Topic 2.7 “Organization of the work of a medical institution during the mass arrival of people affected by emergencies of a technogenic (anthropogenic) nature»

Questions

1. **Preparing the hospital for the mass admission of patients with mechanical injuries and burns**
2. **Preparing the hospital for the mass reception of chemically hazardous substances contaminated from an emergency outbreak**
3. **Preparing the hospital for the mass reception of victims from the source of the radiation accident**
4. **Preparing the hospital for the mass admission of infectious patients**

Question 1 Preparing the hospital for the mass admission of victims with mechanical injuries and burns

Having received an order from the chief physician to admit patients with mechanical trauma and burns, the head of the admissions department during the day and the doctor on duty at night begins to deploy the admissions and triage department.

The deputy chief physician for medical work during the daytime and the doctor on duty at night gives orders to the head of medical departments to prepare them for receiving the injured.

The deployment of the reception and triage department involves the installation of a distribution post at the entrance to the hospital. A paramedic works at the distribution post, who identifies among the affected the flow of walkers, stretchers, and in the event of a possible arrival of those infected with emergency chemically hazardous substances and radioactive substances - dangerous to others. Each of the streams is sent to the appropriate departments of the reception department.

In the reception department there is provided: a lobby with stands, trestles for stretchers of the affected, chairs with couches for walkers, examination rooms, rooms for temporary hospitalization of the affected, unpromising for further treatment (those in agony, in extremely serious condition), diagnostic boxes, treatment room, dressing room.

The premises of the emergency department are distributed so that walkers do not overlap with stretchers. It is advisable for walking victims to have a separate entrance and exit. In case of mass admission of walking victims, premises are provided outside the emergency department - this is most often a hospital clinic. There is a waiting room in it, equipped with chairs and couches; examination rooms, dressing room, treatment room.

When there is a mass influx of people affected by mechanical trauma and burns, if contaminated with chemicals and contaminated radioactive substances are detected at the RP, they are released in a separate stream.

Those affected, not contaminated with radioactive substances, not contaminated with emergency chemical hazardous substances, are delivered to the emergency department, where, after being unloaded from an ambulance or other transport, they are brought into the lobby. Depending on the size of the lobby, stretchers with the injured are mounted on stands or trestles in a fan or Pirogov rows for the convenience of medical triage and observation of duty personnel. A sufficient number of chairs and a couch for those who become heavy during the delivery of injured walkers are installed in the lobby for walkers.

Triage teams are formed from trauma and burn teams of specialized medical care. They include a doctor, two registrars, and two nurses.

The teams are equipped with: tablets and medical histories, primary medical records for recording the last name, first name, patronymic, anamnesis, objective data, preliminary diagnosis established by the team doctor, prescriptions; installations for the provision of emergency medical care; stamps indicating the priority of medical care in the departments of the hospital where the injured are sent.

The triage team in the lobby of the admission department distributes the stretcher-affected patients into 4 prognostic groups and directs them to the appropriate rooms.

First group	**The condition of those affected is, with a greater or lesser degree of certainty, unfavorable for further treatment. These are those affected with extremely severe, most often incompatible with life, injuries, as well as those in a terminal state, with clearly expressed signs of a violation of the basic vital functions of the body - a deep impairment of consciousness, - a persistent decrease in SBP below a critical level, with acute respiratory failure (ARF) and etc. In the emergency department, a separate room is allocated for this group, where they provide care for the affected and alleviate suffering.**
Second group	**Those affected with a questionable prognosis, having severe injuries, accompanied by increasing disorders of vital functions. This group includes severely injured injuries with rapidly increasing life-threatening complications. To eliminate them, urgent treatment and preventive measures are necessary.** **The prognosis may be favorable provided that they receive the appropriate amount of medical care. Those affected by this group in a room allocated for it or immediately at the examination room, after partial sanitization and changing clothes, are sent to the intensive care unit, dressing room, and operating room.**

Third group	**The third group includes those affected with severe and moderate injuries that do not pose an immediate threat to life.** **The prognosis for life and recovery is relatively favorable. This largest group, after complete sanitization and changing clothes, is placed in a dedicated room and prepared to provide specialized medical care.** **Medical assistance is provided as a second priority and may be delayed for several hours, but the possibility of severe complications with fatal outcomes cannot be ruled out.**
Fourth group	**The fourth group includes those affected with mildly expressed functional disorders.** **The life prognosis is favorable. The development of dangerous complications is unlikely.** **If necessary, this group of affected people is sent from the examination room to the dressing room to provide emergency medical care and prescribe outpatient treatment in the clinic.**

It is advisable to diagnose and triage patients with closed traumatic brain injury by a neurologist, and with open or combined traumatic brain injury - by a neurosurgeon.

