



RS Global

Edited by Professor V.A. Dihtyar

# CARING FOR SURGICAL PATIENTS

Study Guide for Students  
of Higher Educational Medical Institutions

Warsaw 2020

**STATE INSTITUTION  
"DNIPROPETROVSK MEDICAL ACADEMY MINISTRY OF  
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**DNIPRO MEDICAL INSTITUTE OF TRADITIONAL AND  
NON-TRADITIONAL MEDICINE**

**Edited by Professor V.A. Dihtyar**

# **CARING FOR SURGICAL PATIENTS**

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**RS Global  
Warsaw, Poland  
2020**

**Caring for Surgical Patients**  
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This study guide has been prepared in accordance with applicable requirements of the “Caring for Patients” program. It aims at creating a theoretical framework for the effective mastering of the course on the care for surgical patients. Moreover, it sets out the basic principles of organization of work and the mode of a surgical hospital as well as deontological and ethical questions of patient care, clinical hygiene aspects for patients and personnel, particular features of preparation of patients for diagnostic tests and surgical interventions, and covers the basic principles of care for patients with various surgical pathologies.

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**FOREWORD**

This study guide sets out the basic principles for the care for surgical patients that must be mastered by second-year students during internships.

Students need to learn the basic features of care, to master the practical peculiarities of work of junior and middle medical personnel at a surgical hospital, to learn the algorithms of practical skills that are needed in the course of provision of care to surgical patients.

“Caring for Surgical Patients” provides the methodical development of six topics according to the “Patient Care” program, which specify the main objectives and the content of each class as well as checklists for self-evaluation of students, tests, and situational problems. The study guide provides the necessary information on the requirements for sanitary conditions at a surgical hospital, the basic features of work of junior and middle medical personnel of a surgical department, as well as organization of the work in the operating room and in the surgical dressing room. It also considers the rules of care for patients during preoperative and postoperative periods as well as the rules of care for patients with a surgical pathology, presents modern methods of aseptic and antiseptic, the methods of treating the operating field of the patient and the hands of the surgeon and the medical staff of the hospital.

We hope that the use of the “Caring for Surgical Patients” study guide during preparation for internship classes not only will give the students the necessary theoretical information but will also make them better able to learn practical skills in the field of caring for various surgical patients.

*Authors*

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### **Theme 1. Introduction to the surgery. Hygiene in surgery. Principles of work of nurses in conditions of the surgical department.**

#### ***1. Self – Study Material to Practical Training:***

##### *1.1. Theoretical Assignments:*

- The terms of deontology in surgery;
- The principles of actions in a surgical hospital;
- The structure of a surgical hospital;
- The concept of asepsis in surgery aimed to prevent of dissemination of nosocomial infection;
- The duties of a sentry and head nurses.

##### *1.2. Practical Assignments, tasks which should be carried out in the classes:*

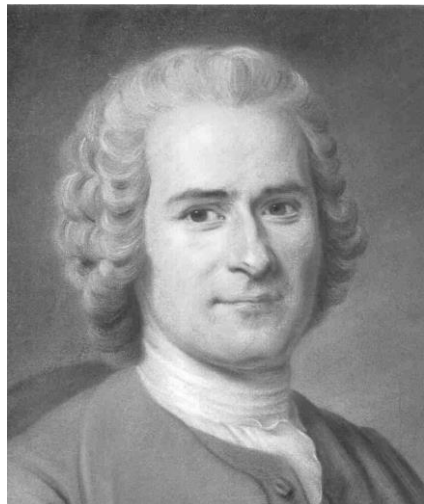
- The hygiene of body and surgical scrubs;
- The hygiene of patients' underwear and clothes;
- Safety rules of medical staff;
- The examination of the patient at the emergency room before his/her admission to the hospital.

#### ***2. Content of the theme:***

The questions of surgical deontology. The principles of actions in surgical clinic.

The science of the professional duties of medical staff towards patients and healthy people is named deontology. Philosopher Bertrand (1748-1832) was the first who implemented the term "deontology" (from Latin "deontos" - necessity, duty, "logos" - teaching). Medical deontology - a set of moral principles of medical worker towards a patient, his/her family, as well as relationships with colleagues.

An important duty of medical officer is to maintain professional secrecy, if it doesn't affect the interests of society or the patient. Health care workers aren't entitled to disclose and discuss information about the disease and the patient's sex life, which they have received during the performance of professional duties. Health workers can't explain to patients or their relatives nature of the disease, to assess the results of laboratory and instrumental and radiological studies. They can talk about the general state of



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the patient. It is unacceptable in the presence of patients discuss or criticize the professional level of doctors or prescribed treatment.

To ethic terms belong medical errors that should be distinguished from criminal acts punishable by law. Professional errors may be related to lack of knowledge, lack of experience, imperfect methods of research.

The task of the medical staff is to create in a patient a right psychological attitude to the disease, which will provide a quick recovery.

The patient and medical worker have to maintain constant contact. That's why, it's necessary to define the purpose of the treatment and its prospects. It is important the staying in wards operated as well as convalescent patients.



Medical worker has to follow the rules of ethics:

- never refuse to help the patient;
- don't apply patient trauma (distrust, rudeness, threats);
- to try to relieve patients' pain;
- don't leave even hopeless patient without help.

**The structure of surgical clinic.** The surgical clinic consists of an admission department, specialized surgical departments, operating unit, anesthetic and sterilization department.

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#### **The organisation of an admission department of the surgical clinic.**

The hospital emergency room is the part of the hospital, which hosts the reception and registration of patients, physical examination and initial diagnosis, sanitation, transporting patients to the surgical department, reference and information work. In the emergency room an urgent care is provided in accordance with needs. The admission department consists of:

1. a waiting room;
2. a nurse's post;
3. a dressing room;



4. a number of examination and diagnostic rooms;
5. an insulator;
6. a sanitary inspection room;
7. an office of a doctor on duty;
8. WC.



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Depending on the state of patients, they either are hospitalized or provided first medical care and sent to the community for further treatment.

Patients, admitted to hospital, are examined by a doctor on duty for infectious diseases and lice.

Inspect the skin, hairy parts of the body, pharynx, measure body temperature. Thermometers are disinfected in 1% solution of chloramine or 0.1% solution of dezoxon during 15 minutes. A couch, where the patient was examined, is wiped with 1% solution of chloramine twice every 15 minutes.



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#### **The features of sanitation of patients with surgical pathology in the admission department.**

The sanitation includes: the examination of body to diagnose infectious diseases, scabies, trichophytosis; the examination of scalp and patient's underwear for lice; if it is necessary, cutting nails, hair; conduction of sanitary bath, shower or wiping, depending upon patient's state; dressing up in a hospital clean clothes. The decision about the amount of sanitization makes a doctor.

#### **The structure of the surgical hospital.**

A surgical hospital has 30-40 beds to assist patients with abdominal, urological, pulmonary and other pathology. To prevent transmission of purulent infection from one patient to another, you need to isolate patients from each other, have a separate inventory and equipment.

The structure of the surgical department includes wards for patients with 3-4 beds, two dressing rooms, a handling room, a procedural room, offices of the head of the department, doctors and a senior nurse, a dining room, WC.



Requirements for personal clothing and hygiene of medical staff of a surgical department. Basic requirements consist of:

- the correct wearing of medical hygienic clothing (gowns and caps, surgical scrubs);
- the proper aseptic care for hands of medical staff;
- the regular hygienic handling of hands of medical staff;
- the disinfection of hands of medical staff with specialized disinfectants;
- a right choice and correct wearing of indoor shoes;
- the correct dressing and wearing surgical sterile mask;

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–the correct behavior of the medical staff in the dressing room, and operating unit (including disinfection of hands, dressing and wearing gowns, masks, shoe covers).

All these measures are necessary above all to avoid airborne transfer of microorganisms.

**Universal precautions.** All patients should be considered as potentially infected with HIV and other blood-borne infections. Mechanisms of transmission from patient to health care personnel: a) the contact, b) fecal-oral; c) airborne. Whenever is possible contact with blood or body fluids, mucous membranes or broken skin of any patient, and there are cuts or other damage of your own skin you have to use medical gloves. Sterile gloves are worn only to perform sterile procedures.



Medical personnel should keep in mind and use 6 safety rules to protect the skin and mucous membranes on contact with blood or body fluids of any patient:

1. Wash your hands before and after any contact with the patient.
2. Consider the blood and any body fluids of all patients as potentially infectious and work with them only with gloves.
3. Immediately after use put used syringes and catheters into a special container for sharps' disposal, don't make any manipulation of the used needles.
4. Use eye protection and masks to prevent splashing of blood or liquid secretions in a face (during handling).
5. Consider any linen soiled with blood or body fluids as potentially infectious.
6. Consider all laboratory specimens as potentially infectious.

#### **Surgical Glove Technique. Introduction.**

Gloves are packaged so that the scrub may don his gloves without contaminating the glove's outer surfaces. A pair of gloves are packaged in an individual sterile wrapper.

While the specialist is wearing his sterile gown and gloves, he must take particular care to avoid contaminating these sterile garments because such contamination could possibly result in the transfer of pathogenic microorganisms to the patient's wound. The specialist should therefore observe certain rules, to include the rules outlined (Figure 1.1)

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Rules to observe while wearing sterile gown and gloves.	
NEVER	drop his hands below the level of the sterile area at which he is working.
NEVER	touch his surgical gown above the level of the axilla or below the level of the sterile area where he is working.
NEVER	put his hands behind his back; he must keep them within his full view at all times.
NEVER	tuck his gloved hands under his armpits, as the axillary region of his gown is contaminated.
NEVER	reach across an unsterile area for an item.
NEVER	touch an unsterile object with gloved hands unless ordered to do so by the surgeon.

Figure 1.1

NOTE: The surgeon will not give such an order as to allow someone to touch an unsterile object with gloved hands unless a dire emergency exists (such as cardiac arrest) when the time element is of paramount importance in saving the patient's life. If the scrub contaminates his gown and gloves in any of the ways, he needs to discard and replace his gown and gloves.

**Closed cuff method**

Discussion. The closed cuff method of gloving is preferable to the open cuff method when the specialist must glove himself. The closed cuff method eliminates potential hazards in the glove procedure as follows:

The danger of contamination of gloves caused by the glove cuffs rolling on skin is eliminated because the skin surface is not exposed.

The gown cuffs can be anchored securely by the gloves without the danger of contamination that exists when gloves are donned by the open cuff method.

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(1) Take a tuck in each gown cuff if the cuffs are loose. Make the tuck by manipulating the fingers inside the gown sleeve; do not expose the bare hands while tucking the gown cuffs.

(2) The circulator opens the outer wrapper of the glove package and flips them onto the sterile field. (see Figure 1.2).



Figure 1.2

(3) Open the inner package containing the gloves and pick up one glove by the folded cuff edge with the sleeve-covered hand (see Figure 1.3).



Figure 1.3

(4) Place the glove on the opposite gown sleeve, palm down, with the glove fingers pointing toward your shoulder (see Figure 1.4). The palm of your hand inside the gown sleeve must be facing upward toward the palm of the glove.



Figure 1.4

(5) Place the glove's rolled cuff edge at the seam that connects the sleeve to the gown cuff (see Figure 1.5). Grasp the bottom rolled cuff edge of the glove with your thumb and index finger.

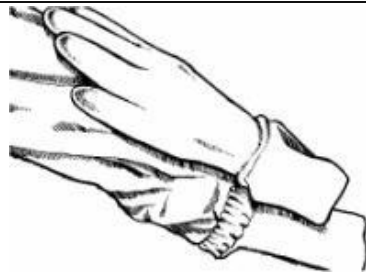






Figure 1.5

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<p>(6) While holding the glove's cuff edge with one hand, grasp the uppermost edge of the glove's cuff with the opposite hand (see Figure 1.6). Take care not to expose the bare fingers while doing this.</p>	 <p style="text-align: center;">Figure 1.6</p>
<p>(7) Continuing to grasp the glove (see Figure 1-24); stretch the cuff of the glove over the hand (see Figure 1.7).</p>	 <p style="text-align: center;">Figure 1.7</p>
<p>(8) Using the opposite sleeve-covered hand, grasp both the glove cuff and sleeve cuff seam and pull the glove onto the hand (see Figure 1.8). Pull any excessive amount of gown sleeve from underneath the cuff of the glove.</p>	 <p style="text-align: center;">Figure 1.8</p>
<p>(9) Using the hand that is now gloved, put on the second glove in the same manner. When gloving is completed, no part of the skin has touched the outside surface of the gloves. Check to make sure that each gown cuff is secured and covered completely by the cuff of the glove (see Figure 1.9). Adjust the fingers of the glove as necessary so that they fit snugly.</p>	 <p style="text-align: center;">Figure 1.9</p>

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**3. Questions for self-control:**

1. Questions of surgical deontology.
2. The rules of conduct in the surgical clinic.
3. The structure of the surgical clinic.
4. The structure of the surgical department
5. The hygiene of body and clothing of medical staff.

**4. Test for self-control:**

1. Medical deontology means:
  - A. Set of moral claims and attitude of the medical worker to the patient, his relatives and friends, relationships with colleagues and the community.
  - B. Moral demands of medical personnel.
  - C. Rules of actions of medical staff.
  - D. Norms of legal behavior of health care worker.
  - E. Relationship between doctors.
  
2. The general and special treatment of sick children before transportation to the surgical department is carried out in:
  - A. An insulator of an admission department.
  - B. The doctor's office for examination of the patient.
  - C. Procedural rooms of an admission department.
  - D. A sanitary inspection room of an admission department.
  - E. Will be carried out in the surgical department.
  
3. The reception and registration of sick children for routine surgical treatment and filling of medical records is done in:
  - A. A registration office of an admission department.
  - B. A doctor's office for the examination of the patient.
  - C. A treatment office.
  - D. A sanitary inspection room of an admission department.
  - E. In the surgical department.
  
4. The surgical department includes those rooms, except:
  - A. Operating.
  - B. Dressing.
  - C. Wards for surgical patients.
  - D. Sanitary inspection.
  - E. Handling.

**Theme 2. Organization of work in a clean dressing. Desmurgy. Concept on about bandage and bandaging. Bandage and its elements. Bandaging material and its substitutes. Classification of bandages. Technique of the triangular, four - tailed bandages, dressing of a head, face, neck, mammary gland and thorax**

***1. Self – Study Material to Practical Training:***

***1.1. Theoretical Assignments:***

- definition of dressings, concept on about a bandage and bandaging, bandaging material and its substitutes;
- types of bandaging material;
- classification of bandages depending on a purpose, on a form of bandaging material, on a closeness, on the methods of applying;
- main rules of applying of roller dressing;
- features of applying of the triangular bandage;
- features of applying of a roller bandage for a mammary gland;
- use of Mashtafaroff’s whole gauze bandage;
- rules of laying of the tubular knitted and elastic reticulated bandages for a head, thorax, extremities.

***1.2. Practical Assignments, tasks which should be carried out in the classes:***

- to lay triangular bandages for a head, joints (shoulder, elbow, knee), on a wrist, a foot, a forearm (Figures 2.4- 2.10);
- on a mammary gland (right, left) (Figure 2.11);
- to lay the quadrangular scarf bandage for a head;
- to lay the four - tailed bandage for jutting out parts of a face and a head (Figures 2.12-2.23);
- to lay the capelin (gear), «bridle», Hippocrates’ bandage (for a head) (Figures 2.14 – 2.19);
- the Figure – of - eight bandage for the back of a head, a neck (Figure 2.22);
- bandaging of the back surface of a thorax, the circular bandage for a neck (Figures 2.23);
- the cross bandage for the back regions of a thorax, an ear, eyes (Figures 2.31, 2.32);
- to lay the tubular elastic bandage and the economy Mashtafaroff’s bandages by one piece of gauze.

***2. Content of the theme:***

**Dressings** is studies about bandage and the methods of their laying.

**Bandage** is the dressing material laid and fixed on one or another region of the body.

**Bandaging** is successive replacement of bandage with manipulations in a wound and treatment of skin round a wound.



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Requirements for bandaging material: it must be hygroscopic, elastic, be sterilized easily, not changing its quality under sterilization, biologically inert (not having irritating action on tissues of organism).

#### **Classification of bandages**

1. According to the purpose bandages are divided on:
  - fixing, holding bandaging material and remedies on a wound or any region of the body;
  - immovable ones, secure immovability of another region of the body;
  - bandages with traction;
  - pressure bandages.
2. According to the appearance and form of material:
  - roller dressing;
  - triangular bandage;
  - four – tailed bandage;
  - contour bandage;
  - T-shaped bandage.
3. According to the method of fixing bandaging material:
  - glue (cleol, colloid);
  - adhesive/ plaster bandage;
  - roller bandage.
4. According to the consistency:
  - soft;
  - stiff (splints, plaster, plastic and other).

#### **Rules of laying of roller dressing:**

1. A patient or a victim is given comfortable position of body for free access to every sides to the surface of the body, especially the side where bandaging. That region of the body must be immovable and if it's possible this region be at the level of breast of the dresser.

2. The region of the body where bandage is laid, is given the position which it will have after bandaging (most important is function position) (Figures 28 - 30). If a patient is unable to hold the bandaged region of the body in necessary position a doctor's helper does it.

3. The dresser is in front of the patient and all time watches the expression of his face, and after bandaging asks, whether the patient feels some inconveniences after bandaging.

4. The head of bandage is taken in a right hand, and the beginning is in the left one. Bandaging is made from left to right, thus the back of head of bandage

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must be turned to the surface of the patient's body, and belly of a bandage to outside. Both hands must take part in bandaging. One hand unrolls a bandage, and the other one designs a bandage. Exception to the rules: during bandaging of a left eye, left ear, left mammary gland and Desault's bandages on a right hand the head of bandage is taken in a left hand and dressing from right to left.

5. Beginning of bandage is fixed near the area of damage. But not on a wound itself, by two-three circular motions laid compact enough.

6. Bandage is laid from left to right, from a bottom to the top, systematic covering all necessary surface on a certain method, depending on the form of region of body and its function. Every further round of bandage must cover preceding on 1/2 or 2/3 its width. The back of bandage must adjoin evenly to the bandaging surface, not forming folds and thrusting out, and the fixed bandage must not create squeezing of tissues. The head of bandage must be rolled without pulling out from a dressing surface.

7. Change the directions of bandaging, bends and other is desirable to conduct out of area of wound.

8. The end of bandage after dressing is fixed most often in the place, where its beginning is fixed so that a knot is not localized in the place of pathological process and not disturbed a patient.

9. The laid bandage must answer the following requirements: to fix bandaging material firmly and not break blood supply, and also not limit motions (if it is possible). After bandaging note should look at the color of skin and pulsation of peripheral arteries. Bandages laying on a wound consist of two parts: primary bandage is laid on a wound directly (it must be sterile) and the secondary bandage, fixed a primary bandage.

Working in the bandage room, a student must be dressed on a medical uniform: the dressing gown must be buttoned up absolutely, all hair must be under a little cap or triangular scarf, a mask must be put on.

#### **Position of the patient during bandaging**

It is required a patient to be put on a bandaging table, it is not depend on localization of a wound. It is desirable a patient not see his wound during bandaging, because the view of the wound may cause negative emotions for the patient, may injure their psyche. It is desirable also a patient not see other patients are being bandaged, should not see bloodstained bandaging material.

#### **Technique of bandaging**

Bandaging is begun with the removal of the second bandage. It is desirable a doctor would wear rubber gloves during bandaging of patients, for bandaging of patients with purulent wounds it is certainly. A primary bandage (serviettes, tampons) is taken off from a wound with using sterile instruments only (there are pincers, styptic clamps). It is necessary bandaging material be deleted from a wound carefully. If serviettes laid on a wound stuck to the wound, you must not tear away them sharp instruments, because it causes pain and destroys integrity of

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granulations. In such cases it is necessary a bandage be irrigated patiently by sterile solution or antiseptic (warm physiological solution, solution of peroxide of hydrogen, and other). It is tried carefully to delete bandaging material from a wound after a few such irrigations.

A doctor is making bandaging, must not touch by his instruments to the instruments of the nurse which gives bandaging material. The results of violation of this rule may be bacterial contamination of bandaging sterile table and dissemination of infection among patients.

After deleting from the wound of serviettes and tampons the skin round a wound is treated by iodine (from the margins of the wound to its periphery). Manipulations in a wound are starting after that.

Covering a wound by a sterile primary bandage finishes bandaging. Gauze bandage, kleol (kollodiy) sticker or adhesive plaster fixes a primary bandage.

