

Clinical Pharmacy

Q1) Definition, scope, development of clinical pharmacy in India.

→ Definition :- The service provided by pharmacist to promote rational drug therapy that is safe, appropriate & cost effective are defined as clinical pharmacy.

OR

It is defined as the branch of pharmaceutical science dealing with utilization of pharmacist knowledge, skill and judgement related to biomedical and pharmaceutical science, to prove the safety, the cost and the precision of drug usage in patient care.

• Scope •

1) Preparation of patient medication History :-
- This will help in saving physician time and efforts.
- The result is faster & more accurate selection of drug therapy.

2) Rational prescription :- The clinical pharmacist can suggest the physician and help him to selecting right drug.

3) Bioequivalence

3) Bioequivalence & generic :- Selection of equivalence of formulations proper drug therapy based on bioequivalence & its dosage form.

4) Patient monitoring :- Help in identify the route of administration, signs symptoms, overdose, side effect, contraindication etc.

5) Adverse drug reaction :- May suggest the alternate therapy by identify adverse drug.

6) Drug-drug interaction :- Inform the drug-drug or drug-food interaction to the physician.

7) Retail pharmacy store :- At retail store, clinical pharmacist maintain records, patient drug profile, prescription etc.

8) Discharge counselling & Drug therapy patient compliance can be improved several times by educating the patient at time of discharge.

9) Education program :- Conduct clinical trials & educate patients for the drug action & its importance.

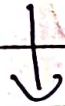
10] Medical Audit :- The clinical pharmacist is either the inhibitor or a very member of a function committee.

Development

In 1953 - The term clinical pharmacy was first used.



In 1960 - The concept of clinical pharmacology started in 1960's with two incidence



In 1962 - The thalidomide tragedy, where in it was found that consumption of popular sedative thalidomide result in birth of babies with deformed limbs



In 1968 :- Phenyltoin toxicity was reported in Australia which was because of change in formulation i.e. switching over from calcium sulfate to lactose as an inert excipient in tablet

Q2. Discuss about verbal & non verbal communication during counseling

→ Verbal communication :-

- It include ability to listen, understand and respond to what people say
- Also ability to interpret the non-verbal communication & respond in way that encourages continued interaction

(a) Active listening :- Good listening skill is important to promote a good interactive communication and obtained information

- focus on patient, family member or healthcare professional
- It make person feel like centre of attention
- Should have open, relaxed & unhurried attitude
- Give attention like keep eye contact, asking question etc.
- Tone & modulation of voice, in. b/w pauses make patient reliable.

(b) Observation & Assessment :-

- Effective two way communication requires continual observation, assessment of how the person is communicating.

Body language and gesture provide important clues for pharmacist, patient and health care professional.

(c) Open communication:- Sitting or standing at eye level or lower. project a non-threatening, equalising body posture.

- Physically be close to patient, family member or healthcare professional.

(d) Language:- For reliable communication, use a language in which both parties are fluent & comfortable.

- Abbreviations & terms used for prescribing medicines represent a specialised type of communication.

- Try to avoid medical terms.

- Non-Verbal Communication

(I) Eye contact:- It includes confidence, attention and honesty to patient.

(II) Face expression:- An important indicator of emotional state.

- Do not do any facial expression related to diseases.

(III) Body Posture :- Message can be conveyed through body posture.

e.g. closed body posture :- Person sitting with his legs and arms crossed in front of body.

- A relaxed stance with uncrossed legs & arms lead to ~~to~~ open body posture.

(IV) Tone of voice :- Softer voice etc can also influence the communication.

(V) Proximity / closeness of position :- The pharmacist and patient must maintain a minimum distance of 45cm.

(VI) Another form of non verbal Message :- To convey information through the use of diagrams.

Q3 Define drug utilization, evolution, DUE & its cycle.

→ ~~Acco~~ Definition: According to WHO, Drug Utilization evaluation is defined as the marketing, distribution, prescription and use of drug in society, with special emphasis on resulting medical, social & ~~ecomic~~ economic consequences.

- DUE is an ongoing authorized & systematic quality improvement process.

* Types *

There are 4 type of DUE.

(i) Drug focused: Drug utilization evaluation of a single drug or class of drug is tested.

(ii) Indication focused: Evaluation of drug or drug that is used for specific indication is examined for their use.

(iii) Quantitative: Include collection, organizing ~~the & others~~

(iii) Quantitative: Include collecting, organizing & estimating of drug usage in figure in the patient of drug acquisition, prescribing, dispensing etc.

civ) Qualitative :- This type of DUE helps in evaluation the quality of drug therapy & its outcome by ~~comparing~~ comparing practice with predetermined criteria & standards.

