

ONE DAY PRE–WORKSHOP
ON
Revision of syllabus and Curriculum Content of
M. Pharm (Pharmacy Practice)

Hosted by Sri Adi Chunchanagiri College of Pharmacy
B.G Nagara, Karnataka – 571448

In Association with Rajiv Gandhi University of Health
Sciences, Karnataka
Bangalore – 560027

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A Report Submitted To
Rajiv Gandhi University of Health Sciences,
Bangalore

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PAPER I. CLINICAL PHARMACY PRACTICE

GOALS:

1. To develop skills to provide clinical pharmacy services
2. To gain knowledge in conduct of clinical research
3. To train the students in comprehensive patient care management

OBJECTIVES:

Upon completion of the course, it is expected that students will be able to:

1. Understand and perform the daily activities of clinical pharmacist
2. Identify relevant tests for specific disease states and interpretation of selected laboratory results (as monitoring parameters in therapeutics)
3. Identify appropriate sources of drug/poison information in answering the clinical queries.
4. Efficiently retrieve relevant and current literature and evaluate them (i.e. use databases)
5. Describe the theoretical basis for TDM services and other applications of Pharmacokinetics
6. Give appropriate recommendations for clinical dosing of specific drugs
7. Understand the conduct of clinical trials and use of statistical tests

SCHEME OF EXAMINATION:

THEORY

MAXIMUM MARKS: 150

i. INTERNAL ASSESSMENT

MAX MARKS: 50

- Written exam:----- 30 marks
- Seminar:----- 20 marks

ii. ANNUAL EXAMINATION:

MAX MARKS: 100

PRACTICAL:

MAXIMUM MARKS: 150

i. INTERNAL ASSESSMENT:

MAX MARKS: 50

- Practical exam:----- 30 marks
- Record:----- 20 marks

ii. ANNUAL EXAMINATION:

MAX MARKS: 100

- Synopsis:----- 15 marks
- Lab Data Evaluation:----- 40 marks
- Answering Drug Information Queries/Assessment of ADRs:---- 30 marks
- Viva:----- 15 marks

COURSE DESCRIPTION

THEORY

75 Hours (3 Hrs/wk)

- 1. Definition, Development and Scope of Clinical Pharmacy** **1 Hour**
- 2. Introduction to daily activities of a clinical pharmacist – Roles & Responsibilities** **6 Hours**
 - Drug therapy monitoring (medication chart review, clinical review, clinical pharmacist interventions)
 - Ward round participation
 - Medication history
 - Pharmaceutical care
- 3. Drug & Poison information** **10 Hours**
 - Introduction to drug information resources available
 - Systemic approach in answering DI queries
 - Critical evaluation of drug information and literature
 - Preparation of written and verbal reports
 - Establishing a Drug Information Centre
 - Poison information – organization & information resources
- 4. Pharmacovigilance** **10 Hours**
 - Basics of Adverse Drug Reactions(ADRs): Definition, Types and Risk Factors
 - Assessment of ADRs (Causality, Preventability, Predictability, Severity)
 - Spontaneous Reporting System
 - National Pharmacovigilance Programme of India: Structure, Operational Modality and functions.
- 5. Drug Utilization Evaluation (DUE) and Drug Utilization Review (DUR) – Definition and Cycle** **2 Hours**
- 6. Patient data analysis**
 - The patient's case history, its structure and use in evaluation of drug therapy & understanding common medical abbreviations and terminologies used in clinical practice **2 Hours**
 - Clinical laboratory tests used in the evaluation of disease states and interpretation of test results **12 Hours**
 - Haematological examination, Liver function tests, Renal function tests, Thyroid function tests
 - Pulmonary function tests
 - Tests associated with cardiac disorders
 - Fluid and electrolytic balance
 - Microbiological culture sensitivity tests
- 7. Clinical Pharmacokinetics and its Applications** **16 Hours**
 - Pharmacokinetic models
 - Compartment, Non-compartment and Physiological models
 - One and two compartment models – Oral and I V.

