Lecture 10.

Storage of some groups medicines

Storage of medicines requiring protection from exposure to elevated temperatures (thermolabile drugs)

Storage of drugs requiring protection from exposure to elevated temperatures (thermolabile medicines), pharmacies and individual entrepreneurs should be carried out in accordance with the temperature regime indicated on the primary and secondary (consumer) packaging of drugs in accordance with the requirements of regulatory documentation (GF XII).

In a cool place (at a temperature of 8-15 C) store:

- Alcohol tinctures,
- antibiotics,
- immunobiological preparations,
- fat-based ointments,
- liniments, suppositories,
- organopreparations (0-15 ° C).
- medical fatty oils are stored at a temperature of 4 to 12 ° C,
- ATP — within 3-5 0S.

Storage of medicines requiring protection from exposure to low temperature

Drugs requiring protection from the effects of low temperature include those whose physico-chemical state changes after freezing and does not recover when subsequently warmed to room temperature:

- 40% formaldehyde solution,
- insulin solutions.

Their storage should be carried out in accordance with the temperature regime indicated on the primary and secondary (consumer) packaging of the medicinal product in accordance with the requirements of regulatory documentation.

Freezing of insulin preparations is not allowed!

Storage of medicines requiring protection from exposure to gases contained in the environment

Pharmaceutical substances requiring protection from exposure to gases (substances reacting with oxygen in the air):

- various compounds of the aliphatic series with unsaturated inter-carbon bonds,
- cyclic with lateral aliphatic groups with unsaturated carbon bonds,
- phenolic and polyphenolic,
- morphine and its derivatives with unsubstituted hydroxyl groups;
- sulfur-containing heterogeneous and heterocyclic compounds,
- enzymes and organopreparations.

Pharmaceutical substances requiring protection from the effects of gases (substances reacting with carbon dioxide in the air):

- salts of alkali metals and weak organic acids (sodium barbital, hexenal),
- as well as drugs containing polyatomic amines (eufillin),
- magnesium oxide and peroxide,

• caustic sodium, caustic potassium

They should be stored in hermetically sealed containers made of materials impermeable to gases, filled to the top if possible.

Storage of odorous and coloring medicines

Pharmaceutical substances, both volatile and practically non-volatile, but having a strong odor (odorous drugs) should be stored in hermetically sealed containers, impervious to odor.

Pharmaceutical substances that leave a colored trace that cannot be washed off by conventional sanitary and hygienic treatment on containers, closures, equipment and inventory (coloring drugs):

• diamond green,
• methylene blue,
• indigocarmine)

should be stored in a special cabinet in a tightly sealed container.

To work with coloring drugs for each name , it is necessary to allocate :

• special scales,
• mortar,
• spatula,
• other necessary inventory.

Storage of disinfecting medicines

Disinfecting medicines should be stored:

• in hermetically sealed containers
• in an isolated room
• away from storage rooms for plastic, rubber and metal products and distilled water production rooms.

Storage of medicines for medical use.

Storage of medicinal products for medical use is carried out in accordance with the requirements of the state pharmacopoeia and regulatory documentation, as well as taking into account the properties of substances included in their composition.

When stored in cabinets, on shelves or shelves, medicinal products for medical use in secondary (consumer) packaging should be placed with a label (marking) outside.

Organizations and individual entrepreneurs must store medicinal products for medical use in accordance with the requirements for their storage indicated on the secondary (consumer) packaging of the specified medicinal product.

Medicinal products for medical use are placed in accordance with the requirements of the regulatory documentation indicated on the packaging of the medicinal product, taking into account:

physico-chemical properties of medicines;

pharmacological groups (for pharmacies and medical organizations);

method of application (internal, external);

the aggregate state of pharmaceutical substances (liquid, bulk, gaseous).

When placing medicines, it is allowed to use computer technology (alphabetically, by codes).

Expired drugs are stored separately from others until they are destroyed according to the results of the inventory.

Storage taking into account the physico-chemical properties of medicines that are part of the drug and by type of dosage forms.

In a dry, cool (or at room temperature) and, if necessary, in a place protected from light, as well as depending on the method of application (separately internal and external), store:

• Tablets and pills are stored isolated from other drugs in their original packaging, protecting them from external influences.

