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ОБЩАЯ РЕЦЕПТУРА GENERAL PRESCRIPTION

Учебно-методическое пособие



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INTRODUCTION

General Prescription contains the structure of the prescription, rules of making a prescription and writing out a prescription of some medicinal forms. It is the part that starts up the course in Pharmacology. Student after the studying general prescription should be able to write out prescriptions for administration of drugs in different medicinal forms.

The authors consider that this material will be of help not only in the study of Pharmacology, but also as a source of information about the rules of writing out prescriptions in the future study of clinical medicine.

The main pharmacological concepts are the following: medical substance, drug and medical form.

Medical substance — is a specific chemical compound with pharmacological or/and biological effect.

Medicinal product — is a pharmacological substance with one or several medicinal substances used for the treatment of some diseases.

Medicinal drug — is medicinal product in definite drug formulation.

Due to the consistency we can distinguish solid, liquid or soft medical formulation. There are medicinal forms for external or internal usage, for inhalations and injections according to the routes of administration.

PHARMACOPEIA

Pharmacopeia (via Merriam-webster dict.) — is a book describing drugs, chemicals and medical preparations, issued by an officially recognized authority and serving as a standard.

Two types of pharmacopeia exist: international and public.

International pharmacopeia consists of different types of recommendations and general principles of creating/distribution of different medicinal formulation and drugs. It's a type of informative paper. World Health Organization (WHO) is responsible for international pharmacopeia.

Public pharmacopeia is based on international one and it's an example of legislative paper. Each country has its own public pharmacopeia.

PRESRIPTIONS

Prescription — is a written form of compellation of a medical doctor to a pharmacist which contains information about drug in a definite formulation and description of the route of administration.

In the following piece of information we are going to speak about certain rules for writing out a prescription correctly.

To write out a prescription MD has to fulfill the special medical form. For addictive substances MD has to use pink paper prescription form (the color may vary in different countries). The prescription should be fulfilled without any correction. In one prescribed form only two normal drugs or one addictive substance can be prescribed.

Every prescription can be divided into five parts.

The 1st one — *inscription* (lat. inscription) — contains the information about date, the name, surname and the age of the patient, the name and surname of a MD.

The 2nd one — compellation (lat. compellatio, invocatio) — is a compellation of a MD to pharmacist. MD writes **Recipe (Rp.)** here, what means «take».

The 3rd part — prescription (lat. praescriptio) — is a list of medicinal substances of definite medicinal drug.

The 4th part — subscription (lat. subscriptio) — is an instruction for pharmacist about medicinal formulation of the drug.

The 5th part — signature, designation (lat. signatura, designatio) — is the instructions to the patient how he should take the drug — the quantity of tablets, drops, milliliters, etc. and the frequency.

The first four parts are written by the MD for the pharmacist in Latin language, the 5th one is addressed to the patient in one of national languages.

The MD should finish the prescription with subscribing it and putting his own seal.

The names (trade names) of all active compounds and medicinal drugs, botanic names of drugs components we should write with a capital letter.

Doses of drugs should be written only in grams (for example 0.1, 0.002, 1.0, 10.0, etc.), units of activity (UA), international units (IU) or in milliliters for liquid medicinal formulations (0.2 ml, 2.0 ml, etc.).

In the last part of prescription MD should write the information about:

1. The route of administration (orally, intravenously, subcutaneously, etc.)
2. The dose of a drug (1 tablet, 5 ml, one table-spoon, 6 drops, etc.)
3. The frequency of administration (2 times per day, every 8 hours, before meal, in the morning, etc.).

SOLID MEDICINAL FORMS

Powder is free-flowing medicinal formulation resulting from the mixing powdered one or several medical substrates. Powders for external and internal usage exist; they also can be complex (powder mixture with two and more active compounds) and simple (one active compound) ones. Powders can be divided into doses and not divided. If powder is divided it can be written out in packs for internal use. Their weight can have a range from 0.1 to 1.0 g.

Powders not divided into doses are usually prescribed for the whole course of treatment, and their weight can have a range from 5.0 to 100.0 g. In the prescription of simple powders MD should write the name of a drug, its dose and quantity of packs with it. If the weight of active compound is less than 0.1 gram we should add 0.3 gram (minimum) of some inactive substance (sugar or fructose).

Rp.:	Codeini phosphatis 0,015 Sacchari 0,3 M. f. pulvis D.t.d. N. 10 S. Принимать внутрь по одному порошку 3 раза в день	R.	Codeine phosphate 0,015 Sugar 0,3 Mix to make powder Give such a dose in the amount 10 Label: Take orally one powder 3 times a day
Rp.:	Kalii permanganatis 5,0 D. S. Порошок для приготовления раствора	R.	Potassium permanganate 5,0 Give. Label: Powder for solution

Advantages of powders:

1. Precise dosing
2. Rather long shelf-life
3. Easy to prepare
4. Relative inexpensive

Astringent powder — this powder is administered for external use. The composition of the powders is provided in Pharmacopoeia. They contain one or more medicinal substances mixed with inert powders (talc, starch). Talcum powder is harmful if inhaled since it may cause aspiration pneumonia or granuloma. Astringent powders are applied as an antiseptic and anti-inflammatory medication. *Baby powder* is an astringent powder used for preventing diaper rash in children, as a deodorant, and for other cosmetic purposes. Pediatricians generally prefer cornstarch to talc because it is unlikely to be easily inhaled. Baby powder can also be used as a shampoo, cleaning agent, and freshener. Powders are written out both official and mainly undivided.

Rp.:	Aspersiois Dermatoli 50,0 D.S. Присыпка для детей	R.	Dermatoli 50,0 Give. Label: Baby powder
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Capsule is a cover for different types of medicinal compounds in different medicinal formulations: liquids, powders, hygroscopic etc. Capsules help to prevent irritating action of the drugs on the mucous membrane, enamel and taste receptors. Capsules are prescribed for oral administration. They can be prepared from starch, gelatin or some other components. The two main types of capsules are:

- Hard-shelled capsules, which are typically made using gelatin and contain dry, powdered ingredients or miniature pellets made by processes of extrusion or spheronization. These pellets are made in two halves: a lower-diameter «body» that is filled and then sealed using a higher-diameter «cap».
- Soft-shelled capsules, primarily used for oils and for active ingredients that are dissolved or suspended in oil.

