

THE PRESCRIPTION ORDER WRITING

THE PRESCRIPTION is a written order for medication to be used for the diagnosis, prevention, or treatment of a specific patient's disease by a licensed physician, dentist, podiatrist, or veterinarian.

LEGAL CATEGORIES OF DRUGS

- over-the-counter drugs (OTC)
- prescription drugs
- controlled drugs

THE PRESCRIPTION CONSIST OF:

- **the superscription**
- **the inscription**
- **the subscription**
- **the signa**
- **the name and signature of the prescriber**

COMPONENT PARTS OF THE PRESCRIPTION

- ① The name and full address of the prescriber.
The telephone number is not required (usually included).
- ② The patient's full name and address.
The patient's age is optional (desirable on prescriptions for children under 12 years)
- ③ The date on which the prescription is written and signed.
- ④ The symbol **R** known as the superscription (an abbreviation of the Latin *recipe*, meaning "take thou")
- ⑤ The **inscription** provides specific information about the drug preparation:
 - a) The name of the drug (nonproprietary or the proprietary or both).
 - b) The unit dosage or amount of the drug in milligrams or other appropriate unit of measure.
Drug products are available in unique strengths and dosage forms.
The inscription should be written just below and to the right of the superscription.
- ⑥ The **subscription** is the prescriber's directions to the pharmacist with regard to fulfilling the inscription.
The quantity and dosage form of the drug to be dispensed; the number of tablets or capsules or the volume of a liquid preparation.
This direction is written, preferably in Arabic numerals.
For controlled drugs, the quantity must be both placed in parentheses and written out (in English).
The subscription should be written on the line below the last line of the inscription.
- ⑦ The **transcription** or **signature** (from the Latin *signa*, meaning "label" or "let it be labeled"), indicated on the prescription by "Label:" or "Sig:," is the prescriber's directions to the patient that will appear

on the medicine container.

Modern practice is to use English.

Latin abbreviations are still used by many clinicians in prescriptions (may contribute to prescription errors).

The phrase "use as directed" should not be used.

The transcription should be explicit and include:

- a) the number of dose forms to be taken,
- b) by what route,
- c) how often,
- d) for what purpose (required by law in some states),
- e) any special instructions.

The instructions to the patient should be consistent with the patient characteristics, drug, and dosage form.

Prescriptions written for children should use the verb "give," instead of "take," to indicate that the parent or guardian is to administer the drug.

Enteric-coated drugs should be "swallowed whole" to ensure that the coating is still intact when the drug reaches the stomach.

Directions for suspensions should include "Shake well then take" to ensure administration of a uniform dose.

The transcription should be located on the next line after the subscription.

- ⑧ The number of authorized refills of the prescription. The number and its time limitation are specified for controlled drugs but are otherwise left to the discretion of the practitioner.
- ⑨ The hand-written signature and professional degree of the prescriber. The prescriber's registration number.

CLASSES OF PRESCRIPTION ORDERS

- **Precompounded prescription order** – calls for a drug or mixture of drugs supplied by the pharmaceutical company by its official or proprietary name and in a form that the pharmacist dispenses without pharmaceutical alteration.
- **Extemporaneous prescription order (also called magistral or compounded)** – is the type in which the physician selects the drugs, doses, and pharmaceutical form that he desires and the pharmacist prepares the medication.

THE ORDER OF INGREDIENTS

- **Basis** – a principal drug, that gives the prescription its chief action
- **Adjuvant** – a drug that aids or increases the action of the principal ingredient
- **Corrective** – a substance which modifies or corrects undesirable effects of the basis or adjuvant
- **Vehicle** – an agent used as the solvent in the solution, to increase the bulk, or to dilute the mixture

How to reduce the number of medication errors?