• Dry extracts are stored in a glass container, sealed with a screw-on lid and a stopper with a gasket

• Suppositories.

In a cool (from +8 to +15 0C), protected from light, store:

• Dosage forms for injection, as well as taking into account the characteristics of the container (fragility), separately from other dosage forms and taking into account other instructions on the package.

• Liquid dosage forms (syrups, tinctures) in hermetically sealed, filled to the top containers.

• Liquid and thick extracts are stored in a glass container, sealed with a screw-on lid and a stopper with a gasket, in a place protected from light.

• Ointments, liniments are stored in tightly sealed containers.

If necessary, the storage conditions are combined depending on the properties of the incoming ingredients. For example, preparations containing volatile and thermolabile substances are stored at a temperature no higher than 10 ° C.

Storage of medicinal products in pharmacies and medical organizations (departments), all medicinal products are stored separately, internal and external, and according to pharmacological properties (according to PHTH, serially), as well as taking into account the physico-chemical properties of the ingredients included in them:

In a cool place 8-150 C (thermolabile according to the "cold" circuit mode from 2-80 C; or up to 40 C)

In a place protected from light;

In a dry place with humidity from 50 to 65%.

Storage of medicinal plant raw materials

Unpacked LRS should be stored:

• in a dry (no more than 50% humidity),

• well-ventilated area

• in a tightly closed container.

• containing essential oils isolated in a well-sealed container

Non-packaged LRS should be subject to periodic monitoring in accordance with the requirements of the state pharmacopoeia.

Reject herbs, roots, rhizomes, seeds, fruits that have lost:

• normal coloring,

• smell

• required amount of active substances,

• affected by mold, barn pests,

Storage of LRS containing cardiac glycosides is carried out in compliance with the requirements of the state pharmacopoeia, in particular, the requirements for repeated control of biological activity.

Non-packaged LRS included in the lists of potent and poisonous substances (RF PP No. 964 dated December 29, 2007 "On Approval of Lists of Potent and Poisonous Substances for the Purposes of Article 234 and Other Articles of the Criminal Code of the Russian Federation, as well as large-sized potent substances for the purposes of Article 234 of the Criminal Code of the Russian Federation") is stored in a separate indoors or in a separate closet under lock and key. Packaged medicinal plant material is stored on shelves or in cabinets.

Requirements for premises for fire and explosive substances

Rules of storage of medicines

PART 1. Requirements for premises for fire and explosive substances

Safety measures for the storage of medicines from this group are particularly strict. The common room is divided into several small compartments. Each of them must have a limit of fire resistance established by regulations for at least 1 hour. It is allowed to take products from these zones only for a short time and a limited amount for their packaging or preparation of the finished product. All furniture in the rooms must also be fireproof and stable, and the permissible distance between cabinets is at least 1.35 m.

A)Explosive medicines:

1. having explosive properties -nitroglycerin;
2. having explosive properties (potassium permanganate, silver nitrate)

B)Flammable substances

- Alcohol and alcohol solutions
- Alcohol and essential tinctures
- Alcohol and essential extracts
- Ether
- Turpentine
- Lactic acid
- Chloroethyl
- Collodion
- Cleol
- Novikov Liquid
- Organic oils
- X-ray films

C) Easily combustible

- Dressing material (cotton wool, gauze, etc.)
- Sulfur
- Glycerin
- Vegetable oils
- Medicinal plant raw materials

Requirements for premises for the storage of flammable and explosive drugs and the organization of their storage.

Premises for the storage of flammable and explosive medicines must fully comply with the

applicable regulatory documents.

For organizations of wholesale trade of medicines and manufacturers of medicines.

To ensure the storage of flammable and explosive drugs on the principle of uniformity in accordance with their physico-chemical, fire-hazardous properties and the nature of packaging, storage facilities for organizations of wholesale trade of drugs and manufacturers of drugs (warehouses) are divided into separate rooms (compartments) with a fire resistance limit of building structures of at least 1 hour.

It is allowed to contain in production and other premises the quantity of flammable drugs necessary for packaging and manufacturing of medicinal products for medical use for one working shift.