The affected people should be rationally distributed into groups:

1st - those in need of anti-shock and resuscitation measures,

2nd - those in need of surgical interventions,

3rd - those in need of surgical interventions, which can be postponed for several hours or even days,

4th - those in need of constant medical supervision,

5th - requiring only conservative treatment.

Patients of the first group are immediately given anti-shock and resuscitation measures. Patients of the second group, mainly with acute compression of the brain, with external or internal bleeding, undergo surgical interventions in the operating room to stop the latter and decompress the brain.

Patients of the third group with open craniocerebral injuries, with closed depressed fractures of the skull bones without increasing compression of the brain, are taken to the operating room after examination for the application of burr holes, primary surgical treatment of wounds and other interventions.

In the fourth group of patients, mainly with closed craniocerebral injury, accompanied by subarachnoid hemorrhages and suspected compression of the brain, conservative treatment is carried out with constant monitoring of the vital functions of the body.

In the fifth group, patients with concussions and bruises of the brain are treated conservatively under the supervision of a neurologist.

Diagnosis, triage and provision of medical care for long-term compartment syndrome, which can develop in 20-25% of victims, particularly during earthquakes, poses a significant challenge.

With this type of lesion there is a variety of etiopathogenetic mechanisms and diversity of clinical manifestations. In victims with long-term compression syndrome, along with hemodynamic disorders, there are often severe disorders of the central and peripheral nervous system, kidney function, liver function, respiratory system, metabolism, and immune system.

Long-term compression syndrome can be combined with mechanical damage to internal organs, bones, joints, great vessels and nerve trunks. Often, patients with a seemingly mild degree of damage quickly develop a serious condition with an unfavorable outcome. All this makes it difficult to make the right decision when examining victims in the reception and triage department.

All victims with long-term compartment syndrome are divided into the following groups:

1st - patients in terminal condition;

2nd - those in need of emergency surgical care for health reasons;

3rd - victims with moderate and severe degrees of long-term compression syndrome, with signs of shock, acute cardiovascular failure, acute renal failure with preserved viability of injured limbs;

4th - victims mainly with a mild degree of prolonged compartment syndrome, who do not need anti-shock measures.

Patients of the first group need only care and symptomatic treatment.

The second group includes primarily victims with a tourniquet applied to the limbs during bleeding from the great vessels, with destruction of the limbs, progressive wound and general infection, repeated erosive bleeding from the great vessels with extensive purulent wounds of the extremities. These patients are sent to the dressing room for examination, followed by referral to the operating room.

Patients of the third group need to be brought out of shock, undergo intensive therapy and are sent to diagnostic and treatment departments for specialized treatment: forced diuresis, fasciotomy with wound drainage and, if indicated, hemodialysis, hemosorption, plasmapheresis, plasmasorption, etc.

Patients of the second and third groups will need the same treatment after recovery from the state of shock and partially after emergency surgical interventions.

When preparing the reception and treatment departments for the mass reception of people burned from a fire-explosive source or other source of fire, the premises of the reception department are additionally equipped with breathing equipment, blood transfusion systems, blood-substituting fluids, tracheostomy sets, etc.

When the injured are admitted and medical triage is carried out, triage teams created on the basis of burn teams distinguish the following groups of burned victims: extremely severe, severe, moderate, lightly burned in accordance with the area and depth of the burn

Depending on the area and depth of the burn, sorting groups are distinguished:

First sorting group	Extremely severe burns, length - 60% of the body surface; deep burns, more than 50% of the body surface; age - over 60 years old; respiratory tract burn; those affected are in a terminal condition. Victims are sent to specially designated emergency rooms, where they are provided with care and relief from suffering.
Second sorting group	Severe burns, extending up to 40% of the body surface; deep - 30%, there may be a burn to the upper respiratory tract. They need emergency medical care and are sent to the intensive care unit or dressing room of the hospital.
Third sorting group	Moderate burns, up to 20% of the body surface; deep burns up to 30%, there may be burns of the upper respiratory tract. Help for those affected may be delayed and they are sent to the treatment department of the hospital.
Fourth sorting group	Walking burnt, superficial burn up to 15%; deep no more than 10%; There is no burn to the upper respiratory tract. After emergency care is provided, he is sent for outpatient treatment.

If the victim has a burn of the upper respiratory tract, then it is equivalent to 10-15% of a deep skin burn.

After medical triage, the affected persons are sent to a sanitary inspection room, where partial or complete sanitary treatment is carried out, the diagnosis is clarified, aseptic dressings or dressings with antiseptic solutions are applied to exposed burn wounds (furatsilin solution 1:5000), painkillers are administered (1 ml of 2% promedol solution, 2 ml of 50% analgin solution): give 1-2 glasses of an alkali-salt mixture.

