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DEPARTMENT OF GENERAL HYGIENE
AND PHYSICAL CULTURE

Kusova A.R., Tsilidas E.G.

SANITARY AND HYGIENIC EXAMINATION OF MEDICAL INSTITUTIONS

Methodical manual for independent work on General hygiene
for students of medical and pediatric faculties

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Kusova A.R., Tsilidas E.G.

Sanitary and hygienic examination of medical institutions: methodological recommendations for medical students

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This training manual outlines the basics of such scientific disciplines as hygiene, sanitation and ecology, describes their main goals and objectives, applied research methods and types of preventive measures. It shows the development of hygiene in different historical periods and, in particular, at the present stage, the problems of the hygienic significance of the environment and human ecology are considered.

The manual contains a list of questions for self-control, test tasks, a list of basic and recommended additional literature.

The manual contains a list of used and recommended literature. Educational and methodological manual " Sanitary and hygienic examination of medical institutions", prepared in the discipline "Hygiene" in accordance with the Federal State Educational Standard of Higher Professional Education for students studying in the specialty of Medicine (31.05.01).

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Reviewers:

Astakhova Z.T. - Professor, Doctor of Medical Sciences., Head of the Department of Internal Diseases No. 4 of the FSBEI of HE NOSMA of the Ministry of Health of Russia.

Alikova Z.R. - Doctor of Medical Sciences, Professor, Head of the Department of Humanities, Social and Economic Sciences of the FSBEI of HE NOSMA of the Ministry of Health of Russia.

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Hospital hygiene develops standards and requirements for the placement, planning and sanitary-technical support of medical institutions in order to create optimal conditions for the stay of patients, the effective conduct of the treatment process and the favorable working conditions of medical personnel.

Treatment-and-prophylactic establishments (LPU) are:

* hospitals,

* polyclinics,

* women's and children's consultations,

* maternity hospitals, dispensaries,

* medical-sanitary unit, sanatorium-and-Spa institution,

* sanitary and anti-epidemic institutions (sanitary and epidemiological centers, antimalarial, anti-plague, disinfection stations), etc.

These institutions carry out effective measures to reduce morbidity and improve public health through the organization of highly specialized medical care on the basis of the latest scientific achievements in the field of treatment, diagnosis and prevention of diseases.

Health care facilities should provide patients with treatment and protective regime (maximum physical and mental rest), prevention of transmission of nosocomial infections.

Hygienic requirements for the location of the hospital on the ground

Hospital complexes with a capacity of more than 1,000 beds for long-term stay and hospitals with special treatment (psychiatric, tuberculosis, etc.) should be located in the suburban area or in the suburbs, if possible, in green areas. The gap from the residential area should be at least 500 m.

When choosing a site for the construction of the hospital, it is necessary to take into account the economic situation (attitude to air polluting objects). It is prohibited to place hospitals in areas previously used for landfills, sewage fields, cattle burial grounds, cemeteries, etc., as well as soil contamination of organic, chemical, radioactive and other nature.

LPU sections should be removed from Railways, airports, highways and other

powerful sources of noise at a distance that provides safe levels (40-50 dB).

Between the site of the hospital and the industrial facility should be sanitary protection zone.

To the territory of LPU there have to be convenient access roads with a firm covering. Temporary Parking of individual vehicles should be placed at a distance not closer than 40 m from the site of health facilities.

Hygienic requirements to the land plot and General plan

Hospital buildings on the land are placed taking into account the hygiene requirements concerning the optimization of patient care. To do this, make a situational plan for the placement of buildings and structures on the site.

LPU should be placed on clean, Sunny, dry elevated areas, providing the flow of atmospheric water. The most favorable slopes facing the South. On the Western and Northern slopes to place LPU is not recommended.

The level of standing groundwater from the surface of the earth at low and high-rise buildings should be at least 1.5 and 2 m, respectively. The most rational rectangular configuration of the hospital area with a ratio of 1:2 or 1:3, which makes it convenient to place the hospital building and access roads.

The area of green spaces in the territory should be at least 60% of the total area, and the area of the garden and Park area-at the rate of 25m2 per bed. Plot LPU should have a perimeter strip of green plantings with width not less than 15 m in double-row planting of tall trees and shrubs, providing a dust-, noise - and wind-proof effect. Trees are planted no closer than 10 m from the walls of the building to avoid reducing the level of natural light, and shrubs-5 m.

Green spaces have a healing effect on the body of sick people (bactericidal action of phytoncides, aesthetic impact, favorable microclimate, etc.). Internal driveways and footpaths must have a hard surface.

The distance between the buildings and the other buildings on the lot must be equal to 2.5 the height of the highest of the opposing buildings but not less than 24 metres in order to provide optimum conditions of exposure, illumination, ventilation and sound proofing.

In the hospital area there are the following areas:

- medical buildings (for infectious patients, non-infectious, pediatric, skin and venereal, radiological Department, maternity hospital);
- garden and Park;
- polyclinics;
- pathological case with the ritual area;
- economic zone and zone of engineering structures.

The property is cleaned daily. For the collection of garbage and household waste set waste bins with tight fitting lids in special areas with concrete or asphalt. Every day they should be washed and disinfected, the distance from these sites to the medical buildings - at least 25 m.