- Pharmacokinetic parameters like K_a , K_e , $t_{1/2}$, AUC, t_{max}
- Volume of distribution and Clearance– Renal & Non-renal
- Bioavailability and Bioequivalence studies — Design and conduct
- Multiple dosing — I V and oral-steady state
- Calculation of loading and maintenance doses
- Dose adjustment in renal failure, hepatic dysfunction, geriatric and paediatric patients
- Therapeutic Drug Monitoring (General aspects)

8. Clinical Applications of Statistical Analysis

6 Hours

- Parametric & Non-parametric tests
- Sample size calculation
- Tests of significance-chi square test, t-test and ANOVA
- Use of excel spreadsheet for data entry, execution of statistical tests and graphical presentation of results

9. Research Design & Conduct of Clinical Trials

10 Hours

- Good Clinical Practice guidelines (ICH & CDSCO)
 - Historical perspectives
 - Roles and responsibilities of sponsor, investigator and ethics committee
- Indian Clinical trial legislation (Schedule Y of Drugs and Cosmetics Act 1940 and Rules 1945)
- Quality Control and Assurance in Clinical Trials (Monitoring, Auditing, Inspections).

PRACTICALS

150 Hours (6 Hrs/wk)

Patient medication history interview, answering drug information questions, patient counseling, participation in ward rounds: General Medicine Department compulsory and minimum of three of the other departments viz. Paediatrics, Dermatology, OBG, Surgery and others.

1. Answering drug information queries (4)

(Queries related to Dosage, administration, Contraindications, Adverse drug reactions, Drug Interactions, drug use in pregnancy and lactation, Paediatrics and geriatrics, drug profile, efficacy and safety)

2. Case studies related to laboratory investigations (4)

3. Patient medication chart review and history interview (2)

4. Detection and assessment of adverse drug reactions and their documentation (3)

ASSIGNMENTS

Each student must submit any three of the following assignments:

1. Problem solving in Clinical Pharmacokinetics.
2. Literature evaluation pertaining to therapeutic range used in therapeutic monitoring of any two drugs frequently subjected for TDM.
3. Critical appraisal of two recently published articles in the biomedical literature, which deals with a drug or therapeutic issue.
4. Use of excel spreadsheets for data entry (Dummy) calculation and graphs.
5. Preparation of informed consent form for a study.

REFERENCES:

1. Basic skills in interpreting laboratory data – Scott LT, American Society of Health System Pharmacists Inc.
2. Practice Standards and Definitions - The Society of Hospital Pharmacists of Australia.1997
3. Clinical Pharmacokinetics - Rowland and Tozer, Williams and Wilkins Publication.
4. Biopharmaceutics and Applied Pharmacokinetics - Leon Shargel, Prentice Hall Publication
5. Relevant review articles from recent medical and pharmaceutical literature.
6. A Textbook of Clinical Pharmacy Practice - G. Parthasarathi, Karin Nyfort-Hansen, Milap C Nahata. Universities Press India Ltd.
7. Clinical Guidelines: Diagnosis & treatment Manual - MSF

JOURNALS:

1. Pharmaceutical Journal, Royal Pharmaceutical Society, London
2. Journal of Pharmacy Practice and Research, Society of Hospital Pharmacists of Australia
3. International Journal of Pharmacy Practice, United Kingdom
4. Hospital Pharmacist, UK
5. Indian Journal of Hospital Pharmacy
6. Indian Journal of Pharmacy Practice

PAPER II. PHARMACOTHERAPEUTICS - I

GOALS:

1. To train the students in drug therapy management of different diseases
2. To develop skills in students to identify and resolve any drug related problems
3. To appreciate the quality use of medicines and to follow evidence based medicine.