For burns of the organs of vision, 2-3 drops of 0.25% dicaine solution are instilled into the eye.

Victims with extremely severe burns are sent to wards for symptomatic treatment.

Those with severe or moderate severity are sent to the medical department.

Walking victims with mild superficial and deep burns after emergency care and in the absence of indications for inpatient treatment can be referred for outpatient treatment.

Question 2 Preparing a hospital for the mass reception of chemically hazardous substances contaminated from an emergency outbreak

When there is a mass intake of chemically hazardous substances contaminated from an emergency source, the reception department deploys a receiving and sorting unit; repurposing of medical departments with additional deployment of beds is being carried out; beds are being prepared for dialysis in the endotoxicosis department, the type of substance is being clarified, etc.

A distribution post is installed at the entrance to the hospital, headed by a paramedic. Its task is to distribute the flow of those affected into those who are walking, those on stretchers, and those who are not infected (somatic patients), but who are in need of emergency medical care. The equipment must have a gas detector that makes it possible to determine the type of emergency chemically hazardous substances in the cabin or interior of the ambulance. At the same time, a sanitary treatment area is being set up, where vehicles are degassed and a place is equipped for airing clothes. An orderly wearing personal protective equipment works on it.

Stretchers who are affected are sent from the distribution post to the inpatient admissions department, while those who are walking are sent to a specially designated room, often a hospital clinic, where a temporary hospital is also equipped.

Before being brought into the emergency department, the affected stretchers are removed from the gas mask and outer clothing and then brought into the lobby. The orderlies who unload the vehicles arriving from the outbreak and carry the affected people into the lobby wear personal protective equipment. After unloading the affected people with their removed outer clothing, which is marked either during delivery or in front of the reception department, the vehicles go to a special processing area, where things, shoes, stretchers, cabins, and vehicle interiors are decontaminated. After decontamination with substances corresponding to the type of emergency chemically hazardous substances, the vehicles are driven to the source of infection.

Medical triage of the affected is carried out by triage teams formed from toxicological teams of specialized medical care, consisting of a doctor, two registrars and two nurses.

When it is carried out using the conveyor method, the team's registrars record in the medical history: passport data; under the doctor's dictation, objective indicators: pulse, respiratory rate, blood pressure, severity of the affected person's condition; preliminary diagnosis and indication of the possibility of sanitary treatment.

If there is no primary medical record, it is filled out according to the relevant instructions. During medical triage during a mass intake of affected people, depending on the time of development of intoxication and the clinical picture, the probable type of chemical substance that caused the poisoning and its severity are determined.

Clinical picture of the most common hazardous chemical emergencies and activities carried out in the emergency department.

Hydrocyanic acid and other cyanides	**They have a general toxic effect and cause tissue hypoxia. Symptoms: severe headache, vomiting, abdominal pain, general weakness, shortness of breath, palpitations upon ingestion of lethal doses, acute cardiovascular failure, respiratory arrest.** **Death occurs within a few minutes. In the emergency department: inhalation of amyl nitrite (2-3 ampoules), sodium nitrite 10 ml of 1% solution IV slowly every 10 minutes 2-3 times. Glucose 20-40 ml 40% solution IV repeatedly - if it enters the gastrointestinal tract, gastric lavage, giving sorbents, cardiovascular, respiratory aids.**

Carbon monoxide	**t has a neurotoxic, hematotoxic effect (carboxyhemoglobemia). Symptoms: headache, dizziness, chest pain, vomiting, skin flushing, tachycardia, increased blood pressure, loss of consciousness, cerebral edema, convulsions, coma. In the emergency department: oxygen inhalation, intravenous administration of ascorbic acid 10.2 ml of 5% solution, 500 ml of 5% glucose and 50 ml of 2% novocaine, in case of excitement, aminazine 2.5% - 2 ml, antidote acizol 1 ml intramuscularly, phenezepam 0.005 1t 3 times a day, diphenhydramine 1%-1ml intramuscularly.**
Hydrogen sulfide	**It has a general toxic effect and causes tissue hypoxia. Symptoms: headache, lacrimation, photophobia, vomiting, miosis. In severe cases, convulsions. Toxic pulmonary edema. In the emergency department: inhalation of amyl nitrite, rinsing the eyes, throat, nasopharynx with 2% baking soda solution, theophedrine-0.2, 1 tablet once a day, mesaton - 1% - 1 ml intramuscularly, prednisolone 300-400 mg.**
Ammonia	**It has a general toxic effect and causes a local cauterizing effect on the mucous membrane of the respiratory tract. Symptoms: headache, irritation of the mucous membranes of the eyes, upper respiratory tract, cough, shortness of breath, the possibility of toxic pulmonary edema after a few hours, cardiac tachycardia. In the emergency department: oxygen inhalation 1 ml - 1% morphine solution, 2-3 drops of 1% novocaine solution in the eyes, 1 ml - 1% atropine solution subcutaneously, mustard plasters.**