Kleol sticker. Round the sterile bandaging material fixed on a wound dry skin is oiled by kleol. It is necessary to wait for 1-2 minutes and to glue gauze then only.

#### Removal of suture

If the postoperative wound has healed the primary pull the suture is taken out in the clean bandaging room.

Firstly a bandage is taken off, secondly skin round a wound is treated, this zone and the line of suture is oiled by iodine then. One end of filament is taken by pincers it is pulled up until that part of stitch appears above skin. This white part of the filament is cut by the tip of scissors or scalpel, a filament is deleted then.

After the removal of suture a scar is oiled by solution of iodine repeatedly and a dry serviette is laid on, kleol sticker, gauze bandage or adhesive plaster fixes it.



Figure 2.1  
triangular bandage  
for head

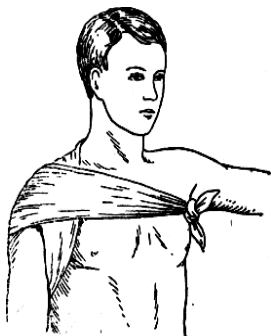


Figure 2.2 tie – bandage  
for shoulder girdle

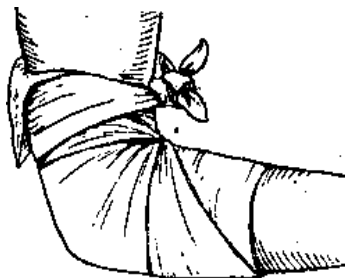


Figure 2.3 triangular bandage  
for elbow joint

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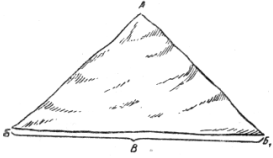


Figure 2.4 triangular bandages  
for the elbow joint



Figure 2.5 improvised sling



Figure 2.6 triangular bandage

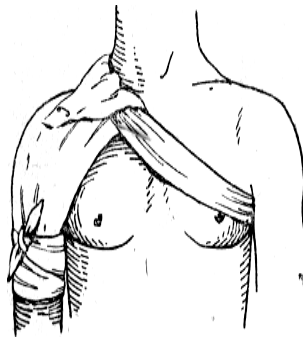


Figure 2.7 double triangular for wrist  
bandage

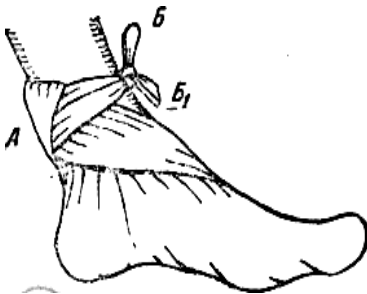


Figure 2.8 triangular bandage for foot

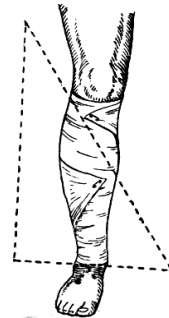


Figure 2.9 triangular  
bandage for shin

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Figure 2.10 four – tailed bandage



Figure 2.11  
triangular bandage  
for mammary gland



Figure 2.12 four – tailed bandage for  
chin



Figure 2.13 nasal four – tailed bandage



Figure 2.14 occipital four – tailed  
bandage



Figure 2.15 parietal four – tailed  
bandage

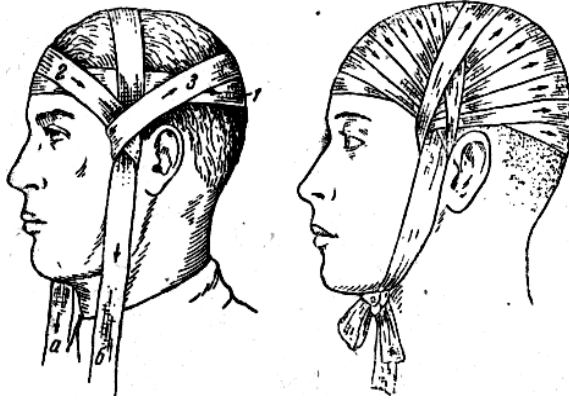


Figure 2.16, 2.17 head gear bandage (the first step and the second step)

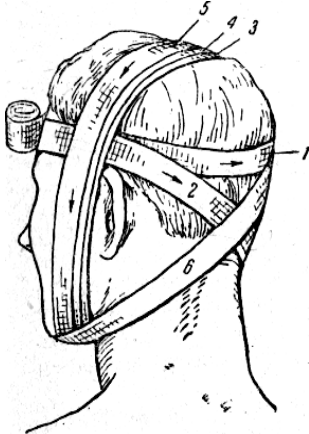


Figure 2.18 «bridle»



Figure 2.19 «bridle» for chin region

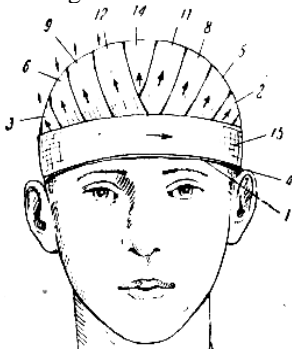


Figure 2.20 recurrent bandage for



Figure 2.21 Figure – of – eight bandage for neck and back of the neck

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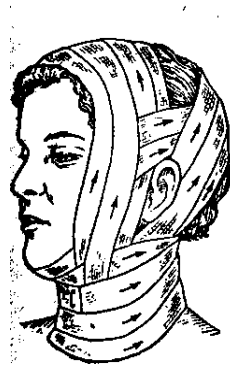


Figure 2.22 bandage for neck

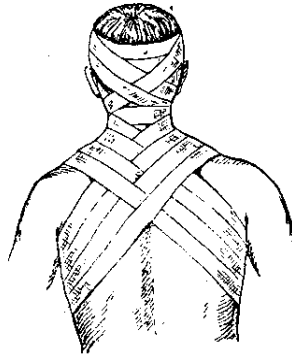


Figure 2.23 cross fixed bandage for neck and thorax

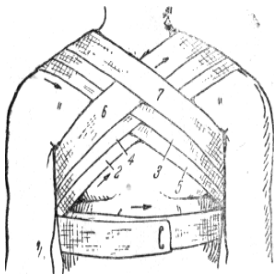


Figure 2.24 cross bandage

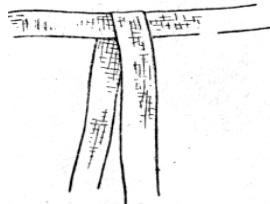


Figure 2.25 T - shaped bandage

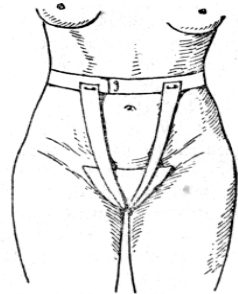


Figure 2.26 T – shaped bandage for perineum

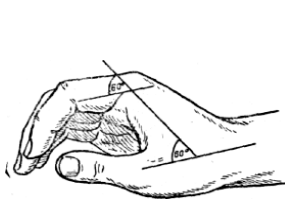


Figure 2.27 cross bandage of wrist while dressing of upper extremity

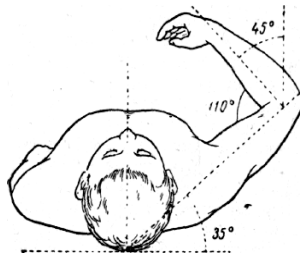


Figure 2.28 functional position while dressing for thorax

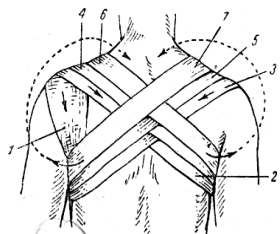


Figure 2.29 functional position while dressing for thorax



Figure 2.30 functional position of lower extremity

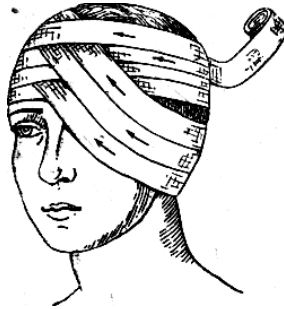


Figure 2.31 bandage for while dressing one eye

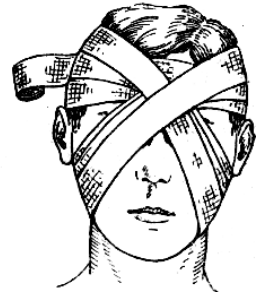


Figure 2.32 bandage for for both eyes

**3. Questions for self-control:**

1. What is dressings?
2. Name the types of bandaging material.
3. Name the substitutes of bandaging material.
4. What properties must bandaging material have?
5. What is named a bandage?
6. What is a primary bandage and what requirements are to it?
7. What is the secondary bandage?
8. Name classification of bandages: according to a purpose, to a form of bandaging material, on closeness, to the method of laying.
9. What bandages are depending on consistency of the used material? Give examples.
10. How are classified bandages depending on the purpose of bandaging? Give examples.
11. Name the basic rules of dressing.
12. What is the Goff's way? Is it obligatory for dressing?
13. What requirements are for the laid completely bandage?
14. What indications are for using triangular bandages?
15. What peculiarities are for laying of spiral bandage on a thorax?
16. What peculiarities are for bandaging of a left mammary gland?
17. What cases and what the ways are for using Mashtafaroff's whole gauze bandages?
18. What rules are for laying of the tubular knitted and elastic reticulated bandages on a head, thorax?
19. What is named bandaging?
20. How many bandage rooms and why must be in the surgical department?
21. What patients is it necessary should bandage first of all if there is only one bandaging room in the surgical department?
22. How should the surgeon prepare his hands for bandaging?



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23. Who takes off the second and primary bandages?
24. Why the primary bandage is necessary to delete by pincers? How is it made correctly?
25. What antiseptic is it possible to treat skin round a wound during bandaging?
26. Is it possible to bandage a patient who is on feet?
27. What complications can kleol cause?

**4. Tests for self-control:**

1. Bandage Deso ought to impose at the fracture:
  - A. Thoracic vertebrae.
  - B. Sternum.
  - C. II - III - IV- ribs.
  - D. Clavicle.
  - E. Humerus.
  
2. Child 10 years old has got injured of a chest in the road traffic accident. Ambulance doctor found penetrating wound on the lateral surface of a chest, signs of pneumothorax. What kind of dressing should necessary to put on the child chest?
  - A. Bandage Velpo.
  - B. Bandage Deso.
  - C. Occlusive dressing on a chest.
  - D. Swathe bandage on a chest.
  - E. Sterile bandage on a chest.
  
3. Girl 3 years old falling from a bicycle, got injured of a chin. During medical inspection, nurse found a wound 2x0,5cm with signs of the external bleeding. What bandage should impose a nurse?
  - A. Swathe bandage on the chin.
  - B. Sling bandage on the chin.
  - C. Fixing bandage on the chin.
  - D. Occlusive bandage on the chin.
  - E. Shawl bandage.
  
4. In the new – bield hospital pediatric surgery department is planning to open. Which requirements should be carried out to the dressing room?
  - A. Walls should be light.
  - B. Walls and the floor cleaning don't matter.
  - C. Whitewashed ceiling, walls and floor should be lined with tiles.
  - D. Floor tiles.
  - E. Ceiling should be painted with oil paint; walls and floor are lined with tiles.

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5. Child 8 years old performed surgery on the chest malformation. After recovery from anesthesia an operated child should be given the following position in bed:

- A. Patient should carry out a horizontal position without pillow during the day.
- B. Patient should carry out elevated position in the bed, or half-sitting.
- C. Patient carried out a sitting position.
- D. Position of the patient is irrelevant.
- E. Patient should carry out a horizontal position with the raised "foot end".

6. Ligation is:

- A. Operation.
- B. Method of the disease diagnosis.
- C. Manipulation in order to change the bandages.
- D. Kind of antiseptics.
- E. Overview of wounds.

7. What bandage is advisable in order to apply fixation of a warm compress on the ear?

- A. Hippocrates' cap.
- B. Bridle.
- C. Coif.
- D. Hub.
- E. Naples.

8. What means desmurget?

- A. Process of dressing.
- B. Science about the dressing.
- C. List of rules towards applying bandages.
- D. Nursing manipulation.
- E. Science of dressings and methods of their application.

9. What is the normal square of dressing on 1 table?

- A. 5 m<sup>2</sup>
- B. 10 m<sup>2</sup>
- C. 15 m<sup>2</sup>
- D. 22 m<sup>2</sup>
- E. 25 m<sup>2</sup>

10. During a dressing, nurse should remove the dressing:

- A. Primary.
- B. Secondary.
- C. Tertiary.
- D. Primary and secondary.
- E. Three dressings.

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#### **5. Tasks for self – control:**

*Task 1.* In the surgery numerous types of soft swathe bandages carried out. What classification of bandages should be based on the purpose?

*Answer.* Classification of bandages, based on a purpose, depends on its function:

- Protective, aseptic – in order to prevent secondary infection of the wounds;
- Treatment ought to transfer medicinal substance to the wound, which was applied in the lower layers of a bandage;
- Hemostatic - squeezes the blood vessels;
- Correction - elimination of deformations;
- Occlusal - an open pneumothorax;
- Compression - prevention of thrombosis, inflammatory infiltrates.

*Task 2.* In the children's surgical department two children were performed a ligation after operation during night duty. In the morning nurse should prepare dressing room to the work. Enumerate stages of preparation.

*Answer.* Firstly, in the morning a dressing nurse with senior nurse should perform morning wet cleaning and UV - irradiation. Secondly, nurse prescribes requirements (recipes) in a hospital pharmacy in order to refill medication and dressings. Senior nurse carried out to the sterilization room drums and picks sterilized with instruments, dressing material, linen. Having received the sterile products, dressing nurse covers sterile instrumental-material table. Table for instruments and dressings served as well as in the operating room.

*Task 3.* In the children's surgical department a dressing nurse should perform certain duties. Enumerate responsibilities in her job.

*Answer.* Responsibilities of a dressing nurse:

- Perform assigned by a physician manipulations covered medical nurse possibilities;
- Accompany severe ill patients after manipulation to their chamber;
- Strictly follow rules of asepsis and antisepsis;
- Prepare for sterilization dressings and instruments, according to the current instruction;
- Carry out systematic bacteriological control towards the bandages, instruments, dressing room;
- Provide regular updating, recording, storage and control of cotton, consumption of medicines, dressing material, tools and linen;
- Instruct nurses of the dressing and control its professional activity;
- Carry out accounting records;
- Systematically improve their professional qualifications;
- Participate in a sanitary-educational work.

*Task 4.* At 17 years old boy after traffic accident was found open injury in the chest with open pneumothorax phenomena. At the place of accident you should

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put a bandage on the boy's chest. What kind of dressing you should apply and how to carry out it a wright way?

*Answer.* Skin around the chest wound should be treated with 5% alcohol solution of iodine or antiseptics. Break individual package with occlusive dressing, place to the wound rubberized shell by internal sterile surface and a tight bandage to the chest. If absence of the package, a sterile rubber glove treated with antiseptic solutions could apply to the wound, close wound with adhesive plaster, put a wet cotton-gauze bandage or thick canvas multilayer bandage. Applying occlusive dressings, patient should be placed on a stretcher in a sitting or reclining position.

*Task 5.* A 15 years old boy, while playing football having got injured of parietal region of the head and lost consciousness in a few minutes. While he was resuscitating, he found presence of wound in the parietal region of a head and bleeding. What bandage should be placed?

*Answer.* The injured boy should be placed cap – coif bandage in the parietal region of a head.

**Theme 3. Medical care for patients, operated on the abdominal cavity organs, perineum, legs. Abdomen, crotch, legs bandages. Medical care for patients with fractures. Plaster technique. Bleeding control and types of bleeding.**

**1. Self – Study Material to Practical Training:**

**1.1. Theoretical Assignments:**

- Typical abdomen, crotch, legs swathe bandages
- Types of harden bandages
- Medical care for patients with fractures
- Rules of a plaster technique.

**1.2. Practical Assignments, tasks which should be carried out in the classes:**

- Imposition of swathe bandages on the legs, abdomen, perineum;
- Imposition of legs bandages, which should be harden.

**2. Content of the theme:**

**Bandages on the abdomen, perineum.** On the upper part of abdomen should be impose a typical spiral bandage. Bandaging should start from the lower part of abdomen and successive rounds gradually raise a bandage to the upper part, where it should be fixed.

On the lower part of abdomen a spiral bandage shouldn't apply, because it could easily slide. In this case a special spiral-spike-shaped bandage should be carried out (Figure 3.1, a). Bandaging should start from the upper part of abdomen, doing a few spiral turns of bandage around the abdomen. Primary a bandage should put on the outer part of thigh, taking it around thigh, rising sideways on the abdomen, where should be repeated spiral tours around belly. Descent bandage on the thigh carried out a numerous times.

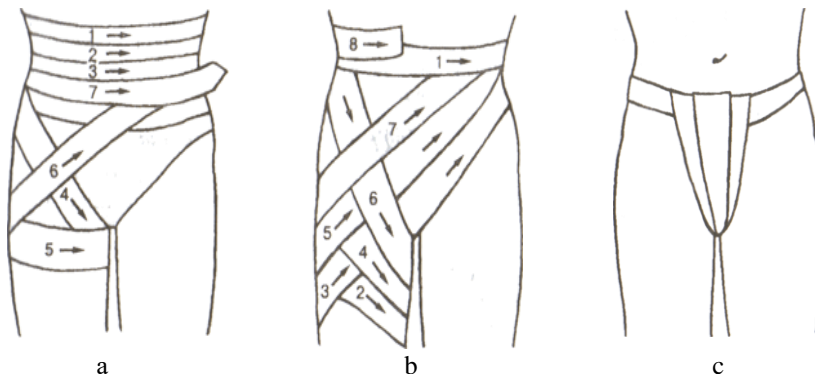


Figure 3.1. Bandages on the abdomen, inguinal area, perineum:

- a – downward spiral-spike-shaped bandage on a abdomen and coxofemoral joint;
- b – spiked bandage on the patient's inguinal area and upper thigh;
- c – T – similar bandage on the perineum.

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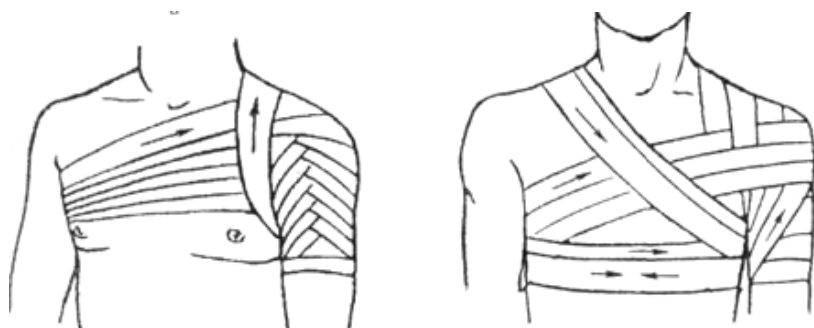
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Similar bandage should applied on the patient's inguinal area (Figure 3.1, b). Enumeration of the bandage rounds around abdomen and thighs carried out in order to close inguinal area. Thus, a spiked bandage is quite universal and could be front, posterior and lateral. Wounds in the perineum area are often accompanied by blood vessels, pelvic and reproductive organs damage, complicated by intoxication as a result of wound contact with urine. Such types of wounds should be closed, using T – similar bandage. In this case bandage should be divided into two parts. The first part is carried out in order to make a belt, which should be wrapping around waist and fasten fixed. This belt serves as a basis for second part tours fixing, covering the perineum.

**Bandage on elbow joint ("turtle bandage").** Upper limb is bent at a right angle towards the shoulder. Eastern "turtle bandage – dressing starts with two circular turns of bandage with a middle width around an upper third of forearm. Then, through flexor surface of elbow joint, a bandage should be rolled obliquely to the lower 1/3 of a shoulder, creating a loop around it. Bandage is rotated through a flexor surface of the joint, making cross over reverse. Each turns should be repeated in order to covered half of the previous tours along extensor surface to the center of joint. Point of cross-over bandage should not change. While the whole extensor surface is dressing, a bandage finally should be carry out with two circular turns around a lower third of the shoulder. Rising "turtle bandage" has the same way of dressing, but the first rotational movement passes through the center of a joint, and the following tours carried out through extensor surfaces on the shoulder and forearm.

In both types of "turtle bandage" a bandage should be crossed in the center of a joint flexor surfaces; this way one loop involved "8-shaped" an upper third of forearm, and the second loop covered a lower third of the shoulder.

