Pharmaceutical care

Pharmaceutical care

- “ A practice in which a practitioner takes responsibility for a patient’s drug related needs and holds him or herself accountable for meeting these needs.”..... *Linda Strand 1997*

- It describes specific services & activities through which an individual pharmacist cooperates with patients and other health care professionals in designing, implementing & monitoring a therapeutic plan that will produce specific outcomes for the patient.

- Wherein the pharmacist is engaged in;

  Drug monitoring,

  Disease monitoring,

  Drug therapy & disease management/collaborative practice

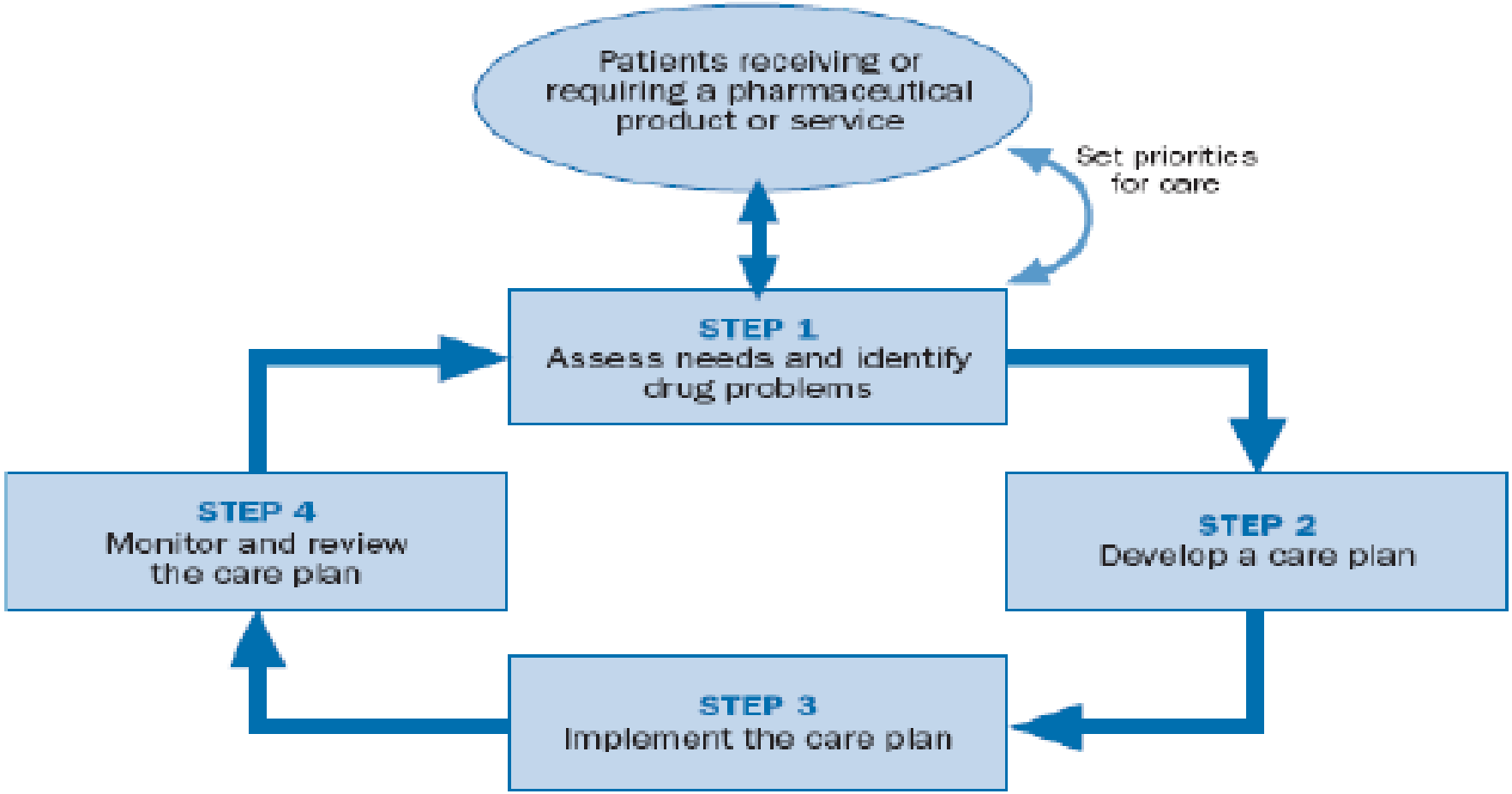
- Pharmaceutical care is that component of pharmacy practice which entails the direct interaction of pharmacist with the patient for the purpose of caring for that patient's drug related needs