Chlorine	**Local irritant, suffocating effect. Symptoms: when inhaled, it causes a chemical burn of the respiratory tract, cough, chest pain; after a few hours, pulmonary edema and headache are possible. In the emergency department: oxygen inhalation, atropine - 1 ml of 0.1% solution, morphine - 1 ml - 1% solution, ephedrine - 1 ml - 5% solution subcutaneously.**
Phosgene	**Local irritant effect, suffocating neurotoxic effect. Symptoms: cough, chest tightness, latent period from 1 to 24 hours, pulmonary edema, reduced blood pressure, blue, gray form of hypoxia. In the emergency department: oxygen inhalation, bleeding 250-300 ml, oxygen inhalation with alcohol vapor at an oxygen supply rate of 2-3 liters per minute to 9-10 liters per minute, 1 ml - 10% caffeine.**
Ethylene oxide	**Neurotoxic effect. Symptoms: headache, nausea, cough, chest pain, possible pulmonary edema, psychomotor agitation, tachycardia. In the emergency department: oxygen inhalation, acetylcysteine 50 mg per kg of body weight intravenously once a day, vitamin E 1-2 ml of a 30% solution intramuscularly 4 times in the first 3 days**

FOS (organophosphorus insecticides)	**They belong to neurotropic poisons; their toxic effect is determined by the ability to inhibit the enzyme cholinesterase, which leads to the accumulation of acetylcholine in synaptic clefts and disruption of the transmission of nerve impulses in the cholinergic part of the nervous system and the accumulation of toxic metabolites, which can result in the death of the affected person. Depending on the dose of poison, the following stages of damage are distinguished: stage 1, miotic, which is characterized by loss of vision, psychomotor agitation, and increased blood pressure; Stage 2 - bronchospastic - cough, shortness of breath, fibrillation of the face, body, tachycardia, decrease in cholinesterase activity by 50% or more; Stage 3 convulsive - convulsions, drop in blood pressure, bradycardia and others. In the emergency department, antidote therapy is carried out with 2-3 ml of 0.1% atropine solution, cholinesterase reactivators diperaxim 1 ml of 15% solution, cardiac and respiratory medications.**
Methyl bromide, dioxin, benzofuran	**They are classified as metabolic poisons, causing local chemical burns, rashes, and general neurotoxic effects. Symptoms: local dermatitis, dizziness, speech disorder, tachycardia, impaired diuresis, psychomotor agitation. In the emergency department: local treatment of chemical burns, 1 ml - 10% caffeine solution, strophanthin 0.5 ml - 0.45% solution in 10 ml. 20% glucose solution.**

Reliability of determining the type of chemical substance that caused poisoning is possible if there are devices that determine them such as UG-2.8, Kolion-2.8 and a chemical analytical laboratory that works using the express method.

The severity of the clinical picture of poisoning varies: severe, moderate and mild lesions.

Those affected by emergency chemical toxic substances undergo sanitary treatment. Depending on the clinic and the severity of the lesion, it can be partial or complete.

Washing of the affected persons is carried out in a sanitary checkpoint, where personnel work wearing skin and respiratory protection.

After sanitary treatment, the affected person is changed into clean underwear and sent to the examination room of the emergency department, where the diagnosis is clarified and the necessary medical care is provided. It includes the following activities:

- **restoration of patency of the upper respiratory tract;**
- **if necessary, performing expiratory artificial respiration - giving oxygen;**
- **giving sorbents, antidotes;**
- **cessation of the local action of the poison and its further resorption.**

Removing poison that is not absorbed from the gastrointestinal tract:

- **by artificial vomiting with mechanical irritation of the pharynx after preliminary intake of 2-3 glasses of water; by tube gastric lavage with 12-15 liters of water at room temperature, 300-500 ml each;**
- **in a comatose state, the victim should be in a position on his side with the upper half of his body slightly elevated.**

In case of severe poisoning, gastric lavage is repeated 2-3 times a day. At the end of this procedure, 100-150 ml of 30% sodium sulfate or vaseline oil is injected into the stomach.

In the early phase of poisoning, it is recommended to use sorbents.

Activated carbon (carbolene), which in an amount of 1 g absorbs about 500 mg of barbiturates, alcohol, 800 mg of morphine.

Enterosorbent polyphepan - used for poisoning with barbiturates and organophosphorus substances; complications, the condition of the affected person quickly improves.