For the current collection of garbage at the entrance to the building, in places of rest and on the territory (every 50 m) set the urns, which are also daily to be free of debris and kept clean. In the economic zone of the hospital place furnaces for burning specific hospital waste (postoperative, pathological, anatomical, etc.).

The pathoanatomical case with a ritual zone shall be as much as possible isolated from tent cases and not be looked through from their Windows, and also from Windows of the residential and public buildings located near the hospital site. Distance from a pathoanatomical corps to the medical corps and the kitchen should be at least 30 m Should have isolated the entry and exit for the ritual area.

The building of the polyclinic should be on the periphery of the site and names, self-standing entrance, convenient for the population.

On the territory of the infectious diseases hospital (building) isolated "clean" and "dirty" zone, isolated from each other by a strip of prickly green spaces. At the exit of the "dirty" zone should be provided covered area for disinfection of transport.

Hospital building systems

The following systems are used to build hospitals:

- decentralized (pavilion);
- centralized;
- mixed.

The decentralized system of hospital construction allows to place different hospital departments in separate buildings with a small number of floors. With such a system, departments are well isolated, prevention of nosocomial infections is facilitated, conditions are created for patients to stay in the fresh air and maintain a therapeutic and protective regime. However, it extended all communication more complex care patients.

Currently, the decentralized system is used for the construction of infectious, psychiatric, tuberculosis hospitals, as well as hospitals located in seismically dangerous areas.

Recently, a centralized system for the construction of hospitals has become widespread, in which all medical, diagnostic and auxiliary departments are combined in one building or in interlocked (without transitions) buildings. This system provides a more convenient relationship from the divisions, reduces the movement of patients and staff, creates the possibility of centralization of medical and diagnostic departments (operating rooms, x-ray rooms, functional diagnostics rooms, laboratories) and fast delivery of finished food from the kitchen to the chamber.

The mixed system is characterized by the fact that all the main somatic, x-ray, physiotherapy and clinical diagnostic departments are placed in one building. Infectious, maternity, child, radiological, post-mortem, commercial offices and clinic are located in separate buildings. This system is the most widely used at present. When the construction of multi-profile hospitals began, the mixed system was modernized and became known as block, With this system, all departments occupying independent buildings are combined into one common unit and connected by transitions.

Hygienic requirements for planning and interior decoration of hospital buildings

The modern multi-profile hospital is a complex set of units in which patients are treated and medical and engineering staff serving medical and diagnostic equipment works.

The main structural units of the modern hospital are:

- office of admission of patients and discharge;
- ward offices;
- medical and diagnostic departments;
- laboratories;
- Central sterilization Department;
- pharmacy;
- nutrition unit;
- pathology Department;
- administrative services;
- laundromat.

The internal layout of the reception Department should ensure the prevention of nosocomial infections and contribute to the acceleration and improvement of the quality of the diagnostic and treatment process. The emergency Department should be separate for children, obstetric, infectious, dermatovenerologic, tuberculosis and psychiatric departments.

Rooms for the reception of patients entering other departments can be shared and placed in the main building of the hospital. Premises for sanitary treatment of patients in the absence of heated passages are provided in each medical building. The estimated number of patients entering the emergency Department during the day is:

- 2% for tuberculosis,
- rehabilitation treatment;
- 15 % for emergency hospitals,
- 12 % for maternity hospitals.

At the reception Department, the wards of patients with unexplained diagnosis are placed. The number of beds in them should be 10 % of the number of patients arriving during the day.

The ward section is an isolated set of rooms for patients with homogeneous diseases, consisting of chambers, medical and auxiliary and economic rooms, a corridor and a sanitary node.

The ward section, designed for 25-30 beds, is considered the most appropriate day of the organization of the treatment process and the conditions of stay of patients. Two ward sections make up the Department (therapeutic, surgical, etc.), which has a common tire of medical personnel

In each ward section is designed for adults 60% of the wards for 4 beds and 20% odnostoechny and dvuhkonusnyh chambers, rooms for daily stay of patients (halls), offices of doctors, sisters-Housewives, older nurses, butlers pantry and dining room, hallway, procedural, enema and CA-nously. In modern hospitals for the convenience of patients, sanitary facilities are located at the wards. The area of the single-chamber without a lock is 9 m^2, with a lock-12 m^2, in the chambers for 2 and 4 beds-7 m per bed. The height of the chambers is not less than 3 m. The cubic capacity per bed shall not be less than 20 m^3 to ensure not less than double air exchange per hour. Artificial ventilation should ensure the supply and removal of 80 m^3 of air per hour.

Insufficiently frequent and thorough ventilation of the premises leads to stagnation of air in the wards, its pollution, the appearance of specific hospital odors, an increase in the threat of nosocomial infections and depriving patients of the most important natural health factor - fresh air.

For normal conditions of stay in the chamber is important and its microclimate. In winter and transition time for the majority of patients the temperature for comfortable stay is within 20-22°C.

In connection with favorable biological, thermal and bactericide-ing the action of solar radiation necessary condition of a healthy t-units in the house is rational is natural light.

The best orientation of the Windows of the chambers in the southern lati-

tudes-South and North, in the middle South, South-East and East, in the North - South, South-East and South-West. The light coefficient in the wards should be 1: 5-1:6, and in the operating room, dressing and generic - 1:4-1: 5. The total artificial lighting of the chambers should be 75 Lux incandescent lamps and 150 Lux fluorescent lamps. Each room must have a special night light placed above the door at a height of 2.2 m above the floor. For the best use of daylight, the beds in the antlers have a long axis parallel to the light-bearing wall.