OBJECTIVES:

Upon completion of the course, it is expected that students will be able to:

1. Describe the pathophysiology of selected disease states and explain the rationale for drug therapy.
2. Summarize the therapeutic approach to management of these diseases including reference to the latest available evidence.
3. Use standard clinical guidelines as part of evidence based medicine.
4. Discuss the preparation of individualized therapeutic plans.
5. Identify the patient-specific parameters relevant in initiating drug therapy and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse outcomes)

SCHEME OF EXAMINATION:

THEORY

MAXIMUM MARKS: 150

i. INTERNAL ASSESSMENT

MAX MARKS: 50

- Written exam:----- 30 marks
- Seminar:----- 20 marks

ii. ANNUAL EXAMINATION:

MAX MARKS: 100

PRACTICAL:

MAXIMUM MARKS: 150

i. INTERNAL ASSESSMENT:

MAX MARKS: 50

- Practical exam:----- 30 marks
- Record:----- 20 marks

ii. ANNUAL EXAMINATION:

MAX MARKS: 100

- Synopsis:----- 15 marks
- Major case:----- 40 marks
- Minor case:----- 30 marks
- Viva:----- 15 marks

COURSE DESCRIPTION

THEORY

50 Hours (2Hrs/wk)

1. Pathophysiology and pharmacotherapy of diseases associated with following systems/diseases.

1.1 Cardiovascular system 10 Hours

- Hypertension, Congestive cardiac failure, Ischemic heart disease, Myocardial infarction, Arrhythmias, Hyperlipidaemias [2+2+2+2+1+1]

1.2 Respiratory system 5 Hours

- Asthma, Chronic obstructive airway disease, Drug induced pulmonary diseases [2+2+1]

1.3 Haematological diseases 3 Hours

- Anaemia, Deep vein thrombosis, Drug induced haematological disorders [1.5+1+0.5]

1.4 Rheumatic diseases 5 Hours

- Rheumatoid arthritis, Osteoarthritis, Gout, Systemic lupus erythematosus [2+1+1+1]

1.5 Gastrointestinal system 8 Hours

- Peptic ulcer disease, Reflux oesophagitis, Inflammatory bowel diseases, Hepatitis, Jaundice & Cirrhosis, Diarrhoea and constipation, Drug-induced liver diseases [2+1+1+2+1+2+1]

1.6 Skin and sexually transmitted diseases 4 Hours

- Psoriasis, Eczema and scabies, Syphilis and Gonorrhoea, Drug related skin reactions [1+0.5+1+1.5]

1.7 Pain management 4 Hours

- Pain pathways, Analgesics and NSAIDs, Neuralgias including post herpetic, trigeminal and glossopharyngeal neuralgia, Palliative care [0.5+1+1+0.5+1]

1.8 Immunology 3 Hours

- Autoimmunity – Definition, Classification, Mechanism of Autoimmune disease, Pathogenesis of autoimmunity, Immunoglobulins [2+1]

2. General Prescribing guidelines for 3 Hours

2.1 Paediatric patients

2.2 Geriatric patients

2.3 Pregnancy and breast feeding [1+1+1]

3. Introduction to rational drug use 5 Hours

3.1. Definition and scope

3.2. Irrational drug use and its impact, factors responsible for irrational drug use and strategies to improve rational drug use

3.3. Concept of essential drug list

3.4. Evidence based medicine

PRACTICALS

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow-up the progress and changes made in drug therapy in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at the end of the course for evaluation. A minimum of 10 cases should be presented and recorded covering most common diseases. The list of clinical cases should include follow-up of the clinical cases mentioned below from the day of admission till discharge. The same cases should be entered in the practical records following SOAP [Subjective, Objective, Assessment, Plan] format for cases in clinical pharmacy setting and FARM [Findings, Assessment, Resolution, Monitoring] format for cases in community pharmacy settings which involve treating patients with non-prescription drugs in minor ailments.

1. Hypertension
2. Heart failure
3. Myocardial infarction
4. Coronary heart disease
5. Asthma
6. Chronic obstructive pulmonary disease
7. Anaemia
8. Osteoarthritis
9. Rheumatoid arthritis
10. Gout
11. Peptic ulcer
12. Gastro oesophageal reflux disease
13. Hyperlipidaemia
14. Neuralgias
15. Psoriasis
16. Hepatitis

ASSIGNMENTS

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500-2000 words] should be submitted for evaluation.