The prescription of antidotes is indicated only if the basic functions of the respiratory and circulatory system are preserved. Antidotes are most effective in the toxicogenic phase of intoxication, i.e. in the first hours. The duration of this phase ranges from several minutes (hydrocyanic acid) to several days (heavy metal poisoning). Antidotes are strictly specific, which requires precise identification of the type of chemical substance.

Antidotes are medicines that disinfect poison by chemical or physico-chemical interaction with it or by reducing the pathological disorder in the body caused by poison. Antidotes are divided into those that directly change the properties of the poison through physical and chemical transformations and those that act through functional antagonism with the poison. Antidotes of the latter group are conventionally divided into physiological and biochemical. Physiological antidotes, their therapeutic effect is achieved due to the physiological antagonism of the action of the toxic agent. So, in case of poisoning with organophosphate pesticides, 2-3 mg of atropine is administered in the first stage, 20-25 mg in the second, 30-35 mg intravenously in the third, moving on to maintenance doses at the level of slight transatropinization.

Based on the clinical manifestation of poisoning, and, if possible, confirmation by a chemical laboratory, the type of substance is specified, the severity of the lesion is outlined in a treatment plan in the examination room of the emergency department, and the affected stretcher is transferred to the treatment department

Walking victims are sent to the outpatient department.

Before entering the premises, they take off their gas mask and outer clothing and hand them over to the orderlies, who take them to a special processing area.

In the lobby, medical triage is carried out for emergency care in the treatment room; a medical history and an outpatient primary medical record are also filled out here. With these documents, without a long delay, depending on the type of substance, they are sent to a temporary hospital. All victims from a chemical source are sent to it when the type of substance is unknown and if it is classified as a suffocating agent, a generally poisonous suffocating agent, or a neurotropic suffocating agent, where with the development of symptoms of intoxication within a few hours, pulmonary edema is possible.

Uninfected patients (somatic patients) in need of emergency care are sent in a separate stream to the emergency department. It is advisable to have a separate entrance for this stream. After examination by a doctor, they are transferred to the appropriate treatment departments.

The manager, senior nurse, and staff of repurposed medical departments, before admitting the affected, discharge patients whose condition allows them to be transferred to outpatient treatment; severely ill patients and those in need of long-term treatment are transferred to other specialized departments.

At the same time, the department is equipped, if necessary, with additional medical supplies, equipment, bedding, beds, a dressing room and a treatment room are prepared, and medications are prescribed for the emergency deployment of beds in the event of a mass influx of patients from chemically hazardous outbreaks.

Patients are assigned to wards depending on the severity of the lesion.

After discharge from the medical department, those affected by emergency chemical hazardous substances are under outpatient observation.

When a hospital enters an infection zone, the chief physician takes measures to increase its stability and ensure autonomous functioning, protect staff and patients.

In the reception and treatment departments, windows and doors are sealed; Wet sheets are hung on the windows. If there are shelters equipped with filter-ventilation units, patients and personnel are transferred to the latter in accordance with their occupancy plan. Staff and patients are provided with available personal respiratory protection equipment.

If necessary and whenever possible, an emergency evacuation of the hospital to a suburban area is carried out.

Question 3 Preparing the hospital for the mass admission of victims from the source of the radiation accident

The chief physician of the hospital receives a signal about an accident at a radiation hazardous facility from the civil defense headquarters of the region or city. At night, the doctor on duty, after double-checking it, clarifies whether the hospital is located in an area of radioactive contamination, or whether it remains in an uncontaminated area. After this, a gathering of the hospital's civil defense headquarters and personnel involved in receiving the injured is announced.

In the event that the level of ionizing radiation or radioactive contamination on the hospital premises exceeds the permissible level, the chief physician, in accordance with the instructions of the health care authority, organizes the autonomous functioning of the hospital, increasing the sustainability of its work, and protecting staff and patients.

In the reception and medical departments, window and door openings are sealed, basements are embanked, windows are covered with sandbags, and wet cleaning of premises and hospital grounds is carried out. Patients and personnel are sheltered in anti-radiation shelters, everyone is given stable iodine at the rate of 125 mg per dose for the period of iodine danger, respiratory protection is provided with gas masks, respirators or cotton-gauze bandages. The hospital does not accept injured people. If the level of ionizing radiation increases and a decision is made to evacuate from the contaminated area, the hospital is evacuated to a suburban area to a pre-planned and prepared location.

When the hospital is located outside the contamination zone, the chief physician of the hospital makes a decision to organize the reception of those affected by the radiation accident and to provide them with medical care. In accordance with the "Plan", the reception department is being transferred to the reception and triage department and the medical departments are being repurposed.

The reception and sorting department is equipped with a distribution post, a special processing unit, and reception areas for stretchers and walkers, contaminated with radioactive substances and uncontaminated.