In order to limit the transmission of airborne infections, the distance between the beds should be at least 0.9-1.0 m, from the outer wall and Windows to the bed-at least 0.8-1.0 m.

In addition to beds, in the ward there are bedside tables with shelves for individual things of the patient, chairs, a table, a wardrobe or a hanger for bathrobes. Desirable sink or bathroom in the house. Furniture should be painted in bright colors. It should be smooth and easy to care for; upholstered furniture, curtains, paths and flowers as places of possible accumulation of dust in the wards are undesirable.

The walls of the chambers, the corridor to a height of 1.8 m, cover light oil paint, and above that is the adhesive or latex. Hardwood floors are usually painted, but it is better covered with linoleum. Conditions in the Department largely depend on the corridor. Hygienic advantages has a bright, well-ventilated corridor with one-way building, through which you can carry through the ventilation of the chambers. For the free turn of beds, gurneys and stretchers, the width of the corridor should be at least 2.5 m.

Medical and diagnostic departments

The Department of anesthesiology and intensive care is provided in multi-hospital hospitals with a capacity of 500 beds, and in children - from 300 beds and more. It should consist of two units: for patients coming from outside, and patients sent from the hospital.

The main premises of the Department of anesthesiology and intensive care are resuscitation room with preoperative, laboratory of urgent tests, room for blood storage, control and diagnostic equipment, intensive care unit, etc.

Hospitals with a capacity of less than 400 beds provide for one functional diagnostic unit to receive hospitalized patients and visitors to the outpatient Department. In hospitals with a capacity of 400 beds or more, two departments are created: one for the reception of patients in the hospital, the other for the reception of visitors to the polyclinic Department.

The basic premises of the functional diagnostics Department are the offices of electrocardiography and vectorgraphic, oksigenatiu and capillaroscopy, electroencephalography, electrogastrography, determining the primary exchange, examination of the respiratory system and the endocrine system, endoscopy clinics etc.

The x-ray Department of the hospital is centralized and located taking into account the maximum reduction in the movement of staff and patients. Separate x-ray rooms are designed in infectious and tuberculosis departments, in the reception departments of hospitals with a capacity of 400 beds and more.

Radiotherapy rooms are placed in radiological departments. Entrances to the x-ray Department for patients of the hospital and visitors of the polyclinic Department should be separate.

One of the main rooms in the x-ray Department is procedural. In the immediate vicinity of it should be located darkroom.

In the presence in office of the x-ray therapy office except procedural the separate room for the control panel shall be provided. Between the control room and procedural rentgenoterapii cal office doing the viewing window of lead glass, SNI-housego dose rate irradiation up to the maximum allowable. Doors, walls, floor and control room should provide protection against x-rays of the main and adjacent rooms.

Fluorography room is designed for mass x-ray diagnostic studies. When it is expected with locker rooms. Cabinet for fluorography is arranged only in clinics and TB dispensaries.

Department of rehabilitation treatment (physiotherapy) is common for hospital patients and visitors to the clinic, but they are satisfied with separate entrances. The Department provides all types of treatment: electric, light, heat, water and mud.

The structure of the Department of rehabilitation treatment includes physical therapy rooms for individual lessons, gym, massage, etc.

Therapeutic department

This is the main structural unit of a multi-disciplinary hospital. Only treatment rooms are available for treatment.

Currently, as part of the departments of therapeutic profile there are highly specialized departments: cardiology, rheumatology, Nephrology, Hematology, gastroenterology, pulmonology and others, where new methods of diagnosis and treatment of patients with the use of complex medical equipment are widely used. In most specialized departments of therapeutic profile should be additional facilities for special studies and medical procedures.

Surgical department

The General requirements are

1. availability of convenient communication with the operating unit and diagnostic departments (clinical diagnostic laboratory, functional diagnostics Department, x-ray Department);

2. availability of an appropriate number of dressings and procedures;

3. organization of conditions for postoperative stay of patients in specially equipped wards, including for long-term anesthesia with resuscitation or therapeutic purposes;

4. exclusion of the possibility of contact of postoperative ("clean") patients and so-called "purulent" patients who had postoperative complications.

For patients with suppurative processes (phlegmon, abscess, extensive purulent wounds), purulent departments and a special operating room are allocated. All other patients are accommodated in clean rooms or sections.

The main feature of the Department of General surgery is the presence of the operating unit, and in large hospitals - operating departments.

The operating unit is an important structural unit of the surgical Department. Great importance is attached to its location and layout. It is more convenient to place the operating unit in a dead end, the end of the building or on a separate floor. At the

same time, convenient and short communication with the surgical departments, the reception Department and the x-ray room should be provided, if it is not part of the operating unit. The operating unit is never satisfied with the checkpoint. It needs to have two independent compartments: septic and aseptic. The operating unit includes: operating, preoperative, sterilization, anesthesia and other facilities.

The operating room should be designed on the basis of one operating table for 30 surgical beds. The height of the operating room shall be not less than 3.5 m, width-not less than 5 m, width of corridors in the operating unit-not less than 2.8 m.