**"Eight-Figureurative" bandage on the brachial joint.** For fixation of a brachial joint carried out cross – similar, eight-Figureurative and spike-shaped bandage (Figure 3.2, a). Bandage on the brachial joint, chest and axillary area (Figure 3.2, b) should start with two circular turns left towards right side of the thorax from axillary area. Mainly bandage from a front surface of the chest should be dressed upwards to the left forearm through interior part of clavicle into the left axillary area, covered forearm damaged side, crossing over an imposed turnover bandage. Hereafter, a bandage should be put on the posterior surface of healthy chest and along a front surface of the chest applied to the left forearm. In this sequence a brachial joint should be fixing.



a – on the shoulder

b – on the brachial joint, chest and axillary area.

Figure 3.2 Spiral reverse bandage

**Bandage on a knee joint "Turtle bandage"**. Before bandaging the patient should carry out slight flexion of a knee. Rising bandage starts with two circular turns through the center of a joint. Primary bandage should be directed obliquely upward, with a half shifting of central circulation, making a loop around distal thigh and returning back to the popliteal fossa, forming intersection in the center. Secondly the bandage is wrapped obliquely downward, with a half displacing of central circulation, returning to the popliteal fossa. In this sequence all turns should be repeated covered an extensor surface of a joint. Finally the bandage put on the circular circulation around a lower third of the thigh. Eastern bandage carried out with circular turns around upper third of a leg. Mainly bandage is rolled obliquely upward through a popliteal fossa, making one loop around lower third of a thigh and through popliteal fossa, returning to the shin. In this sequence the turns should be repeated several times, shifting a half width of the bandage to the center of a joint. Bandage whould rolled by circular circulation around lower third of a thigh (Figure 3.3).

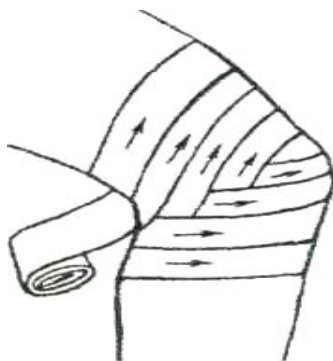


Figure 3.3. Turtle bandage on a knee joint.

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**Bandage on the upper limb.** For bandaging fingers carried out spiral bandage, beginning with a circular moves around wrist, thereafter a bandage rolled on the brush back surface to the fingers' end, covered fingers with spiral passages. While repeating the same moves, you should dress all fingers with this bandage (Figure 3.4, a, b, c). You should formed a bandage in the form of gloves, having been covered the whole four fingers and hands (Figure 3.4 d, f).

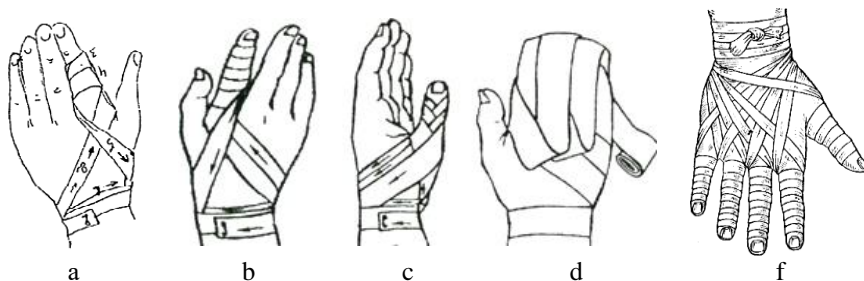


Figure 3.4 Bandage carried out on: a, b, c, f - fingers; fingers and hands.

**Bandages on the foot.** Spiral reverse or turning bandage (Figure 3.5 a) carried out in the case of ankle joint sprains.

Such type of bandage would start with a circular locking around lower third of the leg, as well as bandage rolled obliquely to the rear foot opposite side, skirting a foot, and obliquely upward returns the bandage on the leg. Having bandaging a back side of the shin, you should repeat same turns of a bandage several times. Bandage should be finish by a circular tour in the shin. On the heel impose eight-figure dressing (Figure 3.5 b). On a foot without covering toes carried out spiral reverse and turning bandage (Figure 3.5 c, d). Thumb is recommended to covered with a bandage, fixing it to the tibia (Figure 3.5 e).

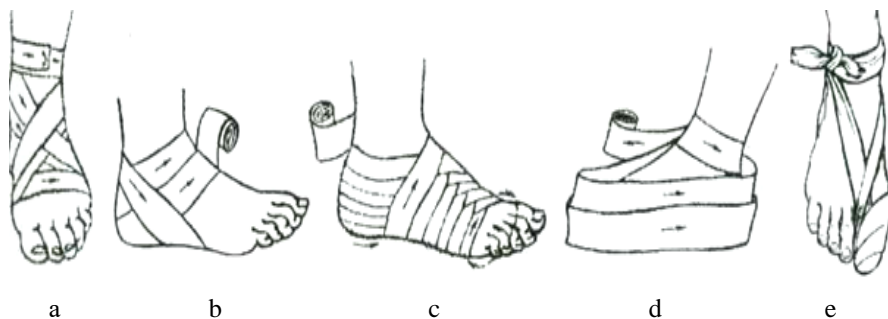


Figure 3.5 Bandage on the foot: a – ankle joint; b – heel; c – foot without covering the toes; d – the whole foot; e – thumb.



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#### **Applying of the limb bandages, which are harden. Features of medical care for patients with fractures.**

In general surgical department as a rule several patients with musculoskeletal system diseases carried out on the treatment. Mainly these are people, who were hospitalized on an emergency basis as well as patients with fractures or dislocations in the joints, and seriously ill people, who require special treatment and special care. In most cases, this is bedridden patients being in traction, or fixed plaster bandages on the legs. Medical care for patients with trauma has various features. Medical staff caring for these patients should know pathological process in dynamics, should know exactly which bone is damaged, does it open fracture or closed, condition of vessels and nerves in the limbs after injury, absence of blood circulation in the legs, does the operation carried out and what method of anesthesia was applied.

Patients with fractures of a spine, pelvis should put on a shield (as usually wooden), which would cover mesh of a bed or applied functional bed. Shield should be smooth, without cracks. Before using a shield should be disinfected (by boiling water, disinfectant or powder). Shield is placed with a thin mattress; covering with a sheet, sometimes spreading a sheet. Because these patients lying motionless for a long time, folds on the covers should be absent. Sometimes prefixes to the bed should be carried out, on which is laying an injured limb. One of the common methods of treatment fracture is imposition of a plaster bandage. For these purposes is applying gypsum, while mixed with water turns into a mass that hardens after 5-7 minutes. This property of gypsum is carried out in order to make plaster bandages, which immobilized the limbs.

Plaster immobilization is the most common method of conservative treatment fractures in the children. Principles of superposition plaster bandages in the children, as well as adults, having an emergence of their swelling, as usually should be used splint-plaster bandages, covering up to 2/3 of the leg. Primary should be used a gasket in order to reduce negative reactions. After 5-10 days, depending on the fracture type and degree of tissue edema, provided X-ray examination in order to prevent displacement of the fragments.

**Samples carried out in order to determine quality of the plaster.** Plaster and water in a ratio 1:1 would mixed and forming a ball; in 7-10 minutes the plaster should be harden and couldn't break while dropped from a height. While compressed a gypsum powder in the fist given plaster should freely pass between the fingers; unclamping the fist a few gypsum should stay on the hand palm. This gypsum is considered to be usable.

#### **Rules towards correct applying of the plaster bandages:**

- On the beginning of manipulation you should check availability of necessary tools, as well as quality of plaster bandages.
- In order to carry out fully fixation you should commit at least two adjacent joint.

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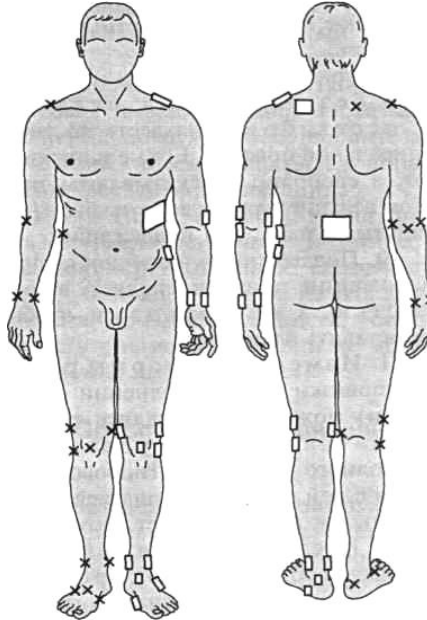


Figure 3.6 Bones prominences which should be protected from the pressure while applying plaster bandages.

- While fixing a limb you ought to provide functionally advantageous position in order to prevent contractures.
- Bandage should be comfortable in order to carry out physiological needs.
- Terminal limb fingers phalanges should be open for medical control towards blood supply and innervation.
- Having dressed a bandage, you should wash exposed limb areas in order to control.
- Bandages' border could not be sharp, their model bends the limbs. Cotton pads should be placed over the bones protrusion in order to prevent bedsores and occurrence of friction.
- Before applying plaster bandages in order to protect bones prominences the cotton pads should be used. You should remember that over time, they could move and put pressure on the soft tissues, causing pain, as a result the bedsores. Sometimes in such cases, cutting of a plaster bandage and pushing its edges ought to disappearance of a pain. Special attention should be carried out to the patients in a first hour after imposition of a plaster bandage, in order to prevent development of complications such as compression of blood vessels and nerves. Ignoring this rules lead to paralysis, paresis, paralysis of the distal extremity (Figure 3.6).

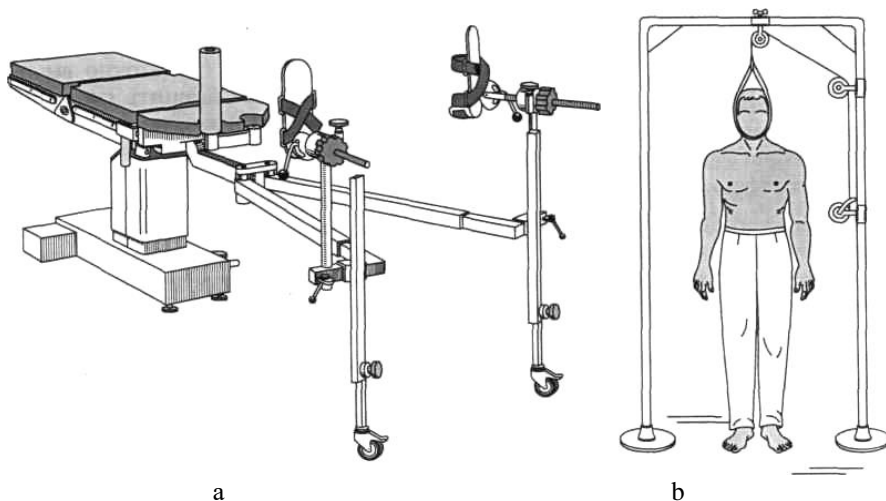


Figure 3.7 Special tools for applying plaster bandages:  
a – orthopedic table; b - Hoff's frame.

Tightly wrapped up bandages would cause the pressure sores, tissue necrosis, gangrene. In order to prevent complications you should listen carefully complaints of the patient (pain in the limbs, sensation of crawling, chill), watching over distal parts of the limbs (fingers), which ought to be open. Pain, blanching and cooling of fingers or cyanosis – as well as a signal of cutting a plaster bandage immediately and finding a cause of complications. Limb with overlay of plaster bandage should be slightly elevated in order to avoid stagnation. Upper limb should be suspended.

In the case of open fractures and wounds, which imposed with a fenestrated plaster bandage, you ought to monitor body temperature, pain in a wound, blood samples. If on the third or fourth day, increased body temperature, appearing a pain, you should to examine the wounds. After surgery treatment of the bone and imposed a plaster bandage you would control if the bandage soaked with blood.

If a plaster bandage compresses the chest and provoke heavy breathing in the back position of patient, bag with sand ought to put on the chest. Having carried out this procedure you should remove the bandage. Totally its leads to the releasing of a chest and couldn't interfere the breathing.

**Types of plaster bandages.** Longato-plaster bandage which is made from previously prepared layer of a plaster bandage in 5-12 layers. For sufficient immobilization of longato-plaster bandage you would cover 2/3 of a limb (Figure 3.8, a). Before carrying out a splint should be carefully aligned, without having folds and irregularities, while drying ought to provoke complications at the applying bandages. Longato-plaster bandage would model all the physiological curves and

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bones performance. Terminal phalanges of a limb should be open for monitoring towards blood supply and innervation.

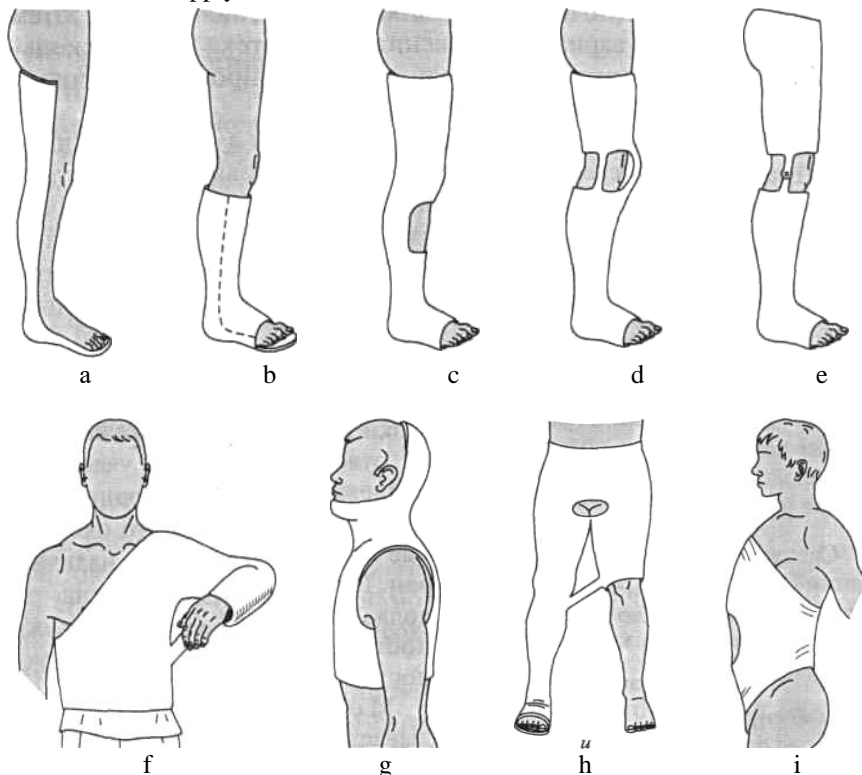


Figure 3.8 Types of the plaster bandages: a – splint, b - longato - circular, c - fenestrated, d – bridge-similar, e - articulated, f - coracobrachialis, g - thoraco-cranial, h - cocina, i - corsetry.

Advantages of a splint as well as you could extend the bandage border or cut out a few dressing out from ordinary bandage, or push the bandage ends without its removing in order prevent soft tissue swelling. If necessary, you ought to transfer given bandage into circular bandage in order to reduce swelling.

**Circular plaster bandage** – circular, which provides more complete immobilization. Cotton-gauze layer put into a limb, carried out cotton wool in the places of protrusions and curves. You should carefully smooth the gasket. Plaster bandage is dipped into warm water and wring out, in a circular motion (clockwise) impose tours bandage, each subsequent tour should cover 2/3 of the previous tours, dressing from the beginning till the final part of a plaster bandage (from distal till proximal). After each tour a plaster bandage should be modeled. Whole tours ought

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to put without pressure on a soft tissue. Terminal phalanges of the limb should be open in order to carry out monitoring of the blood supply and innervation. Incorrectly applied bandage could lead to serious complications. Types of circular bandages: circular cut, fenestrated, bridge - similar, articulated (Figure 3.8, b-c).

In the case of cervical spine fracture should provide traction for a head with applying special loop (Hlisson's), which is made from a thick fabric or leather. It would be fixing by the buckles and straps to the neck and chin. Lace should be tied to the loop, which is transferred through a block, in order to hanging the load. As well as counterbalance you ought to slightly raise the main part of the bed in the area of the patients' head. While feeding the patient a front part of hinge should be dismissed for him to chew.

In the case of femoral or tibial bone fracture a well – spread method is skeletal traction (in the combination with adhesive tape) traction. Limb put on a special bus flexed in the coxofemoral and knee joint position. If necessary to apply a skeletal traction you ought to carry out spokes in the sterile conditions, taken for namesake femur or tibial tuberosity. While adhesive tape traction providing you should carry out strips of adhesive tape, putting to the skin in the form of loop. In the case of leolam type of traction you ought to apply strips of soft flannel, which is fixed to the skin by leolam. Traction among the children as usually used in the minority cases. Mainly at the children aged less than 3 y.o. provided such types of traction as well as adhesive tape or leolam type. Advantages these types of traction are the following: couldn't injure a bone, having holding the fracture, disadvantages – weight of cargo shouldn't be more than 4.4-5 kg. At the older children its better used skeletal traction in the oblique, intra – articular fractures, fractures with significant displacement of some fragments.

#### **Basic principles of skeletal traction:**

- Relaxation of the affected limb muscles.
- Gradual elimination displacement of the fragments.
- Carrying out reposition due to the constant thrust in a desired direction.
- Wide access to the damage site.
- Carrying out medical control over the limb condition (color, sensitivity, circulation, etc.).
- Applying the bandaging, therapeutic procedures without stopping the traction.
- Additional correction, regulation traction in order to correct the offset (lateral traction, pilots, etc.).

In any method of skeletal traction you should looking for the condition of labels, position of the limb, choice of cargo, bones that protrude under a skin (ulcers), spokes position.

All severe patients with plaster bandages and skeletal traction should take hygienic bath but not less than 1 time per 10 days. Plaster bandage should be isolated from water, having washed all areas of the patient open skin.

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In the treatment of bones traumatic lesions a key role belongs to the treatment physical education, which should be applied on the first day after extension or the plaster bandages imposition. Despite the injured bone fixation, it is necessary to follow such procedures as well as reduce muscles, make movement in the joints, even if the patient has a plaster bandage.

Early movements prevent development of stiffness in the joints, muscles atrophy after removal of skeletal traction or plaster bandages. During this period you should assign physiotherapy, treatment physical exercises, massage.

#### **Bleeding control and types of bleeding.**

Bleeding control can be summarized by the acronym D.E.P.T. or department. The acronym tells the medical personnel the order of operation to control bleeding. Here are the steps to follow to control the bleeding:

- D**-direct pressure
- E**-elevation
- P**- pressure point
- T**- tourniquet

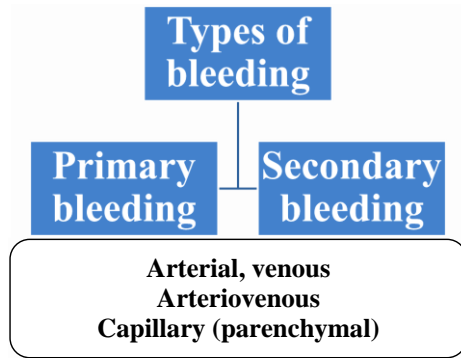
**First, direct pressure.** With your BSI on and using a sterile gauze pad, put direct pressure on the wound. If the blood soaks through the gauze pad you will apply another sterile pad on top of the first one and continue to apply pressure. You **WILL NOT** remove the first piece of gauze. Removing the first gauze pad can remove the platelets in the blood that were working on clotting and stopping the bleeding (Figure 3.8).



Figure 3.8

**Third, pressure point.** In situations where direct pressure and elevation are proving ineffective, there are pressure points. There are several places on the body where arteries are located. These are the places where you will find pressure points.

**Lastly, tourniquet.** A tourniquet will be applied to an arm or leg above the wound and then tightened until the bleeding ceases. This technique is a highly debated method and there are many variables in the debate with when to utilize a tourniquet. You can find out more about the complications and preventive measures of the tourniquet.



**Rubber tourniquet** (Figure 3.9)

- Regulations concerning tourniquet
- before applying the tourniquet limb is lifted,
- applied as close to the site of injury;
- under the harness need to put a soft cloth to prevent pinching of the skin;
- bleeding should stop at the first round rubber overlay harness;
- following stages applied helically in the proximal direction "Overlap" one another only to secure the harness on a limb and then fixed a special buckle
  - After applying tourniquet is necessary to specify the exact time of its imposition.
- Part of the body where the tourniquet should be available for inspection.
- Victims with a tourniquet transported and served first.
- Remove tourniquet should be gradually weakening it, with preliminary anesthesia

**Criteria correctly tourniquet are:**

- Stop the bleeding.
- Absence of peripheral pulsation.
- Pale and cold extremities.