- by examining aspects of prescription writing that can cause errors
- by modifying prescribing habits accordingly
- by being alert to common problems that can occur with medication orders
- by communicating with the patient's physician, pharmacists and other healthcare professionals

PRESCRIPTION ORDER WRITING

– General rules:

- when two or more drugs are desired in the same prescription order, the name and amount of each drug are placed together on a separate line directly under the preceding one
- all orders should be written using metric measurements of weight and volume
- units of measure can lead to confusion and medication errors
- older systems of measure such as minims for volume (15 minims = 1 ml) and grains for weight (1 grain = 60 mg) should not be used
- for micrograms, writing „mcg” is preferable to „µg”, which can very easily be misinterpreted as milligrams
- Arabic (decimal) numerals are preferable to Roman numerals, and in some instances it is preferable for numbers to be spelled out
- use leading zeros (0.125 mg, not .125 mg)
- never use trailing zeros (5 mg, not 5.0 mg)
- avoid abbreviating drug names
- avoid abbreviating directions for drug administration
- write directions out clearly in English
- some drug names sound alike when spoken and may look alike when spelled out
- poor handwriting is a well-known and preventable cause of dispensing errors
- both physician and pharmacist share in the responsibility to prevent adverse drug events by writing prescriptions clearly and questioning intent whenever and order is ambiguous or potentially ambiguous

INCOMPATIBILITIES - this term is applied when physical, chemical, or therapeutic problems arise during the compounding, dispensing, or administration of the prescribed medication.

Physical incompatibility:

- liquefaction
- deliquescence
- precipitation
- incomplete solution and other

Chemical incompatibility:

- two ingredients in a prescription react chemically to form new compounds

COMPLIANCE

- may be defined as the extent to which the patient follows a regimen prescribed by a healthcare professional
- collaborative interaction between physician and patient in which each brings an expertise that helps to determine the course of therapy
- the physician - the medical expert
- the patient - the expert on himself, his beliefs, values, and lifestyle

Consequences of noncompliance:

- lack of the intended therapeutic benefits
- recurrence or worsening of the illness
- emergence of antibiotic-resistant microorganisms
- prescribing of a larger dose or a more potent agent that could lead to toxicity if compliance is improved

Suggestions for improving Patient Compliance:

- provide respectful communication
- ask patients how they take medicine
- develop satisfactory, collaborative relationship between physician and patient
- encourage pharmacist involvement
- provide and encourage use of medication counseling
- give precise, clear instructions, with most important information given first
- give precise, clear instructions, with most important information given first
- support oral instructions with easy-to-read written information
- simplify whenever possible
- assess patient's literacy and comprehension and modify educational counseling as needed
- don't rely on patient knowledge about his or her disease, alone, to improve compliance.
- use mechanical compliance aids as needed (sectioned pill boxes or trays, compliance packaging, color-coding)
- use optimal dosage form and schedule for the individual patient
- find solutions when physical or sensory disabilities are present (use non-safety caps on bottles, use large type on labels and written material, place tape marks on syringes).
- enlist support and assistance from family or caregivers
- use behavioral techniques such as:
 - goal setting
 - self-monitoring
 - cognitive restructuring
 - skills training
 - contracts
 - positive reinforcement.

DOSING

Successful drug therapy requires using an adequate dose:

- to produce the desired effect
- with minimizing toxic side effects

- Usually **adult doses** are based on average body weight of 70 kg.
- For drugs with a narrow therapeutics index the exact dosing is particularly necessary.

THERAPEUTIC INDEX (TI)

- relates the desired therapeutic effect to undesired toxicity, using data provided by the quantal dose-response curve
- is defined as LD_{50}/ED_{50} (the ratio of the dose that produces a toxic effect in half the population to the dose that produces the desired effect in half the population)

Several rules have been proposed for computing the dosage of a drug for children:

1. Clark's rule – determines the dose suitable for a child based on the typical adult weight of 150 lb (or 70 kg using the metric equivalent of this equation).

$$\frac{\text{Child's weight (lb)}}{150 \text{ lb}} \times \text{Adult dose} = \text{Child's dose}$$

2. Young's rule - calculates the dose for the child based on age, with a 12-year-old receiving half of the adult dose.

$$\frac{\text{Child's age (yr)}}{\text{Child's age} + 12 \text{ (yr)}} \times \text{Adult dose} = \text{Child's dose}$$

3. Surface area, extrapolated from the patient's height and weight, is divided by the average adult surface area to determine the fraction of the adult dose.

