

**MINISTRY OF HEALTH OF UKRAINE**  
**POLTAVA STATE MEDICAL UNIVERSITY**  
**Department general surgery with care of the patient**

“APPROVED”  
on the meeting of the chair  
of the general surgery with care of the patient  
head of the chair  
professor \_\_\_\_\_ Ligonenko O.V.  
“ \_ ” \_\_\_\_\_ 2021

**METHODICAL INSTRUCTIONS**  
**FOR INDEPENDENT WORK OF THE STUDENT**  
**IN TIME FOR PREPARATION TO THE PRACTICAL STUDY**  
**(auditorium work)**

<b>Study discipline</b>	<b>Care of the patients (practice)</b>
<i>Module №2</i>	<b>CARE FOR SURGICAL PATIENTS</b>
<b>Lesson theme №4</b>	Sterilization of bandaging material and operating linen. Organization of work is in an operating-room. Surgical preparation of hands of surgeon and operating field. Organization of work is in sterilization room. Preparation and sterilization of cuttings, optical and other instruments. Sterilization of suturing material.
<b>Course</b>	<b>II</b>
<b>Faculty</b>	<b>Medical, Foreign students training faculty</b>

Poltava 2021

<i>Module №2</i>	<b>CARE FOR SURGICAL PATIENTS</b>
<b>Lesson theme №4</b>	<b>Sterilization and bandages, operational laundry. Organization of work in the operating room. Surgical treatment of the hands of surgeon and the surgical field.</b>

### 1. Actuality of theme:

In providing surgical care to patients is of great importance to prevention of infection in the wound. This can be achieved through strict adherence to aseptic technique, the main provision of which is as follows: everything that is faced with a wound should be free from microorganisms, that is sterile. During this lesson, students should master the rules of aseptic technique in the organization of work in the operating theater, in preparation for the operational use of the laundry and dressing, learn the rules of the operational linen vestments, the methods of pre-treatment of the hands and the surgical field. These skills are important for further studies on the surgical departments, and for work in the capacity of future specialists.

### 2. Educational aims:

- Have an understanding of the history of development of aseptic technique.
- Know the definition of aseptic, ways of transmission of exogenous infection.
- Understand the structure of the operating unit, the methods of the sanitary and hygienic regime in the operating unit.
  - Understand the structure and operation of the autoclave safety when working with the autoclave.
  - Learn the preparation for sterilization and sterilization methods of the bandaging material and surgical linen samples for quality sterilization.
  - Understand the methods of preparation of the surgeon's hands to the operation, elements of care for the surgeon's hands.
  - Know the methods of the preoperative preparation of the operation field.
  - To be able to transport patients to the operating room and out of the operating room.
- Be able to conduct cleaning of the operating room.
- To be able to wear operational underwear.
- Be able to prepare and process solutions hands before surgery.
- Be able to prepare the surgical field

### 3. Basic knowledge, skills necessary for studying the topic (inter-disciplinary integration)

The names of the preceding disciplines	Acquired skills
1. Biochemistry	Describe the metabolism. Interpret blood count, urinalysis, blood chemistry
2. Microbiology	Determine the resistance of the vegetative and spore flora to the action of temperature, pressure, radiation, energy, chemicals. To possess elements of bacteriological research. Conduct bacteriological control of sterility
3. General hygiene	Compare methods of sterilization. To be able to evaluate the methods of sterilization and sterility control
4. Pharmacology	Classification of the necessary antiseptic solutions

**The student must have an idea:**

- the features and conditions of the existence of spore forms of microorganisms and the mechanism of action of various types of disinfection by microorganisms
- about the principles of physical methods of sterilization
- about the features of the influence of different sterilization methods for cutting, optical and general surgical instruments

The student should know:

- produce napkins, tampons, plastic bags.
- prepare an operating whiteness and bandaging material for sterilization
- lay the material in the bix Shimelbusha.
- work with the autoclave.
- prepare a hands of the surgeon for an operation.
- take care of the surgeon's hands outside the clinic.
- handle the operative field.
- clean up the operating unit.
- transporting patients to the operating room.
- wear operational underwear.