It is imperative that the tourniquet cannot hold more than 2 hours in the lower extremities and upper 1.5 hours. Otherwise, it may develop necrosis on a limb ischemia due to prolonged her.

If necessary, long-term transportation of the victim with tourniquet each hour dismiss about 10-15 minutes, replacing this method other temporary way to stop the bleeding (finger pressing).

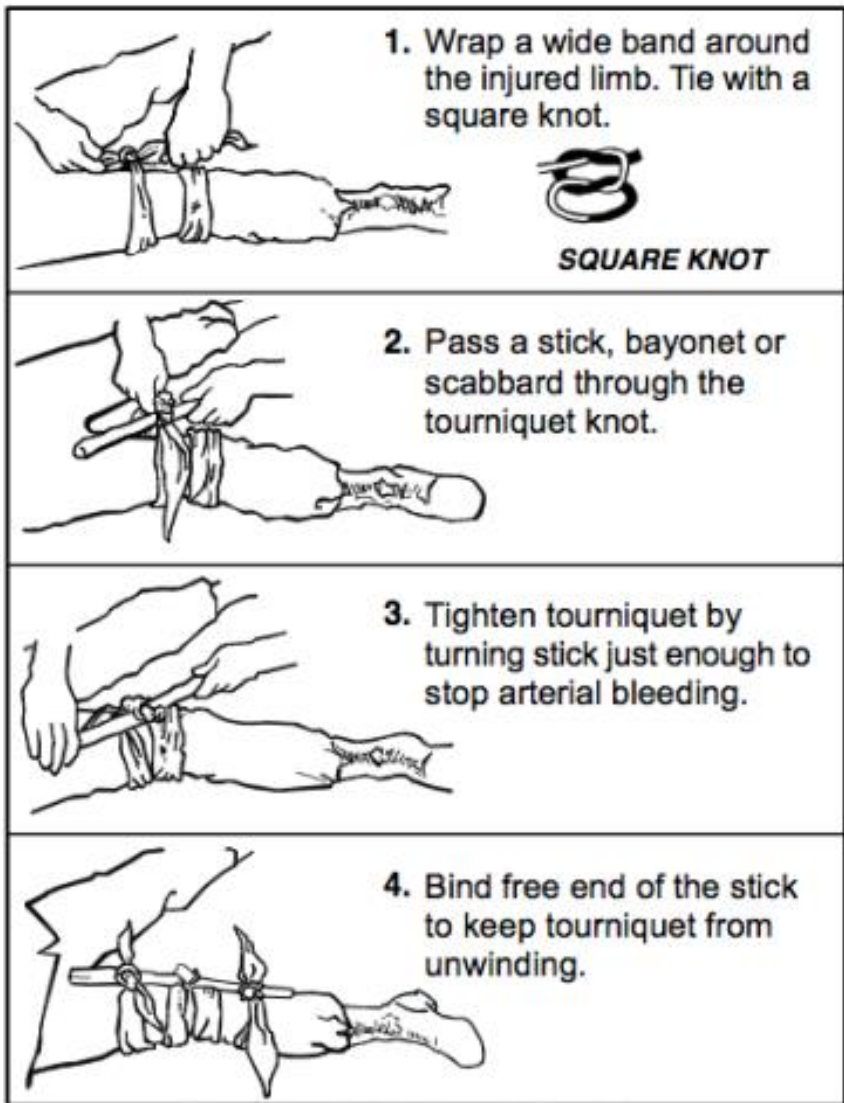


Figure 3.9

**3. Questions for self-control:**

1. Typical bandages on the abdomen, perineum, legs.
2. Types of bandages, having been hardened.



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3. Rules of a plaster technique.
4. Medical care for patients, being in the traction or having a plaster bandage.
5. What bandages can be used for the I, II, III, IV, V fingers of the brush?
6. What bandages are laid on the conical parts of the body – forearm, shin, coxa?
  7. Where is the beginning of the «turtle» bandage, going together and away?
  8. Where is the beginning of the «spike» ascending and descending bandages?
  9. Should a «spike» bandage limit the motions in humeral and coxa joints?
  10. Features of laying of Desault's bandage for a right hand.
  11. Features of laying of coming back bandages
  12. Name bandages which are laid in spite of classic rules (the head of the bandage in a left hand)
  13. Indications to laying of the «turtle» going together and away (diverging and converging) bandages
  14. Indications to laying of the «spike» bandage (ascending and descending).
  15. Enumerate the indications to laying of bandages by an elastic tubular bandage and retelast.
  16. A patient has a wound in the region of a right radio - wrist joint. What bandage is it possible to use for helping to a victim?
  17. A boy fell down by his face on earth and had bleeding from a nose at once. What bandage is it necessary to lay for helping to a victim?
  18. A patient has dislocation of his shoulder he must be given first aid in the place where he received trauma. What bandage should be laid in this case?
  19. A patient appealed to the hospital has suppuration of wound on the back surface of his neck. What bandage should be laid in this case?
  20. A victim has five wounds in the hairy region of his head. What bandage should be laid in this case?
  21. What bandage should be laid for a patient with the fracture of his low jaw?
  22. A patient has furuncle on the anterior abdominal wall. What bandage is necessary to lay: cleol, roller bandage, Mashtaforoff's whole gauze or adhesive bandage?
  23. What kind of bandage is it necessary to impose to a victim with the wound of nail phalanx of the I finger?
  24. A patient with the inflammatory process of the II finger of left brush is needed to lay a bandage. What kind of bandage should be laid?
  25. A man has torn off fingers of the left brush. What is the name of a bandage which a doctor should use for providing of the first aid?
  26. There are the bitten wounds of the right forearm. What kind of bandage a doctor for helping to a victim can use?

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27. A patient has an inflammatory process in the left elbow joint, which requires exposing of operative treatment. What kind of bandage is the best for making of elbow joint immobilization for transport of the patient to the surgical department?

28. The patient with hidradenitis of his right armpit was operated. What kind of bandage should he be laid?

29. A patient has the wound of the high third of his right thigh in the area of great trochanter. What kind of bandage is it necessary to lay to a victim?

30. A patient has the fracture in the middle third of his right shoulder. What bandage is it necessary to apply for immobilization of the right shoulder?

31. A woman's foot turned up suddenly, acute pain in his left shin - foot joint appeared. What kind of bandaging is it possible to facilitate the state of the patient?

32. A heavy sharp object fell down on a worker's foot, three his toes were cut off. What is the best bandage for the first aid?

33. Make the table of advantages and lacks gauze bandages and retelast. To represent it in writing to the teacher.

34. A patient has the postoperative wound on his epigastric region. What bandaging can be used for prevention of the infection of the wound?

35. A doctor who does bandaging took off the second bandage then primary bandage by sterile pincers and executed manipulations in the wound. Is it correctly?

36. Firstly a doctor executed bandaging to a patient with purulent process secondly to a patient had «clean» operation in one bandaging room. Is the doctor's tactic correct?

37. During bandaging a doctor found that a primary bandage did not close a wound fully, therefore he moved the bandage. Is it correctly?

38. Long term using of adhesive plaster made a patient's skin round a wound red. A doctor treated skin with 10% tincture of iodine. Is it correctly?

39. Write the table of advantages and faults of gauze and glue bandages (to represent it in writing to the teacher).

**4. Tests for self-control:**

1. What bandage should be placed on the shoulder joint?

- A. Return.
- B. Spiral.
- C. Turtle.
- D. Spiral-spike-shaped
- E. Cross – similar

2. Medical immobilization of the dressings is carried out:

- A. Kramer' bus.
- B. Automobilization.
- C. Plaster bandage.
- D. Diterikhs' bus.
- E. Improvised bandage.

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3. Gauze bandage should be put in order:
  - A. Wound healing.
  - B. Anesthesia injuries.
  - C. Reposition and fixation.
  - D. Improve blood circulation in the limbs.
  - E. Routine immobilise.
  
4. To which kind of dressing belongs a gypsum?
  - A. Occlusal
  - B. Gauze
  - C. Routin
  - D. Squeezing
  - E. Fixing
  
5. What bandage ought to put on the knee joint?
  - A. Return.
  - B. Spiral.
  - C. Cross – similar
  - D. Turtle.
  - E. Bridle.
  
6. On a limb stump should be apply the following dressings:
  - A. Spiral.
  - B. Turtle.
  - C. Return.
  - D. Circular.
  - E. Deso.
  
7. On the perineal area should be apply the following dressings?
  - A. T-shaped.
  - B. Prevenu.
  - C. Turtle.
  - D. Spiral-spike-shaped
  - E. Cross – similar
  
8. In a case of pain appearance at the patient with a plaster bandage you should do the following:
  - A. Remove a bandage.
  - B. Call to the doctor.
  - C. Reassure the patient.
  - D. Apply local anesthetic drugs.
  - E. Shouldn't pay attention to the patient complaints.

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9. Functional purpose of the protective bandage:

- A. Local drug application.
- B. Prevention secondary infection of the wounds.
- C. Elimination deformation of bones.
- D. Warming of the extremities.
- E. Stopping of the bleeding.

10. Specify the place of applying fourtailed bandage:

- A. Nose.
- B. Upper limb.
- C. Knee.
- D. Mammary gland.
- E. Brush.

**Theme 4. Antiseptic. Medical care for patients with purulent pathology. Sterilization of the dressings and surgical linen. Organization of work in the operating room. Surgical scrubbing of the surgeon hands and surgical field.**

**1. Self – Study Material to Practical Training:**

*1.1. Theoretical Assignments:*

- Methods of modern antiseptics, their characteristics;
- Basic rules towards working activity organization of a purulent dressing room;
- Features of medical care for patients with a purulent pathology;
- Tetanus prevention;
- Characteristics of the dressing material: napkins, tampons, balls;
- Preparation of surgical linen and bandages to the sterilization;
- Methods of routine scrubbing of the surgeon's hands to a surgery, care for the surgeon's hands outside the clinic;
- Operating unit structure, types of cleaning in the operating room.

*1.2. Practical Assignments, tasks which should be carried out in the classes:*

- Bandages covered the patients with a purulent pathology;
- Medical care for patients with a purulent pathology;
- Bandaging and care for patients with anaerobic infection;
- Hygienic scrubbing hands of the medical staff;
- Surgical scrubbing of the surgeon's hands using innovative methods;
- Surgical antiseptics carried out over the surgical field;
- General cleaning up as well as wet cleaning in the regime zones of operational department.

**2. Content of the theme:**

**Modern antiseptics methods, their characteristics**

**Antiseptic** – complex of preventive measures focused on the microorganism destruction in a wound, pathological focus, whole body.

Problem of prevention and treatment of purulent inflammatory processes in the modern conditions is vital important. Main sources of purulent diseases as well as Staphylococcus, E. coli, Proteus, Streptococcus, Escherichia coli, anaerobic bacteria, etc. Caused by changes both species composition and properties of pathogens, having a high virulence and antimicrobial resistance, the sepsis and antiseptic today should be provided in a broader sense. Major sources of non-specific surgical infection are patients with postoperative purulent complications, as well as medical staff and patients' bacilli carrier. Depending on the localization of inflammation pathogens, which are excreted from a body through various organs and tissues (respiratory, digestive, urinary tract, etc). Causative agents of nosocomial infections are spread by airborne and contact way of transfer. Key factors of the inflammation pathogens transmission: air, hands, linen, dressing material, tools, equipment, etc.

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#### **Physical, mechanical, chemical and biological methods of antiseptics.**

Mechanical antiseptic includes numerous mechanical techniques focused on the early (at the first hours) removing of necrotic tissue, blood clots, foreign agents, microorganisms trapped in the wound. For this purpose, wounds sanitation should be carried out (shaving of a hair) or primary surgical sanitation. Non-vital tissue and blood clots are considered to be breeding source for bacteria and foreign agents. Mechanical measures of antiseptics carried out in the first hours after injury, contribute to the destruction vast majority of bacteria from wounds and their healing without suppuration.

Basic goal physical methods of antiseptics should be focused on the creation unfavorable conditions for bacteria growth, toxins and tissue destruction products absorption in the wound. For these purposes you should carry out the following methods: external drainage of the infected wound using swabs and drainage, heat and light drying of the wounds, as well as solux exposure, quartz lamp, etc. Plastic and rubber drains are used primary in order to provide outflow from a wound bacteria products, tissue decomposition, microbes and their toxins. Secondly – in order to wash the purulent cavities with antiseptic solutions. Outflow of the given products through a wound drainage would occur passively (carried out in the bandage or vessel with antiseptic solution) and actively (by aspiration way using a variety of suction).

Chemical antiseptics should destroy bacteria in the wound according to carry out various antiseptics. Antiseptic would be bactericidal or bacteriostatic and couldn't cause any harm to the tissues of a body. Generally, their action shouldn't be weakened while contact with vital tissues.

Biological methods of antiseptics, focused on the improving body's defenses and create unfavorable conditions for microorganisms growth. Biological antiseptics include antibiotics, enzymes, immune serum. Antibiotics are prescribed by the doctors on a strict condition. Nurse hasn't the right to appoint or remove them, but she should know properties of assigned antibiotic, its dose, ways of application, possible complications. Prerequisite for appointment of antibiotic is determining sensitivity to the microorganisms. Mainly combination of several drugs, based on their synergies and different ways of application should be carried out. The most effective is the combination of antibiotics and sulfonamides (norsulfazol, etazol, sulfadimetoksin, sulfalen, etc), having a broad spectrum of action.

Effectiveness of purulent and inflammatory processes treatment depends on the timely and proper allocation of a pathogen and determination its antibiotic sensitivity. The nurse at the beginning and during treatment ought regularly send the patient material to the bacteriological laboratory in order to determine sensitivity of microbes to the antibiotics. Don't apply antibiotics for preventive purposes, because a few doses of antibiotics could provoke forming resistant to these drug forms of bacteria. While a long-term useage of antibiotics negative side effects should appear as well as supression flora of the intestines, dysbiosis and candidiasis.

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Among biological antiseptics are enzymes (trypsin, chymotrypsin, crystal himopsin, ribonuclease, streptoliasa). They are applied topically and parenterally. Drugs cleanse wounds and purulent cavity from a pus and fibrin clots, having anti-inflammatory effect and enhances activity of antibiotics. In order to increase body's resistance to infection are widely used both passive and active immunization. For this purpose applied antistaphylococcal plasma, antistaphylococcal globulin, antistaphylococcal toxoid, antigangrene serum, tetanus toxoid, etc. Specified drugs should prescribed by a doctor in accordance with relevant instructions.

**Features of care for patients with a purulent pathology and organization of work in the purulent dressing room.** In the purulent dressing room purulent wounds should be ligated, performing puncture and revealed abscesses, carried out other manipulations on the purulent wounds. Medical personnel should strictly observe rules of asepsis and antiseptics, thoroughly sterilize tools in order to avoid additional contamination of wounds with pathogenic microflora. Disposal of dressings contaminated with purulent (wadding, gauze, etc.), carried out by burning.

**Features of dressings and care for patients with anaerobic infection.** Source of anaerobic infections are the patients. Major way of transmission - contact. Infection could occur as a result of contact causative agent of gas gangrene on the damaged skin and mucous membranes, transfer from the soil, dirty linen, clothing, contaminated medical instruments. For treatment of these patients a separate chamber provided by separate entrance, separate surgical dressing with supply and exhaust ventilation would be carried out. Walls should be tiled, floor is covered with linoleum or tile, easy supported by mechanical cleaning and disinfecting. Ultraviolet irradiators provided at the given rate 1 irradiator per 30 m<sup>2</sup>. Whole surface should be treated with 6% hydrogen peroxide solution and 0.5% detergent solution 2 times per day, using personal protection equipment: gloves and respirator. Bed covered with a linen carried out disinfection processing in the camera according to a mode for spore forms of bacteria. Dirty linen before washing ought to sterilize by soaking and subsequent boiling in 2% soda solution within 120 minutes after boiling. Patient is given individual items for daily useage, which are also disinfected. Utensils are soaked in 2% of sodium bicarbonate solution and boiled for 90 minutes. Surgeon and nurses before entering the dressing room, or operating room should wear a mask, shoe covers and oilcloth aprons, which are thoroughly disinfected by 6% of hydrogen peroxide solution and 0.5% of detergent solution. Dressings after applying collected in a separate box, autoclave for 20 minutes and destroy. Tools after application should be dipped in 6% of hydrogen peroxide solution with 0.5% of detergent solution till 60 minutes. All surfaces after disinfection washing with a hot water and irradiated with bacteriocidal lamps up to 2 hours.

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*Items and equipment for bandaging wounds, struck with a gas gangrene:*

- forceps
- tweezers
- scalpel, scissors
- syringes, needles 2 pieces
- needle holder, needle, suture material
- antiseptics for treatment surgical field and wounds
- gauze napkins, pads, balls, bandages
- sterile operating linen
- clamps 3-4 pieces



*Carried out the procedure:*

- wide disclosure of a wound channel
- excision of the necrosis, foreign agents removal
- additional cuts in the edema area ("top opening")
- thorough hemostasis
- open treatment of wounds with extensive use of aeration and oxidation agents (6% hydrogen peroxide solution, 0.1% potassium permanganate solution, mixture in a ratio 1:1 by 6% hydrogen peroxide solution and 5% iodine alcohol solution).

**Wounds are sewing! In the stage of deep phlegmon should be performed:**

- "top opening" with obligatory disclosure of the fascial spaces;
- Excision of all affected muscles;
- If all affected tissue couldn't carve - amputation of a limb carried out.



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**Wound after amputation shouldn't sewing! In the stage of deep phlegmon should be performed:**

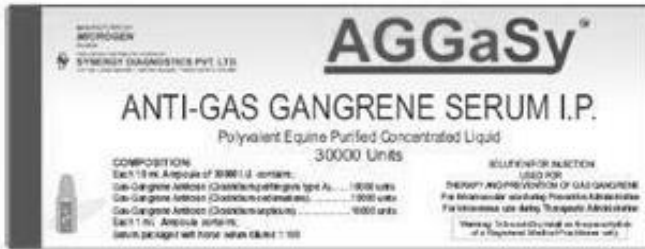
- "top sections" with obligatory disclosure of the fascia
- excision of all affected muscles
- if all affected tissue couldn't carve - amputation of a limb carried out

**Wound after amputation of a limb with gas gangrene shouldn't sewing!**

Prevention of tetanus.

*Items and equipment:*

- Syringes, needles 2 pieces
- Tetanus human immunoglobulin, PSCI.
- Tetanus serum PPS.
- Tetanus toxoid PPA.
- Gauze napkins, pads, balls, bandages.



*Carried out the procedure:*

– Before using ampulla of the drug should be carefully examined. Don't use the drug if there is no label or incomplete information in it, ampulla cracks, foreign inclusions, after expiration of a date.

– Just before application ampulla should be shaken until homogeneous mixture and wipe with a sterile cotton wool, soaked in ethyl alcohol. Open ampulla ought to be stored not more than 30 minutes.

– PPA should be appointed in a dose 0.5 ml intramuscularly (persons up to 25 years, twice for vaccinated persons, if vaccine is made not more than 5 years ago, children and adolescents which were vaccinated with the following vaccines AKDS, ADS, ADS - M). For other persons ought to be applying PPA in a dose 1 ml.

– Simultaneously PPA ought to apply (3000 ME) or PSCI (250 ME) intramuscularly.

– Before PPS applying should be performed intradermal test with a horse serum "Diaferm", in a dilution 1:100 in order to determine a person's sensitivity to the horse serum proteins. Thus, diluted serum in a dose 0.1 ml should be injected intradermally in the forearm flexor surface. Reaction should be estimated after 20 minutes. Sample is considered to be positive if swelling or redness reaches 1 cm in

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diameter or more. At the negative sample 0.1 ml of PPP should be injected intradermally. If reaction is absent after 30 minutes the rest of PPP carried out.

#### **Rules of preparation the surgical linen and bandages to sterilization.**

To the surgical linen ought concern medical gowns, which are fastened behind, sheets, towels, linen napkins, hats and masks. Before sterilization, operating nurse checks integrity of a linen, taking it to the bix. Sheets are putting as follows: narrow edge is carried out over 50 cm width, folded in a four times on the length and rolled shouldn't be tight. Folded such way sheet is easy to deploy. Medical gowns should be folded by the sleeves inward. Towels and napkins folded in a four times. Masks and caps are sterilized, as a rule, separately or together with surgical material.

