. Primary suture

7. *A 36-year-old patient felt pain in the postoperative wound on the 4th day after appendectomy. Body temperature rose to 38°C. On examination: the edges of the postoperative wound are red, swollen, painful place of the wound on palpation, elevated skin temperature in the wound area. What antiseptic method should be used at the first stage of treatment of this complication?*

- A. Chemical
- B. Physical
- C. Mechanical
- D. Biological
- E. Mixed.

8. *A 45-year-old patient suffered a lacerated injury to his left thigh while working on a construction site. He was taken to the clinic 10 hours after the injury. On examination: on the anterior surface of the left thigh there is a rupture of the skin and subcutaneous tissue 4x6 cm in size. There are blood clots, pieces of clothing, debris in the wound. The edges of the wound are of normal color, there is no hyperemia of the skin, there is no edema around the wound. Pain on palpation of the wound site is moderate, there is no bleeding from the wound. What antiseptic should be used the next day to avoid possible complications when changing the bandage?*

- A. Chemical
- B. Mechanical
- C. Physical
- D. Mixed
- E. Biological

9. *A 68-year-old patient was brought to the surgical department with an abscess of the left buttock after an injection. The abscess opened up. The abscess cavity during reconstruction has a volume of up to 500 ml. What methods of biological antiseptics can be used to reduce the time of treatment of this disease?*

- A. Application of Dimexide
- B. use of antibiotics
- C. The use of furacillin
- D. Use of dioxin
- E. Application of a proteolytic enzyme.

10. *A patient was hospitalized to the clinic, who had injured his right shoulder 7 days ago (fell from a tree). He did not seek medical attention. Approximately two days before this, the patient had a painful formation at the site of injury, the skin over it turned red, the body temperature rose to 3 °C. When viewed in the focus of hyperemia of the skin, signs of fluctuation are revealed. What condition has developed in the patient? What method of mechanical antiseptic should be used in this case?*

A. Suppuration of post-traumatic hematoma of the soft tissues of the shoulder. Opening of an abscess.

B. Suppuration of post-traumatic hematoma of the soft tissues of the shoulder. UV therapy.

C. Soft tissue infiltrate of the shoulder. The introduction of antibiotics, compresses.

D. Infected wound of the right shoulder. Primary surgical treatment of the wound.

E. Infected wound of the right shoulder. Secondary surgical treatment of the wound.

Graphics tests:

1. **Measures constituting the antiseptic method the system was designed:**



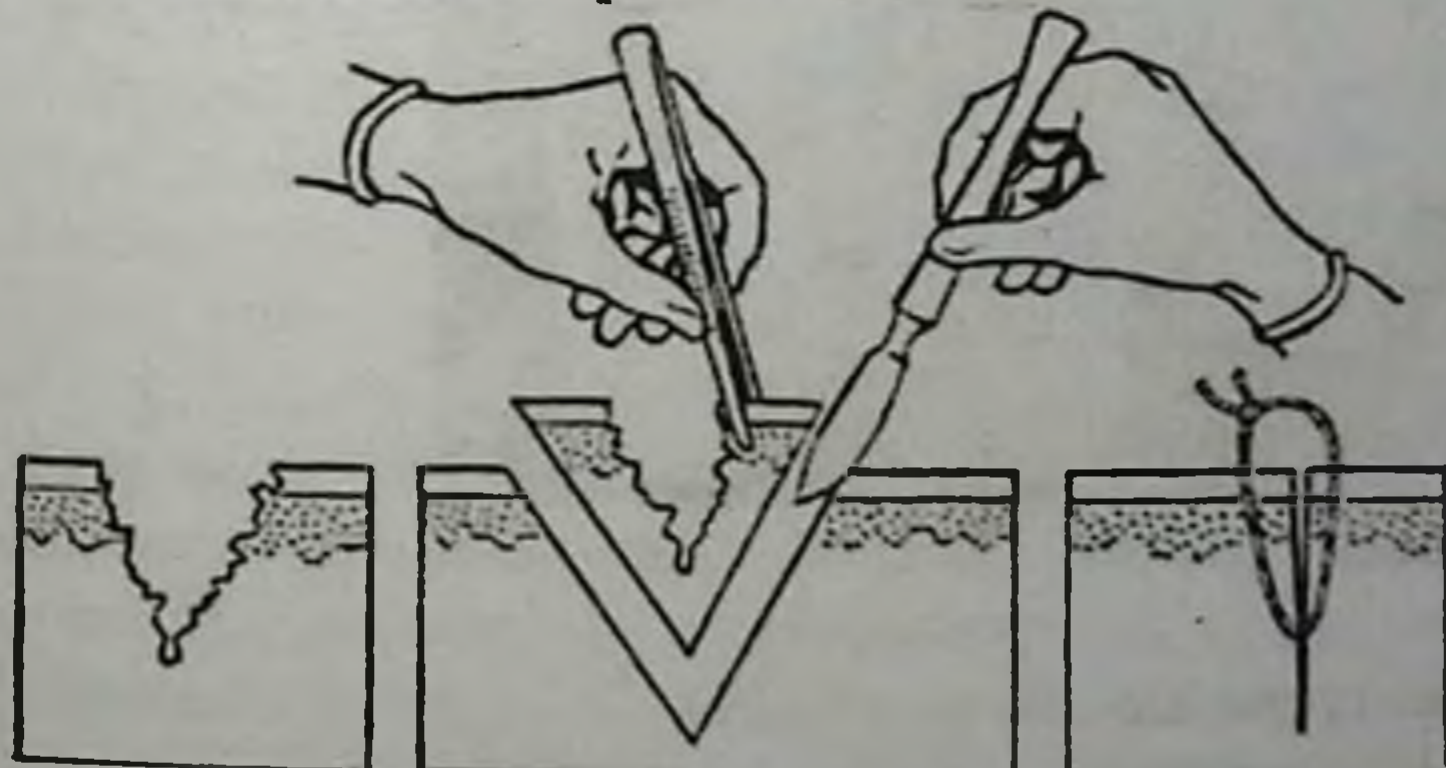
- A. J. Lister;
- B. I. Semmelweis;
- C. N.I. Pirogov;
- D. L. Pasteur;
- E. E. Bergman.

2. Specify the ways of transmission of endogenous infection:



- A. contact
- B. air-drop
- C. when sneezing
- D. hematogenous
- E. Implantation

3. Mechanical antiseptic contains:



- A. active suction
- B. drainage
- C. trimming the edges, walls and bottom of the wound to healthy tissue

- D. creating an antibacterial environment
- E. wound dressing.

4. Physical antiseptics include:



- A. trimming the edges of the wound
- B. wound drainage
- C. application of solutions of iodine, alcohol
- D. Application of laser beam
- E. application of proteolytic enzymes.

5. The use of biological antiseptic includes:



- A. antibiotics
- B. UVI
- C. hydrogen peroxide
- D. proteolytic enzymes
- E. wound trimming

BASICS OF ASEPTICS IN SURGERY. HOSPITAL INFECTION

Asepsis is a set of measures aimed at preventing infection from entering the wound.

Historical comment. 25 years after the founding of the antiseptic, a new method appeared based on the sterilization of all bodies that touched the wound.

The golden rule of asepsis is that everything that comes into contact with the wound must be sterile.



15 - drawing.
E. Bergman

The founders of antiseptics are the German surgeon E. Bergman (Fig. 15) and his student K. Schimmelbusch. At a congress of surgeons in Berlin in 1890, Bergmann gave a lecture on a new way to fight wound infection and cited as examples patients undergoing surgery under aseptic conditions. President of Congress Joseph E. Lister, congratulating Bergman on his achievement, noted that the asepsis method was an outstanding achievement of surgery.

Asepsis is based on the sterilization of equipment, suture material related to the wound. To apply these laws in practice, we must know the main source of microorganisms.

Endogenous in life - that is, microorganisms are found both in the body itself, and **exogenous** - outside the body.

Endogenous infections they are found in the skin of the body, mucous membranes, gastrointestinal tract and upper respiratory tract. They enter the wound directly or through the blood and lymph fluid.

Exogenous infections can be transmitted by airborne droplets (when talking, sneezing), contact (when touching unclean instruments), through suture material permanently or temporarily left in the wound, drainage (implantation-migrating). In addition to this, there is a more "dirty" infection, that is, microorganisms that are always present in the body, but do not cause disease; it remains capable of causing disease if the human body loses its immunity after a certain time. For example, if the operation is completed successfully, the patient is discharged from the hospital; and 5-6 months after the operation, a postoperative scar with pus or a fistulous

wound may form. The only way to get rid of microorganisms transmitted by contact (touch) is to sterilize everything that the wound can touch. To do this, it is necessary to sterilize the surgical material, dressings and sutures, gloves, instruments, the surgeon's hands and the operating area. Sterilization of nylon, silk, catgut, etc. used for sewing is important to prevent both contact and implant infections.

Sterilization means the loss of microbes and their spores. Sterilization can be achieved through various methods: roasting, dry heating, pickling, boiling, autoclaving, cleaning with chemicals. Sterilization of binding materials, equipment and bed linen consists of 4 stages:

Stage 1 - preparation of materials for sterilization

Stage 2 - placement of materials

Stage 3 - sterilization

Stage 4 - storage of sterilized materials

There are many methods of sterilization and the following is a description of each.

Steam pressure sterilization.

With this method, sheets, dressings and surgical instruments are sterilized.

Sterilized at a pressure of 1.1 atm (120°C) for 45 minutes and at a pressure of 2 atm (about 134°C) for 20 minutes. Before sterilization, the materials are placed in special metal mixers with small holes designed for the penetration of hot steam. A label with the material to be sterilized and the date of sterilization is glued to the handle of the bix (Fig. 16).



16 - figure. Autoclave and Bix

Dry air sterilization.

It is carried out in special air sterilizers (SS-200, SS-1, SHSS-80, ALV-IV, etc.). In these sterilizers, the air is heated to 140-200°C. At 200°C, instruments are sterilized for 40 minutes, at 180°C - 60 minutes, and at 160°C - 150 minutes (Fig. 17).



17 - drawing. Air sterilizers

Cold sterilization (chemical sterilization).

This method is carried out using chemical antiseptic solutions and is mainly used in the sterilization of sharp cutting surgical instruments, rubber products. At the same time, the products contain 96% ethyl alcohol (2 hours), 6% hydrogen peroxide (6 hours or 3 hours at 50 ° C), 4.8% Pervomur solution (preparation with - 4, 15 minutes), 1% deoxon solution - 1 (45 min), 1 - 2% solution li beta-propionlactone solution (1 hour), 2-3% solution of lysol heated to 40 ° C (1-2 hours), aqueous solution of merthiolate (1:2500, 30 minutes), a diocide solution (1:100) or a 10% solution of lysoline D (60 minutes), is placed in antiseptics such as Carsolex-Basic (Fig. 18).



18 - drawing. "Cold" (chemical) sterilization of instruments.

Gas sterilization.

This method is used for sterilization of the optical system of endoscopic devices, heart-lung machine, adhesive products and catgut. Gas penetrates well into plastic packaging, taking the place of air there.

Sterilization is carried out with a mixture of ethylene oxide and methyl bromide in a ratio of 1:2.5 at a temperature of 50-60 °C and a humidity of 80-100% in paper or parchment bags for 6 hours. In this case, gas sterilizers GGD - 250 and other types are used (Fig. 19).



19 - drawing. Gas sterilizers

Sterilization with a 40% formaldehyde solution in ethanol without gas sterilizers is possible in paraformalin sterilizers or sealed containers with a tightly closed neck at a temperature of 80°C for 3 hours.

With the help of gamma rays, various biological preparations and tissues used in modern surgery are sterilized. Irradiation does not change their properties. Sterilization by this method is carried out in sealed plastic or paper bags, through which gamma rays can freely pass (Fig. 20).



20 is a drawing. Gamma sterilizers

Sterility control

Sterility control must be carried out continuously.

For thermal control, powdered substances are used, which at a certain temperature turn into a liquid state.

It:

sulfur - 111-120 ° C,

antipyrine - 113°C,

resorsin - 110-119 ° C,
benzoic acid - 121 ° C,
urea - 132°C,
phenacetin - 134 - 135°C

They are placed in test tubes (from 0.5 - 1 ml), closed with a cotton swab and inserted into the bix. The transformation of the powder into a compact mass indicates a reliable sterilization.

In some cases, chemical methods are used (the Mikulich method). The word "sterilized" is written on white paper, treated with a starch solution and dried, after which it is treated with Lugol's solution. As a result of the binding of starch with iodine, the paper turns blue. Ready pieces of paper are placed in bixs. After sterilization with iodine, it will be polished, as a result of which the word "sterilized" on pieces of paper will again become visible (Fig. 21).



21 - drawing. Used for sterility control indicators

An accurate method of sterility control is bacteriological examination. To do this, planting material is taken from the binder and secretions or a biological test is carried out. For this purpose, test tubes with a known non-pathogenic culture of microorganisms (Senna sticks) are again used. These test tubes are inserted at the bottom of the Bix. After sterilization, they are removed from the bixes and sent to the laboratory. The absence of microbial growth indicates a well-conducted sterilization and reliable operation of the autoclave (Fig. 22). From the binder and whiteness should be sown 1 time in 10 days (Fig. 23).



22 - drawing.

Non-pathogenic microbes in test tubes placed in Bix for sterility control.



23 - drawing.

Determination of sterility by inoculation of bacteriological cultures in a nutrient medium.

To prevent implantation infection, it is necessary to sterilize sewing threads, drains, pins, endoprostheses, allo - and heterografts.

Disinfection is a set of measures aimed at eliminating pathogens of infectious diseases in rooms, utensils, clothing, medical devices, dressings, etc. Disinfection of medical devices is carried out by boiling in 2% sodium bicarbonate solution for 15 minutes, soaking in 1% chloramine solution for 30 minutes, or soaking in a mixture of 3% hydrogen peroxide and 0.5% detergent for 80 minutes.

To eliminate the causative agent of tuberculosis, the instruments are placed in a 5% solution of chloramine for 4 hours or a 6% solution of hydrogen peroxide for 3 hours.

To eliminate the causative agent of infectious hepatitis, the instruments are soaked in a 3% solution of chloramine or 6% hydrogen peroxide solution for 1 hour. And to eliminate the pathogens of gas gangrene and tetanus, the instruments are soaked in a 6% hydrogen peroxide solution for 90 minutes. After disinfection, each item is rinsed in running water for 30 minutes. Instruments must be pre-sterilized before sterilization.

Pre-sterilization treatment

Stage I - dissolution in a detergent solution:

a) when using the Biolot detergent, the tools are heated at a temperature of 40°C for 15 minutes;

b) when applying hydrogen peroxide together with detergents ("progress", "Marichka", "Astra", "Lotos"), the tools are heated at a temperature of 50° C for 15 minutes;

c) when applying hydrogen peroxide together with detergents ("Lotos", "Lotus-automatic") and corrosion inhibitors (sodium oleate), the tools are heated at a temperature of 50° C for 15 minutes;

Stage II - wash each item in detergent with a brush or cotton-gauze swab for 30 minutes.

Stage III - rinsing in running water (using detergent "Biolot" - 3 minutes, using "progress" - 5 minutes, using "Astra" and "Lotus" - 10 minutes).

Stage IV - Washing each instrument in distilled water for 30 minutes.

Stage V - drying with dry air in an oven at a temperature of 85° C until the moisture disappears completely.

In the pre-sterilization treatment of thermostable and thermolabile medical instruments, modern effective disinfectants are used: Bodefen (quickly cleans blood, protein, excrement and fat), biome, blanisol.

After pre-sterilization treatment, it is necessary to check its effectiveness. To this end, the following tests are carried out:

Prom with benzidine. Reagent 1 (0.5 - 1% solution of benzidine dihydrochloride and 3% hydrogen peroxide solution are mixed in the same proportion) and reagent 2 (5 ml of 5% acetic acid are placed in a test tube, 0.025 g of benzidine sulfate is added and slowly stirred until the benzidine is completely dissolved, 5 ml of 3% hydrogen peroxide 1) d. 2-3 drops of reagents 1 and 2 are dripped onto the control instrument. The blue-green color of the reagent indicates incorrect pre-sterilization treatment. Thus, protein residues, blood, pus, etc., remained in the instrument.

Test with orthotoluidine. Reagent 1 (5-10 ml of a 4% solution of orthotoluidin in 96% ethyl alcohol and 50% acetic acid are mixed in the same proportion and 5-10 ml of distilled water are added) and reagent 2 (5 ml of 50% acetic acid are placed in a test tube, added 0.025 g orthotoluidine and slowly dissolve until completely dissolved). stir slowly, then add 5 ml of 3% hydrogen peroxide), or prepare the 3rd reagent (mix 1% solution of orthotoluidin and 3% hydrogen peroxide in the same proportion). 2-3 drops of the 2nd or 3rd reagents are dripped onto the control instrument using a pipette. If 2-3 drops of reagent 1 are dripped onto the instrument, another 2-3 drops of 20% hydrogen peroxide must be applied to this place. The sample is considered positive if the color of the reagent turns blue-green. This suggests that the remains of the protein remained in the blood - blood, pus or others.

Azopiram trial. Azopyram is applied to the instrument. A change in the color of the instrument is a sign of the presence of blood residues on the instrument.