At the distribution post there is a paramedic wearing respiratory and skin protection equipment, equipped with a DP-5V or other radiometer. Its task is to identify among incoming affected persons with a level of contamination of skin over 200 beta particles cm2/min, and clothing, 2000 beta particles cm2/min among stretchers, walkers, as well as uncontaminated affected persons and send them separately to the emergency department. If there is a large number of contaminated walking victims, separate reception rooms are allocated for them - in the hospital clinic.

In the reception department, part of the room is allocated for stretchers, walking contaminated with radioactive substances and clean affected people, with a separate entrance and exit. Personnel working in the lobby where medical triage is carried out use respiratory and skin protection in the sanitary checkpoint, ingesting stable iodine and cystamine. Each is equipped with an individual dosimeter.

Before bringing the affected person into the emergency department, they remove his outer clothing and send it to the special processing unit on the car that delivered him.

In the reception area, the affected stretchers are covered with blankets, placed in a fan or Pirogov rows for the convenience of medical triage, which involves deciding whether the affected person can undergo sanitary treatment for health reasons or not.

In the event that the affected person is in a serious, extremely serious condition due to radiation or traumatic injury, he is subject to partial sanitary treatment, during which exposed skin is washed, hair is cut short, and underwear is removed. After partial sanitary treatment, the affected person, depending on the severity and nature of the injury or the degree of radiation sickness, is sent to the appropriate medical department.

Affected people who, for health reasons, can tolerate sanitization, wash in the shower or are washed with soap and a soft washcloth. Hair should be cut short or carefully shaved before showering. After the shower, dosimetric monitoring is carried out. In case of severe residual contamination of the skin, sanitary treatment is repeated, but no more than 3 times, because Further washing, as a rule, does not give results. In some cases, when washing, you can use a special preparation "Protection", "Decontamine", "Paste 116" or thick suspensions of detergents.

To decontaminate skin, it is not recommended to use organic solvents (gasoline, ethyl alcohol, etc.).

After sanitary treatment, the affected people are changed into clean linen and medical triage is carried out by triage teams, which includes a radiologist. During it, a medical history is filled out, a primary medical record, if it has not been filled out, in which passport data, anamnesis, objective indicators of internal organs are recorded, and in the case of incorporation of radioactive substances, the most contaminated areas are noted on the person's silhouette, a preliminary diagnosis is made and the affected person is sent to the appropriate medical department.

- **In the process of medical triage, the following groups of affected people are distinguished: with mechanical trauma, burns of varying severity and determine their priority in providing medical care;**
- **radiation patients with various forms and degrees of damage who are sent to the "clean part" of the hospital**
- **contaminated patients with incorporation of radioactive substances, sent to the "dirty part" of the hospital (ward).**

After the diagnosis has been clarified, the affected persons are sent to the wards of the medical department, where they are divided into two groups:

1. **Irradiated patients with various forms and degrees of acute radiation sickness**
2. **Infected, i.e., having contamination of internal organs with radioactive substances.**

In case of minor accidents at radiation hazardous facilities (up to 20 affected), after sanitary treatment and emergency medical care in a hospital, they are sent for treatment to a specialized hospital.

Walking victims are directed in a separate stream to the entrance to the vestibule; They take off their outer clothing, pack it in plastic bags, and orderlies take it to a special processing area. In the lobby, medical triage is carried out with radiometry to determine the type of sanitization, after which the affected person is sent to the sanitary checkpoint. Washing is carried out using soap and the preparation "Zashchita", a decontaminating solution OP-7 with polycomplexon "Decontamine", all affected people have their hair cut before treatment, which is also packaged in plastic bags and sent to a special treatment site.

After sanitization and repeated radiometry in the examination room, the doctor determines the degree of exposure; Based on complaints, anamnesis, and objective data, a preliminary diagnosis is made, and if the affected person has no internal contamination or it is insignificant, and the signs of acute radiation sickness do not go beyond the first degree with general good health, he can be referred for outpatient treatment.

Walking victims and who, after sanitary treatment, have radioactive contamination above the permissible level, are subject to hospitalization in medical departments.

Doctors and nurses working in examination rooms, treatment rooms, and the dressing room of the emergency department use cotton-gauze bandages and disposable cotton suits to protect the respiratory organs and skin, and take stable iodine 125 mg and a single dose of 1.2 g of cystamine prophylactically. Patients and all medical personnel are provided with individual dosimeters.

Those affected from the distribution post, whose level of ionizing radiation has not been detected, are sent in a separate stream to the emergency department. For this group, a part of the regular reception department or a separate reception department in another room is allocated. In the latter it is necessary to have a vestibule, an examination room, and a sanitary inspection room.