* Function *

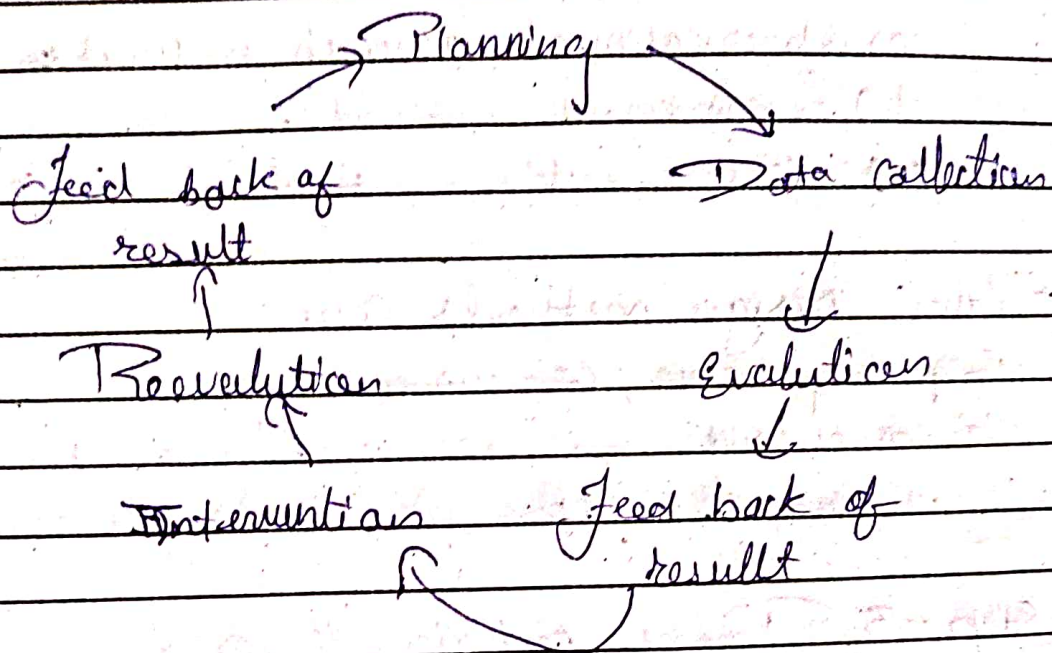
- The committee should draft and approve the policies & procedure.
- Establish and maintain adequate means of communication in hospital administration & other relevant hospital committee.
- Medical & hospital staff should understand that the DUE programme is a continuously quality ~~improvement~~ improving designed.
- Review the data generated from study.
- Inter quarterly meeting may be sufficient.
- The committee should develop a review standard and criteria of DUE studies based on knowledge, experience & literature finding.

* Rule *

- ① Planning, organizing & implementation a DUE
- ② Programme, development, supervision & conduct
- ③ Education of hospital staff about DUE in conceptual or practical exam.

- 4. Promotion of goal and objective of DUE
- Development of data collection, analysis & report writing.
- Publication of result in peer-viewed journal.

* DUE cycle.



Step 1:- Planning

- Identify drug or therapeutic ~~to~~ area of practice for possible inclusion in the programme.
- ABC or VEN analysis is another tool used to identify high priority or target drug.
- It divide as

Class A drug : 75-80% of total value of drug consumed or purchased and higher cost or highest volume item.

Class B :- It consist 15-20% of expenditure
class C :- It consist 5-10% of expenditure.

- Step 2 :- Design of Study

- Research method.

- It also divide into

- (a) Observational research method
- (b) Experimental method
- (c) Cross-sectional studies

- Other Design methods are

- prospective ; ~~concurrent~~
- concurrent
- retrospective etc.

- Step -3 Define criteria & Std.

- After the DUE target has been selected, it is important to conduct a comprehensive literature review.

- Step 4. Design the data collection.

- It is imp to limit data collection to only most imp drug.

- It is imp to limit data collection to only the most important and relevant aspect of drug and to factor which may influence these

Step 5 :- Data collection

- Data collection should be chosen carefully and should be familiar with how information is arranged in patient care notes.

- Step 6 :- Evaluation result

- Data evaluation is one of most critical step in DUE.
- To summarize the main categories of result & to identify where exactly the data show deviation are evaluated.

Step 7 :- Provide feedback of result.

Step 8 :- Develop & implement intervention

Step 9 :- Re-evaluate to determine if drug use has improved.

Step 10 :- Re-access & revise the DUE programme

Q4

Discuss it objective and guideline for patient medication history interview.

→

Q5

Draw medication chart review.

- Fundamental responsibility of clinical pharmacist.
- It is a systematic review of a patient's drug therapy to ensure that the prescribed medication is appropriate for patient.
- Involve assessment of all current & recent medication orders including route, medication and over the counter drug.
- * Goal of medication chart review
 - Ensuring that Patient receive
 - Right drug
 - Right dose
 - Right frequency
 - Right duration
 - Right dosage form

* Steps *

1) Collection & interpretation of patient specific information, including medication history interview.