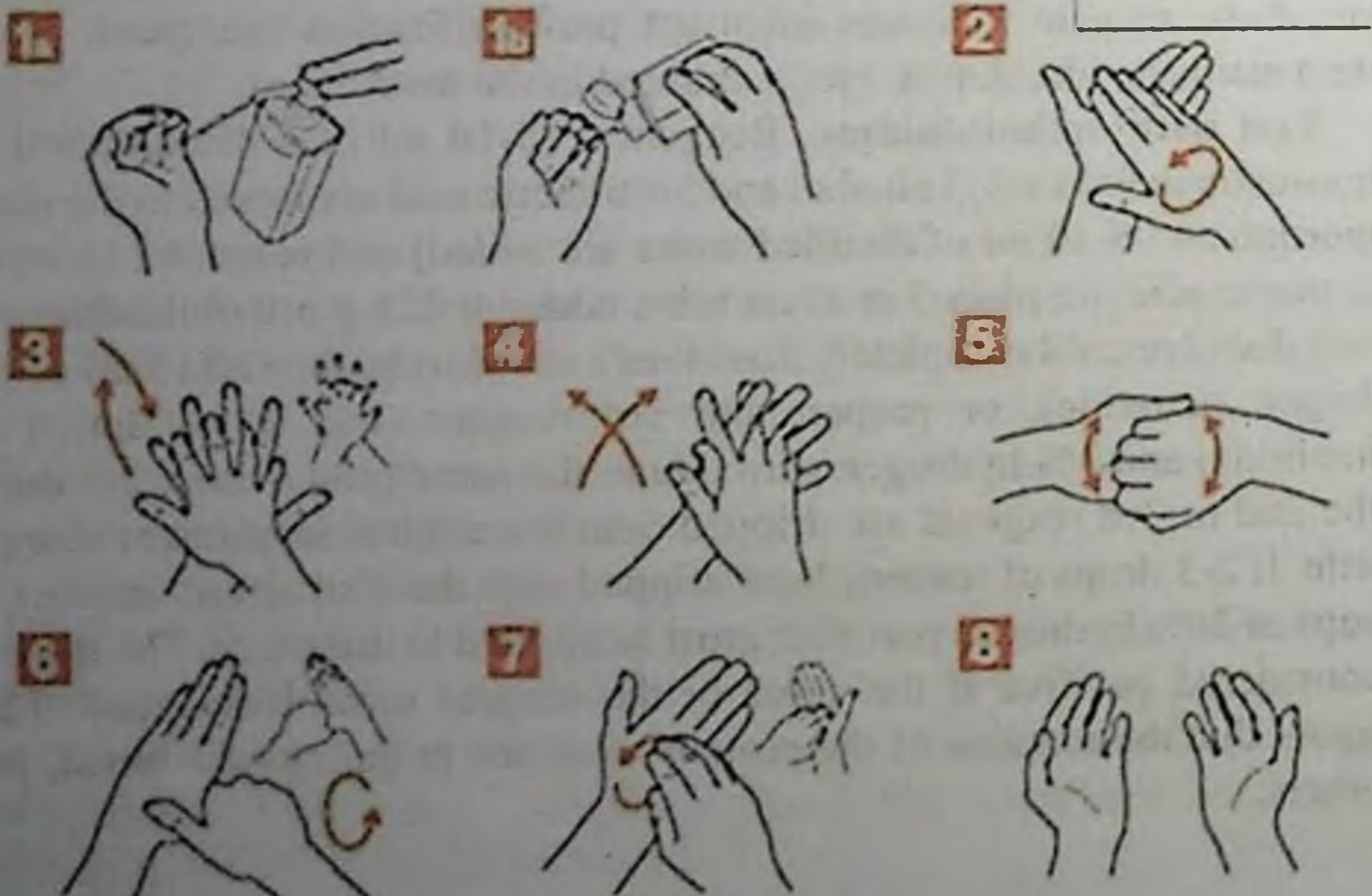
Phenolphthalein test. Apply 1-2 drops of 1% alcohol solution of phenolphthalein to the control instrument using a pipette. If the reagent turns pink, the test is positive, indicating that there is detergent residue left on the instrument.

Surgical treatment of hands

Hand sanitizing is an important method of preventing contact infection. There are 3 important processes at the heart of the various manual processing methods:

1. Mechanical cleaning of hands with a sterile brush and soap.
2. Disinfection - Removing remaining bacteria with antiseptics.
3. Exfoliation of the skin of the hands with 70% or 90% ethyl alcohol.

One important process is the hand washing sequence. First, with a brush and soap, the palmar surface of each finger of the left hand is washed, and then the back surface, interdigital spaces and the nail bed. The fingers of the right hand are washed in the same order. At the next stage, first the left, then the right palm is washed, and finally, the back and front surfaces of the forearms. Once again, the nail bed is washed, wiping with a brush. Soap foam is washed off in running water. In this case, the water jet should be directed from the fingers to the elbows (Fig. 24).



24 - drawing. Surgeon's hand technique

Fürbringer method - hands are washed in hot water with soap with a brush for 10 minutes. Then the hands are wiped with a sterile cloth and treated with 70% ethyl alcohol for 3 minutes. After treatment with 0.5% mercury dichloride for 3 minutes, an alcohol solution of iodine is applied to the fingertips.

Alfeld method - hands are washed, in running water for 5 minutes each. When washing hands, the palm of the hand should be higher than the wrist. Then the hands are wiped with a sterile towel and treated with 96% ethyl alcohol for 5 minutes. An alcohol solution of iodine is applied to the nail beds.

Spasokukotsky-Kochergin method. In a dry basin intended for washing hands, pour 5 ml of 96% alcohol and light it, tilting the basin in all directions; its inner side is burned. 1 liter of distilled water and 5 ml of ammonia (0.5% ammonia solution) are poured into the basin. In this solution, wash your hands in 2 basins for 3 minutes. It is not necessary to pre-wash your hands with soap and water. It is enough that the hand is practically clean. Washing technique: 1) first wash the palm of each finger with a sterile napkin, then the palm of the left hand and the back surface of the palm, then the right hand, then the left, then the forearm of the right hand and, finally, the forearm of the left hand; then hands are washed in the same way and for another 3 minutes 2) hands are wiped with a sterile towel; 3) wipe their hands with a cloth soaked in 96% alcohol for 5 minutes; 4) apply a solution of iodine in 5% alcohol to the skin folds and surfaces of the nails.

Treatment of hands with chlorhexidine bigluconate. Chlorhexidine is available as a 20% aqueous solution in 500 ml glass vials. For the treatment of hands, a 0.5% alcohol solution is used. The drug solution must be mixed with 70% ethyl alcohol in a ratio of 1:40. Hands are first washed with soap and wiped with a sterile towel, then treated with a cotton swab dipped in a 0.5% solution of chlorhexidine bigluconate for 2-3 minutes. Novoklens (Novosol) is also used - a 4% alcohol solution of chlorhexidine gluconate.

Treatment of hands with a solution of degmin. Hands are washed for 3 minutes, after thorough rinsing they are wiped with a sterile towel and treated with two swabs (3 minutes each) moistened with 1% degmin solution.

Hand treatment with C-4 solution (Pervomour). Preparation C-4 is prepared as follows: hydrogen peroxide and formic acid (for 1 liter of a solution of 17.1 ml of hydrogen peroxide 30 - 33%, 6.9 ml of 100% and 8.1 ml of 85% formic acid) are placed in a glass jar and mix. The container is placed in cold water for 1 - 1.5 hours, tightly closed with a glass stopper and shaken. In practice, a 2.4% solution of C4 is used.

First, hands are washed with soap and water for 1 minute, then thoroughly rinsed with water and wiped with a sterile towel and treated with C-4, which is placed in an enamel bowl for 1 minute. After that, the hands are wiped with a sterile towel, dried and put on gloves.

Treatment of hands with ritocept. First, hands are washed with soap with a sterile brush in warm running water for 2 minutes and wiped with a sterile towel. After that, they are treated twice with sterile towels soaked in a solution of ritocept for 2 minutes.

Dioxide treatment. Diocide is a water-soluble white powder. With prolonged storage, the diocide acquires a brown tint and begins to exude a grayish odor. Therefore, its components are produced separately in the form of tablets. Hands are treated with sterile towels soaked in a diocide solution for 3 minutes, then another 2 minutes with 96% ethyl alcohol.

If it is necessary to treat hands without water, the following methods are used.

Brown's method - treatment of hands with 96% ethyl alcohol for 10 minutes.

Zabludovsky method - hand treatment with 5% alcohol-tannin for 2-5 minutes.

Cerigel treatment. Zerigel is a viscous liquid with bactericidal properties. Dries quickly outdoors. When the hands are treated with cerigel, a film is formed on them (sterile "glove").

Place 5 ml of cerigel on dry palms and rub, rubbing frequently, for 8-10 minutes. The solution should cover the fingers, front and back surfaces of the palm, as well as the wrist joint. After that, the hands are dried for 2-3 minutes, without touching each other with fingers. This film is easily erased with a swab dipped in alcohol.

Treatment with Novosept. Hands are washed with a 3% aqueous solution of Novosept for 2-3 minutes.

Special ultrasonic baths have been created for washing hands. To do this, hands are soaked in an antiseptic solution for 1 minute and ultrasonic waves are conducted from it.

The following modern disinfectant solutions are again being used to treat hands and skin:

Sterile - has a bactericidal and fungicidal effect, inactivates HIV, hepatitis B and herpes viruses. It has a prolonged action, does not cause professional dermatosis.

Sterile virugard - used in infectious diseases hospitals.

Baktolin - Bazik - is an emulsion with antiseptic additives, is an effective tool for treating the area. Soap and alkali free, hypoallergenic.

Surgical hand sanitizer by detergent application

1. - stage Wash your hands with detergent and rinse thoroughly (Fig. 21. a)
- 2 - stage. Dry your hands thoroughly with disposable towels (Fig. 21b).
- 3 - stage. With the help of a dispenser (pressing the lever with your elbow), an antiseptic is poured into a dry palmar fossa (Fig. 21. v).
- 4 - stage. Wetting with an antiseptic first the palms and fingers, and then the wrists and elbows (Fig. 21. g).
- 5 - stage. The antiseptic is applied to the hands in separate portions during the time specified by the manufacturer. In this case, the palms of the hands should be above the elbow bends (Fig. 21. d).
- 6 - stage. You should wait until your hands are dry before using a towel after the antiseptic is absorbed. Only after that gloves are put on dry hands (Fig. 25. e).



a



b



v



g



d



e

25 - drawing. Stages of surgical hand antisepsis by applying detergent

Hand sanitizing according to EN 1500

1 - stage: the palms rub against the palm, the fingers are pressed to each other (Fig. 26. a).

2 - stage: the palm of the right hand is rubbed against the back surface of the left hand, and the palm of the left hand is rubbed against the back surface of the right hand (Fig. 26. b).

3 - stage: the palm is rubbed into the palm with crossed fingers (Fig. 26. v).

4 - stage: the outer side of the fingers is rubbed with crossed fingers on the palm of the opposite hand (Fig. 26. g).

5 - stage: the thumb of the left hand should be rubbed with the closed palm of the right hand in a circular motion and rubbed in the opposite direction (Fig. 26. d).

6 - stage: the fingertips that cover the right hand must be rubbed on the palm of the left hand and rubbed in the opposite direction (Fig. 26. e).



a



b



v



g



d



e

26 - drawing. Hand sanitizing according to EN 1500

When treating the skin of the hands, antiseptics such as AXD-2000, hospice, hospidermin, betadine, and braunozol are again used.

But no method can provide a complete hand antisepsis. Complete sterility of hands is ensured only by rubber gloves. Rubber gloves were first proposed by the Russian surgeon Sege-Menteufel (1884), Mikulich (1897), and thin rubber gloves by Friedrich (1898). Vinyl, natural rubber (latex) and nitrile gloves are currently used.

Gloves are sterilized in the following ways:

- a) in an autoclave (1.1 atm, 120 °C, 20 minutes);
- b) boiling in water without sodium bicarbonate for 15 minutes;
- v) soaking in a 2% solution of chloramine for 15 minutes or in a solution of sublimate at a ratio of 1:1000 for 30-60 minutes;
- g) using gamma rays.

Work area preparation

Preparation of the operating field for surgery to perform the operation under aseptic conditions plays an important role.

Preparation of the working area. Before the operation, the patient takes a hygienic bath or shower. Compare the patient's linen and bed linen, pillowcases. The area of the surgical field on the day of the operation is treated with a razor (preferably in a dry way). After that, it is desirable to wipe this area with ethyl alcohol. There are several ways to process the surgical field.

Filonchikov-Grossich method. It consists in applying an alcohol solution of iodine 5 - 10% 4 times necessarily as follows:

- 1) large-scale processing of the surgical field until it is covered with sterile whiteness (2 times);
- 2) treatment after sterile whitening (before incision);
- 3) treatment of the edges of the wound before suturing;
- 4) post-sutural processing.

If the skin is tender, and in children, in order to avoid burns, the iodine solution is partially wiped with alcohol.

Currently, treatment with 10% iodine is prohibited. Instead, it is recommended to use the following agents: 5% solution of tannins, picric acid, tserigel, 1% solution of brilliant green, 1% solution of iodonate, 4% solution of iodopyrone, 2.4% solution of pervomura.

Currently, for processing the surgical field, such modern tools as Cutasept G, Cutasept F, Iodobak, Betadin, Braunozal are used. They have bactericidal, fungicidal, virucidal (against lipophilic viruses, HIV, hepatitis B virus) properties, as well as a detrimental effect on Mycobacterium tuberculosis.

The Bakkal method is used for people with sensitive skin. The working area is treated with a 1% solution of brilliant green.

Treatment with performate acid. The preparation method is described above. Alcohol and iodine are not used.

To treat the working area, you can use a 1% solution of degmine and degmicide at a concentration of 1:30, as well as a 1% solution of Roccale.

When preparing a patient for surgery, one should refrain from carrying out a planned operation if there is a place of accumulation of pus in the area of the surgical field.

For the operation, the surgeon, his assistants and the operating room nurse wear special clothes. In most surgical facilities, medical personnel wear light green or airy clothing.

Operating block

Operating block - is a set of special rooms in which an operation is performed and the processes performed to ensure it.

The operating unit should be located in a separate wing of the building and communicate with the surgical department through a corridor, or be located on a separate floor of a multi-storey building.

It is desirable that purulent surgical departments be isolated from other surgical departments. If this is not possible, it is necessary to organize separate operating rooms for carrying out "clean" and "purulent" operations.

Regions depending on the degree of sterility:

1. Sterile zone (includes operating room, preoperative room and sterilization room)
2. Zone of acute mode
3. Restricted zone
4. General mode zone.

The order of operation of the operating unit involves restricting access to it and exit from it. Only the surgeons involved in the operation, their assistants, operating room nurses, anesthesiologists and their nurses, as well as the cleaner who performs routine cleaning in the operating room, should be in the sterile procedural area. Students and medical practitioners are allowed to enter the sterile procedure area.

The personnel working in the operational unit must be dressed in special clothes that differ in color from other employees of the unit.

The control of the sterility of the operating unit is carried out by periodically (once a month) taking crops from the walls, ceiling and sinuses of the operating room, as well as bacteriological examination of the air in the room.

Microorganisms are free in the air and rarely on the surface of the nails. Basically, they are in a state of attachment to microscopic dust particles.

Therefore, it is also recommended to thoroughly dust the operating room and prevent dust from entering the room.

There are the following types of operating room cleaning:

1. initial
2. current
3. after surgery
4. final
5. general (general).

Before the start of the operation, all objects, nails, dust that has settled on the window sills overnight, are wiped with a damp towel (preliminary cleaning). During the operation, the lowered napkins, balls, surgical instruments are removed (current cleaning). In between operations, when the patient is discharged from the operating room, the sheets and surgical instruments are removed, the operating table is wiped with a towel moistened with an antiseptic solution, and sterile sheets are collected, the floor is wiped with wet rags (postoperative cleaning). Final cleaning is carried out at the end of the working day. At the same time, the ceiling, walls, window sills, all objects and nails, as well as floors, are wiped with a disinfectant solution. Then the bactericidal lamp turns on.

At the end of the week, a general cleaning of the operating room is carried out. It begins with the disinfection of the operating room: the ceiling, rooms, walls, all nails, as well as the floor, are sprayed with a disinfectant solution and wiped down. After that, a general wet cleaning is carried out and bactericidal ultraviolet lamps are turned on. When the operating room is contaminated with faeces, intestinal products, or in a patient with an anaerobic infection (gas gangrene), an extraordinary general cleaning is carried out after the operation.

HOSPITAL INFECTION AND ITS PREVENTION.

of consumers and human well-being of the Russian Federation (Department of Rospotrebnadzor for the Russian Federation) developed the National concept for the prevention of infections associated with the provision of medical care (AIMP) (approved on November 6, 2011). This policy document introduces the term health-associated infection (HAI). This, to be precise, is currently used both in the scientific literature and in WHO publications and in the regulations of most countries in the world. The general criterion for classifying infectious conditions as HAI is that their occurrence is directly related to the provision of medical care (treatment, diagnostic tests, immunization, etc.).

Thus, HCAI is not only infections that join the underlying disease in hospitalized patients, but also infections associated with the provision of any

type of medical care (in polyclinics, educational, sanatorium-resort and medical institutions, institutions of social protection of the population).

The etiological nature of nosocomial infections is determined by a wide range of microorganisms (more than 300), including pathogenic and opportunistic flora, the boundary between which is often blurred. So, common (banal pathogens) make up 15%, and opportunistic flora - 85%. Nosocomial infection is caused, firstly, by the activity of the ubiquitous classes of microflora, and secondly, a pronounced tendency to spread is characteristic. Reasons for this aggression include important natural and acquired Gram-negative rods: the Enterobacteriaceae family, including 32 genera and non-enzymatic gram-negative bacteria (NGOB), the best known of which is *Ps. aeruginosa*; opportunistic and pathogenic fungi: *Candida* yeast-like fungi (*Candida albicans*), mold fungi (*Aspergillus*, *penicillium*), pathogens of deep mycoses (*histoplasma*, *blastomycetes*, *coccidiomycetes*); viruses: pathogens of herpes simplex and chickenpox (herpesviruses), adenovirus infection (adenoviruses), influenza (orthomyxoviruses), parainfluenza, mumps, RS-infections (paramyxoviruses), enteroviruses, rhinoviruses, reoviruses, rotaviruses, pathogens of viral hepatitis. Currently, the most relevant are the etiological agents of nosocomial infections, such as staphylococci, gram-negative opportunistic bacteria and respiratory viruses. Each healthcare facility has its own set of leading nosocomial pathogens, which can change over time. For example, the leading causative agents of postoperative nosocomial infections in large surgical centers are *Staphylococcus aureus* and epidermal staphylococci, streptococci, *Pseudomonas aeruginosa*, and enterobacteria; the leading role in burn hospitals belongs to *Pseudomonas aeruginosa* and *Staphylococcus aureus*;

of great importance is the introduction and spread of children's drip infections in children's hospitals - chicken pox, rubella, measles, mumps. Herpes viruses, cytomegaloviruses, fungi of the genus *Candida* and pneumocystis are especially dangerous for immunodeficient, hematological patients and HIV-infected in neonatal departments. Sources of nosocomial infections are patients and bacteria carriers from among patients and employees of medical institutions.

Among them, the greatest risk is presented by the prevention of nosocomial infection, long-term carriers, and patients with disabled forms; patients hospitalized for a long time, who often become carriers of resistant nosocomial strains. The role of hospital visitors as sources of nosocomial infections is extremely insignificant.

Mechanisms and ways of transmission of nosocomial infection

- fecal-oral;

- air;
- conductive;
- contact;
- transmission factors.

