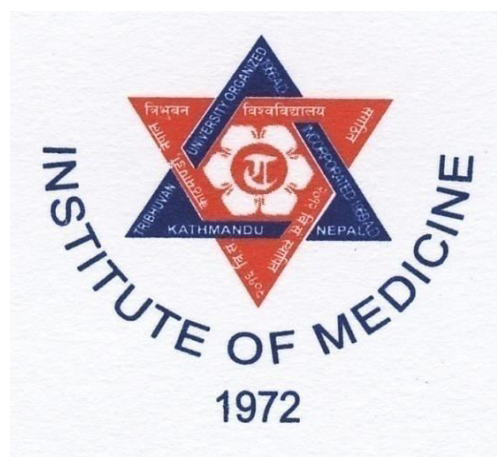


Curriculum
on
Bachelor in Pharmacy
(B. Pharm)



Published by

TRIBHUVAN UNIVERSITY

INSTITUTE OF MEDICINE

NATIONAL CENTRE FOR HEALTH PROFESSIONS EDUCATION

Maharajgunj, Kathmandu, Nepal

2020 (2076)

COURSE OF FOURTH YEAR

CLINICAL AND HOSPITAL PHARMACY

Subject: Theory	Year: Fourth	Code: BP 701 A
Full Marks: 100	Total Teaching hours: 90	Credit hour: 6

Course Description: This course deals with clinical and hospital pharmacy services with particular reference to patient care and related drug use and its safety.

General objectives:

At the end of this course, the students will be able to

- a. Provide expert services in all aspects of pharmaceutical care through hospital and clinical services.
- b. Work with the other health care professionals in patient care settings including evaluation and counseling for better outcome of pharmacotherapy.
- c. Participate with other members of health care team in clinical trials and other research related to drug use.
- d. Work as an efficient team member in establishing and managing of ADR surveillance, drug information, dissemination, drug and therapeutic committee and formulary system.

Specific objectives:

Unit 1: Clinical Pharmacy

After the completion of the course, students will be able to

- a Define and give a brief account of the history and development of clinical pharmacy.
[2 Hrs]
- b List and explain the role responsibilities and the activities of clinical pharmacist: drug therapy monitoring (medication chart review, clinical review, TDM, pharmacist interventions), ward round participation, ADR management, drug information and poison information, medication history interview, patient counseling and assessment of compliance.
[3 Hrs]
- c Take Medication Histories. [2 hrs]
- d Develop Basic Physical Assessment Skills: the Skin, the Head and Neck, the chest and lungs, the cardiovascular system, the abdomen, the genitourinary system, the musculoskeletal system, The neurologic system.[3 hrs]
- e Interpret and discuss the clinical significance of some clinical laboratory tests: The cardiovascular system, the endocrine system, the Gastrointestinal system, the Hematologic system, the renal system, the respiratory system. [4 Hrs]
- f Develop SOP for Pharmaceutical care Process.[2 Hrs]
- g Develop the skills on responding to common symptoms/Health problems [7 hrs]

- Gastrointestinal: Mouth ulcers, Heartburn, Indigestion, Nausea and vomiting, Motion sickness and its prevention, Constipation, Diarrhoea, Irritable bowel syndrome, Haemorrhoids
 - Respiratory: Colds and Flu, Cough, Sore throat, Allergic rhinitis
 - Pain: Headache, Musculoskeletal problems
 - Skin Diseases: Eczema/dermatitis, Acne, Diaper rash, Scabies, Dandruff
 - Women's problems: Cystitis, Dysmenorrhoea, Vaginal thrush, Emergency hormonal contraception.
 - Eye and Ear Problems
- h** Explain the general prescribing guidelines for pediatric patients, geriatric patients, pregnant and breast feeding women.[4 Hrs]
- i** Explain the adverse drug reactions with special emphasis on epidemiology, classification, risk factors, monitoring and detecting ADR, assessing causality, reporting ADRs.[4 Hrs]
- j** Discuss drug interactions: Define drug-drug and drug-food interactions. Classify and explain mechanism of drug-drug interactions.[4 Hrs]
- k** Describe the investigational drugs and phases of clinical trials, pharmacist's role in clinical trials, [5 Hrs]
- l** Discuss Evidence based medicine in patient care settings for promoting rational use of drugs. [2 Hrs]
- m** Discuss Therapeutic drug monitoring (TDM): Give brief account of TDM, necessity of TDM, criteria for valid TDM, essentials for effective TDM, organization of a TDM service, information and requirement for TDM. [4 Hrs]

