# Topic 2.3. Preparation of medical institutions for work in an emergency

**Electronic training manual for students of the 5th and 6th year in the discipline "Emergency Medicine"**

# Questions

**1. Measures to improve the resilience of health facilities to work in emergencies.**
**2. Measures to prevent and eliminate the consequences of emergencies in the hospital.**
**3. Organization of the work of the hospital in emergency situations.**
**4. Evacuation of medical facilities.**

# Question 1. Measures to improve the resilience of health facilities to work in emergencies

**An important role in fulfilling the tasks of medical and sanitary provision of the population in emergencies belongs to healthcare facilities: hospitals, clinics, Rospotrebnadzor centers, blood transfusion stations, pharmacies and pharmacy warehouses.**

**The solution of tasks for the health care provision of the population in emergencies largely depends on the readiness, degree of stability of the functioning of healthcare facilities, and the organization of interaction between them.**

**Medical and technical requirements, which are divided into general and special, are imposed on existing or planned for the construction of healthcare facilities.**

**General medical and technical requirements include requirements specific to healthcare facilities and implemented in all projects.**

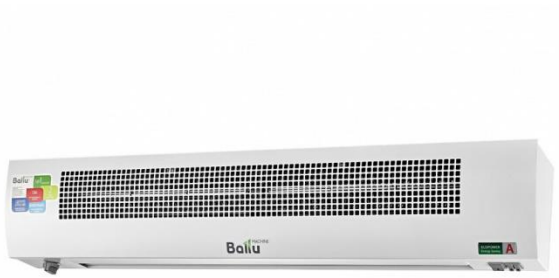
**Special requirements include requirements that depend on natural factors (seismicity, permafrost, low groundwater, etc.), on the region of development (proximity to nuclear power plants, chemically hazardous facilities, explosion and fire hazardous facilities, etc.), on type of institution (hospital, clinic, blood transfusion station, etc.).**

**When defining a system for the reliability of power supply and electric lighting for health care facilities, emergency lighting options using mobile power plants installed outside buildings or in protective structures and providing connection to networks inside the building should be considered.**

**The power of the substation (30 kW or more) is used primarily for lighting operating rooms (birth), dressing rooms, resuscitation rooms, ICU, sterilization rooms, as well as for connecting portable electric lamps in the admissions department, wards and corridors using spare sockets. Particular attention is drawn to the technical devices for connecting to electrical networks, their ability to withstand sharp fluctuations during an earthquake (in seismically hazardous areas).**


**Emergency heat supply is provided by the creation of gas reserves in cylinders and other types of fuel (for boilers or furnaces) during the period of restoration of the main source of heat supply, as well as the possibility of supplying gas from external networks using flexible couplings and special devices.**

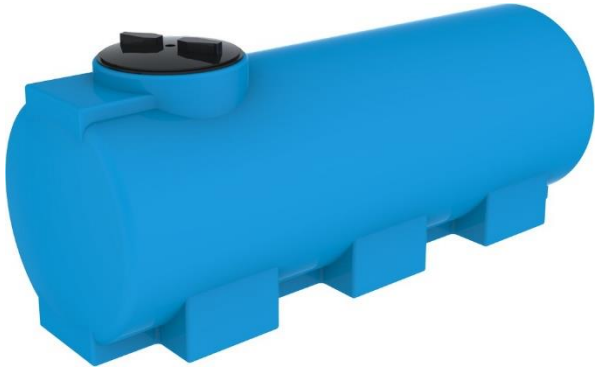

**Thermal a gun**




**Thermal veil**

**Bake "potbelly stove"**

**Water supply in emergency situations is provided by creating stocks of drinking water at the rate of 2 liters per day per patient (injured) and technical water - 10 liters per day per bed. Emergency tanks are installed in the upper part of the building or in a separate water tower (pool). It is possible to supply water using pipelines (flexible hoses) from external networks or mobile devices using special connecting structures.**



Water tank plastic

Water pressure tower

Water tank metallic

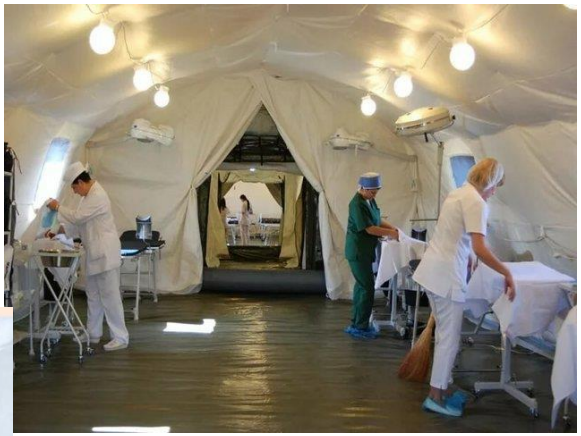
**The sewerage system in medical facilities, which according to the plan are intended to receive the affected from the territories located on the trace of the radioactive cloud, should ensure decontamination taking into account the safety for personnel and the environment (special sedimentation tanks in the system of treatment facilities).**

**When designing health facilities that can receive those affected after exposure to radioactive substances, it is necessary to comply with the requirements corresponding to class II work with radioactive sources.**

**To protect the buildings of health care facilities from RW and RH, smoke and other harmful factors, the maximum possible tightness of the interior is created with closed windows; the ventilation system should, if necessary, create air overpressure in the wards, operating rooms and procedural rooms and have a filter system in the air intake areas.**