The acquisition of practical skills by students:

- manufacture of napkins, tampons, paper bag.
- preparation of operating whiteness and bandaging material for sterilization
- laying of the material in the bix Shimelbusha.
- methods of working with the autoclave.
- preparation of the surgeon's hands for surgery.
- processing of the operative field.
- transport of patients in the operating room.
- vestment of the operating linen.

#### **4.Task for self-study in preparation for the lesson.**

##### **4.1. The list of basic terms, parameters, characteristics, which the student must learn in preparation for the class:**

Term	Definition
Azopiram	A chemical that is used to detect traces of blood
Phenolphthaleinum	A chemical that is used to detect traces of blood
Kraft – paper	Heat-resistant paper
Bix	Metallic device for storage and sterilization of medical products therein
Autoclave	Device for sterilizing a pair of pressure
Drying cabinet	Device for dry-heat sterilization

##### **1.2. Theoretical questions for the class:**

1. The structure and organization of work in the sterilization.
2. Preparing for the sterilization of surgical instruments.
3. Preparing for the sterilization of optical instruments.
4. The samples, which control the quality of the cleaning before sterilization of surgical instruments.
5. Sterilization cutting, optical, general surgical instruments.
6. Classification of stitch material and the requirements for it.
7. Sterilization of stitch material

##### **4.3. Practical activities (tasks) that are used in class:**

1. Preparing instruments for sterilization.
2. Preparation of detergents and disinfectants.
3. Samples of the quality of the before-sterilization.

#### **5. The content of the topic.**

### ***Preparing for the sterilization of surgical instruments.***

The effectiveness of an expensive method of sterilization depends on the purity of objects that will be liable to sterilization. Contamination of organic and inorganic nature (plant residues lubrication rolled blood, exudate, urine, etc.) creating a protective shell around microorganisms, drastically reduces the effect of a thermal and chemical sterilization. That is why prior-treatment is provided so important.

Before sterilizing cleaning tools, contaminated biological materials should be disinfected by one of the following methods:

- Boil in 2% solution of sodium bicarbonate for 30 minutes.
- in a hot air oven at 120 ° C for 45 minutes.
- immersion in a 1% chloramine solution at 60 minutes.
- immersion in a 6% solution of hydrogen peroxide for 1 hour.
- immersion in a 0.1% solution sulfochlorantina 30 minutes.
- Immersion in 0.2% sodium dezaktina at 1:00.
- Immersion in a 3% solution of Lysol for 1 hour.
- immersion in a 2.4% solution pervomura 15 minutes.

### **Presterilizing clearing tools.**

Presterilizing clearing can be carried out manually or by using of special washing machines. Machine way of processing is applied SWC or major operational units of a lot of specialized hospitals.

For manual way of processing is necessary to prepare a special cleaning solution that can be of 2 types:

- To 1 liter of solution - 978 ml drinking water, 17 ml of perhydrol technical grade A or B or hydrogen peroxide medical (concentration 27.5%), 5 g of washing detergent leaving ("Lotus", "Ain", etc.)

- To 1 liter of solution - 995 ml drinking water, 5 g of washing detergent "Biolot".

Wash complex harvested in a glass or enamel basins. At the beginning of the calculated amount of water was poured, and then added the required amount of detergent and perhydrol detergent. To take 10 l solution 9550 ml water, 400 ml and 50 g of perhydrol washing detergent. Complex solution can be used over time from the workpiece if it has not changed color. Such a solution can be heated up to 6 times, as in the hydrogen peroxide concentration reheating is not significantly changed.

The manual method of processing prior-compiled with 7 stages:

1. Optional. If the tool is heavily contaminated with blood, it immediately after use is immersed in a 1% solution of sodium benzoate which is also a further corrosion inhibitor, at room temperature for 1 hour.

2. Rinsing the instrument running water for 1 minute.

3. Dive into the detergent at a temperature of 50 ° for 15-17 minutes.

4. Wash each instrument in a detergent with a brush or cotton-gauze sponges for 1 minute.

5. Rinsing with running water for 5-10 minutes.

6. Rinsing with distilled water in a tank or bath with periodic changes of water for 1 minute.

7. Hot air drying in a hot air oven to a complete disappearance of water at 85 oc, or on a table covered with a sheet.

After the spent prior-cleaning is necessary to check its effectiveness and make sure that the instruments were not erasing the accumulated blood and detergent.