Contaminated instruments, respiratory and other medical equipment, linens, patient care items, dressings and sutures, endoprostheses and drains, grafts, overalls, shoes, and staff and patient hair and hands are also important. In hospital conditions, secondary, epidemically dangerous reservoirs of pathogenic microorganisms may arise, in which the microflora survives and multiplies for a long time. Such reservoirs can be liquids or moisture-containing objects - infusion fluids, drinking solutions, distilled water, hand creams, water in flower vases, humidifiers for air conditioners, showers, sewer and water locks, hand washing brushes, some parts of medical instruments, diagnostic tools, even disinfectants with a low concentration of the active ingredient.

Prevention of nosocomial infections.

Prevention of nosocomial infections should be multifaceted, and providing a number of organizational, epidemiological, scientific and methodological reasons is extremely difficult. The effectiveness of the fight against nosocomial infections is determined by the latest advances in science, the provision of healthcare facilities with modern equipment and strict adherence to the anti-epidemic regime at all stages of providing medical care to patients. In medical institutions, regardless of the profile, it is necessary to minimize the likelihood of infection, exclude nosocomial infections and exclude the spread of infection outside the medical institution. Prevention of nosocomial infections is, of course, a complex and multifaceted matter. Each direction of the prevention of nosocomial infections provides for the implementation of sanitary-hygienic and anti-epidemic measures to prevent one or another route of transmission of an infectious agent in a hospital. These areas include general requirements for the sanitary maintenance of premises, equipment, inventory, requirements for personal hygiene of patients and medical personnel, organization of disinfection, pre-sterilization treatment and sterilization of medical devices. All premises, equipment, medical and other inventory must be kept clean. Wet cleaning of premises (washing floors, furniture, appliances, window sills, doors, etc.) is carried out at least 2 times a day, and when more often, using detergents and disinfectants. All cleaning equipment (buckets, sinks, rags, mops, etc.) must be clearly marked, used strictly for their intended purpose and stored separately, indicating the premises and types of cleaning work. General cleaning of the premises of departments and other functional

premises, office premises should be carried out according to the approved schedule with thorough washing and disinfection at least once a month. It is necessary to clean the walls, floor, all appliances, as well as furniture, lamps, dust-proof curtains.

General cleaning (washing and disinfection) of the operating room, locker rooms, delivery rooms is carried out once a week with the release of the premises from equipment, furniture and other inventory. Premises requiring special sterility, asepsis and antiseptics (operating rooms, dressing rooms, maternity, intensive care units, procedural, infection boxes, boxes of bacteriological and virological laboratories, etc.). After cleaning, as well as during operation, it must be periodically irradiated with ultraviolet stationary or mobile bactericidal lamps with a power of 1 W per 1 m³ of the room.

Ventilation of wards and other rooms that need access to fresh air through ventilation openings, transoms, fences should be carried out at least 4 times a day. In connection with the special importance, we will dwell on the issues of the regime of the day. Inpatients should be provided with sufficient linen according to the list of equipment. For patients, linen is changed as it gets dirty, regularly, but at least once every 7 days. Bed linen contaminated with patient secretions should be changed immediately. A very important direction in disinfection is the prevention of nosocomial infections. It is aimed at the destruction of pathogenic and opportunistic microorganisms in the external environment of the wards and functional rooms of hospital departments, in medical devices and equipment. Disinfection remains a complex and time-consuming daily task for junior and paramedical personnel. It should be noted that disinfection is of particular importance in the prevention of nosocomial infections, since in a number of cases (GSI, nosocomial intestinal infections, including salmonellosis), disinfection remains practically the only way to reduce the incidence in a hospital. In addition, all hospital-acquired strains of nosocomial pathogens have almost complete resistance to antibiotics, as well as significant resistance to external factors, including disinfectants. For example, Salmonellosis S, typhimurium is insensitive to working solutions of chlorine-containing disinfectants and dies when exposed to only 3% chloramine solution and 5% hydrogen peroxide solution when exposed for at least 30 minutes. The use of low-concentration solutions for focal disinfection leads to the emergence of strains in hospitals that are more resistant to external influences. For prevention and control of postoperative purulent complications, a complex of sanitary and hygienic measures is organized and carried out. A set of sanitary and hygienic measures aimed at

identifying and isolating sources of infection and stopping the spread of infection: timely detection and placement in special departments of patients complicated by purulent-septic disease in the postoperative period; timely detection of pathogens of staphylococcus and their sanitization; the use of highly effective methods for disinfecting the hands of medical personnel and the skin of the surgical site; organization of central sterilization of clothing, instruments, syringes; the use of disinfection methods and means for processing various environmental items (bed linen, soft equipment, clothes, shoes, dishes). Responsibility for carrying out comprehensive measures to combat postoperative complications rests with the chief physician and heads of surgical departments. Heads of departments, together with the head nurse, organize and monitor the implementation of instructions for compliance with the discharge regimen. The head nurse gives instructions to the middle and junior medical staff on the implementation of a complex of anti-epidemic measures

Disinfection and sterilization measures are carried out systematically in order to prevent and combat nosocomial infections through preventive disinfection (current and general cleaning) and, if nosocomial infections occur, current (disinfection of all items in contact with a sick patient) or final (disinfection of all items in the department after the transfer of the patient to another department, recovery, etc.) disinfection. When carrying out disinfection, chemical agents, physical methods of disinfection and combined methods are used. When carrying out disinfection and sterilization measures in medical organizations, it is allowed to use only those that are allowed in the prescribed manner for use in medical institutions. Russian Federation: chemical disinfectants (disinfectants, including skin antiseptics; preparations for pre-sterilization cleaning and sterilization); disinfection and sterilization equipment (bactericidal emitters and other indoor air disinfection equipment, disinfection chambers, disinfection blocks and washing machines, including ultrasonic ones; sterilizers); auxiliary equipment and materials (spray devices, bacterial filters, UV chambers for storing sterile instruments, processing containers, sterilization jars and packaging materials for chemical and biological indicators, etc.). When choosing means, it is necessary to take into account the recommendations of manufacturers of medical devices used in surgical hospitals (departments) on the effect of special disinfectants on the materials of these products. In medical

organizations must have different stocks of DS with different chemical composition and purpose for at least 3 months. For disinfection, active oxygen (peroxide compounds, etc.), cationic surfactants (SAS), alcohols

(ethanol, propanol, etc.), chlorine compounds, aldehydes, agents, most often in the form of multicomponent compositions containing one or more active substances and functional additives (anti-corrosion, deodorizing, detergents, etc.) in accordance with the instructions for their use, approved in the prescribed manner. To prevent the emergence of strains of microorganisms resistant to disinfectants, it is necessary to control the resistance of hospital strains to the disinfectants used, followed by their rotation (successive replacement of one disinfectant with another). When working with DS, it is necessary to observe all precautions and personal protection specified in the instructions for their use. The preparation of DS solutions, their storage, use for processing items by immersion in water should be carried out in a specially designated room equipped with flow-exhaust ventilation. Containers with disinfectants, detergents and sterilizing agents must be equipped with lids, have clear inscriptions indicating the name of the DS, its concentration, purpose, date of preparation of working solutions. It is allowed to store DS only in the original packaging of the manufacturer in specially designated places, separated from medicines, out of the reach of children. Disinfection depends on objects that can be factors in the transmission of nosocomial infections: medical instruments, staff hands, patient skin (surgery site and injection site), patient care items indoor air, linens, dishes, surfaces, patient secretions and body fluids (sputum, blood, etc.), medical waste, etc. others. Contact with the wound surface during the upcoming manipulation, contact with the blood in the patient's body or injectable drugs injected into it, as well as contact with the mucous membrane, with the risk of injury. Disposable products intended for such manipulations are produced by manufacturers in a sterile form. Preparation of medical devices (hereinafter - products) for use includes 3 processes: disinfection, pre-sterilization cleaning, sterilization. Disinfection in nosocomial infections disinfection, pre-sterilization cleaning and sterilization of products are carried out in the prescribed manner. Processing of endoscopes and instruments for them (preliminary cleaning, pre-sterilization cleaning, disinfection and sterilization of these products, as well as final cleaning and disinfection of endoscopes at a high level) is carried out in accordance with the sanitary and epidemiological rules of SP 3.1. 1275-03 "Prevention of infectious diseases during endoscopic manipulations" (registered with the Ministry of Justice of Russia on April 14, 2003, Registration number 4417) and instructions for cleaning, disinfection and sterilization of endoscopes and tools for them. All medical devices are disinfected immediately after use on the patient. Disinfection of products is aimed at preventing nosocomial contamination of patients and

medical personnel. Disinfection of products is carried out by physical, chemical or combined methods in accordance with the modes that ensure the death of viruses, bacteria and fungi. Disinfection of products is carried out manually (preferably in containers specially designed for this purpose) or mechanized (washing and disinfection machines, ultrasonic devices) methods. Disinfection of products with solutions of chemicals is carried out by immersion in the solution, filling channels and cavities of products with it. Removable items are recycled unassembled. For disinfection of products, DSs are used, which have a wide spectrum of activity against viruses, bacteria and fungi, are easily removed from products after processing and do not affect the materials and functional properties of products (aldehydes, cationic surfactants, oxygen-containing agents, acid-based disinfectants, etc.). Products can be combined with pre-sterilization cleaning in one process using products with disinfectant and detergent properties. Pre-sterilization cleaning of products is carried out in the centralized sterilization rooms; in the absence of centralized sterilization rooms, this stage of processing is carried out in specially designated rooms in the departments of medical organizations. Pre-sterilization cleaning of products is carried out after disinfection or in combination with disinfection in one process (depending on the instrument used). Pre-sterilization cleaning is carried out manually or mechanized (in accordance with the operating instructions attached to the specific equipment) method. The quality of cleaning products before sterilization is assessed by the absence of positive samples for the presence of blood by installing a test for azopyram or amidopyrine; for the presence of residual amounts of alkaline components of detergents (only when using products with a pH of working solutions above 8.5) - by installing a phenolphthalein test. Sterilization of products is carried out in the premises of centralized sterilization, in the absence of premises for centralized sterilization, this stage of processing is carried out in specially designated premises, in the departments of medical organizations.

All objects that come into contact with the wound surface, come into contact with blood (in the patient's body or are injected into it) and injectable drugs, as well as objects that come into contact with the mucous membrane during the operation and can cause damage to it, are sterilized. Sterilization is carried out by physical (steam, air, infrared), chemical (using solutions) methods. For these purposes, steam, air, infrared, gas and plasma sterilizers are used, which are sterilized in accordance with the modes indicated in the operating instructions for a specific sterilizer approved for use. With steam, air, gas and plasma methods, products are sterilized in packaged form using paper, combined and plastic sterilization packaging materials, as well as

parchment and calico (depending on the sterilization method). Authorized to do so in due course. As a rule, the packaging material is used once. In the steam method, in addition, sterilization jars with filters are used. With air and infrared methods, sterilization of instruments in unpackaged form (in open trays) is allowed, after which they are immediately used for their intended purpose. The steam method sterilizes general surgical and special instruments, instrument parts, instruments made of corrosion-resistant metals, glassware, linen, binder, rubber, latex and some types of plastics. The air method sterilizes surgical, gynecological, dental instruments, parts of instruments and apparatus, including products made of corrosion-resistant metals, silicone rubber. Before air sterilization, the product after pre-sterilization cleaning must be dried in an oven at a temperature of 85 ° C until visible moisture disappears. Infrared sterilizers sterilize metal instruments. Chemical solutions are generally only used to sterilize these products. Designed with heat resistant materials that prevent other officially recommended sterilization methods. When sterilizing with chemical solutions, sterile containers are used. To avoid dilution of working solutions, especially those that are reused, the products immersed in them should not contain visible moisture. After sterilization by chemical agents, all manipulations are carried out with strict observance of asepsis rules. Products are washed with sterile drinking water, poured into sterile jars in accordance with the recommendations of the methodological documentation for the use of special products. Washed sterile items are used for their intended purpose or stored in a sterile sterilization box covered with a sterile sheet for no more than 3 days. The gas method sterilizes objects made from various materials, including thermolabile materials, using ethylene oxide, formaldehyde and ozone as sterilizing agents. Prior to gas sterilization, visible moisture is removed from products after pre-cleaning prior to sterilization. Sterilization is carried out in accordance with the regimes regulated by the instructional and methodological documentation for the use of special means for the sterilization of certain groups of products, as well as in accordance with the instructions for the use of sterilizers approved for use.

The plasma method sterilizes surgical, endoscopic instruments, endoscopes, optical instruments and instruments, optical fiber cables, probes and sensors using hydrogen peroxide-based sterilizing agents in plasma sterilizers. Electrically conductive ropes and cables and other products made of metal, latex, plastic, glass and silicon. In a medical organization, it is necessary to use suture material made in a sterile form. It is strictly forbidden to process and store suture material in ethyl alcohol, as

it is not a sterilizing agent and may contain live, in particular spore-forming microorganisms, which can lead to infection of the suture material. Sterilization control involves monitoring the operation of sterilizers, checking the values of the sterilization mode parameters and evaluating its effectiveness. The work of sterilizers is controlled in accordance with the current documentation: physical (using instruments), chemical (using chemical indicators) and bacteriological (using biological indicators) methods. Sterilization mode parameters are controlled by physical and chemical methods. The effectiveness of sterilization is evaluated on the basis of the results of bacteriological studies in the control of the sterility of medical devices. To reduce the risk of secondary contamination by microorganisms of medical metal instruments sterilized in unpackaged form, during their temporary storage before use, special chambers equipped with UV lamps approved for this purpose in the prescribed manner are used. In some cases, these chambers can be used instead of "sterile tables". For disinfection and sterilization of products, it is strictly forbidden to use chambers with ultraviolet lamps. In preparation for the use of anesthesia and respiratory equipment, special bacterial filters are used to equip this equipment to prevent cross-contamination of patients through anesthesia and breathing apparatus. Installation and replacement of filters is carried out in accordance with the instructions for using a particular filter. Sterile distilled water must be used to fill the humidifier. It is recommended to use heat exchangers and moisture exchangers. Removable parts of devices are disinfected in the same way as medical devices made from the appropriate materials. Disinfection of the premises of various structural units of the hospital for preventive (current and general cleaning) surgery is carried out in accordance with the hygienic requirements of SanPiN 2.1.3.1375-03 "for the placement, arrangement, equipment and operation of hospitals, maternity hospitals and other medical institutions." The types of cleaning and the frequency of their implementation are determined by the purpose of the unit. When carrying out routine cleaning with DS solutions (preventive disinfection in the absence of nosocomial infections or current disinfection in the presence of nosocomial infections), surfaces, tools, equipment, etc. are wiped and disinfected. In rooms, for these purposes it is desirable to use disinfectants with detergent properties. The use of DS with a detergent property makes it possible to combine the disinfection of an object with its washing. Prepared DS forms can be used immediately if needed

Treat small or hard-to-reach surfaces, e.g. alcohol-based with a short disinfection time (by spraying with hand sprayers) or wipe with cleaner, DS solutions or ready-to-use disinfectant wipes. The current cleaning of the

premises is carried out in accordance with the regimes that ensure the death of bacterial microflora; in the event of nosocomial infections according to a scheme effective against the causative agent of the corresponding infection in the hospital. When disinfecting objects contaminated with blood and other biological substrates that pose a risk of spreading parenteral viral hepatitis and HIV infection, it is necessary to comply with the current instructive and methodological documentation and apply disinfectants in accordance with the antiviral regimen. General cleaning in operating rooms, locker rooms, procedural, manipulation, sterilization rooms is carried out with disinfectants with a wide spectrum of antimicrobial activity in accordance with the regimes that ensure the death of bacteria, viruses and fungi. General cleaning in departments, medical offices, administrative and utility rooms, and departments of physiotherapy and functional diagnostics is carried out with disinfectants in accordance with the recommended regimens for the prevention and control of bacterial infections. When using disinfectants in the presence of patients (prophylactic and current disinfection), it is prohibited to disinfect surfaces by spraying with DS solutions, as well as wiping and applying DS that have irritating and desensitizing properties. Final disinfection is carried out in the absence of patients, while the personnel performing the treatment must use personal protective equipment (respirator, gloves, apron), as well as labeled cleaning equipment and clean cloth wipes. When carrying out the final disinfection, products with a wide spectrum of antimicrobial activity should be used. Surface treatment is carried out by irrigation using hydropanels and other sprinklers (devices). The consumption rate of DS averages from 100 to 300 ml per 1 m². The air in the premises of surgical hospitals (departments) must be disinfected using equipment and / or chemicals approved for this purpose using the following technologies: open and combined bactericidal irradiators used in the absence of people, and closed irradiators that allow air to be disinfected in the presence of people, including with the help of ultraviolet radiation recirculators; number of irradiators required for each cabinet is determined by calculation in accordance with current regulations; exposure to aerosols of disinfectants in the absence of people using special spray equipment (aerosol generators) during the final disinfection and general cleaning;

exposure to ozone using ozone generators in the absence of people during disinfection and general cleaning according to the latter type;

the use of antimicrobial filters, including electrostatic ones, as well as filters operating on the principle of photocatalysis and ionic wind, etc. The processing technology and modes of air disinfection are established by the

current regulatory documents, as well as instructions for the use of special DS and operating manuals for special equipment designed for indoor air disinfection. Patient care items (lined sheets, aprons, mattress pads made of polymer film and blotting fabric) are disinfected by wiping with a cloth moistened with DS solution; oxygen masks, oxygen bags, electric/vacuum suction hoses, bowls, urethra, enamel basins, enema tips, rubber enemas, etc. by immersion in DS solution followed by water flush. Medical thermometers are disinfected in the same way. For the treatment of patient care items (without their labeling), detergents and disinfectants that are approved for use in the prescribed manner can be used. Dishes and tea utensils in a surgical hospital are processed in accordance with SanPiN 2.1.3.1375-03 "Hygienic requirements for the placement, arrangement, equipment and operation of hospitals, maternity hospitals and other medical institutions." Mechanical washing of dishes in special washing machines is carried out in accordance with the attached instructions for their operation. Hand washing of dishes is carried out in three-component baths for dishes and two-component baths for glassware and cutlery. The dishes are cleaned of food debris, washed with detergents, immersed in a disinfectant solution, and after exposure, rinsed with water and dried. When processing dishes according to epidemiological indicators, the dishes are cleaned of food debris and immersed in a disinfectant solution. After disinfection, the dishes are thoroughly washed with water and dried. Disinfection of textile materials contaminated with secretions and biological fluids (underwear, bed linen, towels, overalls of medical personnel, etc.) is carried out in laundries before washing or during the washing process by soaking in DS solutions. Appointment in washing machines methodical according to the program of washing linen N 10 (90 °C) instruction on the technology of processing linen in medical organizations. After the patient is discharged, bed linen (mattresses, pillows, blankets), clothes and shoes are disinfected in the cell. If mattresses and pillows have covers made of moisture-proof materials, they are wiped and disinfected with a DS solution. Disinfection of shoes made of rubber and plastic is allowed by immersion in approved disinfectant solutions. Disinfection of medical waste categories B and C (disposable kits, dressings, cotton gauze, swabs, underwear, masks, overalls, wipes, disposable medical supplies, etc.). Before disposal, they are carried out at the places of their collection (formation) in accordance with the rules for the collection, storage and disposal of waste from medical and preventive organizations. For the disinfection of medical waste, chemical (immersion in DS solutions) or physical disinfection is used in accordance with the modes that ensure the death of bacteria, viruses, including

pathogens of parenteral hepatitis and HIV, fungi. Disinfection of secretions, blood, sputum, etc. is carried out in the form of dry chlorine-active powder DS (bleach, calcium hypochlorite, etc.).

