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URGANCH BRANCH OF TASHKENT MEDICAL ACADEMY
DEPARTMENT OF INFECTIOUS DISEASES, EPIDEMIOLOGY AND PHTHISIATRY

OF MILITARY EPIDEMIOLOGY
DIRECTION OF MEDICAL PREVENTION
FOR STUDENTS OF THE 4TH COURSE

EDUCATIONAL METHODOLOGY COMPLEX

Field of knowledge: 500000 – Health and social care
Field of study: 510000 – Health care
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Protocol No. 1

I. Educational materials

#1. PRACTICAL EXERCISES

Not the quantity of knowledge, but its quality
is important. You know a lot
possible, without knowing the most important things.
Tolstoy Lev Nikolayevich

PRACTICAL EXERCISE #1

TOPIC 1: CONCEPT, DEFINITION OF MILITARY EPIDEMIOLOGY. COMPOSITION AND TASKS OF MILITARY EPIDEMIOLOGY. THEORETICAL AND METHODOLOGICAL BASIS OF MILITARY EPIDEMIOLOGY.

Training of students in military epidemiology goals and objectives

The purpose of training students in this field is to train them to perform their duties in the theoretical and practical aspects of military epidemiology as required by the situation during martial law.

Based on the results of studying the subject, students should have an idea of:

- about the science of military epidemiology and its main tasks;
- etiological composition of infectious diseases among troops and their specific epidemiological characteristics;
- about the organizational structure and staff of sanitary epidemiological units (SEO).

They should know:

- the mechanism of development and manifestation of the epidemic process, their characteristics in the conditions of the use of weapons of mass destruction by the enemy;
- methods of assessing the sanitary-epidemiological condition of the troops and the areas where they operate;
- characteristics of biological agents used as bacteriological weapons and methods of their use;
- measures carried out at the stages of medical evacuation, measures to protect personnel from bacteriological weapons, the forces and means involved in carrying them out;
- the main principles of strict anti-epidemic procedures during the stages of medical evacuation;
- identification and isolation of patients suffering from highly dangerous infectious diseases, measures to be taken by medical services in such a situation;
- organizing the work of the main departments of sanitary-epidemiological institutions during martial law.

Must be able to:

- assessment of the sanitary-epidemiological situation of the unit (the area where it operates) and drawing up a plan of anti-epidemic measures and measures for protection against biological weapons based on the results of the assessment;
- conducting an epidemiological inspection and sanitary-epidemiological reconnaissance in the hearths, as well as monitoring the areas where combat operations are being carried out;
- giving instructions for carrying out sanitary and cleaning works in the furnace;
- compliance with technical safety rules when working with the causative agents of extremely dangerous infectious diseases.
- taking samples for the special indication (detection) of biological agents, filling out relevant documents and sending the samples to epidemiological institutions.

Terminology, tasks and development of military epidemiology

Military epidemiology -branch of military medicine, a part of epidemiology, scientifically substantiates the measures aimed at preventing the foreign penetration of infectious diseases among the troops, their emergence inside the unit and their spread among the personnel (epidemic process laws); develops measures to prevent the introduction of infectious disease agents among the troops, limit and eliminate the outbreak, and teaches the rules for preventing the spread of infectious diseases that have appeared in the military unit.

Military epidemiology, epidemiology science and military medical sciences have been formed since the beginning of their formation and incorporated the theoretical and practical aspects of the protection of troops from epidemics. Also, their knowledge and practical activities are based on the set of theoretical, practical and organizational principles among the troops. development of anti-epidemic and preventive measures, conduct of these events is dedicated to teaching the rules.
Currently, military epidemiology studies, in addition to the above, the characteristics of bacteriological weapons that can be used by the enemy and the methods of protecting military personnel from their effects.[1]

The object of study of military epidemiology is military communities, and their living conditions in peacetime and during war teach their specific characteristics in military training. Such characteristics are studied in order to prevent the development of an epidemic process in the military unit. As noted, military epidemiology includes knowledge of the harmful effects of bacteriological

[1]Mirtazaev OM, Toshboev B.Yu. "Military Epidemiology", Tashkent-2013.

(biological) weapons, their biological properties, and guidelines for protecting troops from the effects of these weapons.

The purpose of protecting troops from bacteriological weapons is to reduce the harmful effects of bacteriological weapons and eliminate complications after its use.

The development and improvement of theories on the protection of troops from epidemics, as well as their practical application, constitute the content of military epidemiology as a science.

In order to protect the troops from bacteriological weapons and epidemics, the following main tasks must be performed in turn:

- dynamic assessment of the epidemiological (bacteriological) situation in the troops and their locations and analysis of its results and complications;
- selection of appropriate anti-epidemic measures taking into account potential effectiveness;
- conducting anti-epidemic measures based on the organizational principles of military epidemiology depending on the situation;
- dynamic assessment of the quality of anti-epidemic measures and the work of relevant officials and organizational structures, based on these
- making appropriate changes to the measures being taken to protect against the epidemic.

It has already been established that the greater spread of infectious diseases among the population and among the troops occurs during times of war. For example: if we look at history, from 1733 to 1865 (more than 100 years), 1.5 million people died due to wars in Europe, while 6.5 million died due to infectious diseases during this period. million people lost their lives. When Napoleon's army marched against Russia, there were 5,000 patients with typhus before the war, but by July of the same year, 1812, the number of patients had exceeded 80,000.[2]

During the war between the Russians and the Turks (1828-1829) in the Russian army, for every 100 people who died from various injuries, there were 550 people who died from diseases.

There are many such examples that confirm that infectious diseases are always on the rise during wars.

In the period of the First World War (1914-1917), the excessive increase of infectious diseases demanded the application of strict and effective measures against the epidemic in the Russian army. In August 1915, for the first time, compulsory vaccination against smallpox and cholera was introduced in all units, military service institutions and organizations (in the interior districts of the country).

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[2]Mirtazaev OM, Toshboev B.Yu. "Military Epidemiology", Tashkent-2013.

The Great Patriotic War was a very important test for all former Soviet people. This war was different from previous wars in that the country had never seen such a heavy and bloody war before.[3]

The entire group of measures developed against the epidemic in the pre-war period was fully justified. Despite the extremely serious and unfavorable sanitary-epidemiological situation during the war, the epidemiological stability among the Soviet troops during the liberation of the areas occupied by the German-fascist troops from the Nazis is an indicator that proves their correctness. According to E.I. Smirnov, the number of patients suffering from infectious diseases among army troops during the entire war was only 9%.

Based on the nature of modern wars and armed conflicts, the development levels of medical science and military medicine, and taking into account the skills of anti-epidemic support of the assembled troops gathered in previous wars, the following main tasks are faced by military epidemiology in the present time. stands:

- prevention of infectious diseases and parasitic diseases that can spread among the personnel of the troops;
- in order to maintain and strengthen the health of military personnel, to establish permanent sanitary-epidemiological monitoring of their life, household and military activities;
- taking measures to protect the personnel of the troops by the medical service, as well as protecting the wounded, patients, medical service departments and institutions from the effects of biological weapons;
- to study the specific features of the development of the epidemic process among the personnel of the troops during the martial law, as well as to study the competences of the anti-epidemic measures of the troops in the conditions of various combat activities and to generalize them.

Sections and composition of military epidemiology

1. "Theoretical basis of military epidemiology." In this section, the laws of the development of the epidemic process among the personnel of the military unit are studied. Among the troops, knowledge is gained about the mechanism of development and manifestation of the epidemic process, its causes and conditions in peacetime and wartime. The theoretical basis of military epidemiology is the laws of development of natural and artificially induced epidemic process. Therefore,

[3]Mirtazaev OM, Toshboev B.Yu. "Military Epidemiology", Tashkent-2013.

students' knowledge of military epidemiology begins with the study of bacteriological (biological) weapons and their properties.

2. In the "Methodological basis of military epidemiology" section, an understanding of epidemic diagnostics in military units is provided. Methods of assessing the epidemic situation in the conditions of various activities of the troops are mastered.

3. "Organizational basis of military epidemiology" - this section consists of a set of knowledge in the field of epidemiology and organization of military medical service and its tactics. The organization of protection against epidemics and bacteriological weapons is considered in terms of the structure and tasks of this service.

4. "Content and organization of measures to protect military personnel from epidemics and bacteriological weapons."

Anti-epidemic measures developed at the level of the current stage of scientific development are the only ones for the prevention of infectious diseases both among military personnel and among civilians. Effective medical care for military personnel requires a consistent, scientific approach to epidemic prevention.

Thorough knowledge of all the information presented in a single system in this department of military epidemiology is the key to successful protection of the military from epidemics.

5. "Managing the protection of the military against epidemics and the effects of bacteriological weapons." In order to implement anti-epidemic measures in the armed forces, management decisions are made based on the level of the epidemic situation at a certain time, and plans are made to protect the military from epidemics and bacteriological weapons.

6. "Private epidemiology of infectious diseases that can spread among military personnel."

7. "Bacteriological (biological) weapons and protection of military personnel from the effects of such weapons."

This section provides a description of bacteriological weapons and examines the measures to be taken to assess the bacteriological situation, protect the military from the effects of bacteriological weapons, and mitigate their consequences.

THE LAWS OF THE SPREAD OF THE EPIDEMIC PROCESS AMONG MILITARY TEAMS

The development of the epidemic process among the military is characterized by its relative autonomy.

"Autonomy"- the term refers to the fact that military servicemen become infected with infectious diseases as a result of the influence of internal factors specific to military communities. But this concept of autonomy is relative. Because military servicemen's infection with infectious diseases is affected by external

factors related to their location and epidemic, epizootic conditions in the area where military operations are conducted.

The combination of internal and external factors indicated above determines the spread of infectious diseases among military personnel and their type.

The development patterns of the epidemic process among military personnel are also studied in the following three interrelated sections:

1. Development factors of the epidemic process (causes and conditions)

2. Mechanism of epidemic process development

3. Manifestation of the epidemic process

The manifestation of the epidemic process among military personnel is theoretically explained by taking into account the fact that biological, social and natural factors have specific characteristics among military personnel. It is known from the part of general epidemiology that biological factors are represented by the adaptation of infectious disease agents to the natural habitat and the formation of reservoirs of infectious diseases in order to survive as a biological species in the process of evolution. Infection of military personnel with infectious diseases occurs through three groups of disease-causing sources. Of course, here we are talking about anthroponoses (the source of the disease is a person),

Illness of military personnel with zoonotic and sapronic diseases is explained by E.I. Pavlovsky's theory of infectious diseases' tibial focus (1939).

Theories about the transmission mechanism of an infectious disease (LM Gromashevsky, 1941) and the self-management of the parasitic system (VDBelyakov, 1975) are common to all infectious and parasitic diseases. Based on the main rules of these theories, the cases of military servicemen with anthroponotic, zoonotic and sapronic diseases are analyzed.

Infectious diseases can enter areas of hostilities and spread these diseases behind the front lines.

Various wars are one of the social factors that lead to the spread of epidemics, both among civilians and among military personnel.

The army is formed from the population of this country and operates in populated areas. Therefore, the epidemiological situation among the population undoubtedly affects the incidence of infectious diseases among military personnel. The epidemiological situation among military personnel is determined by a number of factors, including the incidence of infectious diseases among enemy soldiers. It can also affect the military and civilian population with infectious diseases. The transmission of infectious diseases between military personnel and civilians is an interrelated process. As an obvious result of this relationship, we can see the following example:

During the war between the Russians and the Turks in 1768-1774, it was proved that the situation regarding the plague was somewhat stable, that is, the disease was introduced among the Russian army without the disease through prisoners (the command of the Russian army was not aware of the fact that the Turkish army was infected with the plague).

The disease spread among the local population as a result of the spread of the infection to the local population from military personnel treated for plague in military hospitals (during the Balkan war). As a result of the further developments of the epidemic, the disease covered large areas, and the epidemic even reached Moscow.

According to the famous hygienist A. N. Sisin, refugees were considered the main reason for the development of the epidemic during the First World War. In the spring and summer of 1915, in connection with the retreat of the Russian army, mass movements of the population from the west to the east began. The intermingling of large populations accompanied the development of epidemics and caused them to spread throughout the country. These circumstances also affected the epidemiological situation among the troops, because the troops were filled from among the local population.

In addition, it should also be considered that infectious hospitals for the treatment of soldiers were organized in military districts far from the front. That is why patients suffering from infectious diseases were transported by trains from the places where military actions and battles were taking place, which in turn had an impact on the epidemiological situation among the population. It is also important to evacuate prisoners captured from areas with a bad epidemiological situation to the rear.

All of these together lead to an increase in infectious diseases not only among the personnel, but also among the local population.

By the beginning of 1915, diarrhoea, typhoid fever, relapsing typhus and a number of other infectious diseases began to be considered in almost the entire country.

During the period of civil war and struggle against the invaders (1918-1920 years), the development of epidemics began to occur due to the "legacy", i.e. complications, left over from the years of the First World War. The reason for this "heritage" was the huge migrations after the end of the war. Soldiers returning from the service began to enter the country from the front. In the opposite direction, those who fled their countries during the war have started to return to their countries. Later, due to the famine of 1921-1922, mass migration of people in search of bread took place. During the war years, representatives of the local population who were captured and released served as important factors in the spread of epidemics.

In 1941-1945, at the beginning of the Great Patriotic War, the situation was very difficult, which created many factors that caused the spread of infectious diseases.

In the pre-war period, some stability of the epidemiological situation was achieved in the army and in the country. This situation was maintained for a while in the early stages of the war, as our troops initially retreated to regions with a stable epidemic situation. Therefore, the population near the front has been massively evacuated to the east since the beginning of the war. This led to the mixing of the population living behind the front and the displaced people, as a result of which outbreaks of infectious diseases began to appear. Infectious diseases were introduced into the army through new recruits brought from behind the front to replenish the ranks. According to T. E. Boldirev (1955),

The situation changed somewhat in the second and third years of the war. As a result of the measures adopted and implemented by the public health and military medical service systems, as well as the comprehensive support of the government, the epidemiological situation has improved somewhat, and the established system of "Epidemiological Barriers" is behind the front. did not allow diseases to enter the front. As a result of this, by the beginning of 1943, the incidence of infectious diseases at the front was only 3%, and in 1944 - 1.2% due to imports from the country.

In the second and third periods of the war, the epidemiological situation among enemy troops also worsened, which indicated that prisoners of war were also epidemiologically important.

The experience of various wars shows that the ways of introduction of anthroponotic diseases among military personnel are the replenishment of military units with new servicemen and on the other side (liberated military personnel, prisoners of death camps and those captured by the enemy). communication with people.

In peacetime, military personnel can become infected with infectious diseases in several ways.

The main ones are:

1. Communication of military personnel with citizens. The most dangerous in such cases are military personnel staying at railway stations, river and sea ports, buying food from markets, etc.
2. Filling of the military unit with new servicemen called from the places considered bad due to the epidemic situation. In this case, the spread of the disease may occur if the medical personnel of the military unit are not warned in advance and appropriate measures are not taken.
3. Military personnel returning from vacations, business trips, and household chores can also cause the spread of infectious diseases.

4. If there are natural foci of disease in the area where the military unit is located, infectious diseases (tick-borne encephalitis, tularemia, Ku-fever, plague, etc.) may spread among military personnel.

In addition to the above-mentioned factors during the war, the risk of artificial spread of infectious diseases among military personnel by using bacteriological weapons is also of great importance. In such cases, the spread of the disease can occur through contaminated air, food products, water, soil, weapons, equipment, as well as sick people and animals.

It should be noted that there are many factors that facilitate the implementation of anti-epidemic measures among military communities.

These include:

- the medical service implements anti-epidemic measures;
- unit doctors rely on the help of commanders to carry out some activities;
- a number of activities are carried out together with personnel and frontline workers;
- qualified and specialized measures are carried out by army sanitary and epidemiological institutions, and in some cases together with civil sanitary and epidemiological institutions.

From the point of view of the theory of self-management of the parasitic system, the introduction of the above-mentioned anthroponotic diseases among the military (except point 4) is a dangerous disease that exists among the population of epidemic types of causative agents. it is considered to be coming from the chakas. Among such factors among the population, the most important is the migration process, which causes an increase in the susceptibility of the local population living in the same place to infectious diseases (at the expense of heterogeneity).

In addition, the introduction of non-virulent types of pathogens among the military through bacterial carriers is also of epidemiological importance.

It is known from the course of general epidemiology that even among heterogeneous populations of people there will always be individuals who carry reservation types of pathogens. The percentage of such individuals can be from 0.005% to 10%, depending on the type of disease. Therefore, when large-scale military teams are organized, reservation species of anthroponotic disease agents can always be present.

Based on the theory of self-management of the parasitic system, human disease is represented by social and natural factors that lead to the formation and spread of epidemic types of pathogens. From the course of general epidemiology, three different conditions and conditions of infection with reservation strains of anthroponotic pathogens are known:

1. Migration of people for various reasons.
2. Factors leading to the activation of the transmission mechanism

3. Factors leading to a decrease or complete disappearance of the body's resistance to pathogens.

The high rate of respiratory infections in military units is explained by the active formation of an epidemic type of the pathogen in this unit due to the replenishment of military units with new servicemen.

The high incidence rate of intestinal infections is explained by the high risk of introducing the epidemic type of pathogens into the military unit and the large number of factors that activate the transmission mechanism of pathogens. The strengthening of the transmission mechanism leads to the formation of epidemic strains of the pathogen and its rapid spread. Infection of people with transmissible zoonoses occurs due to activation of epizootic foci and transmission of these diseases by military personnel.

Different routes of zoonotic diseases among the military entry with

Due to the high equipment supply of military units in the present era, the role of animals in the spread of zoonotic diseases among the military is very small. However, animals used as food products are of epidemic importance. Therefore, sanitary and veterinary measures are always required.

Rodents and insects parasitizing their bodies are also of epidemiological importance in some diseases (in plague - fleas, in encephalitis - ticks, in Japanese encephalitis - various mosquitoes, etc.).

Soil plays an important role in the spread of anaerobic infections (tetanus, anthrax, anthrax) and other spore diseases among soldiers.

In places where there are some epidemic diseases (histoplasmosis and others), military accommodation in basements can lead to transmission of this disease to people through soil (dust). For example: during the Vietnam war, such a situation was observed.[4]

The composition of infectious diseases spread among the military and the characteristics of their spread when weapons of mass destruction are used

In the current era, the military's incidence of infectious diseases (in peacetime) is characterized by a number of specific features. The incidence of influenza and other respiratory diseases among the armed forces of most countries has varied between 80-100% in different armies in certain years.

[4] *Kravets BV Voenno-meditsinskaya rodgotovka. Uchebnoe rosobie.-Blagoveorensk, 2000.*

Streptococcal infections are in second place. The incidence of some types of such diseases (angina, rheumatism, nephritis) goes from 15-30% to 50-60% in some armies.

In third place are streptococcal and other purulent septic diseases, the incidence rate of which is 15-20% of the total incidence. Statistics on the incidence of dysentery and other acute intestinal diseases, the incidence of various viral hepatitis occurs in all armies of the world and the incidence rates are 0.5-5%, 7-10% in subtropical and tropical countries. does.

Currently, the incidence of tuberculosis is high (from 0.2% to 2%). The incidence of meningitis among military personnel is closely related to the periodic occurrence of this disease.

In wartime, the spread of infectious diseases is the same as in peacetime, but when weapons of mass destruction are used, the epidemiological situation changes dramatically.

The use of nuclear weapons affects the spread of infectious diseases in two ways:

1. Demolition of housing, failure of sewage and water facilities increases the rate of spread of pathogens. This condition causes the spread of gastrointestinal and upper respiratory tract infections.

2. Nuclear radiation affects the human body and increases its susceptibility to disease, which in turn makes it easier to get infected with an infectious disease. Because the protective function of the skin and mucous membranes decreases under the influence of radioactive rays, the immunological condition of the body decreases due to the decrease in the phagocytic properties of leukocytes.

These conditions in an irradiated organism accelerate the reproduction of pathogens, such an organism has the ability to excrete many pathogens. Also, radioactive rays can cause non-pathogenic microorganisms to become pathogenic.

The types of infectious diseases spread when using bacteriological weapons depend on the type and characteristics of pathogens used in this weapon.

Anti-epidemic measures in military units basics of organization

These processes are entrusted to the military medical service, which is carried out by the head of the medical service in the regiment, and by the head of the ship's medical service in the warship. If several units are stationed in one garrison, the head of the medical service of the garrison will take measures against the epidemic. He is appointed based on the orders of the head of the garrison.

From this point of view, protection of the military from epidemics is part of the duty of military medicine. In addition, special sanitary-epidemiological

institutions will be organized as part of the medical service. In addition to monitoring the quality and effectiveness of the measures carried out in the military units, these institutions provide qualified and specialized hygienic and anti-epidemic services in the military units in 4 areas: epidemiology, microbiology, parasitology and hygiene. they wear Such directions have their own specialists. In addition, treatment and prevention institutions, including infectious disease specialists, take part in anti-epidemic measures.

Members of the private sector are also involved in the implementation of anti-epidemic measures.

Anti-epidemic in military units system of measures

In military units, the system of anti-epidemic measures is mainly carried out in 2 directions:

1. Preventive measures to prevent the disease.
2. Measures taken to prevent the spread of the disease in the center of the disease and to eliminate the center after the disease has appeared.

In the implementation of such a system of measures, it is desirable to assess the sanitary-epidemiological situation, the integrity of sanitary and anti-epidemic measures.

Events held until the disease is over

Section 1.

A. Medical examination by a military doctor;

B. Identification of Patients'

V. Nimjon identification of military personnel;

G. Study of the health of irradiated, electromagnetic field-exposed and poisoned military personnel;

D. Taking into account military personnel whose health has changed and conducting control over them.

Section 2. Measures to provide medical care over how the parts are located:

A. Identifying situations that negatively affect the sanitary and hygienic condition of parts;

B. Determining the sanitary-hygienic condition of the basement, armory and other structures;

V. Regulation of contact of members of the military unit with the local population;

G. Control of timely cleaning of the area where the part is located.

Section 3. Medical control of food and water supply:

A. Inspection of food products delivered to parts;

B. Controlling the supply of food products in specified quantities;

V. Controlling the use of vitamin products in food preparation;

G. Organization of medical examination of kitchen and food workers once a month;
D. Weekly physical examination of kitchen staff.

Epidemic measures:

Anti-epidemic measures include:
- reconnaissance of the sanitary and epidemiological situation of the areas where the military unit is located and operates;
- constant monitoring of these areas;
- timely identification of persons suffering from infectious diseases;
- isolate them or put them in hospitals.

Epidemiological examination of each case of infection with infectious diseases is carried out to determine the source of the disease, the route of transmission and the persons who were in contact with the patient.

Such persons are subjected to full sanitary treatment, their clothes are disinfected, and they themselves are under surveillance for a certain period of time. Quarantine is established when necessary.

Disinfection, disinsection and deratization activities are carried out in the epidemic center. Epidemiological control is established over the eliminated outbreak.

Medical services prevent the spread of disease during the evacuation of sick persons. This service is also responsible for carrying out vaccinations among military personnel, identifying and rehabilitating people who are carriers of bacteria and those suffering from chronic infectious diseases.

An important part of the measures against the epidemic is the medical control of newly arrived military personnel.

What are restrictive measures?

These are measures that regulate and limit the actions of the military in order to protect them from epidemics. Measures of this type are carried out when there is a risk of the spread of infectious diseases among the military or their importation, as well as to prevent the spread of diseases outside the territory of the military unit.[5]

The duration of these measures will depend on the duration of the risk of disease transmission and the maximum latent (incubation) period. The criterion of orderly restrictive measures depends on the type of disease and the specific characteristics of the military unit.