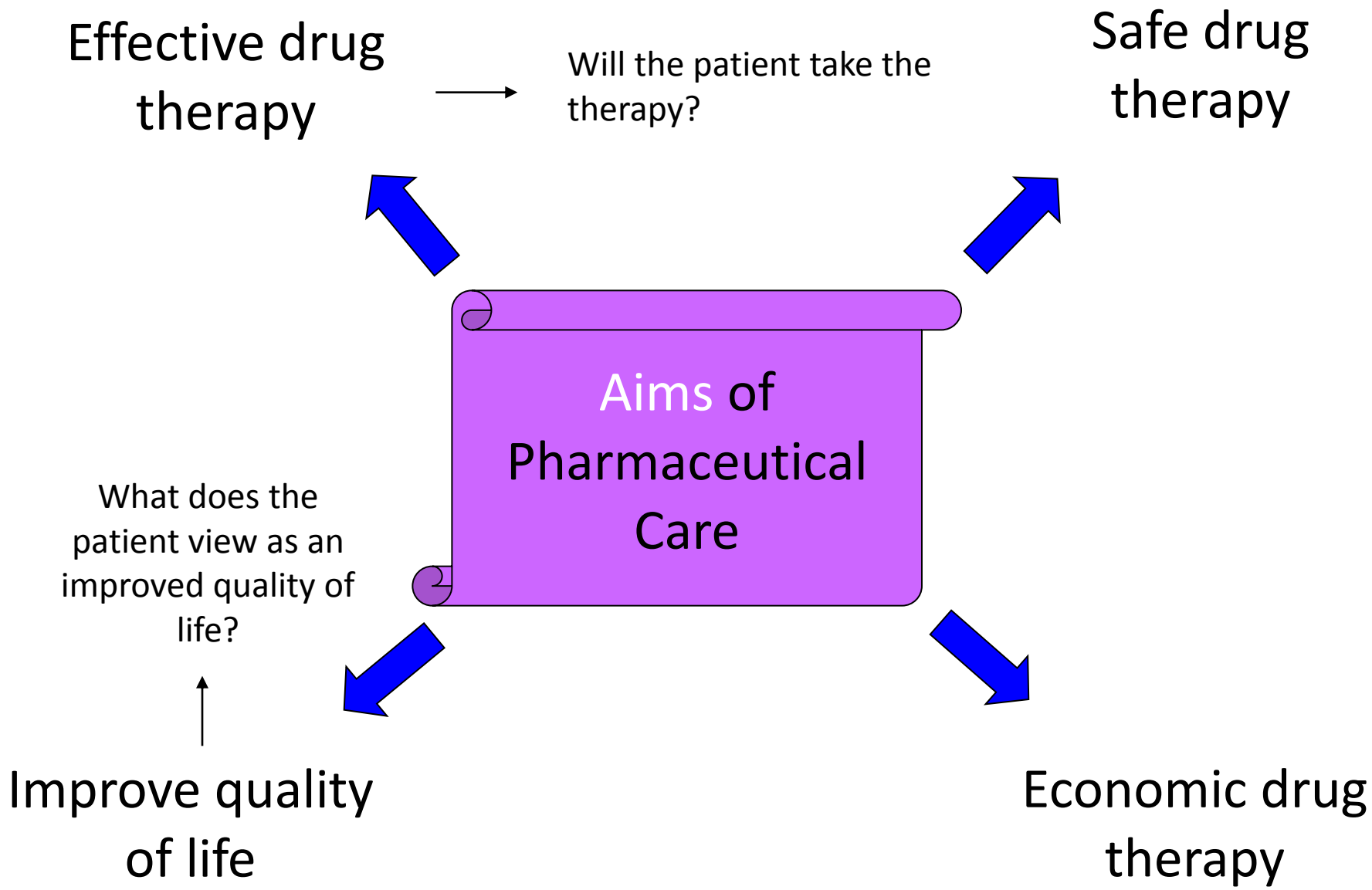
Goal of Pharmaceutical Care

- Goal of pharmaceutical care is to optimize the patient's health-related quality of life and achieve positive clinical outcomes, within realistic economic expenditures

The Pharmaceutical Care Cycle

- In PC practice, talking with the patient is a vital component to uncovering more and different drug therapy problems




Effective drug therapy
Will the patient take the therapy?
Safe drug therapy
Aims of Pharmaceutical Care
What does the patient view as an improved quality of life?
Improve quality of life
Economic drug therapy

Why pharmacist??