Lack of erasing detergent checked by Phenolphthalein test: washed up on the instrument pipetted 1-2 drops of 1% alcoholic solution of phenolphthalein and watch to see if a pink color that will indicate the presence of erasing detergent. In this case it is necessary once again to rinse under running water and distilled instruments and again after drying, repeat this test.

### **Quality check of the blood purification by means of one of the samples:**

- **Benzidine trial.** A 1% solution of benzidine hydrochloride in distilled water. Applied to the tool 3 drops of the solution and 3 drops of 3% solution of hydrogen peroxide. In the presence of residual blood appears blue-green color.

- **Ortotuloidinovaya trial.** Take 4% solution ortolidinu etanole 960 in an amount of 5 ml was added thereto, and 5 mL of 50% acetic acid and distilled water as well. The monitored tool applied 2-3 drops of solution and 1-2 drops of 20% hydrogen peroxide. In the presence of residual blood will be a bright green color.

- **Amidopirinovaya trial.** Prepare reagent which is composed of equal parts (3-5 mL) of 5% alcoholic solution amidopirina, 30% acetic acid solution and 3% hydrogen peroxide solution. The monitored tool applied 2-3 drops of reagent. The appearance of a blue-green color indicates the presence of residual blood on the instrument. If the instruments have found the remains of blood, then the pre-sterilization process must be repeated in full for the specified sequence

Stowage of the tools for sterilization will depend on the method of sterilization which will be applied (autoclaving, gas sterilization, paraformalinovaya camera, chemical sterilization solutions, etc.).

Phase II - laying and preparation for sterilization. After the previous drying in air tools are put to dry in a drying cabinet, which was heated to 85 °C in public. Later door cabinets closed, and sterilization.

Step III - sterilization. Sterilization of instruments, syringes, needles, glassware held in drying ovens, sterilizers. After closing the door cabinets, the temperature is brought to 180 °C, keeping it automatically. Neutering has lasted for 60 minutes. After switching off the heating system and reduce the temperature to 70-50 °C open the closet door, and capped with a sterile instrument metal box with tools.

Sterilization of instruments that contain plastic parts (such as the staple cartridge), syringes can be done in a steam sterilizer (autoclave). Packed items put into the sterilization chamber. If the packages are put in Bix, their openings shall be opened. Surgical instruments and syringes are sterilized for 20 minutes at 2 atm and a temperature of 132,9 °C. Time is counted from the beginning of the sterilization period to achieve the appropriate pressure. Rubber gloves, blood transfusion systems, rubber drainage tube was sterilized at 1.1 atm and a temperature of 120 °C for 45 min. When unloading the autoclave are closing the holes in the bix.

Methods of sterilization in a heat and steam sterilizers should be regarded as basic. The method of sterilization by boiling is used in small hospitals where there is no centralized sterilization. Used for this stationary or portable electric immersion heaters, which can be sterilized instruments, syringes, needles, objects made of glass, rubber catheters, gloves.

In boiler poured distilled water. To increase the boiling point of water, the destruction of bacterial membranes as anticorrosive agent added 20 g of sodium bicarbonate in 1 liter of water (2% solution). At the bottom of the boiler put a thin jacket of Watts and gauze to salt, which fall in the form of scales settled on him, not on the tools. Instrumentation unassembled placed on special nets and lower hooks on the bottom of the boiler so that the handles are outside hooks, and close the cover heater. The sterilization time - 40 minutes from the moment of boiling water. At the end of the sterilization instruments pick up the grid with hooks, drained the water and transferred to a special table covered with a sterile sheet, drawn up in the reservoir 4. Surgical nurse arranges tools on a large operating table. Tools, syringes and needles contaminated with pus stool, after special processing previous sterilized by boiling for 90 minutes in a separate boiler.