Such activities can be divided into three different groups:

1. Enhanced medical supervision.
2. Observation.
3. Quarantine.

[5] *Kravets BV Voenno-meditsinskaya rodgotovka. Uchebnoe rosobie.-Blagoveorensk, 2000.*

Enhanced medical supervision- this consists in actively identifying and isolating or treating those infected with infectious diseases among military personnel using special methods (thermometry, laboratory tests, etc.).

"Observation"the word means observation. In such a service, along with enhanced medical control, some additional measures are implemented, that is, this area is separated with the help of special indicators, fences, and entry and exit to this area is restricted.

Monitoring work is organized differently in different diseases, because the conditions and locations are different in different parts. At this time, business trips, vacations and answering are prohibited. In kitchens, it is ensured that employees work continuously without changing employees as much as possible. If this period coincides with the time of war, combat actions will continue.

The order of observation is determined by the commander of the unit or unit based on the reference of the head of the medical service.

During the observation period, treatment-prophylaxis and isolation of patients are carried out in the center of the disease, these measures prevent the spread of disease agents outside the center of the epidemic.

During the observation, the members of the military unit are divided into small (4-5 people) groups. Their body temperature is measured twice a day and clinical signs of the disease are checked. A person who has any changes in his health is immediately isolated and sent to an infectious disease hospital.

In addition to giving antibiotics to the infected people to prevent the disease, they are disinfected in "sanpropusknik".

Medical control is established over personnel exposed to the enemy's bacteriological means. The purpose of this is to identify and quickly isolate and hospitalize patients.

Urgent non-specific prophylaxis is carried out during observation to all members of the affected and poisoned parts (associations), and special prophylaxis is carried out after the type of bacteriological agent used is determined.

If ordinary citizens also live in the center of biological damage, the medical service, together with local health authorities, organizes identification of infected people among the population. All work on identification of victims in the furnace is carried out in special protective clothing.

The medical service of the units organizes and carries out a non-specific indication for the identification of bacteriological weapons, takes samples and delivers them to sanitary-epidemiological laboratories for special indication.

Anti-epidemic procedures are established in medical departments, units and institutions.

The medical service of units (associations) establishes targeted sanitary-epidemiological control over epidemiologically significant objects (objects identified as a result of epidemiological investigations). Current and final disinfection, disinsection, and deratization are organized in military units (units). Sanitary promotion will be strengthened. The word "quarantine" means 40 days, and this word comes from the fact that in the Middle Ages ships suspected of plague were kept at sea for 40 days. During the quarantine, members of the military unit are separated from others.

Quarantine- which consists of a set of administrative, isolating, restrictive, treatment-prophylactic, sanitary-hygienic and anti-epidemic measures and prevention of the exit of dangerous infectious disease agents from the epidemic center, as well as limiting the disease and is an event aimed at increasing the effectiveness of measures taken in connection with the loss.

According to the order of the Minister of Defense of the Republic of Uzbekistan or his first deputy, quarantine is established in the military unit (army). General control over the implementation of the regime restriction and other measures will be entrusted to the Emergency Epidemic Committee (FEQKH). In quarantine, the same measures are used as in observation, only the measures are more serious and strict. If a very dangerous infection is detected, then this place will be guarded with the help of special guards. It is prohibited to enter this area, intensified epidemiological control is carried out among the military. Where the disease occurs, complete elimination of the disease is ensured. Supplying the military unit with food and necessary equipment is carried out through a special area.

Hospitals for infectious diseases and highly dangerous infectious diseases are located in this area, where patients are treated. At this time, the members of the military unit are divided into small (up to platoon, unit) groups, and the groups are prohibited from communicating with each other; general gatherings (in the club, kitchens, meetings) will not be held, the personnel and units of the unit will be isolated from the population. Urgent prophylaxis and special prophylaxis are carried out for those infected with infectious agents. The duration of "Quarantine" and "Observation" depends on the latent period of infection, which is calculated after the last patient has been identified and the final disinfection has been carried out. Quarantine is appointed and canceled by the army, front commander as mentioned above.

Quarantine is established even if the military unit is in a combat state when there is an outbreak of extremely dangerous infectious diseases. A curfew will be introduced to control order. Specialists from sanitary-epidemiological and treatment facilities are allocated to carry out anti-epidemic measures in quarantine. Depending on the situation, a group of specialists is organized to carry out treatment-isolation,

disinfection, laboratory tests, vaccination and immediate preventive work. When bacteriological weapons are used, personal and public protective equipment is used. Personal protective equipment includes respiratory equipment and protective equipment for outer coverings. Filterable gas masks are a mass protective device for respiratory organs. also such protective equipment includes various types of respirators and hand tools (towels, etc.). Public means of protection against bacteriological weapons include hermetic shelters of various constructions, consisting of filter ventilation devices operating under conditions of complete isolation.

Control questions:

1. What is military epidemiology?
2. Field of study of military epidemiology?
3. The composition of military epidemiology?
4. Conditions of spread of the epidemic process among the military?
5. The system of anti-epidemic measures carried out in military units?
6. What are the forces and tools used in the fight against the epidemic in Kushin?

Situational issues

Situational issue #1

12.04 in the area where the 5th motorized rifle division is located. at 16-32 square at 2300 the enemy used a bacteriological weapon.

The head of the medical service of the division summoned the head of the san.epid.laboratory (SEL) and gave the following instructions:

Taking samples from objects of the external environment, determining the type of trigger, taking appropriate measures.

I. From which objects of the external environment are samples taken:

A) from water, soil, insects and arthropods, rodents

B) from weapons

C) from the ammunition depot

G) from cars

D) from armored personnel carriers

II. The type of stimulus used as BQ is determined by which reaction:

A) RNA

B) Wright reaction

C) SHick reaction

G) RTGA

D) RSK

III. Things to do in the furnace to prevent the spread of the pathogen:

A) determining the boundary of the furnace, taking precautionary measures among the personnel, conducting explanatory work, providing individual protective equipment.

B) moving personal content to another area

C) Prohibition of leaving the barracks for personnel for 40 days

G) distribution of masks among personnel

D) prohibiting personnel from leaving the barracks for 25 days

Answers. 1- a, 2- a, 3- a

Situational issue #2

Intelligence officers reported to the head of the medical service of the division that the enemy was preparing for the use of bacteriological weapons for combat purposes.

The type of pathogen intended to be used as a bacteriological weapon and the period of use were not determined.

The division summoned the head of the san.epid.laboratory (SEL) to the presence of the head of the medical service and instructed him to develop measures for the protection of personnel from the effects of bacteriological weapons according to the following scheme:

I. Measures to be taken when there is a danger of the use of BQ by the enemy:

A) sanitary-epidemiological and bacteriological intelligence, special training of personnel, training of medical institutions, creation of reserves of medical service forces and equipment, strengthening of san.gig and anti-epidemic measures

B) sanitary treatment of troops

V) keep the members in the barracks

G) partial sanitation of the army

D) vaccination among personnel

II. Measures to be taken when bacteriological weapons are used:

A) to notify all personal members using all types of communication tools. Use of individual and collective protective equipment

B) busy with their usual work

C) it is not necessary to use protective equipment

G) keeping troops in cellars

D) distributing masks to the soldiers

III. Measures to eliminate the consequences after the use of bacteriological weapons:

A) to determine the limits of the outbreak and the infected, to determine the type of bacteriological means. observation or quarantine

B) determining the number of casualties

C) determining the number of healthy people
G) identification of affected animals
D) carrying out cleaning work in the furnace
Answers. 1- a, 2- a, 3- a

Situational issue #3

The head of the medical service of the division instructed his subordinates to educate the staff about bacteriological weapons, their types and other characteristics, and asked them to clarify the following:
I. What is a bacteriological weapon:
A) bacteriological weapons - these are weapons that cause mass diseases among the population or the death of people, animals and plants with the help of disease-causing microbes and their toxins.
B) BQ is a weapon of mass destruction
C) is a combat weapon that is used everywhere
G) is a weapon that makes everyone afraid
D) is a weapon designed only to kill people
II. Types of bacteriological recipes:
A) dry recipes and wet recipes
B) chlorine-retaining formulations
C) formulations containing disinfectants
G) poisonous gas trapping recipes
D) formulations that trap harmful insects
III. Means of delivery of BQ to the intended areas:
A) by means of rockets, by means of airplanes (air bombs, mechanical generators and spraying equipment, by means of rodents and arthropods in containers), using artillery shells and mines
B) using machines
C) with the help of migratory birds.
D) using waterfowl
D) using tanks
Answers. 1- a, 2- a, 3- a

Test questions on the topic.

1. Types of sanitary treatment for private troops?
A. partial custom processing, full custom processing
B. partial degassing treatment
V. partial deactivation treatment
G. partial disinfection treatment
D. partial disinsection treatment
2. What is the purpose of anti-epidemic measures in military units?

A. preventing and preventing the spread of disease
B. study information received from headquarters
V. topographic map study
G. organization of decontamination works
D. to study the epidemiological situation of the enemy

4. Show groups of bacterial recipes?

A. Wet, dry recipes
B. hot, warm recipes
V. cold, icy recipes
G. toxic, wet recipes
D. dusty, airy recipes

5. What is the meaning of the word quarantine?

A. the word quarantine means 40 days
B. the word quarantine means communication
V. the word quarantine means to see
G. the word quarantine means observation
D. the word quarantine means to know

6. What is the meaning of the word observation?

A. means observation
B. means to determine
V. internal supply service
G. personal content service
Medical service in part D

7. What is the issue that includes a full epidemiological diagnosis?

A. assessment of manifestation of the epidemic process by regions, among population groups, by time
B. evaluation of the identification of the epidemic process
V. inspection of anti-epidemic measures
G. Evaluation of detection of infectious process
D. assessment of the environmental status of the aircraft

8. What indicator is included in the group of dangerous factors?

A. dangerous time, dangerous area, dangerous group
B. unsafe procedure
V. dangerous nature
G. dangerous level, dangerous indicator
D. hazardous area

9. Specify the factors that determine the risk of disease?

A. dangerous time, dangerous area, dangerous group
B. unsafe procedure

V. dangerous nature
G. dangerous level, dangerous indicator
D. hazardous area

10. Indicate the causative factors of the disease?

A. air, water, soil, food
B. Sterile medical devices, related materials
V. Water conforming to GOST requirements
G. certified food products
D. seronegative blood

11. Indicate the type of epidemiological analysis?

A. retrospective epidemiological analysis, operational epidemiological analysis
B. prospective epidemiological analysis
V. graphic epidemiological analysis
G. multi-year analysis of transmission routes
D. analysis of epidemiologic investigation of foci

12. Show the full scheme of retrospective epidemiological analysis?

A. analysis of long-term dynamics of population morbidity
B. multi-year analysis of transmission routes
V. Epidemiological examination of foci
G. prospective epidemiological analysis
D. continuous monitoring of the disease and assessment of its dynamics

Answers. 1- a, 2- a, 3- a, 4- a, 5- a, 6- a, 7- a, 8- a, 9- a, 10- a, 11- a, 12- a

Students to succeed
must overtake the former,
not waiting for those left behind.
Aristotle

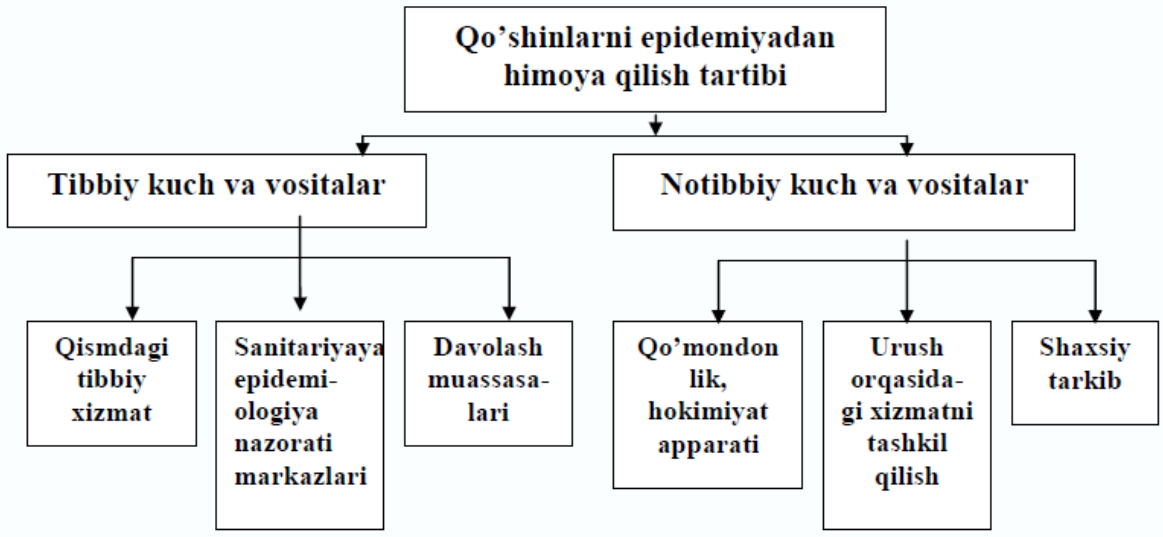
PRACTICAL EXERCISE 2

SUBJECT:MODERN CHARACTERISTICS OF MILITARY EPIDEMIOLOGY AND PROBLEMS OF DOLZARB.

The organization of the protection of troops against epidemics and bacteriological weapons, like other activities among people, is organized in terms of structures and functions.

The organizational structure of the protection of troops from bacteriological weapons and against epidemics

Epidemic protection of troops is a part of the medical supply system and is considered as an independent organizational system. Anti-epidemic measures and measures to protect troops from the effects of bacteriological weapons are in most cases carried out by one and only those departments. Accordingly, the organizational system of protection against bacteriological weapons and epidemics can be viewed as a complex of medical and non-medical forces and tools (Figure 1).



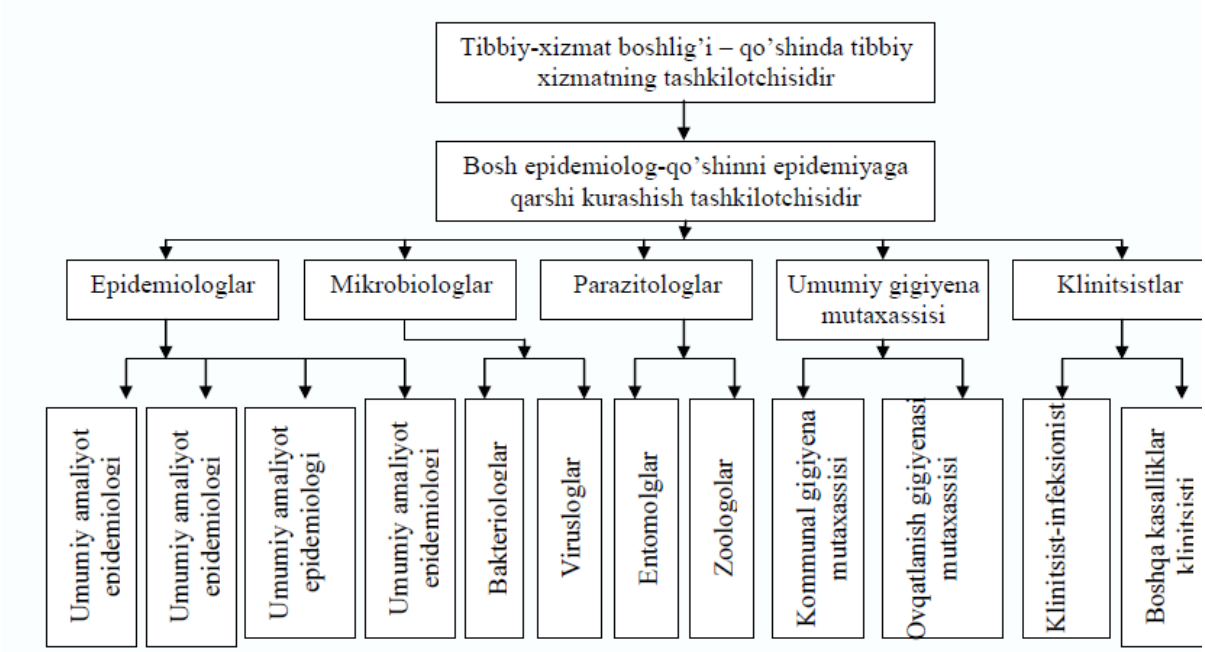
1-chizma. Qo'shinlarning epidemiyaga qarshi kurashishda qo'llaniladigan kuch va vositalari

The basis of the organizational structure of the protection of troops against bacteriological weapons and epidemics is the army medical service, which unites

the medical services of units, parts and formations. This medical service is managed by the head of the divisional medical service in the division, and by the head of the regimental medical service in the regiment.

When several units are placed in one garrison, the protection of the army against epidemic and bacteriological weapons is carried out by the head of the medical service of the garrison, who is appointed by the head of the garrison on the basis of orders.

Special structures - sanitary-epidemiological institutions - have been established for the purpose of protection of the organizational structure of the medical service against bacteriological weapons and against epidemics. There are various specialists in these institutions: epidemiologists, microbiologists, parasitologists, disinfectants and hygienists (Figure 2).



2-chizma. Qo'shinni epidemiyaga qarshi maxsus chora-tadbirlar ko'rishi uchun mutaxassislar bilan ta'minlash

Each specialty is further divided into narrower specialties. Thus, epidemiologists specialize in the following specialties: epidemiologist-anthroponous diseases, immunoprophylaxis, highly dangerous infections, etc.

Epidemiologists manage the work of all specialists in the army's anti-epidemic work. For this purpose, the positions of the chief epidemiologist are provided at various levels of medical organizations.

Many measures to protect troops against epidemics cannot be carried out by medical forces alone. Chemical service and frontline services also help in the implementation of these measures. Their management is the responsibility of chemical or joint commanders. All personnel are involved in the implementation of a number of measures.

Depending on the content and nature of the measures to protect the troops against the epidemic, the medical service will develop recommendations and suggestions for those in the command and material and technical support service. These recommendations and suggestions are shown in regulations, instructions, manuals and plans and are reinforced and must be implemented.

Carrying out sanitary-hygienic and anti-epidemic measures in the troops is the main task of all personnel of the medical service. All departments, parts and institutions of the medical service are involved in the implementation of these measures.

The role of sanitary-epidemiological institutions, which are equipped with modern preventive tools and have the necessary specialists to fight infectious diseases, is very important in the effective implementation of anti-epidemic provision of troops.

Sanitary-epidemiological institutions and departments are considered as structures of medical service. They are able to organize and carry out qualified anti-epidemic measures, provide methodological and practical support to the medical service unit of the troops in sanitary-hygienic and anti-epidemic provision, and conduct sanitary control of the troops. intended.

The sanitary-epidemiological institutions and units of the medical service include: sanitary-epidemiological control center (SENM) of the Ministry of Defense of the Republic of Uzbekistan and sanitary-epidemiological detachments (SEO) of military districts.

Sanitary-epidemiological control centerintended for the organization and implementation of a complex of sanitary-hygienic and anti-epidemic measures for the armed forces. The sanitary-epidemiological control center has the following tasks: conducts qualified microbiological, hygienic and toxicological examinations; organizes and conducts isolation-quarantine measures in troops with unfavorable sanitary-epidemiological conditions; strengthens the joint medical service with its own forces and means; compounds for sanitary-epidemiological institutions - prepare disinfectants and deratizers.[6]

In addition, the sanitary-epidemiological control center supervises the implementation of sanitary-hygienic, anti-epidemic measures in the army and front districts based on the plan of the Chief Sanitary Doctor of the Ministry of Defense, and is the main body that advises on the issues of protection of the troops against epidemics. is the center.

When bacteriological weapons are used by the enemy, the sanitary-epidemiological control center organizes and carries out measures to completely eliminate the consequences of the use of bacteriological means by the enemy in the areas where the troops are operating. conducts medical intelligence.

[6]Mirtazaev OM, Toshboev B.Yu. "Military Epidemiology", Tashkent-2013

The sanitary-epidemiological control center has epidemiological, sanitary-hygienic and active sanitary-epidemiological departments.
Epidemiological department includes: epidemiological, disinfection, bacteriological departments, department of highly dangerous infectious diseases and department of AIDS infections.

The sanitary-hygienic department includes: sanitary-control and expertise department, toxicology and radiology department, sanitary-hygienic and toxicology laboratory.

Departments and units of the sanitary-epidemiological center conduct bacteriological, virological and other investigations in order to determine whether bacteriological means have been used by the enemy. The troops determine the incubation period of a certain disease that has appeared among its personnel.
Identifies infected rodents, animals, birds and insects suspected of being the source and spreaders of infectious diseases.

In this, the boundaries of natural and enzootic (characteristic of a geographical situation and spread among animals in that area) foci of infectious diseases are determined, and an epidemiological forecast is made for planning anti-epidemic measures among the troops stationed in those areas. comes out.

Searches for and tests new modern laboratory-diagnostic and express methods for early diagnosis of infectious diseases, quick detection of contamination of water, air, soil, food products, etc.

Controls the quality of products delivered to food warehouses and their storage in accordance with the requirements of sanitary and hygienic regulations. In order to determine the quality of prepared foods and the contamination of water with bacterial, radioactive and toxic substances, he conducts laboratory control and makes a conclusion for their consumption.

In addition, it plans to provide all sanitary-epidemiological laboratories with special laboratory equipment, reagents, diagnostic preparations, sera, suitable media for growing fungi and microbes, etc. Controls their delivery by medical supply bodies; directs the special training of medical personnel to work on the fronts, in the conditions where bacterial weapons are used by the enemy; trains laboratory assistants in his educational department and conducts training of bacteriologists and hygienists in the places where he works.

Participates in the development of planning measures for the protection of troops against bacteria and supervises their implementation in military units and units. Places, military equipment, vehicles and other objects are disinfected in a quality manner, and laboratory control is carried out in order to determine whether all food products and water are contaminated with radioactive and toxic substances, pathogenic microorganisms.

Sanitary and Epidemiological Department in Action (HSEB)

To carry out qualified sanitary-epidemiological and bacteriological reconnaissance, to conduct sanitary-hygienic and bacteriological inspections of troops, to eliminate epidemic foci and foci of bacteriological damage that have appeared in the areas where troops are operating designed to carry out anti-epidemic work in tires. The sanitary-epidemiological department on the move is very mobile. The sanitary-epidemiological department in action is used to strengthen the medical service of the troops. In addition, when necessary, it can be used in a separate direction or in the districts, separately from the sanitary-epidemiological detachment, to perform tasks independently.

Disinfection department is used for special treatment of personnel of military units, formations and institutions based on epidemic instructions, or when weapons of mass destruction (WMD) are used by the enemy, in places where troops are stationed. designed for carrying out disinfection and deratization measures in the center of bacterial damage and infectious diseases.

The disinfection department has a very high throughput: during one hour of operation, 50 people and their clothes undergo complete special treatment. The head of the department is a doctor, under his supervision are paramedics, a sanitary supervisor, a disinfector, and others.

Disinfectant department is equipped with disinfectant-shower, water transport, 400-liter tank car (AvTS-28), water storage containers (RE-6000 brand containers), etc.

Sanitary-epidemiological detachment (SEO)are special institutions of medical service. They are responsible for monitoring sanitary-hygienic and anti-epidemic measures in the troops and carrying out methodical management work. They directly participate in the elimination of large outbreaks of epidemics and, in some cases, extremely dangerous infectious diseases.

Highly qualified specialists in the sanitary-epidemiological detachment:epidemiologist, bacteriologist, virologist, infectious disease specialist, hygienist, radiologist, toxicologist, chemist and others work.

During their work, they use a sanitary-epidemiological laboratory installed on the highway (field medical laboratory - DTL), a disinfecting-shower device installed on the highway and other disinfection techniques, as well as laboratory equipment and field kits for working in field conditions.

Specialists of the sanitary-epidemiological detachment organize and conduct sanitary-epidemiological intelligence in the troops. He studies and analyzes the morbidity of personnel in the troops.

