# Pharmaceutical care Hand-out



## Online lectures

| Topic | Online Lecture | Time |
|---|---|---|
| Introduction to Pharma.Care Management | https://youtu.be/vYGMHLJE_qw | 12 |
| Phases and steps Pharmaceutical Care | https://youtu.be/LyBUaVPNnO8 | 13 |
| Medicines Optimisation Principles | https://youtu.be/q_MNFXokIoc | 15 |
| Drug Related Problems | https://youtu.be/F0Mh1JfWmks | 19 |
| PCNE system | https://youtu.be/OKXtH85zOD4 | 21 |
| Assessment of Appropriate prescribing | https://youtu.be/k6_3r1NM3wE | 15 |
| Beers, STOP/START, PRISCUS | https://youtu.be/fTtQLyPBR5E | 15 |
| 1st Part of Side effects | https://youtu.be/niAlCzwyHLA | 9 |
| More about adverse events | https://youtu.be/8s_8C-dYF7I | 24 |
| Pharmacovigilance | https://youtu.be/9Nv6s0n91vE | 21 |
| Adherence Part 1 | https://youtu.be/I6U3h0Xx5c4 | 25 |
| Adherence Part 2 | https://youtu.be/7PhNAFPAEG8 | 21 |
| Believes about medications | https://youtu.be/NWM7gEXex3A | 16 |
| Quality of life | https://youtu.be/G3-tyiPPI9M | 15 |
| D-D interaction | https://youtu.be/HXKxzx5UgBs | 24 |

# Second: Systems Medication (Drug) Related Problems

Be aware you should know:

**1)** It is not simple the Adverse drug reactions, Drug-related problems (DRP) are events or circumstances involving drug therapy that actually or potentially interfere with desired health outcomes.

**2)** DRP and its classifications keep on consciously updated, and they may be varied:

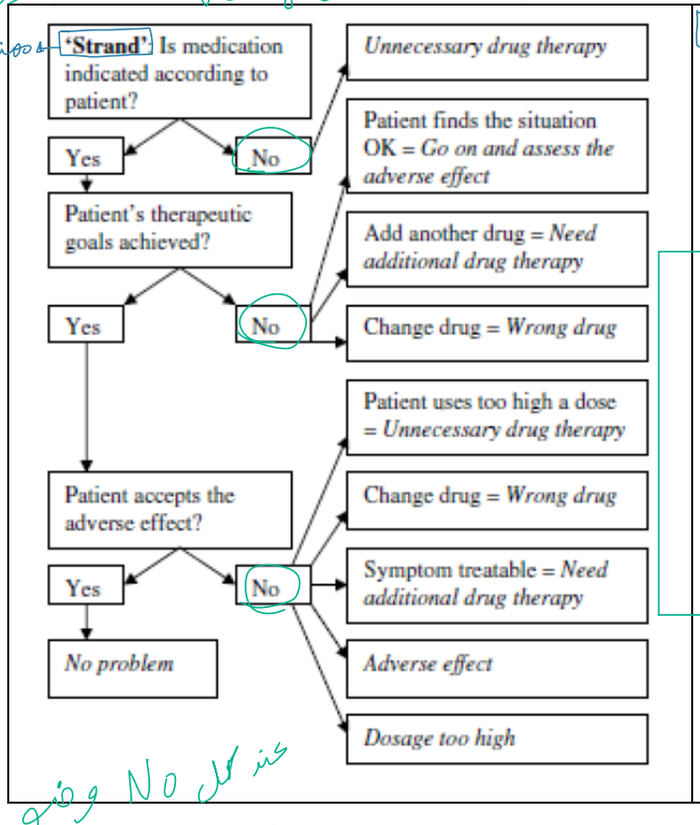
Change over years, time / Based on country and area / Based on Patient criteria (Inpatient vs Outpatients,

Chronic vs Acute / based on purpose (for description, for management, for statistic, for economy …etc)

**3**) Here we will have a quick general overview of systems in USA, Spain, Netherlands, Sweden and Jordan.

PLUS, the European System

## 1) Cipolle/Morley/ Strand classification




Community pharmacies in the US to evaluate pharmacists' activities in their daily provision of pharmaceutical care. This Classification can only be employed when the event has already been experienced by the patient.