Preoperative is designed for the last preparation of the surgeon and other medical personnel before the operation. From it, the surgeon should be able to observe the anesthetic and the operating room, where the patient is prepared for surgery.

Anesthetic-a room for the last preparation of the patient for surgery. It is also the workplace of the anesthesiologist. Sterilization in the operating unit is usually located between two operating rooms and serves to sterilize the surgical instrument.

Obstetrics and gynecology Department

Obstetric and gynecological departments are located in the same building, they should be isolated from each other and have independent entrances. The structure of obstetric departments (maternity hospitals) includes departments of pathology of pregnancy (25 30% of the total number of obstetric beds), birth and postpartum physiological and service departments.

The planning of the obstetric Department should ensure the isolation of healthy and sick women in childbirth. For childbirth and postpartum stay of postpartum women and newborns provides a separate Fi-Biologicheskie and observation Department. In the latter, the erysipelas with pustular skin diseases, influenza, angina, high temperature, with suspicion of infectious diseases are received.

Isolate these women in labor already in the emergency room, where there is a filter through which passes the woman in labor before entering the examination room. There should be two examination rooms: one for those entering the generic physiological, the other - in the observational Department. Each observation room has a sanitary treatment room with shower and toilet.

The premises for discharge of postpartum women postpartum physiological and observation departments have to be separate. The room for check-out mothers and newborns should be located next to the visitors ' room.

Infectious branch

Patients admitted to the infectious diseases Department not only for treatment but also for isolation. If it is properly organized, the possibility of the spread of nosocomial infections is excluded Infectious compartment rationally placed in a separate building. The internal layout and sanitary conditions of this Department have a number of features aimed at preventing nosocomial infections. For the reception of patients provided reception and inspection boxes with an area of 16 m^2. In the compartment with a capacity of 30 to 60 beds should be two boxes. Staff in the emergency Department infectious housing (Department) provides for the sanitary inspection room.

Space for discharge in the infectious ward should be pre-be considered for patients for each partition separately. The area of such premises is 8 m^2.

The box is a room with a total area of 22 m^2, in which there is a chamber, an entrance vestibule, a sanitary unit consisting of a toilet and a bathroom, and a gateway. It has a separate external entrance (exit) to the street. The patient enters the box directly from the street through a separate vestibule. The airlock connects the box with the hospital corridor. Through him in Boxing includes doctors, nurse, nurse. In the gateway the wash basin is placed, there is a disinfecting solution, a hanger for dressing gowns. For the transfer of food from corridors in Boxing arranged for a special wardrobe. Thanks to this layout, the corridor of the boxed Department can be considered as a neutral zone, and in the box it is possible to isolate patients with different infections. The boxes can also be designed for two beds of 27 m^2.

The half-box consists of the same rooms as the box, but has no external entrance (exit). Patients and medical staff enter the demi-box through the gateway from the hospital corridor. Half-boxes are also built on one and two beds. In the section consisting of half-boxes, there can be patients only with identical infectious diseases. The construction of infectious compartments with boxes creates the possibility of complete elimination of hospital infections.

In the boxes are placed primarily patients with unexplained diagnosis and mixed infection, with airborne infection of high contagiousness (measles, chickenpox). In poluboks place patients with respiratory infection relatively low contagiousness (epidemic parotitis, scarlet fever, diphtheria), and intestinal diseases.

In each ward section should also provide two half-boxes for one two beds. In each section it is necessary to have a full set of service rooms (procedural, buffet, dining room, sanitary unit).

Discharge facilities in infectious disease units are located separately for each unit.

Dishes of infectious patients are treated in a specially designated room for washing and sterilizing dishes next to the pantry.

Children's hospital or children's Department

Unlike adult hospitals or reception of children and discharge from the children's Department have some features. Admission of children is found in the reception Department, consisting of the reception and examination boxes, due to the high incidence of infectious diseases in childhood. In children's hospitals satisfied also box diagnostic unit, where they put children with suspected infectious disease, unclear diagnosis, etc.

The peculiarity of planning a children's Department (unlike an adult) is to create the possibility of complete isolation in the case of quarantine measures. In this regard, each children's ward section should be impassable to have a set of all necessary facilities and in case of detection of infectious diseases in the Department to be completely separate from others. So it is not allowed enterprises auxiliary facilities for the children's ward of partitions (dining room, butlers pantry, games room, etc.). In addition, a feature of the children's ward section is the mandatory presence of Boxing (Boxing ward, half-box) in case of temporary isolation of children with suspected infectious disease. In the children's ward section there should also be a veranda, there can be mothers ' wards, a room for pumping breast milk, etc.

Children's ward children up to 1 year are calculated on 30 children, with 1 post nurses have 10 people To service 30 children over 1 year can be arranged 2 nurse. Chambers are calculated on 2 - 4 beds. One-room ward for seriously ill children is

located near the post. The area of 1 bed in the house is 6 m^2. Rules of arrangement of beds, standards are the same as in adult office.

Polyclinic

Polyclinics should be placed in separate buildings or in buildings adjacent to the hospital. About 40% of all visits are to the therapeutic Department of the polyclinic and 20% to the surgical Department. For patients there should be an independent entrance to the building, independent from the entrance to the hospital.

The main premises of the polyclinic are medical, medical and diagnostic rooms, waiting rooms for patients, registry, Vesti-bul with dressing room. The lobby is designed with walk-in closet at the main entrance. The registry is designed 8 m^2 per Registrar.