Unit 2: Hospital Pharmacy

After the completion of the course, students will be able to

- a** Define hospital pharmacy and explain the following:
- Organization and structure of a hospital and hospital pharmacy.[2 hrs]
 - Responsibilities of a hospital pharmacist: pharmacy and therapeutic committee, budget preparation and implementation.[3 hrs]
- b** Discuss Drug and Therapeutic committee, Organization, Formulation and Management including the role of pharmacist in the committee.[3 hrs]
- c** Discuss Hospital formulary and Standard Treatment Guidelines: contents, preparation and its revision.[3 hrs]
- d** Discuss Store and Inventory Management: Design and Organization of drug store, types of materials stocked, storage contents; purchase and inventory control principles, purchase procedure, purchase order, procurement and stocking. Cold chain management, Vendor Selection/Prequalification, Internal audit.[4 hrs]
- e** Discuss Drug distribution systems in hospitals: types of drug distribution systems, dispensing to outpatients, ambulatory patients and inpatients, dispensing of controlled drugs, labelling, charging policy. Technology and Drug Distribution System.[4 hrs]
- f** Explain Central sterile supply unit and their management: types of material for sterilization, packing of materials prior to sterilization, sterilization equipment, supply of sterile materials, quality assurance of sterile supply. [3 hrs]

- g** Describe Manufacture of sterile and non-sterile products and their quality control: policy making of manufacturable items, demand and costing, personal requirements, manufacturing practice, master formula card, production control, manufacturing records. **[3 hrs]**
- h** Discuss Drug and poison information services: Drug information services and centers, activities, sources of information on drugs, diseases, treatment schedules, procurement of information, computerized services, critical evaluation of clinical trial reports and other literatures, medication errors. **[3 hrs]**
- i** Discuss Current Good Pharmacy Practice in hospital settings: current Guidelines and implementation status. **[2 hrs]**
- j** Describe Nuclear pharmacy: Clinical applications of radiopharmaceuticals, production of radiopharmaceuticals, methods of isotopic tagging, preparation of radio isotopes in laboratory using radiation dosimetry; radiation hazards and their prevention, specifications for radioactive laboratory. **[4 hrs]**
- k** Discuss surgical and medical devices **[3 hrs]**
- l** Explain total parenteral nutrition (TPN) **[3 hrs]**
- m** Discus computer application in Hospital Pharmacy **[2 hrs]**
- n** Explain Aantibiotic Stewardship and role of pharmacist. **[2 hrs]**

CLINICAL AND HOSPITAL PHARMACY

Subject: Practical	Year: Fourth	Code: BP 701 B
Full Marks: 50	Total Teaching hours: 90	Credit hour: 2

At the end of the course, students will be able to

1. Emergency Drugs

- a.** Identify ER drug list in Hospital Formulary
- b.** Discuss Indication, dose, side effects, contraindications, special precautions and mode of use of these ER drugs
- c.** Demonstrate ER Trolley in the ER Room of TUTH (For students of MMC) or any tertiary care center.
- d.** Visit to hospital pharmacy of TUTH (For students of MMC) or any tertiary care center for observing in the different ER drugs stocked there

2. Rational use of antimicrobials

- a.** Perform discussion by the students in small groups on different case studies related to antibiotic dispensing and counseling and presentation in the class
- b.** Perform discussion on the problem of irrational use of antimicrobials
- c.** Explain the ways of improving antimicrobial use, particularly in hospitals
- d.** Discuss antimicrobial stewardship program.