**The nosocomial safety system against damaging factors (flammable and explosive substances, devices and materials; AHOV and RV; materials containing bacteria, viruses and fungi pathogenic to humans) should be planned and created in such a way that the sick and injured do not have contact with the listed factors . This is achieved by the rational distribution of the flows of patients and attendants, as well as the rational placement and equipment of the corresponding premises of the hospital, the creation of a ventilation system and locks that prevent the spread of harmful factors outside the working premises.**

**To protect patients in stationary institutions, it is planned to build protective structures in accordance with SNiP P-11-77.**



**The means of communication in the hospital should provide a constant possibility of quickly sending an alarm signal to all rooms where patients and staff are located, via a radio network or other public address system.**

**The shift on duty, headed by the hospital management, is equipped with portable portable communications equipment for working inside the building and outside it within earshot. The same means of communication can be used when medical teams go to emergency situations.**

**In large health facilities, it is necessary to have an automated system for registering those affected and a data bank on case histories.**

**The system of emergency evacuation of patients should be supplemented with individual rescue devices that can be used in case of violations of the evacuation in the usual way: through the windows on the first floor, and starting from the second and above - using ladders, emergency ladders, special nets or other devices that allow a person to be lowered onto safe area.**

**The most important element of the sustainability of the work of health care institutions are the reserves of medical property, which are created in case of emergencies.**

**Medical property includes: medicines, antidotes, radioprotectors, medical devices, medical equipment, disinfectants and other consumables, means of transportation, autonomous power supplies for devices, etc. They are accumulated according to the equipment tables for medical units created for the period of emergency .**

**In the construction project of healthcare facilities, it is necessary to provide special storage facilities for storing these sets of property in stacks. These rooms should be located on the first floor near the reception area.**

**For institutions such as ambulance stations, blood transfusion stations, centers of the State Sanitary and Epidemiological Supervision, in addition to the general requirements for the stability of their work, warehouses with refrigerators (chambers) are necessarily provided, the capacity of which is determined by the need for storing drugs that require temperature control.**

**Compliance with these requirements, taking into account the characteristics of the institution, will largely increase the stability of its functioning in the event of any emergency.**

# Question 2. Measures to prevent and eliminate the consequences of emergencies in the hospital


Начальник ГО объекта - главный врач больницы
Начальник штаба ГО, зам. главного врача по медицинской части (по ГО ЧС)
Ч Л Е Н Ы Ш Т А Б А
Зам. главного врача по лечебной работе (председатель эвакокомиссии)
Зам. главного врача по хирургии
Зам. главного врача по материально - техни - ческому обеспечению
Помощник начальника ГО объекта по медснабжению (Зав аптекой больницы)
Секретарь эвакуационной комиссии (Зам. главного врача по кадрам)
Зам. председателя эвакуационной комиссии (инженер по медтехнике или инженер метролог больницы)
Стационар для не траспортабельных больных
Формирования ГО общего назначения, склады, СИЗ и др.
Несниженные запасы медимущества, МСИЗ и др.
Эвакуационная комиссия
Главный инженер (механик) больницы
Комендант штаба ГО (инженер по эксплуатации зданий больницы)
Технические работники штаба ГО (медстатистик, машинистка и др.)
Представители от общественных организаций больницы

**The general tasks for all healthcare facilities to prevent the consequences of emergencies are:**

- **forecasting a possible situation and its assessment in the event of an emergency;**
- **planning the operation of the facility in emergency situations;**
- **organization of measures to prepare the object for work in emergency situations;**
- **organization of protection of personnel and material assets from the impact of damaging factors, taking into account the predicted situation;**
- **increasing the stability of the operation of the facility in emergency situations.**

**To organize and conduct these events in the hospital, an emergency commission is created, which is headed by the chief physician or his deputy for medical work.**