Sterilization of instruments and items that are not subject to heat treatment (endoscopy, thoracoscopy, laparoscopy, devices or blocks of devices for cardiopulmonary bypass hemosorption) is performed in a special gas sterilizer. Items for sterilization placed in a sealed sterilization chamber that is filled with ethylene oxide. Term exposure - 16 hours at 18 °C. Sterilisation can also be carried out with a mixture of ethylene oxide and methyl chloride at a temperature of 55 °C for 6 hours.

Sterilization of instruments and optical devices (laparoscope, thoracoscopy) can be carried out in an alcoholic solution of chlorhexidine and bigluconate pervomura. Sterilization apparatus and instruments chemicals should be in metal boxes with lids, which warns the evaporation of the drug. In the absence of special dishes are sterilized in an enamel or glass container. Tools grout so that it is completely covered them, and close the lid. In emergency cases, when it is impossible to ensure sterilization of instruments for one of said images using sterilized instruments burning. In the metal tray pour 15-20 ml of alcohol, several tools are placed on the bottom and produce alcohol arson. Insufficiently reliable method of

burning, fire - and explosive (the presence of oxygen, steam narcotic substances in indoor air). Therefore, he resorted to in exceptional cases, strictly following the rules of fire safety. When sterilizing cutting instruments (scalpels, scissors) are blunt conventional methods, so it is better sterilized without heat treatment. After preparation of instruments is immersed in 96 ° ethanol for 30 minutes or triple solution for 3 hours. Allowed only short-term boiling cutting tools. Scalpels are placed in a separate grid of blades is wrapped with gauze and boiled in distilled water, without adding sodium bicarbonate for 10 minutes, then placed in 96 ° ethanol for 30 minutes.

Stage IV - the preservation of sterile material. Sterile material is stored in a special room. Do not store in a room of non-sterile and sterile materials. The sterility of the material in the box (if not slightly open) is stored for 48 hours, and provided additional packing material in a cotton bag - 72 hours. In a centralized sterilization of syringes maintain sterility for 25 days.

Prevention of wound infection implantation.

The largest value in the event of implant infection has stitches.

For tissue during surgery using yarns of different origin, metal clips, shackle, wire. There are more than 40 types of suture material. The most widespread are silk, polyester, nylon, catgut, metal bow.

Applied filaments which dissolve and threads that do not dissolve. Natural yarns, which are absorbed, there is a thread of catgut. Extension of period of absorption of catgut is achieved by impregnation of its metals (chrome, silver catgut). Use synthetic yarns which dissolve - with thread deksonau, vikrilu, oksilonu, etc. By natural yarns that do not resolve, are the threads of natural silk, cotton, horsehair, to synthetic - threads of nylon, polyester, Dacron, nylon, ftorlon, etc.

Stitching material must meet the following basic requirements - must have a fat, smooth surface and not cause further damage to the tissues, have good dexterity properties - good slide in the tissues, be flexible (sufficient extensibility prevents compression and necrosis of the tissues in which increasing edema), be strong in the site, do not have the hygroscopic properties and do not swell, be biologically combined with living tissues and do not allergic effects on the body. The destruction of threads should coincide with the time of wound healing.

Suppuration of wounds occurs significantly less when using sutures, which possess antibacterial activity due to their structure imposed antimicrobials (letilan-Dacron, ftorlonovye, acetate and other filaments, which contain nitrofurantoin drugs, antibiotics, etc.). Synthetic strands that contain antiseptics have all the advantages such as sutures and at the same time have an antibacterial effect.

Stitching material may be sterilized by  $\gamma$ -radiation at the factory. In ampoules winding silk catgut, nylon stored at room temperature and used as needed. Metallic suture material (wire, bows) are sterilized in an autoclave or by boiling, the filaments of polyester, nylon - by boiling in a solution pervomura.

Silk, nylon, polyester, linen, cotton, sterilized by Kocher. This assumes the previous thorough mechanical cleansing of suture material with hot water and soap. Skeins of yarn are washed in soapy water for 10 minutes, twice replacing the water, then washed with the detergent solution, dried with a sterile towel and wound onto a special glass coils that are placed in jars with a glass stopper and pour ether for 24 hours for a low fat, then shift from banks with 70 ° alcohol for the same period. Before using silk heated for 10-20 minutes in a solution of mercuric chloride 1:1000 shift in hermetically closed cans 96 ° alcohol. After 2 bacteriological control of their time, with a negative result of planting material is ready for use. The synthetic filaments can be sterilized by boiling for 30 minutes.

