

# Anatomical Therapeutic Chemical (ATC) Classification

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## ATC/DDD Toolkit

## Structure

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In the Anatomical Therapeutic Chemical (ATC) classification system, the active substances are divided into different groups according to the organ or system on which they act and their therapeutic, pharmacological and chemical properties. Drugs are classified in groups at five different levels.

### ATC 1st level

The system has fourteen main anatomical or pharmacological groups (1st level). The ATC 1st levels are shown in the figure.

### ATC 2nd level

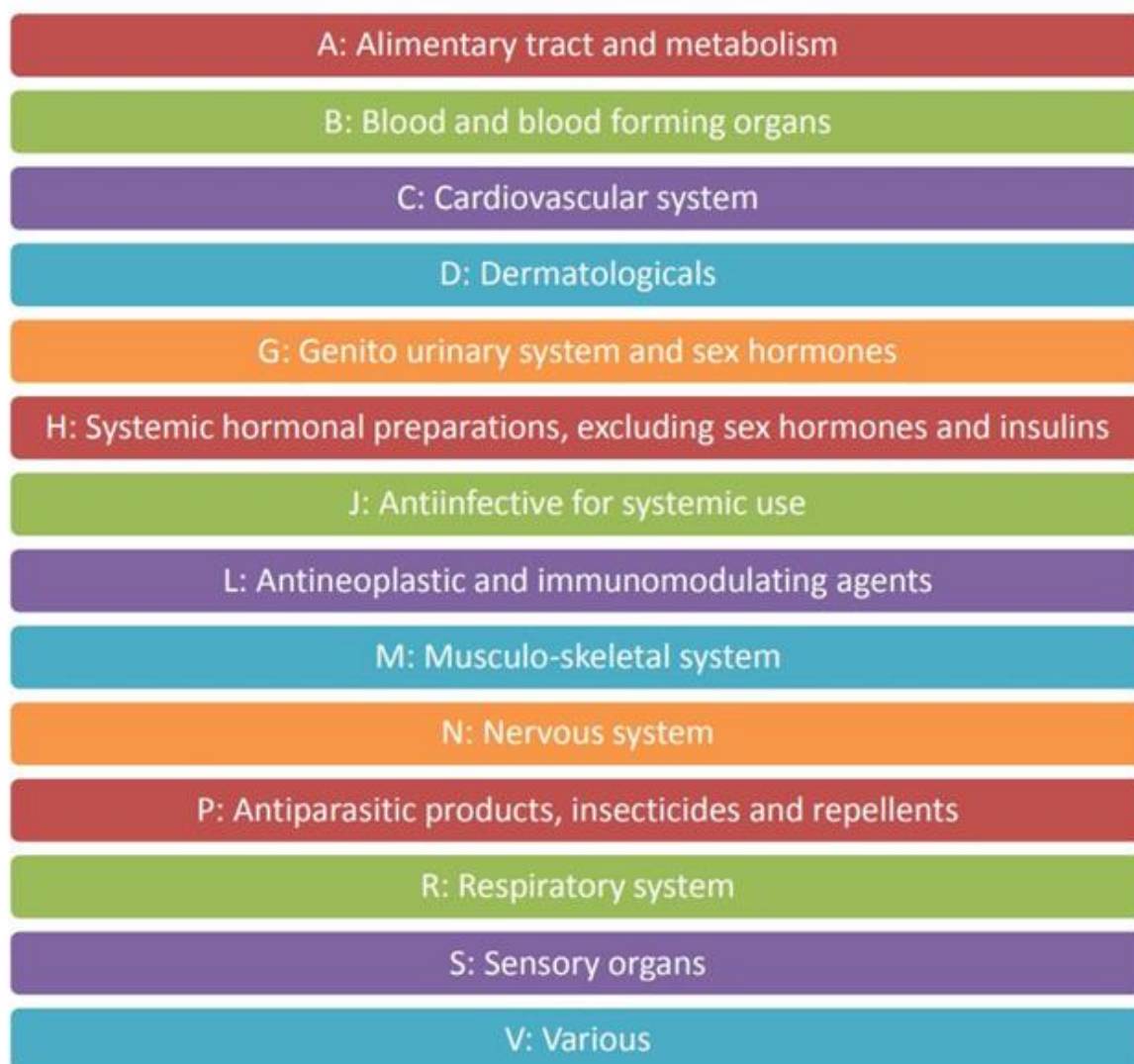
Pharmacological or Therapeutic subgroup

## ATC 3rd& 4th levels

Chemical, Pharmacological or Therapeutic subgroup

## ATC 5th level

Chemical substance



The 2nd, 3rd and 4th levels are often used to identify pharmacological subgroups when that is considered more appropriate than therapeutic or chemical subgroups.

The complete classification of metformin illustrates the structure of the code:

<b>A</b>	Alimentary tract and metabolism (1 <sup>st</sup> level, anatomical main group)
<b>A10</b>	Drugs used in diabetes (2 <sup>nd</sup> level, therapeutic subgroup)
<b>A10B</b>	Blood glucose lowering drugs, excl. insulins (3 <sup>rd</sup> level, pharmacological subgroup)
<b>A10BA</b>	Biguanides (4 <sup>th</sup> level, chemical subgroup)
<b>A10BA02</b>	Metformin (5 <sup>th</sup> level, chemical substance)

Thus, in the ATC system all plain metformin preparations are given the code A10BA02.

For the chemical substance, the International Nonproprietary Name (INN) is preferred. If INN names are not assigned, USAN (United States Adopted Name) or BAN (British Approved Name) names are usually chosen.

The coding is important for obtaining accurate information in epidemiological studies. The five different levels allow comparisons to be made at various levels according to the purpose of the study.

## Classification principles and challenges

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### Principles & Challenges

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Medicinal substances are classified according to their main therapeutic use on the basic principle of only one ATC code for each medicinal product (as defined by route of administration and in some cases strength).

