Rational use of drugs, medication errors & Prescribing

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Objectives

- What is rational use of drugs?
- Principles for rational drug use
- Causes Of Irrationality Of Drug Use
- Causes of patient non compliance
- Medication errors
- Steps In Using Medication
- Sources Of Error In Prescribing
- Strategies To Reduce Prescribing Errors
- Who can prescribe medicines?
- Rules in writing a prescription
- Parts of prescription

Medicines

- Drugs/medicines can do good
- Drugs can do harm
- Whenever a drug is taken a risk is taken
- In some countries most drugs are available over the counter
- Population include a very wide range of people with different knowledge , beliefs and attitudes about medicines
- More than 50% of all medicines worldwide are prescribed, dispensed or sold inappropriately
- 50 % patients fail to take them correctly
- A good percent of doctors describe drugs now online
- Prescribing drugs for yourself and family is also a problem

Rational use of drugs

- **Rational use of drugs requires that patients** receive **medications appropriate to their clinical needs**:
- **in doses** that meet their **own individual requirements**
- for an **adequate period of time**
- and the **lowest cost to them and their community**.
- **This is often simplified as the five rights** – the **right drug** at the **right dose** by **the right route** at the **right time** for the **right patient**
- ***(according to WHO 1988)***

Principles for rational drug use

1.Appropriate **d**rug to be prescribed

2.Taken in right **d**ose

3.Taken at the right **t**ime and in**t**ervals

4.Administered by the right rou**t**e of administration

5.It should be **effective**

6.Safe (high therapeutic index)

7.Available when needed

8.At **a**ffordable price

Causes Of Irrationality Of Drug Use

1. **Polypharmacy:** high number of drugs on each prescription
2. **Incomplete pharmaceutical information** about drugs
3. **Incorrect prescribing** (e.g. low efficacy drugs, or given at unsuitable circumstances and wrongly given antibiotics)
4. **Patient compliance** : **low patient compliance (the degree to which a patient correctly follows medical advice)** (20-50%)
5. **Low income of patient** pushes the pharmacist towards dispensing doses for one or two days only
6. **Self medication**: (patients do not know the mode of drug action, duration of treatment, side effects)
7. **Availability of numerous medicinal alternatives**

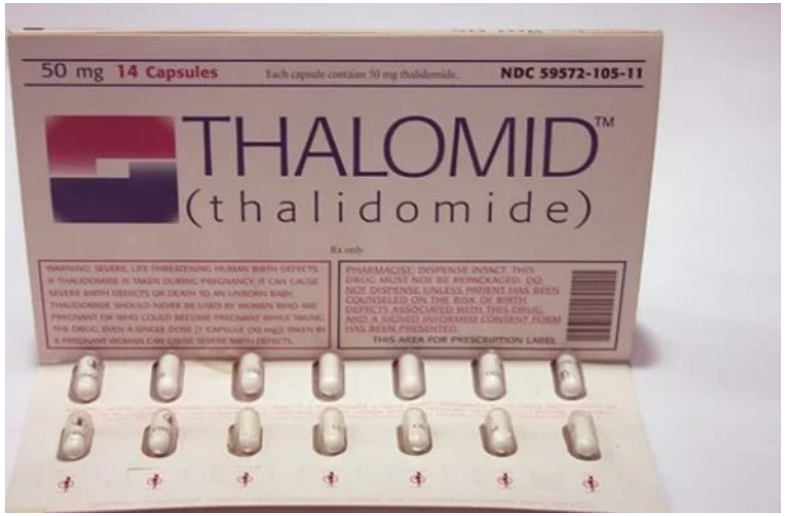
Causes of patient non compliance

- Failure of Communication and Lack of Comprehension.
- Cost
- Fear
- Psychological factors: depression
- Forgetfulness
- Drug or alcohol dependence
- Complex medication schedules
- Lack of symptoms
- Drug adverse effects

•Efforts to achieve rational use of medicines intensified after the **thalidomide tragedy** in the 1960s

•**Thalidomide** was a mild sedative marketed as safe even for pregnant women.

•However, it caused thousands of infants worldwide to be born with malformed limbs **(phocomelia)**



Medication errors

- **Medication Error**: is any **preventable event** that may cause or lead to **PATIENT HARM**.
- **Adverse reaction**: **harm** to the patient arising **from drug action**. where the **correct process was followed**
- **Near Miss**: **incidence about to happen** but **didn't occur**: an error caught before reaching the patient.
- **Side effects**: unwanted unavoidable drug effects

Steps In Using Medication

- **I. Prescribing**
- **II. Preparation and Dispensing**
- **III. Administration**
- **IV. Monitoring**
- **NOTE:**
- These steps may be carried out by healthcare workers or the patient; e.g. self-prescribing over the counter medication and self-administering medication at home