MODEL ASSIGNMENTS

1. Management of idiopathic thrombolytic purpura
2. Therapy of Helicobacter pylori infection
3. Role of oral corticosteroids in chronic obstructive pulmonary disease

TEXT BOOKS:

1. Clinical Pharmacy and therapeutics – Roger and Walker, Churchill Livingstone publication.
2. Pharmacotherapy: A Pathophysiologic approach – Joseph T. Dipiro et al. Appleton & Lange.

REFERENCE BOOKS:

1. Pathologic basis of disease – Robins SL, W.B Saunders publication.
2. Pathology and therapeutics for Pharmacist: A basis for clinical pharmacy practice – Green and Harris, Chapman and Hall publication.
3. Clinical pharmacy and therapeutics – Eric T Herfindal, Williams and Wilkins and Wilkins Publication.
4. Applied therapeutics: the clinical use of drugs. Lloyd Young and koda-kimble MA [ISBN 0-33365881-7].
5. Avery's drug treatment, 4th edn, Adis International Limited.
6. Relevant review articles from recent medical and pharmaceutical literature.
7. Harrison's Principles of Internal Medicine — Dan L. Longo, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, J. Larry Jameson, Joseph Loscalzo, Eds., McGraw Hill Publication.

JOURNALS:

1. British Medical Journal
2. Annals of Pharmacotherapy
3. New England Journal of Medicine
4. Lancet
5. Indian Journal of Medical Research

PAPER III. PHARMACOTHERAPEUTICS-II

GOALS:

1. To train the students in drug therapy management of different diseases
2. To develop skills in students to identify and resolve any drug related problems
3. To appreciate the quality use of medicines and to follow evidence based medicine.

OBJECTIVES:

Upon completion of the course, it is expected that students will be able to:

1. Describe the pathophysiology of selected disease states and explain the rationale for drug therapy.
2. Summarize the therapeutic approach to management of these diseases including reference to the latest available evidence.
3. Use standard clinical guidelines as part of evidence based medicine.
4. Discuss the preparation of individualized therapeutic plans.
5. Identify the patient-specific parameters relevant in initiating drug therapy and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse outcomes).

SCHEME OF EXAMINATION:

THEORY

MAXIMUM MARKS: 150

iii. INTERNAL ASSESSMENT

MAX MARKS: 50

- Written exam:----- 30 marks
- Seminar:----- 20 marks

iv. ANNUAL EXAMINATION:

MAX MARKS: 100

PRACTICAL:

MAXIMUM MARKS: 150

iii. INTERNAL ASSESSMENT:

MAX MARKS: 50

- Practical exam:----- 30 marks
- Record:----- 20 marks

iv. ANNUAL EXAMINATION:

MAX MARKS: 100

- Synopsis:----- 15 marks
- Major case:----- 40 marks
- Minor case:----- 30 marks
- Viva:----- 15 marks

COURSE DESCRIPTION

THEORY:

50 Hours (2 Hrs/wk)

Pathophysiology and pharmacotherapy of disease associated with following systems/diseases

1.1 Renal system

4 Hours

- Acute renal failure, Chronic renal failure, Renal dialysis and transplantation, Drug induced renal diseases.

[1+1+1+1]

1.2 Endocrine system

6 Hours

- Diabetes, Thyroid diseases, Oral contraceptives, Hormone replacement therapy, Osteoporosis.

[2+1+1+1]

1.3 Nervous system

7 Hours

- Epilepsy, Parkinson's disease, Stroke and Transient ischemic attacks, Headache.

[2+1+1+2]

1.4 Psychiatric disorders

5 Hours

- Schizophrenia, Depression, Anxiety & Sleep disorders. Drug induced psychosis.