The destruction of removed organs, limbs, etc., is carried out by burning in special furnaces or after preliminary disinfection by burying in specially designated places or by removing them to organized landfills. Simultaneous disinfection and disposal of medical waste can be carried out in a combined way using devices that are approved for use in the prescribed manner. Nosocomial infection is observed everywhere, in the form of epidemics or sporadic cases. Almost any hospital patient is prone to the development of infectious processes. Nosocomial infections are characterized by high contagiousness, a wide range of pathogens and a variety of ways of their transmission; the possibility of outbreaks at any time of the year, the presence of patients at high risk of the disease and the possibility of relapses. According to the official census, in the Russian Federation, nosocomial infections develop in 0.15% of hospitalized patients. However, selective studies have shown that nosocomial infections occur in 6.3% of patients with fluctuations from 2.8 to 7.9%. Between 2002 and 2004, between 50,000 and 60,000 nosocomial infections were registered in Russia, and the number is estimated to be around 2.5 million. Various types of hepatitis B and C are also common. High risk for patients and medical staff.

To successfully combat nosocomial infections, it is necessary to optimize epidemiological control and, on its basis, carry out preventive and anti-epidemic measures that contribute to the management of the epidemic process in these infections. Thus, the relevance of the problem of nosocomial infections for theoretical medicine and practical health care is undeniable. This is due, on the one hand, to high morbidity, mortality, socio-economic and moral damage to the health of patients, and on the other hand, nosocomial infections cause serious damage to the health of medical personnel.

Test questions:

- 1. Types of nosocomial infections?**
 - A. Airborne
 - B. Pin
 - C. Implantation
 - D. All answers are correct
- 2. What can not be done to prevent nosocomial infection?**
 - A. Asepsis
 - B. Disinfection
 - C. Obtaining Lubrication
 - D. Timely medical examinations of medical workers
- 3. Airborne infection is not included in the prevention?**
 - A. Repeated Operations.
 - B. Treatment of the working area with antiseptics.
 - C. Inlet-outlet ventilation of the operating room.
 - D. Wearing masks, shoe covers, sterile dressings.
 - E. Irradiation of air with ultraviolet germicidal lamps.
- 4. Who suggested doing the operation with rubber gloves?**
 - A. S.I. Spasokukotsky.
 - B. N.I. Pirogov.
 - C. U.S. Halsted.
 - D. I.F. Semmelweis.
 - E. Seguet-Manteuffel.
- 5. How many hours should closed bixies be stored after sterilization?**
 - A. 72.
 - B. 48.
 - C. 12.
 - D. 24.
 - E. 96.
- 6. How to handle tools, syringes, needles in AIDS prevention?**
 - A. C4 solution
 - B. 1:5000 solution of furacillin
 - C. 4% hydrogen peroxide solution 1.5 tsp.
 - D. 0.25% Maxisan solution.
 - E. 2% alcohol solution

7. Sterility is preserved in the closed biks Shimelbush:

- A. 12 o'clock.
- B. 24 hours.
- C. 48 hours.
- D. 72 hours.
- E. 144 hours.

8. In a dry hot cabinet, sterilization of instruments is carried out to the maximum:

- A. 132.9°C.
- B. 160°C.
- C. 180°C.
- D. 150°C.
- E. 200°C.

9. The pre-drying of the instruments continues in the dry hot cabinet:

- A. 30 min.
- B. 15 min.
- C. 10 min.
- D. 45 min.
- E. 1 hour.

10. The sterilization process continues in the closed doors of the dry warm cabinet:

- A. 45 min.
- B. 1 hour.
- C. 30 min.
- D. 15 min.
- E. 10 min.

Situational tasks:

1. *In the operating room, 23-year-old patient E completed emergency surgery due to "acute phlegmonous appendicitis". During postoperative cleaning, the operating room nurse collected the dirty sheets in a special bag and placed it in the "dirty sheets" container. What method is used to sterilize surgical drapes, for how long, and for what indications?*

A. In the autoclave, the steam pressure is 2 atm., 1320 s - temperature, 20 min.

B. In the autoclave, the steam pressure is 1.5 atm., At a temperature of 1200 C-45 min.

C. In the autoclave, the steam pressure is 1 atm., At a temperature of 1200 C-60 min.

D. In a dry warm cabinet.

E. Boiling method.

2. *In the operating room, the patient, 55-year-old K., underwent emergency surgery due to "gas gangrene of the right leg". After the operation, the nurse collected dirty linen, clothes and put the dirty surgical instruments on a special tray "for dirty instruments". What antiseptic solution and for how long are surgical instruments disinfected in this case?*

A. Completely immerse the surgical instruments in a 3% hydrogen peroxide solution for 30 minutes.

B. Completely immerse the surgical instruments in a 6% hydrogen peroxide solution for 30 minutes.

C. Completely immersing surgical instruments in a 3% hydrogen peroxide solution for 60 minutes.

D. Completely immerse the surgical instruments in a 6% hydrogen peroxide solution for 60 minutes.

E. Completely immersing surgical instruments in mercuric chloride for 60 minutes.

3. *For the upcoming working day, the nurse of the dressing department of the surgical department must prepare a certain amount of dressing material. In what way and according to what indications is the sterilization of the dressing material carried out?*

A. Gas sterilization. Steam pressure 2 atm., steam temperature 132°C, sterilization time 20 minutes.

B. Sterilize (in a dry warm cabinet). Steam pressure 2 atm., steam temperature 132°C, sterilization time 20 minutes.

C. Steam sterilization ("autoclaving"). Steam pressure 2 atm., steam temperature 132°C, sterilization time 20 minutes.

D. Steam sterilization ("autoclaving"). Steam pressure 1.5 atm., steam temperature 130°C, sterilization time 60 minutes.

E. Steam sterilization ("autoclaving"). At a steam pressure of 1 atm, a steam temperature of 120°C, the sterilization time is 30 minutes.

4. *A nurse in the dressing department of the urology department should prepare sterile rubber drains and catheters for the upcoming working day. In what way and according to what indications is it necessary to sterilize rubber products?*

A. Gas sterilization. Steam pressure - 1.1 atm., steam temperature - 120°C, sterilization time - 45 minutes.

B. Steam sterilization ("autoclaving"). Steam pressure - 1.1 atm., steam temperature - 120°C, sterilization time - 45 minutes.

C. Cold sterilization ("autoclaving"). Steam pressure - 1.5 atm., steam temperature - 120°C, sterilization time - 45 minutes.

D. Steam sterilization ("autoclaving"). Steam pressure - 1.1 atm., steam temperature - 120°C, sterilization time - 15 minutes.

E. Steam sterilization ("autoclaving"). Steam pressure-1.1 atm., Steam temperature-120°C, sterilization time-25 minutes.

5. *The nurse of the endoscopic department should prepare the fibrogastroscope for endoscopic examination. List the main stages of sterilization of endoscopic instruments?*

A. Mechanical cleaning; wash; processing and sterilization before sterilization; drying and storage.

B. Physical cleaning; wash; processing and sterilization before sterilization; drying and storage.

C. Chemical cleaning; processing and sterilization before sterilization; drying and storage.

D. Biological treatment; wash; sterilization; drying and storage.

E. Physical cleaning; boiling; sterilization treatment and sterilization; drying and storage.

6. *The patient was brought from the emergency department to the emergency department with a femoral artery injury and external bleeding. The surgical team must quickly prepare for urgent surgical treatment. How long do you need to treat your hands with this solution?*

A. 5 min.

B. 2 min.

C. 10 min.

D. 4 min.

E. 1 min.

7. Patient, 55 years old, K., "gastric resection" surgical treatment is planned. It is necessary to properly prepare the operating field at the site of the operation. Name the preparations of iodine for the treatment of the area of the surgical field.

- A. Iodopyrone, sublimate, alcohol.
- B. Iodopyrone, iodonate, Iodinol.
- C. Iodopyrone, Lugol's aqueous solution, Dimexide.
- D. Iodopyrone, Lugol's alcohol solution, distilled water.
- E. Methylene blue, iodopyrone, sublimate.

8. At night in the operating room, a 40-year-old patient undergoes emergency surgery for "perforation of a gastric ulcer." During the operation, it turned out that the suture material was not sterile, and the available sterile suture material was not enough. Nylon threads need to be sterilized urgently. What is the main sterilization method for synthetic suture used in surgical hospitals? Name the main indicators and terms of sterilization.

A. Steam sterilization ("autoclaving"). Steam pressure - 2 atm., steam temperature - 132°C, sterilization time - 30 minutes.

B. Gas sterilization. Steam pressure - 1.1 atm., steam temperature - 120°C, sterilization time - 45 minutes.

C. Cold sterilization ("autoclaving"). Steam pressure - 1.5 atm., steam temperature - 120°C, sterilization time - 45 minutes.

D. Steam sterilization ("autoclaving"). Steam pressure - 1.1 atm., steam temperature - 120°C, sterilization time - 15 minutes.

E. Steam sterilization ("autoclaving"). Steam pressure-1.1 atm., Steam temperature-120°C, sterilization time-25 minutes.

9. In order to avoid exogenous infection of wounds during surgery, nurses and junior nurses of the operating room must know and perform their functional duties, regulated by the relevant orders of the Ministry of Health of the Republic of Uzbekistan. One of the ways to prevent exogenous infection of the neck wound is to control the infection transmitted by airborne droplets in the operating room, which is achieved by various activities. How often is a bacteriological examination of the air in the operating room performed?

- A. Once a month.
- B. 2 times a month.
- C. 3 times a month.
- D. 4 times a month.
- E. 5 times a month.

Graphics tests:

1. Who is the founder of asepsis?



- A. I. Semmelweis
- B. N.I. Pirogov
- C. J. Lister
- D. L. Pasteur
- E. E. Bergman

2. Contact infection during surgery prevention methods include:



- A. tissue sterilization
- B. sterilization of instruments;
- C. sterilization of sewing materials;
- D. treatment of the surgeon's hands;
- E. treatment of the working area.

3. What is included in the composition of the antiseptic drug "Pervomur", used to treat the surgeon's hand before surgery:



- A. acid
- B. ethyl alcohol

- S. sublimate
- D. hydrogen peroxide
- E. formaldehyde

4. Specify the mode of sterilization of surgical instruments in the air sterilizer:



- A. within 45 minutes at 180°C in the sterilizer
- B. within 60 minutes at 180°C in the sterilizer
- C. for 90 minutes at 180°C in the sterilizer
- D. for 90 minutes at 160°C air temperature in the sterilizer
- E. for 150 minutes at an air temperature of 160°C in the sterilizer.

5. Tell me the modern methods of processing the hands of the surgeon before the operation:



- A. hand treatment with 0.5% ammonia solution
- B. hand treatment with 0.5% chlorhexidobigluconate solution
- C. hand treatment with a 2.4% solution of the drug "Pervomur"
- D. Manual treatment with 96% ethanol solution
- E. hand treatment with antiseptic preparation "Ahdez 3000".

ORGANIZATION OF NUTRITION OF PATIENTS IN THE SURGICAL DEPARTMENT. DIETARY FOOD. FEEDING THE SERIOUSLY ILL.

Patient feeding

Nutrition is one of the most important factors that have a significant impact on the state of human health, its ability to work and the characteristics of the body's resistance to the effects of the external environment. On this occasion, Hippocrates said: "Food is medicine, and medicine must be food."

Diet (diaita - lifestyle, diet) is the diet of healthy people and patients. Dietology (dietaa + Greek logos - teaching) is a branch of medicine that studies human nutrition in normative situations and with various diseases, as well as promoting therapeutic nutrition.

Therapeutic (therapeutic) diet (diet therapy) is the use of specially designed dietary rations and diets for the purpose of treatment or prevention.

The mode (mode) of feeding - determines the time and amount of meals, the intervals between them and the nutritious diet. The diet regulates the energy value of food, chemical composition, food mix, weight and requirements for food intake. Nutrition should be rational, taking into account such factors as the sex of the body, age and type of physical activity of a person, that is, physiologically complete, as well as balanced - a certain ratio of nutrients must be observed in the diet.

The importance of nutrition in the life of the human body

According to scientists, a balanced diet is understood as the supply of all types of nutrients (nutrients) that ensure good digestion of food and the corresponding vital activity of the body, in certain proportions to each other, which may vary depending on gender, age, type of work, climatic conditions (Table.2).

Table 2.

The average daily requirement of an adult for food and energy (according to A.A. Pokrovsky, 1976)

Feed products Necessity	Feed products Necessity
1	2
Water, gr.	1750-2200
Including:	
• drink (tea, coffee, etc.)	800-1000
• in soups	250-500
• in feed products	700

Proteins, gr	80-100
animal squirrels	50
Incomparable amino acids, gr:	
• Tryptophan	1
• Leucine	4-6
• isoleucine	3-4
• Valine	X-4
• Threonine	2-3
• Lysine	3-5
• Methionine	2-4
• Phenylalanine	2-4
Comparable amino acids, gr:	
• Histidine	1.5-2
• Arginine	5-6
* Cystine	2-3
• Tyrosine	3-4
• Alanine	3
• Series	3
• Glutamic acid	16
• Aspartic acid	6
• Proline	5
• Glycine	3
Carbohydrates, gr	400-500
Including:	
* Starch	400-450
• Sugar	50-100
• Dumplings and pectin	25-30
Organic acids (citric acid, lactic acid, etc.) gr	2
Fat, gr	80-100
Minerals, mg:	
• Calcium	800-1000
• Phosphorus	1000-1500
• Sodium	4000-6000
• Potassium	2500-5000
• Chlorides	5000-7000
• Magnesium	300-500
• Iron	15

• Ruh	10-15
• Manganese	5-10
• Chrome	0,2-0,25
• Silver	2
• Iodides	0,1-0,2
Vitamins, mg	
• Ascorbic acid (C)	50-70
• Thiamine (VO)	1.5-2
• Riboflavin (VA)	2-2.5
• Nicotinic acid (PP)	15-20
• Pantothenic acid (B15)	5-10
• Pyridoxine (B6)	2-3
• Cyanocobolamin (B12)	0.002-0.005
• biotin	0.15-0.30
• xalin	500-1000
• rutin (R)	25
• folacin	0.2-0.4
• vitamin B (IU)	100
• vitamin A	1.0-2.0
• vitamin E	10-20
• vitamin K	0.2-0.3
Energy, kcal	2850
Energy, kJ	11900

Balanced nutrition formula - the ratio of proteins, fats and carbohydrates is normal for boys and girls: 1: 1.1: 4.1, for those who are engaged in heavy physical labor - 1: 1.3: 5. In calculations, the amount proteins. For example, if the food contains 90 g of protein, 81 g of fat and 450 g of carbohydrates, the ratio will be 1: 0.9: 5. In therapeutic diets, the ratio of proteins, fats or carbohydrates is changed if necessary. The optimal ratio of calcium, phosphorus and magnesium for absorption is 1: 1.5: 0.5.

Proteins are involved in all important processes: they are a source of essential amino acids, a material supplier for the synthesis of hormones, hemoglobin, vitamins and enzymes. Proteins are involved in maintaining a constant reaction of the plasma environment, cerebrospinal and gastric fluid, intestinal secretion. Animal proteins should make up 55 to 60 percent of your daily protein intake. The daily requirement for proteins is 100 g.

Fats are involved in metabolic processes, are part of cells and tissues; serve as a valuable source of energy - when splitting 1 g of fat, 9

kcal of energy is formed. As sources of essential fatty acids from total fat, vegetable fats should make up to 30% of the diet. The daily requirement for fats is 60-150 g.

Carbohydrates are not only an energy barrier (the breakdown of 1 g of carbohydrates produces 4 kcal of energy), but also protein and fat necessary for the secretion of saliva, hormones, enzymes and normal metabolism. Within the total amount of carbohydrates, easily digestible carbohydrates - 15-20%, cellulose and pectin - 5%, starch - 75-80% should be present. The need for carbohydrates is 400-500 grams per day. Water accounts for more than 60% of the body's weight, which ensures the vital processes of the body - metabolism, digestion, thermoregulation, excretion, and others. The daily need for water is 2-3 liters.

Vitamins must be present in the composition of consumed products. The term "vitamin" was proposed by the Polish biochemist Kazimer Funk (1912): Greek vita - life + Latin amin - protein (Kasimir Funk believed that all substances necessary for the body are similar to protein and contain amino groups in their composition). In general, vitamins are synthesized by plants and microorganisms. These substances are involved in all metabolic processes of the body; they play an important role in the prevention of cardiovascular and oncological diseases.

Minerals, participates in the construction of tissues, regulates the electrolyte composition of the blood, affects important life processes (digestion, immunity, hematopoiesis, hemocoagulation, etc.). The organism was first studied by the Russian scientist Vladimir Vernadsky (1863-1945), dividing the existing chemical elements into macroelements, microelements and ultramicroelements. Macronutrients according to his classification (from the Greek macros - large) include calcium, phosphorus, magnesium, potassium, sodium, chlorine, sulfur (their amount in the body is 0.1% of the chemical composition of the body).

Trace elements (from Greek Micros - small) - chromium, silicon, gold, radium, uranium, etc. - consist of iron, iodine, fluorine, selenium, zinc, copper, etc. (They make up 0.01% of the content of ultramicroelements in body). (body content 0.0001% or less). Currently, only macronutrients and micronutrients have been isolated. Macronutrients are needed by the human body daily, they are measured in the required grams. The content of trace elements in the body is less than 0.01% of the chemical composition of the body. Their daily requirement is calculated in milligrams or micrograms (gamma).