Rp.:	Chloramphenicoli 0,25 D.t.d. N 20 in capsulis gelatinosis S. Принимать внутрь по одной капсуле 3 раза в день	R.	Capsules of Chloramphenicol 0,25 in amount 20 Give. Label: Take orally 1 capsule 3 times a day
Rp.:	Capsulam Chloramphenicoli 0,25 D.t.d. N 20 S. Принимать внутрь по одной капсуле 3 раза в день		

Pearl is a kind of hard gelatin capsules. They have a circular shape and can contain a small amount of drugs. They are used when assigning into vitamin oils. Pearls are prescribed similarly as officinal capsules.

Cachets is a kind of hard starch capsules. They are intended for oral administration. Cachets have a larger volume, but they are rapidly dissolved in the stomach. In this regard the drug is absorbed faster and has a more intensive effect. Cachets are prescribed as well as officinal capsules.

Pellets are sterile capsules used for drug delivery implant, often hormones. When replanting under the skin pellet creates a depot from which the drug is slowly absorbed and has an effect for several months. Pellets are prescribed as well as officinal capsules.

Spansules are hard gelatin capsules which are filled with a mixture of several kinds of dragee or granules. Typically, each kind of granules is painted in different colors. One spansule may contain from 50 to 400 granules. Spansules are appointed for oral use and are prescribed as well as officinal capsules.

Tablet is an officinal pre-dosed preparation of solid medicinal formulation. Tablets can be prescribed for internal, sublingual, intravaginal usage or for the solution. They are stored in special packs called push-trough pack or blisters. Some tablets have special cover, they are called coated tablets. That cover is protecting the active component of a drug against acid gastric contents.

Tablets are simple and convenient to use. They provide an accurately measured dosage of the active ingredient in a convenient portable package, and can be designed to protect unstable medications or disguise unpalatable ingredients. Colored coatings, embossed markings and printing can be used to aid tablet recognition.

Rp.:	Phenacetini 0,3 D.t.d. N 10 in tabulettis S. Принимать внутрь по одной таблетке 3 раза в день	R.	Tablets of Phenacetin 0,3 in amount 10 Give. Label: Take orally one tablet three times a day
Rp.:	Tabulettam Phenacetini 0,3 N 10 D.S. Принимать внутрь по одной таблетке 3 раза в день		

Rp.:	Tabulettas Tetracyclini obductas 0,25 D. t. d. N. 20 S. Принимать внутрь по одной таблетке 4 раза в день после еды	R.	Tetracycline coated tablets 0,25 in amount 20 Give. Label: Take orally one tablet 4 times a day after meal
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The most part of complex tablets have a trade name. To write out a prescription of such tablets MD should write the trade name of a drug in quotes without changing the suffix and then indicate the number of tablets.

Rp.:	Tabulettas «Nicoverinum» N. 20 D. S. Принимать внутрь по одной таблетке два раза в день	R.	Nicoverin tablets in amount 20 Give. Label: Take orally one tablet two times a day
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Sugar-coated pile (dragee) is an officinal pre-dosed solid medicinal preparation. Dragee have more than one active compound, and to prevent unwanted pharmacological interaction we divide them by a layer of inert compound (sugar, etc.).

Rp.:	Dragee Chlorpromazini 0,25 D.t.d. N 20 S. Принимать по одному драже 3 раза в день	R.	Dragee of Chlorpromazine 0,25 in amount 20 Give. Label: Take 1 dragee three times a day
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Microdragee is a dosage form which is produced by coating a drug and an adhesive substance into small grains of sugar. With the aim of prolonged action microdragee may be coated for retarding dissolution and absorption of the drug. It is possible pick up a mixture of uncoated microdragee with different time-release drugs and prolongate its duration.

Pellets are small particles which have the form of grains. Graining make hygroscopic agents or mixtures more resistant to adverse environmental factors. The unpleasant smell or taste of drugs included in the granules can be adjusted by the addition of sugar or aromatic compounds. If necessary, they can be coated with protective films or membrane intended for indigestion. Pellets are dosed in pieces, by a special spoon or measuring cup. Sometimes, they are used for the preparation of solutions, syrups, medicines.

Caramel is a sort of solid medicinal formulation that contains a mixture of medicinal substances and additives (sugar, syrup, etc.).

Pastilles are produced in tablet form. They are slowly absorbed, and therefore can have a lasting effect on the oral mucosa, allowing their use in dentistry, for the treatment of sore throat and respiratory diseases. Pastilles are appointed for internal use in case of diseases of the gastrointestinal tract and for resorptive action. A pastille is prescribed as an officinal medicinal form.

Solvets are tablets, readily soluble in water. They are intended for the preparation of solutions used topically (as gargles, eye drops, nasal drops, etc.). Solvets are prescribed by the same rules as the officinal tablets.

Poultice is a semi-solid mass. Poultices are intended for external use like an application. Usually such applications on the skin cause congestion, improve blood circulation, have anti-inflammatory, antiseptic and protective action. Poultices are prescribed as an officinal medicinal form.

Lamellae or disks are a form of eye and are used in ophthalmic practice. They consist of the drug substance, gelatin and water. Lamellae have the shape of a disk with a diameter of 3 mm and are placed for eyelid. Lamellae are prescribed by rules prescribing the officinal formulations.

Salts are effervescent powdered mixture consisting of drug substance, sodium hydrogen carbonate and tartaric or citric acid. When dissolving them in water, a large number of bubbles of carbon dioxide (the interaction with sodium hydrogen carbonate acid) are formed. The effervescent salts are written out as well as other officinal forms.

Medicinal pencils are designed for external use. They are shaped rod with a pointed ending. The dosage form of pencils includes substances with astringent or cauterizing action. The applied for lubricating the skin or mucous membranes.