Waiting rooms at the offices are designed 1.2 m^2 for each patient waiting for admission. Isolated aidline eliminating the PWM in obstetric and gynecology, tuberculosis, dermatological and psychiatric offices. Expected Orient to the South. Medical offices should be oriented to the North.

The polyclinic Department for children is completely isolated from the Department for adults. Children come through a filter in which the nurse asks parents about the condition of the child, examines the skin and mucous membranes, measures the temperature. Children with fever and signs of acute contagious disease are sent from the filter to the box. Called a doctor examines a sick child in the box. Children without signs of acute illness and with normal temperature are sent from the filter to the General Department, where there is a lobby with a dressing room, a registry and two groups of offices of district pediatricians with their expectations.

From the lobby of the children's clinic should be provided access to the street, so that children entering the clinic and going home, do not intersect.

The composition of clinics may include the following units: x-ray Department, laboratory, Department of therapeutic, surgical and orthopedic dentistry, Department of deworming, allergological office.

Protective regime of medical institutions

It involves the creation of optimal hygienic conditions for the stay of patients in

the hospital. Without the creation of such conditions, it is impossible to expect satisfactory results of treatment of patients.

General requirements to ensure the quality of the hospital environment include:

- a favorable microclimate in the premises;
- no air pollution;
- sufficient insolation and illumination of the premises;
- noise elimination;
- creating an environment of peace, comfort and favorable aesthetic impressions.

The microclimate of hospital rooms, comfortable conditions of microclimate are provided by systems of heating and ventilation, air conditioning devices of separate rooms.

Special requirements are imposed on the organization of air exchange of operating units in connection with the problem of preventing the spread of WBI. The movement of air flows should be organized from the operating room to the adjacent premises (preoperative, anesthetic, etc.), and from them — into the corridor where the exhaust ventilation device is necessary.

It is necessary to provide isolated ventilation systems for clean and purulent operating rooms, for labor units, intensive care units, dressing rooms, x-ray rooms, etc.

The level of natural light (as well as insolation) of the room is determined primarily by the orientation of the Windows on the sides of the horizon. The premises of health facilities, designed for long-term stay of patients (wards, day rooms, waiting rooms, etc.), it is advisable to focus on the southern and South-Eastern side of the horizon. This creates the best conditions of illumination and insolation.

A number of premises of health facilities, on the contrary, should be protected from possible overheating (mortuaries, brewhouses and kitchens, storerooms, etc.) and therefore focus on the Northern side of the horizon. The same orientation is preferred for operating rooms, dressings, manipulation rooms, laboratories, sections and other rooms to prevent the blinding effect of sunlight and the rave pen in the summer season. Other rooms may have different orientation.

Artificial lighting should correspond to the purpose of the interference and be sufficient.

Currently, much attention is paid to the emotional and psychological state of patients. It is believed that a good emotional and psychological state of the patient largely contributes to his recovery, so the hospitals are now trying to create an environment of peace, comfort and favorable aesthetic impressions. In this regard, hospitals are currently allowed to use, upholstered furniture, carpets, paintings, flowers and other items that create a sense of comfort. There is even an opinion that instead of white bed linen and dressing gowns it is necessary to use color.

Issues of organization and control of the hospital environment are very closely related to the problem of prevention of nosocomial infection.

Hospital-acquired infections and their prevention

According to the definition of the world Health Organization (who), "hospital - acquired infection is any clinically expressed disease of microbial origin that affects the patient as a result of hospitalization or hospital visits for the purpose of treatment, as well as hospital staff by virtue of their activities, regardless of whether the symptoms of this disease are manifested or not during the stay of these persons in the hospital."

The problem of prevention of nosocomial infections (IUI) is currently relevant for all countries of the world - economically developed and developing, with a transitional, unstable or backward economy. This is due to the fact that the nature of VBI is determined not only by the lack of socio-economic security of the medical sphere, but not always predictable evolutions in both macro-and microbiocenoses (including under the influence of the ecological press), the dynamics of relations between the host and microflora. The growth of VBI at some stage may be a consequence of the progress of medicine in the use of new diagnostic and therapeutic drugs and other medical means, in the implementation of complex manipulations and surgical interventions, the use of progressive but insufficiently studied techniques.

The damage associated with in-hospital morbidity consists of the lengthening of the time of stay of patients in the hospital, the increase in mortality, as well as material

losses.

Sources of nosocomial infection are sick and bacillicarriers among patients and staff of hospitals. Among them, the greatest danger is represented by medical personnel belonging to the group of long-term carriers and patients with erased forms, as well as long-term inpatient patients who often become carriers of resistant nosocomial strains. The role of the visitors to the hospitals as sources of nosocomial infection and it is generally agreed, is recognized extremely small.

Ways and factors of transmission of VBI are very diverse, which makes it difficult to find the causes of diseases. It can be infected (contaminated) tools, medical equipment, linen, bedding, as well as contaminated patient care items, insufficiently disinfected suture and dressing material, drains, transplants, solutions for transfusion (blood, blood-substituting, etc. liquids), overalls, shoes, hair and hands of patients and staff, disinfectants with low concentration of the active agent, etc.