During medical triage, the affected people are divided into groups:

- **those in need of relief from suffering due to injury, burn, incompatible with life;**
- **those who need help for life-saving reasons due to the severity of injuries, burns, or other diseases are sent to the operating room, intensive care unit, detoxification ward, etc.;**
- **those in need of medical care, but it may be delayed;**
- **mildly affected patients, who, after providing assistance, can be referred for outpatient treatment.**

A special treatment area is deployed at a place where there is water supply, a drain, and an electrical outlet for connecting a vacuum cleaner. At the site, a place is allocated for processing vehicles and a place for checking the degree of contamination of clothing and shoes affected. The permissible level of contamination is 2000 beta particles cm2/min. If the degree of contamination is higher, clothes and shoes are sent to a special laundry; in its absence - for burial. If the level of contamination is acceptable or below, clothing is marked and sent to a storage warehouse.

Personnel working at the special processing site use personal protective equipment, including medical equipment, and are equipped with personal dosimeters.

The head nurse of the admission department keeps records of radiation doses of personnel employed at the distribution post, the special treatment site and unloading stretchers of the injured from cars into the premises (doctors, nurses, junior nurses of the admission department). When equipped in the reception department, you must have a first aid kit in case of a radiation accident.

In the medical department, the head, senior nurse, and staff are preparing the department to receive the injured. There are wards for those affected by ionizing radiation, but not contaminated with radioactive substances, and wards for those contaminated with radioactive substances.

When assigning patients to wards, they try to take into account the form and degree of acute radiation sickness. For those affected by the bone marrow form and other forms of acute radiation sickness of the 3rd and 4th degrees, aseptic wards are created.

When examining the affected people, they clarify:

- **radiation source (in the scope of the specification - passport for the source);**
- **radiation fields (based on the results of calculations and actual measurements);**
- **“irradiation geometry” (distances from the victim’s body (parts of the body) to the source, weakening and dissipating properties of radiation protection);**
- **information about the time spent in each irradiation geometry;**
- **preservation of an individual dosimeter (if the victim had one at the time of irradiation).**

In case of possible internal exposure from radioactive substances, at the first stage only the radionuclide composition, the approximate amount of nuclides that could enter the body, is assessed. Assessment of exposure conditions, dose levels and main clinical manifestations is the basis for treating victims and determining their need for therapeutic and diagnostic measures in connection with the predicted severity of the injury.

Question 4 Preparing the hospital for the mass admission of infectious patients

The actions of the doctor on duty during a mass admission of infectious patients include:

1. **Report to the chief physician of the hospital, the health department, the Rospotrebnadzor center, the civil defense headquarters of the city and region.**
2. **Notification and collection of reception staff, medical department staff at night and notification during the day.**
3. **Giving orders to prepare the hospital to operate as an infectious diseases hospital according to the plan.**

In accordance with the plan, the doctor on duty gives orders to prepare the hospital for the mass admission of infectious patients.

The latter provides for: discharge of some patients for outpatient treatment, with the transfer of the rest to other departments or medical institutions; transfer of the admission department to the reception and triage department, repurposing of medical departments; training reception and triage department personnel to work in anti-plague suits, carrying out disinfection measures, disinfecting things of incoming patients; organization of nonspecific prophylaxis among employees - antibiotics until the type of pathogen is determined; notifying the population of nearby neighborhoods with appropriate recommendations depending on the type of disease.

The hospital territory is divided into two zones: the infected zone - under strict anti-epidemic regime and the clean zone - under restrictions. Security is organized in order to prevent the unauthorized exit and entry of sick people and strangers.

B specified zones include:

in the first **- reception and triage department, medical departments, laboratory, x-ray room, treatment and diagnostic department (boxed wards), morgue;**

in the second **- a sanitary inspection room, at the border of the zones there is a room for changing clothes; hospital administration, kitchen, dining room, laundry, disinfection chamber, pharmacy, warehouses, staff accommodation, outpatient department. All rooms are marked.**

A special gateway or transfer window is organized between the "clean" and "infected" halves. Exhaust openings, windows, and doors on the dirty half are sealed.

In case of certain infections, it is allowed to ventilate the premises and open windows. Personnel working in a high security zone are, if necessary, provided with anti-plague suits for the period of work in the zone, and undergo sanitary treatment upon leaving the zone.

The head of the reception department transfers the department to work as a reception and sorting department. For this purpose, a distribution post is set up at the entrance to the hospital with the task of dividing incoming patients into stretchers and walkers.

Stretched patients are sent to the inpatient admissions department, where they are promptly examined for the possibility of sanitization, then they are undressed, their clothes are marked, put into bags for sending to the sanitization and disinfection site, and the patients are washed. After washing and changing into clean linen, stretcher patients in the examination room are filled out by a doctor with a medical history and, depending on the form and severity of the infectious disease, they are sent to the wards of the medical department.