Names of the solid drug forms

Russian	Latin	English
глоссета	glossetta	glossette
гранула	granulum	granule
драже	dragee	sugar-coated pile, dragee
карамель	caramel	caramel
карандаш лекарственный	stylus medicinalis	stylus, medicated pencil
капсула	capsula	capsule
кахета	cacheta	cachet
ламелля (диск глазной)	lamella	lamell (ophtalmic disc)
пастилка	trochiscus	pastille
пеллета	pelleta	pellet
перла	perla	pearl
порошок	pulvis	powder
припарка	cataplasma	poultiche
соль шипучая	sal effervescens	effervessent salt
сольвелла	solvella	solution-tablet
таблетка	tabuletta	tablet

Tasks for individual work

Make up the following prescription:

- 20 coated tablets of Atenolol 0.05 g. 1 tablet orally twice a day before meals. Tablets should be swallowed with little fluid, no chewing.
- 25 tablets of Digoxin 0.00025 g. 1 tablet orally once a day.
- 20 tablets of Baralgin. Combined drug. 1 tablet orally 3 times a day.
- 20 dragees of Tolperisone 0.05 g. 1 dragee orally 3 times a day.
- Powder of Amoxicillin in bottles to prepare 60 ml of suspension for internal use 125 mg /5 ml. Dissolve the content of the bottle in 60 ml of water. Take 1 tea spoonful 3 times a day.
- Powder of Didanosine 2.0 g in bottles to prepare 125 ml of solution for internal use in children. Take 1 tea spoonful twice a day.
- 30 powders of Riboflavin 0.001 g. 1 powder orally twice a day.
- 30 capsules of Rifampicin 0.15 g. 3 capsules orally once a day.

LIQUID MEDICINAL FORMULATIONS

Solution is a medicinal formulation received after dilution of solid, liquid or gaseous compounds in the water or other solvents. As a solvent we can use distilled water, ethanol, glycerin and different oils.

We can write the concentration of a solution in different ways: in percentages, in ratio (for example 1 : 500), and sometimes in mass/volume ratio (for example 0.1–500 ml).

Two types of solutions exist for *oral administration* and *for external use*.

Solutions *for external use* are the following: lotions, eye, nose and ear drops. The volume of lotions is from 50 to 500 ml, drops usually prescribed in 5–10–20 ml.

Solutions may be prescribed by expanded manner — showing the number of solute and solvent or shortened — indicating the concentration.

Rp.:	Furacilini 0,1 Aquaе destillatae ad 500 ml M.D.S. Для полосканий горла	R.	Furacilin 0,1 Distilled water 500 ml Mix to make solution Give. Label: For gargle
Rp.:	Sol. Furacilini 0,02 % — 500 ml D.S. Для полосканий горла	R.	Solution of Furacilin 0,02 % — 500 ml Give. Label: For gargle
Rp.:	Sol. Furacilini 1 : 500 — 500 ml D.S. Для полосканий горла	R.	Solution of Furacilin 1 : 500 — 500 ml Give. Label: For gargle
Rp.:	Sol. Furacilini 0,1 — 500 ml D.S. Для полосканий горла	R.	Solution of Furacilin 0,1— 500 ml Give. Label: For gargle

For external application and rinses can be used officinal solutions, the concentration of which is determined by Pharmacopoeia. In this case, only name of solution and its quantity are prescribed. Such solutions are available in ready-official forms for external use.

Colliers are solutions of medicinal substances used as washes and lotions for the eyes.

Collodion is a nitrocellulose solution in alcohol and ether (1 : 7), to which are added drugs.

Collutory is a liquid mouthwash. Collutories are used as aqueous solutions of antiseptic and binders and usually have a complex structure.

Gargles are liquid preparations intended for rinsing the mouth and throat. They cannot be swallowed.

Glycerin is an antiseptic solution, and a binder in glycerol.

Irrigation is a liquid formulation intended for washing the surface of the skin and wounds.

Lotions are liquid preparations for application to the skin. They provide cooling or antiseptics. Some lotions are prepared specifically for flushing eyes, ears, nose and throat.

Paints are alcoholic, alcohol-aqueous or aqueous solutions of organic dyes intended for the lubrication of infected wounds.

Spray is an aqueous, alcoholic or oily solution of drugs for nose or throat. It is used by means of a track sprayer as well as for application to the skin.

Oleates are solutions of alkaloids or metal oxides in oleic acid.

Soap is a medical preparation based on a conventional soap with the addition of drugs.

Applications are the official medicines of liquid or pasty consistency, intended for application to the skin or to kill parasites.

Liniment is thick liquid or gelatinous mass, applied topically. Liniments can be solutions, emulsions or combined dispersions.

Solutions *for oral administration*.

We can dose this type of solutions with different spoons: tea-spoon (5 ml), dessert-spoon (10 ml), table-spoon (15 ml). One drug is usually prescribed for 10–15 administrations. The range of the volume of the solution is from 50–60 ml to 180 ml.

Rp.:	Sol Natrii salicylatis 10 % — 180 ml D.S. Принимать внутрь по одной столовой ложке три раза в день	R.	Solution of Sodium salicylate 10 % — 180 ml Give. Label: Take one table- spoon three times a day
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In case when single dose is tiny we can use drops. Such types of solutions are prescribed from 5 ml to 20 ml. You should remember that 1 ml of water solution contains 20 drops, 1 ml of oily solution — 30 drops and 1 ml of spirituous solution — 60 drops.

Rp.:	Sol. Atropini sulfatis 0,1 % — 10 ml D.S. Закапывать по одной капле в оба глаза три раза в день	R.	Solution of Atropine sulfate 0,1 % — 10 ml Give. Label: Instill the one drop three times a day
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Suspension is a liquid medicinal formulation received from the mixture of insoluble solid compounds with different liquids. Suspensions can be prescribed for oral administration, in the form of ear drops, nasal drops or eye drops, for enteral and parenteral use intravenously/intramuscularly/subcutaneously.

There are two ways of writing out a prescription:

Expanded form:

Rp.:	Hydrocortisoni acetatis 0,05 Aquaе destillatae 10 ml M.f. suspensio D.S. Закапывать в оба глаза по две капли два раза в день. Перед использованием взбол- тать	R.	Hydrocortisone acetate 0,05 Distilled water 10 ml Mix to make suspension Give. Label: Instill in the eyes two drops two times a day. Shake before use
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Short form:

Rp.:	Suspensionis Hydrocortisoni acetatis 0,5 % — 10 ml D.S. Закапывать в оба глаза по две капли два раза в день. Перед использованием взболтать	R.	Suspension of Hydrocortisone acetate 0,05 — 10 ml Give. Label: Instill in the eyes two drops two times a day. Shake before use
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Emulsion is a liquid medicinal formulation received from the mixture of insoluble liquid compounds in liquids, so the active compound is in form of tiny drops.

There are emulsions for oral administration, for external use and for intramuscular injections. They can have oily and seed base.

All oily emulsions consists of water, oil and emulgator in the ration 17 parts of water, 2 parts of oil and 1 part of emulgator.