The sanitary-epidemiological detachment is responsible for carrying out methodical control over the complete organization of disinfection work in the troops and supervising its implementation and carrying out disinfection, disinsection and deratization measures in the troops directly. transfer is loaded.

These institutions should be engaged in organizing and carrying out the indication of bacteriological weapon according to the extended scheme in full scale and give the final answer. Specialists of the sanitary-epidemiological detachment conduct food and fodder expertise. If they are infected with bacterial recipes, radioactive and toxic substances, they will solve the problem of their use. In addition, they organize and implement observation-quarantine and other measures to eliminate large bacteriological outbreaks in places where troops are stationed.[7]

Military Field Hospital for Infectious Diseases (HDYUKG) and Military Field Hospital for Infectious Diseases (OHYUKHDYUKG) for highly dangerous infectious diseases work in close cooperation with sanitary-epidemiological institutions. These two types of hospitals are field treatment facilities and are designed to provide specialized medical care and treatment for infectious disease patients and, therefore, for those affected by bacteriological weapons. Military Field Hospital for Infectious Diseases has the ability to receive, accommodate and treat two groups of infectious diseases, for example: airborne and enteric infectious diseases, or both at the same time, or one type at a time.

The main tasks of the military field hospital for infectious diseases are: providing special medical care to patients with infectious diseases, evacuating patients with infectious diseases from the isolation units of separate medical detachments, in some cases brigade medical centers, disinfecting vehicles that brought patients to the hospital. HDYUKG conducts sanitary-epidemiological intelligence and epidemiological surveillance in the place where it is located. Together with other sanitary-epidemiological institutions, it participates in preventing the expansion of epidemic foci and foci of bacteriological damage and its elimination.

HDYUKG and OHYUKGs The military field hospital for infectious diseases is considered to be the end of the medical-evacuation stages in the hospitalization and treatment of people infected with infectious diseases. Evacuation of patients from these hospitals to the rear of the front is carried out only during the forced withdrawal of our troops and in other cases when there is a danger of the enemy occupying the places where the hospitals are located.

HDYUKGin modern conditions, it organizes its work in large epidemic foci of infectious diseases or placed close to the foci of bacterial damage.

[7]Mirtazaev OM, Zueva LR, Matnazarova GS "Epidemiology" Tashkent. 2016 575 p

HDYUKGIt is divided into departments: reception - diagnostic (with sanitary facilities) and treatment (usually two) departments. In addition, the hospital has a pharmacy, clinical and bacteriological laboratory, economic and transport units, and disinfection equipment.

In the reception-diagnostic department, patients with infectious diseases are admitted, medical screening is carried out, emergency medical care is provided, and full special treatment is provided to them. Patients whose diagnosis is not clear are temporarily placed in diagnostic wards. When patients with infectious diseases are fully diagnosed, they are placed in treatment units for treatment. Each department should have its own isolated toilets, hand sanitizers (0.5% chloramine or bleached chlorinated lime solution) should be available.[8]

HDYUKGthe principle of separation of patients should be included in the organization of work, that is, patients with different infectious diseases and those with different forms of infectious diseases should be housed separately.

An anti-epidemic regime should be followed in order to prevent the spread of the infectious disease outside the hospital, as well as damage to the personnel providing assistance to those infected with infectious diseases. Taking into account the operational and epidemic situation, the military field hospital for infectious diseases can organize its work practically anywhere. When organizing the work of a military field hospital for infectious diseases, dry, green areas should be selected. Therefore, it should be located away from populated areas and water sources. A separate well or water source should be allocated for water supply.

Taking into account the emergence of very large epidemic foci in the conduct of modern wars, the hospitalization of patients with infectious diseases can be carried out as follows: patients with non-contagious infectious diseases (tularemia, black leprosy, Ku-fever, etc.) sent to a military field hospital; patients with infectious diseases that are less contagious (perspiration, dysentery, diphtheria, lung and intestinal anthrax, psittacosis, etc.) are sent to the field hospital for infectious diseases; patients with highly contagious highly infectious diseases (plague, cholera, smallpox) are sent to the military field hospital for highly infectious diseases.

Forces and means of civil defense

Civil defense- is a set of national defense measures aimed at protecting the population from the effects of weapons of mass destruction.

To eliminate the complications of weapons of mass destruction used by the enemy, the combat units of the civil defense, services of the civil defense establishment, civil defense structures work together with the general public.

[8]Mirtazaev OM, Zueva LR, Matnazarova GS "Epidemiology" Tashkent. 2016 575 p

Combat units are usually used for reconnaissance and rescue operations.

Medical-laboratory departments participate in conducting microbiological examinations. Civil defense structures implement special measures in the affected areas. Medical service units that are required to carry out anti-epidemic measures of the civil defense structure include mobile anti-epidemic detachments (HEQO) and special anti-epidemic brigades (MEQB). They are organized under the sanitary-epidemiological institutions of health authorities.

Area and equipment decontamination facilities, stationary washing stations, equipment, and clothing decontamination stations will be organized under the city production and communal enterprises.

A set of measures against the epidemic

Both in military epidemiology and in general epidemiology, groups of anti-epidemic measures (measures to protect troops against epidemics) are used. Accordingly, it is possible to talk about a group of measures divided by the directions and symptoms of the epidemic process, the use (or non-use) of anti-epidemic agents, as well as the prevention of illness or damage. According to the main goal of protecting the troops against the epidemic, 3 directions of measures can be distinguished.

Prevention of infectious diseases among the personnel of the military unit, timely elimination of epidemic foci in the unit and troops, will lead to a decrease in the general level of infectious diseases, and in order to achieve the expected result, it is necessary to carry out eight groups of measures. ladi

Of the eight groups of measures, some require anti-epidemic measures, others are organizational in nature, some prevent disease transmission, and others prevent disease. The prevention of the introduction of infection into the army and the prevention of the removal of infection from the unit will have a basic organizational character in military epidemiology.

Epidemiological-diagnostic methods are also shown in the drawing and are aimed at clarifying measures in all three directions.

The most effective measures are selected for each situation shown in the diagram. In military epidemiology, all three common epidemiologic approaches are used to extract key measures:

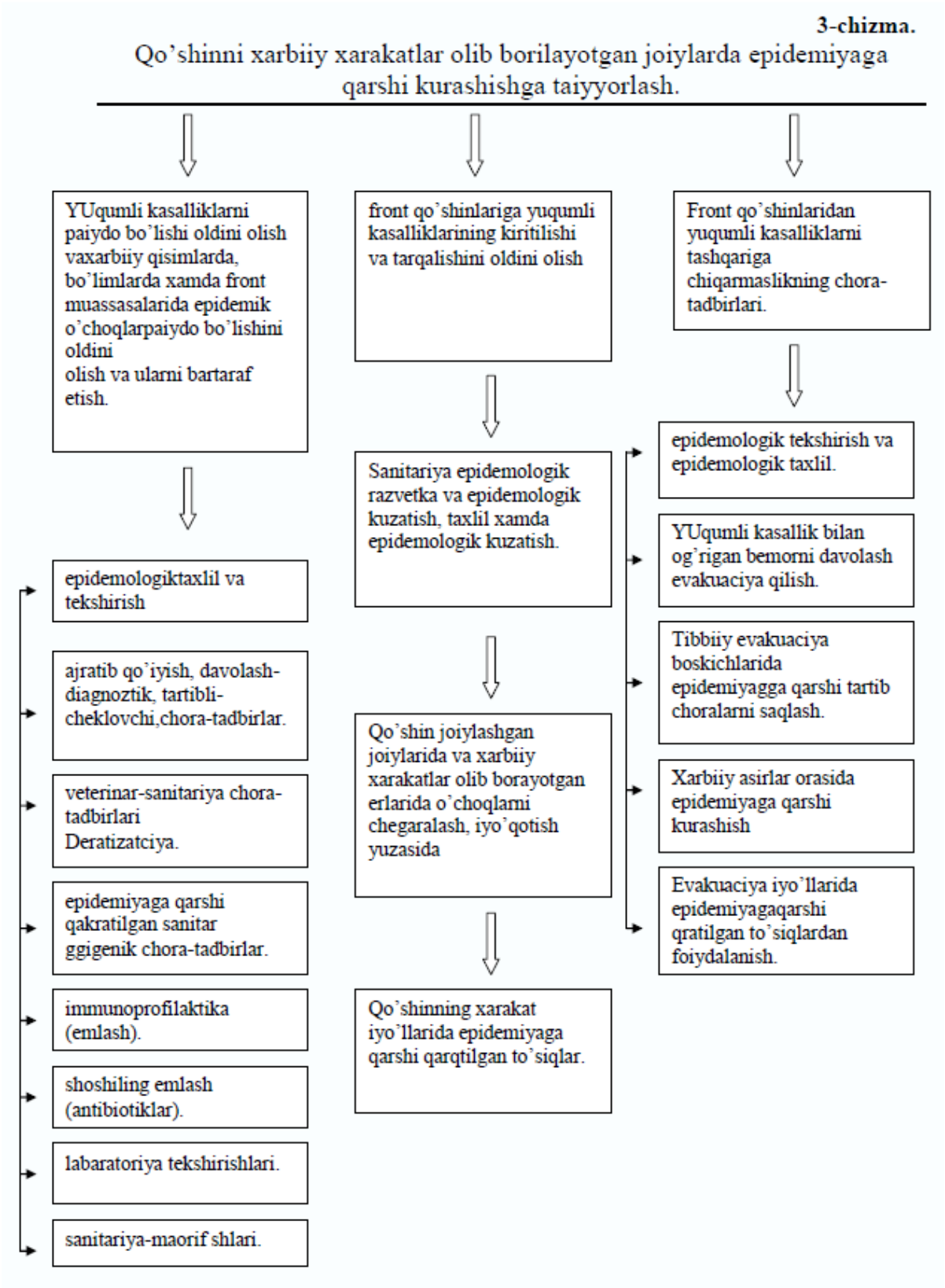
1. Applying the results of epidemiological diagnosis to determine the types of infectious diseases and their main causes;
2. Applying the results of epidemiological diagnosis to determine the conditions of development of the epidemic process and its main causes;

3. Assessment of the potential effectiveness of anti-epidemic measures and their practical application.

For the purposes of the military-medical service, such methods and means of prevention of infectious diseases are selected and developed, so that it is convenient to use them in field conditions.

3-chizma.

Qo'shinni xarbiiy xarakatlar olib borilayotgan joiylarda epidemiyaga qarshi kurashishga taiyyorlash.



A set of measures to protect troops from bacteriological weapons

Protection of troops from the effects of bacteriological weapons is part of the system of protection of troops from weapons of mass destruction. Therefore, measures to protect troops from bacteriological weapons are similar to measures taken to protect troops from weapons of mass destruction. Accordingly, measures are divided into 3 groups and are carried out as follows:

1. When the danger of using bacteriological weapons by the enemy is estimated:
2. When a bacteriological weapon is used;
3. During the elimination of the consequences caused by the use of bacteriological weapons.

According to the content of the measures, measures to protect troops from bacteriological weapons can be divided into operational-tactical and special types. Medical measures are important in the complex of special measures.

The peculiarity of the bacteriological weapon is also seen in the fact that the evaluation of many operative-tactical and special non-medical measures also requires medical intervention. The content of medical measures for the protection of troops from bacteriological weapons derives from the measures for the protection of troops against epidemics.

The main groups of medical and non-medical service measures against bacteriological weapons requiring the work of medical personnel are:

1. Biological (bacteriological) observation (intelligence);
2. Application of personal and collective protection means;
3. Orderly restrictive measures;
4. Vaccination and rapid prevention;
5. Decontamination;
6. Treatment-evacuation measures.

Use of personal and collective protective equipment in the foci of bacteriological damage

Mechanical defenses are used as soon as the enemy uses a bacteriological weapon and based on non-specific indications. The personal and collective protective equipment used in this case are generally intended for protection against weapons of mass destruction.

Personal protective equipment includes protective equipment for respiratory organs and outer coverings. Taking into account the specific characteristics of the harmful effects of bacteriological weapons, respiratory protection of more personal protective equipment is of great importance. They can be of two types, i.e. filter type and separator type.

Gas masks of the filtering type are considered as means of mass protection of respiratory organs. They are effective against all available bacteriological agents. If the gas masks are defective, then it is possible to use different types of respirators or other means available at hand (tablecloth, overcoat collars, etc.).

It has been proven that 16 layers of napkins trap 94% of pathogenic microorganisms, while a gauze-cotton mask traps 20% of microbes.

Thus, the means at hand only reduce the dose of damage, but cannot always completely prevent the entry of bacterial agents into the body.

Personal protective equipment against chemical effects is used to protect skin and clothing. At the same time as the respiratory organs, the eyes are protected with a gas mask.

Various hermetic, that is, densely closed (basements) places serve as means of collective protection. For example: metro stations, etc. The requirement for them is such that they can work in complete isolation and must be provided with filtering equipment.

Isolation and treatment-diagnostic measures

Isolation and treatment-diagnostic measures among the troops set themselves the goals of timely detection of infectious diseases, their separation from units and provision of qualified medical care. For this purpose, permanent medical supervision is established over the personnel. Patients suspected of having an infectious disease are placed in the isolation ward of the unit's medical center. If the infectious nature of the disease is confirmed, patients are admitted to the department of infectious diseases or the hospital of infectious diseases. It is possible to treat only diseases with undiagnosed complications in the ward's isolator. In case of infectious diseases, the head of the medical service informs the unit commander and his superior medical head about it.

Medical supervision in the unit is organized by the head of the medical service. Monitoring is carried out by all medical personnel in the department: at outpatient reception, during medical examinations, etc

The main way to identify patients is to conduct a survey and clinical examination of the complaining personnel.

A number of military personnel will have to undergo a medical check-up (based on the order of the Central Military Medical Department of the Ministry of Defense). Specialists of hospitals and sanitary-epidemiological institutions are involved to conduct clinical examination and laboratory tests.

The following military personnel are subjected to a special medical examination, that is, those who have returned from vacations and tours of duty, as well as those who are on daily duty in kitchens.

When the troops are stationed in stationary conditions, the isolators of the medical centers of the units are usually equipped with 5-6 beds and are intended for two different groups of infections: intestinal infections and respiratory tract infections.

If possible, separate rooms are allocated for isolators, they are allocated separate dishes and bedding, disinfectants, and equipment for disinfection. Specially trained staff are assigned to serve patients in isolation rooms.

During the outbreak of influenza and acute respiratory diseases, temporary isolators can be established.

Control questions.

1. The organizational structure of the protection of troops from bacteriological weapons and against epidemics?
2. Sanitary-epidemiological control center.
3. Tasks of the active sanitary-epidemiological department.
4. The sanitary-epidemiological detachment consists of highly qualified specialists.
5. Forces and means of civil defense.
6. A set of anti-epidemic measures.

You only like what you like
you can learn.
Goethe Johann Wolfgang

PRACTICAL EXERCISE #3

SUBJECT: TYPES AND CHARACTERISTICS OF BACTERIOLOGICAL (BIOLOGICAL) WEAPONS. BASIC CONCEPTS ABOUT BACTERIOLOGICAL (BIOLOGICAL) WEAPONS. HISTORY OF BIOLOGICAL WEAPONS. INDICATION OF BACTERIOLOGICAL WEAPON.

BACTERIOLOGICAL (BIOLOGICAL) WEAPON

In the history of wars, there is information that one of the warring parties deliberately spread infectious diseases among the troops of the enemy, and they tried to cause losses to their army.

Deeper study of these issues began in militaristic Japan and Nazi Germany at the beginning of World War II. After the Second World War, the centers of study of these problems moved to a number of developed capitalist countries. In a very short period of time, methods and tactics of using bacteriological weapons were developed in these countries, pathogens and other agents that could be used as bacteriological weapons were identified.

Under the influence of the world public, at the beginning of the second half of the last century, that is, in 1969, the 24th session of the UN General Assembly proposed to all countries to ban the production of bacteriological weapons and to destroy the existing stocks.[9]

In order to implement this decision, in 1972, the former Soviet Union, the United States, and England signed the Convention on Prohibition of the Production of Bacteriological Weapons, Loss of Stockpiles, and called on other countries to join the convention.

In the former Union, this document was ratified in 1975.

Bacteriological (biological) weapons and them understanding of application methods

Bacteriological weapon- this is a weapon that causes mass disease in the population or the death of people, animals and plants with the help of disease-causing microbes and their toxins. In this, microorganisms or their toxins are distributed to the intended areas by placing them in various combat munitions or by

[9]www.medikal-encvcloredia.zelenka.ru

means of spraying devices. In addition, bacteriological weapons can be used on arthropods, rodents and other animals infected with pathogens.

Several hundred types of infectious disease-causing microorganisms are known, but not all of them are suitable for causing mass casualties among troops under combat conditions.

To be considered the most suitable for a bacteriological weapon, triggers must meet the following students:

1. It is very dangerous for humans (causing disease at the epidemic level, having a continuous process with death).
2. Can be produced in large quantities.
3. To be extremely durable in the external environment.
4. To be able to be stored and distributed in an aerosol state.
5. Conformity to specific, specific goals and requirements.

Each of the listed requirements is related to a number of conditions and factors. For example, when talking about the danger of pathogens for humans, foreign authors first of all take into account the nature and severity of the diseases caused by the pathogens, their contagiousness.

Particular attention is paid to the degree of infectivity, which is different in different pathogens. In some pathogens, the smallest (minimum) infectious dose is a few tens of microbial cells, while in others it is several hundreds of thousands of microbial cells.[10]

When assessing the level of danger of pathogens, the change in their antigenic structure and the possibility of obtaining strains with high resistance to antibiotics and other therapeutic drugs are also taken into account.

According to reports in the literature, pathogens are used as bacteriological weapons, against which there are no special preventive measures, or those that exist are ineffective.

Bacteriological weapons can be used in the case of liquid or dry formulations. In addition to containing pathogens, these recipes also contain various fillers (most often, these can be residues of nutrient media used for growing microorganisms) and stabilizers, the purpose of which is to increase the resistance of pathogens to the external environment.

Methods of using bacteriological weapons are as follows:

1. Formation of aerosol clouds in the atmosphere close to the ground, in other words, damage to the air on the ground;
2. Using infected (poisoned) rodents and arthropods and creating foci of disease in the environment for a long time.

[10]www.nedug.ru/librarv

3. Contamination of food or drinking water by diversion, in addition to contamination of places where people can gather in large numbers (metro stations, railway stations, airports, theaters, etc.).

The purpose of this is to cause confusion among people and to "break" people's psyche. Various bacteriological means can be used for this purpose. According to estimates, for example, 20 mln. 240 g of "A" type toxin recipe is sufficient to contaminate a liter of drinking water and contain a lethal dose - 1 μg - of botulism toxin per 20 ml of water.

On September 11, 2001, as a result of a terrorist act in the USA, two huge buildings collapsed in Manhattan. After that, the flow of powder bags containing anthrax spores began to enter the United States, which caused concern to the entire world public. Such "letters" (bags of white powder) sent by terrorists began to enter other countries and Russian cities.

It is very difficult to estimate the exact amount of such "good" letters that entered America. Unfortunately, because of these sent letters, people got sick and even died.

Specially trained people in diversion teams can also be used to deliver bacterial agents to the desired destination (when a bacteriological weapon is used in a diversion tip).

A focus of biological poisoning and damage can occur when bacterial agents are used in different ways and by different routes.

Area poisoned by biological weapons (hotbed)-it is a place where bacteriological agents are distributed to harm personal contents, people, agricultural goods and plants, as well as external environments.

A center of biological damage is an area where personnel, population, agricultural goods and plants are mass damaged as a result of the effect of the enemy's bacteriological weapon.

The following can be used to create aerosol clouds with the help of technical means: rockets, bombs, shells, mines, etc. In addition to these, various mechanical generators and sprinklers installed on airplanes, ships, machines, and infected rodents and arthropods are placed in the technical means. containers can also be included.

In addition to studying individual causative agents, American experts are working on the creation of combined, that is, bacterial formulations containing several causative agents. In this area, the combination of the influenza agent with the anthrax or plague agents, the combination of the psittacosis agent and the Venezuelan encephalomyelitis agent is the most effective.

In places where bacteriological weapons are used by the enemy, as a result of the explosion of the projectile or the distribution of bacterial recipes in other ways, an infected foci is formed in those places.

From the primary aerosols, the parts containing the biological formulations settle to the ground. In some cases, these particles (chastitsa) do not lose their harmful effects even after settling on the earth's surface and damage the soil, water sources, military equipment, clothing, etc. located along the path of the aerosol cloud.

The degree of danger of damaged areas (sites) depends on the resistance of the biological agent, meteorological conditions and the character of the place (relief, soil, vegetation).

Thus, the center of bacteriological damage is the air layer containing the harmful aerosol and the area over which the aerosol cloud has flown (with people, animals, military equipment, vehicles, structures and other objects located in it).

Potential victims are personal belongings in the affected area. Those who get sick as a result of biological aerosol entering the body are also considered to be affected persons.

Taking into account the sources of damage to people, sanitary losses can be divided into two categories: primary and secondary.

In the case of bacteriological weapons, the primary sanitary losses are those caused by airborne transmission of harmful aerosols. The second one is those infected by secondary aerosol infections, those who have consumed contaminated food products or water, those who have been in contact with infected objects, or those who have contracted the infection from patients with contagious infections.

The harmful effects of biological agents characteristics

Biological weapons differ from weapons of mass destruction in a number of specific features. First of all, it is characterized by the fact that it causes damage to defenseless people in a wider area than other types of weapons. This is explained by the fact that biological agents can cause damage even in very small concentrations and spread over large areas. It is considered possible to poison an area of thousands of square kilometers with the help of a single plane or missile

Table #1

Yadro, kimyoviy va biologik qurollar orqali yetkaziladigan talofatlar (zararlanishlar)ni qiyosiy baholash
(bitta aviatsiya bombardimonchi samolyoti orqali)

Baholash mezoni	Qurol turi		
	Yadroviy (1 Mt)	Kimyoviy, 15 t asab-paralitik ta'sir ko'rsatuvchi agent	Biologik (15 t)
Zararlash hududi	300 km^2 gacha	60 km^2 gacha	100 000 km^2 gacha

material assets remain unharmed. The selective effect is again manifested in the fact that, depending on the type of substance used as a bacteriological weapon, only humans or only animals or, if not, plants can be harmed.

According to foreign literature, the following pathogens are used to infect people with bacteriological means: plague, anthrax, tularemia, melioidosis, black leprosy, Ku-fever, typhoid fever, yellow fever, smallpox, Venezuelan encephalomyelitis in horses, botulism toxin, etc. Each of these biological "agents" has its own characteristics and determines the extent of the final damage. The number of victims will depend on the combat effectiveness of biological agents.[11]By combat effectiveness, we understand that biological formulations in a certain amount (dose) cause damage (cause disease or cause severe intoxication) among unprotected and unvaccinated people. The fighting efficiency of some individual pathogens or toxins included in bacteriological recipes can be 60-70% and higher.[12]

Biological agents are also distinguished by the length of the latent exposure period, severity of damage, resistance to external environmental factors, and, finally, their contagiousness, that is, the characteristics of causing diseases that can be transmitted from person to person (Table 2).

BACTERIOLOGICAL (BIOLOGICAL) AND EPIDEMICAL SITUATION EVALUATION METHODS

Among the troops and in the area where they are located methods of assessing the epidemic situation

Determining the factors causing infectious diseases and the manifestations of the epidemic process among the personnel, that is, dynamically evaluating the state and trend of the epidemic process, forms the basis of the epidemiological diagnosis among the troops. Epidemiological diagnostic methods used to protect troops from epidemics are divided into different groups according to the specified purpose. Retrospective epidemiological analysis is the basis of epidemiological diagnosis among troops. Taking into account the results of the retrospective epidemiological analysis, measures to protect the troops against the epidemic will be planned.