- **Pharmacies** are **open** all the time.
- **No need** for an **appointment** to see the pharmacist.
- **Accessible** and **trusted** source of advice
- **Convenient** for most people
- **First stop** for help with common ailments.
- Have the **expertise** to advise both on the **choice** of medicines and their **safe** and **effective** use.

What is wrong with the "old model?

(Physicians Prescribe and Pharmacists Dispense)

- Healthcare costs
  - Medicine related errors are costly in terms of hospitalizations, physician visits, laboratory tests and remedial therapy
- Adverse drug reaction:
  - 4%-10% of all hospital in-patients in developed countries.
  - The 4^{th}-6^{th} leading cause of death in USA
  - Estimated cost: upto US $ 139 billion a year in the USA
  - £ 466 million (over $812 million): in the UK

"No documented data in our country"

What is Wrong with the Current/old System? Cont…

More than **50%** of all **prescriptions** are **incorrect**

50%–**90%** of medicines **purchased** are paid for out-of-pocket in developing countries.

- → non compliance is a major issue.
- → >50% of the people involved fail to take them correctly.

What is Wrong with the Current/old System? Cont…

- Up to **90%** developed **resistance** to original **first-line antibiotics** such as ampicillin and cotrimoxazole for shigellosis,
- Up to **70% resistance** to penicillin for **pneumonia** and bacterial **meningitis**,
- Up to **98%** resistance to **penicillin** for **gonorrhea**, and
- Up to **70%** resistance to both **penicillin** and **cephalosporin** for hospital-acquired ***S.aureus*** infections.

What is Wrong with the Current/old System? Cont…

Inadequate of **Accountability**?????

If a patient died after taking a prescription drug that was dispensed according to the physician order correctly, ***who is responsible?***

What is Wrong with the Current/old System? Cont…

The old

"**Physicians Prescribe and Pharmacists Dispense**" model is no longer fully appropriate to

- ✓ reduce drug therapy problems,
- ✓ ensure safety,
- ✓ ensure effectiveness and adherence to drug therapy.

What could be a solution?????

Role change

- Sweeping changes continue **to reshape** the **practice** of pharmacy.

- The pharmacy professional needed today is a **knowledgeable drug expert** and **skilled**, **persuasive communicator** and ***not a pill counter***.

  This *pharmacist embraces* a new practice model - pharmacy care.

Requirements

- Expert knowledge of therapeutics
- A good understanding of disease process
- Knowledge of pharmaceutical products
- Drug monitoring skills
- Provision of drug information
- Communication skills