- Need to collect information that will assist them to determine the appropriateness of drug therapy
- Understand the patient diseases, condition, indication of drug & daily clinical progress.

2) Assessment of Therapeutic goal.

- To determine the appropriateness of drug therapy it is essential to understand the therapeutic goal for the individual patient.
- May include one or more of following
 - Cure of diseases
 - Reduction or elimination of sign and symptoms
- Therapeutic goal should be based on patient individual circumstance & may differ from patient to patient based on their age, co-morbidities & nature & severity of their illness

3) Identification of drug related problem.

- Reviewing drug therapy should be aimed at identifying and resolving any drug related problem.
- A drug related problem is any event or circumstance involving drug-therapies that interferes or potentially interferes with the patient achieving an optimum outcome of medical care.

4) Individualising medication regimen.

- Once DRP relating to the individual drug on medication chart have resolved, the next step is to consider the patient overall medication regimen.
- Important for patient with chronic diseases or those who are on many drugs on long term basis.

5) Monitoring treatment outcomes.

- Key to assess whether the therapeutic goal of drug treatment achieved or not.

- Date _____
Page _____
- Includes review of patient clinical status, laboratory data and other markers of drug therapy response.

6. Medication chart Endorsement.

- chart endorsement is one of primary responsibilities of the pharmacist in ensuring that medication orders are unambiguous, legible and complete.

7. Documentation

- Pharmaceutical care provided should be an integral part of patient medical record.
- Documentation of pharmaceutical care provided can be made either in medication chart or in case note with a clear title with pharmacist's signature.

Q6] Write a note on pharmacist intervention in drug therapy monitoring. Classify adverse drug reaction & example in detail.

→ The clinical pharmacist should provide advice to medical staff on appropriate use and timing of TDM & assist in interpretation of result.

It involved in

- Initial selection of drug regimen.
This may involve decisions about the drug choice, dose, dosing interval, route of administration, dosage form etc.
- Adjustment of dosage regimen based on TDM result & patient clinical response.
- Dose adjustment for patient on haemodialysis or peritoneal dialysis. Provision of poisoning information.
- Adverse drug reaction.
 - According to WHO define an adverse drug reaction as 'any response to a drug which is noxious & unintended. ~~and~~ ~~which occur at dose normally used~~'.
 - There are 6 type of adverse drug reaction

Definition:

An ADR is a response to a medicine which is noxious and unintended and which occurs at doses normally used.

| Type of reaction | Features | Examples | Management |
|---|--|---|---|
| Dose related (augmented) | Common Related to a pharmacological action of the drug Predictable Low mortality | Toxic effects: Digoxin toxicity; serotonin syndrome with SSRI's Side effects: Anticholinergic effects of tricyclics, Antidepressants | Reduce dose or withhold. Consider effects of concomitant therapy |
| Non dose related (Bizarre) | Uncommon Not related to pharmacological action of the drug Unpredictable High mortality | Hypothalamic pituitary adrenal axis suppression by corticosteroids | Withhold and avoid in future |
| Dose related and time related (chronic) | Uncommon Related to the cumulative dose | Hypothalamic pituitary adrenal axis suppression by corticosteroids | Reduce dose or withhold; withdrawal may have to be prolonged |
| Time-related (delayed) | Uncommon Usually dose related Occurs or becomes apparent some time after the use of the drug | Teratogenesis Carcinogenesis Tardive dyskinesia | Often intractable |
| Withdrawal (end of use) | Uncommon Occurs soon after withdrawal of the drug | Opiate withdrawal syndrome Myocardial ischemia | Reintroduce and withdraw slowly |
| Unexpected failure of therapy (failure) | Common Dose related Often caused by drug interactions | Inadequate dosage of an oral contraceptive, particularly when used with specific enzyme inducers | Increase dosage Consider effects of concomitant therapy. |

Management

Q7 Write in brief for protocol for case presentation

→ Case presentation includes.

- present database

- General Data

- Medication Data.

→ There are main 4 part for case presentation

(i) Clinical Diagnosis

(ii) Paraclinical Diagnostic Procedure

(iii) Treatment

(iv) Prevention & health promotion

(I) Clinical diagnosis

(a) Identify data from database which can serve as :

- Age / Sex

- Symptoms

- Sign.

(b) Based on pattern recognition & prevalence, decide on the primary secondary diagnoses.

- Primary diagnosis is what you think is most likely diagnosis and Secondary diagnosis is closest second.

(c) Illustrate / explain how you arrive to 1° & 2° clinical diagnosis.

- Use the clinical diagnostic process of pattern recognition & prevalence

- use algorithm as much as possible.