In the course of retrospective epidemiological analysis, investigations are carried out in epidemic centers. The main method of assessing the epidemic situation at the location of the troops is sanitary-epidemiological intelligence.

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[11] *Mateishen RS, Kravets BV, Sutorin Yu.V. Military Epidemiology. Uchebnoe rosobie.- Rostov na donu "Phoenix" 2006.*

[12] *Mamatov II Basics of organization of medical supply of troops.- Tashkent, 2004.*

A retrospective epidemiological analysis

Retrospective epidemiological analysis among the troops is an assessment of the development of the epidemic process among the personnel of the military unit by analyzing the level, composition and dynamics of infectious diseases in a certain period of time or during this period.

The main indicators of sanitary losses in military medicine are their structure and quantity.

In military epidemiology, the term "infectious disease rate" is used, and it is evaluated in absolute numbers or relative indicators.

The proportion (composition) of infectious diseases is a percentage indicator of a particular nosological disease or group of diseases in relation to all infectious diseases. Infectious disease dynamics is the distribution of disease over time.

Morbidity on demand – analyzed at different time intervals. Epidemiological analysis is important because it determines the importance of certain diseases among the troops, the conditions of the development of the epidemic process and how it is expected to manifest in the future. The results of the epidemiological analysis of the previous calendar year are used for the deployment of troops, and the data of the next calendar year are used for the planning of measures. If necessary, the epidemiological analysis can be conducted for other periods.

Table #2.

Eng ko'p qo'llaniluvchi biologik vositalarning tavsifi

Baholash mezon	Bakteriologik vosita guruhi	Bakteriologik vosita turi
Yashirin davr	Tez ta'sir qiluvchilar (maksimum zararlash vaqti birinchi sutkada)	Botulizm toksini
	Sekin ta'sir etuvchi (zararlanish yuzaga kelishi 2 kundan 5 kungacha)	O'lat, kuydirgi, tulyaremiya, Venesuella ensefalomieliti, sariq isitma, mieloidoz
	Biroz cho'ziluvchan vaqtda ta'sir etuvchi (2 kundan 5 kungacha)	Qora oqsoq, toshmali tif, chinchechak, Ku-isitmasi
Zararlanishning og'irligi bo'yicha	O'lim holatini keltirib chiqaruvchi ta'siri	O'lat, kuydirgi, sariq isitma, chinchechak, botulizm
	Vaqtinchalik ishdan chiqaruvchi ta'siri	Venesuella ensefalomieliti, tulyaremiya, qora oqsoq, Ku-isitmasi, melioidoz
Yuqumlilik darajasi bo'yicha	Muloqot orqali yuquvchi (kontagioz)	O'lat, chinchechak, bitliqilik mavjud bo'lsa – toshmali tif, sariq isitma, Venesuella entsefalomieliti
	Muloqot orqali yuqmaydigan (nokontagioz)	Kuydirgi, tulyaremiya, Ku-istma, qora oqsoq, botulizm, melioidoz
Qo'zg'atuvchining tashqi muhit omillariga chidamliligi bo'yicha	Chidamliligi kam (1-3 soat)	O'lat, Venesuella ensefalomieliti, sariq isitma, botulizm
	Nisbatan chidamli (24 soatgacha)	Melioidoz, qora oqsoq, tulyaremiya, toshmali tif, chinchechak
	Chidamliligi yuqori (24 soatdan ko'proq)	Kuydirgi, Ku-isitmasi

In the course of battles (military operations), the structure and level of infectious diseases during the period and the expected progress (prognosis) of the epidemic process during the battle are analyzed in the planning of anti-epidemic measures.

Initial data for conducting an epidemic analysis among the troops are information about the disease among the personnel (statistics), the results of laboratory examination of patients, healthy people and objects of the external environment, the activities of the army. and specific features of the service during the period under analysis (terms of recruiting new conscripts, going to training centers, conducting training, economic work, the nature of military actions, etc.) information about sanitary and hygienic measures (organization of food, water supply, accommodation features, etc.) will serve.

The preliminary data collected (for the calendar year) are analyzed in four main areas:

1. Analysis of the nosological forms of the types and incidence of infectious diseases;
2. Analysis of long-term dynamics of diseases;
3. Analysis of the annual dynamics of the disease;
4. Analysis of diseases by epidemiological symptoms.

As a result, the main data of military epidemiology will be identified and the direction of measures will be determined.

In military units, retrospective epidemiological analysis is carried out by unit doctors, and in troops and units by sanitary-epidemiological institutions or unit doctors.

Analysis of the structure (structure) and level of infectious diseases according to their nosological forms

The purpose of analyzing the incidence and nosological forms of infectious diseases among the personnel of the army is to determine the significance of a particular disease or group of diseases among common infectious pathologies. The significance of one or another disease for the health of the personnel of the military units in everyday life is determined by the analysis of the structure of the disease, the duration of the disease and its consequences.

The incidence rate is calculated in relative indicators (per 1,000 people in the private sector), and the duration of the disease is the number of cases of incapacity for work (in days) (per 1,000 people) and work average duration (in days) of incapacitation is calculated relative to time. On the basis of this data, intensive indicators of diseases and loss of working ability - average damage indicator can be calculated.

The calculation is based on the following formula:

Avg. Dice=(KUDK(%) * IQYX O'DK)/365

KUDK(%)-incidence rate (%)

IQYX CEC- the average duration indicator of cases of loss of work ability (days)

The average damage indicator - determines the amount of damage caused to the parts in the daily activity of one or another disease. For example: When the incidence rate of acute respiratory diseases is 100‰, if we take the average of 5 days of lost work, the damage will be (100*5)/365=1.3‰ ladi This means that 1.3 out of every 1000 people per day during the year (13 out of 10000) did not participate in combat training or the daily activities of the unit.

If we consider such indicators for angina: If the incidence rate is 30‰, the case of loss of work activity is 6 days, the extent of damage is 0.5‰, that is, 1 out of 1000 people due to angina every 2 days during the year. considered unfit for work.

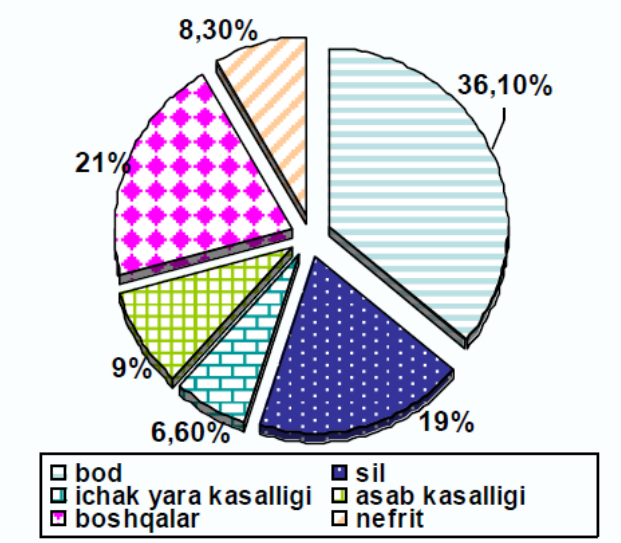
It is possible to draw a conclusion about their importance using the information given below (Figure 1.) about the extent of diseases and damage.

For example: Intestinal infections are the 4th most common type of infection, 3rd most common type of infection, and active tuberculosis is the 6th most common type of infection. according to the indicator, it ranks 5th.

Changes, adjustments (corrections) regarding the importance of one or another disease are determined depending on the severity of the disease and the final result, that is, the consequence.

Deaths and sick leave cause irreparable losses to the Armed Forces. Based on this point of view, let's return once again to the importance of the diseases discussed above, for example: 1-5% of patients develop rheumatism when angina is treated incorrectly. This increases the importance of the above problem. Before the introduction of penicillin treatment of angina, 36.1% of all discharges were due to rheumatism and 8.3% to nephritis (as a manifestation of acute streptococcal infection).[13]

When determining the most relevant infectious pathology for the military medical service, it is necessary to take into account the following, that is, it is necessary to assess the general epidemiological situation that determines the spread of diseases over time and the introduction of infection into the army.



Long-term dynamics of the disease

When analyzing the long-term dynamics of diseases among the personnel of the army, the following tasks are set:

1. Determination of disease tendency;
2. Comparison of morbidity indicators in the analyzed year with average multi-year indicators;
3. In addition to the long-term dynamics of the diseases, to determine the causes and conditions of the cases of the disease in the analyzed year.

In multi-year dynamics, the direction of the morbidity trend (increase, stagnation, decrease) and manifestation is determined.

In order to explain the causes of the identified trend and its manifestation, together with the general rules of the multi-year dynamics of the disease, the specific conditions of the analyzed communities are taken into account. Also, the service, living and fighting conditions of the troops, their impact on the spread of diseases are also taken into account. The preventive and anti-epidemic measures carried out

[13] *Mamatov II Basics of organization of medical supply of troops.- Tashkent, 2004.*

are evaluated. The collected information is used to determine how diseases are expected in the future (prognosis).

By comparing the incidence rates of two years close to each other, reliable results cannot be obtained and the assessment will not be correct. For this, it is necessary to compare the analyzed disease index with the average long-term (3-6 years) index. It is necessary to determine the statistical correctness of the differences found when comparing the analyzed annual incidence rate with the average long-term indicator. However, this is not enough. In the analyzed year, it is important to determine whether the general trend of multi-year dynamics (in terms of direction and manifestation) is preserved or not. If there are deviations, the reasons are sought. It also takes into account the nature of the empirical line, which shows the changes (oscillations) of morbidity in individual years. If there is a significant change in the incidence rates, this is determined by the conditions of service and combat readiness of the troops in combination with natural conditions (years with high and low incidence). The long-term dynamics of the disease is compared with different diseases (in which diseases of different types and with the same type of transmission mechanism are compared). conditions of service and combat readiness of the troops are determined (years with high and low levels of disease). The long-term dynamics of the disease is compared with different diseases (in which diseases of different types and with the same type of transmission mechanism are compared). conditions of service and combat readiness of the troops are determined (years with high and low levels of disease). The long-term dynamics of the disease is compared with different diseases (in which diseases of different types and with the same type of transmission mechanism are compared).

As a result of comparisons, hypotheses arise about the reasons and conditions that determine the long-term dynamics and level of morbidity in the analyzed year.

Further analysis is aimed at proving that the hypotheses put forward are correct or incorrect, that is, they are confirmed or denied.

Analysis of the annual dynamics of the disease

When performing this part of the analysis, it should be taken into account that regular (seasonal) and irregular (epizotic) elevations are observed in the annual dynamics of morbidity, which turn into year-round morbidity in epidemic conditions. When conducting the analysis, the following tasks are set:

1. Determining annual, seasonal and epidemic proportions of the disease;
2. Determination of specific conditions that determine the specific characteristics of annual dynamics.

Year-round incidence is determined by disease rates, for which months with the lowest (interseasonal incidence) are taken. These incidence rates apply to all 12

months. In order to determine the causes and conditions of the disease during the year, it is necessary to determine the permanent influencing factors (throughout the year).

The beginning of the seasonal rise- this is the time when the incidence rate significantly exceeds the average seasonal incidence rate.

The end of the seasonal rise- this is the time when the level of morbidity is equal to the interseasonal level. The time (interval) between the beginning and end of the seasonal rise is the duration of the seasonality period. When determining the percentage of seasonal morbidity, the degree of morbidity in the seasonal period that exceeds the average incidence rate throughout the year is determined. All incidences during the year are assumed to be 100% and a seasonal "add-on" is calculated, i.e. the incidence in the month of interest is calculated relative to 100%. For example:
Incidence during the year - 120 - 100%
Incidence in February 40 - X %
If we calculate X, it will be equal to 33.3%.

The analysis of annual dynamics helps to assess the accuracy of the hypotheses that have arisen during the analysis of the multi-year dynamics of the disease and to propose new hypotheses. As a result, the problems that should be given importance in the planning of measures for the protection of the troops against the epidemic are identified.[14]

Operational epidemiological analysis and investigation of epidemic foci

Conducting an operational epidemiological analysis among the troops is to take into account the state and trend of the development of the epidemic process among the personnel, the quality of the implementation of the planned anti-epidemic measures, changes in service conditions, the activity and lifestyle of the troops, the laboratory the results of the examination, as well as the results of the epidemiologic examination of diseases and outbreaks, is a dynamic assessment on the basis of accounting and analysis during this period.

In military epidemiology, the general epidemic definition of an epidemic focus is used. It is known that in general epidemiology, the definition of an epidemic focus is approached from a territorial and population point of view. In recent times, it has been approached from a more population perspective. Accordingly, the spatial and temporal boundaries of the hearth are removed from the daily life, living and activities of the troops, which determine the circulation of the pathogen population. The phasicity of the life activity of the causative population (reservation, epidemic recovery, epidemic spread, reservation transformation) is taken into account.

[14] *Mamatov II Basics of organization of medical supply of troops.- Tashkent, 2004.*

In the course of practical work, the concept of an epidemic center is connected to the manifest forms of infection, that is, to diseases. It talks about isolated disease and epidemic foci of many diseases.

Epidemiological investigation of isolated outbreaks

When a patient with an infectious disease is identified among the personnel, the department doctor conducts an epidemiological examination. In case of occurrence of extremely dangerous infectious diseases or other rare infectious diseases, the sanitary-epidemiological institution also participates in the epidemiological investigation.

The purpose of an epidemic investigation of a single outbreak is, first of all, to determine whether the disease encountered in the area was imported or not. For this, the following procedure is defined:

1. Determination of the epidemiological situation in the part and the location of the part;
2. Inquiry and examination of patients;
3. Inquiry and verification of personal content;
4. Inspection and inspection of the external environment;
5. Analyzing and summarizing the collected data, determining the boundaries of the furnace and setting measures for its termination.

To determine the epidemic situation in the area, the results of the RET are evaluated and medical documents are reviewed (form #5, form #12a), which is carried out between the time the conclusions are given to the RET and the time until the outbreak of the disease.

When patients are identified, additional epidemiological investigations are carried out, that is, epidemic investigations of many outbreaks are now carried out.

Materials of the civil health system are used to determine the epidemic situation at the location of the army.

If necessary, the department doctor goes to local treatment facilities and sanitary-epidemiological facilities to get additional information.

Questioning of the patient is carried out in a targeted manner, taking into account the epidemiology of a particular disease. It is determined where the patient was at the peak of the latent period of the disease. The presence of similar diseases and the conditions of transmission are determined.

On the basis of all the collected data (that is, on the basis of the materials collected during the survey of the patient and the assessment of the epidemic situation), the section hypothesizes about one of the most important options that caused the disease:

A) the infection was introduced from outside;

B) an epidemic variant was formed in the part;
In part V) the next manifestation of the epidemic spread of the disease that was not detected in time.

When questioning the patient, it is also determined the exact date of illness and how he behaved before isolation. Based on these, it is concluded that the personnel of the army is also at risk of contracting the disease in the hearth. The assumptions made earlier will be checked in the next stages of furnace inspection.

Information obtained from the patient is checked when personal content is questioned in the furnace. It is determined whether other military personnel were infected with this disease together with the patient or were infected by this patient. When determining the risk of damage, the timing and nature of vaccinations among affected individuals are taken into account. It is important to determine whether or not infected individuals have left the area during the incubation period. Based on all these collected data, conclusions are made about the expediency of conducting laboratory tests, rapid prevention, vaccination and their scope. The nature of necessary containment measures is determined.

Investigations in the external environment are carried out taking into account the specific epidemiological characteristics of each infection. For example, in enteric group infections, attention is paid to food and water supply conditions, waste collection and disposal, and the presence or absence of flies in kitchens and toilets. At the center of meningococcal infection, attention is paid to the conditions of placement of personnel in barracks and their care. Objects of the external environment are examined by visual (eye sight) and laboratory methods, and the hypotheses put forward are evaluated. remaining shortcomings and recommendations for their elimination are developed.

Epidemiological investigation of group outbreaks

Epidemiological investigations are carried out by specialists of sanitary-epidemiological institutions when epidemics or epidemic outbreaks begin to develop in the area. Until this specialist arrives at the unit, the unit doctor conducts an epidemiological examination.

During the investigation, the following issue is raised - to determine the causes of the origin and spread of the disease, to choose complex measures for their elimination in the furnace. For this, it is important to know the causes of an epidemic (epidemic outbreak) that may develop among the personnel of the army. Analysis of available data and their systematization allows us to divide epidemics into 3 groups.

Group 1epidemics are characterized by the transmission of pathogens from one source or infectious agent to the personnel of the army. When the damage occurs

at the same time, the entire period of the epidemic is limited by the variation (oscillation) of the latent period.

Epidemics are prolonged when the infectious agent is exposed for a long time, but the transmission of the disease from patients to healthy people is not observed. Epidemics of this group develop more in zoonoses. In particular diseases of this group, even more obvious manifestations of the epidemic type can be observed. It characterizes the conditions of transmission of the disease to personal content. For example, in tularemia, such types of epidemics are distinguished, which are named as follows: water epidemic, occupational epidemic, transmissible epidemic, household-communication epidemic, etc.

In the 2nd group of epidemics, direct transmission of pathogens from sick people (from the source of the disease) to healthy people is observed.

Epidemics of this group can be exclusive (suddenly widespread) or less intense and long-lasting (prolonged).

In the first case, the presence of the infection in a highly manifest form (infection often manifests itself with the onset of the disease, compared to portability), early infectiousness, a short latent period, and a clear development of immunity after the disease are important. occupies In the second case, the reduction of manifestation (meningococcal infection), the long duration of the latent period (epidemic reaction) or the formation of a high immune layer play an important role. However, in all cases, the duration of epidemics of this group is several periods of the latent period of the disease. Epidemics of this group usually develop in anthroponous airborne diseases.

Group 3 Epidemics occur when pathogens are transmitted from patients through infectious agents (flies, food, water, hands, and other means), in which there is no need for contact between infected and non-infected people.

Depending on the activity of the infectious agents, such epidemics can be very rapid or protracted. Such groups of epidemics can be found in anthroponous intestinal infections and transmissible infections. Within separate nosological forms (in which epidemics of this group develop), the type of epidemics characterizing the conditions of transmission is distinguished. For example: an outbreak of smallpox among military personnel may be transmitted through food or water, depending on the final transmission factor. Food epidemics, in turn, are divided into the following epidemics: food epidemics caused by the contamination and outbreak of food through the "dirty" hands of food processing workers, and food epidemics caused by the transmission of infection by flies.

A second prerequisite for successful investigation of multiple outbreaks is the availability of sufficient baseline data: these include case report data, laboratory test results, combat training of troops, combat activity, service has its own

characteristics. The third condition that causes the formation of correct conclusions in the investigation of group diseases is the results of retrospective epidemiological analysis.

The procedure for epidemiological investigation includes the following sections of work:

1. Analysis of the dynamics of morbidity in the furnace;
2. Analysis of the structure of morbidity according to etiological signs;
3. Examination and questioning of patients and healthy people;
4. Inspection of the external environment and laboratory testing
5. Logically develop the collected data and find causal relationships based on the data collected about the types of epidemics in the form of the studied disease.

In the course of epidemics, the dynamics of morbidity among personnel are studied to obtain materials that help to determine the type of epidemics and the mechanism of its development. Illnesses are divided by days into five days, by decades, or by other time intervals, and compared with the causative factors under analysis of one kind or another.

The most responsible stage of epidemiological investigation is the classification of diseases according to their epidemiological symptoms. Personal content is divided into groups according to the intensity of damage being analyzed. Differences in incidence rates and incidence rates are determined for each group. Also, custom content groups can be optionally selected (for example, by departments). Incidence indicators are determined in them and their differences are determined by comparison.

Grouping of patients is also carried out according to the following: periods of isolation of patients, periods of hospitalization, methods of treatment, periods of getting rid of pathogens, etc. The obtained distribution series can sometimes be useful to determine the mechanisms of development of epidemics. They can also be used to determine the quality and effectiveness of measures such as isolation and treatment.

"Communication" with a patient in an outbreak is distinguished as an epidemiological sign of a well-defined manifest form of disease and the transmission of a pathogen from a sick person to a healthy person through close contact. In such a case, the task of determining the source of the disease (for each patient) and the entire chain of transmission is determined by questioning and examining patients. Applying this method to epidemics of the first and third groups leads to serious errors.

Based on the results of the analysis of the dynamics of the disease and its structure by epidemiological signs, hypotheses are made about the causes and conditions of the development of epidemics. Questioning of patients and healthy people, visual

and laboratory examination of the external environment, the question of confirming or denying the correctness of the put forward hypotheses is raised. Thus, if it is suspected that the epidemic spread through water, then it is necessary to determine whether all the infected people drank from this water or not, and whether there are infected people among those who did not drink from this water. Along with these, the quality of water is checked. Also, water pollution conditions are determined. Based on all the collected data, conclusions are made about the development of epidemics.

Sanitary-epidemiological intelligence

This consists of collecting and analyzing information in advance by the military medical service about the places where the troops are located and the areas where the battle is expected to be conducted, as well as the sanitary-epidemiological condition of the roads on which the troops are moving. is a set of measures. Sanitary-epidemiological intelligence is the main methodological part of military epidemiology and is part of the measures taken to protect troops against epidemics. The main goal of conducting sanitary-epidemiological intelligence is to determine in advance the factors affecting the epidemic situation of the military unit and to ensure the prevention of the introduction of infectious diseases into the military unit. Sanitary-epidemiological intelligence is carried out under any circumstances during the movement and deployment of troops from one place to another, during preparations for military operations and during military operations, and after the completion of military operations.

Sanitary-epidemiological intelligence performs the following tasks:

- new territories occupied by the troops, locations or territories expected to be occupied in the near future, as well as the roads along which they are expected to move are studied;
- timely study of ways of infiltration of various sources of infectious diseases into the troops from the local population, enemy troops, other military personnel and foci of infectious diseases;
- to determine the epidemic foci of infectious diseases in the areas occupied by our troops and the enemy's troops, to determine the nature of the diseases, the features of their clinical course;
- taking samples from areas, water sources and other objects in the external environment and conducting inspections;
- determination of the possibility of local treatment-prophylactic, sanitary-epidemiological and other institutions and whether it is possible to use them for the benefit of the troops;

- obtaining the necessary information from the head of the medical service at a higher level, from the officials of various services and from the authorities of the health system.

To issue an analysis of the results obtained as a result of the intelligence and to provide suggestions and information to the head of the medical service in a high position for the effective implementation of his anti-epidemic measures.

Sanitary-epidemiological intelligence is carried out continuously, because the head of the medical service must have constant information about the emerging situation.

During the medical reconnaissance, the existence of an epidemic center of infectious diseases in the territories occupied by the enemy troops and our own troops, the nature of these infectious diseases, their characteristics and dynamics in their clinical course are studied.

Factors causing the spread of infectious diseases, namely the sanitary condition of local population, the general sanitary-hygienic culture of the population, local customs are studied.

At all times, information on the condition of water sources and water quality is collected, and the condition of other external facilities is sampled and studied. In addition, the presence of on-site treatment-prophylactic, sanitary-hygienic, anti-epidemic and other facilities (bathrooms, laundry, laboratory, etc.) and the level of their use in the medical supply of the troops will be determined.

All branches of the service participate in the implementation of sanitary-epidemiological intelligence. It is conducted by a sanitary instructor in a company, a paramedic in a battalion, and a doctor in a regiment. They usually perform all elements of medical intelligence. In such cases, the main method of work is inquiry and visual inspection, and if necessary, samples are taken to the laboratory for more complete examination.

Specialists of sanitary-epidemiological institutions are involved in the implementation of issues for which sanitary-epidemiological intelligence is the most responsible. A group of medical personnel or specialists will be separated from the structure of these institutions and a sanitary-epidemiological intelligence will be conducted.