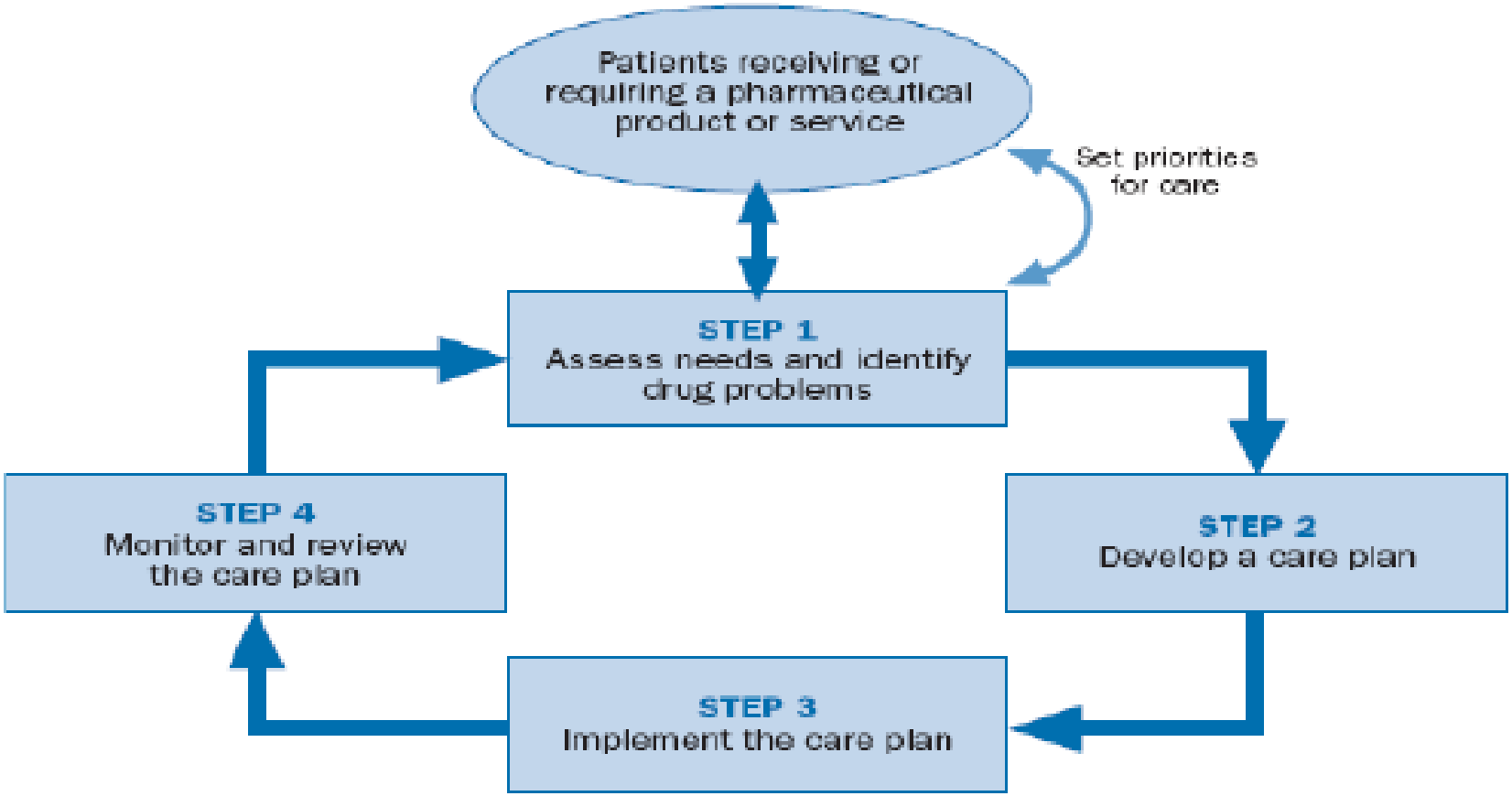
Goal of Pharmacists
Clinical Training

- To make them experts in:
  - identifing and solving medication therapy problems
  - becoming patient educators
  - selecting the most effective therapy
  - monitoring the outcome of drug therapy

	Traditional Pharmacy	Clinical Pharmacy	Pharmaceutical Care
Primary Focus	Prescription order and OTC order	Physician or other health professionals	Patient
Continuity	Upon demand	Discontinuous	Continuous
Strategy	Obey	Find fault or prevention	Anticipate or improve
Orientation	Drug product	Process	Outcomes

The Pharmaceutical Care Cycle

- In pharmaceutical care practice, talking with the patient is a vital component to uncovering more and different drug therapy problems



PC Cycle…

- A pharmacist practices PC when he/she **finds** and **fixes** or **prevents** **drug therapy problems** in **patients**.

Medical problems

- **A disease state** ; **A change in physiology** that (potentially) results in clinical evidence of **damage** to an **organ** system. E.g. HTN, HF, DM, etc.

Drug therapy problems

- A patient problem that is either caused **by a drug** or may be **treated/prevented** by a drug

Comparing Problems and Treatments

- The pharmacist needs to answer the following questions:

1. **Are all conditions being managed?**

2. **Are all drug therapies managing a condition?**

Medical *Vs* drug therapy problems

- So, **how** does this **differ** from a medical problem?
- **Who** in the health care system *finds and fixes* **medical problems**?
- **Who** in the health care system *finds and fixes* drug **therapy problems**?