[1+2+1+1]

1.5 Ophthalmology

1 Hour

- Glaucoma, Eye infections

1.6 Infectious diseases

22 Hours

- General guidelines for the rational use of antibiotics. Meningitis, Respiratory tract infections, Gastroenteritis, Bacterial endocarditis, Septicaemia, Otitis media, Urinary tract infections, Tuberculosis, Leprosy, Malaria, Helmentiasis, HIV and opportunistic infections, Fungal infections, Rheumatic fever.

[1+1+3+1+1+1+1+2+2+1+2+1+3+1+1]

1.7 Oncology

5 Hours

- General principles of cancer chemotherapy, Commonly used cytotoxic drugs, Chemotherapy of lung cancer, haematological malignancies, Management of nausea and vomiting

[1+1+1+1+1]

PRACTICALS

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow-up the progress and changes made in drug therapy in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at the end of the course for evaluation. A minimum of 10 cases should be presented and recorded covering most common diseases. The list of clinical cases should include follow-up of the clinical cases mentioned below from the day of admission till discharge. The same cases should be entered in the practical records following SOAP [Subjective, Objective, Assessment, Plan] format for cases in clinical pharmacy setting and FARM [Findings, Assessment, Resolution, Monitoring] format for cases in community pharmacy settings which involve treating patients with non-prescription drugs in minor ailments.

1. Type 1 Diabetes mellitus
2. Type 2 Diabetes mellitus
3. Hypothyroidism
4. Hyperthyroidism
5. Acute renal failure
6. Chronic renal failure
7. Schizophrenia
8. Depression
9. Anxiety
10. Epilepsy
11. Parkinson's disease
12. Stroke
13. Infectious diseases [any five].

ASSIGNMENTS

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments (1500-2000 words) should be submitted for evaluation.

MODEL FOR ASSIGNMENTS

1. Management of Multidrug resistant tuberculosis
2. Use of antiplatelet in the secondary prevention of stroke
3. Secondary failure to oral hypoglycaemic agents and its management

TEXT BOOKS:

1. Clinical Pharmacy and Therapeutics - Roger and Walker, Churchill Livingstone publication
2. Pharmacotherapy : A Pathophysiological approach – Joseph T. Dipiro et al. Appleton& Lange

REFERENCE BOOKS:

1. Pathologic basis of disease – Robins SL, W.B Saunders publication.
2. Pathology and therapeutics for Pharmacists: A Basis for Clinical Pharmacy Practice – Green and Harris, Chapman and Hall publication.
3. Clinical Pharmacy and Therapeutics-Eric T. Herfindal, Williams and Wilkins Publication.
4. Applied Therapeutics: The clinical use of drugs. Lloyd Young and Koda – Kimble MA (ISBN 0-333-65881-7).
5. Avery's drug treatment, 4th edn, 1997, Adis International Limited.
6. Relevant review articles from recent medical and pharmaceutical literature.
7. Harrison's Principles of Internal Medicine, —Dan L. Longo, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, J. Larry Jameson, Joseph Loscalzo, Eds., McGraw Hill Publication.

JOURNALS:

1. British Medical Journal
2. Annals of Pharmacotherapy
3. New England Journal of Medicine
4. Lancet
5. Indian Journal of Medical Research

PAPER IV. HOSPITAL & COMMUNITY PHARMACY

GOALS:

1. To train the students in the management of hospital and community pharmacy services.
2. To train the students to conduct pharmacoepidemiological and pharmacoeconomic studies.

OBJECTIVES:

Upon completion of the course, it is expected that students will be able to:

1. Manage drug distribution system in the hospital setup
2. Develop skills in maintaining community pharmacy
3. Participate in health screening services
4. Participate in the pharmacoepidemiological and pharmacoeconomic studies

SCHEME OF EXAMINATION:

THEORY

MAXIMUM MARKS: 150

i. INTERNAL ASSESSMENT

MAX MARKS: 50

- Written exam:----- 30 marks
- Seminar:----- 20 marks

ii. ANNUAL EXAMINATION:

MAX MARKS: 100

PRACTICAL:

MAXIMUM MARKS: 150

i. INTERNAL ASSESSMENT:

MAX MARKS: 50

- Practical exam:----- 30 marks
- Record:----- 20 marks

ii. ANNUAL EXAMINATION:

MAX MARKS: 100

- Synopsis:----- 15 marks
- Major case (Inventory control)----- 40 marks
- Minor case (Patient counseling):----- 30 marks
- Viva:----- 15 marks

COURSE DESCRIPTION

THOERY:

50 Hours (2 Hrs/wk)

A. HOSPITAL PHARMACY

1. Professional Role of Hospital Pharmacist

1 Hour

The role of the hospital pharmacy department and its relationship with other hospital departments and staff.

2. Hospital drug policy

3 Hours

- Drugs & Therapeutics Committee, Formulary and guidelines, Other hospital committees such as Infection Control Committee and Research and Ethics Committee.

3. Hospital pharmacy management

5 Hours

- Organization of Hospital Pharmacy: Staff (professional and non-professional), materials (drugs, non-drug consumables), financial (drug budget, cost centers, source of revenue, revenue collection), infrastructure requirements (building, furniture and fittings, specialized equipment, maintenance and repairs).

4. Drug Supply Chain Management

7 Hours

- Purchasing (Vendor selection), warehousing (storage conditions, expiry date control, recycling of drugs, stock taking, drug recalls), Inventory control principles and methods, Drug distribution methods (ward stock, individual patients dispensing, unit dose), specific requirements for in-patients, out-patients, casualty/emergency, operation theatres, ICU/CCU, Management of controlled drugs, Hospital waste management.

5. Hospital Pharmacy Preparations

6 Hours

- **Parenterals:** Total parental nutrition, Large volume parenterals, Preparation of IV admixtures, Cytotoxic drugs
- **Non-Parenterals:** Oral solid dosage forms, oral liquid dosage forms, topical preparations.
- Radio pharmaceuticals
- Unit doses
- Labeling of preparations
- Quality control

6. Education and training

2 Hours

- Training of technical staff, Training and continuing education for pharmacists, Pharmacy students, Medical staff and students, Nursing staff and students, Formal and informal meetings and lectures, Drugs and therapeutics newsletter, Patient information leaflets- Content, Layout, Design, evaluation and cautionary labels.

B. COMMUNITY PHARMACY

- | | |
|---|----------------|
| 1. Professional Role & Responsibilities of Community Pharmacist | 1 Hour |
| The role of community pharmacy and its relationship with other local health care providers. | |
| 2. Prescribed medication order - Interpretation and legal requirements (Good Prescription and dispensing Practices) | 1 Hour |
| 3. Communication skills – communication with prescribers and patients including counseling techniques | 2 Hours |
| 4. Over the counter (OTC) medication – Definition, role of pharmacist in dispensing the OTC medicines, drug interactions of OTC drugs. | 1 Hour |
| 5. Primary health care in community pharmacy | 3 Hours |
| Family planning, first aid, participation in National Health Programs, (immunization, NRHM programs, DOTS, HAART etc.) smoking cessation, Health Screening Programs. | |
| 6. Services to nursing home/clinics | 1 Hour |
| 7. Community pharmacy management | 6 Hours |
| Financial, materials, staff, infrastructure requirements, drug information resources, computers, Schedule in Drugs Control Act, Pharmacy layout, Consumerisation, Softwares used in community pharmacy, Indirect taxes associated with sale of pharmaceuticals (Brief overview of Value Added Tax, Service Tax, Sales Tax), Pharmacy Licensing Procedures (Brief overview of licenses related to Drugs Control Department, Food Safety Authority of India, State Government Excise & Labour Act). | |
| 8. Code of ethics for community pharmacist | 1 Hour |
| 9. Pharmacoepidemiology | 5 Hours |
| Definition, scope and study designs | |
| 10. Pharmacoeconomics | 3 Hours |
| Definition and scope, Types of pharmacoeconomic evaluation | |
| 11. Pharmaceutical Care Principles – Good Pharmacy Practice | 2 Hours |