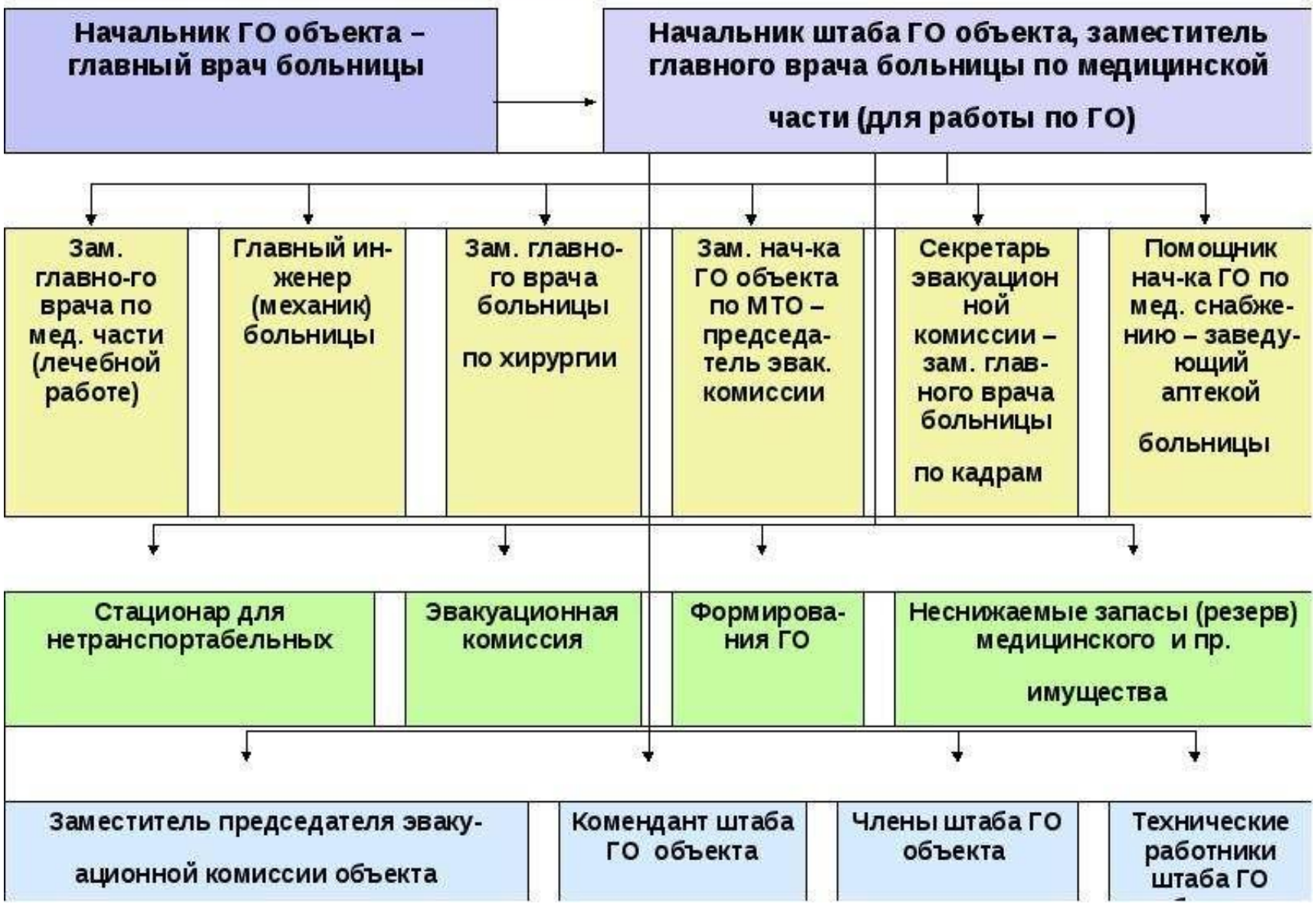
**Responsibility for the creation and training of management bodies and units in the hospital for work in emergency situations lies with the chief physician, who, by position, is the head of the civil defense of his facility.**

**In hospitals, by order of the head of the civil defense facility, a management body will be created - the headquarters of the civil defense facility.**

**The composition of the headquarters is determined depending on the structure of the hospital, its capabilities and tasks to be solved in emergency situations.**

**It is composed of key executives who are assigned functional responsibilities in accordance with the nature of their daily work.**

# Организация штаба ГО больницы



**To ensure the planned, targeted preparation of the hospital for work in emergency situations, its management is given a task.**

**It briefly outlines the possible situation within the boundaries of the administrative territory in the event of an emergency. This is necessary so that the hospital staff can draw the appropriate conclusions and use them when planning events.**

**The task determines: what medical units and with what period of readiness to create, the procedure for their provision with medical and other property, transport.**

**Taking into account the profile of the hospital, its capabilities, it is prescribed: what profile of the affected and in what quantity should be taken, the period of readiness for admission and the time during which it is necessary to carry out the reception, the procedure for further evacuation of the affected.**

**These data are necessary so that the hospital staff can most rationally plan the emergency discharge of patients under treatment, re-profile medical departments, deploy a reception and sorting department on the basis of the admission department, and prepare other departments, taking into account the possible profile of the arrival of those affected in emergencies.**

**Having received the task, the chief of staff prepares a draft order for a medical institution, according to which the entire staff of the headquarters and the personnel of the departments involved in the elimination of emergencies are involved in the work.**

**The work of the headquarters is organized depending on the operating modes of the hospital.**

**In the mode of daily activities, the headquarters develops plans for protection against damage by radioactive, toxic substances and biological agents, organizational issues for the provision of medical care in predicted emergencies in accordance with the assigned tasks; conducts training (education) of the personnel of formations and sanitary and educational work; organizes activities to prepare the hospital for sustainable operation in emergency situations.**

**In the event of a threat of an emergency (high alert mode), the following measures are taken:**

- **notification and collection of hospital staff;**
- **the introduction of round-the-clock duty of the management team;**
- **establishment of permanent surveillance, clarification of the order of operation of observation posts, issuance of personal protective equipment, radiation and chemical reconnaissance devices to personnel;**
- **preparing the hospital to receive the injured;**
- **forecasting the possible situation on the territory of the hospital;**
- **checking the readiness of government bodies and medical and nursing teams to provide medical care to those affected in the disaster area and medical care for the population in their places of residence (concentration);**
- **strengthening control over compliance with fire safety rules at the facility and the readiness of fire extinguishing units;**
- **increasing the protection of the hospital from damaging factors;**
- **checking the readiness of the forces and means of the hospital for evacuation to a safe place;**
- **laying of medical property in shelters of the city and objects of the national economy, in hospitals for non-transportable;**
- **clarification of knowledge by medical personnel of the features of the pathology of the lesion by possible factors of the expected emergency.**

**In the event of an emergency (emergency situation), the following measures are taken:**

- **the superior manager is informed about the incident and the ongoing activities;**
- **collection and notification of employees;**
- **organized medical intelligence;**
- **forces and means of the hospital are advanced to the disaster area;**
- **the release of the bed fund from the lightly ill and the additional deployment of hospital beds continues;**
- **personal and medical protective equipment is issued, emergency prophylaxis, vaccination, etc. are carried out (according to indications);**
- **organized (if necessary) evacuation to safe places of personnel and patients, chain property and documents of the hospital;**
- **personnel and patients are sheltered in protective structures;**
- **the procedure for further evacuation of the affected is specified;**
- **organizing the provision of medical and other types of assistance to affected employees and patients of the healthcare facility;**
- **maintenance of public order, monitoring of the environment;**
- **interaction is maintained with other services, local health authorities, headquarters for civil defense;**
- **disinfection of the territory of the disaster area, examination of water, food and other activities are carried out**