Therapeutic diet

Therapeutic nutrition is an obligatory component of complex treatment. The founder of dietology, Manuel Isaakovich Pevzner (1872-1952), wrote: "The patient's nutrition will be the main background for the use of other therapeutic factors - where there is no rational nutrition, there is no rational treatment." Medical nutrition and drug treatment complement each other, and also increase the effectiveness of this treatment. However, there can be a number of negative aspects to the diet-drug relationship. If they are ignored, a mistake can be made in the treatment of patients.

Basic principles of clinical nutrition

Individualization of a healthy diet is based on the somatometric data of a particular patient (height, weight, etc.) and is based on the results of a metabolic analysis.)

Ensuring digestion in violation of the production of digestive enzymes. For example, with a deficiency of the intestinal peptidase enzyme, a diet is followed that lacks the gluten protein that it breaks down.)

It is important to consider the interaction of these nutrients with the gastrointestinal tract (GIT) and the body: it is necessary)

provide a balance that affects the absorption of nutrients - for example, calcium absorption in the intestine becomes increasingly difficult when food contains an excess of phosphorus, magnesium, oxalic acid.

Stimulation of regenerative processes in various organs and tissues is carried out by selecting the necessary nutrients, especially amino acids, vitamins, microelements, essential fatty acids.)

This is a compensation for the loss of nutrients in the patient's body. For example, in case of anemia, in particular in nutrition after blood loss, it is necessary to increase the amount of microelements necessary for hematopoiesis (iron, copper, etc.), some vitamins and proteins.)

It is aimed at changing the diet, for example, when observing overweight, diets with reduced kcal are recommended.

- The use of methods to limit chemical, mechanical or temperature triggers in food with a limited way of eating (with functional insufficiency or damage to organs or systems).)

In modern nutrition, methods of "contrast day" are used (for example, an excluded product is introduced into the diet) against the background of a decrease in load (starvation) and basic dietary nutrition. An unloaded day not only torments impaired functions, but also struggles with functional laziness.)

The purpose of the fasting day is a short-term relief of body functions, facilitating the task of removing metabolic products from the body. There are strict recommendations for the establishment of a reduced-load diet (fasting). For example, in chronic heart failure, protein, carbohydrate, and combination diets can be recommended, or they can be alternated (Table 3).

Table 3

Starting and stopping food intake in chronic heart failure

Diet diet	Characteristic (content)					
	Water, ml	Energy, kcal	Sodium, Mg	Potassium Mg	Magnesium Mg	Xolestylin, mg
Orange	1315	415	195	2955	150	0
Potato	1000	1300	420	8520	345	0
Kefir	700	400	316	1536	116	6
Milk	700	500	304	1500	116	66
Cucumber	1800	300	160	2820	280	0
Cottage cheese	1000	630	344	916	164	57
Apple	1290	685	390	3720	135	0
Karelia -1	900, 1100, 1200 cream can be derived milk			Average 600 kcal of dietary energy, 500 mg sodium, 1460 mg potassium, 150 mg magnesium, 120 mg cholesterol		
Karelia -2	Milk, from which 800, 1000, 1200 ml of cream is obtained, can be					
Karelia - 2.1	Karelia-1 is compatible with 100 ml of milk or 100 ml of fruit juice instead. 100 ml 20% glucose solution					
Karelia - 2.2	Additionally 150 g of unsalted bread, 1 egg, 100 g of rice porridge. 5 g butter					
Karelia - 2.3	Additionally 50 g sugar 2 eggs or rice porridge. 200 g mashed potatoes with 10 g butter					

Dairy diet (Karelian diet and its variants).

The Karelian diet (proposed by Filipp Yakovlevich Karel in 1865) is a method of treating diseases of the cardiovascular system and kidneys through exclusively milk (0.8-3 l / day) nutrition with bed rest. In the classic version of this diet, during the first week, the patient is given 200 ml of milk 4 times a day, and then biscuits and eggs are added, which are gradually transferred to the usual mixed food. The currently used form of the Karelian diet, with modifications, is shown in Table 4-2.

Curd diet: prescribed for severe heart failure, chronic nephritis, accompanied by edema, but not accompanied by azotemia, obesity. It

includes 500 g of cottage cheese and 150 g of sugar, 1-2 cups of naumatak tincture.

Apple diet is prescribed for obesity, hypertension, chronic nephritis, chronic pancreatitis. The patient is given 250-300 g of apples 5 times a day (total 1.25-1.5 kg). A patient with chronic enterocolitis is given 250-300 grams 5 times a day, separating from the peel and rubbing pitted apples. Dietary calorie content 500-600 kcal.

The compote diet is prescribed for the same diseases as the apple diet. The patient is given 6 times a day, 1 glass of compote prepared from 200 g of dried fruits, 60-70 g of sugar, 1.5 liters of water. Calorie-750 kcal.

Milk-potato diet: prescribed for chronic nephritis, accompanied by edema and azotemia, with heart failure, acidosis. The diet is prescribed for 2-6 days, it consists of 1 kg of potatoes and 0.5 liters of milk. Table salt is excluded. Calorie content 1200-1300 kcal.

Grape diet: used for diseases in which a milk and potato diet is prescribed. For 1 day appoint 0.5 kg of raisins (without ponytails). Raisins are given from an equal amount 5-6 times a day.

Tea diet is considered an indication for gastritis with secretory insufficiency, enterocolitis. Appointed for 1-2 days. The patient is given 7 cups of sweet tea per day, mixed with 10-15 grams of sugar per cup.

A meat and vegetable diet is prescribed for obesity. It contains 350 grams of boiled beef, 0.6 kg of vegetables (cabbage, cucumbers, carrots). Food is taken 6 times a day.

Watermelon diet is prescribed for nephritis, gout, urolithiasis, accompanied by uraturia. The patient is given 300 grams of watermelon 5 times a day.

THERAPEUTIC DIETS - (DIET TABLES)

Until now, in order to individualize the therapeutic nutrition of patients with various diseases and their various course, single-digit diets or diet tables with numbers 0-15, established at the Russian Institute of Nutrition, have been used. Each diet is individually labeled, and it reflects the following indicators:

- 1) Instructions for use
- 2) the purpose of the appointment
- 3) general description
- 4) chemical composition and calorie content
- 5) power mode
- 6) foodstuffs and foodstuffs compiled in the order of permitted and prohibited - foodstuffs containing proteins, fats, carbohydrates, spices and drinks.

Therapeutic diets differ in the main nosological forms - diseases.

Zero (surgical) diet

Instructions: after surgery on the digestive organs, cerebral ischemia, traumatic brain injury, high fever and other infectious diseases.

Purpose of appointment: to provide nutrition in conditions where normal food is unacceptable, difficult or contraindicated; maximum emptying and improvement of the organs of the gastrointestinal tract, prevention of bloating.

General description: the most mechanically and chemically delicacy food (liquid, semi-liquid, gelatinous, pureed food) as a diet is prescribed in three sequences - No. 0A, No. 0b and No. 0B. They contain easily digestible proteins, fats and carbohydrates, liquids and vitamins. The content of sodium chloride (salt) is sharply reduced. It is necessary to eat often and a little bit. After the zero diet, you must stick to the 1st diet. It differs from the first diet in that it consists of less strong meat and fish broths and vegetable water, as well as milk restriction.

Diet number 0a. Usually it is prescribed for 2-3 days. Consists of products in liquid and jelly form. In the diet 5 g of protein, 15-20 g of protein, 150 g of carbohydrates, energy value 3.1-3.3 MF (750-800 kcal); 1 g of table salt, 1.8 - 2.2 liters of free liquid. The temperature between meals does not exceed 45 ° C. The diet includes 200 g of vitamin C; other vitamins are added as prescribed by a doctor. Meals 7-8 times a day, no more than 200-300 g per 1 meal.

Allowed: fat-free meat broth, rice water, liquid compotes, namatak boiled with sugar, fruit jam, tea with sugar and lemon, fresh fruit juices diluted 2-3 times with sweetened water (up to 50 ml per dose). On the third day, when the patient's condition improves, add a soft-boiled egg, 10 g butter and 50 ml cream.



27 - drawing. No. 0 recommended foods in the diet.

Exception: no heavy food and mashed potatoes, milk, cream, sour cream, grape and vegetable juices, carbonated drinks.

No. 0b (surgery No. 1a). This table is prescribed for 2-4 days after table No. 0A. Food is given 6 times a day, no more than 350-400 g per reception.

No 0v (No 1b operation). This diet serves to expand the diet and transition to a physiologically complete diet. Proteins 80-90 g, fats 65-70 g, carbohydrates 320-350 g - with an energy value of 9.2-9.6 MW (2200-2300 kcal), sodium chloride 6-7 g. Food is given 6 times a day. Products with a temperature not higher than 50 ° C, cold - not less than 20 ° C

Therapeutic diets

1- Diet table.

Instructions: peptic ulcer and its acute exacerbation, increased secretion during the recovery period, acute gastritis and chronic gastritis, duodenal ulcer. With concomitant diseases of the digestive system and gastric ulcer, the 1st dietary table is prescribed. Symptoms of gastric ulcers in the early stage are few, and it is organized in such a way that the mechanical intoxication used in the last stage impairs healing. The chemical composition of this diet: foods that stimulate the secretion of the stomach and are not part of powerful foods.



28 - drawing. Recommended foods in diet number 1.

Purpose: reduction of inflammation of the gastrointestinal tract, acceleration of wound healing, normal improvement of gastric secretion and motor functions due to moderate chemical, full mechanical and thermal effects.

General description: The diet should be physiologically, energetically valuable, saturated with proteins, fats and carbohydrates. Reduced gastric secretion leads to difficulty in digestion and absorption of food. Food is mainly mashed, boiled in water or steamed. Some foods, such

as fish and meat, are consumed boiled. Salt is limited. You can exclude very cold and hot food.

Chemical composition and energy value: proteins 90-100 g (60% of animals), fats 80-90 g (30% of plants), carbohydrates 400-420 g; Energy value 11.7-12.6 MF (2800-3000 kcal); sodium chloride 10-12 g, free liquid 1.5 l.

Feeding regimen: 5-6 times a day.

Prohibited foods and dishes: milk, meat and fish broth, mushroom and vegetable soup, rye bread, butter, canned duck, goose, meat products; fatty, salted fish; fermented milk, spicy, salty cheese products with high acidity; hard boiled eggs, barley, oats; beans; whole pasta; vegetables (turnip cabbage, radishes, spinach, onions, cucumbers, salted and pickled vegetables, mushrooms, vegetable snacks); all spicy and salty snacks, sour, insufficiently ripe fruits and berries, dried fruits, chocolate, ice cream; tomato sauces, mustard, pepper; carbonated drinks, kvass, black coffee.

2- Diet table.

Instructions: secretory insufficiency chronic gastritis, acute gastritis, enteritis, colitis; chronic enteritis and liver diseases characterized by increased secretion after colitis, in case of exacerbation of diseases of the bile ducts, pancreas or gastritis.

Purpose: stimulate the secretory function of the digestive system, normalize the transport function of the gastrointestinal tract, provide nutritious food.

General description: mechanical effect on the brain physiologically moderately stimulates the secretion of the digestive organs.

Allowed products: boiled and stewed dishes.



29 - drawing. No. 2 recommended foods in the diet.

Forbidden foods: fried foods, limiting the use of foods rich in fiber, too cold and hot foods make it difficult to excite the mucous membrane of the digestive tract.

Chemical composition and energy value: proteins 90-100 g (60% animals), 90 g iodine (25% vegetable), 400-420 g carbohydrates; energy value 11.7-12.6 MF (2800-3000 kcal); up to 15 g of sodium chloride, 1.5 l of liquid.

Feeding regimen: 4-5 times a day without heavy meals.

Foods and dishes that cannot be eaten: fresh bread and flour products with increased dough; dairy products, peas, beans, medicines, okroshka; meat rich in fat and connective tissue, duck, goose products, canned food, fatty varieties, salted, fish, canned fish; hard boiled eggs; beans; millet, barley, corn, cereals, raw pickled vegetables, onions, radishes, radishes, sweet peppers, cucumbers, turnips, garlic and mushrooms; fatty sauces, mustard, pepper; fruits and berries (raspberries, red currants) dates, figs, chocolate and cream products, ice cream; grape juice, kvass; pork, beef, fats.

3- Diet table.

Instructions: chronic constipation caused by inflammation, intestinal disease, hemorrhoids in anal fissures in exacerbation of mild exacerbation.

Purpose: violation of bowel function and normalization of metabolic processes associated with these diseases.

General characteristics: a physiologically complete diet includes food and products that increase energy function and intestinal motility (vegetables, fresh and fruit, bread, cereals, milk drinks, etc.). Limiting the use of foods (essential oils, fried foods, etc.) that increase fermentation and damage to the intestines and negatively affect other digestive organs. The food is mostly not flour, it is boiled in water or steamed. Fruits are raw and cooked. Food should not contain cold and sweet foods, drinks.



30 - drawing. No. 3 recommended foods in the diet.

Chemical composition and energy value: proteins 90-100 g (55% Animals), fats 90-100 g (30% vegetable), carbohydrates 400-420 g; Energy value 11.7-12.6 MF (2800-3000 kcal); sodium chloride 15 g, free liquid 1.5 l.

Diet: 4-6 times a day. Yogurt, fresh or dried fruit, prunes prepared the night before, or honey juice should be drunk in the morning.

Impossible foods and treats: bread made from premium flour; meat, duck, goose products, canned food; oily fish; hard boiled eggs, rice, radishes, garlic, turnips, mushrooms; jelly, cloves, quince, chocolate, cream products; spicy sauces, meat of wild animals, mustard, pepper; cocoa, natural coffee, strong tea; animal fats.

4- Diet table.

Instructions: acute enterocolitis with diarrhea, exacerbation of chronic enteritis, dysentery, condition after operations on the intestines.

Purpose: providing nutrition for gastrointestinal diseases, reducing fermentation and peristalsis in the intestines, normalizing the functions of the intestines and other digestive organs.

General Description: Reduced energy value from fats and carbohydrates. Substances that have a mechanical, chemical and thermal effect on the gastrointestinal tract are limited. Products that enhance the secretion of the digestive organs, enzymatic processes in the intestines and peristalsis are excluded. Very hot and cold food.

Chemical composition and energy value: proteins 90 g (60-65% of animals), fats 70 g, carbohydrates 250 g (40-50 g of sugar); energy value 8.4 MF (2000 kcal); 8-10 g sodium chloride, free liquid 1.5-2 liters.

Feeding regimen: in small portions 5-6 times a day.



31 - drawing. No. 4 recommended foods in the diet.

Prohibited foods and dishes: bakery and flour products; rice, vegetables, pasta, strong and fatty soups; types of fat and grades of meat,

hot dogs and other meat products; Fatty fish, salted fish, caviar, canned food; milk and other dairy products; hard boiled eggs, raw fried; barley, pasta, dried fruits, compotes, honey, jam and other sweets, fruits and berries; coffee and cocoa with milk, carbonated and cold drinks.

4b- Dietary table.

Instructions: acute and chronic inflammatory bowel disease.

Purpose: To provide adequate nutrition for moderately disturbed digestion, reduce inflammation and normalize bowel function, as well as other diseases of the digestive system.

General Description: A complete diet with a slight increase in protein content in terms of energy value and chemical composition. It is characterized by a moderate limitation of mechanical and chemical effects of the mucous membrane of the gastrointestinal tract. Excluded are products that increase putrefaction and fermentation in the intestines, as well as products that sharply stimulate the work of irritants of the stomach, pancreas, biliary tract and liver. Hot and cold foods can be excluded.

Chemical composition and energy value: 100-110 g of proteins (60-65% of animals), 100 g (mostly not), 400-420 g (50-70 g of sugars) carbohydrates; energy value 12.2-12.6 MF (2900-3000 kcal); sodium chloride 8-10 g, free liquid 1.5 l.

Diet: 5-6 times a day.

Prohibited foods and dishes: rye bread, ground wheat flour, fluffy pasta; bean soups, milk, soups, borscht, cold soups (okroshka, blueberry soup); fatty meat, duck, goose, meat products, fish species, salted fish, canned food; milk, dairy products, spicy, salty cheeses; fried hard boiled eggs; beans, mashed potatoes, barley; white cabbage, blueberries, radishes, onions, garlic, cucumbers, turnips, raisins, spinach, mushrooms; grapes, apricots, dried fruits, ice cream, chocolate, cocoa; spicy, fatty sauces, mustard, wild pepper, pepper; wine, apricot juice, kvass, fruit drink.

4c- Diet table.

Instructions: as a transition to a rational diet for acute intestinal diseases during the recovery period; in chronic bowel diseases during the recovery period in acute lesions associated with other digestive organs.

Purpose: to provide adequate nutrition for some disorders of the intestines, subsequent nutrition and restoration of the function of other digestive organs.

General description: increased content of protein and salt in food and dishes, mechanical and chemical effects dramatically increase the secretory and motor function of the intestine, limiting its physiological activity, accelerate fermentation and putrefaction, increase the secretion of the pancreas and bile. Foods are boiled or boiled in water. Food temperature is normal.

Chemical composition and energy value: proteins 100-120 g (60% animals), fats 80-100 g (15-20% vegetable), carbohydrates 400-420 g; Energy value 12.2-12.6 MJ (2900-3000 kcal); sodium chloride 10 g, free liquid 1.5 l.

Diet: 5 times a day.

Prohibited foods and dishes: rye bread, dough products; milk soups, soups, borscht, pickles, okroshka, soups, mushrooms; meat, duck, goose, sausages, products with butter, canned food; fish; spicy, salty cheeses, dairy products; hard boiled eggs; bean puree; radishes, onions, garlic, cucumbers, turnips, raisins, spinach, mushrooms; apricots, figs, dates, ice cream, chocolate, cakes; hot and fatty sauces, mustard, wild pepper, pepper; grapes, apricot juice.

5- Diet table.

Instructions: acute hepatitis and cholecystitis; chronic hepatitis; cirrhosis of the liver with liver failure; exacerbates chronic cholecystitis and cholelithiasis. In all cases - except for severe diseases of the stomach and intestines.

Purpose: restoration of the function of the liver and biliary tract, increased secretion.

General description: The physiologically simple composition of proteins and carbohydrates (usually refractory) slightly limits fats. Exclusion of products formed during the oxidation of nitrogen residues, purines, cholesterol, oxalic acid, essential oils. The content of lipotropic substances, cellulose, pectins, liquid increases. Dishes are prepared from boiled, baked, ground beef. Solid meat and fiber-rich vegetables, flour products and very cold dishes are excluded.