Drug Therapy Problem

- A drug therapy problem is ***any undesirable event*** experienced by a patient which involves, or is suspected to **involve**, **drug therapy**, and that **interferes** with **achieving** the ***desired goals of therapy***.

Components of a Drug Therapy Problem

1. An **undesirable event** or risk of an event experienced by the patient.

   {medical complaint, S/S, Dx, d/ses, illness, impairment, disability, abnormal laboratory value, or syndrome. The event can be the result of *physiological*, *psychological*, *sociocultural*, or *economic* conditions.}

   ➔ **The *problem***

1. The ***drug therapy*** (products and/or dosage regimen) involved.

2. **The *relationship*** (exists or is suspected to exist) b/n the undesirable patient event and drug therapy.

   - the consequence of drug therapy, suggesting a direct association or even a cause and effect relationship, or
   - to require the addition or modification of *drug therapy* for its resolution or prevention.

Drug Therapy **Problems**

1. The drug therapy is **unnecessary** because the patient does not have a clinical indication at this time.
2. **Additional drug therapy** is required to treat or prevent a medical condition in the patient.
3. The drug product is **not being effective** at producing the desired response in the patient.
4. The **dosage is too low** to produce the desired response in the patient.
5. The drug is causing an **adverse reaction** in the patient.
6. The **dosage is too high**, resulting in undesirable effects experienced by the patient.
7. The patient is **not able or willing** to take the drug therapy as intended.

Drug-Related **Needs** of Patients

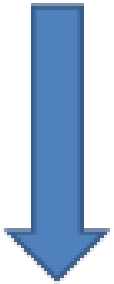
1. Patients need every medication they are taking to have an appropriate **indication**.
   - If a drug does not have an appropriate indication, the drug therapy problem "unnecessary drug therapy" will be identified.
2. Patients need their drug therapy to be **effective**
   - When a patient's need for medication to be effective is not met, two possible drug therapy problems can arise. They are "wrong drug" and "dosage too low".
3. Patients need their drug therapy to be **safe**
   - Not meeting a need for medication safety can result in the drug therapy problems of "dosage too high" or "adverse drug reaction."
4. Patients need to be able to **comply** with drug therapy and other aspects of their care plans
   - Not meeting a need for medication safety can result in the drug therapy problem of "noncompliance" results.
5. Patients need to receive all drug therapies necessary to resolve any **untreated indications**.

Drug-related needs	Categories of drug therapy problems
INDICATION	1. Unnecessary drug therapy 2. Needs additional drug therapy
EFFECTIVENESS	3. Ineffective drug 4. Dosage too low
SAFETY	5. Adverse drug reaction 6. Dosage too high
COMPLIANCE	7. Noncompliance

Identifying Drug Therapy Problems

- A pharmaceutical care practitioner should **have** a **tacit understanding** of the **common causes** of **drug therapy problems**

  ➔ identification is the essence of PC practice.



- the **practitioner** & **patient** can rationally **construct a care plan** to **resolve** that DT-problem ➔ the patient to **achieve** his/her **goals** of **therapy**.

Identifying DTP…

- These problems are **identified during the assessment** process, so that they can be ***resolved through individualized changes*** in the patient's drug ***therapy regimens.***

Sociological, pathophysiological,
knowledge (pt, d/se),
drug therapy **information**

} identified in the assessment step

- The **synthesis** and **application** of **this knowledge** occurs in a logical, **systematic manner** using the *Pharmacotherapy Workup*.

Identifying DTP…

The Process Used to Identify Whether or Not the Patient Is Experiencing a Drug Therapy Problem **Requires** a *Continuous Assessment of Four Logical Questions*:

1. **Does** the patient **have** an **indication** for **each** of his/her drug **therapies**, and is each of the patient's indications ***being treated*** with ***drug therapy*****?**

2. **Are** these drug therapies **effective** for his/her medical condition?

3. Are the drug therapies as **safe as possible?**

4. Is the patient **able and willing** to comply with the drug therapies as instructed?

A case

- 44 year old lady with fever and green sputum and cough – no known previous medical history – Diagnosed with URTI, Prescribed:
  - Co-Amoxiclav 1 tds
  - Doxycycline 100mg D
  - Prednisolone 40mg D
  - Theophylline 200mg bd
  - Omeprazole 20mg D
  - Metoclopramide 10mg tds
  - Salbutamol 2 puff inhale prn

Pharmaceutical problems

Common organisms for URTI?