**Methods of surgical scrubbing surgeon's hands carried out before operation and outside the clinic.** Vital importance of asepsis having medical staff hands state. Hands' skin contains a lot of bacteria. Bacteria are located on a skin surface, in the pores, numerous folds, hair follicles, sweat and sebaceous glands. Especially numerous microorganisms are situated under a nail plate. Therefore, the medical staff hands nails should be cutting short. Persons with cracks, abrasions, scratches, burrs, blisters, pustules and other inflammatory processes, do not allow to the operations. Purulent wounds sanation nurse should carry out in a rubber gloves. A key importance has surgeon's hands sterility, routine scrubbing of the operating sisters and obstetrician in order to protect skin from injury and contamination. There are numerous ways towards hands' scrubbing (Figure 5.1).

Sanation of hands carried out with the solution "Sterilium" or "Softaman". Hands' scrubbing as well as soap washing under running water - from 1 till 2 minutes - should be applied. Wipe is carried out with a sterile towel and scrubbing with "Sterilium" or "Softaman" solution twice for 2 minutes.

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1. Palm to palm



2. Right palm over left dorsum and left palm over right dorsum



3. Palm to palm fingers interlaced



4. Backs of fingers to opposing palms with fingers interlocked



5. Rotational rubbing of right thumb clasped in left palm and vice versa



6. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

Figure 4.1

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In emergency case, should apply methods, based mainly on the tanned of skin. In particular, you would scrubbing the hands over 10 minutes by 96 % of ethanol or in a 3 minutes by 2% of iodine and alcohol solution.

**Methods of the operational field processing.** Operational field as well as a surgeon's workplace should be free from microorganisms. Immediately before operation the operative field should be shaved and prepared to the operation by Grosikh – Filonchikov' method. According to this method you should apply operational field skin with antiseptics at least 4 times. In the recent years iodine solution is common used. It ought prepare before surgery (ex tempore): concentrated 5% of iodine solution dissolve in the boiled or sterile water as well as 1:5 ratio. First application skin of the surgical field is carried out after preliminary wash with gasoline or alcohol, wipe it twice with sterile swabs, moistened with iodine solution. Second skin sanitation – used before incision, after covering a patient with sterile sheets, the third – before sewing a skin and the fourth – after a skin sewing. In addition to these four applications, skin of the surgical field should be smearing each time while change the clothes around a wound (pollution, widening a wound, etc). Operative field ought to treat with 0.5% of alcoholic chlorhexidine, degmicial, cutasept, 1% of rocal solution, etc. In order to isolate skin of the surgical field you would applied sterile wipes, special protectors (or pads made of oilcloth). If abscesses revealed in a surgical field area the routine operations should be avoided.



### 3. Questions for self-control:

1. Methods of modern antiseptics, their characteristics.
2. Basic rules focused on a workplace preparation in the purulent dressing.
3. Features of care for patients with purulent pathology.
4. Bandages of the patients with a purulent pathology.
5. Bandaging and care for patients with anaerobic infection.



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6. Disposal of dressings, contaminated with the purulent secretions.
7. What method of the dressing material fabricating: wipes, swabs, balls, etc.?
8. Preparation of the surgical linen and bandages to sterilization.
9. Routine care of the surgeon's hands in everyday life.
10. Rules towards dressing mask, sterile gown, gloves.
11. Modern methods of the surgeon's hands scrubbing before an operation.
12. Ways carried out the surgeon's hands scrubbing before an operation.
13. Preparation of a surgical field by Grosikh – Filonchikov's method.

**4. Tests for self-control:**

1. An antiseptic is:
  - A. Complex of measures carried out on the microorganisms destruction in a wound.
  - B. Method of treatment purulent wounds.
  - C. Method of removing necrotic tissue from the purulent wounds surface.
  - D. Complex of methods towards sterilized dressing material for wound dressing.
  - E. Science about treatment of purulent wounds.
  
2. There are the following methods of antiseptics, except:
  - A. Mechanical.
  - B. Physical.
  - C. Chemical.
  - D. Biological.
  - E. Operational.
  
3. Main goal focused on the physical methods of antiseptics:
  - A. Creation unfavorable conditions for microorganisms in the wound.
  - B. Excision infected tissues of the wound walls.
  - C. Washing of a wound with antiseptics.
  - D. Application of antibiotics in the tissue around a wound.
  - E. Change of bandages on a festering wound.
  
4. Chemical antiseptics should be carried out on:
  - A. Destruction of microorganisms in a wound by chemical antiseptics.
  - B. Remove microorganisms from a wound through the drains.
  - C. Lifting protective forces of the organism.
  - D. Prevention of microflora development in the wound.
  - E. Processing of a swathe bandage on the wound.
  
5. Biological methods of antiseptics should be carried out on:
  - A. Application blood components to the patient's body.

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- B. Increasing protective forces of the patient organism in order to protect from microorganisms.
- C. Prevention of microflora development in the wound.
- D. Application of antibiotics in the tissue around a wound.
- E. Application of antiseptics in the cavity wounds.
6. To which kind of antiseptics carried out enzymes (trypsin, himopsin etc.):
- A. Mechanical.
- B. Physical.
- C. Chemical.
- D. Biological.
- E. Mixed.
7. To mechanical antiseptics concerned the following actions:
- A. Draining wounds.
- B. Use of antibiotics.
- C. PXO wounds.
- D. Ultrasonic cavitation of the wounds.
- E. Applying solution of a hydrogen peroxide.
8. Methods of biological antiseptics are the following:
- A. Use of vaccines and serums.
- B. Use of sulfonamides.
- C. Initial surgical debridement of a wound.
- D. Draining of the wounds.
- E. Ultrasonic treatment of a wound.
9. Surgical treatment of wounds with excision of necrotic tissue should apply the following method of antiseptics:
- A. Physical.
- B. Chemical.
- C. Biological.
- D. Mechanical.
- E. Mixed.
10. Antiseptic-oxidant ought to be as well as:
- A. Hydrogen peroxide.
- B. Chloramine.
- C. Silver nitrate.
- D. Penicillin.
- E. Carboic acid.

**Theme 5. Organization of work in the sterilization room. Preparation and sterilization of the cutting, optical, general & surgical instruments.**  
**Sterilization of suture material.**

**1. Self – Study Material to Practical Training:**

*1.1. Theoretical Assignments:*

- What means asepsis;
- Types of surgical instruments;
- Methods of preparation surgical instruments for sterilization;
- Sterilization techniques of the cutting, optical, general and surgical instruments;
- Types of suture material;
- Sterilization techniques of a suture material;
- Methods of sterilization control.

*1.2. Practical Assignments, tasks which should be carried out in the classes:*

- Preparation of instruments for sterilization;
- Sterilization different types of surgical instruments;
- Samples carried out quality of sterilization the surgical instruments;
- Sterilization various types of the suture material.

**2. Content of the theme:**

**Asepsis** – complex of measures focused on the prevention bacteria penetration into a wound. A key rule carried out in the basis of asepsis: everything that contact with a wound (tools, medical staff hands, dressing and suture material, operating linen, air in the operating and dressing room), should be sterile.

**Preparation of instruments for sterilization.** Pre-sterilization preparation - thorough mechanical cleaning of the tools.

Order of the pre-sterilization tools' preparation:

- disinfection;
- rinsing under the running water for 30 sec.;
- soaking in a mixture hydrogen peroxide and detergent 50°C for 15 min;
- wash in the washing-peroxide mixture using a cotton-gauze swab for 30 sec.;
- rinse with a distilled water;
- drying;
- samples carried out quality of the presterilization preparation (at the presence of detergents as well as phenolphthaleine; in order to determine residual of blood and fat - benzidine test).

**Installation and preparation instruments for the sterilization.** After preliminary air drying tools should be put in a dry-heat box, which is heated to 80°C with an open door. While shut the door the sterilization starts.

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**Sterilization.** Metal tools and glassware are sterilized in a dry-heat box-sterilizers. After closing the door a temperature in dry-heat box-sterilizers ought to 180°C carried out it automatically for 60 min, then turn off. Sterilization of the plastic parts should be carried out in a steam sterilizer (autoclave), putting it in the box. Sterilization carried out 20 min at 2 atmospheres, at the temperature 132,9°C. Sterilization starts after reaching the appropriate pressure. Rubber gloves, rubber drainage tubes are sterilized at 1.1 atmospheres at the temperature 120°C for 45 minutes.

Cutting tools wrap two layers of special paper and sterilized by dry-heat method. But during sterilization by a high temperature the cutting instruments gradually lose their properties as well as metal becomes softer and tools quickly blunted. Therefore, after deteriorating processing it is better to sterilize cutting tools applying "cold" methods, often soaked in the following antiseptic solutions: 96°-70° spirit for 2 hours, 6% hydrogen peroxide solution at the temperature 18° C for 6 hours, solution of desoxon -1 for 45 min, solution of "Sidex" for 60 minutes. Finally after sterilization all instruments should be stored in these solutions in order to practical use.



Tools that shouldn't be sterilized by a heat treatment (endoscopes, thoracoscopy, laparoscopy, devices or block devices for cardiopulmonary bypass, hemosorption), sterilized in a special gas sterilizer. Tools put in a sealed sterilization chamber, which is filled with ethylene oxide. Exposure time is 16 hours at the temperature 18°C. Sterilization should be performed with a mixture ethylene oxide and methylene bromide at the temperature 55°C for 6 hours.



Tools that shouldn't be sterilized by a heat treatment (endoscopes, thoracoscopy, laparoscopy, devices or block devices for cardiopulmonary bypass, hemosorption), sterilized in a special gas sterilizer. Tools put in a sealed sterilization chamber, which is filled with ethylene oxide. Exposure time is 16 hours at the temperature 18°C. Sterilization should be performed with a mixture ethylene oxide and methylene bromide at the temperature 55°C for 6 hours.

Sterilization of the instruments and apparatus by chemical solutions should be carry out in the metal or plastic boxes with a tight lids in order to prevent evaporation of drugs.



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**Storage of the sterile materials.** Sterile material is stored in the special room. Shouldn't be stored in the same room both non-sterile and sterile materials. Sterility of materials in the drums (if they are not opened) retained 48 hours, if additional packaging in a cotton bag sterility should be provided for 72 hours.

Best way of asepsis ought to use the disposable instruments (syringes, scalpels, system/venous injections, some staplers, etc.), which are sterilized at the enterprises of medical industry by various methods, including  $\gamma$ -irradiation and ultrasound.



**Preparation of detergents and disinfectants.** Modern disinfectants used for disinfection and cleaning; combination disinfection and sterilization processing covered tools, flexible and rigid fiberscope; disinfection of a laboratory glassware.

- *Korsolex plus* (in a case of instrumentation): 30 ml per 1 liter (3% solution).
- *Korsolex Basic* (in a case of instrumentation): 20 ml per 1 liter (2% solution).
- *Dezactine*: 2 gr. on 1 liter - for current cleaning (0.2% solution), 10 gr. per 1 liter - for general cleaning (1% solution).
- *Chlorantoin*: 2 gr. on 1 liter – for current cleaning (0.2% solution), 10 gr. per 1 liter - for general cleaning (1% solution).
- *Dezeffect*: 23 ml per 1 liter - for current cleaning (2,3% solution), 38 ml per 1 liter - for general cleaning (3,8% solution).
- *Maxisan*: 1.7 ml per 1 liter - for current cleaning (0,17% solution), 2.5 ml of 1 liter for general cleaning (0,25% solution).
- *Septodor-Forte*: 0.25 ml to 1 liter for current cleaning (0.025% solution), 2 ml per 1 liter - for general cleaning (0.2% solution).
- *Korsolex extra*: 15 ml per 1 liter - for current cleaning (1.5% solution), 2 ml per 1 liter - for general cleaning (2% solution).
- *Bacilocid racant*: 2.5 ml per 1 liter for current cleaning (0.25% solution), 5 ml per 1 liter - for general cleaning (0.5% solution).
- *Blanidas*: 2 gr. on 1 liter for current cleaning (0.2% solution), 10 gr. per 1 liter - for general cleaning (1% solution).



Samples carried out in order to control quality of the tools sterilization processing. Quality of the sterilization processing check by the following tests:

- Blood (benzidine, asopiram's, amidopirin's tests);
- Chemical detergents (phenolphthalein);
- Fat (Sudan III test).

Quality of the sterilization processing should control by sanitary-epidemiological and disinfection station at least once per quarter; self – control ought to

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carry out by the centralized sterilization chief once a day. Should be check at least 1% of numerous types taken from each type of tools, having been sterilized in a single shift.

Amidopirin's tests – solution prepared immediately before applying. Mix 5% of amidopirin's alcohol solution, 30% solution of acetic acid and 3% solution of hydrogen peroxide in the equal proportions. Solution should be stored in the glass stopper bottle in a refrigerator 1 month. Test is consider to be positive if the solution application in 1 min carried out to the appearing a blue-violet color.

While setting asopiram's, amidopirin's tests you shouldn't take into account coloration that appears later than 1 min.

Phenolphthalein test - prepare 1% of phenolphthalein alcoholic solution. Solution should be stored in the glass stopper bottle in a refrigerator 1 month. Test is consider to be positive if the solution application in 1 min carried out to the appearing a pink color. Such results have been shown presence of residual alkali with detergents.

Sudan III Test – prepare the following solution: 0.2 gr. of Sudan III and 0.2 gr. of methylene blue, which is dissolved in 70 ml of 96% ethanol, warmed in a water bath up to 60°C, when ought to add 10 ml of 20 - 25% of ammonia solution and 20 ml of distilled water. Solution should be stored in the glass stopper bottle in a refrigerator 6 months. In order to carry out Sudan III Test you should put 3-5 ml of solution on the instrumentation and wash with water after 10 sec. Yellow spots ought to indicate a fat presence. In a case of positive test the whole party of tools should be re-processed.

Types of suture material.

Classification of suture material is the following:

1. Suture material ought to resolve:

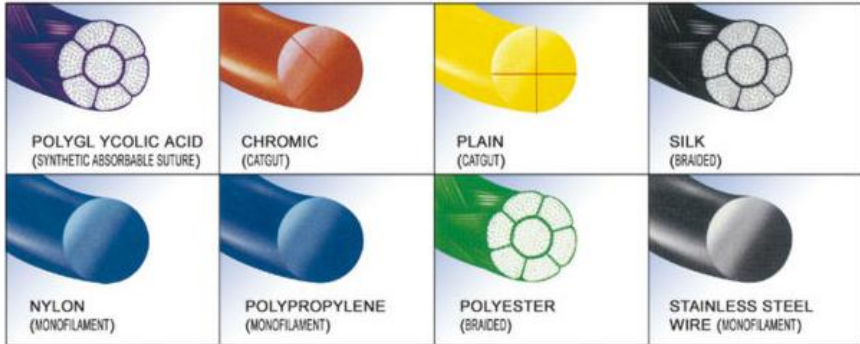
- animal origin (catgut, collagen) (Figure 5.1);
- vegetable origin – on a basis of cellulose (occelon, kaccelon);
- synthetic:
  - on the polyglycolise basis (Polisorb, vicryl, dekson, Makson);
  - polydioxanone;
  - polyurethane.

2. Suture material ought to dissipate slowly: silk, polyamide (nylon).

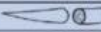

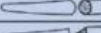




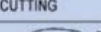

(Figure 5.2)

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• DESCRIPTION OF NEEDLE TYPE

SYMBOL	POINT TYPE	END TYPE
●	TAPER POINT 	 ROLLED-END
○	BLUNT TAPER POINT 	 DRILLED-END
▲	CUTTING EDGE 	 REGULAR-EYE
▼	REVERSE CUTTING EDGE 	
⊙	MICRO-POINT REVERSE CUTTING 	
▼	MICRO-POINT SPATULA CURVED 	

**Types of Needle Shape:**  
 1/2弧 1/2circle ● ○ ▲ ▼ ⊙ ▼ (8mm-60mm) , 3/8弧 3/8circle ● ○ ▲ ▼ ⊙ ▼ (8mm-60mm)  
 5/8弧 5/8circle ● ○ ▲ ▼ ⊙ ▼ (8mm-60mm) , 直接 straight cutting ● ○ ▲ ▼ ⊙ ▼ (30mm-90mm)

Figure 5.1

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Figure 5.2

3. Suture material shouldn't resolve:

- polyesters (lavsan, surzhidac, mersilene, ethibond);
- polyolefins (surzhipron, prolen, polypropylene, surzhilene) (Figure 5.2);
- fluorine polymers (gorteks);
- polyvinylidene (coralen);
- metal wire, metal clips.

**Methods of sterility control.** Methods of sterility control are divided into direct and indirect. Direct method of control is the result of bacteriological examination (exact method). Sterile swab carried out on the sterile equipment, surgeon's hands skin, surgical field, etc.

Swab should be placed into a sterile tube and sent to the bacteriological laboratory, where given samples ought to plant on different nutrient media. Results estimated as well as absence or presence of microflora growth and carry out it identification.

Indirect control method is common used as well as thermal sterilization methods in order to determine temperature for processing of the materials. Disadvantage of this method is lack information towards absence or presence of microflora; it should apply at each sterilization. Before autoclaving ampulla with a powder-similar substance, having 110-120°C of melting temperature ought to put into a box. For these purposes you should apply special indicators, having changed their color in compliance with standard temperature regimes of autoclaving. After sterilization, you should open a box. An operating nurse checks the substance state in a test tube or color of the indicator. If substance in a tube is melted, indicator changed its color, you should estimate that regimes of autoclaving were observed and material is sterile.

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**3. Questions for self-control:**

1. Pre-sterilization preparation of the tools.
2. Methods of the surgical instruments sterilization.
3. Sterilization of instruments in the autoclave.
4. Sterilization of instruments in a dry-heat box.
5. Features of sterilizing instruments that shouldn't be sterilized by a heat treatment.
6. Methods of sterility control towards the surgical instruments.
7. Preparation of detergents and disinfectants.
8. Types of the suture material.
9. Sterilization methods of the suture material.
10. Methods of sterility control.

**4. Tests for self-control:**

1. Patient K. was carried out after accident to the neurosurgical department sanitary point with the diagnosis: traumatic brain injury. At the medical survey doctor revealed common hematoma of the front - abdominal wall towards spleen projection. Consultation of the surgeon had been shown indications in order to perform an exploratory laparotomy, as a result surgeon uncovered box with set of tools in order to perform this kind of surgical care. Specify, which kind of box lying should be applied in this case?

- A. Targeted.
- B. General.
- C. Specialized.
- D. Universal.
- E. Routine.

2. While opening the box with bandages the last one were wet. It was carried out repeated sterilization in compliance with all necessary parameters. Which technological parameters of sterilization dressing material do you know?

- A. T-132°C, 1.1 atmospheric pressures, 45 minutes.
- B. T-132°C, 1.1 atmospheric pressures, 20 minutes.
- C. T-132°C, 2.0 atmospheric pressures, 20 minutes.
- D. T-120°C, 2.0 atmospheric pressures, 20 minutes.
- E. T-120°C, 1.1 atmospheric pressures, 45 minutes.

3. What method of sterility control over dressing material is often used today?

- A. Microscopic.
- B. Indicator.
- C. Test.
- D. Chemical.
- E. Physical.

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4. Patient K. 1933 y.o., was admitted to the hospital with a left-nodular goiter III degree. Ultrasound confirms the diagnosis. Operation of the thyroid gland left lobe resection. Before a surgery, surgeon has processed hands by Spasokukotsky-Kochergin's way. How to process hands of a surgeon to the operation by Spasokukotsky-Kochergin's way?

A. Wash hands with soap under running water, then treated them with a sterile cloth, freshly cooked warm 5% solution of ammonia in two pots for 3 minutes. Having drying hands with a sterile towel, a surgeon should treat his hands with 70° alcohol for 3 minutes.

B. Wash hands with soap under running water, then treated them with a sterile cloth, freshly cooked warm 10% solution of ammonia in two pots for 3 minutes. Having drying hands with a sterile towel, a surgeon should treat his hands with 70° alcohol for 3 minutes.

C. Wash hands with soap under running water then treated them with a sterile cloth, freshly cooked warm 5 % solution of ammonia in two pots for 5 minutes. Having drying hands with a sterile towel, a surgeon should treat his hands with 70° alcohol for 3 minutes.

D. Wash hands with soap under running water then treated them with a sterile cloth, freshly cooked warm 5 % solution of ammonia in two pots for 7 minutes. Having drying hands with a sterile towel, a surgeon should treat his hands with 70° alcohol for 3 minutes.

E. Wash hands with soap under running water then treated them with a sterile cloth, freshly cooked warm 0.5 % solution of ammonia in two pots for 3 minutes. Having drying hands with a sterile towel, a surgeon should treat his hands with 96° alcohol for 5 minutes.