In many ATC main groups, pharmacological groups have been assigned on the 2nd, 3rd and 4th levels allowing drugs with several therapeutic uses to be included, without specifying the main indication. For example, calcium channel blockers are classified in the pharmacological group C08 (see classification of verapamil below), which avoids specifying whether the main indication is coronary heart disease or hypertension.

C-----Cardiovascular system  
C08-----Calcium channel blockers  
C08D-----Selective calcium channel blockers with direct cardiac effects  
C08DA-----Phenylalkylamine derivatives  
C08DA01-----Verapamil

## Classification of verapamil

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Medicinal substances frequently have several ATC codes for various routes of administration with different therapeutic uses, for example products that contain prednisolone as a single ingredient have eight different ATC codes according to the indication (systemic and various local application formulations).

A few medicinal substances have different ATC codes assigned for different strengths of the pharmaceutical formulation. For example, low strength finasteride tablets used for treatment of baldness are classified under D11AX Other dermatologicals and the high strength tablets used for benign prostatic hyperplasia (BPH) are classified under G04C Drugs used in BPH.

The challenge occurs when a medicinal product (same strength and route of administration) is approved and used for two or more equally important indications, and the main therapeutic use differs from one country to another. This will often give several classification alternatives and the main indication is decided by the WHO International Working Group for Drug Statistics Methodology on the basis of available literature and a qualified assumption of the most prevalent indication worldwide. Such drugs are usually only given one code and this may be a problem for users in countries where other uses are predominant.

Medicinal products containing two or more active ingredients are regarded as combinations in the ATC classification system and given different ATC codes from the product with a single component (one active ingredient).

[Click here to learn about Classification of Combination Drugs](#)

The WHO Collaborating Centre in Oslo establishes new entries in the ATC classification on requests from the users, e.g. pharmaceutical companies, regulatory agencies and researchers

[Find the application form here!](#)