DRPs were classified as follows: (core)

i. Unnecessary therapy (Indication Or dose)
ii. Need for additional therapy
iii. Wrong drug
iv. Dosage is too low (refer to i)
v. Need additional drug therapy
vi. Adverse drug reaction
vii. Dose is too high
viii. Adherence problem

إنهم طوّروا مفهومًا يقترب من الفكرة الأساسية / الجوهرية

## 2) American Society of Hospital Pharmacists (ASHP) classification

**In this classification, the DRPs were classified as follows:**

i. Medication with no indication
ii. Condition for which no drug is prescribed
iii. Medication prescribed inappropriately for a particular condition
iv. Inappropriate dose, dosage form, schedule, route of administration, or method of administration
v. Therapeutic duplication
vi. Prescribing of medication to which the patient is **allergic**
vii. Actual and potential adverse drug events
viii. Actual and potential drug–drug, drug–disease, drug–nutrient, and drug–laboratory test interactions that are clinically significant
ix. Interference with medical therapy by **social or recreational drug use**
x. Failure to receive the full benefit of prescribed therapy
xi. Problems are arising from the **financial impact of therapy**
xii. **Lack of understanding** of the medication
xiii. Failure of the patient to adhere to the regimen.

## 3) Granada consensus

In 1998, a group of Spanish experts reached a consensus on the definition and analysis of DRPs.
In this classification the DRPs were classified as follows:

**TABLE I** – Classification of 'Drug Related Problems' (DRP)

| Necessity | Problem |
|---|---|
| Necessity | DRP 1: The patient suffers from a health problem as a result of not taking the medicine that he needs. |
| | DRP 2: The patient suffers from a health problem as a result of taking a medicine that he does not need. |
| Effectiveness | DRP 3: The patient has a health problem resulting from a non-quantitative ineffectiveness of a medicine. |
| | DRP 4: The patient has a health problem resulting from a quantitative ineffectiveness of a medicine. |
| Safety | DRP 5: The patient suffers from a health problem as a consequence of a non-quantitative safety problem of a medicine. |
| | DRP 6: The patient suffers from a health problem as a consequence of a quantitative safety problem of a medicine. |

Major issues for the drug تعني:
المشاكل / القضايا الرئيسية الخاصة بالدواء
وغالبًا يُقصد بها في الصيدلة:
- الآثار الجانبية المهمة
- مشاكل السلامة
- التداخلات الدوائية
- مشاكل الامتصاص أو التوافر الحيوي
- السمية أو ضيق المجال العلاجي

لكن كترجمة حرفية فقط:
- Major issues = مشاكل رئيسية
- for the drug = بالنسبة للدواء

For example, a patient went to the doctor because of temporary back pain. The doctor prescribed diclofenac, intended to be taken until the back pain improves. However, the patient keeps renewing the prescription along with other medications he takes for his chronic diseases.

## 4) Hanlon approach (University of Pittsburgh)

It is not just a system for classifying DRPs, but also includes MAI.

Hanlon et al. have developed a method for assessing the appropriateness of medication based on the medication appropriateness **index (MAI).**

In this classification, the DRPs were classified as follows:

i. indications
ii. effectiveness
iii. Correct directions
iv. Practical directions
v. Drug – Drug interaction
vi. Drug disease-condition interaction

vii. Duplication
viii. Duration of therapy
ix. Economic justification
x. Improper drug selection

**5)** National Coordinating Council → wrong استخدام المميزكندهم

**for Medication Error Reporting and Prevention (NCC-MERP) taxonomy of medication errors.**
In this classification, the DRPs were classified as follows:
i. The medication is in control of the health care professional, patient, or consumer.
ii. Dose omission
iii. Improper dose
iv. Wrong strength/concentration
v. Wrong drug
vi. Wrong dosage form
vii. Wrong technique (includes inappropriate **crushing** of tablets) → مثال آخر الحبوب التي توضع تحت اللسان (sublingual) يروح المريض يستخدمها بطريقة خاطئة ويبلعها (swallow)
viii. Wrong route of administration
ix. Wrong date (probably relating to administration)
x. Wrong duration
xi. Wrong time
xii. **Wrong patient** → في المستشفى اعطاء أدوية مريض لمريض آخر
xiii. **Monitoring** error (includes contraindicated drugs)
xiv. **Deteriorated** drug error (dispensing drug that has expired)
xv. Other**.**

عدم استخدام الأدوية بالطريقة الصحيحة

**6) SHB-SEP classification**

The Health Base Foundation developed this system in The Netherlands for use in pharmacy software's based on the medical **Subjective/ Objective/Evaluation/Plan structure**; however, the S and O codes have been combined into one problem description.