Walking patients are sent to a specially designated room for their reception or to a separate room in the reception department with its own entrance. In the lobby they undress, their clothes are marked, put into bags to be sent to PSO and disinfection, they wash in the sanitary inspection room, and change into clean underwear. In the examination room, the doctor fills out a medical history, conducts the necessary studies, and then sends them to the hospital wards, depending on the clinical manifestations of the severity and form of the infectious disease.

To prevent personnel from becoming ill, they use respiratory and eye protection, therefore, in case of highly toxic airborne infections, it is recommended to work in masks, canned goggles or anti-plague suits. In this case, it is necessary to observe a work schedule of no more than 3-4 hours per shift. The organization of the anti-epidemic regime is entrusted to the chief physician of the hospital. Admitted patients in the emergency department are, if possible, placed in accordance with clinical symptoms, in boxes to clarify the diagnosis, and if the diagnosis is clear, they are sent to treatment departments.

The head of the medical department with the senior nurse, before admitting infectious patients, carries out the following activities: discharge for outpatient treatment of patients who can be treated at home; transfer of remaining patients to other departments or hospitals for follow-up treatment; if possible, create boxes; obtaining anti-plague suits, linen, bedding, disinfectants, carrying out nonspecific prophylaxis among personnel until the type of pathogen is determined.

When preparing departments to receive infectious patients, they are cleared of unnecessary furniture and other property; disinfection, disinfestation, deratization, sealing of windows and doors are carried out (if necessary, opening transoms are equipped with a metal mesh); the necessary work is being carried out to properly organize air flows; containers are allocated for the collection and disinfection of liquid waste: medications are prescribed for the emergency deployment of beds for mass infectious diseases per 100 beds within 72 hours.

When the causative agent of plague, cholera, anthrax, hemorrhagic fevers, which are characterized by high virulence, resistance in the external environment, survival in food and water, is identified, precautionary measures are organized and observed in the department.

The staff of the medical department works in anti-plague suits according to the schedule established by the head of the department for no more than 4 hours per shift. At the end of work, the staff undergoes sanitary treatment, changes clothes and goes to rest. The department is intensifying sanitary, hygienic and anti-epidemic disinfection measures. When choosing therapy for infectious patients admitted for treatment in a hospital with an unclear diagnosis, treatment is carried out with pathogenetic agents aimed at eliminating emergency syndromes. After identifying the type of pathogen, specific treatment is carried out for the patient.

A special treatment area is equipped on the hospital premises, where vehicles are treated with disinfectant solutions, a place is allocated for collecting clothes sent for disinfection, disinfestation, and an area with a container for collecting food waste.

A strict anti-epidemic regime in the hospital is maintained in case of isolated cases of plague, Lassa fever, Ebola, Marburg and some other diseases, as well as mass diseases of anthrax, yellow fever, glanders, typhus, etc.

Anti-epidemic and treatment-and-prophylactic measures are carried out among the hospital staff, which include: identifying infectious patients among staff, carrying out nonspecific and emergency specific medical prevention.

Recovering patients are transferred to the department for follow-up treatment, where after three negative bacteriological tests are carried out, they are discharged from the hospital.

In case of mass admission of patients with suspected dangerous infectious diseases, if laboratory bacteriological examination of the diseases does not fall into the category of dangerous infections, the strict anti-epidemic regime from the hospital can be lifted. Lifting the regime should not reduce the level of sanitary, hygienic, anti-epidemic and therapeutic measures. Relief is allowed in the work of personnel who are no longer on round-the-clock duty.

Regulatory measures in the hospital are removed after the last infectious patient is discharged and after one incubation period of the disease has passed. During this period, the hospital carries out disinfection and pest control measures and, if possible, redecorating the premises.

Mass reception of victims with mechanical trauma, burns, chemical poisoning, irradiated with ionizing radiation, contaminated with radioactive substances, suspected of infectious diseases in emergency situations requires knowledge and training of hospital personnel for this work.

Questions for self-monitoring of knowledge acquisition

1. **Preparing the hospital for the mass reception of hazardous chemicals contaminated from the outbreak.**
2. **Triage of victims of a radiation accident in medical institutions**
3. **Features of the work of hospital medical departments during the massive influx of hazardous chemicals.**
4. **Preparing the hospital for the mass reception of victims from the source of the radiation accident**
5. **Features of the work of functional departments of a hospital during the mass arrival of victims from the source of a radiation accident**
6. **Preparing the hospital for the mass admission of infectious patients**
7. **Features of the work of functional departments of the hospital during the mass arrival of those affected from the source of an infectious disease**