Chemical composition and energy value: proteins 90-100 g (60% animals), fats 80-100 g (30% vegetable), carbohydrates 400-450 g (70-80 g sugar); energy value 11.7-12.2 MJ (2800-2900 kcal); sodium chloride 10 g, liquid volume 1.5-2 liters. You can add xylitol and sorbitol (25-40 g).

Feeding regimen: 5 times a day; In the evening it is recommended to drink kefir.



32 - drawing. No. 5 recommended foods in the diet.

Prohibited foods and dishes: hot bread, puff pastry, fried meat, fish and mushroom soups, okroshka, fatty meat, duck, goose, liver, kidneys, brain, smoked sausages, canned food; fatty fish, black and white, salted fish; hard boiled eggs; beans; spinach, oats, radishes, green onions, garlic, mushrooms, pickled vegetables, caviar, chocolate, cream products, ice cream, mustard, pepper, black coffee, cocoa, cold drinks

5a- Diet table.

Instructions: acute hepatitis and cholecystitis; exacerbation of chronic hepatitis, cholecystitis and cholelithiasis; cirrhosis of the liver of moderate severity with liver failure; chronic hepatitis or gastric ulcer, cholecystitis, accompanied by severe gastritis, diarrhea and enterocolitis.

Purpose: restoration of the function of the liver and biliary tract, increased secretion.

General description: The physiologically simple composition of proteins and carbohydrates (usually refractory) slightly limits fats. Exclusion of products formed during the oxidation of nitrogen residues, purines, cholesterol, oxalic acid, essential oils. The content of lipotropic substances, cellulose, pectins, liquid increases. Dishes are prepared from boiled, baked, ground beef. Solid meat and fiber-rich vegetables, flour products and very cold dishes are excluded.

Chemical composition and energy value: proteins 90-100 g (60% animals), fats - 70 g (20-25% vegetable), carbohydrates 350-400 g (80-90 g sugar); energy value 10.5 - 10.9 MJ (2500-2600 kcal); 8 g sodium chloride, free liquid 2-2.5 liters.

Diet: It is recommended to drink kefir 5-6 times a day, in the evening.

Foods and dishes that cannot be eaten: hot bread, puff pastry, fried meat, fish and mushroom soups, okroshka, fatty meat, duck, goose, liver, kidneys, brain, smoked sausages, canned food; fatty fish, black and white,

salted fish; hard boiled eggs; beans; spinach, oats, radishes, green onions, garlic, mushrooms, pickled vegetables, caviar, chocolate, cream products, ice cream, mustard, pepper, black coffee, cocoa, cold drinks

5b- Dietary table.

Instructions: Chronic pancreatitis.

Purpose: reduction of mechanical and chemical effects on the pancreas, gastrointestinal tract, excitability of the gallbladder, prevention of changes in the liver and pancreas.

General Description: Reduce the amount of foods that are high in protein, fat, and carbohydrates, especially sugar. Extracts, purines, refractory fats, cholesterol, essential oils, mushroom fibers, fried foods are sharply limited. The content of vitamins and lipotropic substances increases. Products are mainly crushed and cut into cubes, boiled in water or steamed. Hot and very cold dishes are excluded.

Chemical composition and energy value: proteins 110-120 g (animals 60-65%) 80 g (vegetable 15-20%), carbohydrates 350-400 g (30-40 g sugar, 20-30 xylitol); energy value 10.9-11.3 MF (260-2700 kcal); sodium chloride 10 g, liquid volume 1.5 l.

Feeding regimen: 5-6 times a day; kefir is recommended to drink in the evening.

Prohibited foods and dishes: rye bread, dough products; milk soups, soups, borscht, pickles, okroshka, soups, mushrooms; meat, duck, goose, sausages, products with butter, canned food; fish; spicy, salty cheeses, dairy products; hard boiled eggs; bean puree; radishes, onions, garlic, cucumbers, turnips, raisins, spinach, mushrooms; apricots, figs, dates, ice cream, chocolate, cakes; hot and fatty sauces, mustard, wild pepper, pepper; grapes, apricot juice.

6- Diet table.

Instructions: formation of stones from salts of urine and uric acid, urolithiasis.

Purpose: Normalization of purine metabolism, reduction of the formation of uric acid and its salts, transition of the urine reaction to the acid side.

General description: avoidance of foods containing too many purines, oxalic acid; (milk, vegetables and fruits) and increased free fluid (from the circulatory system), limiting a moderate amount of sodium chloride. A slight reduction in the diet of proteins, fats and carbohydrates. Meat, poultry and fish must be boiled. Food temperature is normal.

Chemical composition and energy value: proteins 70-80 g (animals 50%), fats 80-90 g (30% vegetable), carbohydrates 400 g (80 g sugar); energy value 11.3-11.7 QOL (2700-2800 kcal); sodium chloride 10 g, liquid volume 1.5-2 liters or more.

Feeding regimen: 4 times a day on an empty stomach.



33 - drawing. No. 6 recommended foods in the diet.

Limited food and products: meat, fish soups, spinach; liver, kidneys, tongue, brain, young and poultry meat, sausages, fish, canned meat and fish, caviar; salted cheeses; beans; mushrooms; beans, stew, chocolate, figs, raspberries, meat, fish, mushroom soup, peppers, mustard, cocoa, green tea and coffee; beef, lamb, lard.

7- Diet table.

Instructions: acute nephritis and chronic nephritis, excluding renal failure.

Purpose: moderate restoration of kidney function, reduction of arterial hypertension and reduction of edema, excretion of nitrogen and other metabolic products from the body.

General description: the content of proteins is limited, fats and carbohydrates are in the physiological norm. Food is cooked without sodium chloride. Salt is given to the sick patient in the indicated amount (3-6 g or more). The amount of free fluid is reduced to an average of 1 liter. Eliminate meat, fish, mushrooms, sources of oxalic acid and essential oils. Meat and fish (100-150 g per day) are boiled. Food temperature is normal.



34 - drawing. No. 7 recommended foods in the diet.

Chemical composition and energy value: proteins 80 g (50-60% animals), fats 90 g (25% vegetable), carbohydrates 400-450 g (80-90 g sugar); energy value 11.3-12.2 QOL (2700-2900 kcal); free liquid 0.9-1.1 l. Diet: 4-5 times a day.

Limited food and products: ordinary bread, flour products with the addition of sodium chloride; meat, fish and mushroom broths; fatty meats, boiled and fried foods, sausages, canned food, salted, fish, caviar; cheeses; beans; garlic, radish, beans, spinach, pickled vegetables, mushrooms; chocolate; meat, fish and mushrooms, pepper, mustard, rice; strong coffee, cocoa, mineral water rich in sodium.

7a- Dietary table.

Instructions: acute nephritis in mild and severe forms; chronic renal failure and chronic nephritis.

Purpose: maximum restoration of kidney function, improvement of excretion of metabolic products from the body, reduction of arterial hypertension and reduction of edema.

General Description: Vegetarian diet with severe protein restriction. The amount of fats and carbohydrates is moderately reduced. Products rich in extracts, essential oils, oxalic acid. Food processing: boiling, baking, light frying. Food is prepared without salt. The amount of fluid should not exceed 300-400 ml of urine excreted by patients during the previous day.

Energy value and chemical composition: protein 20 g (animal 50-60%, and CRF-70-75%), fat 80 g (vegetable 15%), carbohydrates 350 g (sugar 80 g); Energy value 8.8-9.2 QOL (2100-2200) kcal.

Feeding regimen: 5-6 times a day.

Prohibited foods and dishes: ordinary bread, flour products with the addition of salt; meat, fish, mushroom broths, dairy soups, cereals and legumes; all meat and fish products (sausages, canned food, etc.); cheese; rice (except rice) and pasta, salted, pickled and pickled vegetables, spinach, raisins, cabbage, mushrooms, radishes, garlic; chocolate, milk jelly, ice cream; meat, fish, mushroom sauces; mustard, pepper, game; cocoa, natural coffee, mineral water rich in sodium.

7b- Diet table.

Instructions: acute nephritis and chronic nephritis after diet 7a.

Purpose: maximum restoration of kidney function, improvement of excretion of metabolic products from the body, reduction of arterial hypertension and reduction of edema.

General description: A diet characterized by a significant reduction in protein and a severe restriction of sodium chloride. The energy value of carbohydrates and fats is in the physiological norm. Food and grocery list - like diet 7a. Food is cooked without salt. Compared to diet 7a, it increases protein intake by 2 times, due to meat or fish per 125 g, 1 egg and milk and cream per 125 g. Meat and fish can be replaced with cheese, given the protein content in this product.

Energy value and chemical composition: protein 40-50 g (animal proteins 50-60%, Ubed a - 70-75%), fats 85-90 g (vegetable 20-25%), carbohydrates 450 g (Sugar 100 g); Energy value 10.9 - 11.7 QOL (2600-2800 kcal). Consumption of free fluid under the control of the amount of urine and other clinical indicators (see diet 7a), an average of 1-1.2 liters.

Diet: 5-6 times a day.

7c- Diet table.

Instructions: nephrotic syndrome, chronic kidney disease and other diseases.

Purpose: replenishment of proteins lost in the urine, normalization of the metabolism of proteins, fats, cholesterol, reduction of edema.

General Description: Physiologically normal energy value with increased protein, moderate fat reduction, normal carbon dioxide, restriction of sodium chloride, fluid, extract, cholesterol, oxalic acid, sugar. Meat and fish are boiled. Food is prepared without salt. Food temperature is normal.

Chemical composition and energy value: proteins 120-125 g (animal 60-65%) 80 g, carbohydrates 400 g (sugar 50 g); Energy value 11.7 QOL (2800 kcal); liquid content 0.8 l.

Feeding regimen: 5-6 times a day.

Prohibited foods and dishes: ordinary bread, butter, meat, fish, mushroom broth; fatty meat, liver, kidneys, brain, sausages, meat products, canned meat and vegetables; fatty fish, caviar; fresh cheeses; radish, garlic, chicken, pickled vegetables; chocolate, cream products; meat, fish, mushroom soups, mustard, game, pepper; cocoa, mineral water rich in sodium.

7g- Dietary table.

Instructions: terminal (final) stage of renal failure (when the patient is on hemodialysis - purification of the patient's blood with the help of an artificial kidney).

Purpose: to provide a balanced diet, taking into account the peculiarities of metabolism in renal failure and the adverse effects of hemodialysis.

General description: Moderate restriction of proteins (mostly vegetable) and potassium, severe restriction of sodium chloride and a significant decrease in free fluid. A diet with a normal energy value of fats and carbohydrates. Food is prepared without salt, bread is also prepared without salt. The patient is given 2-3 g of sodium chloride. Limit your intake of foods rich in potassium. Sufficient amino acids are provided by meat, fish, eggs and limited dairy products. Meat and fish are boiled. Spices, citric acid are added to dishes. Food temperature is normal.

Chemical composition and energy value: protein 60 g (animals 75%), fats 100-110 g, carbohydrates 400-450 g (sugar and honey 100 g each); Energy value 11.7-12.1 kJ (2800-2900 kcal); potassium up to 2.5 g, liquid volume 0.7-0.8 l.

Feeding regimen: 6 times a day.

Prohibited foods and dishes: ordinary bread (except wheat and salty) and flour products; meat, fish, mushroom broths; sausages, salted fish, canned food, caviar; cheese; beans; marinated, marinated vegetables, mushrooms, rhubarb, spinach, chocolate, dried fruits, confectionery, meat, fish, mushrooms, cocoa, oils.

8- Diet table.

Instructions: as the underlying disease.

Purpose: to reduce excess fatty foods.

Characteristics: a decrease in the energy value of food in the diet due to carbohydrates, especially easily digestible and in small quantities - fats (mainly animal) protein at a normal or slightly elevated level. Restriction of free liquid sodium chloride. Dishes are cooked in boiled, fried, baked form. the use of fried, peeled and crushed foods. Food temperature is normal.

Chemical composition and energy value: proteins 90-110 g (animal 60%), fats 80-85 g, carbohydrates 150 g; Energy value 7.1-7.5 kJ (1700-1800 kcal); sodium chloride 5-6 g, liquid content 1-1.2 l.

Diet: 5-6 times a day.



35 - drawing. No. 8 recommended foods in the diet.

Limited food and products: products from wheat flour of the highest and first grade, dishes from potatoes, cereals, eggplant, pasta; meat, geese, ducks, meat, sausages, canned food; fatty, salty, fish, canned fish, caviar; fatty cheese, sweet cheese, cream, sweet yogurt, baked milk, fatty and salty cheeses; fried eggs; rice (except buckwheat, barley and barley), raisins, bananas, figs, dates, other fruits, sugar, jams, honey, ice cream, cocoa, meat and pastries.

9- Diet table.

Instructions: for mild to moderately severe diabetes. Heavy or light patients who do not take insulin or take low doses of insulin are also prescribed a diet, as well as a dose of insulin or other antidiabetic drugs.

Purpose: improvement of carbohydrate metabolism and prevention of disorders of fat metabolism, determination of tolerance to carbohydrates.

General description: Moderately reduced energy intake from carbohydrates and animal fats in the diet. The protein content corresponds to the physiological norm. Sugar and sweets are excluded. The amount of sodium chloride, cholesterol, extractors is limited. Increase the amount of lipotropic substances, vitamins. Recommended food: cottage cheese, fresh fish, seafood, vegetables, fruits, cereals, bran bread. Reducing the amount of cooked, fried and fried foods instead represents the nutritional value of energy resources. Sugar, or xylitol sorbitol, is used for sweet foods and drinks. Food temperature is normal.

Chemical composition and energy value: proteins 90-100 g (animals 55%), fats 75-80 g (30% vegetable), carbohydrates 300-350 g (mainly polysaccharides); energy value 9.6-10.5 kJ (2300-2500 kcal); sodium chloride 12 g, liquid volume 1.5 l.

Diet: even distribution of carbohydrates 5-6 times a day.



36 - drawing. No. 9 recommended foods in the diet.

Prohibited foods and dishes: fatty and semi-finished products; strong, fatty broths, semolina, rice, milk soups; meat, duck, goose, sausage, canned fatty foods; oily fish, caviar preserved in oil, cheeses, sweet cheese creams, cream, rice, semolina and pasta; pickled vegetables, grapes, raisins, bananas, figs, dates, sugar, jams, sweets, ice cream, butter, grapes and other sweet juices, sweet lemonades; meat and baked goods.

10- Diet table.

Instructions: diseases of the cardiovascular system without clinical signs of heart failure.

Purpose: to improve blood circulation, work of the cardiovascular system, liver and kidneys, metabolism.

Description: Decreased energy value due to fats and partly carbohydrates. The content of sodium chloride is significantly limited, fluid intake is reduced. Substances affecting the cardiovascular and nervous systems. Increased content of potassium, magnesium, lipotropic substances, acidic products (milk, vegetables, fruits). Meat and fish are boiled. Food is prepared without salt. Food temperature is normal.

Chemical composition and energy value: proteins 90 g (55-60% of animal products), fats 70 (25-30% of vegetable), carbohydrates 350-400 g; Energy value 10.5-10.9 MW (2500-2600 kcal); sodium chloride 6-7 g (3-5 g per hand), liquid volume 1.2 l.

Diet: 5 times a day.



37 - drawing. No. 10 recommended foods in the diet.

Prohibited foods and dishes: fresh bread, pastries, soups made from meat, fish, mushrooms and fish; meat, geese, ducks, liver, kidneys, brain, meat products, sauces, fatty, salty, fish, salmon, canned fish; salty and fatty cheeses; hard boiled eggs, beans, pickled vegetables; spinach, oats, radishes, radishes, garlic, onions, mushrooms; spicy, fatty and salty flavors; mushroom fiber, fruit, meat, fish, mushroom broth, mustard, pepper, natural coffee, cocoa, meat and baked goods.

11- Diet table.

Instructions: Cilia lungs, bones, lymph nodes. After infectious diseases, after operations and injuries.

The goals of the diet: restoring the nutritional state of the body, strengthening its defenses, accelerating recovery processes.

General description: this diet has an increased energy value - a high content of protein, minerals, vitamins. The dish is prepared as usual.

Chemical composition and energy value: proteins 110-130g (60% animals), fats 100-120g (20-25% vegetable) carbohydrates 400-450g, energy value 12.6-14.2 QOL (3000-3400kcal) NaCl 15g quantity liquids 1.5 l.

Meal regimen: 5 meals.



38 - drawing. No. 11 recommended foods in the diet.

Forbidden foods and dishes: very fatty meat and meat products, spicy and fatty sauces, a lot of creamy preserving cakes.

12- Diet table.

Instructions: Diseases of the higher nervous system. #10 when moving from a diet to a habitual diet.

Dietary goals: Desensitization of the central nervous system.

General description: proteins, fats, carbohydrates are normal, calories are normal. The calcium content is high, the substances stimulating the nervous system are maximally limited.

Chemical composition and energy value: proteins 100-110g, fats 90-100g, carbohydrates 400-550g, sodium chloride 12-15g, calcium 1-1,2g.

Diet: Taken 5-6 times.



39 - drawing. No. 12 recommended foods in the diet.

Limited food and products: strong fish and meat broths, spicy food, hamdori, cantaloupe, coffee, chocolate, alcohol.

13- Diet table.

Instructions: Acute infectious diseases. Time of acute fever. Angina.

Goals: Increasing the overall potency of the body, increasing its ability to fight infections, reducing toxicity.

Description: Reduced calorie diet based on fats, proteins, carbohydrates with a high content of vitamins and minerals, and free fluids. The types of dishes are varied and are fast-digesting dishes that do not cause constipation and other troubles. Limit your intake of salty, fatty foods. Dishes should be steamed and boiled in water. Dishes are served hot, not hot at 55-60°C and cold, not cold at 12°C.

Chemical composition and energy value: proteins 75-80 g (60-70% animals), fats 60-70 g (15% vegetable) carbohydrates 300-350 g, energy value 9.2-9.6 MJ (2200-2300 kcal) sodium chloride 8-10g, free liquid 2 liters or more.

Diet: taken 5-6 times in small portions.



40 - drawing. No. 13 recommended foods in the diet.

Limited food and products: borscht, freshly fried bread and baked goods, legumes, fatty meats, goose ducks, lamb, pasta, types of mushrooms and mushrooms, salted smoked fish, cauliflower, cocoa, chocolate, pork.

14- Diet table.

Instructions: Kidney stone disease, pyleocystitis, phosphaturia.

Objectives: To restore the acidity of the urine and thus prevent the formation of sediment.