History of asthma – risk vs benefit?

Need for acid suppression?

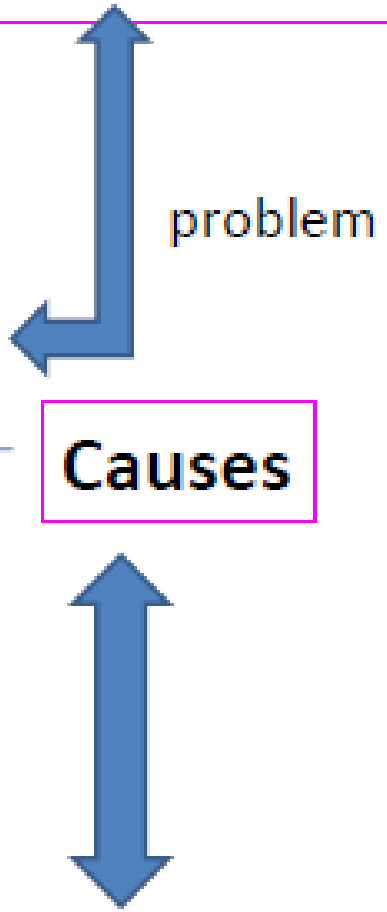
Why is she nauseous ?

Benefit of brochodilation?
Does she know what to take?
Will she take it?

Common Causes of Drug Therapy Problems

1. Unnecessary drug therapy

- no valid **medical** indication.
- *duplication of therapy*
- nondrug **therapy** more appropriate
- Treating an avoidable **ADR.**
- Addiction/recreational use



Appropriate indication = **Need**

2. Need for additional drug therapy

- condition requires initiation of DT.
- Preventive/prophylactic DT is required
- additional DT for synergistic/additive effects.

Causes

Clinical Questions to consider

- Is there an untreated indication? Why?
- **Does** the patient need **synergistic** therapy *to supplement* therapy already being administered?
- ***Does*** the patient need ***prophylactic*** therapy?
- ***Does each medication*** the patient is taking ***correlate*** with a ***medical condition***?

3. Ineffective drug

- **Contraindications** present. *BB for class-IV CHF*
- The medical **condition is refractory** to the drug product.
- The **dosage form** of the drug product is **inappropriate.**
  PO meds for comatose pts
- **More effective drug** is available.
  Amilodipine for nephrotic syndrome. *Verapamil, ACEIs*
- **not** an **indicated drug** for the condition.

Anbt for URTI, ACEI/BB for hypertensive pregnant women

4. Dosage too low

- The **dose is too low** to produce the desired response. *Wrong dose. insulin*
- The dosage **interval** is **too infrequent** to produce the desired response. Frequency inappropriate➔
- The **duration** of drug therapy is **too short** to produce the desired response. *Penicillins 2 14 days for L.monocytogens*
- A **drug interaction** reduces the amount of active drug available. Warfarin + phenobarb
- *Incorrect* **storage**

5. Dosage too high

- **Dose** is **too high**
- The dose **administered too rapidly**

Wrong dose

- The dosing **frequency** is **too short**

- The **duration** of drug therapy is **too long**.

  Antibiotics for several months . *JUSH*

- A **drug interaction** occurs resulting in a toxic reaction to the drug product. *Warfarin + clarithromycin*

Clinical Questions to consider

- Are the dose, dosage interval, duration of therapy, and dosage form appropriate for each medication the patient is taking?
- How long has the patient been receiving the current dose of each medication?
- Is the patient responding appropriately to the drug?

6. Adverse drug reaction

- **The drug is Unsafe** for the patient.

  Amg for CKD, ACEIs for ARF, floroqiunolones and TTC in children

- A **drug interaction** causes an undesirable reaction that is not dose-related.

- **dose** *inc/dec* too **rapidly**.

- **Incorrect administration** of the drug. *extravasations with Chemos*

- The drug causes **allergic reactions**.

- **Undesirable** effect.

Questions

- Is there evidence of **adverse effects** or **drug allergies**?
- Are the medications being stored properly and are any past their ***expiration dates***?
- Are medications being ***administered*** correctly?
- Are there any potential or actual drug ***interactions***?