They are provided with all necessary equipment necessary for carrying out separate laboratory tests, transport and sanitary-epidemiological intelligence, anti-epidemic measures in some epidemic (epizootic) foci identified in a number of cases. will also be held.

After studying the information received by the scouts, a conclusion is made about the sanitary-epidemiological condition of the points, areas and water sources where the local population lives. The received information will be necessary for

carrying out appropriate preventive and anti-epidemic measures among the personnel of the troops engaged in combat operations in areas with epidemics.
The task of the sanitary-epidemiological intelligence and its size depends on the nature of the military operations (attack, defense, march, etc.).

When the troops are expected to conduct an offensive battle, in preparation for an offensive battle, the sanitary-epidemiological condition of the enemy's troops and the territories occupied by them and inhabited by the local population is studied using all available means and methods. It is possible to gather useful information from the captives, if they include a medical officer. As a result of data collection, it is possible to obtain information about the presence of diseases among the enemy troops, preventive vaccinations, treatment-prophylactic measures, etc. In addition,

When the troops are on the offensive, sanitary-epidemiological reconnaissance is carried out by all branches of the medical service. In this case, foci of infectious diseases, warehouses of medical property and food taken as bait are identified and marked. Operationally collecting information about new areas is of great importance to the command.

During migration from one place to another, sanitary-epidemiological reconnaissance is carried out continuously. In this, the sanitary-hygienic condition of water sources located in the direction of movement and the quality of water are determined. Availability of opportunities to use conditions suitable for living in populated areas, presence or absence of infectious diseases among the population is determined.[15]

The experience of local wars conducted in recent decades in modern conditions shows that sanitary-epidemiological intelligence needs to be carried out in an echelon, effective and offensive battle. The main purpose of organizing sanitary-epidemiological intelligence in an echelon (one-way) manner is if bacteriological weapons are used by the enemy, or if the troops encounter large outbreaks of infectious diseases on their way during combat operations. in the rest and others, the medical service will carry out intelligence in the way of strengthening its forces and means.

Criteria for assessing the sanitary-epidemiological condition of the troops and the areas where they are located (operating).

In military epidemiology, the following criteria for assessing the sanitary-epidemiological condition of the troops and the areas where they serve are accepted:

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successful, unstable, unpleasant and emergency situations. The sanitary-epidemiological status of the part is considered successful in the following cases:
1. If there are no infectious diseases among the personnel, except for some sporadic diseases;
2. Inability to introduce infectious diseases into the army;
3. Lack of conditions for the creation and spread of outbreaks of infectious diseases among personnel (satisfactory state of sanitary conditions, high-quality implementation of all comprehensive measures to protect troops from epidemics);
4. The lack of information about the use of bacteriological weapons by the enemy.
The area where the troops are located (moving) is considered successful in the following cases:
1. Episodic (exotic) diseases occurring among the population do not pose a threat to the army;
2. Lack of information about the use of bacteriological weapons by the enemy;
3. Lack of conditions for the widespread spread of infectious diseases (satisfactory sanitary condition of the area, satisfactory condition of water supply facilities, communal facilities).
The sanitary-epidemiological condition of the part is unstable in the following cases:
1. Some previously unrecorded infectious diseases appear among the personnel, a slight increase in the sporadic levels of the disease is observed, the occurrence of separate but non-spreading group diseases indicates that the infection has been imported or that internal epidemic foci are emerging;
2. When certain infectious diseases occur or are brought from outside (the part is located in a sanitary-epidemiologically unfavorable area), conditions for their spread are created (the sanitary conditions in the part are unsatisfactory and the work of protection against epidemics is carried out in a low quality), although no infectious diseases were found among the personnel during the evaluation.
The sanitary-epidemiological condition of the region is unstable in the following cases:
1. There will be outbreaks of infectious diseases among the population without the development of epidemics.
2. Existence of episodic (exotic) outbreaks of zoonotic infections that pose a threat to the army;
3. The area is located very close to the place where there are large epidemic foci or bacteriological weapon foci;
4. There are conditions for the emergence of epidemic foci and the spread of infectious diseases (poor sanitation, unsatisfactory water supply, low-quality implementation of anti-epidemic and preventive measures).

In situations where the sanitary-epidemiological situation of the unit (detachment) or the area where they are operating is unstable, the doctor (head of the medical service) informs the head of the unit (commander) about the epidemic situation and, based on this situation, the necessary measures -determines activities. These measures should be aimed at the emergence of epidemic foci, the elimination of the factors that cause the spread of infectious diseases, as well as the introduction of infection into the part (joint) or, on the contrary, its exit.

The sanitary-epidemiological condition of the part (joint) or the area where they operate is unfavorable:

1. The emergence of group infectious diseases with a tendency to spread more widely;
2. Occurrence of one of the most dangerous infectious diseases (pestilence, cholera, smallpox);
3. When a bacteriological weapon is used by the enemy.

The sanitary-epidemiological condition of the part (joint) is considered emergency:

1. Epidemics develop to such an extent that it becomes impossible to use the army (unit) for combat purposes;
2. Cases of recurrence of diseases such as pestilence, smallpox and cholera;
3. If the causative agents of extremely dangerous infectious diseases are detected in cases where bacteriological weapons were used by the enemy.

The sanitary-epidemiological state of the unit (joint) is declared a state of emergency by the army (front) commander. The part (joint) is usually placed in quarantine.

Evaluation of the quality of work on the protection of troops against epidemics and the effectiveness of anti-epidemic measures

The assessment of the epidemic situation in different situations of the troops, such as service, combat training and combat activity, implies a retrospective assessment of the effectiveness of anti-epidemic measures, as well as the quality of work on measures to protect the troops against the epidemic. The quality of the protection of troops against epidemics depends on the correct selection and quality of measures in military medical practice, as well as the protection of the population against epidemics.

2 methodological approaches are used to evaluate the effectiveness of anti-epidemic measures:

1. By analyzing the dynamics of the level and structure of infectious diseases among the personnel in one and only those parts, by comparing the set and quality of measures carried out;

2. By analyzing the level and structure of infectious diseases among different parts, compounds or groups of personal content, by analyzing the set and quality of measures taken.

It is necessary to be more careful when interpreting the last results of one or other tests. Although a number of interventions with varying effectiveness have been conducted qualitatively, failure to properly account for highly effective interventions can lead to false perceptions. The reduction of infectious diseases can be caused not only by consciously approached measures, but also by changes in the conditions of service, military training or military activities.

The quality of the protection of the army against epidemics depends on the quality of work carried out in 3 interrelated elements of the anti-epidemic system:

1. Epidemiologist-diagnostic;
2. Organizational management;
3. In executive systems.

BACTERIOLOGICAL INTELLIGENCE

Bacteriological intelligencethat is, all information about the possibility of the use of bacteriological means by the enemy, involving the command and services of the military unit, as well as military intelligence units, chemical service units, medical and vertical services timely collection of data; determining the methods of using bacteriological means; complex measures are taken to determine in time whether air, soil, water, food, hay are infected with bacterial agents and to determine the type of bacteriological agent used.

Such intelligence is managed in parts by the medical service department. The tasks of bacteriological intelligence can be conditionally divided into 3 groups:

1. Collecting and summarizing information received by the intelligence service when there is a threat of using bacteriological weapons by the enemy;
2. Bacteriological weapon indication;
3. Determining the scales of bacteriological weapons used.

Gathering and summarizing intelligence

Data collection is also done by non-medical staff. A medical professional is required to evaluate most of the collected data. This is due to the fact that the epidemic process occurs naturally in the enemy's parts, taking into account the risk of the spread of some infectious diseases. it is important in creating reserves of protection against weapons and others.

INDICATION.

Bacteriological weapon indication means a set of measures aimed at determining the fact that the enemy has used a bacteriological weapon and the type

of bacterial agent used in it.

Determining the fact that a bacteriological weapon has been used by the enemy is called a non-specific indication, and determining the agent used is called a specific indication. Accordingly, a non-specific indication is carried out when a bacteriological weapon is used, and a special indication is used to eliminate its complications when a bacteriological weapon is used. To carry out the indication, mainly chemical and medical service forces and means are used.[16]

The tasks of non-specific indication should be carried out by radio-chemical intelligence departments and observation posts of all military services. Suspicious situations in the use of bacteriological weapons include: the formation of aerosols from the explosion of shells and from enemy aircraft, liquid droplets on the ground, powdery substances or unnatural accumulations of arthropods, rodents, etc. .

Jadval №_3

Maxsus bo'lmagan indikatsiya haqida asosiy ma'lumotlar

Chora-tadbirlar	O'tkazilish joyi	Kim o'tkazadi	Jihozlar	O'tkazilishidan maqsad
Bakterial vosita qo'llanilganlik faktini aniqlash (havoda, yer yuzida)	Qo'shinlarning jangavor joylarida, barcha qism va muassasalarning joylashgan joylarida	Radiatsion, kimyoviy va biologik razvedka bo'linmalari. Kuzatuv postlari. Asosiy qismdan oldinga yuboriladigan kichik qismlar (dozorlar), razvedkaning barcha bo'linmalari	Asbob-anjomlar yordamida. Vizual.	Qo'shinlarni tezda xabardor qilish. Maxsus indikatsiya uchun sinama olish va transportirovka qilish

However, it is not enough to determine the fact that the enemy has used a bacteriological weapon only visually (by inspection), other methods should also be used.

Special indication consists of 3 stages:

1. Taking samples from objects of the external environment;
2. Transportation of the obtained samples;
3. Examination of samples in the laboratory.

Tests should be taken with such a calculation that the amount of microorganisms used by the enemy for biological attack should be at the maximum level. For this purpose, the air is collected during the passing of the aerosol, or particles of projectiles and washings from objects are taken from the place of the explosion. It is recommended to take swabs from the throat of people who are in the trauma zone and do not have personal protective equipment.

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[16] *Yuo'uk ND Voennaya Epidemiology: Rrotivoeridemicheskoe obes'echenie v voennoe vremya i rri chrezvqchainqx situatsiyax: Methodical guide for students of higher education.-M.: Vedi, 2007. — 150 p.*

When arthropods are used as bacteriological weapons, they become the main objects of investigation.

Sampling of external environmental objects (biological damage centers) is assigned to the chemical, medical and veterinary service. People taking samples should be provided with special thermo-insulating containers for good storage of the samples.

Jadval №4

Bakteriologik qurol o'choqlaridan sinama olish tartibi

Chora-tadbirlar	O'tkazilish joyi	Kim o'tkazadi	Jihozlar	O'tkazilishidan maqsad
Tashqi muhit ob'ektalaridan sinamalar olish, zararlangan odamlar, hayvonlardan sinamalar olish	Zararlanish o'choqlarida, tibbiy-evakuatsiya bosqichlarida	Kimyoviy, tibbiy va veterinariya xizmatlari bo'linmalari	Maxsus naborlar va sinama oluvchi jihozlar	Bakterial vositalar bilan zararlangan deb shubha qilinayotgan materiallarni olish.

Transportation of samples to laboratories is carried out by chemical and medical service in all types of transport. Whenever possible, it is desirable to deliver samples directly to the laboratory from the point of collection. However, there are also options for their delivery through medical evacuation stages.

3 groups of methods are used to check the imported materials in the laboratories:

1. Examination of the received materials in an express (quick) way;
2. Inspection of enriched materials by express method;
3. Application of classic microbiological examination methods.

In order to enrich the material, the tested materials are planted in the nutrient medium and they infect the laboratory animals with them. Inspection of enriched material is carried out after 6-48 hours.

Among the express methods, radioimmunoassay (RIA) and enzyme immunoassay (IFA) and other methods based on the principles of hemagglutination and immunofluorescence are also used.

Scales of bacterial contamination approximate determination

This issue is resolved by chemical and medical services using billing information and specific and non-specific indication methods.

History of biological weapons

Humanity has repeatedly faced devastating epidemics and experienced many wars. Often, these two disasters have come close to each other. Therefore, it is not

surprising that many military leaders have come up with ideas about using infection as a weapon.

It should be noted that high rates of morbidity and mortality were common among the armies of the past. Huge clusters of people, sanitation and hygiene, poor nutrition - all this created good conditions for the development of infectious diseases in the troops. Often more deaths occurred from the diseases of the soldiers than from the actions of the enemy army.

Therefore, the first attempts to use infections to defeat enemy forces were made several thousand years ago. For example, the Hittites sent people with tularemia to the enemy camp. In the Middle Ages, they invented new ways to deliver biological weapons: the corpses of people and animals who died of some kind of deadly disease were thrown into besieged cities using catapults.

The most terrible result of the use of biological weapons in antiquity was the bubonic plague epidemic that appeared in Europe in the 14th century. During the siege of the city of Kafa (modern Theodosius), the Tatar khan Janibek threw the bodies of people who died of the plague on the walls. An epidemic broke out in the city. Some of the city's inhabitants fled from it on a ship bound for Venice, and as a result brought the infection there.

Soon, the plague literally surrounded Europe. In some countries, millions of people lost up to half of the population affected by the epidemic.

In the 18th century, European colonists supplied North American Indians with sheets and tents used by smallpox patients. Historians debate whether this was intentional. In any case, many local tribes were wiped out as a result of the epidemic.

Scientific progress has given mankind the ability not only to use vaccines and antibiotics, but also to use the most dangerous pathogens as weapons.

The process of rapid development of biological weapons began relatively recently - approximately at the end of the 19th century. During the First World War, the Germans did not try to provoke an anthrax epizootic in enemy troops. During World War II, Japan created a special secret unit - Unit 731 - which was involved in the production of biological weapons, including experiments on prisoners of war.

During the war, the Japanese infected the Chinese population with the bubonic plague, which killed 400,000 Chinese. The Germans actively and fairly successfully spread malaria in the territory of modern Italy, and about 100 thousand allied soldiers died from it.

After the end of the Second World War, these weapons of mass destruction were no longer used, at least there were no signs of their widespread use. There are reports that the Americans used biological weapons during the Korean War, but they could not confirm this fact.

In 1979, an anthrax epidemic began in Sverdlovsk on the territory of the USSR. It was officially announced that the cause of the disease was eating the meat of infected animals. Modern researchers have no doubt that an accident in a secret Soviet laboratory where a biological weapon was developed was the main reason for the destruction of the population of this dangerous infection.[17]

In a short period of time, 79 cases of infection were recorded, 68 of which resulted in death. This is a good example of the effectiveness of biological weapons: the death rate as a result of accidental infection was 86%.

Characteristics of biological weapons

Benefit:

1. High efficiency of use;
2. Difficulty in timely detection of the use of biological weapons by the enemy;
3. The presence of infection in the latent (incubation) period significantly reduces the use of this SYM;
4. A wide variety of biological agents that can be used to defeat the enemy;
5. Many types of biological weapons are capable of epidemic spread, that is, defeating the enemy becomes a self-sustaining process;
6. The flexibility of this weapon of mass destruction: there are diseases that make a person temporarily helpless, and other diseases that lead to death;
7. Microorganisms are able to enter any buildings, engineering structures and military equipment, and also do not protect against infection;
8. The ability of biological weapons to infect humans, animals and agricultural plants. In addition, this ability is highly selective: some pathogens cause human diseases, others infect only animals;
9. Biological weapons have a strong psychological effect on the population, panic and fear immediately spread.

It should also be noted that biological weapons are very cheap, it is not difficult to create them even for a country with a low level of technical development.

However, this type of WMD has a significant drawback that limits the use of biological weapons: it is very careless.

After using a pathogenic virus or anthrax agent, you cannot guarantee that the infection will not harm your state. Science still cannot provide guaranteed protection from microorganisms. Also: even a pre-formulated antidote can be ineffective because viruses and bacteria are constantly mutating.

Therefore, biological weapons have not been used in recent history. This trend is

[17]www.medrortal.ru

likely to continue in the future.

Classification of biological weapons

The main difference between different biological weapons is the pathogen used to defeat the enemy. He is the one who determines the main features and characteristics of WMD. The causative agents of various diseases can be used: cholera, smallpox, anthrax, Ebola, cholera, tularemia, tropical fever, as well as botulism toxins.

Various tools and methods can be used to spread the infection:

- artillery shells and mines;
- air-scattered special containers (bags, bags or boxes);
- air bombs;
- devices that distribute aerosols from the air with the causative agent of infection;
- infected household items (clothes, shoes, food).

Separate, entomological weapons should be distinguished. These insects are a type of biological weapon used to attack the enemy. At different times, bees, scorpions, fleas, Colorado beetles and mosquitoes were used for these purposes. Some species of flies, fleas and mosquitoes are the most promising. All these insects can infect people and animals with various diseases. At various times, there were programs to cultivate agricultural pests to damage the enemy's economy.

WMD protection

All methods of protection against biological weapons can be divided into two large groups:

- prophylactic;
- emergency situation.

Preventive methods of control- vaccination of military personnel, civilians, farm animals. The second line of prevention is to create all the mechanisms to quickly identify the infection.

Emergency methods of protection against biological threats include various methods of disease treatment, preventive measures in emergency situations, isolation of the source of infection and decontamination of the area.

During the Cold War, several exercises were conducted to deal with the consequences of the use of biological weapons. Other modeling methods have also been used. As a result, it was concluded that a country with traditional advanced medicine is capable of defeating any known type of weapons of mass destruction.

However, there is one problem: modern work on creating new types of microorganisms is based on biotechnology and genetic engineering methods. That is, developers create new strains of viruses and bacteria with unprecedented properties. If such a pathogen is released, it can cause a global epidemic (pandemic). ***Recently, rumors about the so-called genetic weapon do not stop. It usually refers to genetically modified pathogenic microorganisms capable of selectively infecting people of a certain nationality, race or gender. However, many scientists are skeptical about the idea of such a weapon, although experiments in this direction have clearly been conducted.***

Biological Weapons Convention

There are several conventions that prohibit the development and use of biological weapons. The first of them (Geneva Protocol) was adopted in 1925 and clearly prohibited such actions. Another similar convention appeared in Geneva in 1972, and in January 2012, 165 countries ratified it.

If you have any questions, leave them in the comments below the article. We or our guests will be happy to answer them.

Biological weapons of mass destruction (BW) are designed to destroy personnel of military units, people, animals, agricultural land, water sources, military equipment and certain types of weapons in enemy territory.

Biochemical weapons are represented by toxins, viruses, microorganisms and

the consequences of their vital functions. It is supplied with all types of rocket and artillery weapons, aircraft. It is spread by disease vectors (humans, animals, natural processes).

Use of weapons of mass destruction in history

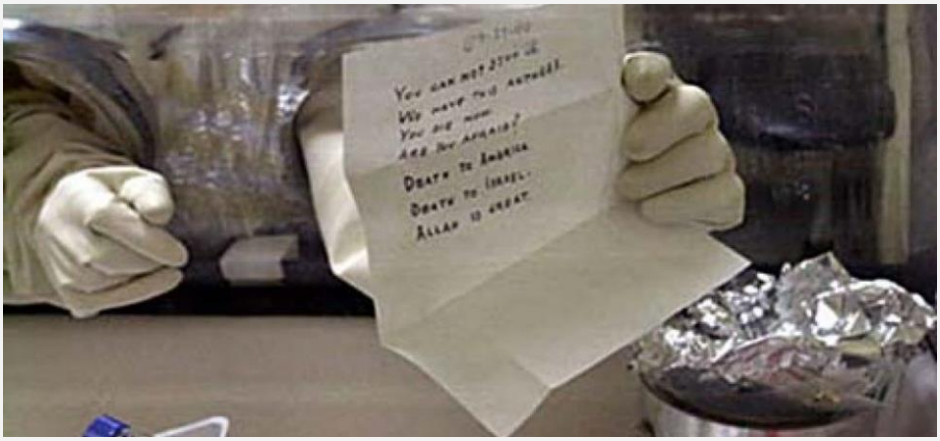
Viruses have long been used as weapons of mass destruction. The table below lists the first reports of biological weapons used by adversaries in military conflicts.

Date year	The event
3rd century BC	Historians have confirmed the use of "natural" biological weapons. During the siege of fortresses and fortified cities, the soldiers of Hannibal, the great commander of that time from Carthage, wrapped poisonous snakes in clay pots and transferred them to the enemy's territory. Panic reigned with the defeat of the defenders with the sting of the reptiles, and the will to win was reduced.
1346	The first experience of using biological means of destroying the population with the outbreak of cholera. During the siege of Kafa (now Feodosia, Crimea), the Mongols experienced a biological epidemic of this disease. They are forced to retreat, but before that, the bodies of patients were moved through the city walls, which caused the death of the defenders of the fortress.
1518	The statehood of the Aztecs, like themselves, was destroyed with the help of smallpox introduced by the Spanish conquistador E. Cortes. The rapid spread of the disease was ensured by the mass transfer of items to the aborigines that previously belonged to patients on the mainland
1675	Due to the invention of the first microscope by the Dutch doctor A. Leveguk, it became possible to study the microprocesses of reproduction, mutations of pathogens.
1710	Russian-Swedish war. Cholera was again used for military purposes. The Russians won, including by infecting the enemy's forces through the corpses of their own soldiers who died of cholera.
1767	Anglo-French military conflict. British general D. Amherst exterminated the Indians who supported the French and gave them smallpox-infected sheets
1855	L. Pasteur (French scientist) started the era of discoveries in microbiology

1915	The First World War. The Allies, the French, and the Germans used the method of infecting animals with anthrax. Herds of horses and cows were vaccinated and transferred to enemy territory
1925	The consequences of the use of biological weapons, the impossibility of controlling the processes associated with it, forced the world's leading countries to sign the Geneva Convention, which prohibits the use of biological weapons for military purposes. Only the United States and Japan did not join the Convention
1930-1940	Japanese military scientists are conducting mass experiments in China. Historically, several hundred people died from bubonic plague, an infection caused by an experiment conducted by the Japanese in Chushen.
1942	A case of experimental transmission of anthrax to cattle on a remote island near Scotland was discovered. The test could not be stopped. All life on Napalm Island had to be destroyed to prevent further spread of the disease
1943	The year the United States decided to develop biological weapons. The Pentagon has decided to use invisible viruses as weapons of mass destruction
1969	US officials have unilaterally announced the non-use of biological weapons
1972	The Biological and Toxin Weapons Convention was adopted. Production, production and any operations of this type of weapons are prohibited. Entry into force is delayed
1973	America's statement on the elimination of all types of biological weapons, except in a small number of cases for experimental purposes
1975	The Convention entered into force
1979	In Yekaterinburg (formerly Sverdlovsk), an anthrax outbreak claimed the lives of 64 people. The disease is localized in a short time. The real reason has not been officially announced
1980	The world learned that smallpox would be eradicated
1980-1988	The confrontation between Iran and Iraq. Biological weapons used by both sides
1993	An anthrax attack was organized by Aum Shinrikyo extremists in the Tokyo subway
1998	States begin mandatory anthrax vaccination of military personnel

2001	USA. Terrorists send letters with anthrax-related disputes, resulting in the infection and death of several American citizens.

The history of the emergence and use of biological weapons, as can be seen from the table above, there is a lot of evidence of the use of war viruses.



Definition and classification of biological weapons

Biological weapons are distinguished from other types of weapons of mass destruction by the following.

- **Biological bombs cause epidemics**. The use of BO is accompanied by mass infection of living creatures and areas in a short time;
- **Toxicity**. Small doses of the causative agent are necessary for defeat;
- **Spread rate**. The transfer of BO components is carried out by air, direct contact, mediation with objects, etc.
- **Incubation period.**The appearance of the first symptoms of the disease can be observed after a long time;
- **Save**. Under certain conditions, pathogens have a long latent period until conditions for activation appear;
- **The source of infection**. Simulation of BO propagation showed that even a limited number of aerosols can infect targets at distances up to 700.0 km;
- **Psychological effect**. In places where this type of weapon was used, panic, fear for people's lives and inability to perform daily tasks were always noted.