Description: The energy value of proteins, fats, carbohydrates in a diet in which the amount of NG corresponds to the normal physiological norm, foods that increase alkalinity are limited, mainly calcium compounds (milk and dairy products, Most vegetables and fruits), the amount of foods that make urine acidic is increased properties (bread and bakery products, eggs, fish). Cooking methods of the dish are not limited. Caloric nutrition without contraindications.

Chemical composition and energy value: proteins 90g, fats 100g, carbohydrates 380-400g.

Diet; 4 times admission.



41 - drawing. No. 14 recommended foods in the diet.

Limited food and products: milk and dairy products, cottage cheese, icing, vegetable salads, potatoes, fruit juices, salted and smoked fish.

Instructions: The process of transition from diet to habitual nutrition, this diet is recommended for patients who do not suffer from diseases of the gastrointestinal tract.

Dietary Goals: Providing adequate nutrition in a hospital setting.

General description: The energy value of proteins, carbohydrates and fats is no different from healthy human food. The amount of vitamins will be increased. The dish can be processed in all culinary ways, the temperature of the dish is normal, only very spicy and very difficult to digest foods are excluded from the dishes.

Chemical composition and energy value; proteins 90-95 gr (55% Animals), fats 100 gr (30% vegetable) carbohydrates 400 gr, energy value 11.7-12.1 MJ (2800-2900 kcal) NaCl 15 gr. The amount of liquid is 1.5-2 liters or more.

Diet: 4 times a day.



42 - drawing. No. 15 recommended foods in the diet.

Restricted food and products: Very fatty foods, garmdori, mustard.

Order of distribution of food

Delivery of food from the food block is carried out in accordance with the deadlines set for each department. It only starts after the hospital doctor on duty takes a food sample. The bartender places food containers on mobile carts and delivers them to the kitchen, where there are dishes, a hot plate (to heat food if necessary), hot water titans (large volume water heaters), and dishwashing tools. After the food is distributed to the departments, it is distributed by the bartender, nurse and nurse in accordance with the distribution requirements. If the junior nurse performed any assignments before distributing food (taking the patient to the toilet, cleaning the wards), she should put on special clothes and wash her hands thoroughly. Medical workers should be provided with separate gowns with a special label" for the distribution of food.

Test questions:

1. What are the basic principles of therapeutic (therapeutic) nutrition?
2. What is the formula for a balanced diet?
3. Tell us about the types of surgical and medical dietary tables.
4. What table is prescribed for peptic ulcer?
5. Feeding bedridden patients.

Test questions:

1. **Does not apply to the most important properties of glucose.**
 - A. Ability to convert to lysine and other essential amino acids.
 - B. Serve as an easily recyclable source of energy.
 - C. Rapid intestinal absorption and tissue absorption.
 - D. May stimulate insulin secretion and convert to glycogen.
2. **Should the temperature of hot foods not rise?**
 - A. 10 to 20 degrees.
 - B. 30 to 40 degrees.
 - C. 40 to 50 degrees.
 - D. 50 to 60 degrees.
3. **Recommended daily dose of calcium for adults, mg.**
 - A. 1500-2000 mg.
 - B. 800-1000 mg.
 - C. 250-500 mg.
 - D. 100-200 mg.
4. **Who is at an increased risk of developing anemia.**
 - A. In infants who are not breastfed.
 - B. Adolescents 2-17 years old.
 - C. In the absence of a sufficient period of time between fruits.
 - D. Fast growing children 1-2 years old.
 - E. Pregnant or breastfeeding women who are not getting enough iron.
5. **What kind of disinfectant is used in the food room?**
 - A. Peroxide.
 - B. Dichlor 1-2%.
 - C. 0.5% chlorine solution.
 - D. Chloramine 1%.
6. **Disorders of protein metabolism are not observed in the following diseases?**

- A. Cirrhosis of the liver.
 - B. Pancreatitis.
 - C. Cholecystitis.
 - D. Oncological diseases.
7. **Not a major source of protein.**
- A. Meat.
 - B. Fish.
 - C. Egg.
 - D. Walnut.
8. **The nutritional value of protein is unrelated.**
- A. To the daily norm.
 - B. To digestion.
 - C. Surikova.
 - D. Belonging to animal proteins.
9. **The amount of energy released during the breakdown of 1 gram of protein in the body.**
- A. 4.1 kcal.
 - B. 4.3 kcal.
 - C. 4.6 kcal.
 - D. 5.5 kcal.

Situational questions:

1. The patient was hospitalized due to advanced esophageal cancer. Severe condition. Dehydration and cachexia are highly developed. At the consultation, it was indicated that the patient should be artificially fed. Which method should not be used for this?

2. Patient S., 29 years old. Since the age of 10, he has been suffering from duodenal ulcer. Currently, he is hospitalized in the hospital with pain in the stomach in the surgical department. What medical dietary table do you recommend to the patient?

3. Patient B. At the age of 65, he has been suffering from stomach cancer for a year. During the examination, the doctor noted that hot food for a patient with stomach cancer should be at +55°C. How does that count for a hot meal?

4. The patient is 17 years old. Thin, brittle nails, break quickly. Muscles are weak. Body weight 38 kg, height 158 cm. Anemia developed in the blood. What product is not recommended for the patient as the main source of protein?

5. When there is severe pain in the abdomen, the patient asks the nurse for a burner. How should a nurse behave?

TERMINAL CONDITIONS AND BASICS OF REANIMATION

Types of terminal states, symptoms and diagnosis. There are different types of terminal states: 1. end of life as a result of old age; 2. as a result of an incurable disease; 3. as a result of premature disappointments, as a result of acute and chronic diseases.

Terminal states are conventionally divided into stages: 1. preagonal state; 2. terminal pause; 3. agony; 4. clinical mortality; 5. biological death. In addition to biological death, the aforementioned conditions can be brought back to life through resuscitation procedures.

The preagonal state is a process accompanied by loss of consciousness, cessation of blood circulation and respiratory movements. The course of the pre-agonal state directly depends on the reasons that caused it: 1. will not exist in an electric shock; 2. lasts for hours with severe blood loss; 3. with incurable diseases lasts for days. The lengthening of the preagonal state leads to a decrease and complete loss of the body's reserve forces. Preagonal states end with a terminal pause in breathing and the following are observed: 1. bradycardia (up to asystole); 2. Battery drop to zero; 3. adynamia; 4. areflexia.

The duration of the terminal pause can range from a few seconds to 2-4 minutes.

Agony is the end of an organism's lifespan. In this one can observe: 1. a short-term improvement in consciousness; 2. temporary increase in cardiac and respiratory activity (abnormal breathing); 3. Temporary rise of the battery. Agony in most cases is accompanied by a short-term contraction of the muscles, followed by their relaxation. Agony is considered the end of the body's struggle with death and ends with death in cases where no outside help is provided.

Clinical death is considered a stage after the state of agony and is a transitional period between life and death, a reversible period of vital functions. This is the stage that begins with circulatory arrest. The duration of the period of clinical death depends on the resistance of brain cells to hypoxia and in most cases is 4-7 minutes. The duration of clinical death depends on: 1. age and condition of the organism; 2. depending on the type and conditions of the causal relationship; 3. depends on the degree of activation of excitation, etc.

The duration of the state of agony leads to a reduction in the phase of clinical death. This period is reduced in the following cases: 1. with increased metabolism; 2. in case of fever; 3. with long-term illnesses.

Causes leading to prolonged clinical death: 1. deep hypothermia; 2. sudden circulatory arrest in conditions of increased oxygenation; 3. adaptation of the body to hypoxia. With deep hypothermia (-20°C), the period of clinical death can last up to 45 minutes. Therefore, in some cases, resuscitation can help well, even when a person is immersed in cold water for an hour. Biological death occurs if the actions indicated in clinical death do not bring benefits. Signs of clinical death: 1. Cardiac arrest: one of the main symptoms of sudden circulatory arrest. 2. Unconsciousness: blood comes to the surface within 10 seconds of circulatory arrest. 3. Tremor: occurs when you lose consciousness. In many cases, trembling is noticed by others. 4. Respiratory arrest: observed 20-30 seconds after circulatory arrest. Additional signs: pupil dilation and loss of its reaction to light, observed 30-40 seconds after circulatory arrest.

Biological death is an irreversible process, and no measures will help. This state comes to the surface after the state of clinical death and is accompanied by the cessation of vital activity of the whole organism. Signs of biological death: 1. Lack of consciousness. 2. Lack of heartbeat. 3. Absence of respiratory movements. 4. Dryness of the cornea. Pupil dilation and lack of response to external influences. 5. The appearance of death spots on the lower parts of the body (2 hours after death). 6. Rigor mortis (hardening of muscle tissue) appears 6 hours after death. 7. Drop in body temperature (down to ambient temperature).

Indications for resuscitation. Carrying out and termination of resuscitation measures is established by law. Such measures are indicated for all manifestations of sudden death, and at the same time there are contraindications. Contraindications: 1. injuries incompatible with life (separation of the head from the body, complete crushing of the chest); 2. clear signs of biological death. Cases where resuscitation is contraindicated: 1. Cases where death occurred as a result of intensive treatment, and as a result of diseases that have not found a solution in modern medicine; 2. In cases where the patient has chronic diseases in the terminal stage and it is useless to provide resuscitation; are described in detail in the medical history (these include severe oncological diseases and injuries incompatible with life); 3. if more than 25 minutes have passed since the cardiac arrest (body temperature is the same as the ambient temperature); 4. if the patient has refused previously carried out resuscitation measures in the manner prescribed by law.

First aid for circulatory and respiratory arrest. A special place is occupied by contact with the patient before performing cardiopulmonary

resuscitation. Through contact with the patient, we can know the state of consciousness of the patient and his complaints. Cardiac activity is first determined in the arteries of the arm, and then in the carotid artery. Respiratory movements are not determined by the movement of the chest, for this the resuscitator comes closer to the patient's nose and listens to breathing, or, alternatively, pull a thin thread in front of the nose. Assessment of the state of the pupil is carried out by raising the upper eyelid. If the patient has stopped breathing and cardiac activity, first pay attention to the presence or absence of signs of biological death. If the patient has signs of clinical death, you will need to call on others for help through the words "help" or call for help using a cellular connection. cases of sudden cardiac arrest is well helped by precordial shock).

Cardiopulmonary resuscitation technique. It consists of the following components: "A - airway" - restoration of airway patency. "V - breathing" - artificial respiration (USV). "C - circulation" - artificial circulation (closed heart massage). Before using the triple method, the upper respiratory tract and oral cavity are examined and cleaned (removal of vomit, cleaning of blood clots and broken The triple method: Restoring the patency of the upper respiratory tract is carried out by the triple method "a - air" 1. The head leans back. 2. The lower jaw pulls down. 3. The mouth opens. Restoration of the patency of the upper respiratory tract is carried out in stationary conditions with the help of special tools (mouth opener, tongue, air duct). Artificial lung ventilation (USV). "B-breathing" the patient is inhaled using mouth-to-mouth and mouth-to-nose inhalation techniques (directly or through the airways). The resuscitator lays the patient on his side. After cleaning the mouth and performing the triple method, the rescuer takes a deep breath and blows forcefully into the patient's lungs, while the patient's nose or mouth is pressed against the rescuer's hand to prevent air from escaping. Artificial respiration is also carried out through the respiratory tract. The duct is a curved rubber tube (similar to the letter S) that prevents the mouth from closing. After cleaning the oral cavity, the air duct is inserted into the oral cavity, through which air is directed downwards, and the air duct opening above the tongue is pushed up, rotating in the oral cavity (preventing the tongue from falling back). Through the external opening, the resuscitator blows air into the patient's lungs, while the nostrils are in the closed position. USV can be done with portable equipment "RDA-1" (AMBU copy). This device consists of an elastic bag that will be connected to the air through the mask valve. After cleaning the upper airways and oral cavity, the rubber mask is hermetically sealed in the

air duct, which, in turn, is attached to the AMBU bag through a valve, thus the pressure of the AMBU bag leads to ventilation of the lungs. As a result of compression of the AMBU bag, air of the required volume and frequency is blown into the lungs. The breath is actively sent, the exit of air into the atmosphere is free. During exhalation, the AMBU bag expands and fills with air. In this case, it will be necessary to pay attention to the rhythm of breathing, since the inhalation will be almost 2 times shorter than the exhalation. The advantage of this method is that the infection is not transmitted to the resuscitator, and fresh air is sent to the patient. Performing USV through the AMBU bag makes the rescuer's job easier and hygienic. Resuscitation is carried out if one person performs cardiac and respiratory movements in a ratio of 10:2 (10 times chest compressions and 2 times artificial respiration), if two people perform in a ratio of 30:2.

Closed heart massage. In order to make a closed heart massage, the patient must be laid on a hard surface "C - circulation", and then: 1. the resuscitator stands on the side of the patient; 2. It is necessary to press from above on the lower 1/3 of the sternum, that is, on a wedge-shaped protrusion 2 fingers wide; 3. pressure on the chest is performed with one hand and, as an additional force, presses on the 2nd hand; 4. while the fingers are in the correct position, do not touch the ribs (prevention of rib fractures); 5. massage is performed with pressure of the entire weight of the resuscitator, while the elbow joint is in the maximum open position without bending; 6. chest pressure - should be strong, active, fast, and the chest should be pressed 4-5 cm; 7. hands are quickly released after pressing. The resuscitator should keep the patient on their side, since cardiac massage is a difficult procedure that requires physical effort, so they often change places. The effectiveness of closed heart massage is expressed by the appearance of pulsation in the central and peripheral arteries.

Criteria for the effectiveness of resurrection. Resuscitation measures are considered effective: 1. Chest evacuation during USV; 2. occurrence of pulsation in the central and peripheral arteries; 3. determination of blood pressure, (100/10 mm.sm.set.); 4. constriction of the dilated pupil; 5. Spontaneous breathing, palpitations, blood pressure, the appearance of fainting, the mucous membrane turns pink.

Indications for stopping cardiopulmonary resuscitation.

Stops in the following cases: 1. ineffectiveness of the measures taken within 30 minutes. 2. non-intensive functioning and cardiac arrest for 30 minutes in the area where the measures are taken.

Legal actions with a corpse in surgical departments. Actions that the nurse should perform after biological death has occurred: 1. Remove clothes from the corpse and put it on a hard seat without a pillow on a gurney. 2. in the certificate of the attending physician, his valuables must be removed, recorded and handed over to the head nurse. If something valuable cannot be extracted from the corpse, it is necessary to write about it in the medical history and send it to the morgue. 3. close the eyelids (if they are open). 4. close the mouth (if it is open) and fix the lower jaw. 5. put your hands together, placing them on your stomach. 6. straighten your legs and tie them together. 7. leave the corpse in the cell or isolation cell in this state for 2 hours, covered with a lid (until a clear biological sign of death appears - death spots). 8. On paper, you must write down your full name. and a serial number, as well as a medical history hanging on the leg. 9. inform relatives. 10. explain the circumstances of death respectfully and correctly. 11. fill in a suitable paper and it is necessary to indicate in it: full name, serial number, date and time of death, medical history. 12. Send by orderlies to the pathoanatomical department 2 hours after the discovery of clear signs of biological death (death spots).

The problem of euthanasia. There are 2 different types of euthanasia: active and passive. 1. Active euthanasia - involves killing at the direction of the patient himself or his relatives, so as not to cause excessive suffering to the patient. This is done by the active movement of the doctor or the "full syringe method". Such incidents are prohibited in most countries and are considered premeditated murder. 2. Passive euthanasia. Passive euthanasia is the restriction and non-use of highly complex medical procedures that may result in the patient's life being extended, but not in complete recovery from pain; in other words "delayed syringe method". Such cases remain particularly relevant today in patients with severe illness, incurable extreme illness, decortication, and severe birth defects. The use of this method by doctors in such cases has not yet found its place in society, and in many countries this behavior is discouraged. Euthanasia is strictly prohibited in Uzbekistan.

Providing assistance to patients in terminal condition, informing about the condition. Help for sick patients. Applying ice to the injured area

The terminal state (lat. terminalis last, borderline state) is a borderline state between life and death, in which a critical violation of vitality indicators is accompanied by a sharp drop in blood pressure, a profound impairment of metabolism and air exchange. Factors provoking terminal

states include injuries, burns, electrical injuries, drowning, mechanical asphyxia, myocardial infarction, acute cardiac arrhythmias, anaphylaxis (insect bites, drug administration). One etiological factor may influence the pathogenesis of cardiac arrest. With mechanical asphyxia due to compression of the larynx in the upper pharynx, reflex respiratory arrest is initially caused directly by pressure on the carotid arteries. In other cases, compression of the large vessels of the neck, trachea, and in some cases, a fracture of the cervical vertebrae give cardiac arrest a slightly different pathogenic appearance. During a dive, water can quickly fill the airways, stopping the oxygenation process in the alveoli.

Critical spasm of the glottis at death in other cases is due to a critical level of viral hypoxia. When an electric current passes through the body, a mechanism of critical impairment of vital functions is observed. A three-stage classification of the terminal state is common: pre-agony, agony, clinical death. In addition, the state after resuscitation procedures is introduced: preagonal state: general numbness, no consciousness, blood pressure is not determined, the pulse is not determined in the peripheral blood vessels, but is determined on the femoral and carotid arteries; respiratory failure is accompanied by wheezing, cyanosis and pallor of the skin and mucous membranes. Agonal state: determined on the basis of the following symptom complex: lack of consciousness and eye reflexes, blood pressure is not determined, in large arteries, very sluggish and not determined in peripheral vessels; on auscultation, heart sounds are faintly heard; The ECG shows cardiac arrhythmias and signs of hypoxia. Clinical death: observed after a complete cessation of blood circulation, with a loss of functional activity of respiration and the central nervous system.

After the cessation of the work of the lungs, metabolic processes slow down sharply, but do not stop completely due to anaerobic glycolysis. Thus, it is possible to reverse the state of clinical death, the duration of which will depend on the resistance of the brain after a complete stop of breathing and blood circulation. Here we can mention the concept of the brain and biological death. The state of "brain death" (decortication) is noted with irreversible damage to the cerebral hemispheres, but it is very difficult to make this diagnosis in the early stages (in the first hours and days of clinical death). Biological death is defined in a generalized way as an irreversible violation of viability. Its objective signs are the appearance of hypostatic spots, a decrease in temperature and the hardness of the muscles of the corpse's body. In most cases of rapid death in potentially healthy people, the average brain survival is 3 minutes. After that, irreversible changes occur in

the brain. With all types of mortality in the early stages of mortality, three triads of clinical signs are distinguished: loss of breath (apnea), circulatory arrest (asystole), loss of consciousness (coma). A complete stop of spontaneous breathing (apnea) is visually determined - in the absence of an excursion of breathing. Visual diagnosis of apnea requires strong attentiveness, clear and quick movements from the resuscitator. A complete obstruction is diagnosed when artificial respiration fails with pressure. Urgent restoration of airway patency is achieved by performing the following actions: the patient is given a comfortable position; the head is thrown back, trying to let air into the lungs. It is based on a symptom of cardiac arrest - loss of pulse in the femoral and carotid arteries. The absence of a pulse is considered a sign of the transition to a closed heart massage. Immediately after the restoration of cardiac and respiratory activity, they switch to measures to cool the brain and body, that is, they introduce drugs that increase the resistance of the brain and organs to hypoxia. It is difficult to draw a conclusion, if after resuscitation procedures the blood circulation is restored, but does not regain consciousness, artificial respiration will be continued. It is difficult to talk about "brain death" in the early stages of resuscitation, so resuscitation procedures must be continued. With a prolonged coma for more than 6 hours, the hope for a complete recovery of brain activity is reduced; with a deep coma, it sharply decreases after 24 hours; disappears after 48 hours.