Sterilization of catgut. Heat treatment of catgut is not applicable. In the factory, catgut sterilized by  $\gamma$ -rays. Methods for chemical sterilization of catgut include previous images of skim, which rolled rings catgut placed in hermetically sealed cans of ether for 24 hours.

For sterilization of Claudius poured banks ether and poured ring catgut aqueous Lugol (10 ml pure iodine, potassium iodide, 20 ml of distilled water to 1000 ml) for 10 days, then replaced with fresh Lugol and leave it again at 10 days catgut . Thereafter Lugol solution replaced 96 ° alcohol. After 4-6 days to make the seed sterility.

Gubareva sterilization method provides catgut alcohol Lugol solution (pure iodine and potassium iodide, 10 ml, 96 ° etilovogo alcohol to 1000 ml). After Low Fat ether decanted and catgut grout Ljugolja

for 10 days, after replacing the new solution is left in the gut last for 10 days. After bacteriological control, with favorable results, allow the use of the material.

Method Sitkovskogo. After degreasing in standard sterile catgut filament is cut into three parts by 1,25 m in length, wiped with a solution of mercuric chloride 1: 1000 and a roll ring, which is immersed in 2% aqueous solution of potassium iodide: number of threads for 0 - 30 seconds, for number 1 - 1 minute, № 2 - 2 minutes, № 3 - 3 minutes, etc. (time in minutes corresponds to the number thread). After infiltration filaments potassium iodide ring strung on catgut filament thick and suspended at a distance of 7-8 cm from the bottom of a glass jar to which an iodine crystal is poured from the calculation: in a 3-liter jar: - 40 g of iodine, 5 L - 60 g of iodine. Jars hermetically closed. Timing of the exposure catgut massacre, depending on the thickness of thread (№ 0, № 1 finished in 3 times, № 2, № 3, № 4 - by 4 times, № 5, № 6 - 5 days). After bacteriological control yarn suitable for use.

## **6. Materials for self-control.**

### **6.1. The tasks for self-control.**

#### **Questions:**

1. How is the preparation of instruments for sterilization?
2. How to prepare the cleaning and disinfecting solutions?
3. What is the quality of the sample prior-processing tools do you know?
4. How do you sterilize cutting, optical and general surgical instruments?
5. What types of suture material and methods of sterilization, you know?

#### **Tasks:**

1. Prepare instruments for sterilization
2. Prepare washing and disinfecting solution
3. Perform tests on the quality of prior-processing tools
4. Spend sterilization cutting, optical and general surgical instruments.
5. Spend the sterilization of suture material.

### **6.2. Situational tasks:**

1. Choose the most complete and accurate definition of the central sterilization department (CSSD).  
 A CSO is an independent specialized branch that can serve a number of health care institutions (LPZ) and is headed by the chief physician LPZ, in which it is affiliated;  
 B. CSO is an independent organization dedicated subsection LPZ, led by an older sister, is subject to the chief doctor LPZ, of which it is part, and it serves only LPZ;  
 C. The CSO is an independent organization dedicated subsection LPZ, led by an older sister and can serve a number of LPZ;  
 D. SSC is an independent organization dedicated subsection LPZ, can serve several LPZ, headed by an older sister and is subject to the chief doctor LPZ, of which it is part.  
 E. CSO is normal ward in the hospital.
2. Choose the most complete and correct answer. According to what regulations central sterilization department (CSSD) carries out its work?  
 A. according to regulations of the Ministry of Health;  
 B. according to regulations of the Ministry of Health and the applicable law;  
 C. according to the orders of the head physician of health care institutions and applicable laws;  
 D. the orders of the chief doctor of health care institutions;  
 E. according to the order department head.
3. Choose the most complete and correct answer. The main goal of the central sterilization department is  
 A provision of high-quality sterilization of medical products;  
 B. providing high prior-treatment and sterilization of medical products;  
 S.obespechenie high prior-processing, sterilization of medical devices and storage;