WMD protection

Defense against weapons of mass destruction (WMD) consists of a set of measures aimed at reducing the impact of the enemy's bacteriological (nuclear, chemical, biological) weapons on the population, military units, economic facilities, and the environment.

Involved in events:

- intelligence units of all military branches;
- engineering, motorized rifle units;
- military (civilian) doctors;
- chemical, veterinary and other services;
- heads of administrations and enterprises and other officials whose duties are related to the population.

Protecting the population. This provides:

- training in the basics of WMD;
- construction of protective structures;
- preparation of food and necessary items in advance;
- evacuation of residents in suburban areas;
- timely reporting;
- emergency rescue operations;
- medical assistance to victims;
- provision of personal protective equipment;
- land monitoring, inspection and change management.

Protection of farm animalsincludes:

- distribution of livestock on farms with air filtration equipment;
- feed and water preparation;
- veterinary treatment;
- organization of work on prevention of recurrence of infections;
- vaccination, other means of infection prevention;
- monitoring and timely detection of deviations from health norms.

Protection of plantspresented by:

- cultivation of crops resistant to harmful environment;
- seed conservation measures;
- preventive measures;
- Elimination of places where crops are affected by pathogens as a result of the use of oM and BO.

Food Protection:

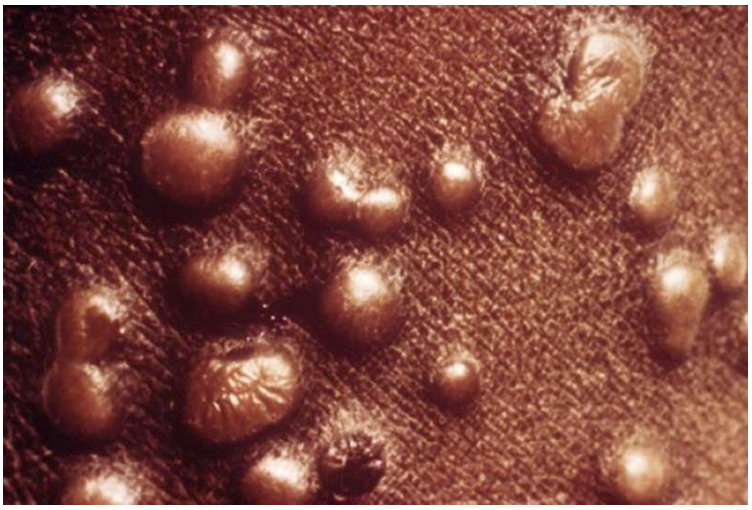
- equipment for warehouses, taking into account the possibility of using weapons of mass destruction;
- distribution of existing food stocks;
- movement in specially equipped wagons;
- use of special packaging;
- conduct decontamination (decontamination) of food products and packaging.

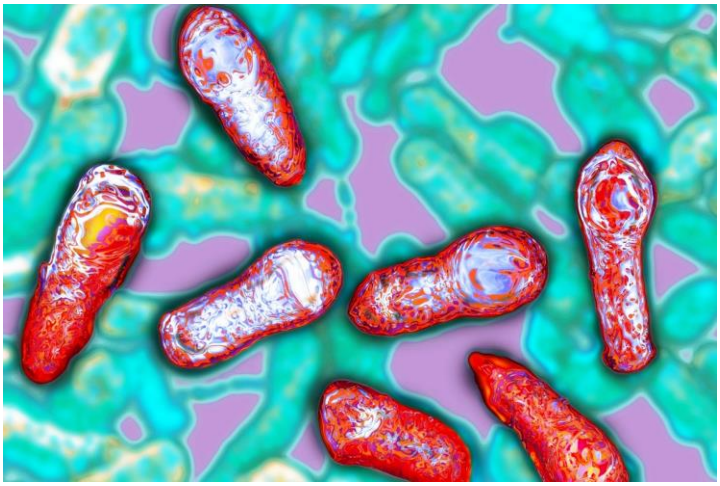
Protection of water sourcespresented by:

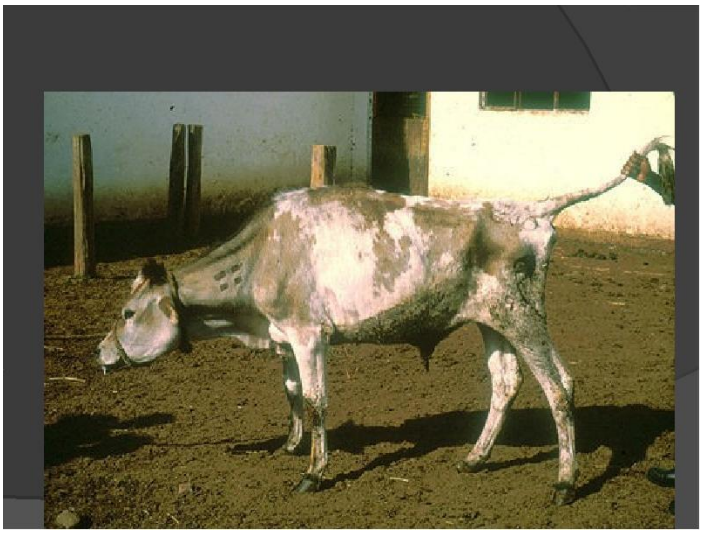
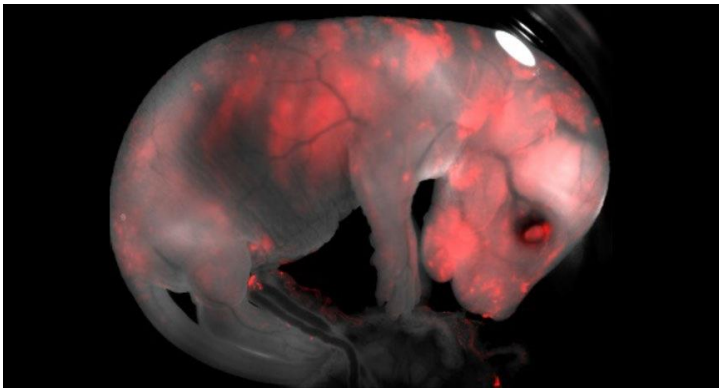
- take into account the possibility of using WMD when organizing a centralized water supply;
- open water sources deepen;
- systems are equipped with additional special filters;
- preparation of reserve streams;
- guarded day and night;
- Continuous monitoring of the water condition is carried out with in-depth analysis.

Types of biological weapons (briefly)

To understand what is part of biological weapons, it is enough to familiarize yourself with the information presented in the table.

Illness	Description	Photo
Smallpox	The disease is caused by the smallpox virus. Fatal outcome in 30.0% of cases. It is accompanied by high fever, rash, stomach ulcer.	
Anthrax	BO in class A. A favorable successor for bacteria is soil. When animals come into contact with the grass, humans become infected by breathing or drinking.	
Ebola hemorrhagic fever	The course of the disease is manifested by heavy bleeding. Infection results from contact with the patient's blood or secretions. Incubation from two to twenty-one days. Symptoms: pain in muscles, joints, diarrhea, internal bleeding. Mortality 60.0-90.0%, with incubation 7-16 days.	

Plague	It exists in two forms: bubonic and pulmonary. It is spread by insects and comes into direct contact with the patient's secretions. Symptoms: swelling of the inguinal glands, fever, chills, weakness, etc. Their first appearance is in one day - six days. If treatment is not started for the first time on the day of infection, the mortality rate is 70.0%.	
Tularemia	Infection occurs after insect bites, contact with sick animals or consumption of contaminated products.	
Botulinum toxin	Belongs to class "A". It is sent by air droplets. Symptoms appear within a day and a half and manifest themselves: visual disturbances, difficulty swallowing. If not treated urgently, it leads to paralysis of the muscles and respiratory system. Mortality 70.0%	

Rice piriculosis	The action is aimed at destroying crops. The disease is caused by the fungus Pyricularia oryzae. There are over 200 strains.	
Rinderpest	The disease spreads to all species of ruminants. Infection occurs quickly. Symptoms: changes in mucous membranes, diarrhea, fever, loss of ability to eat, etc.	
Chimera virus	They can be created by combining the DNA of different viruses.	

Timely receipt of intelligence information about a biological weapon, including all types of biological weapons, significantly reduces the onset of possible consequences, gives time to implement comprehensive measures.

Biological Weapons Convention

Convention on the Development, Production and Stockpiling of Bacteriological Means of Mass Destruction (Modern Biological Weapons) and on their Destruction (BTWC) Protocol adopted at Geneva (June 17, 1925, entered into force February 8, 1928) is the result of years of international activity. prohibition of the use of asphyxiating, poisonous or other similar gases and bacteriological agents in war (Geneva Protocol).

States have signed the terms of the BTWC

163 countries have adopted the terms of the BTWC (signed on September 4, 1978, entered into force on March 26, 1975). The United States joined the BTWC in 1972, but refused to sign the protocols, which provided for a series of measures to monitor its implementation.
Further activities of the international community in the organization of BTWC events are distinguished by the results of Review Conferences:[18]

[18]www.Med-info. ru

The date	Decision
1986	Annual report on actions taken by participating countries.
1991	A VEREX expert group was formed
1995-2001	Negotiation process in the system of monitoring compliance with the requirements of the Convention
2003	The issue of the interstate mechanism for ensuring the security of the BO
2004	We discussed international measures to control and mitigate the use of BO. At the same time, the powers of international institutions to identify infectious diseases were expanded.
2005	The rules of the Code of Conduct of the scientific community were approved.
2006	The final text of the declaration was adopted and a decision was taken on the future implementation of the BTWC.

To date, effective control mechanisms have not been established to verify information about the non-development of biological weapons. It can be said with a certain degree of certainty that experts from some foreign countries have not stopped such research. For example, NATO laboratories are developing a biological rifle with explosive bullets, which can create local bacteriological contamination foci of enemy military units.

This is evidenced by the periodic outbreak of infectious diseases in different parts of the world.

A biological or bacteriological weapon- this is a weapon of mass destruction that uses various pathogens to destroy the enemy. The main purpose of its use is mass extermination of enemy forces, to achieve this, dangerous diseases are transmitted among its troops and civilians.

The term "bacteriological weapon" is not entirely correct, because it is used to deliver to the enemy not only bacteria, but also viruses and other microorganisms, as well as toxic products of their vital functions. In addition, the composition of biological weapons includes the means of delivery of pathogens to the place of use.

Entomological weapons that use insects to attack the enemy are sometimes distinguished as a separate species.

Modern warfare- this is a whole set of actions aimed at destroying the enemy's economy. Biological weapons fit his concept perfectly. After all, you can not only infect the enemy soldier or his civilians, but also destroy the crop.

Biological weapons are the oldest type of weapons of mass destruction that ancient people tried to use. It was not always effective, but sometimes had impressive results.

Currently, biological weapons are prohibited: a number of conventions have been adopted that prohibit their development, storage and use. However, despite all international conventions, the press regularly appears about new developments of this prohibited weapon.

According to many experts, bacteriological weapons are more dangerous than nuclear weapons. Its features and characteristics are such that it can lead to the complete destruction of humanity on the planet. Despite modern advances in medicine and biology, there is no need to talk about the victory of mankind over diseases. We still cannot fight HIV and hepatitis, and even the common flu causes regular epidemics. The behavior of biological weapons is not selective. A virus or a pathogenic bacterium cannot distinguish between original and foreign, and when released, they destroy all life in their life.

FEATURES OF BIOLOGICAL WEAPONS:

- High pathogenicity (infectiousness, virulence - the ability to infect a person with a small number of microbial cells (from units to a thousand);

-High combat effectiveness - the ability to cause mass diseases in various ways of infection;

-The possibility of an epidemic due to the contagiousness of certain BS;

- Long-term presence of a bacteriological infection center (resistance of some pathogens to the external environment, especially spore forms);

-The presence and duration of a shorter incubation period from the moment of infection to the onset of the disease (from several hours to three days) depends not only on the type of pathogen, but also on the direction and dose of infection. Perhaps it is necessary to wait for the aerosol method of using BO, which leads to a reduction in the incubation period of BO, which causes infection in the respiratory tract and large doses of microbial cells;

-Difficulty determining the use of BO;

-Difficulty and duration of BO instructions, especially when using mixed formulations of pathogens;

-Difficulties in diagnosing diseases, especially when using unclear routes of entry into the human body and mixed formulas;

-Possibility of long-term storage of BO and relatively cheapness of the product.

HOW TO USE BO:

-Creating a biological aerosol that affects atmospheric surface layers;

-Using infected vectors for vector-borne transmission of humans;

-Hidden (sabotage) infection of food products, drinking water, closed air and other environmental objects.

Air pollution is carried out using BBP, which consists of at least two parts: a tank filled with BS formula and a device that ensures the transition of BS (aerosol state) to an aerosol state as a result of an explosion under the influence of compressed air or chemical reagents. BBPs that generate aerosols by detonation or chemical agents (e.g., carbon dioxide) include aerial bombs (mainly small-caliber), artillery shells, and mines. BS aerosol generators powered by compressed gas are installed on airplanes, rockets, balloons, to deliver BBP to the target, as well as on ground installations and other devices that provide bacterial (biological) aerosol creation near military structures. Depending on the type and design of the BBP, aerosol generation sources are divided into linear (elevated or underground) and point (multi-point and multi-point). Line sources rising on the surface of the earth are created by spraying BS from aircraft (cruise missiles and other delivery vehicles) at a height of 50-200 m, and the length of the trace of the source reaches several kilometers. In this case, the formed aerosol cloud gradually rises to the surface of the earth and spreads along the direction of the wind.

Underground sources are created using special aircraft bombs, artillery shells, mines or hidden surface devices. A multi-point aerosol source is created using special cassettes with a spherical air bomb, the design of which ensures distribution in an area equal to the opening height of the cassettes.

The aerosol formed in the air due to the use of BBP is a large number of liquid or solid particles that are heterogeneous in size.

Coarse particles settle near the source of the aerosol, intensively infecting land, plants and objects in the path of the aerosol cloud. In the future, these particles (as a result of the formation of dust under the influence of the wind, the movement of people and equipment, the blast wave and other factors) can form secondary aerosols, the distribution of which is the same as the primary ones.

Fine particles whose size does not exceed 1-5 microns are the most stable fraction of the aerosol, settle very slowly (13 cm/h) and are able to travel great distances.

During breathing, particles from 1 to 5 microns fall into the human respiratory system and remain in the smallest bronchi and alveoli - the most sensitive parts of the respiratory system to infection.

The distribution of the aerosol cloud in the area is determined by the direction and speed of the wind, as well as the degree of vertical stability of the atmosphere. Depending on these parameters, as well as the type and power of the aerosol source, the time of passage of the aerosol cloud through objects can be from several minutes

to tens of minutes.

A characteristic feature of such a cloud is the dispersion (penetration) of aerosol particles into the incompressible structures in its movement. In rooms and shelters that are not equipped with filtering and ventilation devices, the concentration of BS in this case can be much higher than in the outdoor environment, where environmental factors have a negative effect on BS.

Disintegration of bacterial (biological) aerosols occurs both as a result of their physical destruction and as a result of biological effects of environmental factors, for example, as a result of wind, movement and turbulent mixing of surface air layers.

In addition to BS aerosols, a possible enemy is artificially introducing various arthropods (mosquitoes, fleas, lice, mosquitoes, etc.) infected with bacteria, rickettsiae and viruses to destroy the troops and population, which retain the ability to transmit pathogens to humans for a long time. can use. The life expectancy of carriers of this infection varies from a few days and weeks (mosquitoes, flies, lice) to a year or even several years (fleas, ticks).

The viability of insects and ticks depends on environmental conditions, especially temperature and humidity. Therefore, the use of infected vectors as a possible enemy by spreading them on the ground is probably only in the hot season, when the air temperature is 10 ° C and above, the relative humidity is not less than 50%, and there are natural factors that approach the natural habitat of arthropods. possible when

Delivery of infected arthropods to the target can be carried out using specially designed air bombs and containers.

Relatively small areas of spread of infection, the possibility of quick detection of the fact of bacteriological attack, high sensitivity of carriers to environmental conditions, effectiveness of insecticides and repellents and some other factors significantly limit the use of arthropods for the spread of BS.

The method of sabotaging the infection is also possible.

The most likely aerosol method of using BO should be expected. Among the main measures to localize and destroy the enemy's use of bacteriological (biological) weapons, the following can be distinguished:

-Activity search

- Examination of identified patients by medical teams;
- Carrying out non-urgent preventive measures;
- Carrying out sanitation, disinfection, decontamination and decontamination measures;
- Organization of hospital admission of patients using vehicles specially allocated for this purpose;

-Identification and identification of the pathogen;
- Carrying out regime-restrictive measures (quarantine, observation);
- Carrying out sanitary-educational work, sanitary-hygiene and anti-epidemic measures.

Amazing evidence

At one time or another, people tried to use every opportunity to find a new viable option to destroy each other. We have destroyed forests, religion, philosophy, science, and even art to fuel humanity's desire to drink more blood from each other. Along the way, we even built one of the most serious viral, bacterial and fungal weapons.

The use of biological weapons dates back to the ancient world. In 1500 BC, the Hittites of Asia Minor realized the power of contagion and sent a plague to enemy lands. Many troops realized the full power of biological weapons and left their corpses in enemy strongholds. Some historians even suggest that the ten biblical plagues that Moses "invoked" against Egypt may have been campaigns of biological warfare rather than divine vengeance.

Since those early days, advances in medical science have led to significant improvements in our understanding of the effects of harmful pathogens and how our immune systems fight against them. But while these advances have led to vaccines and treatments, they have also led to the further militarization of the planet's deadliest biological "agents."

The first half of the 20th century was marked by the use of biological weapons such as anthrax by the Germans and Japanese. Later it was used in USA, Great Britain and Russia. Today, biological weapons are illegal because their use was banned in 1972 by the Biological Weapons Convention and the Geneva Protocol. But with a number of countries destroying their biological weapons stockpiles and halting research, the threat remains. In this article, we will examine the main threats of biological weapons.

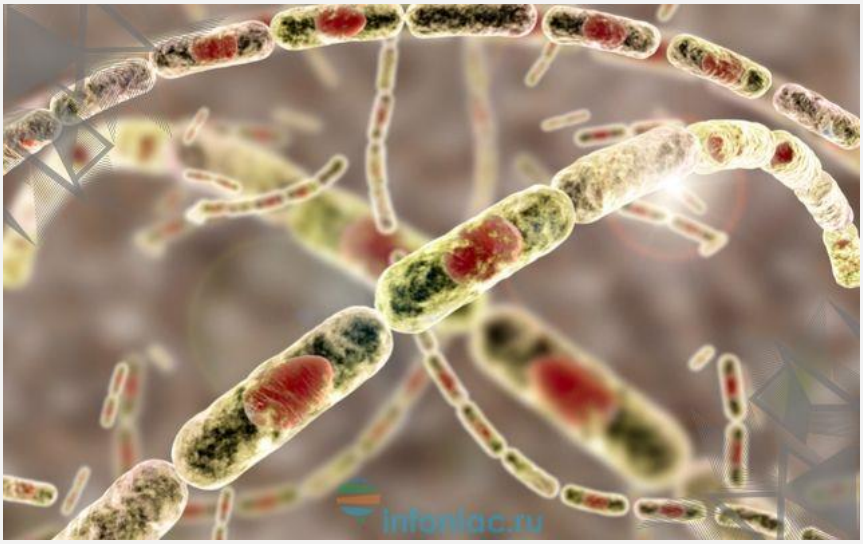
The term "biological weapon" usually conjures up mental images of sterile government laboratories, special clothing, and test tubes filled with bright liquids. Historically, however, biological weapons have taken more mundane forms: paper bags filled with plague-infected fleas, or even simple sheets, as in the French and Indian War of 1763.

On the orders of Commander Sir Geoffrey Amherst, British forces brought smallpox-infected blankets to Indian tribes in Ottawa. These Native Americans were very susceptible to this disease because, unlike Europeans, they had not yet encountered smallpox and therefore did not have the appropriate immunity. The disease "cuts off" tribes like wild grass.

Smallpox is the smallpox virus. In the most common forms of the disease, death occurs in 30 percent of cases. Symptoms of chicken pox include fever, body aches, and a rash that causes fluid-filled sores. The disease is mainly spread by direct contact with the skin of an infected person or through biological fluids, but it can also spread in narrow, confined spaces. Smallpox is classified as a Class A biological weapon because of its high lethality and airborne transmission. Although retail vaccination is available, as a rule, only medical personnel and the military are vaccinated, which in practice means that the use of this type of biological weapon poses a risk to the rest of the population. How can I remove the virus? Perhaps in aerosol form, or even the old fashioned way: by sending an infected person directly to the target area.

In 1976, WHO attempted to eradicate tuberculosis through mass vaccination. As a result, the last case of smallpox virus infection was recorded in 1977. The disease has been virtually eradicated, but laboratory copies of smallpox still exist. Both Russia and the United States have WHO-certified samples of smallpox, but

because smallpox has been used as a biological weapon in several nations' special programs, it is not yet known how many secret stockpiles exist.



In the fall of 2001, white powder letters began arriving at the offices of the US Senate. The envelopes were rumored to contain spores of the deadly bacteria Bacillus anthracis, which causes anthrax. Anthrax-infected letters infected 22 people and killed five.

Due to its high mortality and resistance to environmental changes, anthrax bacteria also belong to class A and are considered a biological weapon. The bacterium lives in the soil, and animals that graze near it usually come into contact with bacterial spores when searching for food. A person can contract anthrax by inhaling, swallowing, or swallowing spores.

In most cases, anthrax infection occurs through skin contact with spores. The most dangerous form of anthrax infection is the respiratory form, in which the spores enter the lungs, and then the cells of the immune system transfer them to the lymph nodes. There, the spores begin to multiply and release toxins, which lead to the development of problems such as fever, shortness of breath, fatigue, muscle pain, swollen lymph nodes, nausea, vomiting, diarrhea, and more. The death rate is highest among those infected with the inhaled form of anthrax, and, unfortunately, one in five victims in 2001 became infected with the disease.

The disease is very difficult to catch under normal conditions, and it is not transmitted from person to person. However, health care workers, veterinarians, and military personnel are usually vaccinated. In addition to the lack of widespread vaccination, another characteristic of anthrax is its "longevity". Many harmful biological bacteria can live only under certain conditions and for a short time. However, the anthrax bacteria has been on the shelf for 40 years and remains a deadly threat.

These characteristics have made anthrax a "favorite" biological weapon among relevant programs worldwide. In occupied Manchuria in the late 1930s,

Japanese scientists experimented with aerosolizing antithrax bacteria on humans. In 1942, British troops experimented with a bomb derived from anthrax, which contaminated the Grenard Island landfill so badly that 44 years later, 280 tons of formaldehyde were needed to decontaminate the soil. In 1979, the Soviet Union accidentally released the anthrax bacteria into the air, killing 66 people.

Today, anthrax remains one of the most popular and most dangerous types of biological weapons. Over the years, many biological weapons programs have worked to develop and improve the anthrax virus, and with a vaccine available, mass vaccination is only viable in the event of a mass outbreak.

Another notorious killer comes in the form of the Ebola virus, one of dozens of hemorrhagic fevers, nasty diseases that involve heavy bleeding. Ebola made headlines in the 1970s when the virus spread to Zaire and Sudan, killing hundreds of people. In the decades that followed, the virus maintained its deadly reputation throughout Africa. Since its discovery, it has occurred at least seven times in Africa, Europe and the United States.

Scientists believe that the virus is native to the Congo region, where the first Congo is located (this virus) usually lives in local, African animals, but the exact origin and spread of the disease is still a mystery. Thus, experts were able to identify the virus only after it had infected humans and primates.