Care of patients in agony. Agony is a state preceding death, characterized by a profound metabolic disorder and the extinction of the vital functions of the body. After the agony, a state of terminal (final) pause occurs, which lasts from several seconds to several minutes. During this short time, breathing first accelerates, then temporarily stops, cardiac activity slows down, the pupils dilate, and the retinal reflex is lost. Violation of the functioning of the upper parts of the nervous system in an agonal state, which occurs after a few seconds or hours; attenuation of brain functions (loss of consciousness), chaotic function of the medulla oblongata (breathing becomes very lethargic, irregular). Blood pressure drops to zero, the pulse becomes thready and then completely disappears. Body temperature drops, generalized convulsions and sphincter paralysis (urinary and fecal incontinence) are observed. If the agonal state persists, pulmonary edema occurs. Condition, appearance of patients in an agonal state: pale and swollen face, cold sweat, clouding of the cornea of the eye. When breathing and cardiac activity stop, a state of clinical death occurs. The patient, who

is in an agonal state, requires intensive treatment. Usually administered drugs that revitalize the respiratory and cardiovascular, brain activity.

You should stop talking excessively in front of dying patients, because they can hear, and this will only aggravate their condition. They need to be isolated or placed in an isolator. If clinical death occurs after surgery or due to trauma, resuscitation should continue. In the case of clinical death, biological death occurs when the ongoing therapeutic measures do not help: respiratory and cardiac activity stops, muscles relax, and body temperature decreases. Later, bluish cadaveric spots appear on the underside of the body. The doctor records the death and enters the date and time in the medical history.

The corpse is laid naked, legs stretched out, the lower jaw is bandaged, the eyelids are closed, the top is covered and left for 2 hours. The nurse writes the name and case number on the corpse's legs. Next, a certificate is filled out, in which data is entered. The corpse is taken out to the pathoanatomical department for autopsy when there are obvious signs of death (cadaveric spots, hardening, softening of the eyeballs). Valuable things are removed from the corpse and an act is drawn up. An autopsy is performed, after which the corpse is handed over to relatives against receipt.

Providing first aid to sick patients. Vomiting is the sudden discharge of gastric masses through the mouth. Vomiting occurs at the command of the vomiting center located in the medulla oblongata. Impulses to this center can come from the stomach, intestines, liver, kidneys, uterus, vestibular apparatus and higher nervous system (for example, due to an unpleasant odor). In addition, vomiting can be caused by exposure to the vomiting center of various toxic substances and drugs. In many cases, vomiting may begin with nausea, salivation, rapid and deep breathing before vomiting. Vomiting should be distinguished from nausea. Vomiting usually occurs because the abdominal muscles and diaphragm do not move, and the stomach fills with food or air. Vomiting is common in children, especially at an early age. Vomiting in children is especially dangerous due to the underdevelopment of protective functions, the risk of getting vomit into the respiratory tract.

Providing first aid for vomiting. 1. He should not be left alone if the child is vomiting. 2. To prevent vomit from entering the respiratory tract, the child should be placed in a lying position on its side. 3. After each vomiting, the child should rinse the mouth with clean water (using a 20-gram syringe or douche) and wash the skin areas that have been vomited. 4.

Do not feed or give medication to the child until the cause of the vomiting is determined

Put in an ice pack. Applying an ice pack is mainly used to reduce blood flow to the affected area of the body. The use of the bag can be incorporated into home physiotherapy treatments. Dry cold causes constriction of blood vessels due to the hypothermic effect, cold reduces nerve sensitivity and reduces pain.

Since the melting of ice in the bag is slow, it is still widely used in medicine. Ice pack instructions: 1. Bleeding (internal and external) 2. Bruises (during the first days). 3. When the temperature rises. 4. In a coma 5. With insect bites. 6. In acute inflammatory processes in the abdominal cavity. 7. In postoperative periods.

Preparation for the procedure: take ice cubes or a large piece, wrap in 2-3 layers of sheets, if a large piece, crush. It is forbidden to use the large piece itself. Take a clean sheet or towel, as well as a clean ice bin. A container of cold water is being prepared. **Ice Pack Application Technique:** Before applying an ice pack, inspect the area of application. It is necessary to determine the absence of inflammation, scratches, redness. An ice pack is placed mainly on the head in the forehead and back of the head, on the chest, in the abdomen, in the region of large blood vessels (armpits). Infants should not place an ice pack on the back of their head. In these cases, cold compresses can be used.

Structure and organization of work of the intensive care unit

In the intensive care unit, all employees wear special clothes of a certain color (the gown and cap are changed daily). Employees have changeable shoes on their feet, which are constantly disinfected. It is mandatory to wear medical caps and masks (Masks are changed every 4-5 hours). All manipulations are performed in special gloves. When entering other departments, medical personnel put on other medical clothes. The doors of the intensive care unit are always closed, the inscription will be on the doors: "**Resuscitation! NOT AVAILABLE!**". The main requirement of the intensive care unit is a strict limitation on the number of incoming patients, as well as personnel who are not directly related to intensive care. Sick relatives are introduced only in certain cases (a direct telephone connection is provided to ensure communication between the patient and relatives). Basic instructions for the intensive care unit: 1. Resuscitation room. 2. ITP (intensive care unit). 3. The position of a nurse. 4. Insulator. 5. Express laboratory for biochemical research. 6. Hyperbaric oxygen chamber. 7. Apparatus "artificial kidney". 8. Room for extracorporeal

detoxification. 9. Gnotobiology chamber. 10. Auxiliary premises: hardware, handling, bedding, showers, buffet, toilet; nurses' office; staff room; office of the head of the department; head nurse's office.

Resuscitation room. In the intensive care room, the patient undergoes the following procedures: 1. Daily control; 2. Strict care; 3. Revitalizing events; 4. Prolonged artificial ventilation of the lungs; 5. Catheterization of the main vessels; 6. Massive infusion into the central veins; 7. Tracheotomy (if necessary); 8. Hypothermia of the brain; 9. Acceleration of diuresis; 10. Hemosorption sessions. There can be from 2 to 6 patients in the hall, which are separated from each other by special light curtains. Before each bed should be free access from all sides. In the intensive care room, the function of diseased organs and systems is stabilized, after which it is transferred to the ITP. The intensive care room is full. Control and diagnostic equipment: 1. Monitor that continuously monitors the patient's condition: PS, ECG, AB, body temperature, respiratory capacity, EEG, CAM and blood gases; 2. Mobile X-ray machine.

Medical equipment: 1. Artificial lung ventilation apparatus 2. anesthesia machine 3. defibrillators; 4. electrophoresis 5. inhalers 6. pacemakers 7. bronchoscopes 8. laryngoscopes 9. air ducts 10. endotracheal tubes 11. vascular catheters 12. disposable syringes 13. sterile sets for venipuncture and venesection, tracheotomy, epidural and spinal puncture; 14. on a sterile table: mouth dilators, urinary catheters, gastric tubes, drainage tubes, surgical instruments, sterile dressings; 15. oxygen, nitrous oxide, liquefied air, vacuum in a centrifuge or cylinders; 16. oxygen humidifier (maybe Bobrov's jar);

17. system for intravenous infusion; 18. Devices for drip injection. Personal care items: 1. dishes 2. Vessels for urine; 3. renal corpuscles 4. Dishes for water 5. rings that are applied to bedsores 6. heating pad 7. ice bubbles.

Intensive care unit (ITP). ITPs are adapted for patient management and intensive follow-up. With an open system, the ITP will have up to 12-15 beds, and, in a decentralized system, the ITP will have up to 1-3 beds. There will be the following chambers: for purulent diseases; with pure diseases; - for patients in need of isolation. Chambers should be clean, quiet, warm. The beds should be arranged in the rooms in such a way that they can be approached from three sides. Beds should be made of metal so that they can be easily handled, they should be easy to move and allow the patient to easily change position; special mattresses against bedsores; the mattress prevents the formation of wounds.

Each bed receives centralized oxygen, nitrous oxide, liquefied air, vacuum, sound and light signals for an individual call. The wards have special monitors for continuous dynamic monitoring. They allow constant visual control. On the bedside table, there must be a washcloth, a drinking bowl for water and equipment for breathing exercises. The health worker should have alarm equipment for calling, and it should be comfortable for the patient.

Medical nursing post. The nursing post is arranged in the same way as the post in the surgical department (desk, stationery, checklists, forms, desk lamp, telephone). In addition, there is a working table, in which the tool material in the binding form is folded onto the table. Together with the desktop, there should be a mobile table here so that it can perform not only inside one room, but also in other rooms. For the ambulance table, you must have the following devices: air ducts, Ambu bag, endotracheal tubes, anesthesia machine, pacemaker, electrocardiograph, defibrillator, oxygen and nitrous oxide cylinders, mechanical suction cup, sterile surgical instruments, sterile dressings, sets for tracheotomy and thoracotomy, gastric tubes, sets for central vein catheterization and injections, disposable syringes, infusion systems, needles for intracardiac injections, infusion media, a set of pharmacological preparations, a long cord with two sockets. Before starting work, the nurse on duty should check that all tools are present.

Test questions:

1. Terminal state - what is it?
2. What do terminal states look like?
3. What are the main signs and symptoms of terminal states do you know?
4. How are terminal states diagnosed?
5. What is the preagonal state?
6. What is agony?
7. What is clinical death?
8. What symptoms of clinical death do you know?
9. What is biological death?
10. What signs of biological death do you know?
11. What resuscitation instructions do you know?
12. How to provide first aid in case of circulatory and respiratory arrest?
13. How is cardiopulmonary resuscitation performed?
14. What is artificial lung ventilation and how is it performed?
15. What is closed heart massage and how is it performed?
16. What criteria for the effectiveness of resurrection do you know?
17. What are the main recommendations for stopping cardiopulmonary resuscitation do you know?
18. What are the 10 rules for resuscitation and the intensive care unit?
19. What are the main components of the intensive care unit and intensive care?
20. What do you understand by the intensive care unit and their types?
21. What do you understand by nursing in the intensive care unit?

Test questions:

1. **An indication for resuscitation is:**
 - A. Lack of consciousness
 - B. Biological death
 - C. Clinical death
 - D. Absence of pulse in peripheral arteries
 - E. Preagonal state
2. **Resuscitation is:**
 - A. Decreased function of vital organs of the body
 - B. Name of medical specialty

- C. The doctrine of the mechanisms of decline in the function of vital organism
- D. Intensive care for circulatory and respiratory arrest
- E. Name of the medical institution

3. How should chest compressions be related to breathing during pulmonary - cardiac resuscitation (in the presence of one resuscitator)?

- A. 15:2
- B. 5:1
- C. 10:4
- D. 2:1
- E. 15:5

4. In cardiopulmonary resuscitation, what should be the ratio of chest compressions to breathing (in the presence of two resuscitators):

- A. 15:2
- B. 5:1
- C. 10:4
- D. 2:1
- E. 15:5

5. Which of the scientists proposed the main elements of cardiopulmonary resuscitation?

- A. Hippocrates
- B. V.P. Safari
- C. Le Grand
- D. Ambroise Pare
- E. N.I. Pirogov

6. Set a number of contraindications for resuscitation:

- A. Newborns
- B. Elderly patients
- C. When there are obvious signs of biological death
- D. In the presence of clear signs of clinical death
- E. When there are clear signs of agony

7. Specify the methods of artificial lung ventilation used during resuscitation?

- A. All of the above
- B. With Ambu bag and mask.
- C. With S-tube
- D. Mouth to nose
- E. Mouth to Mouth

8. Which of the following is not included in an intensive care unit?

- A. Device and dispensers for infusion therapy

- B. Blood pressure monitoring system
 - C. Angiography machine
 - D. Defibrillator
 - E. Equipment and instruments for artificial ventilation of the lungs
- 9. Terminal states include:**
- A. Pre-agony, agony, clinical death, biological death
 - B. Predagonia, terminal pause, agony, clinical death
 - C. Agony, terminal state, biological death
 - D. Coma, brain death, biological death
 - E. Shock, terminal pause, clinical death, biological death
- 10. Cheyne-Stokes breathing is typical for:**
- A. For hemothorax.
 - B. For pneumothorax
 - C. For sepsis
 - D. In traumatic brain injury
 - E. For terminal cases

Situational tasks:

Example 1 A 30-year-old patient was found unconscious on the street. The patient was taken to the emergency department. When examined by a doctor in the emergency department, the patient's condition deteriorated sharply: the patient had apnea, cyanosis, and the pulse in the carotid artery was not detected. The doctor in the emergency department called the resuscitator and tried to perform a venipuncture of a peripheral vein in order to inject an adrenaline solution. Is the doctor's tactics correct? Draw up an algorithm for further resuscitation?

Example 2: A firefighter fell to the ground screaming. The seizure stopped when we approached the patient. Examination reveals a bare power cord dangling from an electrical pole, clutched in the patient's hand. Draw up an algorithm for providing first aid to a patient?

Example 3: After bad news in front of you, an 82-year-old woman had a heart attack, screamed, lost consciousness, and stopped breathing. Make an algorithm of your actions?

Example 4. The victim was pulled out of the water without signs of life 2 minutes after he drowned. The patient is not conscious, breathing is not determined. Make a first aid algorithm?

Example 5: An unconscious victim was found inside a building during a fire. The patient's skin is blue-violet, there is no breathing. Develop a patient care algorithm?

Pictures:

1. What is shown in the picture?



- A. Defibrillator
- B. Ducts
- C. Breathing apparatus
- D. Pulse oximeter
- E. Laryngoscope

2. What is shown in the picture?



- A. Laryngoscope
- B. Ducts
- C. Pulse oximeter
- D. Respirator
- E. Defibrillator

3. What is shown in the picture?



- A. Pulse oximeter
- B. Laryngoscope
- C. Ultrasonic Nebulizer
- D. Defibrillator
- E. Respiratory apparatus

ANSWERS TO TASKS

WORK OF THE SURGICAL RECEPTION DEPARTMENT AND ITS ORGANIZATION

Test questions

1	2	3	4	5	6	7	8	9	10
D	A	C	B	B	A	A	D	C	C

Situational questions

1 is an example. Answer: the patient should be sanitized with one of the anti-pediculosis agents (water-emulsifying solution of karbofos or similar agents).

2 is an example. Answer: first, the patient must be examined for pediculosis, then partial sanitization and transportation are carried out in the supine position of the patient.

3 is an example. Answer: He should prepare a 1% chloramine solution by adding the appropriate amount of water to the mother's 10% solution.

4 is an example. Answer: the blade should be wiped with a 1% solution of chloramine, wiped again after 15 minutes, and wiped with a damp cloth after another 15 minutes.

5 is an example. Answer: The patient should be carried on a gurney without moving, along with a wooden mattress, while the patient is transferred to the gurney.

STRUCTURE, MODE OF WORK AND EQUIPMENT OF THE SURGICAL DEPARTMENT.

Test questions

1	2	3	4	5	6	7
C	B	A	C	D	B	A

Graphics tests

1	2	3	4
A	D	C	A

PREPARATION OF PATIENTS FOR OPERATION. PATIENTS IN THE POSTOPERATIVE PERIOD CARE.

Test questions

1	2	3	4	5	6	7	8	9	10
B	C	A	D	A	E	A	B	B	D

Graphics tests

1	2	3	4	5
A	D	C	B	E

BASICS OF ANTISEPTICS IN SURGERY. WAYS OF APPLICATION OF ANTISEPTICS.

Test questions

1	2	3	4
C	B	D	A

Situational tests

1	2	3	4	5	6	7	8	9	10
A	E	D	B	E	A	C	D	E	A

Graphics tests

BASICS OF ASEPTICS IN SURGERY. SOURCES OF INFECTION. AIR-DROP, CONTACT, IMPLANT PREVENTION OF INFECTIONS. HOSPITAL INFECTION.

Test questions

1	2	3	4	5	6	7	8	9	10
A	C	B	E	A	D	D	C	A	B

Situational tests

1	2	3	4	5	6	7	8	9
A	D	C	B	A	E	B	A	A

Graphics tests

1	2	3	4	5
E	D	A	C	D

ORGANIZATION OF NUTRITION OF PATIENTS IN THE SURGICAL DEPARTMENT. DIETARY FOOD. FEEDING THE SERIOUSLY ILL.

1	2	3	4	5	6	7	8	9
A	D	B	E	A	C	D	A	A

TERMINAL CONDITIONS AND BASICS OF REANIMATION

Test questions

1	2	3	4	5	6	7	8	9	10
C	D	B	C	B	C	A	C	B	E

Situational questions

1 is an example. Answer: The patient has signs of clinical death (fainting, shortness of breath, lack of blood circulation). Cardiopulmonary resuscitation should be started immediately: indirect heart massage, restoration of upper airway patency, artificial ventilation of the lungs.

2 is an example. Answer: First of all, the patient will need to remove the power cord from the hand. To do this, you need to use a stick, or any other current-resistant object. After removal from the wire, resuscitation should begin according to the generally accepted algorithm.

3 is an example. Answer: The described condition is typical for sudden cardiac death. The patient's age is not a contraindication for cardiopulmonary resuscitation. Starting to do heart massage should be according to the protocol.

4 is an example. Answer: The first thing to do is to remove water from the respiratory tract. Then you should immediately begin cardiopulmonary resuscitation: indirect heart massage, restoration of patency of the upper respiratory tract, artificial ventilation of the lungs.

5 is an example. Answer: The victim shows signs of clinical death due to ICE gas poisoning. For this reason, it is necessary to quickly remove the victim to the street and start resuscitation in accordance with the protocol.

Graphics tests

1	2	3	4	5
A	B	E	C	A