TEXT BOOKS (LATEST EDITION):

1. Hospital pharmacy – Hassan WE. Lec and Febiger publication
2. Text book of hospital pharmacy – Allwood MC and Blackwell
3. A Textbook of Pharmacy Practice – Dr. B. D. Miglani, K. G. Revikumar. Career Publication

REFERENCES BOOKS (LATEST EDITION):

1. Avery's Drug Treatment, 4th Edn, 1997, Adis International Limited
2. Remington Pharmaceutical Sciences
3. Relevant review articles from recent medical and pharmaceutical literature
4. International society for pharmacoepidemiology (<http://www.pharmacoepi.org/>) & International society for pharmacoeconomics and outcomes research (<http://www.ispor.org/>) websites.

JOURNALS:

1. Hospital Pharmacist, U.K.
2. Indian Journal of Hospital Pharmacy
3. Indian Journal of Pharmacy Practice
4. Pharmacoepidemiology and Drug Safety
5. Value in Health

OTHERS:

- www.mohfw.nic.in/

PRACTICALS

1. Patient medication counseling for common diseases like Diabetes, Asthma, Hypertension, Tuberculosis (TB), Chronic Obstructive Pulmonary Disease (COPD), Anemia, Dyslipidemia etc. (8)
2. Inventory control using ABC analysis (3) and VEN analysis. (2)
3. Unit dose preparation and labeling for Pediatrics, Oncology, Cardiology etc. in Hospitals. (2)

ASSIGNMENTS FOR COMMUNITY PHARMACY

1. Critical study of two community pharmacies in the neighborhood for schedule M compliance
2. Comparison of prescription handling in two community pharmacies
3. Audit of OTC sales over a 24 hour period in a local community pharmacy
4. Role of community pharmacists in health education, family planning, first aid, smoking cessation
Health screening programs, immunization, etc.
5. Finance and material management in community pharmacies
6. Critical study of two community pharmacies in large hospitals
7. Code of ethics for community pharmacies

8. Summary of the advice and recommendations which should be provided to the following customers at a community pharmacy.
 - A 57 year old woman who requests a cough mixture. She has no other associated symptoms, and is being treated for diabetes and hypertension.
 - A young mother requesting an anti-diarrheal medication for her 18 month old son
 - A patient with confirmed anemia who has been advised by their Doctor to take Global TM
 - A 25 year old man who wishes to purchase medication for temporary relief of myalgia and fever
9. Collection and completion of licensing forms associated with the licensing process of community pharmacy from various government departments

ASSIGNMENTS FOR HOSPITAL PHARMACY

1. You have been asked to establish a drug information centre in a 1200 bed teaching hospital. Prepare a written report for the hospital's administration summarizing the resources you will need to do this, including a budget for both initial and ongoing expenditure.
2. Select a new drug, which has recently been marketed in India for the first time. Prepare a report for a hospital's Drug and Therapeutics committee, and make a case either for or against the addition of this new drug on the hospital's formulary. Issues, which you may need to cover, include the drug's pharmacology, its clinical use, the opinions of relevant hospital consultants and a cost comparison with existing therapies for the same condition for which the new drug is indicated.
3. Describe and evaluate the layout and workflow patterns in the dispensary of a local hospital. Include in your report any improvements, which you would recommend to achieve more efficient work practices.
4. Examine and report on the drug distribution methods used in a local hospital.
5. Prepare one inventory for the following:
 - a. Drugs and Surgical, based on ABC and VED Analysis.
 - b. Injection ASV
 - c. Injection Adrenaline
 - d. Injection Deriphylline
 - e. Injection Garamycin
 - f. Bandage cloth, vasofix
 - g. Disposable Syringes
 - h. Antacid Tablets
 - i. Tablet Erythromycin
 - j. Vitamin tablets
6. Study the Store Management in Teaching/ District/Mission hospitals for the following aspects:
 - a) Receipt of stores b) Storage c) Issue d) Documentation.
7. Procurements and storage of vaccine, sera and biological preparations in District Health office.