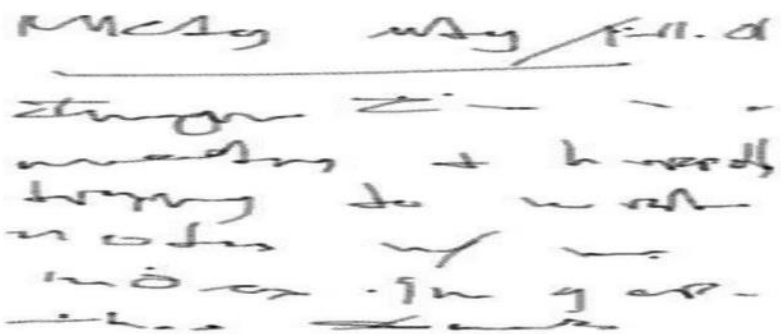
Sources Of Error In Prescribing

- **Inadequate knowledge** about drug **indications and contraindications**
- Not considering **individual patient factors** such as **allergies**, **pregnancy**, **co-morbidities**, **other medications**
- **Wrong drug**, wrong **dose**, wrong **time**, wrong **route** wrong **patient**
- **Mathematical error** in **calculating dosage**
- **Inadequate communication** (written, verbal)
- **Documentation**: illegible, incomplete, ambiguous **abbreviation** e.g. 2 mg instead of 2 mcg
- **Incorrect data entry** when using computerized prescribing e.g. wrong number

***Example For Error Prone Abbreviations

U (for units)	Mistaken for: "0" (zero), "4" Write "unit" (the number four), or "cc"	Write "unit"
Ug (for micrograms)	Mistaken for mg (milligrams) resulting in one thousand-fold overdose	Write "mcg" or "micrograms"
IU (for international units)	Mistaken for : "IV" (intravenous), "10" (the number ten)	Write "international unit(s)"
OD, O.D., od, or o.d. (for daily)	Mistaken as "right eye" (oculus dexter) which could lead to administration of liquid medication in the eye	Write "daily"
QD, Q.D., qd, q.d. (for daily) Q.O.D, q.o.d (for every other day)	Mistaken as "q.i.d." especially if the period after the "q", the letter "O", or the tail of the "q" is misinterpreted for the letter "I"	Write "daily" or "every other day" as appropriate

**Example For Prescribing Error-illegible Handwriting:



Strategies To Reduce Prescribing Errors

- 1. Avoid illegible handwriting
- 2. Write complete Information
- 3. Look at Patient-Specific Information
- 4. Do Not Use Abbreviations
- 5. Decimals 2 mg not 2.0 mg, 0.5 mg not .5 mg
- 6. Be alert to drug name, use generic name rather than trade names:
- **Metronidazole**: antiprotozoal, **metformin**: antidiabetic
- **Amicar**: antibleeding, **omacor**: omega-3
- 7. Know the high alert medications
- 8. More attention to dosage calculations
- 9. Verbal orders

Factors For Medication:Errors Staff Factors

- Inexperience
- Rushing “ there is no time to check the system or communicate with the patient “
- Doing two things at the same time “ clear mind is very important “
- Interruptions
- Fatigue, boredom, or stress
- Lack of checking and double checking habits
- Poor teamwork and/or communication between colleagues

Remember the 5 Rs when prescribing and administering

- **Can You Remember What They Are?**
- **1. Right Patient** (check the name of the patient & ask the patient to identify himself/herself).
- **2. Right drug** (check the medication label & order).
- **3. Right Route** (Confirm that the patient can take or receive the medication by the ordered route)
- **4. Right Time** (Check the frequency of the ordered medication & Confirm when the last dose was given).
- **5. Right Dose** (Confirm appropriateness of the dose using a current drug reference & correct calculation)

Prescription

- **A prescription is:**
- A doctor's order for medicine (drug) or another intervention.
- **In writing prescriptions**, **use English (in the U.S.)** or **the dominant language of the patient**
- **Rx“**: an abbreviation for the **Latin word recipere**, meaning **"take“:** as a direction to a pharmacist, preceding the physician's "recipe"
- The abbreviation **"Signa"** for the **Latin Signatura**, is used on the prescription to mark the **directions** for administration of the medication.

WHO CAN PRESCRIBE MEDICINES?

- **Only physician (doctor)**
- **Note that: in some countries**
- Healthcare practitioners other than physicians can write prescriptions. Licensed physician's assistants , nurse practitioners, pharmacists, and clinical psychologists can prescribe medications under various circumstances.

Parts of prescription

- **The prescription consists of:**
- The superscription
- The inscription
- The subscription
- The signa
- The name and signature of the prescriber
- **All contained on a single form**

Rules in writing a prescription

- The prescription must be **accurately** and **legibly** prepared
- To **identify** the **patient**, the **medication** to be dispensed, and the **mode of drug administration**.
- **Avoid abbreviations** and **Latin**; they lead to dispensing errors.
- **Include the therapeutic purpose** in the subscription (e.g., "for control of blood pressure") to prevent errors in dispensing.