5. Patient M., 1978 y.o., was admitted to the hospital with acute appendicitis. Before a surgery, surgeon has processed his hands with a formic acid. Typical appendectomy, abdominal drainage was carried out. How to process hands of a surgeon to the operation with formic acid?

A. Wash with soap, wiped with a sterile tissue, then treated the hand in a formic acid solution for 1 minute, wipe with a sterile cloth and put on the sterile gloves.

B. Wash with soap and a brush, wiped with a sterile tissue, then treated the hand in a formic acid solution for 1 minute, wipe with a sterile cloth and put on the sterile gloves.

C. Wash with soap, wiped with a sterile tissue, then treated the hand in a formic acid solution for 2 minute, wipe with a sterile cloth and put on the sterile gloves.

D. Wash with soap and a brush, wiped with a sterile tissue, then treated the hand in a formic acid solution for 2 minute, wipe with a sterile cloth and put on the sterile gloves.

E. Treated in a formic acid solution for 1 minute, wipe with a sterile cloth and put on the sterile gloves.

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6. Patient N., 48 years old, underwent the elective cholecystectomy planned operation. In the postoperative period has been festering wounds, the last wound healed by second intention. While parsing medical history was revealed that sterility of surgical instruments, dressing material, surgical linen was observed. Control sterility of the surgeon's hands carried out positive results. What method of the surgeon's hands sterility control do you know?

- A. Radiation.
- B. Chemical.
- C. Physical.
- D. Bacteriological.
- E. Microscopic.

7. Patient Yu., 32 y.o., underwent removal of foreign agent (metal fragments) in a left leg under the general anesthesia. Before incision, surgeon has processed an operative field by

Philonchikova-Grossix's way. Specify, how to prepare an operative field by Philonchikova-Grossix's way?

A. Skin of an operative field ought to primary treat with alcohol, secondly with double lubrication of a sterile swab, moistened with 1% solution of iodine.

B. Skin of an operative field ought to primary treat with alcohol, secondly with double lubrication of a sterile swab, moistened with 5% solution of iodine.

C. Skin of an operative field without pre-treatment with alcohol should be applied 1% solution of iodine with double lubrication of a sterile swab.

D. Skin of an operative field ought to primary treat with alcohol, secondly with double lubrication of a sterile swab, moistened with 0.5% solution of iodine.

E. Skin of an operative field without pre-treatment with alcohol should be applied 5% solution of iodine with double lubrication of a sterile swab.

8. What is the data of safe sterility in the box:

- A. 21 hours
- B. 3 days
- C. 48 hours
- D. 6:00.
- E. 3:00.

9. You should perform disinfection of walls and floor in the sterilization and operating room with 0.5% solution of desactin with an operating sister and nurse. To which mode requirements should concern these premises in the operating unit?

- A. Sterile.
- B. Strict mode.
- C. Limited.
- D. General hospital.
- E. Special.

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10. In which cases should carry out the general emergency cleaning of the surgical unit?

- A. In a case of outsiders visits to the operating room.
- B. Every day in the morning.
- C. Every day in the evening.
- D. Once each 7-10 days.
- E. In a case of operating room contamination by the pus, intestinal contents.

**5. Scenario – based tasks for self – control:**

*Task 1.* If for sterilization purposes of the dressings use a dry-heat box, should this sterilization be quite effective?

*Answer:* Dressings would be sterile, but it lose some important qualities such as elasticity, strength.

*Task 2.* While sterilized dressing material in autoclave, the pressure should be on the level 2 atmospheres. Does autoclave operates automatically if the pressure increases?

*Answer:* Reducing valve.

*Task 3.* You should apply a cotton wool and gauze, and the following dressing material as well as fabric, moss, peat, lignin, tow, charcoal, glass wool. What is the basic quality unites these different types of bandages?

*Answer:* Hygroscopicity.

*Task 4.* In the surgical department was brought patient with a heart injury urgently. Emergency surgery should be performed. Which drug you ought to use for the surgeon's hands preparation?

*Answer:* In order to perform an emergency heart surgery you should apply formic acid or alcoholic solution of chlorhexidine while the surgeon's hands preparation, because these methods do not require a long time for preparation.

*Task 5.* Elective surgery involves three surgeons, including a physician-intern. Inspecting of the intern's skin hands revealed a small abrasion with a slight redness around it, swelling of the soft tissues. How to evaluate condition of the intern's hands? Does he has a right to participate in the operation?

*Answer:* Intern has infected abrasions on the skin with signs of inflammation. He has no right to take part in the operation. In this case, a high risk of infection should appear, transfer from the surgeon's hands into a wound, increasing possibility of complications. Vital important has hands care prevention against pollution. For medical staff, involved in the operation, primary importance has skin protective actions covered various injuries, damage. Mainly, nails should always be short and the staff should clean a subungual space.



**Theme 6. Surgery, preparing of patients for the operation.**  
**Care for patients in a postoperative period.**

**1. Self – Study Material to Practical Training:**

**1.1. Theoretical Assignments:**

- concept about the surgery and preoperative period, its tasks;
- preparation patients for the planned and emergency operations;
- features of medical care for the patients' skin, oral cavity sanitation, shaving hair, purgative enema, patients' linen and clothing hygiene in the preoperative period.

**1.2. Practical Assignments, tasks which should be carried out in the classes:**

- patients' preparation to the planned and emergency operations;
- medical care for the patients' skin, oral cavity sanitation, shaving hair, purgative enema, patients' linen and clothing hygiene in the preoperative period;
- care for patients in the postoperative period, feeding of the patients.

**2. Content of the theme:**

**Surgical operation** is mechanical effect on the tissues and organs carried out for diseases treatment and diagnosis.

**Preoperative period** is a time carried out from patient's admission to the hospital before operation. Its duration varies, depends on: 1) nature of the disease; 2) severity of the patient; 3) an operation urgency; 4) needs for preoperative preparation.

**Postoperative period** is a period of time which should be carried out from the patient's surgery to recovery or disability. Postoperative period is divided into phases: early - 3-5 days, late - 2-3 weeks, a long – term period until rehabilitation.

Classification of surgical operations. **Non-invasive** (bloodless). For example, reduction of the joint dislocation, bone fragments comparison in a case of closed fracture. **Invasive** (blood) as well as disrupted of the skin or mucous membranes integrity. **Minimally invasive** surgical operations, such as removal stones from a bile duct using special fibrobronchoscopy.

**Depending on the urgency distinguish the following operations:**

- Planned operations are performed in any arbitrary period of time favorable for the patient situation (reducible inguinal hernia).

- Urgent operations are operations that cannot be postponed for a considerable time due to the disease progression (malignant tumors, peptic duodenal ulcer, complicated by stenosis).

- Emergency operation perform in a short time after hospitalization of the patient (1-2 hours) - acute appendicitis, intestinal obstruction, peritonitis, acute purulent diseases, etc.

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– Urgent operations are performed immediately, simultaneously struggling with a shock or clinical death (severe bleeding caused by rupture of a spleen, liver, large vessels rupture).

**Diagnostic and therapeutic operations.** Purpose of diagnostic operations - clarification of diagnosis, stage of process among those patients which are unable to establish an accurate diagnosis at the clinical examination. The diagnostic operations include: a) biopsy b) special diagnostic intervention; c) routine surgery operations for diagnostic purposes.

**Biopsy** – carried out surgeon at the operation and should take tissue on the histological examination. (Figure 6.1)

**Depending on the diseases operational affects are distinguished:**

– **Radical operation** (appendectomy, removal of benign tumors), i.e. focused on the diseases treating.

– **Palliative operation** couldn't cure patient from the disease, but reduce his suffering and prolong life (gastrostomy, unnatural anus – an inoperable forms of cancer).

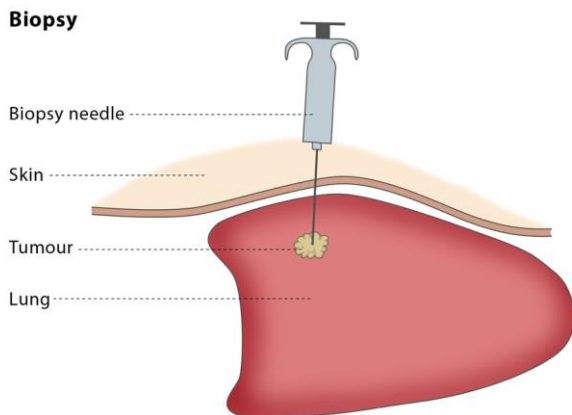


Figure 6.1

**Operations should be: single-step** (appendectomy), **multiple - stage** (operations towards prostate adenoma, tumors of a rectum) and **re-operations** are performed in a case of the same organ's pathology at the early postoperative period. These operations have the prefix "re-": relaparotomy, rethoracotomy. Re-operation could be scheduled (planned relaparotomy for sanation abdominal cavity in a diffuse purulent peritonitis) and internally caused by complications (relaparotomy in a case of the gastroduodenal anastomosis insolvency).

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**Surgical techniques development carried out numerous special operations:**

**Microsurgical** operations should perform from 3 to 40 times magnification in order to apply magnifying glasses or operating microscope. (Figure 6.2)

– **Endoscopic** operations should perform an endoscopic equipment (cholecystectomy, appendectomy) (Figure 6.3).



Figure 6.2

– **Endovascular** operations as well as (constricted vessel expansion, coronary vessels stenting, atherosclerotic plaques removal, cerebral vessels aneurysms filling, etc). (Figure 6.4)

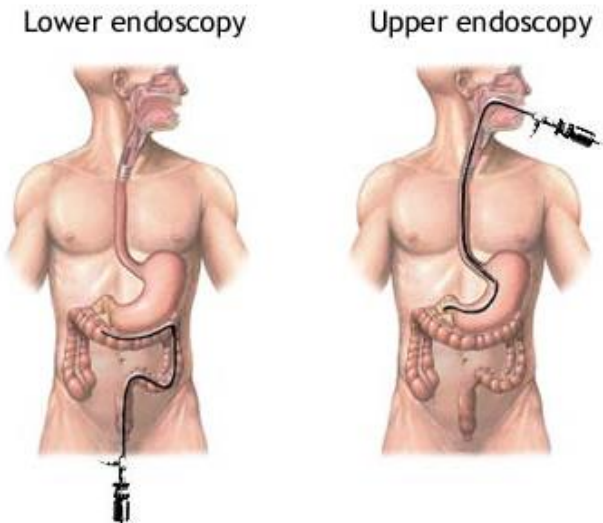


Figure 6.3

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Operation description:

- Contract as well as agreement from a patient on the operation - operating position (on the back, belly, etc.).
- Sanation of the surgical field.
- Operation (surgical) approach.
- Basic stage of the operation (surgical technique), while performed removal of the pathological nidus.
- Final part of contract (wound sewing and drainage).

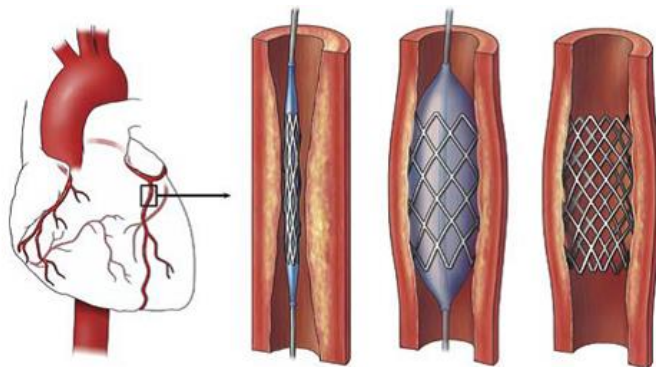


Illustration of successful stenting procedure

Figure 6.4

**Special preoperative preparation.** Preoperative preparation should be carrying out in accordance with a disease depends on the localization process and patient state (surgery on the vessels, colon, abdomen output section stenosis, etc.).

While preparing a patient for the operation you should carry out routine procedures on the organs and systems: gastric lavage, catheterization of the bladder, cleansing or siphon enema, puncture of a purulent, etc. Special attention ought to require for surgery patients, in a case of appearing their deases as a result of diabetes. Primary carried out an acid-base balance correction (metabolic acidosis), carbohydrate metabolism, disorders of the cardiovascular system, kidneys, nervous system. Patients receiving prolonged form of insulin, transferred to the regular insulin.

*Prevention of endogenous infection.* Firstly, you should ask the patient about chronic inflammatory diseases presence (caries, chronic tonsillitis, sinusitis, pustular skin diseases, etc.). Secondly, you ought to carry out chronic infection ambulant sanation. At the long – term operations, accompanied by the hollow bodies opening in order to prevent the postoperative wound infections during surgery. For this purpose the injected antibiotics should be carry out one or two days.

**Preparation of the surgical field.** Patient should take hygienic bath or shower, replace underwear and bed linen. Colon cleaning carried out on the evening before a surgery on the abdominal cavity organs with treatment or siphon enemas until clean

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water. In the morning, not less than 3-4 hours before operation, patient ought perform the cleansing enema, as a final stage of the intestines purification.

#### **Basic types of the surgical sutures concept are distinguished:**

- Primary stitches should put immediately after the operation;
- Primary deferred stitches, applied in 3-4 days after the operation at the absence of inflammation of a wound;
- Secondary deferred stitches, applied to the granulating wound;
- Secondary early stitches, applied until 7 to 14 days after the operation or primary surgical treatment;
- Secondary late stitches, applied on the granulating wounds after 14 days; before imposing secondary late stitches the scar-modified wound edges should be carve, mobilize.

#### **Basic principles of care for patients in the postoperative period.**

**Postoperative period** is a period of time which should be carried out from the patient's surgery to recovery or disability. Postoperative period is divided into phases: early - 3-5 days, late - 2-3 weeks, a long - term period until rehabilitation.

Postoperative period covered normal and complicated current. Patient's postoperative condition ought to have three phases (stages): catabolic, reverse development and anabolic.

**Prevention of complications in the postoperative period.** An operated patient should better to put on a functional bed, which allows to provide a comfortable working position, if it absence - on the shield. In order to improve blood flow to the brain you should carry out back patient's position in the bed in a first two hours, without pillow, after recovery from anesthesia - an operation - dependent position. Having change body position at the first hours after surgical intervention is allowed by the doctor's permission. The most convenient position is on the right side, which facilitates work of the heart, improves function of the digestive tract, decreases vomiting. Surgery on the thoracic and abdominal cavities needs elevated position, which prevents congestion in the lungs, facilitates breathing and heart activity, and promotes a rapid recovery of bowel function. In order to prevent the patients' displacement to the end of a bed, you should put the thrust footrest. Position with a raised foot end of a bed (Clark position), applied in a case of large blood loss, traumatic and post-operative shock. After operations on the lower extremities they should have a convenient elevated position, reached by placing them on the Beler's or Brown's type tire.

In order to improve drainage of the abdominal cavity, douglasawh space, pelvic the patient should apply position with rising "head end" of a bed (Fuller position). After operations on the spine, and interventions on a brain the patient should take abdomen position, if operation was carried out on the thoracic or lumbar spine - soft cushion should put under the chest. Vital importance has

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changes any position of the patient, even convenient, as well as early and often (with doctor's permission). It contributes reduction of the postoperative complications, raising general tone of a body, improving blood circulation.

On the surgical wound area ought to put an ice pack or, rarely, pouch of loose cargo (sand) in order to prevent bleeding. Bubble ice contributes the skin blood vessels and adjacent tissues narrowing and decrease sensitivity of the nerve receptors.

#### ***3. Questions for self-control:***

1. Basic principles covered patients' care in the preoperative period.
2. Nourishment of the surgical patients.
3. Personal hygiene of the patient.
4. Deontological preparing of the patient for surgery.
5. Concept about surgical operation, its types.
6. Basic principles covered patients' care in the postoperative period.
7. Patient state assessment carried out in the postoperative period.
8. Prevention of complications in the postoperative period.

#### ***4. Tests for self-control:***

1. Patient M. was performed an endoscopic polypectomy 8 polyps in the proximal colon. After conducting research a colonoscope carried out disinfection and sterilization. Which sterilization method should be used in this case?

- A. Sterilisation by the steam.
- B. Sterilization by the gaseous substance.
- C. Sterilization by dry hot air.
- D. Sterilization by chemical solutions.
- E. Sterilization by dry hot air and chemical solutions.

2. Patient C., 1978 y.o, diagnosis: acute appendicitis, peritonitis. Indications for surgery operation are vital. In order to prepare instrument for operation was carried out autoclaving. Enumerate optimal parameters for instruments sterilization in the autoclave, applicable in this case?

- A. 45 minutes under 1.1 atmosphere pressure.
- B. 45 minutes under 2 atmosphere pressure.
- C. 20 minutes under 1.1 atmosphere pressure.
- D. 20 minutes under 2 atmosphere pressure.
- E. 1:00 under 1.1 atmosphere pressure.

3. Which modes of sterilization should you apply for the lumbar puncture needles in a dry-heat box?

- A. 180 degrees temperature for 60 minutes.
- B. 160 degrees temperature for 60 minutes.
- C. 140 degrees temperature for 60 minutes.

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- D. 120 degrees temperature for 60 minutes.
- E. 100 degrees temperature for 60 minutes.

4. Which way of sterility control covered surgical instruments do you know?
- A. Biological.
  - B. Heat.
  - C. Physical.
  - D. Planned.
  - E. Microscopic.

5. For sterilization a fiber was cut into filaments, 1 meter length, which were rolled into the ring and degreased in ether 12 hours. Having decanted ether and put the fiber into Liuhol alcohol solution for 8 day. Finally fiber was re-filled with a fresh Liuhol alcohol solution for 8 days. What method of sterilization should apply for catgut?

- A. Sitkowskogo.
- B. Kocher's.
- C. Claudius.
- D. Gubarev.
- E. Pirogov.

6. That includes concept about the disinfection?

- A. Total destruction of microorganisms on the subjects.
- B. Destruction of non-pathogenic microorganisms on the subjects.
- C. Destruction of pathogenic microorganisms on the subjects.
- D. Destruction of microorganisms in a wound and the whole body.
- E. Destruction of pathogens anaerobic infections on the subjects.

7. You are working as an operating nurse. You don't have silk of the industrial way of sterilization. Which of the following methods you should apply for sterilization?

- A. Boiling.
- B. Air way.
- C. Radiation.
- D. Steam.
- E. Ultrasound.

8. Specify, which of the given factors caused bactericidal activity of antiseptics, belong to the group of oxidizers?

- A. Oxidation tissues in the wound.
- B. Bactericidal action of the released atomic oxygen.
- C. Bactericidal action of the molecular oxygen.

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- D. Bactericidal action of ozone, released into the wound.
- E. Bactericidal action of the atomic hydrogen.

9. Imagine that you are a surgical nurse and carried out presterilization processing of the surgical instruments. Which test should be carried out in order to control sterilization quality towards presence of a detergent?

- A. Amidopirin.
- B. Artoliginal.
- C. Benzidine.
- D. Phenolphthaleine.
- E. Thymol.

10. Select method of sterilization optical systems of the tools in order to perform endoscopic surgery?

- A. Cold (chemical) sterilization.
- B. Boiling.
- C. Sterilization by Y-irradiation.
- D. Sterilization by a gas method.
- E. Pasteurization.

11. To the traumatology department sanitary point patient P. was delivered, 2001 y.o. after an accident. General condition is heavy - expressed traumatic shock clinical signs. In the middle third of a right tibia on the anterior surface was determined 12x8 cm wound, from which the tibia fragments appeared. Fibula in a wound couldn't visualised. Left lower limb takes a lateral rotation position, significantly shortened. On the border of upper and middle third of a thigh is visible deformation, increased in a volume. Soft tissue were tense. After conducting antishock therapy the left femur closed fracture with displacement bone's fragments length up to 6 cm and the right tibia open fracture was revealed at the X - ray examination. Specify, which indications for surgery should be carry out at the given patient?

- A. Absolute.
- B. Urgent.
- C. Radical.
- D. Vital important.
- E. Formal.

12. Patient M. 17 y.o. should be planned a surgery operation towards the abdomen tumor. At the night before operation and in the morning he was put an enema. Determine type of the enema?

- A. Purification.
- B. Hypertensive.



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- C. Oil.
- D. Siphon.
- E. Treatment.

13. Patient, 12 y.o., with an inguinal-scrotal hernia was hospitalized for planning operation - hernioplasty. Nurse had shaved him the intended incision plot. What kind of preparation for the operation carried out a nurse?

- A. Urgent.
- B. Somatic.
- C. Psychological.
- D. Medication.
- E. Hygiene.

14. Patient K. 14 y.o. underwent the surgery appendectomy in a case of acute gangrenous appendicitis. Specify ways of infection transfer to the postoperative wound?