D. ensuring high prior-processing, sterilization of medical products and its supply of health care institutions.

E. providing Sanepid regime at a health care institution.

4. On the problem of the central sterilization department does not include:

A. ensuring the delivery of health care products (CP) in the department of health care institutions (LPZ);

B. Admission IMNiz offices LPZ;

C. Determination of the range of medical devices that are subject to sterilization, the distribution of products and the direction of the flows of processing, depending on the type of material of which is made of medical devices (metal, rubber, textile, etc.);

D. Conducting prior-processing of medical devices;

E. Sort of medical devices offices LPZ.

5. Which statement is incorrect with regard to the central sterilization department (CSSD)

A. To CSO staff composition does not include physicians;

B. By CSO staff composition includes middle and junior medical staff;

C. To the CSSD staff composition includes middle and junior medical staff, headed by a medical officer of the SSC;

D. By CSO staff composition includes middle and junior medical staff;

E. CSSD headed older sister.

6. Which of the following premises are not part of the sterilization department?

A. Reception and forwarding;

B. washing and sterilization;

S. sterile zone;

D. expedition and observation;

E. packaging.

7. According to what standard document organized work in the sterilization unit?

A. The Industry Standard Ministry of Health (OST 42-21-2-85);

B. Order of the main doctor in charge of treatment and prophylactic institution, which includes sterilization department;

C. The disposal of senior nurse, who heads the sterilization department;

D. the industry standard of the Ministry of Health of Ukraine (GTS 03/12/42 - 00).

E. disposal head of surgical department.

8. Choose the most complete and correct answer. Sort of medical products that reach the sterilization department is in accordance with

A. The date of receipt;

B. labeling and separation of the material from which the item is manufactured medical devices;

C. The material from which the item is manufactured medical devices;

D. Ost 42-21-2-85;

E. labeling department.

9. Choose the most complete and correct answer. For samples for occult blood are:

A sample of phenolphthalein;

B. test for sterility;

C. azapiramovaya sample;

D. phenolphthalein and azapiramovaya sample;

E. doping test.

10. To the equipment of sterilization (autoclaving) are not included:

- A. stoly;
- B. chairs;
- C germicidal lamp;
- D. cart;
- E. autoclaves.

**6.3. Tests for self-control (basic knowledge):**

1. The How long tools sterilized in an autoclave at temperature and pressure 2atm 132 ° C?

- a) 20 min;
- b) 35 min;
- a) 45 minutes;
- g) 1 hour;
- d) 1 hour and 30 minutes.

2. How sterile synthetic material?

- a) boiling;
- b) the pressurized steam;
- c) soaked in alcohol;
- g) was soaked in a solution of Lugol;
- d) dry heat.

3. Posevy to monitor the effectiveness of sterilization of suture material should be performed 1 time for:

- a) 3 days;
- b) 5 days;
- a) 10 days;
- d) 15 days;
- d) 20 days.

4. When storage of sterile silk in the bank alcohol should be changed every:

- a) 3 days;
- b) 5 days;
- a) 10 days;
- d) 15 days;
- d) 20 days.

5. What sterilization method of the surgical instruments the most reliable and fast in the surgical department?

- a) the autoclave under pressure;
- b) steam in an autoclave;
- c) in the dry-top land wardrobe;
- g) a germicidal lamp;
- d) gamma irradiation.

6. What of controls over the sterility of the contents Bix most reliable?

- a) the method Mikulic;

- b) the melting point of sulfur;
- c) the melting point of sulfur as a flame retardant;
- g) bacteriological;
- d) the melting point of sulfur-benzoic acid.

7. Steams of formalin are sterilize:

- a) cutting tools;
- b) rubber gloves;
- c) instruments with optical systems;
- g) Dressings;
- e) operational linen.

8. What stored in Lugol solution after sterilization?

- a) silk;
- b) catgut;
- c) nylon;
- d) polyester;
- e) vicryl.