Classification of controlled substances

Schedule	Potential for Abuse	Other Comments
I	High	No accepted medical use; lack of accepted safety as drug
II	High	Current accepted medical use. Abuse may lead to psychologic or physical dependence.
III	Less than I or II	Current accepted medical use. Moderate or low potential for physical dependence and high potential for psychologic dependence.
IV	Less than III	Current accepted medical use. Limited potential for dependence.
V	Less than IV	Current accepted medical use. Limited dependence possible.

Classification of controlled substances

Schedule	Criteria for inclusion	Examples of drugs
I	High abuse potential, no currently accepted medical use, may lead to severe dependence	Heroin, LSD, marijuana, mescaline, methaqualone, peyote, psilocybin
II	High abuse potential, accepted medical use, may lead to severe dependence	Amphetamines, cocaine, codeine, dronabinol, meperidine, methadone, methylphenidate, morphine, oxycodone, pentobarbital, secobarbital
III	Abuse potential less than drugs in Schedules I or II, accepted medical use, moderate to low physical dependence liability, possibly high psychologic dependence	Benzphetamine, butabarbital, methyprylon, mixtures of codeine or hydrocodone with aspirin or acetaminophen, stanozolol
IV	Abuse potential less than drugs in Schedule III, accepted medical use, low dependence liability	Phenobarbital, meprobamate, chlordiazepoxide, ethchlorvynol, diazepam, propoxyphene, chloral hydrate
V	Abuse potential less than drugs in Schedule IV, accepted medical use, limited dependence liability	Cough preparations containing codeine or similar opioid derivatives.

Approximate apothecaries' and metric equivalents

<i>Apothecaries'</i>	<i>Metric</i>
<i>Weight</i>	
1/65 grain	1 mg
1 grain	65 mg
15 grains	1 g
1 dram	4 g
1 ounce	30 g
<i>Volume</i>	
1 minim	0.06 mL
16 minims	1 mL
1 fluid dram	4 mL
1 fluid ounce	30 mL
1 pint	480 mL

Metric equivalents of some common household measures

<i>Household measure</i>	<i>Metric volume</i>
1 grain	0.065 grams (g) often rounded to 60 milligrams (mg)
15 gr	1 g
1 drop	0.05 mL
1 ounce (oz) by volume	30 milliliters (mL)
1 teaspoonful (tsp)	5 mL
1 tablespoonful (tbsp)	15 mL
1 teacup	120 mL
1 glass	240 mL
1 pint	480 mL
1 quart (qt)	1000 mL
1 minim	1 drop (gtt)
20 drops (gtt)	1 mL
22 pounds (1 h)	1 kilogram (kg)

Abbreviations used in prescriptions and chart orders.

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
ā	before	pr n	when needed
ac	before meals	q	every
agit	shake, stir	qam, om	every morning
Aq	water	qd	every day
Aq dest	distilled water	qh, q1h	every hour
bid	twice a day	q2h, q3h, etc	every 2 hours, every 3 hours, etc
ċ	with	qhs	every night at bed-time
cap	capsule	qid	four times a day
D5W, D ₅ W	dextrose 5% in water	qod	every other day
dil	dissolve, dilute	qs	sufficient quantity
disp, dis	dispense	rept, repet	may be repeated
elix	elixir	Rx	take
ext	extract	ś	without
g	gram	SC, SQ	subcutaneous
gr	grain	Sig, S	label
gtt	drops	sos	if needed
h	hour	śś, ss	one-half
hs	at bedtime	stat	at once
IA	intra-arterial	sup, supp	suppository
IM	intramuscular	susp	suspension
IV	intravenous	tab	tablet
IVPB	IV piggyback	tbsp, T (do not use)	tablespoon (always write out "15 mL")
kg	kilogram	tid	three times a day
mEq, meq	milliequivalent	tr, tinct	tincture
mg	milligram	tsp (do not use)	teaspoon (always write out "5 mL")
mcg, µg (do not use)	microgram (always write out "microgram")	U (do not use)	units (always write out "units")
no	number	vag	vaginal
non rep	do not repeat	i, ii, iii, iv, etc	one, two, three, four, etc
OD	right eye	3 (do not use)	dram (in fluid measure, 3.7 mL)
OS, OL	left eye	3̄ (do not use)	ounce (in fluid measure, 29.6 mL)
OTC	over-the-counter		
OU	both eyes		
ṑ	after		
pc	after meals		
PO	by mouth		
PR	per rectum		