For the preparation of oily emulsion different types of oils can be taken:

1. Castor oil — oleum Ricini.
2. Almond oil — oleum Amygdalarum.
3. Apricot kernel oil — oleum Persicorum.
4. Liquid paraffin — oleum Vaselini.

Rp.:	Emulsi olei Amygdalarum 200 ml D. S. Принимать внутрь по одной столовой ложке три раза в день	R.	Emulsion of Almond oil 200 ml Give. Label: Take orally one table-spoon three times a day
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If the methods of preparations, doses of active components and its concentrations are described in pharmacopoeia – such drugs are called **officinal**. When we are going to write out a prescription of officinal drug we just have to write the name and the quantity.

Rp.:	Solutionis Formaldehydi 200 ml D. S. Для хирургического отделения	R.	Solution of Formaldehyde 200 ml Give. Label: For department of surgery
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The following drug forms are available in ready-official formulations for oral administration:

Draught — liquid medicine, intended for a single oral administration.

Liquors — water and alcohol solutions of one or more drugs.

Limonades — sweet acidified liquid intakes. They are prepared by dissolving in water and hydrochloric simple syrup, citric, tartaric, phosphoric or lactic acid.

Wines medical. Pharmacopoeia of some countries provides medical drug wines as herb infusions prepared from grape wine or dissolving the drug in the wine.

Magma is water precipitates, similar large-particulate suspensions intended for oral administration.

Gels are semi-colloidal formulations, which can be regarded as a variety of suspensions. They are used inside and externally.

Jellies are homogeneous masses like gels.

Lavations are solutions for administration in the rectum as nutritional or therapeutic enema.

LIQUID DOSAGE FORMS IS OBTAINED FROM HERBAL RAW MATERIALS

Infusions and decoctions are liquid medicinal forms preparing in a drugstore from the different types of herbs. They are water extracts from medical herbs. These medicinal formulations contain a lot of active compounds. The sources for the infusions are leaves, flowers and herbs. All of them contains a lot of glycosides and ether oils.

For preparing the decoctions we can use solid parts of plants: roots, rootstocks and cortex. Active compound can be extracted only with high temperature and prolonged heating.

Infusions and decoctions usually are administered orally and sometimes for gargling. For oral administration infusions are prescribed for 10–12 administrations, because a ready form can be used only during 3–4 days.

Infusions and decoctions

Medicinal formulation	Parts of plants	Extracting liquid	Heating time	Cooling time	How to use
Infusion	leaves, flowers, herbs	distillated water	15 min	45 min	cold
Decoction	cortex (bark), roots, rootstocks	distillated water	30 min	10 min	hot

Rp.:	Infusi herbae Thermopsidis 0,6 — 180 ml D. S. Принимать внутрь по одной столовой ложке 6 раз в день	R.	Infusion of Thermopsis herb 0,6 — 180 ml Give. Label: Take it orally one table-spoon 6 times a day
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Rp.:	Decocti corticis Quercus 200 ml D. S. Для полосканий горла	R.	Decoction of Oak bark 200 ml Give. Label: For gargling
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Aromatic waters are water extracts from plant material containing ester oil. They are transparent, slightly opalescent and have the smell of their constituent substances.

Aromatic water is generally used to correct the taste or odor of drugs. Some of them have an independent therapeutic effect, due to the presence of antiseptic properties and ability to increase locomotor activity and the suction capacity of the gastrointestinal tract.

Aromatic water is the officinal non dosed dosage form:

Rp.:	Aquae Foeniculi 100 ml D.S. Внутрь по одной чайной ложке три раза в день	R.	Fennel aromatic water 20 ml Give. Label: Take orally one tea-spoon 3 times a day
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Medicinal pickings are officinal non dosed dosage forms. It is a mixture of milled parts of dried herbs sometimes mixed with ester oils and solid crystalline substances. Medicinal pickings are the oldest and simplest forms of use of medicinal plants. They are designed for making infusions or decoctions at home, used orally or topically in the form of lotions, rinsing baths. There are medicinal herbal mixtures for smoking. Medicinal pickings are released in carton boxes or bags to 50.0; 150.0; 200.0. Since the drug charge dosing makes the patient himself, the composition of medicinal pickings does not include toxic and potent plants. The signature must specify the method of preparation and usage of drugs.

Rp.:	Specierum polivitaminicarum 100,0 D.S. 1 столовую ложку заварить в одном стакане кипятка и принимать в охлажденном виде по 1/2 стакана 2 раза в день	R.	Multivitamin medicinal picking 100,0 Give. Label: 1 tablespoon brewed in one glass of boiled water and take in the chilled 1/2 cup 2 times a day
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Galenic drugs (in honor of ancient Roman scientist) are tinctures, extracts and spirituous. All the Galenic drugs are officinal. **Neo Galenic drugs** are like **Galenic** ones, but they are more purified due to modern manufacturing processes.

Tincture is a liquid medicinal form, spirituous infusion from the different parts of plants made with no heating. Tinctures usually are more concentrated than other types of solutions, that's why they are prescribed in bottles of 5-30 ml and are administered in drops.

Rp.:	Tincturae Valerianae 20 ml D.S. Принимать внутрь по 25 капель 3 раза в день	R.	Valerian tincture 20 ml Give. Label: Take orally 25 drops 3 times a day
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Extract is concentrated infusion of active components from different types of plants. The making process is the same that in tinctures, but extract concentrate remains much more under high temperature. Extracts have liquid, thick and moisture-free forms depending on the technology.

Rp.:	Extracti Viburni fluidi 20 ml D.S. Принимать внутрь по 20 капель 3 раза в день	R.	Liquid extract of Viburnum 20 ml Give. Label: Take orally 20 drops 3 times per day
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Syrup is concentrated solution of sugar with addition of some active compounds.

Rp.:	Sirupi Sennae 150 ml D.S. Принимать внутрь по одной чайной ложке 3 раза в день	R.	Senna syrup 150 ml Give. Label: Take orally one tea- spoon 3 times a day
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Spirituos are alcohol or water-alcohol solutions of different ethers or other volatiles. Usually, they are prescribed for external applications, rarely as a component of injections. All the spirituous are officinal.

Rp.:	Spiritus camphorati 50 ml D.S. Для растирания сус- тавов	R.	Camphor alcohol 50 ml Give. Label: For the massage of joints
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Balsams are liquids with an aromatic odor. A balsam is composed of essential oils, resins, aromatic compounds, esters. Balsams have antiseptic properties, eliminate odors, have anesthetic and expectorant activity, and increase urination.