An infected person transmits the virus to others through contact with the blood or other secretions of an infected person. In Africa, the virus has proven itself particularly well because it is transmitted through hospitals and clinics. The incubation period of the virus lasts 2-21 days, after which symptoms begin to appear in an infected person. Common symptoms include headache, muscle pain, sore throat and weakness, diarrhea and vomiting. Some patients suffer from internal and

external bleeding. 60-90% of infections lead to death within 7-16 days after illness.

Doctors do not know why some patients recover faster than others. They also don't know how to treat this fever because there is no vaccine. There is a vaccine for one form of hemorrhagic fever: yellow fever.

Although many doctors worked to treat and prevent the fever, a group of Soviet scientists turned the virus into a biological weapon. Initially, they faced the problem of infecting Ebola in laboratory conditions, they made great progress in this field by growing the Marburg hemorrhagic fever virus. However, in the early 90s, they managed to solve this problem. While the virus is usually spread through physical contact with the secretions of an infected person, researchers have observed how it spreads through the air in a laboratory setting. The ability to "release" weapons in the form of an aerosol only strengthened the position of the A-class virus.

The Black Death wiped out half of Europe's population in the 14th century, a horror that still haunts the world today. The return of this virus called "The Great Death" is surprising people. Today, some researchers believe that the world's first pandemic may have been hemorrhagic fever, but the term "plague" is associated with another class A biological weapon: the bacterium Yersinia Pestis.

Plague comes in two main strains: bubonic and pneumonic. Bubonic plague is usually spread through the bites of infected fleas, but can also be spread from person to person through contact with infected body fluids. This shot is named after swollen glands in the abdomen, armpits and neck. This swelling is accompanied by fever, chills, headache and fatigue. Symptoms appear after two to three days and usually last from one to six days. If treatment is not started within 24 hours of infection, 70% of deaths are preventable.

The pneumonic form of the plague is less common and spreads through airborne droplets. Symptoms of this plague include fever, cough, bloody mucus and difficulty breathing. Plague victims, both dead and living, have historically served as effective biological weapons. In 1940, a plague broke out in China, and the

Japanese dropped infected pigs from airplanes. Scientists in several countries are still studying the possibility of using cholera as a biological weapon, and because the disease is still found in the world, it is easy to get a copy of the bacteria. With proper treatment, the fatal consequences of this disease are less than 5 percent.

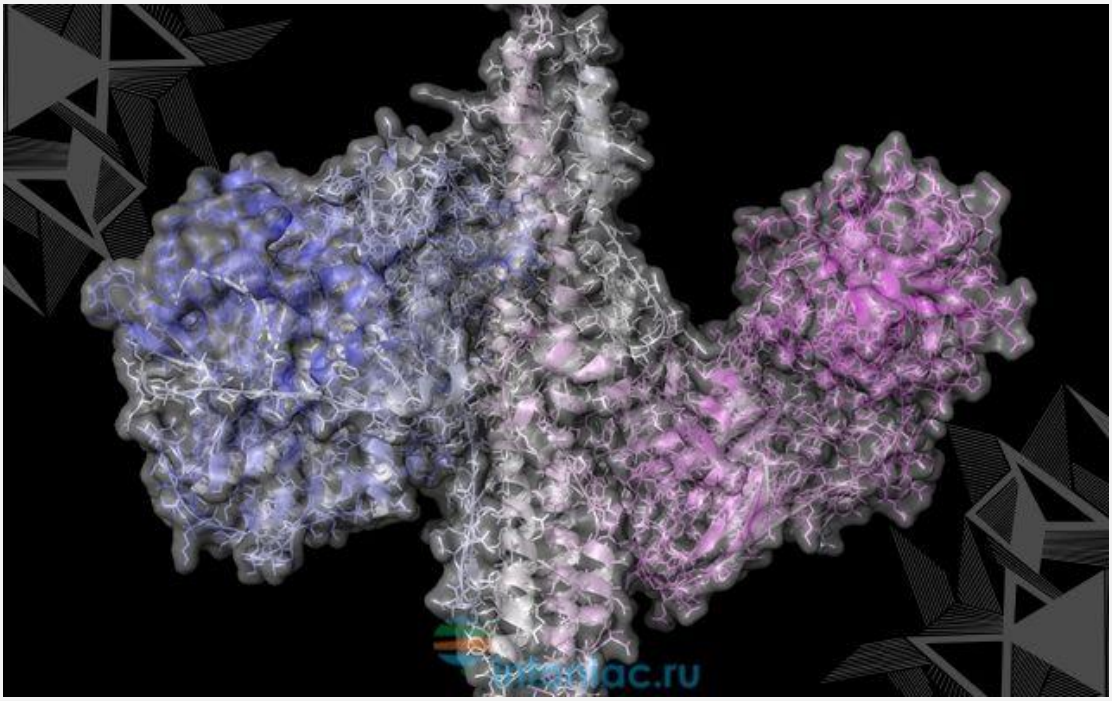
Death from infection from this infection occurs in five percent of deaths. A small gram-negative bacillus is the causative agent of tularemia. In 1941, the Soviet Union reported 10,000 cases of the disease. Later, when the Nazis attacked Stalingrad the following year, their number reached 100,000, and most cases of infection were recorded on the German side. Ken Alibek, a former Soviet biological weapons researcher, argued that the increase in infections was not a coincidence, but a result of biological warfare. Alibek would continue to help Soviet scientists develop a vaccine against tularemia until he fled to the United States in 1992.

Francisella tularensis occurs in more than 50 organisms in nature and is especially common among rodents, rabbits, and hares. Humans are usually infected by contact with infected animals, insect bites, or eating contaminated food.

Symptoms usually appear after 3-5 days, depending on the method of treatment of the infection. The patient may have fever, chills, headache, diarrhea, muscle pain, joint pain, dry cough, and progressive weakness. Pneumonia-like symptoms may also develop. If untreated, respiratory failure and death should be observed. The disease usually does not exceed two weeks, but during this time, infected people are mostly bedridden.

Tularemia is not transmitted from person to person, is easily treated with antibiotics, and is easily prevented by vaccination. However, this zoonotic infection spreads very quickly from animal to human and is easy to catch if it is spread as an

aerosol. Infection is especially dangerous in aerosol form. Because of these factors, after the end of World War II, the United States, Great Britain, Canada, and the Soviet Union began to work on what to make of biological weapons.



Take a deep breath. If there is botulinum toxin in the air you breathe, you will not know about it. Dead bacteria are colorless and odorless. But after 12-36 hours, the first symptoms appear: worsening of vision, vomiting and difficulty swallowing. Your only hope at this point is to get botulinum antitoxin, and the sooner you get it, the better for you. If left untreated, paralysis of the muscles, followed by paralysis of the respiratory system.

Without breathing support, this poison can kill you within 24-72 hours. Therefore, the deadly toxin is also a class A biological weapon. However, if help and support are given to the lungs at that time, the death rate drops from 70 percent to 6 immediately, but it takes time to recover, because the poison paralyzes the nerves and muscles, cutting off the signal from the brain. For complete recovery, the patient needs to "grow" new nerve endings, and this will take several months. Despite the availability of the vaccine, many experts are concerned about its effectiveness and side effects, so it is not widely used.

It should be noted that this neurotoxin can be found anywhere in the world, especially in soil and marine sediments. People are exposed to toxins by eating spoiled foods, especially canned foods and meat products (such as canned fried mushrooms and fish).

Its potential, affordability, and treatment limitations have made botulinum toxin a

biological weapons program in many countries. In 1990, members of the Japanese sect Aum Shinrikyo sprayed toxin against some political decisions, but it did not lead to the mass death they had hoped for. But when castine switched to sarin gas in 1995, they killed dozens and injured thousands.

A large number of biological organisms prefer agricultural food crops. Freeing the culture from its enemies is a very important task for man, because without food, people start panic and chaos.

A number of countries, especially the United States and Russia, have conducted extensive research against insects, diseases, and diseases that affect food crops. The fact that modern agriculture is generally mono-crop oriented complicates these issues.

One of these biological weapons is rice pyriculosis, a disease caused by the imperfect fungus Pyricularia oryzae. The leaves of the affected plant turn gray and are filled with thousands of fungal spores. These spores multiply rapidly and spread from plant to plant, significantly impairing their properties or even destroying the crop. Although breeding disease-resistant plants is a good defense, rice powdery mildew is a serious problem because you have to breed not just one resistant strain, but 219 different strains.

This type of biological weapon is clearly not functional. However, this can lead to severe famines in poor countries, as well as financial and other losses and problems. A number of countries, including the United States, are using this rice disease as a biological weapon. By this time, the US had accumulated a large amount of harmful mushrooms for potential attacks on Asia.

When Genghis Khan invaded Europe in the 13th century, he accidentally brought with him terrible biological weapons. Rinderpest is caused by a virus closely related to the measles virus and affects cattle and other ruminants such as goats, bison and giraffes. The condition is highly contagious and causes fever, loss of appetite, dysentery and inflammation of the mucous membranes. Symptoms last about 6-10 days, after which the animal usually dies of dehydration.

For several centuries, people have constantly brought "diseased" cattle to different parts of the world, thereby infecting millions of cattle, as well as other domestic and wild animals. From time to time, the spread of the disease in Africa was so strong that they turned starving lions into paupers and forced their shepherds to commit suicide. However, thanks to mass vaccination programs, rinderpest has been brought under control in many countries around the world.

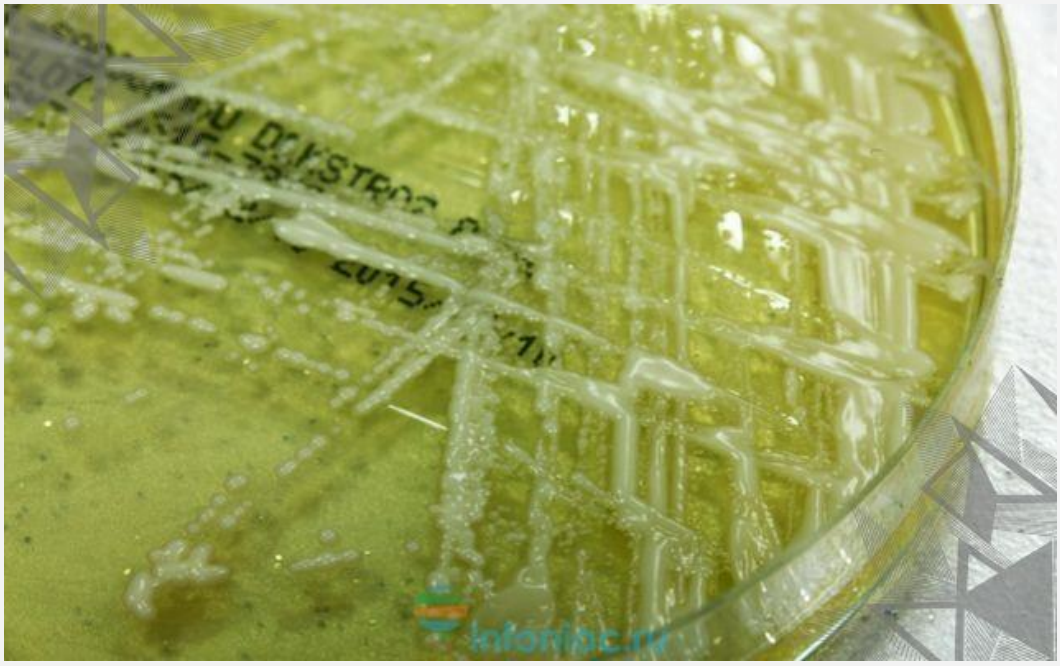
Although Genghis Khan acquired these biological weapons by accident, many modern countries such as Canada and the United States are actively researching this type of biological weapon.

Viruses adapt and evolve over time. New strains emerge, and sometimes close contact between humans and animals allows life-threatening diseases to "jump" up the food chain. With the constant increase in the number of people on earth, the emergence of new diseases is inevitable. And every time a new flashlight comes out, you can bet someone starts looking at it as a potential bioweapon.

Nipah virus falls into this category because it was only known in 1999. An outbreak in Malaysia's Nipah region infected 265 people and killed 105. Some speculate that the virus develops naturally in the bodies of the sores. The exact nature of the virus is unclear, but experts believe the virus can be spread through close physical contact or contact with the bodily fluids of an infected person. Human-to-human transmission has not yet been reported.

The illness usually lasts 6-10 days and causes mild, flu-like symptoms such as encephalitis or inflammation of the brain. In some cases, the patient is characterized by drowsiness, falls, convulsions, in addition, the person may fall into a coma. Death occurs in 50 percent of cases, and there is currently no standard treatment or vaccine.

Nipach virus is classified as a class C biological weapon along with other emerging pathogens. According to official data, although no country has researched the possibility of using this virus as a biological weapon, its possibilities are wide and 50 percent mortality makes this virus look.



What happens when scientists study the genetic makeup of dangerous organisms and begin to recreate it?

In Greek and Roman mythology, a chimera is the combination of the body parts of a lion, a goat, and a snake into one monstrous form. Late medieval artists often used this image to depict the complex nature of evil. In modern genetics, there is a chemical organism that contains the genes of a foreign body. Given his name, you'd probably say that all chemical organisms must be terrible examples of human invasion of nature for their nefarious purposes. Fortunately, this is not the case. Such chimeras, combining common cold and polio genes, can help treat brain cancer.

However, everyone understands that abuse of such scientific achievements is inevitable. Genetics has already discovered new ways to increase the lethality of biological weapons such as smallpox and anthrax by tailoring the genetic makeup. But by combining genes, scientists can create weapons that cause the development of two diseases at the same time. In the late 80s, Soviet scientists worked on the Chimera project, during which the possibility of combining smallpox and Ebola fever was considered.

Another possible abuse scenario is to create multiple strains of bacteria that require specific triggers. Such bacteria persist for a long time, they are reactivated using special "scratching" agents. Another possible variant of the chimeric biological weapon is the effect of these two components on the bacterium, which begins to work effectively. Such a biological attack would not only result in a high death rate, but could undermine public trust in public health initiatives, humanitarian workers, and government officials.

TYPES AND CHARACTERISTICS OF BACTERIOLOGICAL WEAPONS BASIC CONCEPTS ABOUT BACTERIOLOGICAL (BIOLOGICAL) WEAPONS

Bacteriological (biological) weaponsis a means of mass extermination of people, animals, agricultural crops and enemy military equipment. The basis of its harmful effects are bacteriological agents, which include pathogens (bacteria, viruses, rickettsiae, fungi) and toxins produced by bacteria.

Bacteriological (biological) weapon- this is a military equipment with delivery vehicles equipped with special ammunition and bacteriological means.

Can be used as bacteriological means:

1) defeating people:

pathogens of bacteriological diseases (cholera, tularemia, brucellosis, anthrax, cholera); the causative agent of viral diseases (smallpox, yellow fever, Venezuelan equine encephalomyelitis); the causative agent of rickettsiosis (typhoid, rocky mountain fever, Q fever); pathogens of fungal diseases (coccidioidomycosis, pocardiosis, histoplasmosis);

2) for the death of animals:

causative agents of foot and mouth disease, rinderpest, swine fever, anthrax, glanders, swine fever, rabies and other diseases;

3) to destroy plants:

pathogens of cereal rust, late blight of potatoes, late blight of corn and other crops; pests of agricultural plants; phytotoxicants, defoliants, herbicides and other chemicals.

Methods of using bacteriological means

Aerial bombs

- artillery mines and shells
- packages dropped from the plane (bags, boxes, containers)
- Special devices that expel insects from the plane
- methods of diversion.

The main method of using bacteriological means is infection of the air layer on the surface. Exploded ammunition equipped with bacteriological formation creates a bacteriological cloud of small or liquid particles suspended in the air. A cloud dispersed by the wind spreads and settles on the ground, forming an infected area, the area of which depends on the amount of formation, its characteristics and wind speed. In some cases, for the spread of infectious diseases, the enemy can leave infected household items: clothes, food, smoking, etc. In this case, the disease can occur as a result of direct contact with infected objects.

There is also a possible form of spread of pathogens, such as the deliberate dumping of infectious patients after departure, which can become a source of infection among troops and the population.[19]

Types and properties of basic bacteriological tools

Pathogens- these are pathogens of human and animal infectious diseases. Depending on the size of the structure and biological properties, they are divided into the following classes.

1) bacteria
2) viruses
3) ricotta
4) spirochete fungi and protozoa

As a biological weapon, the last two classes of microorganisms, according to experts in the field of biological weapons, are not important.

Bacteria are single-celled microorganisms in the form of plants, and their forms are very diverse. The main forms of bacteria: staphylococci, diplococci, streptococci, rod-shaped, vibrios, spirilla.

Their sizes vary from 0.5 to 8-10 microns. Bacteria in vegetative form, i.e. in the form of growth and development, they are very sensitive to high temperature, sunlight, sudden fluctuations in humidity and the effects of disinfectants, and on the contrary, they maintain stability even at low temperatures up to minus 15-25 ° C. To survive in unfavorable conditions, some types of bacteria can cover themselves with a protective capsule or form spores. Microbes in the form of spores have a very high resistance to drying, lack of nutrients, high and low temperatures and the effects of disinfectants. Pathogenic bacteria, anthrax, botulism, tetanus and other pathogens have the ability to form spores. According to new literature, no Almost all species of bacteria used as a medium are relatively easy to grow in artificial culture media and can be mass produced with the help of equipment. processes used by industry to produce antibiotics, vitamins and modern fermentation products. Pathogens include the causative agents of the most dangerous human diseases, such as plague, cholera, anthrax, glanders, melodiosis, and others.

Fungi- unicellular or multicellular microorganisms of plant origin. Their sizes range from 3 to 50 microns and more. Fungi can produce spores that are highly resistant to freezing, drying, exposure to sunlight, and disinfectants. Diseases caused by pathogenic fungi are called mycoses. Among them are serious infectious diseases such as coccidioidomycosis, blaotomycosis, histoplasmosis and others.

Bacteriological agents include pathogenic microbes and the toxins they produce.

[19]Uz-Res. SSV veh-savt WWW.minzdrav.uz

Pathogens of the following diseases can be used for equipping with bacteriological (biological) weapons:

1) Cholera is an acute infectious disease with a severe course and a tendency to spread rapidly. The causative agent of cholera - cholera vibrio - is unstable to the external environment, it remains in water for several months. The incubation period of cholera lasts from several hours to 6 days, on average from 1 to 3 days. The main symptoms of cholera damage: vomiting, diarrhea; cramps A cholera patient vomits and stools in the form of rice broth. With fluid bowel movements and vomiting, the patient loses a large amount of fluid, quickly loses weight, and the body temperature drops to 35 degrees. In severe cases, the disease can lead to death.

2) Anthrax is an acute infectious disease, mainly affects farm animals and can be transmitted from them to humans. The causative agent of anthrax enters the body through the respiratory tract, digestive system and damaged skin. The disease occurs from 1 to 3 days; it develops in three forms: lungs, intestines and skin. The pulmonary form of anthrax is a type of pneumonia: body temperature rises sharply, cough with sputum appears, heart activity slows down, and death occurs after 2-3 days if not treated. The intestinal form of the disease manifests itself in ulcerative lesions of the intestine, acute abdominal pain, vomiting, diarrhea; death occurs within 3-4 days. With anthrax disease, the affected areas of the body (hands, feet, neck, face) are often affected. is glazed. An itch appears at the site of the microbial pathogen, which turns into a vial with a cloudy or bloody liquid in 12 to 15 hours. Soon, as a result of the bursting of the blister, a black scab appears, around which new blisters appear, and the size of the scab increases to 6 - 9 centimeters (carbuncle). A carbuncle is painful, and a massive swelling appears around it. Ingestion of carbuncle can cause blood poisoning and death. With a positive course of the disease, after 5-6 days the patient's temperature decreases, painful phenomena gradually disappear. new blisters appear around it, and the size of the scab increases to 6-9 centimeters (carbuncle). A carbuncle is painful, and a massive swelling appears around it. Ingestion of carbuncle can cause blood poisoning and death. With a positive course of the disease, after 5-6 days the patient's temperature decreases, painful phenomena gradually disappear. new blisters appear around it, and the size of the scab increases to 6-9 centimeters (carbuncle). A carbuncle is painful, and a massive swelling appears around it. Ingestion of carbuncle can cause blood poisoning and death. With a positive course of the disease, after 5-6 days the patient's temperature decreases, painful phenomena gradually disappear.

3) Botulism - now knownan infectious disease caused by botulinum toxin, one of the most powerful poisons. Infection can occur through the respiratory tract, digestive system, damaged skin and mucous membranes. The incubation period is from 2 hours to one day. Botulism toxins affect the central nervous system, the vagus

nerve, and the nervous system of the heart; the disease is characterized by neuro-paralytic phenomena. Initially, general weakness, dizziness, pressure in the epigastric region, gastrointestinal disturbances appear; then paralytic phenomena develop: paralysis of the main muscles, tongue muscles, soft palate, mouth, facial muscles; followed by paralysis of the muscles of the stomach and intestines, as a result of which flat and persistent constipation is observed. The patient's body temperature is usually below normal.

4) Meliodiosis - in humans and rodentsinfectious disease similar to infectious glands. Because of its resemblance to a glandular, the goiter is called a false-eye stitcher. The microbe is a thin rod that does not form spores, it is mobile due to the presence of a set of flagella at one end, it is resistant to drying, it lives in the soil at a temperature of 26-28 degrees for up to a month, and in water for more than 40 days. It is sensitive to disinfectants and high temperature - it dies in a few minutes under their influence. Meliodiosis is a little-known disease that occurs in Southeast Asian countries. Small rodents in which the disease becomes chronic. Pus, feces and urine of sick animals contain many pathogens of melioidosis. Consuming food and water contaminated with secretions from diseased rodents Human infection occurs when moles. As with glands, the disease can enter the body through damaged skin and eyes, nose, etc. With artificial distribution, that is. if this disease is used as a component of a biological weapon, melodious germs can be sprayed into the air or used to infect food and food. The possibility of a person being infected with melodiosis is not excluded, but such facts have not been recorded. Patients should be distinguished from symptoms of melioidosis similar to other diseases. The manifestation of the disease in people is different and can appear in 3 stages. the disease begins after a few days. can enter through the mouth, nose, etc. With artificial distribution, that is. if this disease is used as a component of a biological weapon, melodious germs can be sprayed into the air or used to infect food and food. The possibility of a person being infected with melodiosis is not excluded, but such facts have not been recorded. Patients should be distinguished from symptoms of melioidosis similar to other diseases. The manifestation of the disease in people is different and can appear in 3 stages. the disease begins after a few days. can enter through the mouth, nose, etc. With artificial distribution, that is. if this disease is used as a component of a biological weapon, melodious germs can be sprayed into the air or used to infect food and food. The possibility of a person being infected with melodiosis is not excluded, but such facts have not been recorded. Patients should be distinguished from symptoms of melioidosis similar to other diseases. The manifestation of the disease in people is different and can appear in 3 stages. the disease begins after a few days. melodious germs can be sprayed into the air or used to contaminate food and feed. The possibility of a person being infected with

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Criteria for assessing the probability of using bioagents

The main part of bioagents used as bacteriological (biological) weapons can be used according to the following parameters:

-Human sensitivity,
- infection rate,
-ways of infection,
- environmental sustainability,
- the seriousness of the defeat,
- the possibility of cultivation,
- availability of preventive, treatment, diagnostic tools,
- the possibility of hidden access,
- possibility of genetic modification.

Based on the established criteria, the main bioagents (pathogens for humans) were analyzed (bacteria, viruses, toxins) and the analysis results made it possible to rank each bioagent, i.e. the number of points describing the degree of probability of use as a bacteriological (biological) weapon. According to the rating, bioagents are divided into 3 groups (see the table): bioagents with a high probability of being used as bacteriological (biological) weapons (group I); bioagents that can be used as bacteriological (biological) weapons (group 2) and bioagents that are difficult to use as bacteriological (biological) weapons (group 3).