The remaining amount of flammable medicines at the end of work at the end of the shift is transferred to the next shift or returned to the place of main storage.

The floors of warehouses and unloading areas should have a solid, even coating. It is forbidden to use boards and iron sheets for leveling floors

.

Floors should provide:

• convenient and safe movement of people, goods and vehicles,

• have sufficient strength and withstand loads from stored materials,

• ensure the simplicity and ease of cleaning the warehouse.

Warehouses for the storage of flammable and explosive drugs must be equipped with fireproof and stable racks and pallets designed for the appropriate load.

Installation of racks :

• at a distance of 0.25 m from the floor and walls,

• the width of the racks should not exceed 1 m and, in the case of storage of pharmaceutical substances, have flangings of at least 0.25 m.

• the longitudinal aisles between the racks must be at least 1.35 m.

For pharmacy organizations and individual entrepreneurs.

For the storage of flammable and explosive drugs in pharmacy organizations and sole proprietors, isolated rooms equipped with automatic fire protection and alarm systems are allocated (hereinafter referred to as rooms for the storage of flammable and explosive drugs).

It is allowed to store explosive drugs for medical use (in secondary (consumer) packaging) for use for one work shift in metal cabinets outside the premises for storing flammable and explosive drugs.

Storage rooms (ethyl alcohol) depending on its quantity

In pharmacy organizations and individual entrepreneurs, it is allowed to store pharmaceutical substances with flammable and combustible properties in a volume of up to 10 kg outside the premises for storing flammable and explosive drugs (in the material room) in built-in fireproof cabinets.

Cabinets should be:

• removed from heat-removing surfaces and passages;

• with doors at least 0.7 m wide and at least 1.2 m high;

• they must be freely accessible.

The amount of flammable drugs allowed for storage in premises for the storage of flammable and explosive medicines located in buildings for other purposes should not exceed

100 kg in an unpacked form.

Premises for the storage of flammable and explosive pharmaceutical substances in an amount of more than 100 kg should be located in a separate building, and the storage itself should be carried out in glass or metal containers isolated from the premises for the storage of flammable medicines of other groups.

It is forbidden to enter the premises for the storage of flammable and explosive drugs with open sources of fire.

Storage conditions for flammable medicines

Storage of flammable medicines with:

• flammable properties: alcohol and alcohol solutions, alcohol and essential tinctures, alcohol and essential extracts, ether, turpentine, lactic acid, chloroethyl, collodium, cleol, Novikov liquid, organic oils);,

• Easily combustible (sulfur, glycerin, vegetable oils, medicinal vegetable raw materials)

Should be carried out separately from other medicines.

Flammable drugs are stored in tightly sealed strong, glass or metal containers to prevent the evaporation of liquids from the vessels.Bottles, cylinders should be stored on the shelves of racks in one row in height at a distance of the rack to the heating devices of at least 1 m.

Storage of bottles with flammable and flammable pharmaceutical substances should be carried out in a container that protects against shocks, or in balloon-tippers in one row.

At the workplaces of industrial premises allocated in pharmacy organizations and individual entrepreneurs, flammable drugs can be stored in quantities not exceeding the replacement need. At the same time, the containers in which they are stored must be tightly closed.

It is not allowed to store flammable and flammable medicines in a fully filled container. The degree of filling should not exceed 90% of the volume.

Alcohols in large quantities are stored in metal containers filled with no more than 75% of the volume.

Joint storage of flammable drugs is not allowed:

• with mineral acids (especially sulfuric and nitric acids),

• compressed and liquefied gases,

• flammable substances (vegetable oils, sulfur, dressing material),

• alkalis, as well as with inorganic salts that give explosive mixtures with organic substances (potassium chlorate, potassium permanganate, potassium chromate, etc.).

Medical ether and ether for anesthesia are stored in industrial packaging, in a cool place protected from light, away from fire and heating devices.

Storage and handling of explosive medicinal products.

When storing explosive medicines:

• having explosive properties (nitroglycerin);

• having explosive properties (potassium permanganate, silver nitrate), measures should be taken against contamination with dust.

Shtanglas with explosive medicinal products must be tightly closed to prevent the vapors

of these products from entering the air.