Elixirs are tinctures, which contain essential oils and tar extracts.

Drinks are a liquid dosage form, which comprises an active substance, water and various syrups.

Mucilage is a thick viscous liquid obtained by dissolving in water gums, starch or treating plant material comprising mucous substances. Mucous substances are nitrogen-free organic compounds such as high polymer polysaccharides. The most important mucilages are those of acacia, Irish moss, starch, althaea root.

Mucilage has a shielding effect, reduces inflammation and irritation, makes difficult absorption of co-administered drugs, delay onset of effect and prolong their action. This enables more uniform dosing suspension.

Mucilage drugs should not be prescribed together with alcohol, acids, alkalis, large amounts of electrolytes. This causes coagulation of proteins and damages the mucus. All mucilages are officinal. When prescribing them the dosage form, the name of the medicinal plants and the total amount of mucus are indicated. Mucilage may be prescribed alone as a coating agent for acute gastri-

tis, poisoning, but mostly it is a part of the medicines containing drugs with an irritating effect.

Resin is a concentrated alcohol extract from plant material preparation of which is followed by evaporation and precipitation of active substances in water.

Oleoresins — liquid extracts containing volatile oils or resins.

Fluid glycerin is a liquid preparation obtained by extraction of plant material with a mixture of glycerol and water.

Mixture is a blend of different medicinal formulations one of which is liquid. We can mix some solid active components with liquids ones. Mixtures are usually prescribed for oral administration, rarely for external use.

Rp.:	Codeini phosphatis 0,1 Barbitali-natrii 2,0 Sirupi simplicis 15 ml Aquae destillatae ad 150 ml M.D.S. Принимать внутрь по одной столовой ложке три раза в день	R.	Codeine phosphate 0,1 Barbital-sodium 2,0 Sugar syrup 15 ml Distilled water 150 ml Mix. Give. Label: Take orally one table-spoon three times a day
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Names of the liquid drug forms

Russian	Latin	English
аппликация	applicatio	application
ароматная вода	aqua aromatica	aromatic water
бальзам	balsamum	balsam
вино медицинское	vinum medicinale	vine medicinal
гель	gelum	gel
глазные капли	oculoguttae	eye drops
глазные примочки	collyria	eye- wash, eye lotion
глицерин	glycerinum	glycerin
глоток	haustus	draught
души (промывания)	perlutiones	douche
жидкость, ликер	liquor	liquor
капли	guttae	drops
капли для носа	naristillae	nasal drops
клизма	enema	lavage, lavation, lavement
коллодий	collodium	collodion
краска	pigmentum	paint
лимонад	limonatum	limonade

Russian	Latin	English
линимент	linimentum	liniment
линктус	linctus	linctus
лосьон	lotio	lotion
магма	magma	magma
масло	oleum	oil
микстура	mixtura	mixture
мыло	sapo	soap
напиток	potio	potion
настой	infusum	infusion
настойка	tinctura	tincture
обмывание	irrigatio	irrigation
олеат	oleatum	oleate
орошение	nebula	spray
отвар	decoctum	decoction
полоскание для горла	gargarisma	gargle
полоскание для рта	collutorium	mouth- wash
раствор	solutio	solution
сироп	sirupus	syrup
слизь	mucilago	mucilage
смола	resina	resin
спирт	spiritus	spirit
студень	gelatum	jelly
суспензия	suspensio	suspension
ушные капли	auristillae	ear-drop
шампунь	champoo	sampoo
экстракт	extractum	extract
эликсир	elixir	elixir
эмульсия	emulsum	emulsion

Tasks for individual work

Make up the following prescription:

1. 10 ml eye drops 0.3 % solution of Gentamycin. By 1 drop into both eyes 3 times a day.
2. 10 ml 0.5 % spirituous (alcoholic) solution of Ergocalciferol. By 3 drops orally once a day.
3. 180 ml solution of Potassium iodide, for the patient to get 0.45 g Potassium iodide per one dose. 1 table spoonful orally 3 times a day after meals.
4. 100 ml mixture containing 2.0 g of Chloralum hydratum and equal amounts of Amylum and distilled water. For 2 enemas.
5. 200 ml emulsion from 30 ml Oleum Ricini. Orally for 3 doses.

6. 180 ml extract from 6.0 g herba Adonidis vernalis. 1 table spoonful orally 3 times a day.

7. 200 ml broth from 20.0 g cortex Frangulae. 1 table spoonful orally before bedtime.

8. 25 ml tincture of Echinopanacis. 35 drops orally 2–3 times before meals.

9. 15 ml of Adonisidum. 15 drops orally 2–3 times a day.

10. The mixture containing 180.0 ml extract from 0.45 g herba Thermopsisidis and 0.2 g Codeini phosphas. 1 table spoonful orally 3 times a day.

MEDICINAL FORMS FOR INJECTION

Injections are groups of drug in different sterile medicinal formulations (solutions, powders, suspensions, emulsions) aseptically packed and used for parenteral infusions.

Drugs for injections can be in ampules or bottles made of special glass in aseptic environment. Drugs for injections usually are prescribed for intravenous, intramuscular or subcutaneous injections, etc. Usually drugs for one injection are administered in ampules, for several injections — in bottles. Nowadays we also can use unit-dose syringe.

Almost all medicinal formulations for injections are officinal. As solvents we can take special water for injections (lat. Aqua pro injectionibus), 5 % glucose solution, 0,9 % Sodium-Chloride solution, 33 % ethyl alcohol, etc.

Advantages of injections are the following:

1. Rapid onset
2. Precise dosing
3. No effects of the enzymes of GI tract on the drug

Rp.:	Solutionis Atropini sulfatis 0,1 % — 1 ml D.t.d. N 10 in ampullis S. Подкожно 0,5 мл 2 раза в день	R.	Solution of Atropine sulfate 0,1 % — 1 ml Send 10 ampoules Give. Label: Subcutaneously 0,5 ml 2 times a day
Rp.:	Suspensionis Hydrocortisoni acetatis 2,5 % — 5 ml D.t.d. N 10 in ampullis S. Вводить в полость сустава по 5 мл один раз в неделю	R.	Suspension of Hydrocortisone acetate 2,5 % — 5 ml Send 10 ampoules Give. Label: Inject in joint cavity 5 ml one time per week
Rp.:	Streptoliasi 250 000 ED D. t. d. N. 6 in ampullis S. Растворить содержимое ампулы в 100 мл 5 % раствора глюкозы, вводить внутривенно капельно	R.	Streptoliase 250 000 UA Send 10 ampoules Give. Label: Dissolve contents of ampule in 100 ml of 5 % glucose solution, inject it intravenously, by drop infusion

If we prescribe some drug in powder in bottles we do not write the word «bottle» in our prescription.