## The content of activities in case of a threat of emergency situations directly within the boundaries of the hospital (in case of fires, explosions, floods, terrorist acts, etc.), at other facilities close to the hospital

- **bringing to readiness in due time the management body - the headquarters of the LU;**
- **alerting medical units in a timely manner;**
- **alerting general purpose civil defense units designed to protect patients and staff, conduct rescue operations on the territory of the hospital; determining the order of their use;**
- **the allocation of medical personnel for the additional staffing of medical units and diagnostic and treatment units of other hospitals;**
- **allocation of medical personnel and medical property for the purpose of medical and sanitary support of the population during its evacuation from the city;**
- **conducting SMG and PEM;**
- **determining the procedure for the use of personnel and vehicles in hospitals that include air ambulance and ambulance transport;**
- **additional staffing of the hospital with property, transport;**
- **alerting protective structures;**
- **evacuation of hospitals from cities (if it is provided) and deployment in a suburban area as part of a hospital base;**
- **organization of protection of personnel and patients, family members of the hospital staff;**
- **measures taken on the territory of the hospital to eliminate the consequences of emergencies when they occur on the scale of the hospital and in emergencies of the territorial or regional level;**
- **reception of the injured (sick) in the event of an emergency, the provision of specialized, including high-tech medical care and treatment.**

# Question 3. Organization of the work of the hospital in emergency situations

**In the event of an emergency, the hospital can solve two tasks that are different in content.**

1. **If the hospital is exposed to the damaging factors of an emergency, then it is necessary first of all to ensure the protection of patients, personnel, unique equipment, other material means and, depending on the situation, begin to provide medical care to the injured, including their own staff, as well as patients that can be exposed to damaging factors.**
2. **If the hospital is not exposed to the damaging factors of emergencies, it, in accordance with the existing task, alerts the medical units of the QMS created on its basis, reprofils the bed network of some departments, ensures the reception of the injured and the provision of specialized, including high-tech medical care. The medical units created in the hospital are used in accordance with the current situation and the order received from the higher health authority.**

**Having received information about the threat of an emergency, the responsible duty officer for the hospital activates the scheme for alerting and gathering the management team and at the same time takes measures to implement the activities provided for by the plan:**

* **higher health authorities are notified;**
* **the work of the civil defense headquarters of the facility is organized and specific tasks are set for subordinates;**
* **appropriate formations are brought to readiness to advance;**
* **an observation post for radiation and chemical reconnaissance is set up;**

* **on the street and inside the building, a picket line is established indicating the direction of movement of the flow of the affected;**
* **PPE and MSIZ, as well as means of collective protection of personnel and patients, are brought to readiness;**
* **if necessary, the protective properties of the hospital building (windows, doors, etc.) are increased;**
* **the lists of patients who can be discharged for outpatient treatment are specified;**
* **measures are being taken to increase the hospital's bed capacity for the affected, not only by discharging patients, but also by using additional space (staff rooms, corridors, etc.);**
* **increase in the number of staff in the admissions department; the knowledge of the personnel of the instructions for the reception and sorting of the injured, the readiness of the sanitary checkpoint to carry out emergency and PSO, the availability of an exchange fund are checked;**
* **in the surgical dressing department, in the intensive care unit and intensive care, measures are being taken to increase the bed capacity and increase the throughput. An additional number of operating rooms, dressing tables, tripods and other devices for fixing infusion equipment, oxygen equipment, etc. are being installed;**
* **24/7 medical personnel are on duty. If possible, pensioners, senior students of medical educational institutions are involved in the work;**
* **the replacement of medical personnel departing as part of the formations is being carried out;**
* **the availability of emergency lighting and water supply is checked.**

**Depending on the bed capacity, city hospitals are divided into categories:**

- **the first category includes hospitals with a regular bed capacity of 800 to 1,000 beds;**
- **to the second - from 600 to 800;**
- **to the third - from 400 to 600;**
- **to the fourth - from 300 to 400;**
- **to the fifth - from 250 to 300;**
- **to the sixth - from 200 to 250;**

**City hospitals are very large and small are considered out-of-category.**

**According to the experience of domestic and foreign healthcare, as well as WHO, the following tasks are usually assigned to a city hospital:**

- **medical and rehabilitation (emergency care, treatment, rehabilitation of patients);**
- **preventive, especially for hospitals combined with a polyclinic (medical and health-improving activities, prevention of infectious and chronic diseases, etc.);**
- **educational (training of medical personnel);**
- **research;**
- **provision of medical care in emergency situations.**

# Activities carried out in the hospital on a daily basis activities

**The hospital is one of the EME in the system of L EO affected (patients) in emergency situations.**

**It is designed to provide specialized, incl. And high-tech medical care, and when combined with a polyclinic, outpatient care and treatment of the injured, delivered from the centers of emergency situations.**

**Depending on the category of the hospital, their purpose for working in emergency situations, they can be divided into basic, reserve and auxiliary.**

**The basic hospitals include multidisciplinary out-of-category, categories 1 and 2, which can provide reception of those injured with trauma, poisoned from the centers of chemical, radiation accidents and provide them with medical care during the first hours.**