9. On what minimum temperature of sporeforming bacteria are killed?

- a) 60 ° C;
- b) 80 ° C;
- c) 100 ° C;
- g) 120 ° C;
- d) 140 ° C.

10. On what temperature sterilize instruments in a hot air oven?

- a) 180 ° C;
- b) 150 ° C;
- c) 100 ° C;
- g) 120 ° C;
- d) 140 ° C.

11. How retain silk after sterilization by Kocher?

- a) 96 ° alcohol;
- b) in a solution of mercuric chloride 1:1000;
- c) Lugol's solution;
- g) in dry, sterile jar;
- e) pervomure.

12. Which method is sterilizing stitching material in factory conditions?

- a) autoclaving
- b) boiling
- c) gamma irradiation;
- g) a hot air oven;
- d) soaked in alcohol

13. Disinfection of the surgical instruments can be used to hold the following methods:

- a) immersing in a 10% bleach solution for 60 minutes.
- b) immersion in 10% bleach solution for 60 minutes.
- c) immersion in a 1% chloramine solution at 60 minutes.

- d) immersion in 6% hydrogen peroxide solution for 1 hour.
- d) immersion in distilled water at 100 ° C for 30 minutes.

14. Disinfection of the surgical instruments can be used to hold the following methods:

- a) immersion in 2.4% solution pervomura 15 minutes.
- b) immersion in distilled water at 100 ° C for 30 minutes.
- b) immersion in ethyl alcohol at 960 for 30 minutes.
- z) immersion in 10% solution chloramine by 60 minutes.
- d) immersion in 0.2% solution dezaktina for 1 hour.

15. Laparoscopies and cystoscopies should be sterilized:

- a) boiling;
- b) autoclaving;
- b) immersion in ethyl alcohol at 960 30 minutes;
- g) a hot air oven;
- e) immersion in pervomur

### **Tests and tasks to check the source of knowledge**

1. In the ward was made bandage to the patient after surgery for gas gangrene. What must be done with the used tools during this bandaging?
2. Theater sister of the operation unit conducted a benzidine test on the quality of prior-processing equipment. However, it had a blue-green color in one of the control instruments. What does this result? What should I do in this case?
3. Theater sister operation unit ortotuloidinovuyu conducted a test on the quality of prior-processing equipment. However, it had a bright green color on one of the control instruments. What does this result? What should I do in this case?
4. A nurse holds a control sample amidopirinovuyu the quality of prior-processing equipment. It dealt a 3 drops of one of the tools (drops caused by cutting part of scissors), which have been in this game and have been processed, and was no color. To what can we conclude? Can be considered to be completed prior-processing of the batch tools?
5. A nurse conducted a test on the quality of n predsterilizatsionnoy processing of the surgical instruments. It struck on the working surface of the clip to 3 drops of 1% solution of benzidine hydrochloride. Coloring the site of application of the reagent has not arisen. To what can we conclude? What might have made a mistake nurse?
6. A nurse conducted a test on the quality of prior-processing of the surgical instruments. It struck at 2 instruments and 2 drops of 1% alcoholic solution of phenolphthalein and got a pink color. What does the result of the test is to be made a party to this instrument, which took place prior-cleaning?
7. From an operating nurse brought to the sterilization of surgical instruments that are heavily contaminated with dried blood. This tool should be prepared for sterilization. How can I clean this equipment from contamination prior to the prior-processing?
8. The surgical instrument was used during surgery in a patient with peritonitis. The nurse after the surgery began to prepare this toolkit to sterilization and started to wash it under running water

with a brush. What a mistake is made by a nurse? How it was supposed to go with the surgical instruments?