Rp.:	Benzympenicillini-natrii 500 000 ED D. t. d N. 6 S. Содержимое флакона растворить в 2 мл воды для инъекций, вводить внутри- мышечно, медленно шесть раз в день	R.	Benzympenicillinum-sodium 500 000 UA Give such a dose in the amount 6 Give. Label: Dissolve contents of bottle in 2 ml of water for in- jection, give it intramuscular six times per day
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Tasks for individual work

Make up the following prescription:

1. 10 ampoules with 1 ml 5 % solution of retabolilum in oil. Assign 1 ml intramuscularly 1 every 3 weeks.
2. 10 ampoules containing 1 ml of 0.05 % solution strophanthinum. Designate 0.5 ml intravenously daily for 20 ml isotonic sodium chloride solution. Enter slowly.
3. 6 vials containing 10 000 000 IU of corticotropinum. Assign 10.000.000 IU intramuscularly. Before use, the contents of the vial are dissolved in 1 ml of water for injection.
4. 10 ampoules containing 10 ml of 10 % solution of calcium gluconate. Assign 10 ml intramuscularly daily.
5. 20 ampoules containing 2 ml papaverine hydrochloride. In a concentration like that when administered subcutaneously for two patients received 0.04 ml of the preparation. Assign subcutaneously with 2 ml per day.
6. 3 vials containing 5 ml / 40 units in 1 ml insulin. Assign under the skin 20 IU 2 times a day for half an hour before meals.

SOFT DRUG FORMS

To the soft forms belong pastes, ointments, suppositories, plasters, creams etc. They are united within one group. As a basis, they include greases and substances like grease. These substances shouldn't take any harmful effect on the skin, react to the medicinal matters and change during the storage. They must have a capacity of easy joining with drugs, of greasing as well as of melting by the body's temperature. Bases are to be accessible. Depending on the ointment description, some bases have to be well adsorbed by skin, the other by contrast have to remain on the skin like a thin cover. Very important are ointments' abilities of no spoiling clothes, not to leave spots and to be lightly washed off if necessary with the help of soap or without it.

Ointments are drug forms for external use. A soft consistence is their typical feature. Ointments consist of a base and of medical matters which are divided within and belong to undivided drug forms. They are prescribed in a recipe with a common amount. Ophthalmic ointments are prescribed in amount of 5,0 – 10,0. Ointments for treating affected parts of skin are prescribed from 20,0 to 100,0 and more. An ointment consisting of one medical matter and one base is called a simple one. Such an ointment can be prescribed by two ways: 1) by a developed way and 2) by a shorted one:

Rp.:	Anaesthesini 2,0 Vasellini ad 20,0 M.f. unguentum D.S. Для нанесения на пораженный участок кожи	R.	Anaesthesin 2,0 Vaseline to 20,0 Mix to make ointment Give. Label: For putting on the affected part of skin
Rp.:	Ung. Anaesthesini 10 % — 20,0 D.S. Для нанесения на пораженный участок кожи	R.	Ointment of Anaesthesin 10 % — 20,0 Give. Label: For putting on the affected part of skin

Complex ointments include more than one ingredient. Such ointments are prescribed by a developed way:

Rp.:	Acidi borici 2,0 Prednisoloni 0,4 Vasellini Lanolini aa ad 20,0 M. f. unguentum D.S. Смазывать пораженный участок	R.	Boric acid 2,0 Prednisolone 0,4 Vaseline Lanolin of each 20,0 Mix to make an ointment Give. Label: Put on the affected part
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Rp.:	Ichthyolammonii 10,0 Lanolini 45,0 Paraffini flavi mollis 5.0 Misce fiat unguentum Signa: Прикладывать дважды в день к пораженной коже	R.	Ichthammol 10,0 Lanolin 45,0 Yellow Soft Paraffin 5,0 Mix to make ointment Label: Apply twice a day to affected part of skin
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Officinal ointments are prescribed according Pharmacopoeia name without indication of component parts:

Rp.:	Oculenti Hydrocortisoni 5,0 D.S. Глазная мазь	R.	Hydrocortison oculent 5, 0 Give. Label: Ophthalmic ointment
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Rp.:	Unguenti Ichthyoli 50,0 D.S. Прикладывать дважды в день к пораженному месту	R.	Ointment of Ichthammol 50, 0 Give. Label: Apply twice a day to affected part of skin
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Pastes are thick ointments containing 25 % and more (60 %) of powdery substances. When putting on skin pasts act longer, they have distinctly expressed abilities of adsorbing and drying a little. If powdery substances are in amount of lesser than 23 % indifferent powders are added for receiving a paste (talc, zinc oxide, starch).

Many pasts are officinal and are demitted at chemist' shop in ready maid form for use. These pasts are to prescribe in a shorted way:

Rp.:	Pastae Zinci 25,0 D.S. Наносить на пораженные участки кожи	R.	Zinc paste 25,0 Give. Label: Put on affected parts of skin
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Suppositories are divided drag forms which are solid by the room temperature and melting by the body temperature. One may distinguish rectal suppositories, vaginal suppositories and small stick-bougies. Suppositories include medical substances as well as a base (mostly cocoa oil or its substitute). Medical matters are used in the suppositories for taking a local and resorption effect. Maintenance of a strict dose measuring by prescribing drastic and virulent matters is highly necessary. Vaginal suppositories can bee of different forms: globuli, ovules, pessaries. If the suppositories mass has been not indicated by the physician, the rectal suppositories are made up with a mass of 3 grams, the vaginal ones — with a mass of no less than 4 grams. Suppositories are prescribed by two ways. In the first case single doses of all ingredients being included into a composition are indicated. In the second case doses are indicated for all the amount of prescribed suppositories:

Rp.	Chloramphenicoli 0,3 Olei Cacao 3,0 M.f. supp. rectale D. t. d. N 10 S. По 1 суппозиторию в прямую кишку 2 раза в день	R.	Chloramphenicol 0,3 Cocoa oil 3,0 Mix to make a rectal suppository Give such a dose in the amount 10 Label: One suppository into rec- tum twice a day
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Officinal suppositories are prescribed in a shorted form:

Rp.	Supp. «Anusolum» N 6 D. S. По 1 суппозиторию в прямую кишку 2 раза в день	R.	Suppositories of Anusol in amount 6 Give. Label: One suppository into rectum twice a day
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Plasters are drag forms for external use. There are two kinds of plasters: 1) solid plasters, which are tight by the room temperature and are getting soft by the body temperature 2) liquid or skin plasters. The second sort of plasters is a fluid which retains a film on the skin after a dissolving agent has been evaporated.