**Reserve hospitals, multidisciplinary hospitals, categories 2 and 3, which are preparing to receive those affected during large-scale emergencies and more often capable of receiving those affected by one profile.**

**Auxiliary hospitals designed to provide assistance to the single-profile and lightly affected.**

**During the period of daily activities, the preparation of the hospital for work in emergency situations begins with the receipt of the "Plan-task".**

**The task is an official document sent to the hospital by the health authority.**

**It specifies the tasks of the hospital in emergencies, how many emergencies, what profile of affected patients the hospital should receive and how many additional beds to be deployed, which teams of specialized medical care to create, the procedure for supplying medical, sanitary and household equipment.**

## The content of the task plan

| Brief description of the LU, its capabilities in emergency situations | |
|---|---|
| The content of measures in case of emergency | LU tasks, forces and means, organization of medical supplies, organization of personnel and patients protection, organization of transport support, preparation for evacuation to a suburban area, composition of medical units allocated by medical facilities to the group for rescue operations, organization of interaction of LU with other institutions, organization of the SG and TEM in LU. |
| Organization of events during the liquidation of emergency situations | Content of activities, organization of the work of the LU for the reception of the injured, provision of specialized, including high-tech medical care to them, organization and conduct of SG and PEM in the LU, organization of alert management and communications |

**In case the hospital finds itself in the zone of action of the damaging factors of an emergency, the headquarters develops a "Plan of main measures to improve the resilience of the hospital to work in emergencies", which provides for measures taken in the hospital to improve the resilience of the hospital in peacetime emergencies.**

**The latter provides for: additional equipment, if necessary, the construction of shelters; strengthening buildings in earthquake-prone areas; accumulation of medical, economic property; organization of autonomous energy and water supply. The calculation of the transport necessary for the evacuation of the hospital, etc. is carried out.**

**During the period of daily activities, an accumulation and refreshment of an irreducible supply of medicines, dressings, immobilization means, equipment, apparatus and other medical property necessary to provide assistance to the injured in accordance with the Task Plan is carried out.**

**In case of an emergency, the Chief of Staff of the Civil Defense Emergency Department of the Leningrad Region organizes interaction with the TsMK, the Pharmacy Committee and other services in advance:**

- **✓the procedure for emergency receipt of medicines, medical oxygen, sanitary and household property is being worked out;**
- **✓it is planned to receive vehicles for the delivery of medical personnel, evacuation of the injured, transportation of medical cargo;**
- **✓clarifies the procedure for attracting additional medical forces and means;**
- **✓sanitary-hygienic and anti-epidemic measures are organized together with the center of Rospotrebnadzor;**
- **✓the hospital is being prepared for work in emergency situations.**

# Reception work

**The head of the admission department, after receiving an extract from the "Plan-task" about what profile and how many injured the hospital accepts, begins preparing the department.**

**It includes:**

- **preparation of premises for separate reception of stretchers, walking, infected with CV and RV, affected and somatic patients:**
- **organization of their sanitation;**
- **inspection; medical triage; temporary hospitalization to clarify the diagnosis and in case of relief of suffering in a hopeless state (agonizing).**

**The head of the admission department, together with the head of the polyclinic, prepares its premises for the mass reception of walking victims, organizing their examination, medical triage, providing primary health care (medical) care and specialized medical care, and, in case of admission of those affected by AOC, temporary hospitalization.**

**At the same time, the department is being equipped with the following devices: for the detection of ionizing radiation (SRP-68 medical X-ray selective dosimeter S-2010, DP-5A); type of chemicals (UG-2.8, Kolion or others); respiratory equipment, laryngoscope, defibrillator, cardio pump, pulse oximeter, oropharyngeal air ducts, etc.**

**On the equipment of the department, it is also necessary to have pneumatic anti-shock trousers, transport tires, shields, harnesses, probes, etc.**

**In addition, it is desirable to have a first aid kit in the department in case of a radiation accident, antidotes used in case of poisoning, means of degassing, disinfection and personal protection of the respiratory organs and skin, anti-plague suits for all the personnel of the department.**

**The department is also recommended to have triage stamps, a primary medical record form 167/4-96, instructions for the operation of the emergency department of a city hospital in peacetime emergencies with a mass admission of the affected, diagnostic tables to facilitate the sorting of those affected with mechanical trauma, AOC, radiation injuries, infectious diseases, deployment schemes for the reception and sorting department upon admission of those affected by various profiles. In the department, it is desirable to have a supply of medicines at the rate of 3% of the hospital's bed capacity for the first hour of work in case of a massive influx of the affected.**

## The work of medical departments

**The heads of medical departments, after receiving an extract from the "Plan-task", which indicates how many and what profile of beds should be deployed in each department, together with the head nurse and the hostess, prepares it for work.**

**The head of the department plans the placement of beds, based on the standard for 1 bed - 4 m2. If the department under normal conditions has 6 m2 per bed, then you can additionally deploy 0.5 beds, 9 m2 per bed, then you can additionally deploy 1 bed. The head of the department draws up a plan for the placement of beds.**

# Activities carried out in emergency mode

**Preparation of LU for the mass reception of those affected in emergency situations begins with the transfer of the admission department to the reception and sorting department. In the daytime, this event is carried out by the head of the admissions department, at night, the doctor on duty, who at the same time orders the duty staff of the medical departments to prepare the latter in accordance with the extract from the "Hospital Action Plan in Peacetime Emergency Situations".**