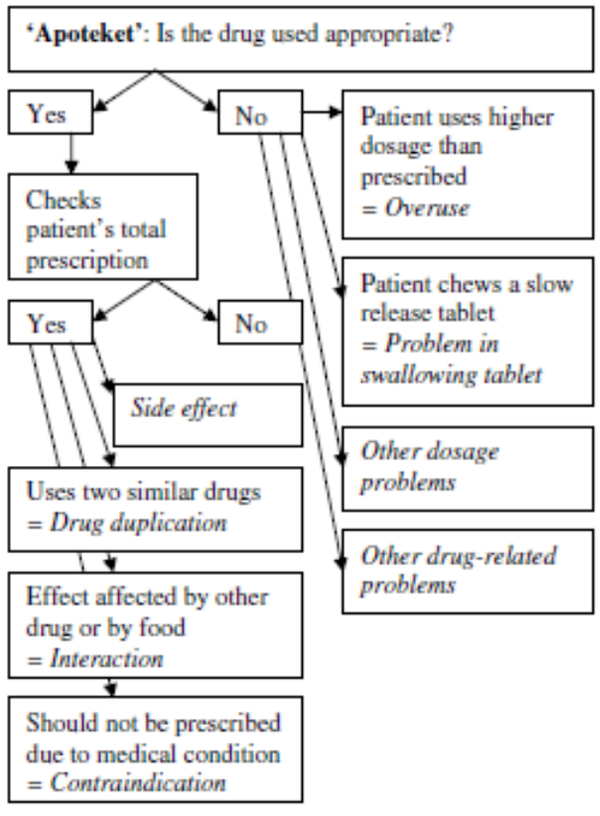
The main problem categories comprise both a patient- and pharmacy-oriented perspective.
The system is still being revised regularly, but each updated version is not sequentially numbered to facilitate differentiation from previous versions.
i. Patient initiative doubts or insufficient understanding (also second opinion)
ii. Question about drug use (dosage/advice/way of use)
iii. Worries about complications/adverse reactions
iv. Self-care advice
v. Advice on medical aids → Community Pharmacies
vi. Information request (general/disease/complaint/disorder)
vii. Pharmacy team initiative administration
viii. Alterations in prescription (not based on medication-surveillance signal)
ix. Evaluation as result of a consultation by invitation
x. Evaluation without patient consultation.

أشياء مميزة في هاد النظام

في السويد الناس محرجهم كبير بعانوا من مشا كل مختلفة عن مشاكل الشباب

## 7) Apoteket Classification System

Apotek n (definite singular apoteket) a is pharmacy in Swedish language.
Apoteket AB has developed a classification system that Swedish pharmacies can use when **counselling patients.**




Over dose

Dosage form related problem. **Swallow problem**

Drug duplication

Drug interaction (Drug or Food interaction)

Contraindication

Side effects of medication

## 8) Pharmaceutical Care Network Europe (PCNE) system

هو الأشمل والأهم والمطلوب اعتماده صناطلاب

The original classification was created in 1999 by pharmacy practice researchers during a working conference of the PCNE in an effort to develop a standardized classification system that is suitable and comparable for international studies. Last version V8 June 2017. Updated to be in 2019

It has the following Domains

Domain P: Problem

| | |
|---|---|
| **1.Treatment effectiveness**<br>There is a (potential) problem with the (lack of) effect of the therapy | **P1.1** No effect of drug treatment/ therapy failure<br>**P1.2** Effect of drug treatment not optimal<br>**P1.3** Untreated symptoms or indication |
| **2. Treatment safety**<br>Patient suffers, or could suffer, from an adverse drug event | **P2.1** Adverse drug event (possibly) occurring |
| **3. Others** | **P3.1** Problem with cost-effectiveness of the treatment<br>**P3.2** Unnecessary drug-treatment<br>**P3.3** *Unclear problem/complaint. Further clarification necessary (please use as escape only)* |

See the other Domains:

**Domain C: Cause of Problem (Prescribing, Dispensing, Use)**

**Domain I: Planned Interventions**

**Domain A: Intervention Acceptance**

**Domain O: Status of ADP**

| | Primary Domain | Code V8.01 | Cause |
|---|---|---|---|
| Prescribing | **1. Drug selection**<br>The cause of the (potential) DRP is related to the selection of the drug | C1.1 | Inappropriate drug according to guidelines/formulary |
| | | C1.2 | Inappropriate drug (within guidelines but otherwise contra-indicated) |
| | | C1.3 | No indication for drug |
| | | C1.4 | Inappropriate combination of drugs or drugs and herbal medication |
| | | C1.5 | Inappropriate duplication of therapeutic group or active ingredient |
| | | C1.6 | No drug treatment in spite of existing indication |
| | | C1.7 | Too many drugs prescribed for indication |
| | **2. Drug form**<br>The cause of the DRP is related to the selection of the drug form | C2.1 | Inappropriate drug form (for this patient) |
| | **3. Dose selection**<br>The cause of the DRP is related to the selection of the dose or dosage | C3.1 | Drug dose too low |
| | | C3.2 | Drug dose too high |
| | | C3.3 | Dosage regimen not frequent enough |
| | | C3.4 | Dosage regimen too frequent |
| | | C3.5 | Dose timing instructions wrong, unclear or missing |
| | **4. Treatment duration**<br>The cause of the DRP is related to the duration of treatment | C4.1 | Duration of treatment too short |
| | | C4.2 | Duration of treatment too long |
| Disp | **5. Dispensing**<br>The cause of the DRP is related to the logistics of the prescribing and dispensing process | C5.1 | Prescribed drug not available |
| | | C5.2 | Necessary information not provided |
| | | C5.3 | Wrong drug, strength or dosage advised (OTC) |
| | | C5.4 | Wrong drug or strength dispensed |
| Use | **6. Drug use process**<br>The cause of the DRP is related to the way the patient gets the drug administered by a health professional or carer, despite proper dosage instructions (on the label) | C6.1 | Inappropriate timing of administration and/or dosing intervals |
| | | C6.2 | Drug under-administered |
| | | C6.3 | Drug over-administered |
| | | C6.4 | Drug not administered at all |
| | | C6.5 | Wrong drug administered |
| | **7. Patient related**<br>The cause of the DRP is related to the patient and his behaviour (intentional or non-intentional) | C7.1 | Patient uses/takes less drug than prescribed or does not take the drug at all |
| | | C7.2 | Patient uses/takes more drug than prescribed |
| | | C7.3 | Patient abuses drug (unregulated overuse) |
| | | C7.4 | Patient uses unnecessary drug |
| | | C7.5 | Patient takes food that interacts |
| | | C7.6 | Patient stores drug inappropriately |
| | | C7.7 | Inappropriate timing or dosing intervals |
| | | C7.8 | Patient administers/uses the drug in a wrong way |
| | | C7.9 | Patient unable to use drug/form as directed |
| | **8. Other** | C8.1 | No or inappropriate outcome monitoring (incl. TDM) |
| | | C8.2 | Other cause; specify |
| | | C8.3 | No obvious cause |

N.B. One problem can lead to more interventions

| Primary Domain | Code V8.01 | Intervention |
|---|---|---|
| No intervention | I0.1 | No Intervention |
| 1. At prescriber level | I1.1 | Prescriber informed only |
| | I1.2 | Prescriber asked for information |
| | I1.3 | Intervention proposed to prescriber |
| | I1.4 | Intervention discussed with prescriber |
| 2. At patient level | I2.1 | Patient (drug) counselling |
| | I2.2 | Written information provided (only) |
| | I2.3 | Patient referred to prescriber |
| | I2.4 | Spoken to family member/caregiver |
| 3. At drug level | I3.1 | Drug changed to …. |
| | I3.2 | Dosage changed to …. |
| | I3.3 | Formulation changed to ….. |
| | I3.4 | Instructions for use changed to ….. |
| | I3.5 | Drug stopped |
| | I3.6 | New drug started |
| 4. Other intervention or activity | I4.1 | Other intervention (specify) |
| | I4.2 | Side effect reported to authorities |

## Acceptance of the Intervention proposals

N.B. One level of acceptance per intervention proposal

| Primary domain | Code V8.01 | Implementation |
|---|---|---|
| 1. Intervention accepted (by prescriber or patient) | A1.1 | Intervention accepted and fully implemented |
| | A1.2 | Intervention accepted, partially implemented |
| | A1.3 | Intervention accepted but not implemented |
| | A1.4 | Intervention accepted, implementation unknown |
| 2. Intervention not accepted (by prescriber or patient) | A2.1 | Intervention not accepted: not feasible |
| | A2.2 | Intervention not accepted: no agreement |
| | A2.3 | Intervention not accepted: other reason (specify) |
| | A2.4 | Intervention not accepted: unknown reason |
| 3. Other (no information on acceptance) | A3.1 | Intervention proposed, acceptance unknown |
| | A3.2 | Intervention not proposed |

## Status of the DRP

N.B. This domain depicts the outcome of the intervention. One problem (or the combination of interventions) can only lead to one level of solving the problem

| Primary Domain | Code V8.01 | Outcome of intervention |
|---|---|---|
| 0. Not known | O0.1 | Problem status unknown |
| 1. Solved | O1.1 | Problem totally solved |
| 2. Partially solved | O2.1 | Problem partially solved |
| 3. Not solved | O3.1 | Problem not solved, lack of cooperation of patient |
| | O3.2 | Problem not solved, lack of cooperation of prescriber |
| | O3.3 | Problem not solved, intervention not effective |
| | O3.4 | No need or possibility to solve problem |