Particularly dangerous procedures are blood transfusion (serum, plasma), injection (from subcutaneous to intraosseous), organ and tissue transplants, operations, intubation, inhalation anesthesia, catheterization of blood vessels, urinary tract, hemodialysis, etc.

In a hospital environment, dangerous reservoirs of pathogens can form, in which the microflora multiplies for a long time.

Especially dangerous is the formation of bacterial carriage among patients and medical staff. Carriage of Staphylococcus aureus is widespread among physicians and occurs in 40-50% of doctors, 60 -70 % of nurses and 80 -90% of hospital nurses

Classification of VBI

1. Depending on the ways and factors of transmission are the following VBI:
    - airborne (aerosol),
    - water-alimony,
    - household contact,
    - contact-instrumental,
    - post-injection,
    - postoperational,

- postpartum,
- posttransfusion,
- post-traumatic infections and other forms.

2. Clinical classification depending on the pathogen: diseases caused by obligate-pathogenic and opportunistic microorganisms.
3. Depending on the nature and duration of the flow isolated:
   - acute,
   - subacute,
   - chronic.
4. On severity distinguish:
   - heavy,
   - medium-heavy,
   - mild forms of clinical course.
5. Depending on the degree of infection is isolated:
   - systemic infection (bacteremia, viremia, midkemia, septicemia, pyosepticemia, etc.),
   - localized infections.

All premises, equipment, medical and other equipment of medical institutions must be kept clean. Wet cleaning of premises (washing floors, cleaning furniture, equipment, window sills and doors should be carried out at least 2 times a day with the use of detergents (soap and soda solution) and disinfectants. Washing of window glasses should be carried out at least 1 time per month - from the inside and as pollution, but not less than 1 time in 4-6 months. out. Use for wet cleaning of synthetic detergents is not allowed.

The operating unit should be provided for wall decoration, painting of the ceiling and other parts of the room, as well as floor covering with materials that ensure the effectiveness of washing and disinfection treatment. In the strict regime zone, daily wet cleaning is carried out with the use of disinfectants (after the end of operations), once a month - General cleaning. In the area of sterile regime General cleaning is carried out weekly.

Effective anti-epidemic measures is the planned closure of surgical, obstetric and intensive care units of a hospital of not less than 1 time per year to conduct a thorough sanitary processing.

The medical staff of medical institutions should be provided with sets of removable sanitary clothing: bathrobes, hats, shoes. Storage of daily change of sanitary clothes is carried out in individual lockers. Available should always be a set of sanitary clothes for emergency replacement in case of contamination. Students who are engaged in maternity departments, infectious diseases Department and operating units should be provided with replaceable overalls of medical institution.

The personnel of the operating and maternity unit before starting work must undergo sanitary treatment and wear clean clothing, which works in the strict regime zone for one day. Participants of the operation work in sterile clothes worn after surgical treatment of hands in the operating room. In the maternity hospital and in the operating room, the staff should work in masks, preferably and use sterile masks for single use.

In the delivery room, the delivery is carried out alternately on different beds. After birth, the weight of the objects used are treated with a disinfectant solution. In the boxed maternity unit, each birth is carried out in a separate box (alternately in all boxes), after which the box is cleaned according to the type of final disinfection. For primary processing newborn baby is obligatory sterile individual kit.

In the delivery room, it is necessary to apply the newborn to the mother's breast within the first half hour after birth (in the presence of relative contraindications, a short - term application for 10 to 30 seconds is possible, which provides an early guaranteed settlement of the newborn organism with maternal strains of microorganisms, which prevents the colonization of the baby with hospital strains. When caring for a newborn, sterile linen, sterile cotton swabs (in separate packings) are used.

Treatment of children with signs of infection in the neonatal Department, as well as their transfer to the observation Department is prohibited. They must be removed from the obstetric hospital on the day of diagnosis. After discharge of puerperas and children in the vacated chamber (chambers), cleaning is carried out – final disinfection,

bedding is subjected to chamber disinfection.

In the detection of pustular diseases, bacteriuria, ARI personnel should be suspended from participation in operations and contact with patients until full recovery.

Before and after each manipulation, medical personnel must wash their hands thoroughly.

Upon admission to the hospital, patients must undergo special sanitary treatment in the reception Department.

Great attention should also be paid to nutrition in hospitals. There are centralized and decentralized system of organizing power. In a centralized system in the Central food Department of the hospital made ready meals, which are then delivered directly to the Department, where they are heated and distributed to patients. With this system, the dishes are prepared in advance, they are stored in the kitchen for some time, the food is shifted from one dish to another several times, transported (often on the street), cooled and heated. In this case, to a large extent, the taste of food is lost, its vitamin value is reduced, in the process of delivery, contamination of ready meals is possible. With a decentralized system, semi-finished products are prepared at the Central food unit, and in the departments, kitchens are equipped, in which semi-finished products are relatively quickly made ready-made dishes, which are immediately distributed to patients. With this system, the nutritional value of the diet is significantly improved. When organizing meals in hospitals, it should be borne in mind that at present there is a very advanced thermal technology that allows you to quickly and efficiently carry out the production of meals for food (various kinds of machines for cooking, microwave ovens, etc.).