Plasters commonly are distinguished as medicinal and no medicinal ones. No medicinal plasters are used for skin protecting against external influence, for fixing a bandage ect.

Medicinal plasters contain pharmacologically active matters. Such plasters are used with the aim of therapeutic influence on skin. Plasters are prescribed according the rules of the officinal drug forms.

Creams are ready-made drug forms being less sticky by their consistence than ointments. Cream's composition contains medical matters and a basis as well. Creams are used for treatment skin diseases.

Names of the soft drug forms

Russian	Latin	English
крем	cremor	cream
мазь	unguentum	ointment
паста	pasta	paste
пастырь	emplastrum	plaster
суппозиторий	suppositorium	suppository

Samples of the soft drug forms prescription

Rp.:	Cremoris «Locacorten» 15, 0 D.S. Смазывать 2–3 раза в день	R.	Locacorten cream 15 g Label: Apply two or three times daily
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Rp.:	Pastae Xylocaini 15,0 D.S. Для анестезии поверхности слизистой оболочки	R.	Xylocaine Paste 15 g Label: For surface anesthesia of mucosa
#			
Rp.:	Tubam unguenti «Capsolinum» D.S. Нанести плотным слоем на пораженный участок и растереть	R.	One tube of Capsolin Label: Rub tightly on affected area
#			
Rp.:	Supp. «Cortisolum» N 10 D.S. Принимать три раза в день	R.	Cortisol suppositories in amount 10 Label: Take three times a day

Tasks for individual work

Make up the following prescription:

1. An ophthalmic ointment in the amount of 10 grams which contains 1 % of tetracycline hydrochloride. Put behind a lid eye two times a day.
2. An ointment in the amount of 25 grams which contains 100 000 AU of nystatin in each gram. Put on the affected area of skin.
3. A paste in the amount of 50 grams which contains 5 % of anesthesin, on the base of Vaseline and lanolin in equal amount. Put on the affected area of skin.
4. A liniment of 10 % of synthomycin in the amount of 20 grams. Put on the affected part of skin.
5. Sex rectal suppositories each of them containing 0,3 gram of euphyline. Take 1 suppository into rectum twice a day.
6. Ten officinal rectal suppositories of Bethiol. Put a suppository into rectum twice a day.

MEDICINAL AEROSOLS

Medicinal aerosols include inhalations, properly aerosols, vapors, vitrellas.

Inhalations are drug forms which are intended for introduction of a drug in the form of the finest drops (no more of some microns) into inferior parts of respiratory ways. The active matters take hereby a local effect and can be adsorbed from the lungs into blood and manifest a resorption effect.

Nowadays, the officinal inhalations are used in the medicine, which are prescribed in accordance with officinal drug form prescriptions. However, magistery mixtures or solutions can be used, too.

Rp.:	Inhalationis Salbutamoli 10 ml D.S. Для ингаляций	R.	Salbutamol inhalations 10 ml Give. Label: For inhalations
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Aerosols are the minute particles of the liquid and solid matters which are thinly atomized in a gas or in a gas mixture. Dimensions of the aerosol particles amount several microns, and when the extent of dispersion is increasing, the drug activity rises as well. Aerosols are used for drug introduction into the alveolar system of lungs or for external use.

Aerosols are prescribed in accordance with the rules of ready drug form prescriptions.

Vapors are officinal drug forms which are of solid or liquid consistence by room temperature and begin vaporizing by a small heating. Vapor formed in process of this vaporization is inhaled for receiving a local effect on the respiratory ways. Some preparations are able to form vapors already by room temperature that's why they are given out in inhalants.

Vitrellas are ampoules of a thin glass which are inserted into a soft tissue and contain volatile matters (liquids). When crushing an ampoule the liquid impregnates the tissue and is evaporated. A medical effect develops very quickly by inhaling these vapors through the nose. Vitrellas are prescribed in accordance with the rules of prescribing the officinal drug forms.

Names of drug forms which are similar to aerosols

Russian	Latin	English
аэрозоли	aërosola	aerosols
витрелли	vitellae	vitrellas
ингаляции	inhalationes	inhalations
пары	vapores	vapors

Samples of prescribing drugs in aerosol form:

R. Alupent Aerosol 15 ml

Label: 1–2 metered doses by inhalation
3–4 times daily or as directed.

R. Oxycort Spray 75 ml

Label: Apply 2–3 times daily.

R. Ricospray Balsam I conister

Label: Apply sparingly to the affected area.
Not for inhalation.

Tasks for individual work

Make up the following prescriptions:

1. Aerosol Isadrin of 0,5 % in amount of 20 ml. For inhalations by means of an inhaler.
2. Menthol vapors in amount of 20,0. To indicate for inhalations (as a preliminary to heat).
3. An inhalation of the following composition: Eucalyptus oil 30,0; Anise oil 19,0; Menthol 2,0. To indicate 20 drops for a glass of water for inhalations (through an inhaler).
4. Vitrellas of Amyl Nitrite in amount 5. Inhale for cutting off an access of stenocardia.

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UNITED KINGDOM PRESCRIPTION WRITING GUIDELINES

*In accordance with National Institute for Health and Care Excellence (Circular EL (91) 127) between hospitals and general practitioners, the Department of Health has advised that legal responsibility for prescribing lies with the doctor who signs the prescription.
Published in **British National Formulary**.*

Prescriptions should be written legibly in ink or otherwise so as to be indelible, should be dated, should state the name and address of the patient, the address of the prescriber, an indication of the type of prescriber, and should be signed in ink by the prescriber. The age and the date of birth of the patient should preferably be stated, and it is a legal requirement in the case of prescription-only medicines to state the age for children under 12 years.