**When the admission department is transferred to the reception and sorting room at the entrance to the hospital, a distribution post is set up, at which a paramedic works, equipped with a radiometer and a device for determining chemicals in the air of ambulance cabs. The paramedic performs the following tasks: distributes the flow of the affected, delivered to the hospital, to uncontaminated and contaminated RV, infected with CV, BS, walking, stretcher, infectious, somatic patients.**

**A PSO is organized with a place for SS transport that delivers the affected from chemical, radiation, infectious foci of infection, which has a drain for water and a source of water supply - a hydrant.**

**On the site, a place is allocated for airing the clothes of the affected, delivered from the chemical focus of infection, and a place for storing and packing the clothes of the affected in plastic or filament bags, delivered respectively from the radiation and infectious foci.**

**Clothes affected with pollution levels over 2000 beta particles of decay cm 2 per minute. requires processing in a special laundry or burial.**

**The PSO employs medical personnel equipped with equipment for disinfection, decontamination and degassing and means for disinfecting clothes, shoes, and vehicles. The paramedic at the RP, PSO personnel are equipped with gas masks and protective filtering clothing.**


**Simultaneously with the preparation of the admission department for the mass reception of the affected, the preparation of medical departments is being carried out.**

**The head of the department with staff during the daytime, the staff on duty at night before the arrival of the head, the head nurse proceed to additional deployment of beds, preparation for discharge of some patients, in accordance with the indication in the medical history and objective indicators of the state of health, allowing one to be discharged on an outpatient basis -polyclinic treatment, transfer others to specialized departments not involved in work in emergency situations of their own or other hospitals.**

**They receive beds and bedding at the warehouse, prepare a treatment room, dressing rooms, and send an application to the pharmacy to receive medicines. In the event of a mass arrival of those affected with injuries and burns, operating rooms and resuscitation rooms are being prepared; additionally deploy and install functional beds in medical departments.**

**Upon admission of the affected from the outbreak of AOHV, beds of a toxicological profile are prepared for dialysis; when receiving contaminated RS irradiated with ionizing radiation - aseptic wards, etc.**

**In the event that it becomes known that the LU falls into the zone of infection, contamination as a result of an emergency, the doctor on duty, the head of the emergency defense headquarters takes measures to increase its stability and ensure autonomous functioning. To this end, work is underway to seal windows and doors; if there are shelters equipped with HLFs, they are preparing for admission to shelter patients and staff; stocks of water, food, medicines, etc. are made.**

**Personnel are issued with individual means of protecting the respiratory organs, skin, including medical ones.**

# Question 4. Evacuation of medical facilities

**Timely evacuation of health care facilities makes it possible to deploy a network of hospitals in the territory outside the emergency area together with local health facilities and provide them with specialized, including high-tech medical care for the injured and the necessary medical care for the evacuated and permanently resident population.**

**Evacuation can be carried out by road, rail and water transport.**

**Responsible for the evacuation of health facilities is the chief physician.**

**For planning, organization, implementation of evacuation measures and advance preparation of the location of a medical institution in a suburban area, by order of the chief doctor, a working body is created - an object evacuation commission.**

**The head of the medical facility and the chairman of the OEK must know in advance the final destination of the evacuation, the route, the procedure for obtaining and allocating transport, the allocated premises in the suburban area, as well as the tasks of the medical institution in the area of location. If necessary, they draw up plans for adaptive work in designated premises with local authorities. Based on these data, they draw up a hospital emergency plan.**

**Hospital evacuation can be total or partial.**

**With partial evacuation, patients and staff are evacuated. This is possible only if a medical institution is located on the basis of specialized premises existing in the suburban area (hospitals, sanatoriums, dispensaries, etc.).**

**Full - evacuation of personnel and materiel. Such an evacuation is carried out when the evacuated medical facility is located in an adapted building (schools, colleges, sports facilities, etc.).**

**From among the evacuated personnel, medical workers are allocated to accompany transportable patients and to the operational group (3-4 people: a doctor, a nurse, a member of the evacuation commission, etc.).**

**An operational group is created for early dispatch to a new location of a medical facility during its evacuation in order to prepare for the reception and distribution of arrivals to units in accordance with the deployment plan of a medical facility.**

**The number of patients of various categories (in hospitals and at home) is calculated. The number of patients who can be discharged for outpatient treatment, evacuated by the hospital and left in the city is determined.**

**Transportable, who are at home, should be taken to the hospital and evacuated from the health facility. Non-transportable, located at home, are delivered to the hospital. The method of their transportation (lying, sitting) is determined to determine the number of cars.**