The catering unit should be placed in a separate building, not a block-bathroom with the main building, with convenient ground and underground transport links (galleries) with other (medical) buildings. In the pantry in each office shall be provided with two separate rooms: for warming and distribution of food (not less than 9 m2) and washing dishes (at least 6 m^2). Food distribution to patients and produce the barmaid on duty nurses of the Department. Distribution of food should be made in labelled "for distribution of food". Control of distribution of food according to the appointed diets is

exercised by the senior nurse. It is not allowed to involve in distribution of food the younger service personnel.

Sanitary and hygienic requirements for the device, equipment, maintenance of the food unit, buffet offices, cooking and sale of food products are provided for by the relevant Sanitary rules and norms.

Prevention of nosocomial infections

In modern hospitals around the world, one of the most important tasks is the prevention of nosocomial infections (IUI). There are cases when a sick person enters the hospital, being in the incubation period of an infectious disease. The infection can be brought also by the personnel who are the carrier of pathogenic agents.

The danger of VBI is that they aggravate the General condition of patients, lengthen the duration of treatment, increase mortality, require additional economic costs.

The fight against VBI is difficult, as pathogens circulate in the hospital environment, virulent, resistant to many drugs, such as antibiotics.

Prevention of nosocomial infection

1. **Non-specific activities**:
   - architectural planning;
   - sanitary facilities;
   - sanitary and anti-epidemic;
   - disinfection and sterilization.
2. **Specific prevention is immunization (planned and emergency)**.

Architectural and planning activities:

- zoning of the hospital area;
- rational placement of the offices on the floors and buildings;
- isolation of sections, chambers, operating units, etc.;
- compliance with the flow of patients and staff.

Sanitary and technical activities- is a rational system of ventilation.

Sanitary and anti-epidemic measures:

- health education for patients and staff;

- monitoring of sanitary conditions and hospital regime;
- identification of carriers of pathogenic microflora;
- control of bacterial contamination of hospital environment.

Disinfection and sterilization measures:

- use of chemicals;
- mechanical treatment;
- use of physical methods.

THE MAIN HARMFUL FACTORS OF WORKING CONDITIONS AND PREVENTION OF THEIR IMPACT ON ORGANISM OF WORKERS

The specifics of work, conditions and content of work of medical workers are associated with the impact on the body of a number of unfavorable professional factors that threaten their health, leading to the emergence of diseases, disability, and in some cases-to the immediate threat to their lives.

The main harmful production factors for Mr may be by nature:

- chemical,
- physical,
- biological,
- neuro-emotional,
- ergonomic.

Contribute to the emergence of diseases increased sensitivity of the body of the employee, the lack or inefficiency of means of individual protection, contact with infected patients, imperfection of tools and equipment.

Chemical

Chemicals are the most common adverse factor in the working environment of health workers is the aerosol of drugs (disinfectants and drugs that enter the body, usually by inhalation. The effect of the chemical factor is relevant for all medical institutions and their departments, but it is especially important for pharmacies, laboratories of various profiles, operating rooms, treatment rooms.

Chemicals are widely used in health care settings and can cause acute and chronic effects.

Working with chemicals leads to the development of long-lasting allergies with a tendency to relapse, toxic changes in the Central nervous system and cardiovascular system, increase in the activity of fungi of the genus Candida.

Constant and direct contact of Mr with antibiotics and CITO-statics leads to allergization of the body, the development of immuno-deficits.

The medical staff passes preliminary and 1 time a year periodic medical examinations. Persons with hypersensitivity to the chemicals used are not allowed to work. All works related to disinfection, pre-sterilization cleaning and sterilization by chemical means are carried out in special rooms equipped with supply and exhaust ventilation.

When performing all manipulations associated with the use of biologically active drugs, medical workers should use overalls (CO) and personal protective equipment (PPE). Necessary clothing that covers the skin (surgical gown, cap, kerchief, rubber surgical gloves). Respirators should be used for respiratory protection.

Ward (guards) nurses in the distribution of medicines to patients should use tweezers when issuing tablets and rubber surgical gloves when dosing solutions of medicinal substances.

In order to prevent occupational diseases caused by drugs, it is necessary to carry out a constant purposeful sanitary and educational work among secondary medical personnel by physicians and hygienists.

Pregnant nurses should be released from work with highly active drugs and allergens from the moment of pregnancy establishment.

Physical factor

The main adverse physical production factors are:

- noise;
- General and local vibration;
- infrasound;
- air and contact ultrasound;

- presence of magnetic and electric fields;
- static electricity;
- laser and ionizing radiation;
- ultraviolet radiation;
- adverse microclimate parameters;
- insufficient illumination.

Industrial noise

The main source of noise in hospitals, clinics, outpatient clinics, dispensaries and sanatoriums is medical equipment. In addition, noise can be generated by transport and provided that the medical unit is located on the territory of the industrial facility with production equipment.

The main adverse effects of noise levels that exceed the maximum permissible levels (MPD) and are actually encountered in health facilities are interfering, irritating and distracting effects. This can lead to errors in the work of personnel, its increased fatigue, sleep disturbance.

Overall vibration

In medical institutions, the General vibration can generate both external sources-urban rail transport and vehicles, rail transport, and internal - Elevator equipment, ventilation, refrigerators, vacuum cleaners. The greatest impact of the General vibration is exposed to personnel working on ambulances, emergency and specialized care. The impact of General vibration makes the work of personnel difficult and can affect the operation of high-precision equipment.