9. The nurse should prepare 10 liters of cleaning solution for integrated sterilizing cleaning tools. How does she do it?
10. Operating nurse spent sterilizing cleaning of the surgical instruments. She rinsed tool in running water for 1 minute, plunged it into the detergent at 50 ° C for 15-17 minutes and washed every tool in the detergent with a brush for 1 minute, rinsed tools in running water for 5 - 10 minutes, rinsed in distilled water blocked, dried in a heat cabinet. What more needs to be done at installation tools for its sterilization trays in a hot air oven?
11. Operating nurse spent sterilizing cleaning of the surgical instruments. She rinsed tool in running water for 1 minute, plunged it into the detergent at 50 ° C for 15-17 minutes and washed every tool in the detergent with a brush for 1 minute, rinsed tools in running water for 5 - 10 minutes, allow to dry in a hot air oven. Is it true she spent sterilizing cleaning?
12. Operating nurse spent sterilizing cleaning of the surgical instruments. She rinsed tool in running water for 1 minute, plunged it into the detergent at 50 ° C for 15-17 minutes and rinse instruments under running water for 5-10 minutes and rinse them with distilled water, dry it in a hot air oven. Is it true she spent sterilizing cleaning?
13. Operating nurse spent sterilizing cleaning of the surgical instruments. She plunged it into the detergent at 50 ° C for 15-17 minutes and washed every tool in the detergent with a brush for 1 minute, rinsed tools in running water for 5-10 minutes and rinse them with distilled water and allow to dry in a hot air oven. What mistake allowed the nurse?
14. Operating nurse spent sterilizing cleaning of the surgical instruments. This tool rinse in running water for 1 minute, washed in each detergent tool with a brush for 1 minute, rinsed in running water, instruments for 5-10 minutes, rinsed in distilled water blocked, dried in a heat cabinet. What mistake allowed the nurse?
15. Operating nurse spent sterilizing cleaning of the surgical instruments. She rinsed tool in running water for 1 minute, plunged it into the detergent at 50 ° C for 15-17 minutes and washed every tool in the detergent with a brush for 1 minute, rinsed them with distilled water, dry it in a hot air cabinet. What mistake allowed the nurse?

## **7. Literature:**

### **General:**

1. General Surgery. Textbook for students of higher medical educational establishments / [ Lihonenko O.V., Chorna I.O. , Zubaha A.B., Khimich S.D et all.]; Edited by Prof. S.D. Khimich, Prof. M.D. Zheliba Kyiv AUS Medicine Publishing, 2019.- 608 p.

2. General Surgery. Textbook for students of higher medical educational establishments / [ Lihonenko O.V., Chorna I.O. Khimich S.D et all.]; Edited by Prof. Ja.S.Bereznickij, M.P.Zacharash, M.P.Mishalov,. Vinnica: New book, 2019-344c
3. General Surgery / For Ed. S.P.Zhuchenko, M.D.Zheliby, S.D.Himicha - Kiev.: Health, 1999 - P. 81-101, 395.
4. Cherenko M.P., J.M. Vavryk General surgery in anesthesiology, intensive care, and the basics of patient care - Kiev.: Health, 1999. - S. 60-67.
5. Gostishchev V.K. General Surgery: Textbook. - 3rd ed., Rev. and add. - Moscow: GEOTAR-MED, 2004. - Pp. 26-31, 53-67.
6. "General surgery", S. Petrov - Moscow, "GEOTAR" 2005 - P. 17-34.
7. Surgery Vol.1. For Ed Bereznitsky Y.S. - Dnepropetrovsk, PBA "Dnepr-VAL». - 2006. - P.78-101.

**Additional:**

1. Lecture notes.
2. Timofeev, N.S., N. Timofeev Aseptic and antiseptic. - 2nd ed., Rev. and add. - L: Medicine, 1989. - S. 3-17, 52-65, 202-203.
3. Antiseptics in the prevention and treatment of infections / For Ed. G.K. Pyro - Kiev.: Health, 1997. - S. 3-90.
4. "General Surgery", ed. S.P.Zhuchenka, M.D. Zhelibi, S.D.Himicha - Kiev, "Healthy" I ", 1999 p.15-19

**The distribution points that awarded to students:**

At mastering topic № 4 for the learning activities of students rated a 4-point (traditional) scale, which is then converted into points as follows:

<i>Rating</i>	<i>Points</i>
“5” (excellent)	5
“4” (well)	4
“3” (satisfactorily)	3
“2” (unsatisfactorily)	0

Guidelines prepared  
Associate Professor, Department of General Surgery  
Chorna I.O.\_\_\_\_\_