7. Inappropriate compliance

- The patient **does not understand** the instructions.
- The patient **prefers not to take** the medication.
- The patient **forgets** to take the medication.
- The patient **cannot swallow or take** appropriately.
- The drug is **too expensive** for the patient.
- The **drug** is **not available** for the patient.

Questions

- **Is** the *patient* **misusing medication**, whether *unintentionally* or *deliberately*?
- Would ***nondrug*** therapy be *preferable* for any of the patient's conditions?
- Is the patient taking *duplicate* therapy ***without adequate*** cause?
- ***Are any drugs*** being *administered* ***unnecessarily*** to treat adverse effects

Most common medical diseases/conditions associated with drug therapy problem

- Over age 65
- DM
- Arthritis
- Depression
- Hypertension
- Asthma
- Anxiety
- Hyperlipdemia

Discovering Drug Therapy Problems requires **more than chart review**

Example

- KT, a 67-year-old man admitted with a probable thrombotic stroke. The patient was on warfarin 1 mg tablet for **atrial fibrillation**, esomeprazole 20 mg for **gastric reflux**, and an **albuterol** inhaler for occasional mild **asthma**.
- In talking with the patient, the pharmacist found that KT was not taking his warfarin because he runs out. His stroke and hospitalization are a direct result of the drug therapy problem of noncompliance.
- The pharmacist uncover the drug therapy problem by discussing with the patient
- The pharmacist would not be able to get this if he only relies on the patient chart.

Documentation of pharmaceutical care

Formulate a FARM note or SOAP note to describe or document the interventions needed or provided by pharmacist

FARM Progress Note

Description & documentation of interventions intended or provided by pharmacist

F = Findings,

pt-specific information—gives basis for recognition of pharmacotherapy problems or indication for pharmacist intervention.

A = Assessment,

The pharmacist's evaluation of the findings, including a statement of:

Any additional information needed to best assess the problem to make recommendation

The severity, priority or urgency of the problem

The short term & long term goals of the intervention proposed

Short term goals: elimination of symptoms , Lowering of BP ,Management of acute asthma without requiring hospitalization

*Long term goals:*Prevent recurrence of disease,Control B.P.,Prevent progression of diabetes

R = Resolution, including prevention

Observing & reassessing

Counseling or educating the patients & care givers

Informing the prescriber

Making recommendation to prescriber

Withholding medication or advising against use

M = Monitoring to assess the efficacy, safety & outcome of the intervention

This should include

The parameters to be followed (e.g. pain, depressed mood, serum levels)

The intent of monitoring e.g. efficacy, toxicity, adverse events

How the parameters will be monitored e.g. interview patients, serum drug level, physical examination

Frequency of monitoring—weekly or monthly

Duration of monitoring e.g. until resolved, while on antibiotics,then monthly for one year

Anticipated or desired finding e.g. no pain, healing of lesion

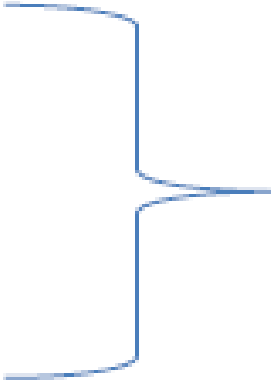
Decision point to alter therapy when or if outcome is not achieved e.g. pain still present after 3 days, mild hypoglycemia more than 2 times a week.

SOAP Notes

PC ***practitioners collect*** two types of data to help them evaluate and mange patients' drug therapy:

Subjective data

- *Cannot* be directly *measured*
- May not always be *accurate* or reproducible
- Often supplied directly *by the patient*
- Generally includes **PMH, CC, HPI, SH, FH**



the *pharmacist collects* directly from patients

NB: Only information *pertinent* to specific drug therapy should be included

SOAP Notes…

Objective data

- *Can be measured and observable*
- *Not influenced by prejudice or emotion*
- *Typically numerical*
- *Often includes vital signs, lab measures*

SOAP Notes…

Chief complaint (C/C)

Brief statement of the reason why the patient consulted the physician, stated in the patient's own words. In order to convey the patient's symptoms accurately, medical terms and diagnoses are generally used.

"What is your ***main health related problem*** today? Health-today?"