PARTS OF A PRESCRIPTION

1. Date: …. / ……/…..

Name: ……
Age: ……
Weight: …… 2.

R_x 3. Superscription

Paracetamol – 500 mg
4. Inscription

tab Paracetamol 10
5. Subscription

BID for 5 days
6. Signatura

7. Signature
……

8. Reg no. & Seal
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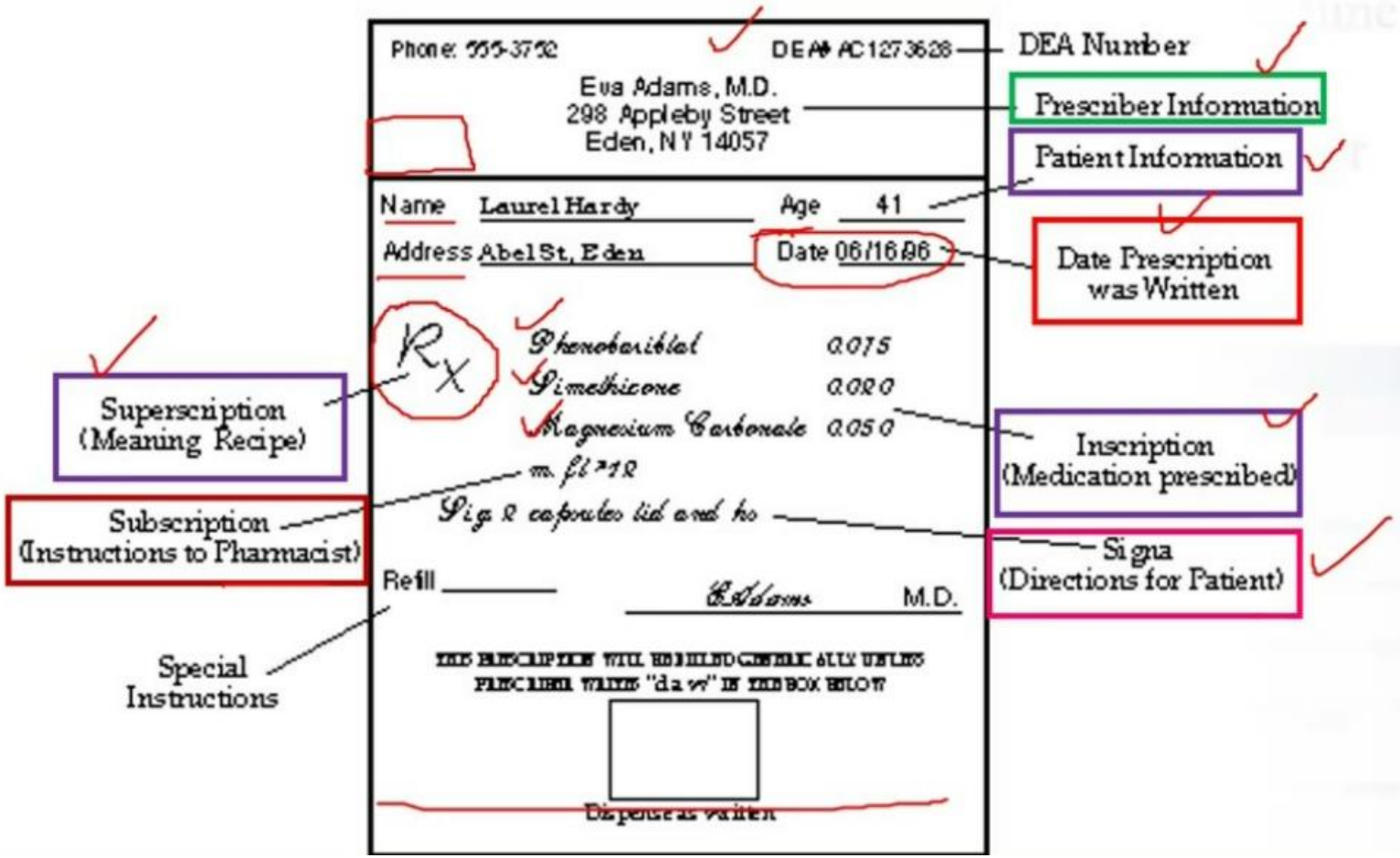

•Prescriber information
•The **date**
• The **name**, **address, weight**, and **age of the patient**;
•The ***superscription*** includes and the **Rx (*Take*).**
•**The body of the prescription:** ***inscription***, contains the **name** and **amount or strength of the drug** to be dispensed
•The **subscription** is the **instruction to the pharmacist**, usually consisting of a short sentence such as: "dispense 30 tablets.
•" **The signa** is the **instruction for the patient (written in Arabic)** as to how to take the prescription, interpreted onto the prescription label by the pharmacist.

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Thank **you**