

**M U N I  
M E D**

**M E D I C I N E S  
I N F O R M A T I O N  
S O U R C E S**

**Theoretical background and practical tasks**

# LIFELONG STUDY OF PHARMACOLOGY

- Research and development of new drugs
- Every year, around 40 new medicines get market authorization worldwide
- **Most physicians prescribe medications that were not known at the time of their study/graduation**
- Misleading information/fake news/hoaxes vs reliable information

# ESSENTIAL INFORMATION SOURCES

- SPC/SmPC = *Summary of product characteristics*
  - Written by marketing authorization holder (manufacturer), approved by regulatory authority (e.g. EMA)
- UK: [Electronic medicines compendium](#)
- CZE: [SUKL database – english version](#)

In Czech:

- Pharmindex Breviř/Breviary (Medical Tribune)
- Information system „AISLP“ (part of Czech IT systems in hospitals, doctor's offices)
- Czech Pharmacopoeia (Český lékopis)

# PHARMACOPOEIA

- *Poieo* = greek; I prepare
- **European Pharmacopoeia** 10<sup>th</sup> edition (Ph. Eur. 2020)
- **Czech Pharmacopoeia**
  - Derived from Ph. Eur. + national specific part
  - Current version published in 2017
- **Binding standard (norm) for ensuring safe, effective and quality medicines**
  - Quality requirements and specifications of pharmaceutical substances, excipients, medical preparations and dosage forms
  - Analytical examinations and evaluations
  - Requirements for preparation, manufacturing, control, labelling and storage of drugs
  - Compounded medication recipes (Czech national part)

# CZECH PHARMACOPOEIA – STRUCTURE

## European part

- **General part:** analytical examinations and evaluations, analytical devices, containers and packaging of medicines, general texts (e.g. about sterility, stability testing), general texts about dosage forms or specific medicines (radiopharmaceuticals, vaccines, homeopathic preparations...) etc.
- **Special part:** monographies of pharmaceutical substances

## National part

- 12 tables (useful mostly for pharmacists)
- **Table IV and V – Recommended therapeutical doses for adults and children**
- Special part (nationally specific substances and **preparations**)

Examples  
in interactive  
syllabi

# FREE INTERNATIONAL SOURCES

- European Medicines Agency (EMA)  
<http://www.ema.europa.eu/ema/>
- Drugs.com (incl. drugs interactions checker)  
<https://www.drugs.com/>
- PubMed  
<https://www.ncbi.nlm.nih.gov/pubmed>
- Medscape  
<https://www.medscape.com/>

# PAID INTERNATIONAL SOURCES

- Dynamed <https://www.dynamed.com/home>
- Lexicomp <https://online.lexi.com/lco/action/login>
- Micromedex <https://www.micromedexsolutions.com>
- Up-to-date <https://www.uptodate.com/home>
  
- MUNI sometimes grants short-term „testing access“:  
<https://ezdroje.muni.cz/prehled/index.php?lang=en&type=abecedne>
- MUCL Services <https://kuk.muni.cz/?page=87&lang=english>

# ATC DRUG CLASSIFICATION SYSTEM

- ATC code = **international** alphanumeric code for every individual pharmaceutical substance in defined indication group – **see metformin:**

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



# ATC CLASSIFICATION

- + **A: ALIMENTARY TRACT AND METABOLISM**
- + **B: BLOOD AND BLOOD FORMING ORGANS**
- + **C: CARDIOVASCULAR SYSTEM**
- + **D: DERMATOLOGICALS**
- + **G: GENITO URINARY SYSTEM AND SEX HORMONES**
- + **H: SYSTEMIC HORMONAL PREPARATIONS, EXCL. SEX HORMONES AND INSULINS**
- + **J: ANTIINFECTIVES FOR SYSTEMIC USE**
- + **L: ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS**
- + **M: MUSCULO-SKELETAL SYSTEM**
- + **N: NERVOUS SYSTEM**
- + **P: ANTIPARASITIC PRODUCTS, INSECTICIDES AND REPELLENTS**
- + **Q: VETERINARY PRODUCTS**
- + **R: RESPIRATORY SYSTEM**
- + **S: SENSORY ORGANS**
- + **V: VARIOUS**