# All patients under treatment are divided into groups

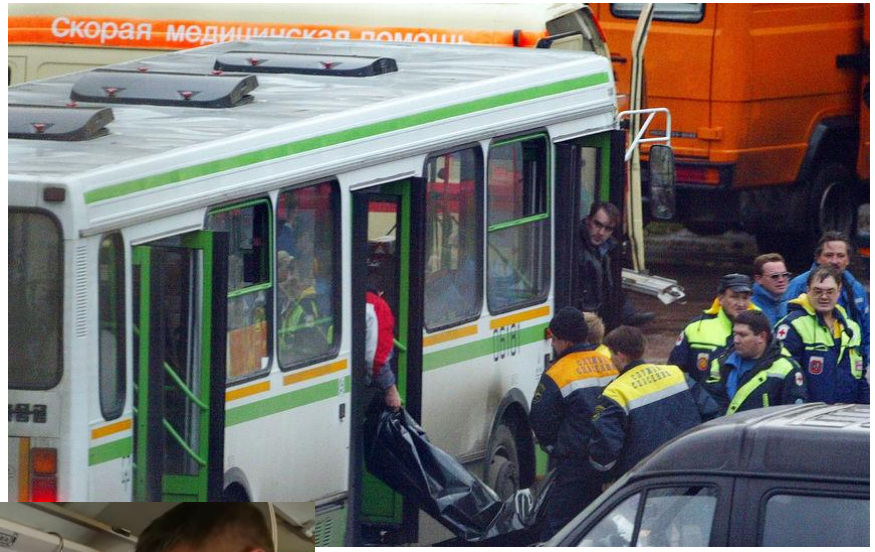
<table>
<tr><td colspan="2">Patients who do not need further continuation of inpatient treatment and are subject to discharge (50%). They go to their place of residence on their own, if necessary, provide medicines for 2-3 days, and then evacuate along with the entire population</td></tr>
<tr><td>Transportable patients who, for health reasons, cannot be discharged (45%)</td><td>Certain requirements are imposed on this category of sick and injured in preparation for evacuation:<ul><li>completion of medical care for the wounded;</li><li>replacement of transport immobilization with medical immobilization;</li><li>carrying out medical measures to ensure the transportable condition of the wounded and sick;</li><li>complete sanitization;</li><li>registration of medical documents of the evacuee;</li><li>issuance of personal belongings belonging to the evacuee;</li><li>equipment of the evacuee.</li></ul></td></tr>
<tr><td colspan="2">Non-transportable, unable to endure evacuation without damage to health (5%). They are left in the city and take refuge in specially equipped rooms of a medical type. Non-transportability is determined by the "List of urgent forms and conditions" approved by the Russian Ministry of Health.</td></tr>
</table>

# The category of non-transportable includes the sick and wounded

- **shock, not replenished by blood loss;**
- **in a terminal state, coma;**
- **with severe intractable convulsions;**
- **with injuries incompatible with life;**
- **with signs of purulent-septic, anaerobic infection and tetanus;**
- **with peritonitis, intestinal obstruction, eventration of internal organs;**
- **with cerebral compression syndrome, continuing liquorrhea;**
- **with fat embolism and pulmonary embolism;**
- **with acute pneumonia, abscessing pneumonia, “wet lung” syndrome;**
- **with ODN, TOL, intense pneumothorax, massive effusion pleurisy, etc.;**
- **with acute renal, hepatic, renal and hepatic insufficiency;**
- **with incipient purulent inflammation in the eye cavity, acute increase in intraocular pressure, unstopped bleeding from the orbit;**
- **with pronounced psychomotor agitation, changes in the state of consciousness (twilight, delirious, coma), status epilepticus;**
- **with an active form of pulmonary tuberculosis;**
- **with stage III hypertension, hypertensive crisis;**
- **with severe forms of coronary heart disease, acute heart failure, severe acute cardiac arrhythmias;**
- **with diseases of the blood system and diffuse diseases of the connective tissue;**
- **with severe forms of endocrine diseases;**
- **with unresolved pain syndrome;**
- **with indomitable vomiting.**

**Women cannot be evacuated from:**

- **the risk of developing uterine bleeding;**
- **the danger of premature and spontaneous births on the way;**
- **the possibility of developing life-threatening complications for the pregnant woman and the fetus (grade III nephropathy, preeclampsia, eclampsia, threatening uterine rupture, etc.).**




## In peacetime, the following documents are being developed in the medical facility

- notification schemes for the collection of health facility staff;
- duties of personnel for the period of preparation and evacuation of health facilities;
- distribution of medical personnel by departments and by purpose;
- a plan for the placement of non-transportable patients and a list of allocated medical and attendant personnel;
- calculation of the distribution of medical and sanitary property;
- evacuation scheme of the institution indicating the order and sequence of evacuation of patients, personnel and property;
- plan for conducting exercises for the evacuation of a medical institution.

## Upon receipt of an order for evacuation, the head must:

- notify personnel;
- send a task force to a suburban area;
- organize the discharge of patients (outpatients);
- accommodate non-transportables, leaving medical personnel to serve them;
- organize the evacuation of medical units created on the basis of a medical institution to the designated areas;
- consistently evacuate transportable patients, staff, family members, food and water supplies, medical and sanitary equipment.

## Characteristics of the premises during the deployment of healthcare facilities

| Indicators of placement of a medical institution | Norms according to SN-515-79 |
|---|---|
| Room height, m | at least 2.5 |
| Room width, m<br>- in the corridors of operating rooms and intensive care units;<br>- in wards, offices, dressing rooms and treatment rooms;<br>- in operating rooms and intensive care; | <br>1.6<br><br>at least 2.4<br>5 |
| Door width, m | at least 0.8 |
| Width of marches on staircases, m | 1.15 |
| Platform width, m | 1.45 |
| Floor area per bed, $m^2$:<br>- in a single room / in a multi-bed room | <br>at least 8 / 3-4 |
| For a department of 200 beds:<br>- operating room with preoperative room, $m^2$;<br>- dressing room, $m^2$;<br>- canteen for 25% of beds, $m^2$ per seat. | <br><br>18 + 6<br>12<br>1 |
| In the operating block | 1 table for 100 beds |
| Resuscitation wards | 2 beds for 1 opera. table |
| Room area:<br>- in the operating room on one table, $m^2$ / on 2 tables<br>- preoperative, $m^2$;<br>- resuscitation wards, per bed, $m^2$; | <br><br>24 / 40<br>12<br>5 |
| X-ray room, $m^2$; | 1 for 800 beds at least 36 |