The following should be noted:

a. The strength or quantity to be contained in capsules, lozenges, tablets etc. should be stated by the prescriber. In particular, strength of liquid preparations should be clearly stated (e.g. 125 mg / 5 mL).

b. The unnecessary use of decimal points should be avoided, e.g. 3mg, not 3.0 mg. Quantities of 1 gram or more should be written as 1 g etc. Quantities less than 1gram should be written in milligrams, e.g. 500 mg, not 0.5 g. Quantities less than 1mg should be written in micrograms, e.g. 100micrograms, not 0.1 mg. When decimals are unavoidable a zero should be written in front of the decimal point where there is no other figure, e.g. 0.5 mL, not .5 mL. Use of the decimal point is acceptable to express a range, e.g. 0.5 to 1g.

c. «Micrograms» and «nanograms» should not be abbreviated. Similarly «units» should not be abbreviated.

d. The term «milliliter» (ml or mL) is used in medicine and pharmacy, and cubic centimetre, c.c., or cm should not be used.

e. Dose and dose frequency should be stated; in the case of preparations to be taken 'as required' a minimum dose interval should be specified. When doses other than multiples of 5mL are prescribed for oral liquid preparations the dose-volume will be provided by means of an oral syringe.

Suitable quantities:

Elixirs, Linctuses, and Paediatric Mixtures (5 mL dose), 50, 100, or 150 mL

Adult Mixtures (10 mL dose), 200 or 300 mL

Ear Drops, Eye drops, and Nasal Drops, 10 mL (or the manufacturer's pack)

Eye Lotions, Gargles, and Mouthwashes, 200 mL

f. The names of drugs and preparations should be written clearly and not abbreviated, using approved titles only.

g. The quantity to be supplied may be stated by indicating the number of days of treatment required in the box provided on NHS forms. In most cases the exact amount will be supplied. This does not apply to items directed to be used as required — if the dose and frequency are not given then the quantity to be supplied needs to be stated. When several items are ordered on one form the box can be marked with the number of days of treatment provided the quantity is added for any item for which the amount cannot be calculated.

h. Although directions should preferably be in English without abbreviation, it is recognised that some Latin abbreviations are used.

Prescribing by dentists. Until new prescribing arrangements are in place for NHS prescriptions, dentists should use form FP10D (GP14 in Scotland, WP10D in Wales) to prescribe only those items listed in the Dental Practitioners' Formulary. The Human Medicines Regulations 2012 does not set any limitations upon the number and variety of substances which the dentist may administer to patients in the surgery or may order by private prescription—provided the relevant legal requirements are observed the dentist may use or order whatever is required for the clinical situation. There is no statutory requirement for the dentist to communicate with a patient's medical practitioner when prescribing for dental use. There are, however, occasions when this would be in the patient's interest and such communication is to be encouraged.

Computer-issued prescriptions.

For computer-issued prescriptions the following advice, based on the recommendations of the Joint GP Information Technology Committee, should also be noted:

1. The computer must print out the date, the patient's surname, one forename, other initials, and address, and may also print out the patient's title and date of birth. The age of children under 12 years and of adults over 60 years must be printed in the box available; the age of children under 5 years should be printed in years and months. A facility may also exist to print out the age of patients between 12 and 60 years.

2. The doctor's name must be printed at the bottom of the prescription form; this will be the name of the doctor responsible for the prescription (who will normally sign it). The doctor's surgery address, reference number, and Primary Care Trust (PCT 1) are also necessary. In addition, the surgery telephone number should be printed.

3. When prescriptions are to be signed by general practitioner registrars, assistants, locums, or deputising doctors, the name of the doctor printed at the bottom of the form must still be that of the responsible principal.

4. Names of medicines must come from a dictionary held in the computer memory, to provide a check on the spelling and to ensure that the name is written in full. The computer can be programmed to recognise both the non-proprietary and the proprietary name of a particular drug and to print out the preferred choice, but must not print out both names. For medicines not in the dictionary, separate checks are required — the user must be warned that no check was possible and the entire prescription must be entered in the lexicon.

5. The dictionary may contain information on the usual doses, formulations, and pack sizes to produce standard predetermined prescriptions for common preparations, and to provide a check on the validity of an individual prescription on entry.

6. The prescription must be printed in English without abbreviation; information may be entered or stored in abbreviated form. The dose must be in numbers, the frequency in words, and the quantity in numbers in brackets, thus: 40mg four times daily (112). It must also be possible to prescribe by indicating the length of treatment required, see (g) above.

7. The BNF recommendations should be followed as in (a), (b), (c), (d), and (e) above.

8. Checks may be incorporated to ensure that all the information required for dispensing a particular drug has been filled in. For instructions such as «as directed» and «when required», the maximum daily dose should normally be specified.

9. Numbers and codes used in the system for organising and retrieving data must never appear on the form.

10. Supplementary warnings or advice should be written in full, should not interfere with the clarity of the prescription itself, and should be in line with any warnings or advice in the BNF; numerical codes should not be used.

11. A mechanism (such as printing a series of nonspecific characters) should be incorporated to cancel out unused space, or wording such as «no more items on this prescription» may be added after the last item. Otherwise the doctor should delete the space manually.

12. To avoid forgery the computer may print on the form the number of items to be dispensed (somewhere separate from the box for the pharmacist). The number of items per form need be limited only by the ability of the printer to produce clear and well-demarcated instructions with sufficient space for each item and a spacer line before each fresh item.

13. Handwritten alterations should only be made in exceptional circumstances — it is preferable to print out a new prescription. Any alterations must be made in the doctor's own handwriting and countersigned; computer records should be updated to fully reflect any alteration. Prescriptions for drugs used for contraceptive purposes (but which are not promoted as contraceptives) may need to be marked in handwriting with the symbol, (or endorsed in another way to indicate that the item is prescribed for contraceptive purposes).

14. Prescriptions for controlled drugs can be printed from the computer, but the prescriber's signature must be handwritten.

15. The strip of paper on the side of the FP10SS may be used for various purposes but care should be taken to avoid including confidential information. It may be advisable for the patient's name to appear at the top, but this should be preceded by «confidential».

16. In rural dispensing practices prescription requests (or details of medicines dispensed) will normally be entered in one surgery. The prescriptions (or dispensed medicines) may then need to be delivered to another surgery or location; if possible the computer should hold up to 10 alternatives.

17. Prescription forms that are reprinted or issued as a duplicate should be labelled clearly as such.

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