2. Adverse Drug Reactions (ADRs) with photograph demonstration of dermatological

ADRs

- a. Discuss overview of adverse drug reactions and causality assessment
- b. Discuss different types of drug-induced dermatological reactions
- c. Identify list of commonly used drugs that are well known to cause skin reactions
- d. Discuss overhead projection of colour transparencies showing different drug-induced skin reactions
- e. Evaluate case studies of skin reactions due to drugs
- f. Perform observation of real cases (if available on the day of practical)

4. Rational Therapeutics in Children

- a. Perform small group discussion by students on real and hypothetical case studies on pediatric prescribing, followed by presentation in the class
- b. Perform practical examples and exercises on pediatric drug dose calculation
- c. Perform problems of ARI and CDD in Nepal and National Programmes to tackle these problems

5. Drug Administration - Nursing Perspective

- a. Discuss drug administration by nurses in the wards
- b. Discuss role of nurses in drug handling
- c. Demonstrate Treatment Card (Cardex) and Nurse Drug Administration Chart (at the back of the Cardex)
- d. Perform counselling of patients on proper drug use
- e. Perform practical demonstration on proper techniques of giving injections

6. Drug Information

- a. Identify importance of drug information service
- b. Perform Demonstration of the question-answer database at the Drug Information Unit (DIU) of TUTH (For students of MMC) or any tertiary care center
- c. Discuss different topics featured in *Drug & Therapeutics Letter*
- d. Perform exercises in preparing answers to questions on drugs and therapeutics by using the drug information resources available at DIU

7. Emergency Management of Poisoned patients

- a. List common poisonings in Nepal
- b. Identify indications and contraindications of induced emesis and gastric lavage
- c. Identify emergency life support with demonstrations at ER Room of TUTH (For students of MMC) or any tertiary care center
- d. Identify Demonstration of gastric lavage at ER Room of TUTH (For students of MMC) or any tertiary care center
- e. Discuss and show activated charcoal
- f. Discuss and show antidotes
- g. Demonstrate ER setup for emergency management of acutely poisoned patients

8. Rational use of anti-tuberculosis drugs
 - a. Explain Drugs used in treating TB, standard treatment regimens recommended by National Tuberculosis Centre, importance of DOTS
 - b. Identify Real case studies of TB patients and their therapies
 - c. Perform visit to TB Centre at Thimi and orientation to the Centre's activities and exposure to drug management, distribution etc.
 - d. Perform visit to a DOTs Centre near by and observation of the DOTS in action

9. Essentials of a clinical trial
 - a. Discuss Phase I to IV clinical trials and discussion on trial designs
 - b. Evaluate reading clinical trial reports critically
 - c. Perform exercise by students on critical evaluation of trial reports

10. Ward visits with reference to medication history related to the management of
 - a. Cancer chemotherapy/ radiotherapy
 - b. Diabetic case
 - c. Epileptic case
 - d. Psychiatric case

11. Demonstration practicals on TDM of some drugs.
12. Perform Patient counseling (Hypertension, CHF, AMI, Asthma, Epilepsy, DM, PUD, RA)
13. Identify and correct incompatibilities in prescriptions.
14. Analyse prescriptions for drug interactions, over dosage.
15. Prepare drug packaging inserts
16. Identify hospital equipments and surgical accessories.
17. Identify drug store management & Inventory control (ABC Analysis).
18. Evaluate surgical dressings & surgical instruments, glass wares and other hospital supplies.
19. Discuss approaches on physical assessment skills.
20. Perform case studies on responding to symptoms.
21. Perform Total Parenteral Nutrition calculations.

Text Books: [Latest Editions]

1. Walker R, Edwards C. Clinical pharmacy and therapeutics, Churchill Livingstone. London.
2. Patil D. J. Hospital and Clinical Pharmacy. Nirali Prakashan; 2008.
3. Paradkar A. R. Hospital and Clinical Pharmacy. Pragati Books Pvt. Ltd.
4. Fell J. C, Allwood M. C. Textbook of hospital pharmacy. Blackwell scientific publications.
5. Stephens M. Hospital pharmacy. Pharmaceutical Press.
6. Whittlesea C, Hodson K. Clinical Pharmacy and Therapeutics E-Book. Elsevier Health Sciences.
7. Fell J. C, Allwood M. C. Textbook of hospital pharmacy. Blackwell scientific publications.