**Health care facilities during their evacuation to the suburban area are among those continuing to work. They take out the necessary equipment, without which they are not able to organize the work.**

**A hospital in a suburban area is deployed in assigned public buildings (boarding houses, schools, etc. with year-round operation).**

**In accordance with SN-515-79, the deployment of healthcare facilities in public buildings of 6 or more floors is allowed only if there are elevators.**

**In the operating room, x-ray room, laboratory, autoclave, sink, shower room, latrines and sanitary rooms, mechanical forced exhaust ventilation is installed.**

**Power supply is carried out from 2 inputs from different transformers.**

**To protect personnel and patients in the suburban area, an anti-radiation shelter is equipped with a radiation attenuation coefficient of at least 100 kP.**

**Shelters are built built-in and freestanding. Preference is given to built-in shelters. Shelters must meet the following requirements:**

- **it should be placed in places of the greatest concentration of the sheltered contingent;**
- **it is advisable to place them under buildings of the smallest number of storeys;**
- **separate shelters should be placed at a distance from the building equal to their height;**
- **the depth of the shelter should take into account the nature of the groundwater, the floor level should preferably be 0.5 m above the highest groundwater level;**
- **the minimum depth should be at least 1.5 m from the planned ground level.**

**Shelters must be protected from rainwater flooding**

| Indicators of placement of a medical institution | Placement rate |
|---|---|
| Room area per sheltered patient:<br>- with a shelter height of 3 m or more, $m^2$;<br>- at a height of 2.5 to 3 m, $m^2$; | <br>1.9<br>2.2 |
| The area of the operating and dressing room, | 20 |
| Preoperative room area, $m^2$; | 2.5 |
| Distance between beds, m:<br>- with a 2-tier arrangement;<br>- with a single-tier arrangement; | <br>1<br>0.6 |
| Passage width between rows of beds, m | 1.3 |
| Corridor width, m | 2.5 |

**Stocks of drinking water for patients - 20 liters per person, for technical needs - additionally calculated: for staff - 3 liters per person.**

**Norm of area: to accommodate seriously ill patients 1.9 $m^2$ with a room height of 3 m or more), 2.2 $m^2$ (with a room height of 2.5 m), for convalescents - 1 $m^2$, surgical dressing room - 25 $m^2$ (for 200-400 beds), 30 $m^2$ (for 400-600 beds), 40 $m^2$ (for 600-1000 beds), preoperative room - 12-24 $m^2$, procedural dressing room - 20-40 $m^2$, etc.**

**The number of entrances to the shelter is determined depending on the capacity. When sheltering 50 people, 1 entrance is allowed.**

**Ventilation in the shelter can be natural (up to 50 sheltered people) or mechanically driven. In a radiation shelter for healthcare facilities, only mechanically driven ventilation is allowed.**

# Hygienic characteristics of the shelter when placing patients

| Hygienic characteristics | Показатели |
|---|---|
| Temperature in cold weather, t $C^0$ | at least 10 |
| The amount of air supplied to the shelter, $m^3$/h:<br>- at t C up to $25^0$;<br>- at t C up to $30^0$;<br>- at t C up to $30^0$ and more; | <br>10<br>21<br>30 |
| In the absence of centralized water supply, the norm of drinking water | 2 l/per person covered in knocks |
| $CO_2$ content, % | 3 |
| $O_2$ content, % | up to 17 |
| CO content, $mg/m^3$ | up to 30 |

**The operation of protective structures in healthcare facilities is organized by groups or links from the structure of workers and employees of the facility. The composition of these groups is 20 people, links - 10 people. One group serves 150-600 sheltered people.**

**In protective structures, sheltered stay in personal protective equipment.**

# Questions for self-control of knowledge acquisition

1. General and special requirements when planning the construction of health facilities
2. Organization of provision of hospitals with emergency lighting
3. Organization of provision of hospitals with emergency water supply
4. Organization of the system of nosocomial safety against damaging factors
5. Schematic diagram of the organization of civil defense in a medical institution
6. General tasks for all healthcare facilities to prevent the consequences of emergencies
7. Scheme of the organization of the hospital civil defense headquarters
8. Activities carried out in the hospital in the event of an emergency (high alert mode)
9. Activities carried out in the hospital in the event of an emergency (high alert mode)
10. The content of the main activities in the event of an emergency threat directly within the boundaries of the hospital
11. The action of the management of the hospital in the event of an emergency
12. The division of hospitals into categories according to their bed capacity
13. The procedure for the admissions department of the hospital
14. The order of operation of the medical departments of the hospital
15. Activities carried out in the hospital in the mode of daily activities
16. The content of the plan-task of the hospital when operating in an emergency
17. Features of the work of the admissions office in case of emergency

18. Features of the work of medical departments in case of emergency
19. Activities carried out during the state of emergency
20. Features of the work of the admissions office in the event of an emergency
21. Features of the work of the medical department in the event of an emergency
22. Object evacuation commission. Its composition and tasks
23. Types of hospital evacuation
24. Operational group. Its composition and tasks
25. Classification of patients according to the need for discharge and non-transportability
26. Who belongs to the category of non-transportable?
27. The procedure for placing a hospital in a suburban area
28. Documents developed in hospitals in peacetime for evacuation planning
29. Duties of the chief physician of the hospital upon receipt of an order for evacuation
30. Characteristics of the premises when deploying medical facilities in the suburban area
31. Organization of energy supply and water supply of a hospital in a suburban area
32. Characteristics of the shelter when placing health care facilities in a suburban area
33. Hygienic characteristics of the shelter when placing patients