Local vibration

The most significant source of local vibration for medical personnel is the equipment of dental offices.

Local vibration can lead to rapid fatigue of the hands, and with prolonged exposure to levels exceeding the remote control, and to the development of occupational disease - vibration pathology.

Infrasound

For medical institutions are mainly characterized by external sources of infra-

sound. The internal sources include the operation of fans. Infrasound has a pronounced masking effect and can significantly complicate the work of staff.

Ultrasound

Ultrasound is widely used in medicine-in the diagnosis (ultrasound), physiotherapy, surgery (for cutting tissues, anesthesia, sterilization of the instrument), etc.when working with ultrasound sources, it can have an adverse effect on workers (in particular, on the hands).

Electromagnetic fields and static electricity

The main sources of electromagnetic fields and static electricity in medical institutions are:

- a personal electronic computer;
- video display terminals.

Laser radiation

Laser installations are widely used in medicine, in particular, in surgery.

Class I lasers include lasers whose output radiation does not pose a danger to the eyes and skin.

To the class II lasers are lasers, the yield-ing radiation which poses a risk for exposure of the eyes to the direct or specularly-reflected radiation.

Class III lasers include those whose output radiation is dangerous when irradiating the eyes with direct, mirror-reflected, and diffusely reflected radiation at a distance of 10 cm from the diffusely reflecting surface, and (or) when irradiating the skin with direct and mirror-reflected radiation.

Class IV lasers are those whose output radiation is dangerous when the skin is exposed to diffusely reflected radiation at a distance of 10 cm from the diffusely reflecting surface.

When exposed to laser radiation on the human body may develop both primary and secondary biological effects. Primary-this organic changes that occur directly in the irradiated tissues; secondary-nonspecific changes that occur in response to irradiation of the body. The target organs for laser radiation are the skin and eyes.

Persons under 18 years of age who have undergone a preliminary medical ex-

amination and do not have medical contraindications should be allowed to work with lasers.

Ionizing radiation

The main sources of ionizing radiation in medical institutions are x-ray and radiotherapy units, as well as radionuclides used for diagnostic purposes.

Ionizing radiation when exposed to the human body can cause two types of effects: deterministic threshold effects (radiation sickness, radiation burn, radiation cataract, radiation infertility, etc.) and stochastic (probabilistic) effects (malignant tumors, leukemia, hereditary diseases).

Ultraviolet radiation

The main sources of ultraviolet radiation in medical institutions are mercury-quartz lamps, which are used due to their bactericidal action in the operating rooms and in treatment rooms. Another source of ultraviolet radiation - installation in physiotherapy rooms.

The pronounced effect of ultraviolet rays on the skin can lead to dermatitis with diffuse eczema. There is also the damage to the eyes.

Due to the impact of a complex of physical factors, the parameters of which often go beyond the normalized limits, the work of a health worker belongs to the III class of hazard II-III degree.

Neuro-emotional factors

The provision of medical care is associated with the constant need to make important decisions (sometimes - in a matter of seconds), with responsibility for the lives of patients. Up to 50% of Mr note the presence of stressful situations arising at work.

Psychophysiological studies define the work of Mr as intensive, mental, accompanied by neuro-emotional stress; developing in the process of fatigue accompanied by a feeling of significant fatigue, all this gives reason to attribute the work of Mr to the IV category of severity.

To relieve stress and reduce psycho-emotional stress should be organized rest rooms and psychological relief (CPR) for categories of workers, whose work is ac-

companied by a pronounced neuro-emotional tension (operating surgeon, doctors-Chi-resuscitators, emergency physicians and intensive care units, etc.).

Ergonomic factors

Ergonomic analysis of working conditions indicates significant shortcomings in the organization of jobs Mr. Due to the specifics of their work, the staff up to 30% of working time is in a forced position, as a result of the inclination of the body there is compression and displacement of internal organs, compression of large vessels and nerve trunks of the thigh, the excursion of the chest decreases, a large static load falls on the muscles of the upper shoulder girdle and spine. Ego leads to rapid fatigue of the links of the musculoskeletal system, bearing the main load, the development and manifestation of the pathology of the musculoskeletal system.

The workplace of Mr shall be organized taking into account ergonomic and hygienic requirements to production furniture and working poses of the doctor.

Biological factor

The health hazard of Mr is caused by the possibility of infection in contact with patients, biological samples, secrets and excreta.

The risk of transmission between patients and Mr differs depending on the nosological form and specifics of the hospital. Some infectious diseases can be considered as occupational diseases of Mr (viral hepatitis B, HIV infection, tuberculosis, diphtheria, etc.).)

To protect Mr from the effects of biological factors and reduce the risk of infection is necessary:

- use of personal protective equipment-masks, gloves, glasses, robes, etc.;
- safe handling of sharp stabbing and cutting tools;
- carrying out disinfection and sterilization of medical instruments of repeated use in strict accordance with the current instructions, recommendations;
- preferred use of safe (non-traumatic) instrumentation replacement technology for traumatic atraumatic.

In medical institutions, regardless of their specialization, all categories of med-

ical personnel are affected by unfavorable factors of the state environment: a variety of chemical and pharmacological substances, circulating biological agents, nervous and emotional stress, the possibility of injury, daily mode of rhinitis. But in each unit there are specific hazards due to the nature of the work performed.