Distribution table of bioagents according to probability of use as bacteriological (biological) weapons

1 group (high probability)	2 groups (can be used)	3 groups (low probability)
Smallpox **Cholera** **anthrax** **Botulism** **VEL** **Tularemia** **Q fever** **Marburg** **Flu** **Glands** **Typhus**	**Cholera** **Brucellosis** **Japanese encephalitis** **Yellow fever** **Blindfolded** **Diphtheria**	**Ribs** **Internal sweating** **Dysentery** **Staphylococci** **HIV** **Parenteral hepatitis and others.**

Therefore, the main attention should be paid to bioagents of the first and partly the second group. In the first group, infectious infections that cause global epidemics (pandemics) with a large number of victims, especially pathogens of dandruff and plague, threaten the activity of countries and entire continents due to the need for special quarantine.

The most common threat to sabotage is the smallpox virus. It is known that the smallpox virus collection is safely stored in the USA and Russia on the recommendation of the World Health Organization. However, there is evidence that the virus is stored uncontrolled (not destroyed) in some countries and can spontaneously (or intentionally) escape from the laboratory.

Since vaccination was abolished in 1980, the world's population lost immunity to smallpox. The production of adequate quantities of vaccines and diagnostic drugs has stopped, there are almost no effective treatments, and the death rate for unvaccinated people is 30%. Swine disease is easily transferred from a patient to a healthy person, and the long incubation period (up to 17 days) facilitates the spontaneous spread of the infection in large areas thanks to modern fast and numerous means of communication.

Biological weapons(BW) - weapons of mass destruction of people, animals and plants, their actions are based on the characteristics of pathogens.

The concept of BO includes means of biological destruction (BS), biological munitions (BBP) and means of their delivery.

Biological agents include bacteria, viruses, rickets, chlamydia, and fungi used to infect humans, animals, and plants. These agents are used in the form of bacterial formulations (dry or liquid), which are a mixture of pathogenic microorganisms with stabilizers that ensure the survival of biological agents in the aerosol.

The first targeted development of biological weapons began in the 20th century. Before the outbreak of the Second World War, the Japanese armed forces carried out the most powerful work. They created two large research centers in

occupied Manchuria, where biological agents were tested not only on laboratory animals, but also on prisoners of war and civilians located in China.

Potential biological agents (BS) of a potential enemy include microorganisms characterized by:

- required outstanding performance (death or severity of resulting diseases);
- a high level of infectious disease (that is, the spread of diseases among those who do not have immunity with a minimal infectious dose);
- considerable stability in the external environment.

This is important. Infectious diseases, the length of the incubation period and other indicators that determine the harmful effects of BS in general and the military-tactical effectiveness.

The following can be used as BS to destroy the personnel of the troops and the population:

Bacteria- the causative agent of cholera, anthrax, tularemia, brucellosis, glanders, melioidosis and some other bacterial infections;

Rickettsia- epidemic typhus, excitable stone fever, Q fever;

Chlamydia- the causative agent of psittacosis;

Viruses- smallpox, American equine encephalomyelitis, Japanese encephalitis, yellow fever, Dengue fever, hemorrhagic fever of Bolivia and Argentina, Lassa and Ebola fever, Marburg disease, rhizo-fever, Chemorragus root, fever;

Mushrooms- the causative agent of coccidiosis and other deep mycoses.

Other types of microorganisms can also be among the potential BS - Korean hemorrhagic fever (hemorrhagic fever with renal syndrome), Legionnaires' disease, etc.

It should also be remembered that, in addition to the above, pathogens may include those that have undergone significant genetic changes with the help of genetic engineering, which make them highly virulent, antigenic structure deviations, resistant to antibiotics or other provides multiple drug resistances, etc. .

From the achievements of biological science, in particular, molecular biology and genetics, strains of new pathogens with resistance to indicators, drugs, disinfectants, increased toxicity and other pathogenic properties are being purposefully created.

Control questions:

1. What is a bacteriological weapon?
2. Types of bacteriological weapons and their features?
3. History of bacteriological weapons?
4. Methods of using bacteriological weapons?
5. Measures to protect against bacteriological weapons?

Glossary

GLOSSARY

Infection- Latin: infectio - to contaminate, damage and inficio - to contaminate is a broad general biological concept, which is the introduction of a pathogenic agent (virus, bacteria, etc.) into another highly specialized plant or animal organism. and is characterized by their subsequent mutual antogonistic influence.

Infectious processit is a time-limited, law-based process that ends with either the death of the macroorganism or its complete escape from the stimulus and is manifested at the submolecular, intracellular, cellular, tissue, organ, and organismal levels. , is a complex interaction of biological systems of micro- (causing) and macro-organisms that takes place under specific environmental conditions.

This is an infectious disease- is a specific form of its manifestation that determines the level of development of the infectious process and has characteristic nosological symptoms.

Pathogenicitythis is a characteristic characteristic of a species, when a microorganism enters a human or animal organism, uses it as its living and breeding environment, and causes pathological changes by disrupting the physiological activity of organs and tissues.

Virulence*this*- characteristic of a pathogenic microorganism that determines the level of pathogenicity. Depending on the level of pathogenicity, microorganisms are divided into three groups: saprophytes, conditional pathogens, pathogens.

Incubation period- the time interval from the time of infection to the appearance of the first clinical signs of the disease.

Prodromal or initial period- the period from the first symptoms of the disease to the appearance of specific symptoms of this disease. It is often manifested by general symptoms: malaise, often shivering, increased body temperature, headache, sometimes nausea, some muscle and joint pain, that is, no special symptoms characteristic of the disease. The prodromal period is not observed in all infectious diseases, it usually lasts 1-2 days.

The period of manifestation of the main symptoms of the diseasecharacterized by the observation of special signs, morphological and biochemical changes. During this period, the patient may die or the disease will progress to the next period.

The period of fading of the symptoms of the disease characterized by gradual loss of the main signs. Normalization of body temperature can be observed slowly - slowly or very quickly, over several hours. A crisis is often observed in patients with rash and recurrent typhus, with a significant change in the activity of the cardiovascular system, and a lot of sweating.

The period of convalescencebegins after the clinical signs have subsided. Its duration is different in a single disease and depends on the form of the disease, its severity, the immunological features of the organism, and the effectiveness of the treatment.

ABBREVIATIONS

BQ- Bacteriological (biological) weapon.
BQZH- Area poisoned by bacteriological weapons
BR - Bacteriological intelligence.
DTL – Field Medical Laboratory.
DDQ – Disinfection shower devices.
DA – Disinfection vehicle.
DDQ – Disinfection shower devices.
DA – Disinfection vehicle.
DHTL – Field Military Medical Laboratory.
IQYX O'DK- the average of cases of loss of work ability
duration indicator (days)
IFA - enzyme immunoassay.
KUDK(%)-incidence rate indicator (%)
MEQB - special anti-epidemic brigades.
OQQ – Weapon of mass destruction.
OET – Operational epidemiological analysis.
OEQ – device for mass vaccination
RET- Retrospective epidemiological analysis.
RIA – Radioimmunoassay.
SEO- Sanitary epidemiological detachments.
SER - Sanitation - epidemiological intelligence.
SENM - sanitary epidemiology control center.
SP – Qualifying Post.
SKP - Sanitary observation point.
FEQKH- The life of the emergency fight against the epidemic.
Average damage - Average damage indicator
Uzb.Res.MV – Ministry of Defense of the Republic of Uzbekistan.
O'HYUKHDYUKG – intended for extremely dangerous infectious diseases
military field hospital for infectious diseases.
HSEB – Sanitary and Epidemiological Department in action.
HDYUKG - Military Field Hospital of Infectious Diseases.
HEQO - anti-epidemic squads in action.
KhDSG is a military field triage hospital.

CASES

Question #1- What does military epidemiology study?
Question #2- Duties and rotations to protect the troops from bacteriological weapons and epidemics?
Question No. 3- Anti-epidemic service to the military.
Question #4- Field of study of military epidemiology.
Question #5- Sections and composition of military epidemiology.
Question #6- In what cases do various infectious diseases enter the troops?
Question #7- How does the use of nuclear weapons affect the spread of infectious diseases?
Question #8- Anti-epidemic measures.
Question #9- How many groups are the anti-epidemic measures carried out in the military unit divided into?
Question #10- Enhanced medical supervision.
Question #11- What is observation?
Question No. 12- What kind of work is done at the center of the disease during the observation period?
Question #13- What is quarantine?
Question #14- What is the purpose of quarantine?
Question #15- What actions should be taken when the enemy uses a bacteriological weapon?
Question #16- Methods of intelligence.
Question #17- Epidemic barriers.
Question No. 18- How is an epidemiological investigation carried out in the center of the disease in the military unit?
Question #19- What is a bacteriological weapon?
Question #20- Specific requirements for bacteriological weapons?
Question #21- How many groups are bacterial recipes divided into?
Question #22- What are the rights of chief state sanitary doctors and their deputies in case of violation of sanitary laws?
Question #23- Responsibilities for violation of sanitary laws.
Question No. 24- Planning the activities of the State Sanitary and Epidemiological Control Center and its departments, creating a comprehensive work plan of the DSENM
Question No. 25- Methods of drawing up the plan of the State sanitary-epidemiological control center and its types
Question #26- Types of plan of the state sanitary-epidemiological control center
Question #27- What is studied in the process of planning the work of the State Sanitary and Epidemiological Control Center?

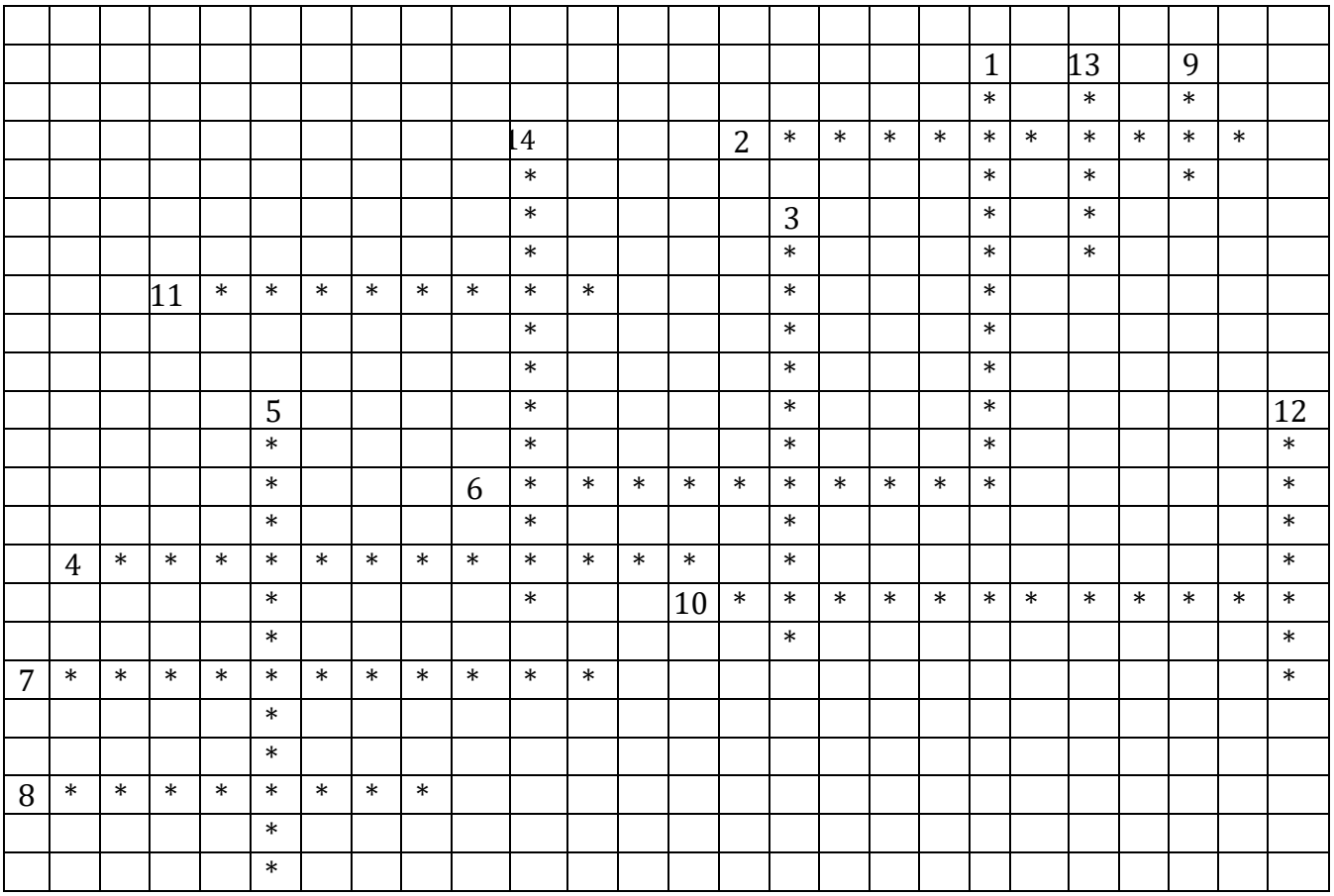
Question #28 - Annual work plan of DSENM.
Question #29- What are the components of a comprehensive plan of sanitation activities:
Question #30- What does the word "infection" mean?
Question #31- What factors are necessary for the outbreak of infectious diseases?
Question No. 32- What is the result of the entry of the microorganism in different ways?
Question #33- Classification of infectious diseases.
Question #34- How many groups are infectious diseases divided into according to the source?
Question No. 35- In what periods is the clinic of infectious diseases divided according to its course?
Question #36- Which types of infectious diseases are divided according to the duration of their course?
Question No. 37- What types of infectious diseases are divided according to the form of transmission?
Question #38- Which types of infectious diseases are divided by severity?
Question #39- Principles and methods of diagnosis of infectious diseases.
Question #40- What methods of investigation are used to identify the infectious disease caller?
Question #41- Antiseptic and aseptic
Question #42- Damage to the hand
Question #43- Chemical antiseptic.
Question #44- Mechanical antiseptic.
Question #45- Physical antiseptic.
Question #46- Biological antiseptic.
Question #47- Prevention of infectious diseases.
Question #48- What is a vaccine?
Question #49- Obstacles created during vaccination of children.
Question #50-How many groups are infectious agents that cause disease in humans?
Question No. 51-Use of anthrax pathogen as a biological weapon.
Question No. 52 - Botulinum toxin - use as a biological weapon.
Question #53-Which pathogens are used as biological weapons?
Question #54-What is disinfection?
Question #55 - What is disinsection?
Question #56-What is deratization?
Question #57-What is sterilization?
Question #58-What is EMERGENCY Immunization?

Question #59- What is immunization according to epidemiological guidelines?
Question #60-Provisional control?
Question #61-Sporadic disease.
Question #62-Exotic diseases.
Question #63-Endemic area.
Question #64-How is artificial active immunity created?
Question #65-Extremely dangerous infectious diseases.
Question #66-Quarantine diseases.
Question #67- How is artificial passive immunity created?
Question #68- How is natural active immunity formed?
Question #69- How is natural active immunity formed?
Question #70-What is a vaccine?

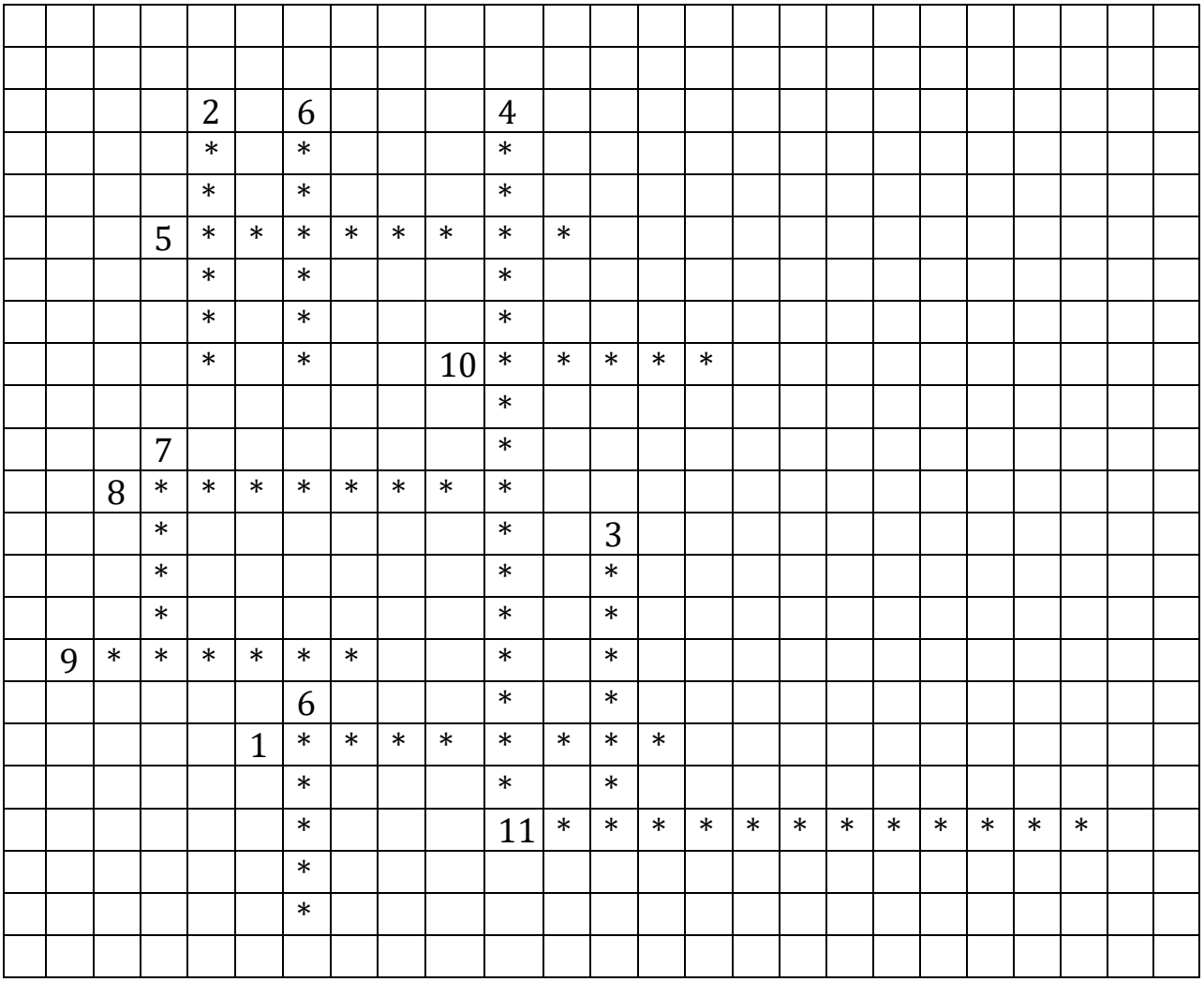
PRACTICAL SKILLS

1. The procedure for carrying out anti-epidemic measures in epidemic foci of infectious diseases.
2. Implementation of anti-epidemic measures for early detection and neutralization of the first link of the epidemic process, i.e. the source of infection, in the epicenter of infectious diseases.
3. To be able to use the main documents (documentation) of the local (district) polyclinic doctor, UASH doctor and infectious disease doctor-infectious disease cabinet.
4. Organization of anti-epidemic measures aimed at interrupting the transmission (transmission) mechanism of infectious disease agents in the epicenter of infectious diseases.
5. Ability to organize current disinfection in the epidemic center and prepare working solutions of disinfectants.
6.Preparation of working solution of chloramine.
7. Rules for storage and transportation of immunobiological preparations.
8.Filling out the card of preventive vaccinations.
9. Conducting anti-epidemic measures (directed against the organism's susceptibility) against the third stage of the epidemic process in the epicenter of infectious diseases, i.e. persons who are susceptible to infection.
10.Obligations of the doctor for the implementation of the procedure of primary measures against the epidemic, which are carried out when a patient (or corpse) suspected of being infected with a quarantine infection is identified.
11. Rules and procedures for using protective clothing (suit) against plague.
12. Taking smears from objects of the external environment.
13.First aid in HIV emergencies.
14.Taking a smear from the mucous membranes of the patient's nose.
15. Taking a swab from the mucous membranes of the patient's throat.
16. Rules for administration of serum according to the Bezredko method in the case of botulism.
17. Rules for taking cerebrospinal fluid.
18. Rules for preparing a thick drop for the purpose of identifying hemoparasites in malaria.
19. Rules for preparing a smear for the purpose of identifying hemoparasites in malaria.
20. Rules for taking blood from the patient for hemoculture (in the case of TPK).

Viral hepatitis and AIDS



1. Hepatitis E virus-********
2. Hepatitis D virus-********
3. Hepatitis C virus-********
4. Hepatitis A virus-********
5. Hepatitis E virus-********
6. AIDS virus-********
7. The scientist who first studied HIV infection -********
8. Name of hepatitis V vaccine-********
9. Seasonal period of hepatitis A-********
10. In what season of the year is the seasonal period of hepatitis V-********
11. Clinical symptoms found in all hepatitis-********
12. Urine bile pigment test-********
13. The organ affected by hepatitis -********
14. Which condition is an absolute contraindication for vaccination against hepatitis -********



Acute respiratory viral diseases

1. Measles virus-********
2. A symptom observed as a result of increased muscle stiffness- ********
3. Infection included in TORSN-infection-********
4. Meningococcal sepsis-********
5. Which disease does not have a vaccine-********
6. Biogroups of the causative agent of asthma-********
7. Which disease has an anotoxin-********
8. In what way is anotoxin introduced into the body- ********
9. What is the symptom of a darker rash on the inner surface of the fold areas-********
10. Which disease does not require current disinfection-********
11. Complication of epidemic mumps-********

1. What immunity remains after measles-*******
2. Creates artificial active immunity-******
3. Creates artificial passive immunity-******
4. The meaning of the word vaccine-*******
5. The meaning of the word Anatoxin-*******
6. Immunity passed from mother to child-*******
7. The vaccine used in the treatment of the patient-*******
8. How are serums sent to the body-*******
9. What kind of vaccine is prepared from proteins in the shell of microorganisms-*******
10. 2 types of vaccines for which diseases are included in the scheduled vaccination-*******
11. The vaccine for which disease in the vaccination calendar is injected subcutaneously-*******
12. The first vaccine was prepared from the virus of which disease-********
13. Where should vaccines be stored-******
14. In which disease is emergency vaccination-******
15. Which disease vaccine in the vaccination calendar protects the body from 2 diseases-*******

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Epidemic and infectious process

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1. A transient form of the disease without clinical symptoms.-******
2. Diseases that develop as a result of the violation of physiological mechanisms (immunity, metabolism) that control the main functions of the body.- *******
3. An infectious disease that lasts for a long time (more than 6 months) and often ends with a positive result. *******
4. Healthy carriers of infection (clinical symptoms of the disease are not manifested, but for a short time isolates the causative agent of the disease)- *******
5. Repeated damage to the organism by the same trigger-******
6. The body is damaged by this pathogen without fully recovering-********
7. Pathogenicity of the microbe-******
8. Pathogenicity level-******
9. The ability of the microorganism to enter tissues and organs and spread in them-*******
10. A toxin produced after the death of bacteria-*******
11. What are anotoxins made of-******
12. What is the recovery period of infectious diseases-*******
13. What kind of infection is called if the source of infection of the disease is an animal********
14. If the disease is spread by insects, what kind of infection is called-******
15. If the disease is spread by medical personnel, it is included in infections spread by any means.- *******
16. What kind of disease is the spread of the disease in small groups-*******
17. The science that studies the spread of infectious diseases among the population-*******
18. The scientist who introduced the word epidemic to science-*******
19. Preventive measures aimed at the 3rd stage of the epidemic process-*******
20. Preventive measures aimed at the 1st stage of the epidemic process-*******

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