- A. Transfer from the clothes.
- B. Transfer from intestine.
- C. Transfer from sterile instruments.
- D. Transfer from sterile material.
- E. Air way of transfer.

15. At the patient A. 8 y.o. on the third day after abdomen operation caused by peritonitis developed acute respiratory failure: breaths quantity - 37 per min, intercostal spaces retraction, nose wings swelling. What is the possible reason of acute respiratory failure?

- A. Absence of mechanical ventilation.
- B. Paresis of the intestine.
- C. Immobility of patient in the bed.
- D. Foreign agent.
- E. Lowering of a blood pressure.

16. At the patient N. 16 y.o. on the second day after operation in a case of abdomen ulcer perforating was dramatically changed behavior: nervous in the conversation, restless, took off bandage from a wound, trying to exit from the chamber. Specify your conclusion?

- A. Syndrome of bleeding.
- B. Syndrome of inflammation.
- C. Syndrome of pain.
- D. Postoperative psychosis.
- E. Astheno-vegetative syndrome.

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17. In the ligation of postoperative patient was noted increasing of a pain, redness and swelling around the wound. What does it mean?

- A. Festering of a wound.
- B. Normal postoperative wound healing process.
- C. Necessity of the dressing frequent change.
- D. Development of an inflammatory process.
- E. Necessity of ointment dressings apply.

18. Patient S. 50 y.o., with varicose veins carried out operation as well as cholecystectomy. Which actions focused on the thrombosis prevention in the postoperative period you should apply?

- A. Active observation in the postoperative period.
- B. Strict bed regime.
- C. Refrain from hypothermia.
- D. Reduce a fluid intake.
- E. Appointment of the diuretics medicines.

**5. Tasks for self-control:**

1. While preparing to the surgery, scalpels and surgical needles carried out to a boiling for 40 minutes. What effect has a high temperature on the sharp metal objects?

*Answer:* Under an influence of high temperature, they lost a tension degree.

2. Observation part of cystoscope put into 96° of alcohol for 30 minutes before surgery with all optical parts. Specify which impact of alcohol should be applied on the optical objects, devices?

*Answer:* To immerse optics devices and appliances to the alcohol is not recommended, because of losing the transparency under influence of alcohol.

3. After opening at patient K. 11 y.o. brushes phlegmon, surgical instruments should be disinfected. Specify, which way?

*Answer:* Surgical instruments should be immersed in 0.5% of desactin solution for 60 minutes, rinse by water, carried out presterilization processing and sterilization in a dry oven for 1 hour at 180°C.

4. After an urgent surgery was finished in the operating room should be carried out disinfection of the air. What method should you apply?

*Answer:* Disinfection of air is carried out by UV irradiation for 2 hours after general wet cleaning.

5. For catgut sterilization one of the applied methods is crystalline iodine. Why iodine should apply for sterilization? Which properties of iodine provide sterilization?

*Answer:* Iodine has a strong bactericidal effect, deeply penetrating into the cell, denatoniun proteins of bacterial cells.

*Task 6.* Patient N. 56 y.o. was admitted routinely for surgical treatment in a case of chronic calculous cholecystitis. She was carried out medical inspection.

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Contraindications to operation were not found. Patient ought to apply cholecystectomy through access in a right hypochondrium. How to prepare patient before the operation?

*Answer.* Put an enema, take hygiene bath, change clothes, shave location of the surgical field.

*Task 7.* Patient C. 9 y.o. was performed appendectomy in a case of limited peritonitis in the peritoneal cavity, where drain pipe should installed. Which proper position of the patient should be recommended in a bed?

*Answer.* In order to improve drainage of the abdominal cavity, douglasawh space, pelvic the patient should applied position with a raised "head end" of the bed (Fuller position).

*Task 8.* On the second day after intestine resection and an anastomosis imposition in a case of invagination at the patient C. 6 y.o. was appeared nausea, vomiting, pain in the abdomen, gases and feces discharge difficulties. Your possible tactics?

*Answer.* In order to improve an intestine peristalsis you should put the nasogastric tube, an exhaust tube and put contrast microenemas.

*Task 9.* After operation in a case of umbilical hernia at the 3 y.o. patient M. was absent urination until 6 hours. Specify condition of the patient, which appeared in this case. What is your possible tactics?

*Answer.* Patient has acute urinary retention. You should provide urination reflexive way and if it absent you ought to perform catheterization of the bladder by elastic catheter.

*Task 10.* At 8 months child on the third day after surgery was rose body temperature up to 39.5 °C. Child is pale, weakness, drowsy, has a heavy breathing, frequent pulse, weak filling. Duty nurse advised the mother to cover baby with a warm blanket, and put warm heating pad to the legs. Does her tactic is correct, which consequences should be develop in the given case?

*Answer.* Tactic of a nurse is not correct, that leads to the hyperthermia syndrome. Primary the nurse ought to carry out cooling methods and should apply anti-pyretic drugs.

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**Tests for control**

1. When completing the assessment for the client in the day surgery unit, the client states, "I am really afraid of having this surgery. I'm afraid of what they will find." Which statement would be the best therapeutic response by the nurse?

- A \* "Tell me about your fears of having this surgery."
- B "Don't worry about your surgery. It is safe."
- C "Tell me why you're worried about your surgery."
- D "I understand how you feel. Surgery is frightening."

2. The client is scheduled for total hip replacement. Which behavior indicates to the nurse the need for further preoperative teaching?

A \* The client gets out of bed by lifting straight upright from the waist and then swings both legs along the side of the bed.

B The client uses the diaphragm and abdominal muscles to inhale through the nose and exhale through the mouth.

C The client takes three slow, deep, breaths and coughs forcefully after inhaling for the third time.

D The client uses the incentive spirometer and inhales slowly and deeply so that the piston rises to the preset volume.

3. Which activities are the circulating nurse's responsibilities in the operating room?

A \* Monitor the position of the client, prepare the surgical site, and ensure the client's safety.

B Give preoperative medication in the holding area and monitor the client's response to anesthesia.

C Prepare sutures; set up the sterile field; and count all needles, sponges, and instruments.

D Prepare the medications to be administered by the anesthesiologist and change the tubing for the anesthesia machine.

4. While the circulating nurse compares the final sponge count with that of the scrub nurse, a discrepancy in the count is found. Which action should the circulating nurse take first?

A \* Re-count all sponges.

B Notify the client's surgeon.

C Complete an Occurrence Report.

D Contact the surgical manager.

5. Which violation of surgical asepsis would require immediate intervention by the circulating nurse?

A \* The scrub nurse setting up the sterile field is wearing artificial nails.

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- B* Surgical supplies were cleaned and sterilized prior to the case.
- C* The circulating nurse is wearing a long-sleeved sterile gown.
- D* Masks covering the mouth and nose are being worn by the surgical team.

6. The nurse identifies the nursing diagnosis “risk for injury related to positioning” for the client in the operating room. Which nursing action should the nurse implement?

- A* \*Carefully pad the client’s elbows before covering the client with a blanket.
- B* Avoid using the cautery unit that does not have a biomedical tag on it.
- C* Apply a warming pad on the OR table before placing the client on the table.
- D* Check the chart for any prescription or over-the-counter medication use.

7. Which statement would be an expected outcome when the circulating nurse evaluates the goal of the intraoperative client?

- A* \*The client has no injuries from the OR equipment.
- B* The client has no postoperative infection.
- C* The client has stable vital signs during surgery.
- D* The client recovers from anesthesia.

8. When making assignments for nurses working in the OR, which case would the manager assign to the new nurse?

- A* \*The client having a biopsy of the breast.
- B* The client having open-heart surgery.
- C* The client having laser eye surgery.
- D* The client having a laparoscopic knee repair.

9. When developing the plan of care for the surgical client having sedation, which intervention has highest priority for the nurse?

- A* \*Assess the client’s respiratory status.
- B* Monitor the client’s urinary output.
- C* Take a 12-lead ECG prior to injection.
- D* Attempt to keep the client focused.

10. Which data indicate the nursing care has been effective for the client who is one (1) day postoperative surgery?

- A* \*Lungs are clear bilaterally in all lobes.
- B* Urine output was 160 mL in the past eight (8) hours.
- C* Bowel sounds occur four (4) times per minute.
- D* T 99.0\_F, P 98, R 20, and BP 100/60.

11. When working on the surgical floor, which task can the nurse delegate to the unlicensed nursing assistant (NA)?

- A* \*Take vital signs every four (4) hours.
- B* Check the Jackson-Pratt insertion site.

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- C* Hang the client's next IV bag.
- D* Ensure that the client gets pain relief.

12. The charge nurse is making the shift assignments. Which postoperative client would be the most appropriate assignment to the graduate nurse?

*A* \*A 24-year-old client who had an uncomplicated appendectomy the previous day.

*B* The four (4)-year-old client who had a tonsillectomy and is swallowing frequently.

*C* The 74-year-old client with a repair of the left hip who is unable to ambulate.

*D* An 80-year-old client with small bowel obstruction and congestive heart failure.

13. Which statement would be an expected outcome for the postoperative client who had general anesthesia?

*A* \*The client will have a pulse oximetry reading of 97 % on room air.

*B* The client will be able to sit in the chair for 30 minutes.

*C* The client will have a urine output of 30 mL per hour.

*D* The client will be able to distinguish sharp from dull sensations.

14. Which client problem would be priority for client who is one (1) day postoperative?

*A* \*Potential for hemorrhaging.

*B* Potential for injury.

*C* Potential for fluid volume excess.

*D* Potential for infection.

15. The unlicensed nursing assistant reports the vital signs for a first-day postoperative client of T 100.8\_F, P 80, R 24, and B/P 148/80. Which intervention would be most appropriate for the nurse to implement?

*A* \*Help the client turn, cough, and deep breathe every two (2) hours.

*B* Administer the antibiotic earlier than scheduled.

*C* Change the dressing over the wound.

*D* Encourage the client to ambulate in the hall.

16. The client is complaining of left shoulder pain. Which response would be best for the nurse to assess the pain?

*A* \*Request that the client describe the pain.

*B* Inquire if the pain is intense, throbbing, or stabbing.

*C* Ask if the client wants pain medication.

*D* Instruct the client to complete the pain questionnaire.

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17. When preparing the plan of care for the client in acute pain as a result of surgery, the nurse should include which intervention?
- A \*Administer pain medication as soon as the time frame allows.
  - B Use nonpharmacological methods to replace medications.
  - C Use cryotherapy after heat therapy because it works faster.
  - D Instruct family members to administer medication with the PCA.
18. Which situation is an example of the nurse fulfilling the role of client advocate?
- A \*The nurse contacts the health-care provider when pain relief is not obtained.
  - B The nurse brings the client pain medication when it is due.
  - C The nurse collaborates with other disciplines during the care conference.
  - D The nurse teaches the client to ask for medication before the pain gets to a “5”.
19. Which statement would be an expected outcome for a client experiencing acute pain?
- A \*The client will participate in self-care activities.
  - B The client will have decreased use of medication.
  - C The client will use relaxation techniques.
  - D The client will repeat instructions about medications.
20. Which intervention has the highest priority when administering pain medication to a client experiencing acute pain?
- A \*Discuss the pain with the client.
  - B Monitor the client’s vital signs.
  - C Verify the time of the last dose.
  - D Check for the client’s allergies.
21. Which intervention should the nurse delegate to the unlicensed nursing assistant when caring for the client experiencing acute pain?
- A \*Apply an ice pack to the site of pain.
  - B Take the pain medication to the room.
  - C Check on the client 30 minutes after he or she takes the pain medication.
  - D Observe the patient’s ability to use the PCA.
22. Which intervention would be the best way for the nurse to assess a four (4)-year-old client for acute pain?
- A \*Have the child point to the face that describes the pain.
  - B Use words that a four (4)-year-old child can remember.
  - C Explain the 0–10 pain scale to the child’s parent.
  - D Administer the medication every four (4) hours.

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23. While conducting an interview with a 75-year-old client admitted with acute pain, which question would have priority when assisting with pain management?
- A \*"Have you ever had difficulty getting your pain controlled?"
  - B "What types of surgery have you had in the last 10 years?"
  - C "Have you ever been addicted to narcotics?"
  - D "Do you have a list of your prescription medications?"
24. At the end of the shift, the nurse clears the PCA and discovers that the client has used only a small amount of medication. Which intervention should the nurse implement?
- A \*Determine why the client is not using the PCA.
  - B Document the amount and take no action.
  - C Chart that the client is not having pain.
  - D Contact the HCP and request oral medication.
25. Which client problem would be most appropriate for the client experiencing acute physical pain?
- A \*Alteration in comfort.
  - B Ineffective coping.
  - C Potential for injury.
  - D Altered sensory input.
26. The staff on an oncology unit is interviewing applicants for a position as the unit manager. Which type of organizational structure does this represent?
- A \*Shared governance.
  - B Centralized decision-making.
  - C Decentralized decision-making.
  - D Pyramid with filtered-down decisions.
27. The nurse working in an outpatient clinic is interviewing clients. Which information provided by the client warrants further investigation?
- A \*The client has been coughing up blood in the mornings.
  - B The client uses Vicks VapoRub every night before bed.
  - C The client has had an appendectomy.
  - D The client takes a multiple vitamin pill every day.
28. Which assessment data support the client's diagnosis of gastric ulcer?
- A \*Comparison of complaints of pain with ingestion of food and sleep.
  - B Presence of blood in the client's stool for the past month.
  - C Complaints of a burning sensation that moves like a wave.
  - D Sharp pain in the upper abdomen after eating a heavy meal.



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29. The client has been seen by the health-care provider and the suspected diagnosis is peptic ulcer disease. Which diagnostic test would confirm this diagnosis?

- A \*Esophagogastroduodenoscopy (EGD).
- B Magnetic resonance imaging (MRI).
- C Occult blood test.
- D Gastric acid stimulation.

30. When the nurse is conducting the initial interview, which specific data should the nurse obtain from the client who is suspected of having peptic ulcer disease?

- A \*Use of nonsteroidal anti-inflammatory drugs (NSAIDs).
- B History of side effects experienced from all medication.
- C Any known allergies to drugs and environmental factors.
- D Medical histories of at least three (3) generations.

31. When assessing the client with the diagnosis of peptic ulcer disease, which physical examination should the nurse implement first?

- A \*Auscultate the client's bowel sounds in all four quadrants.
- B Palpate the abdominal area for tenderness.
- C Percuss the abdominal borders to identify organs.
- D Assess the tender area progressing to nontender.

32. The client diagnosed with peptic ulcer disease is admitted into the hospital. Which nursing diagnosis should the nurse include in the plan of care to observe for physiological complications?

- A \*Potential for alteration in gastric emptying.
- B Alteration in bowel elimination patterns.
- C Knowledge deficit in the causes of ulcers.
- D Inability to cope with changing family roles.

33. When planning the care for a client diagnosed with peptic ulcer disease, which expected outcome should the nurse include?

- A \*The client maintains lifestyle modifications.
- B The client's pain is controlled with the use of NSAIDs.
- C The client has no signs and symptoms of hemoptysis.
- D The client takes antacids with each meal.

34. Which medication should the nurse question before administering to the client with peptic ulcer disease?

- A \*E-mycin, an antibiotic.
- B Prilosec, a proton pump inhibitor.
- C Flagyl, an antimicrobial agent.
- D Tylenol, a nonnarcotic analgesic.

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35. The nurse has administered an antibiotic, a proton pump inhibitor, and Pepto-Bismol for peptic ulcer disease secondary to *H. pylori*. Which data would indicate to the nurse that the medications are effective?

- A \*A decrease in gastric distress.
- B A decrease in alcohol intake.
- C Maintaining a bland diet.
- D A return to previous activities.

36. The client is admitted to the medical department with a diagnosis of R/O acute pancreatitis. Which laboratory value should the nurse monitor to confirm this diagnosis?

- A \*Serum amylase and lipase.
- B Creatinine and BUN.
- C Troponin and CPK-MB.
- D Serum bilirubin and calcium.

37. Which client problem has priority for the client diagnosed with acute pancreatitis?

- A \*Alteration in comfort.
- B Risk for fluid volume deficit.
- C Imbalanced nutrition: less than body requirements.
- D Knowledge deficit.

38. The nurse is preparing to administer A.M. medications to the following clients. Which medication should the nurse question before administering?

- A \*Pancreatic enzymes to the client who has finished breakfast.
- B The pain medication, morphine, to the client who has a respiratory rate of 20.
- C The loop diuretic to the client who has a serum potassium level of 3.9 mEq/L.
- D The beta blocker to the client who has an apical pulse of 68 bpm.

39. The client is diagnosed with acute pancreatitis. Which health-care provider's admitting order should the nurse question?

- A \*Low-fat, low-carbohydrate diet.
- B Bed rest with bathroom privileges.
- C Initiate IV therapy at D5W 125 mL/hr.
- D Weigh client daily.

40. The nurse is completing discharge teaching to the client diagnosed with acute pancreatitis. Which instruction should the nurse discuss with the client?

- A \*Discuss the importance of stopping smoking.
- B Instruct the client to decrease alcohol intake.

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- C* Explain the need to avoid all stress.
- D* Teach the correct way to take pancreatic enzymes.

41. The male client diagnosed with chronic pancreatitis calls and reports to the clinic nurse that he has been having a lot of “gas,” along with frothy and very foul-smelling stools. Which action should the nurse take?

- A* \*Arrange an appointment with the HCP for today.
- B* Explain that this is common for chronic pancreatitis.
- C* Ask the client to bring in a stool specimen to the clinic.
- D* Discuss the need to decrease fat in the diet so that this won’t happen.

42. The nurse is discussing complications of chronic pancreatitis with a client diagnosed with the disease. Which complication should the nurse discuss with the client?

- A* \*Narcotic addiction.
- B* Diabetes insipidus.
- C* Crohn’s disease.
- D* Peritonitis.

43. The client has just had an endoscopic retrograde cholangiopancreatogram (ERCP). Which post-procedure intervention should the nurse implement?

- A* \*Assess gag reflex.
- B* Assess for rectal bleeding.
- C* Increase fluid intake.
- D* Keep in supine position.

44. The client diagnosed with acute pancreatitis is in pain. Which position should the nurse assist the client to assume to help decrease the pain?

- A* \*Place in side-lying position with knees flexed.
- B* Recommend lying in the prone position with legs extended.
- C* Maintain a tripod position over the bedside table.
- D* Encourage a supine position with a pillow under the knee

45. The nurse is administering a pancreatic enzyme to the client diagnosed with chronic pancreatitis. Which statement best explains the rationale for administering this medication?

- A* \*It is an exogenous source of protease, amylase, and lipase.
- B* This enzyme increases the number of bowel movements.
- C* This medication breaks down in the stomach to help with digestion.
- D* Pancreatic enzymes help break down fat in the small intestine.

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46. The client diagnosed with acute pancreatitis is being discharged home. Which statement by the client indicates the teaching has been effective?

- A \**"I will eat a low-fat diet and avoid spicy foods."*
- B *"I should decrease my intake of coffee, tea, and cola."*
- C *"I will check my amylase and lipase levels daily."*
- D *"I will return to work tomorrow but take it easy."*

47. The nurse and an unlicensed nursing assistant are caring for clients on an oncology floor. Which intervention should the nurse delegate to the assistant?

- A \**Assist the client with abdominal pain to turn to the side and flex the knees.*
- B *Monitor the Jackson Pratt drainage tube to make sure it is draining properly.*
- C *Check to see if the client is sleeping after pain medication is given.*
- D *Empty the bedside commode of the client who has been having melena.*

48. The client diagnosed with cancer of the pancreas is being discharged to start chemotherapy in the HCP's office. Which statement made by the client indicates the client understands the discharge instructions?

- A \**"I should write down all my questions so I can ask them when I see the HCP."*
- B *"I will have to see the HCP every day for six (6) weeks for my treatments."*
- C *"I am sure that this is not going to be a serious problem for me to deal with."*
- D *"The nurse will give me an injection in my leg and I will get to go home."*

49. The client is being admitted to the outpatient department prior to an endoscopic retrograde cholangiopancreatogram (ERCP) to rule out cancer of the pancreas. Which pre-procedure instruction should the nurse teach?

- A \**Do not eat or drink anything after midnight the night before the test.*
- B *Prepare to be admitted to the hospital after the procedure for observation.*
- C *If something happens during the procedure, then emergency surgery will be done.*
- D *If done correctly, this procedure will correct the blockage of the stomach.*

50. The client is diagnosed with cancer of the head of the pancreas. When assessing the patient, which signs and symptoms would the nurse expect to find?