(II) Paraclinical Diagnostic Procedure:

(a) Restate your primary and secondary clinical diagnosis

(b) Decide on whether you need a paraclinical diagnosis.

(c) Select two main procedures which give closest result to any diseases.

(d) Present the paraclinical diagnostic procedure that were done on patient

starting with one that you are recommending.

(III) Treatment.

(a) State your pretreatment diagnosis
1° & 2°.

(b) State goal of treatment for 1° diagnosis.

(c) Decide on treatment modality.

(d) Decide how you evaluate the result or outcome of your proposed treatment.

(e) If data are available, present the treatment procedure done on patient and their outcome.

(IV) Prevention & Health promotion

(a) State your final diagnosis.

(b) Briefly describe how you will advise patient on prevention of disease and health promotion.

Q8 Discuss Q.A. with service of clinical pharmacist.

Q9 Quality assurance in clinical pharmacy is a technique used to ensure quality of practice and its outcome.

Objective and function:-

- To ensure provision of an appropriate service to patient.
- To ensure medicine need
- Monitor and evaluate standard of service provided
- To identify and minimize the risk

Quality assurance services :-

- ❑ Patient counselling
- ❑ ADR reporting
- ❑ Ward round participation
- ❑ Drug information services
- ❑ Patient interview
- ❑ Case note review
- ❑ Medication chart review
- ❑ Therapeutic consultation
- ❑ Drug interactions
- ❑ pharmacoeconomics
- ❑ Poison management
- ❑ News letters
- ❑ Initiation and conducting pharmaceutical research and development
- ❑ Hospital formulary
- ❑ Dosage adjustment calculations
- ❑ Therapeutic drug monitoring
- ❑ Therapeutic guideline preparations.

Quality assurance in QA services :-

Quality assurance in drug information services should implement standard procedures.

Evaluate every aspect of practice and to improve existing services.

Assessment techniques :-

- 1) Work load statistics
- 2) Auditing
- 3) enquirer's assessment
- 4) Peer review



Evaluation of patient counselling :-

- Self introduction and patient's introduction
- Purpose of counselling
- Use of patient profile information
- Assess about reason for therapy
- Use of verbal language
- Non-verbal behaviour
- Discuss about present facts
- Provide complete information
- Information about therapy.
- Summarize using key points



- Assessment of QA service.

- Audit :- Clinical audit is a quality improvement process that seeks to improve patient care outcome.

Type of audit

ca) Self audit

- (b) Group audit
- (c) External audit

Q9 Elaborate component of medication chart review

Ans Same as Q5

Q10 What is Ward round participation.

→ Ward round is a visit made by a medical practitioner, alone or with a team of health care professionals and medical student to hospital in-patient at their bedside to review and follow up the progress in their health.

- Atleast one ward round is considered everyday to review the progress of each patient outcome.

- Participation of pharmacist in ward round help to provide rational drug use.

Goals & Objective

- Gain an improved understanding of patient's clinical status and progress, current planned investigation & therapeutic goal.

- Optimize therapeutic management by influencing drug therapy selection, drug administration, monitoring and follow-up.
- Detect, manage and prevent, adverse reaction drug interaction
- Participate in the in-patient discharge planning
- Classification of ward rounds:
 - It divided into 4 type
 - (i) Pre-round
 - (ii) Registrar
 - (iii) Professor
 - (iv) Teaching round.

(I) Pre round :-

- Usually by intern or medical post graduate student in teaching hospital.
- Only few management decision are made during these round
- ~~Trainee~~ Trainee clinical pharmacist may join the interview or PK in their pre round and complete the patient medication and clinical review at ~~this~~ this time.

(II) Registrar

- In teaching hospital, the registrar and the resident individually or as a team conduct ward round.
- At least once a day at a fixed time usually in morning.
- Useful round for clinical pharmacist of all level of experience to join.

(III) Professor

- In teaching hospital, the chief unit or the professor in a specialty conduct round together with other healthcare professionals.
- conducted for all patient under their care on a daily basis.

(IV) Teaching round

- In teaching hospital, academic medical staff conduct bedside clinical teaching round for resident, medical pre student, Intern, medical 2nd student & Pharm-D student.
- It is usually extensive round and is conducted

only a few time a week.

- It provides an opportunity for clinical pharmacist to improve their clinical knowledge.
- A pharmacy intervention is defined as, any action by pharmacist that directly result in a change in patient management of therapy.
- Major drug related queries that may ~~are~~ arise during ward round are:
 - 1) Dose and frequency
 - 2) choice of medication
 - 3) Adr
 - 4) Drug interaction.
 - 5) Formulation.
 - 6) Actions
 - 7) Drug availability.
- Ward round follow-up
 - (a) completing documentation.
 - (b) Making necessary attention.
 - (c) Discussion with the patient.

Q11 Describe types, procedure & significance of word round participation.

Same as Q10.