Storage in a pharmacy of potassium permanganate d.b. in barbells with lapped plugs separately from other organic substances. The unpacked nitroglycerin solution is stored in small well-sealed flasks or metal vessels in a cool place protected from light, with precautions against fire.

Move the dishes with nitroglycerin and weigh this drug should be in conditions that exclude the spillage and evaporation of nitroglycerin, as well as its contact with the skin. When working with diethyl ether, shaking, bumps, friction are not allowed

MANUAL ON THE ORGANIZATION OF STORAGE IN PHARMACIES OF MEDICAL PRODUCTS

(Approved by Order of the Ministry of Health of the Russian Federation No. 377 dated November 13, 1996)

Medical devices (IMN) should be stored separately in groups:

• rubber products;
• plastic products;
• dressings and auxiliary materials;
• medical equipment products.

Rubber products

1. For the best preservation of rubber products in storage rooms, it is necessary to create:
• protection from light, especially direct sunlight, high (more than 20 ° C) and low (below 0 °) air temperature;
• flowing air (drafts, mechanical ventilation); mechanical damage (compression, bending, twisting, pulling, etc.);
• to prevent drying, deformation and loss of elasticity, relative humidity of at least 65%;
• isolation from the effects of aggressive substances (iodine, chloroform, ammonium chloride, lysol, formalin, acids, organic solvents, lubricating oils and alkalis, chloramine B, naphthalene);
• storage conditions away from heating devices (at least 1 m).
2. Storage rooms for rubber products should not be located on the sunny side, preferably in semi-basement dark or darkened rooms. To maintain high humidity in dry rooms, it is recommended to put vessels with a 2% aqueous solution of carbolic acid.
3. In rooms, cabinets, it is recommended to put glass vessels with ammonium carbonate, which helps to preserve the elasticity of rubber.
6. Cabinets for storing medical rubber products and parapharmaceutical products of this group should have tightly closed doors. Inside the cabinets should have a completely smooth surface.
8. Rubber stoppers must be stored packed in accordance with the requirements of the current technical conditions.
Rubber products must be periodically inspected.
Items that begin to lose elasticity must be restored in a timely manner in accordance with the requirements of the NTD.
It is recommended to put rubber gloves, if they have hardened, stuck together and become brittle, without straightening, for 15 minutes in a warm 5% ammonia solution, then knead the gloves

and immerse them for 15 minutes in warm (40-50 ° C) water with 5% glycerin. The gloves become elastic again.

Plastic products

Plastic products should be stored in a ventilated dark room, at a distance of at least 1 m from heating systems.

There should be no open fire, vapors of volatile substances in the room. Electrical appliances, fittings and switches must be manufactured in an anti-spark (fire-fighting) design.

In the room where cellophane, celluloid, aminoplast products are stored, the relative humidity of the air should not exceed 65%.

Dressings and auxiliary materials.

Dressings are stored in a dry, ventilated room in cabinets, drawers, on racks and pallets, which must be painted from the inside with light oil paint and kept clean.

Cabinets where dressing materials are located are periodically wiped with 0.2% chloramine solution or other approved disinfectants.

Sterile dressing material (bandages, gauze napkins, cotton wool) are stored in the original packaging. It is forbidden to store them in the primary opened packaging.

Non-sterile dressing material (cotton wool, gauze) is stored packed in thick paper or in bales (bags) on racks or pallets.

Auxiliary material (filter paper, paper capsules, etc.) must be stored in industrial packaging in dry and ventilated rooms in separate cabinets under strictly hygienic conditions.

After opening the industrial packaging, it is recommended to store the packaged or remaining amount of auxiliary material in polyethylene, paper bags or kraft paper bags.

Medical equipment products

Surgical instruments and other metal products should be stored in dry, heated rooms at room temperature. The temperature and relative humidity of the air in the storage rooms should not fluctuate sharply.

The relative humidity of the air should not exceed 60%.

In climatic zones with high humidity, the relative humidity of the air in the storage room is allowed up to 70%.

In this case, quality control of medical devices should be carried out at least once a month.

Corrosion protection.