- A \**Clay-colored stools and dark urine.*
- B *Night sweats and fever.*
- C *Left lower abdominal cramps and tenesmus.*
- D *Nausea and coffee-ground emesis.*

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51. The client diagnosed with cancer of the head of the pancreas is two (2) days postpancreatoduodenectomy (Whipple's procedure). Which nursing problem has the highest priority?

- A \*Fluid volume imbalance.
- B Anticipatory grieving.
- C Acute incisional pain.
- D Altered nutrition.

52. The client admitted to rule out pancreatic islet tumors complains of feeling weak, shaky, and sweaty. Which should be the first intervention implemented by the nurse?

- A \*Perform a bedside glucose check.
- B Start an IV with D5W.
- C Notify the health-care provider.
- D Give the client some orange juice.

53. The home health nurse is admitting a client diagnosed with cancer of the pancreas. Which information is the most important for the nurse to discuss with the client?

- A \*Ask the client if there is an advance directive.
- B Determine the client's food preferences.
- C Find out about insurance/Medicare reimbursement.
- D Explain that the client should eat as much as possible.

54. The nurse caring for a client diagnosed with cancer of the pancreas writes the nursing diagnosis of "risk for altered skin integrity related to pruritus." Which interventions should the nurse implement?

- A \*Have the client keep the fingernails short.
- B Assess tissue turgor.
- C Apply antifungal creams.
- D Monitor bony prominences for breakdown.

55. The nurse in a long-term care facility is teaching a group of new unlicensed assistive personnel. Which information regarding skin care should the nurse emphasize?

- A \*Turn clients who are immobile at least every two (2) hours.
- B Keep the skin moist by leaving the skin damp after the bath.
- C Do not rub any lotion into the skin.
- D Only the licensed nursing staff may care for the client's skin.

56. The nurse is caring for clients in a long-term care facility. Which is a modifiable risk factor for the development of pressure ulcers?

- A \*Constant perineal moisture.

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- B* Ability of the clients to reposition themselves.
- C* Decreased elasticity of the skin.
- D* Impaired cardiovascular perfusion of the periphery.

57. What is the scientific rationale for placing lift pads under an immobile client?

- A* \*The pads will help prevent friction shearing when repositioning the client.
- B* The pads will absorb any urinary incontinence and contain stool.
- C* The pads will prevent the client from being diaphoretic.
- D* The pads will keep the staff from workplace injuries such as a pulled muscle.

58. The nurse and unlicensed assistive personnel on a medical floor are caring for clients who are elderly and immobile. Which action by the assistant warrants immediate intervention by the nurse?

- A* \*The assistant asks to take a meal break before turning the clients at the two (2)-hour time limit.
- B* The assistant elevates the head of the bed of a client that can feed himself with minimal assistance.
- C* The assistant restocks the rooms that need unsterile gloves before clocking out for the shift.
- D* The assistant mixes Thick-It® into the glass of water for a client who has difficulty swallowing.

59. The nurse is developing a plan of care for a client diagnosed with left-sided paralysis secondary to a right-sided cerebrovascular accident (stroke). Which should be included in the interventions?

- A* \*Use a pillow to keep the heels off the bed when supine.
- B* Order a low air loss therapy bed immediately.
- C* Prepare to insert a nasogastric feeding tube.
- D* Order an occupational therapy consult for strength training.

60. The client who is debilitated and has developed multiple pressure ulcers complains to the nurse during a dressing change that he is “tired of it all.” Which is the nurse’s best therapeutic response?

- A* \*“Are you tired of the treatments and needing to be cared for?”
- B* “These wound can heal if we get enough protein into you.”
- C* “Why would you say that? We are doing our best.”
- D* “Have you made out an advance directive to let the HCP know your wishes?”

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61. The client diagnosed with stage IV infected pressure ulcers on the coccyx is scheduled for a fecal diversion operation. The nurse knows that client teaching has been effective when the client makes which statement?

A \**“Stool will come out an opening in my abdomen so it won’t get in the sore.”*

B *“This surgery will create a skin flap to cover my wounds.”*

C *“This surgery will get all the old black tissue out of the wound so it can heal.”*

D *“The surgery is important to allow oxygen to get to the tissue for healing to occur.”*

62. The school nurse is preparing to teach a health promotion class to high school seniors. Which information regarding self-care should be included in the teaching?

A *\*Perform a thorough skin check monthly.*

B *Wear a sunscreen with a protection factor of ten (10) or less when in the sun.*

C *Try to stay out of the sun between 0300 and 0500 daily.*

D *Remember that caps and long sleeves do not help prevent skin cancer.*

63. Which client is at the greatest risk for the development of skin cancer?

A *\*The client with fair complexion who cannot get a tan.*

B *The African American male who lives in the northeast.*

C *The elderly Hispanic female who moved from Mexico as a child.*

D *The client who has a family history of basal cell carcinoma.*

64. The client is prescribed phenytoin (Dilantin), an anticonvulsant, for a seizure disorder. Which statement indicates the client understands the discharge teaching concerning this medication?

A *\*“I will brush my teeth after every meal.”*

B *“I will check my Dilantin level daily.”*

C *“My urine will turn orange while on Dilantin.”*

D *“I won’t have any seizures while on this medication.”*

65. Which statement by the female client indicates that the client understands factors that may precipitate seizure activity?

A *\*“I am going to take a class in stress management.”*

B *“It is all right for me to drink coffee for breakfast.”*

C *“My menstrual cycle will not affect my seizure disorder.”*

D *“I should wear dark glasses when I am out in the sun.”*

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66. The nurse asks the male client with epilepsy if he has auras with his seizures. The client says, "I don't know what you mean. What are auras?" Which statement by the nurse would be the best response?

- A \*"Some people have a warning that the seizure is about to start."
- B "Auras occur when you are physically and psychologically exhausted."
- C "You're concerned that you do not have auras before your seizures?"
- D "Auras usually cause you to be sleepy after you have a seizure."

67. The nurse educator is presenting an in-service on seizures. Which disease process is the leading cause of seizures in the elderly?

- A \*Cerebral vascular accident (stroke).
- B Alzheimer's disease.
- C Parkinson's disease.
- D Brain atrophy due to aging.

68. The nurse instructs the client with a right BKA to lie on the stomach for at least 30 minutes a day. The client asks the nurse, "Why do I need to lie on my stomach?" Which statement would be the most appropriate statement by the nurse?

- A \* "Lying on your stomach will help prevent contractures."
- B "This position will help your lungs expand better."
- C "Many times this will help decrease pain in the limb."
- D "The position will take pressure off your backside."

69. The recovery room nurse is caring for a client that has just had a left BKA. Which intervention should the nurse implement?

- A \*Keep a large tourniquet at the client's bedside
- B Assess the client's surgical dressing every two (2) hours.
- C Do not allow the client to see the residual limb.
- D Perform passive range-of-motion exercises to the right leg.

70. The 62-year-old client diagnosed with Type 2 diabetes who has a gangrenous right toe is being admitted for a BKA amputation. Which nursing intervention should the nurse implement?

- A \*Assess the client's nutritional status.
- B Refer the client to an occupational therapist.
- C Determine if the client is allergic to IVP dye.
- D Start a 22-gauge Angiocath in the right arm.

71. The Jewish client with peripheral vascular disease is scheduled for a left AKA. Which question would be most important for the operating room nurse to ask the client?

- A \*"Have you made any special arrangements for your amputated limb?"
- B "What types of food would you like to eat while you're in the hospital?"



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- C* “Would like the rabbi to visit you while you are in the recovery room?”  
*D* “Will you start checking your other foot at least once a day for cuts?”

72. The client is three (3) hours postoperative left AKA. The client tells the nurse, “My left foot is killing me. Please do something.” Which intervention should the nurse implement?

- A* \* Medicate the client with a narcotic analgesic immediately.  
*B* Explain to the client that his left leg has been amputated.  
*C* Instruct the client on how to perform biofeedback exercises.  
*D* Place the client’s residual limb in the dependent position.

73. The nurse is caring for clients on a surgical unit. Which nursing task would be most appropriate for the nurse to delegate to an unlicensed nursing assistant?

- A* \*Ask the assistant to take the client to the physical therapy department.  
*B* Help the client with a 2-day postop amputation put on the prosthesis  
*C* Request the assistant double-check a unit of blood that is being hung.  
*D* Change the surgical dressing on the client with a Syme amputation.

74. The client with a right AKA is being taught how to toughen the residual limb. Which intervention should the nurse implement?

- A* \* Instruct the client to push the residual limb against a pillow.  
*B* Demonstrate how to apply an elastic bandage around the residual limb.  
*C* Encourage the client to apply vitamin B12 to the surgical incision.  
*D* Teach the client to elevate the residual limb at least three times a day.

75. The 27-year-old client has a right above-the-elbow amputation secondary to a boating accident. Which statement by the rehabilitation nurse indicates the client has accepted the amputation?

- A* \*“The therapist is going to help me get retrained for another job.”  
*B* “I am going to sue the guy that hit my boat.”  
*C* “I decided not to get a prosthesis. I don’t think I need it.”  
*D* “My wife is so worried about me and I wish she wouldn’t.”

76. The nurse is preparing the preoperative client for a total hip replacement (THR). Which information should the nurse include concerning postoperative care?

- A* \*Sit in a high-seated chair for a flexion of less than 90 degrees.  
*B* Keep abduction pillow in place between legs at all times.  
*C* Cough and deep breathe at least every four (4) to five (5) hours.  
*D* Turn to both sides every two (2) hours to prevent pressure ulcers.

77. The nurse is preparing the client who received a total hip replacement for discharge. Which statement would indicate that further teaching is needed?

- A* \*“After three (3) weeks, I don’t have to worry about infection.”

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- B* "I should not cross my legs because my hip may come out of the socket."
- C* "I will call my HCP if I have a sudden increase in pain."
- D* "I will sit on a chair with arms and a firm seat."

78. When assessing the wound of a client who had a total hip replacement, the nurse finds small, fluid-filled lesions on the right side of the dressing. What explanation is the most probable rationale for this occurrence?

- A* \*These are blisters from the tape used to anchor the dressing.
- B* These were caused by the cautery unit in the operating room.
- C* These are papular wheals from herpes zoster.
- D* These macular lesions are from a latex allergy.

79. The nurse is preparing a plan of care for the client who has had a total hip replacement. Which outcome would be most appropriate for this client?

- A* \*The client will have adequate hip joint motion.
- B* The client has limited amount of pain relief.
- C* The client will have limited ability to ambulate.
- D* The client will have hip instability for several months.

80. The nurse is caring for the client who had a total knee replacement (TKR). Which data would the nurse observe to determine if the nursing interventions are effective?

- A* \*The client participates in self-care activities.
- B* The client's lungs have bilateral crackles.
- C* The client's knee has flexion of 45 degrees.
- D* The client participates in self-care activities.

81. The nurse is working on an orthopedic floor. Which client should the nurse assess first after the change of shift report?

- A* \*The 64-year-old female who had a left total knee replacement with confusion.
- B* The 84-year-old female with a fractured right femoral neck in Buck's traction.
- C* The 88-year-old male who had a right total hip replacement with an abduction pillow.
- D* The 50-year-old postoperative client who has a continuous passive motion (CPM) device.

82. Which client would the nurse identify as having the highest risk for developing postoperative complications?

- A* \*The 67-year-old client who is obese, has diabetes, and takes insulin.
- B* The 50-year-old client with arthritis taking nonsteroidal anti-inflammatory drugs.

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*C* The 45-year-old client having abdominal surgery to remove the gallbladder.

*D* The 60-year-old client with anemia who smokes one (1) pack of cigarettes per day.

83. The nurse is completing the preoperative checklist on a client going to surgery. Which information should the nurse report to the surgeon?

*A* \*The client uses the oral supplements licorice and garlic.

*B* The client understands the purpose of the surgery.

*C* The client stopped taking aspirin three (3) weeks ago.

*D* The client has mild levels of preoperative anxiety.

84. Which statement explains the nurse's responsibility when obtaining a surgical permit for the client undergoing a surgical procedure?

*A* \*The nurse should ensure that the client is voluntarily giving consent.

*B* The nurse should provide detailed information about the procedure.

*C* The nurse should inform the client of any legal consultation needed.

*D* The nurse should write a list of the risks for postoperative complications.

85. Which client outcome would the nurse identify for the preoperative client?

*A* \*The client will demonstrate the use of a pillow to splint while deep breathing.

*B* The client's abnormal laboratory data will be reported to the anesthesiologist.

*C* The nurse will develop a plan of care to prevent all postoperative complications.

*D* The client will complete an advance directive before having the surgery.

86. Which client problem would be appropriate for the preoperative client preparing for an ankle repair?

*A* \*Knowledge deficit of postoperative care.

*B* Alteration in skin integrity.

*C* Alteration in gas exchange and pattern.

*D* Alteration in urinary elimination.

87. The nurse and unlicensed nursing assistant (NA) are caring for clients in a surgery holding area. Which nursing task could be delegated to the NA?

*A* \*Perform the skin preparation with povidone-iodine (Betadine).

*B* Explain to the client how to cough and deep breathe.

*C* Discuss preoperative plans with the client and family.

*D* Determine the ability of the caregivers to provide postoperative care.

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88. Which action by the client would indicate that the preoperative teaching has been effective?

- A \*The client demonstrates how to use the incentive spirometer device.
- B The client demonstrates the use of the patient-controlled analgesia pump.
- C The client names two (2) anesthesia agents that will be used.
- D The client ambulates down the hall to the nurse's station each hour.

89. The unlicensed nursing assistant (NA) can be overheard talking loudly to the scrub technologist discussing a problem that occurred during one (1) of the surgeries. Which intervention should the nurse implement?

- A \*Instruct the NA and scrub tech to stop the discussion.
- B Close the curtains around the client's stretcher.
- C Tell the surgeon on the case what the nurse overheard.
- D Inform the client that the discussion was not about their surgeon.

90. The client has been placed in the lithotomy position during surgery. Which nursing intervention should be implemented to decrease the risk of developing hypotension?

- A \*Lower one leg at a time.
- B Increase the intravenous fluids.
- C Raise the foot of the stretcher.
- D Administer epinephrine, a vasopressor.

91. The circulating nurse notices that a sponge is on the edge of the sterile field. Which action should the circulating nurse take?

- A \*Tell the surgical technologist about the sponge.
- B Don't include the sponge in the sponge count.
- C Take the sponge off the field with forceps.
- D Throw the sponge in the sterile trashcan.

92. The nurse notes a discrepancy in the needle count. What action should the nurse implement first?

- A \*Inform the other members of the surgical team about the problem.
- B Assume that the original count was wrong and change the record.
- C Call the radiology department to perform a portable x-ray.
- D Complete an occurrence report and notify the risk manager.

93. The client's serum sodium level is 128 mEq/L and serum potassium level is 2.8 mEq/L. Which hormonal problem is most likely to have caused this clinical situation?

- A \*Increased ADH secretion
- B Increased aldosterone secretion
- C Decreased aldosterone secretion
- D Decreased ADH secretion

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94. Which condition would trigger the release of natriuretic peptide (NP)?

- A \*Hypervolemia with increased venous return
- B Hypovolemia with interstitial edema formation
- C Hyponatremia secondary to dehydration
- D Hyperkalemia secondary to trauma

95. What problem is likely to occur when a client's fluid intake is so low that his or her urine output is less than 400 mL/day?

- A \*Reduced excretion of body wastes, especially nitrogen
- B Cellular swelling and subsequent edema
- C Expansion of the interstitial volume, with reduced plasma volume
- D Dilution of serum sodium levels to the extent that excitable membranes can no longer depolarize.

96. Why is it important to keep the sodium level of the plasma volume so much higher than the sodium level of the intracellular volume?

- A \*Excitable membranes are dependent on sodium concentration differences for depolarization.
- B Intracellular sodium is toxic to living human cells.
- C Excess sodium displaces oxygen on the hemoglobin of red blood cells.
- D High plasma levels of sodium are needed to balance the high plasma levels of magnesium.

97. The client is taking a medication for an endocrine problem that inhibits aldosterone secretion and release. For what complications of this therapy should the nurse be alert?

- A \*Dehydration, hyperkalemia
- B Dehydration, hypokalemia
- C Overhydration, hyponatremia
- D Overhydration, hyponatremia

98. Edema over the coccyx of a bedridden client is a result of what type of pressures, forces, or influences?

- A \*Filtration from the plasma volume to the interstitial space as a result of increased capillary hydrostatic pressure
- B Filtration from the plasma volume to the interstitial space as a result of decreased capillary hydrostatic pressure
- C Osmosis from the interstitial space to the plasma volume as a result of increased cellular osmotic pressure
- D Osmosis from the interstitial space to the plasma volume as a result of decreased cellular osmotic pressure

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99. What is the nurse's best action for the client whose serum chloride level is 101 mEq/L?

- A \*Document the finding as the only action.
- B Assess the client's deep tendon reflexes.
- C Urge the client to drink more water.
- D Notify the physician.

100. Which statement made by the 74-year-old client should alert the nurse to the possibility of fluid and electrolyte imbalances?

- A \*"I don't drink liquids after 5 PM so I don't have to get up at night."
- B "My skin is always so dry, especially here in the Southwest."
- C "I often use a glycerin suppository for constipation."
- D "In addition to coffee, I drink at least one glass of water with each meal."

101. Which food item selections made by a client who needs to restrict sodium indicates correct understanding regarding the sodium content of food?

A \*A chicken leg, one slice of whole wheat bread with butter, and ? cup of steamed carrots

- B One cup of cottage cheese and a sliced chilled tomato
- C A grilled American cheese sandwich on two slices of white bread
- D A ham and cheddar cheese sandwich on two slices of whole wheat bread

102. The client who is being treated with radiation for cervical cancer asks if she should bother having a mammogram, especially because she is currently being exposed to radiation. What is the nurse's best response?

A \*"Being treated for one kind of cancer does not prevent the development of another type of cancer. Have the mammogram."

B "Although you should delay the mammogram until your therapy is finished, perform a breast self-exam monthly."

C "Absolutely do not have the mammogram this year, because you are already over the limit for safe exposure levels to radiation."

D "The radiation therapy you are receiving will protect you against other cancer development, so it is okay to skip the mammogram this year."

103. Which surgery is considered a type of rehabilitative surgery for cancer?

- A \*Creation of a new vagina following radical therapy for pelvic cancer
- B Creation of a colostomy during surgery for colorectal cancer
- C Removal of a mole that is present in area of constant irritation
- D Removing a wedge of tissue for cytologic examination from a lung lesion of uncertain origin

104. How does surgery for cure differ from surgery for palliation?

- A \*Palliative surgery may not extend the client's survival time.

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- B* Palliative surgery is less painful than surgery for cure.
- C* Curative surgery increases physical function.
- D* Curative surgery prevents cancer.

105. The client who has just had a mastectomy for breast cancer is crying as the nurse enters the room. When asked why she is crying, the client responds "I know I shouldn't cry because this surgery may well save my life, but I was so pleased with my figure before and I know that things will not be the same." What is the nurse's best response?

- A* "It is all right to cry. Mourning this loss is important in getting past this point."
- B* "You're right. It is silly to carry on like this when a prosthesis is available."
- C* "Would you like to talk to someone who also has had a mastectomy?"
- D* "How have you coped with difficult situations in the past?"

106. For which types of cancer is radiation therapy most effective?

- A* \*Cancers that are localized to one tissue or body area
- B* Cancers of the blood, such as leukemia
- C* Superficial cancers on the outside of the body
- D* Cancers that are large, with evidence of distant metastasis

107. What is the most important precaution or advice the nurse should teach the client receiving radiation therapy for thyroid cancer with an injection of iodine-131 as an unsealed source?

- A* "Do not share a toilet with other people for about three days."
- B* "You are only radioactive when the radiation machine is turned on."
- C* "No special precautions are needed because this type of radiation is weak."
- D* "Avoid all contact with other people until the radiation device is removed."

108. Which health problem in a woman who had radiation therapy 10 years ago for cancer in the right breast is most likely to be a consequence of the therapy?

- A* \*Pathologic fracture of two ribs on the right chest
- B* Asthma
- C* Myocardial infarction
- D* Chronic esophagitis with gastroesophageal reflux

109. The bedridden client has cancer metastasis to the bone. Which intervention is most important for the nurse to implement to prevent injury for this client?

- A* \*Using a lift sheet when repositioning the client
- B* Ensuring that the client's heels are not touching the mattress
- C* Providing small, frequent meals that are rich in calcium and phosphorus
- D* Applying pressure for a full 5 minutes after any intramuscular injections

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