SOAP Notes…

History of Present Illness (HPI, HOPI)

- A more *complete description* of the patient's symptom(s). Usually included in the HPI are:
  - Date of **onset**
  - Precise **location**
  - **Nature** of onset, **severity**, and **duration**
  - Presence of **exacerbations** and **remissions**
  - Effect of any treatment given
  - Relationship to other symptoms, bodily functions, or activities (e.g., activity, meals)
  - Degree of **interference** with **daily activities**

SOAP Notes…

Past Medical History (PMH)

- PMH includes **serious** *illnesses*, surgical *procedures*, and *injuries* the patient has experienced previously. Minor complaints (e.g., influenza, colds) are usually omitted.

Family History (FH)

- FH includes the age, and health of ***parents***, ***siblings***, and ***children***.
- For deceased ***relatives***, the age and ***cause of death*** are recorded

SOAP Notes…

Social History (SH)

- SH includes the ***social*** characteristics of the patient as well as the ***environmental*** factors and ***behaviors*** that may ***contribute*** to the development of disease.

Medications (Meds)

- The medication history should include an accurate record of the patient's ***current prescription*** and ***non-prescription*** medication use.

Allergies (All)

- Allergies to *drugs*, *food*, *pets*, and *environmental* factors (e.g., grass, dust, pollen) are recorded.

SOAP Notes…

Review of Symptoms (ROS)

- In ROS the examiner questions the patient about the *presence* of *symptoms* related to **each *body system***.
- In many cases, only the **pertinent** positive and *negative* ***findings*** are recorded.
- In a complete ROS, *body systems are generally listed* starting from the ***head*** and working toward the ***feet*** and may include:

the skin, head, eyes, ears, nose, mouth and throat, neck, cardiovascular, respiratory, gastrointestinal, genitourinary, endocrine, musculoskeletal, and neuropsychiatric systems.

SOAP Notes *ROS …*

Physical Examination (PE)

- The exact ***procedures*** performed during the physical examination ***vary*** *depending* upon the chief complaint (**C/C**) and the patient's ***medical history***.

The general sections of PE are outlined as follows:

- GA (general appearance)
- VS (vital signs)-blood pressure (*BP*), pulse(PR), respiratory rate (RR), temperature (T)

SOAP Notes *ROS* ...

- **HEENT** (head, eyes,ears, nose, and throat)
- **Lungs/Thorax** (pulmonary)
- Cor or **CV** (cardiovascular)
- **Abd** (abdomen)
- **GU** (genitali/rectal)
- **MS/Ext** (musculoskeletal and extremities
- **Skin** (integumentary)
- **Neuro** (neurologic)
- Laboratory Results (Labs)

Pharmacotherapy Workup

- Are Always Generated as a Response to Two Basic Questions.

1. **Is** the patient's **problem** caused **by drug therapy**?

2. **Can** the patient's problem be **treated** with **drug therapy**?

Activities and Responsibilities in the Patient Care Process

Assessment (identifying DRP)

Construct **Care plan**

- Knowing the cause of a drug therapy problem helps to create the plan to fix it
- Disagreements common use judgment -

Follow-up *evaluation*

Care Plan

- A care plan is the ***method*** by which the pharmacist helps the patient **achieve** a pre--determined health **care goal**.
- Care plans **MUST** be developed cooperatively between the *pharmacist and patient*.
- **Physicians** should always be *informed*, and usually be *involved*.

Care Plan... *Prioritizing a DTP*

If a patient has **≥1 DTP**, it is usually preferable to solve them one at a time, not all at once.

Acute problems *VS* serious problems

- #1 priority --DTP is *acute and serious*
  - ✓ DKA, serious *infection*, *stroke*.
  - ✓ could be *fatal*,

Care Plan... ***Prioritizing a DTP***

- #2 priority --DTP is *acute, but not serious*
  - ✓ ***pain***, ***diarrhea***.
  - ✓ ***Not fatal***, but patient hurts now

  Note: *may or may* not be life ***threatening***, but there is no time to waste in solving it.

- #3 priority --DTP is *serious, but not acute*
  - ✓ ***HTN***, ***diabetes***.
  - ✓ May be fatal in the long run, but

  Note: you ***have time*** to spare solving it.

Patient **monitoring**

- ***How*** else will you know **if** your goal has been ***achieved***?
- Make sure the patient knows you will be following up.
- Consider when you will follow up, where, and how (by phone, in person, by email, by appointment, etc.)