Storage of metal products (cast iron, iron, tin, copper, brass, etc.) should be carried out in dry and heated rooms. Under these conditions, copper (brass) nickel-silver and tin objects do not require lubrication.

Surgical instruments and other metal products obtained without anticorrosive lubrication are lubricated with a thin layer of vaseline that meets the requirements of the State Pharmacopoeia.

Before lubrication, surgical instruments are carefully examined and wiped with gauze or a clean soft rag. Lubricated tools are stored wrapped in thin waxed paper.

In order to avoid the appearance of corrosion on surgical instruments during their inspection, wiping, lubrication and counting, do not touch them with unprotected and wet hands.

All work must be carried out while holding the instrument with a gauze napkin, tweezers.

When rust appears on painted iron products, it is removed and the product is covered with paint again.
Silver and nickel-silver tools cannot be stored together with rubber, sulfur and sulfur-containing compounds due to the blackening of the surface of the tools.

Methods of storing tools and metal products.

It is advisable to store cutting objects (scalpels, knives) stacked in special nests of drawers or pencil cases to avoid the formation of notches and bluntness.
Tools, especially those stored without packaging, must be protected from mechanical damage, and sharp-edged parts, even wrapped in paper, are protected from contact with neighboring objects.
Surgical instruments should be stored by name in drawers, cabinets, boxes with lids, with the designation of the name of the instruments stored in them.
It is strictly forbidden to store surgical instruments in bulk, as well as together with medicines and rubber products.

Features of handling tools.

When transferring surgical instruments and other metal products from a cold place to a warm place, processing (wiping, lubrication) and storing them should be carried out only after the "sweating" of the instrument stops.

Errors in the location of the MP

Due to the wide range of medical products and its constant updating, errors in compliance with the rules of storage of medicines, tablets, medicines and drugs in the pharmacy are not uncommon. Most often they include:

1. Violation of the proper requirements specified by the manufacturer on the packaging and in the accompanying documentation.

2. Weak control over expiration dates.

3. Lack of registration in special accounting journals.

4. Problems with the availability of working measuring instruments.

Responsibility for mistakes is borne by a specific employee, but penalties apply to the organization as a whole.

Examples of violations and punishments

The loyalty of the judge in the case of an error trial should not be expected. For example, the penalty for violating the rules of storing medicines in the refrigerator is on average 100,000 rubles, as well as for broken thermometers or hygrometers. Every pharmacy employee should be aware of the requirements, including in terms of changing legislation.

Security measures

Quality control of products in the pharmacy is carried out first of all at the acceptance stage, and only then at the subsequent maintenance. Climate norms, how drugs are placed, their appearance, packaging integrity and dozens of other factors should be important for inspectors.

The marking carried out with the help of the national electronic system allows to avoid receiving counterfeit products. But all the information is duplicated in the usual magazines.

Another point that is important for the storage of medicines, taking into account pharmacological groups: the method of their use (internal or external). In this part, it is not so much about safe placement inside a retail space, as about familiarizing the buyer with these features at the time of sale. It is extremely important to bring information to the consumer if the substance has several forms (tableted, in the form of ointment, and so on).

Acceptance of marked goods

The procedure carried out using the "Honest Sign" system takes less time compared to the usual one. Special software and technical devices reduce the level of errors during the receipt of goods from the supplier and protect the end user from low-quality products. The marking is read by scanners, and after that the information is transferred to a single database, from where it can be easily obtained.

Placement in a warehouse

In this part, the intake of labeled and unmarked medicines does not differ. The procedure should take into account the established norms. Different groups of goods are placed in rooms immediately after receipt and remain there until the moment of sale.

The scheme of interaction with the "Honest Sign"

Working with the national marking system requires special training of the organization. The standard algorithm includes:

1.Receipt of an enhanced electronic signature issued in the name of the manager.

2.Purchase of software and hardware, as well as its configuration.

3.Purchase of a data collection terminal that allows you to speed up the acceptance process several times.

4.Updating the firmware on the hardware.

The code for reading should be located on each package, regardless of their purpose. Storage of medicines (drugs) in a pharmacy and subsequent trade cannot be carried out even with minor violations, otherwise the business simply risks ceasing to exist.