

Contents

<i>Preface</i>	(vii)
----------------------	-------

UNIT 1

INTRODUCTION AND COMMUNITY

PHARMACY MANAGEMENT

1.1 Community Pharmacy.....	2
1.1.1 Definition	2
1.1.2 Scope of Community Pharmacy.....	2
1.1.2.1 Drug information about their action	2
1.1.2.2 Drug utilization	3
1.1.2.3 Drug distribution	3
1.1.2.4 Drug selection	3
1.1.2.5 Patient counseling and evaluating	4
1.1.3 Role and Responsibilities of Pharmacist	4
1.1.4 Code of Pharmaceutical Ethics.....	10
1.1.4.1 Pharmacist in relation to his job.....	10
1.1.4.2 Pharmacist in relation to his trade	12
1.1.4.3 Pharmacist in relation to medical profession	12
1.1.4.4 Pharmacist in relation to his profession	13
1.1.5 Pharmacist OATH.....	13
1.2 Community Pharmacy Management.....	14
1.2.1 Objectives.....	14
1.2.1.1 Function of materials management	14
1.2.2 Legal Requirements.....	15
1.2.2.1 Legal requirements in purchasing	15
1.2.2.2 Legal requirements involved in payment of price.....	15
1.2.2.3 Legal requirements in pricing of bulk drugs	15
1.2.2.4 Legal requirements in pricing drug formulation ...	16
1.2.3 Staff Management	16
1.2.3.1 Definition	16
1.2.3.2 Salient features of staffing.....	16
1.2.3.3 Importance of staffing	17
1.2.4 Material Management	17

1.2.5	Stocking.....	17
1.2.5.1	Objectives of stocking.....	17
1.2.5.2	Functions of stocking	18
1.2.6	Arrangements of Drugs in Drug Store	18
1.2.6.1	According to manufacturer.....	18
1.2.6.2	According to pharmacological action	18
1.2.6.3	Alphabetical order.....	18
1.2.6.4	As per old stock and date of expiry.....	18
1.2.6.5	Location of stores for stocking.....	18
1.2.7	Coding or Codification.....	19
1.2.7.1	Methods of codification	20
1.2.8	Space Layout.....	21
1.2.8.1	Objectives of an ideal plant layout.....	22
1.2.8.2	Types of layout.....	22
1.2.9	Selection of Site	25
1.2.9.1	Importance of plant location or site.....	25
1.2.10	Plant Location-Factors Influencing.....	25
1.2.10.1	Fundamental or primary factors	26
1.2.10.2	Derived (secondary) factors	27
1.2.11	Special provisions of Factory Premises: Location	28
1.2.12	Use of Computers in Pharmacy.....	29
1.2.12.1	Computer aided design of drugs.....	30
1.2.12.2	Drug information services.....	30
1.2.12.3	Information system in pharmaceutical industries..	30

UNIT 2

PRESCRIPTION AND INVENTORY CONTROL

2.1	Prescription	32
2.1.1	Parts of Prescription	32
2.1.2	Legality and Identification of Medication.....	32
2.1.2.1	Drug interactions incompatibility.....	34
2.1.2.2	Types of interactions	34
2.2	Inventory Control.....	37
2.2.1	Introduction	37
2.2.2	Objectives of Inventory Control.....	38

2.2.3	Functions of Inventory Control	39
2.2.4	Types of Inventories	40
2.2.5	Techniques of Inventory Control	40
2.2.5.1	ABC analysis or ABC method	40
2.2.5.2	VED analysis.....	41
2.2.5.3	Perpetual inventory control systems.....	42
2.2.5.4	Lead time method	44
2.2.5.5	Safety stock method	44
2.2.5.6	Minimum and maximum stock levels	44
2.2.5.7	Economic order quantity (EOQ) method	45
2.2.5.8	HML classification.....	48
2.2.5.9	FSN classification	48
2.2.6	Re-order Quantity Level.....	49
2.2.7	Safety Stocks	50
2.2.8	Just-in-time Inventory Control	51
2.2.9	Modern Inventory Control Systems	52
2.2.9.1	Vendor managed inventory (VMI).....	52
2.2.9.2	Radiofrequency identification (RFID) microchips	53
2.2.9.3	Material requirement planning (MRP).....	54
2.3	Inventory Control in Warehouses	54
2.3.1	Introduction	54
2.3.2	Principle Features of Traditional Warehouse Activity	55
2.3.2.1	Receiving and putting away	55
2.3.2.2	Picking and packaging	57
2.3.2.3	Shipping	57

UNIT 3

COMMUNICATION SKILLS, PHARMACEUTICAL CARE, PATIENT COUNSELING AND COMPLIANCE

3.1	Communication Skills.....	60
3.1.1	Empathy	61
3.1.2	Non-Verbal Communication	61
3.1.3	Verbal Communication	62
3.1.3.1	Language	62

3.1.3.2	Interactive communication	62
3.1.3.3	Listening skills	62
3.1.4	Communication with the Patients.....	63
3.1.4.1	Medication history interviews	63
3.1.4.2	Labeling medicines	63
3.1.4.3	Patient information leaflets (PILs)	63
3.1.4.4	Patient medication sheets	64
3.1.4.5	Medication counseling for patients	64
3.1.5	Strategies to Overcome Communication Barriers.....	64
3.1.6	Patient Counseling.....	65
3.1.6.1	Tips for good counseling.....	67
3.1.7	Communication Skills for Effective Counseling.....	67
3.1.8	Steps During Patient Counseling.....	68
3.1.8.1	Preparing for the session	68
3.1.8.2	Opening the session.....	69
3.1.8.3	Counseling content	69
3.1.8.4	Closing the session	70
3.1.9	Outcomes of Patient Counseling	70
3.1.10	Techniques for Patient Counseling.....	71
3.1.10.1	Patient-information leaflets	71
3.1.10.2	Advisory labels	71
3.2	Compliance	74
3.2.1	Definition	74
3.2.2	Factors Affecting Patient Compliance	75
3.2.2.1	Patients	75
3.2.2.2	Disease	75
3.2.2.3	Taste of medication	75
3.2.2.4	Administration of medication	75
3.2.2.5	Cost of medication	75
3.2.2.6	Patients may be asymptomatic or symptoms subside	76
3.2.2.7	Adverse events	76
3.2.2.8	Duration therapy	76
3.2.2.9	Patient/health professional interaction	76

3.2.2.10	Failure to comprehend the importance of therapy	76
3.2.2.11	Poor understanding of the instructions	76
3.2.3	Role of Pharmacist in Improving Patient Compliance	76
3.2.3.1	Identification of the risk factors	77
3.2.3.2	Development of treatment plan	77
3.2.3.3	Patient education	77
3.2.3.4	Patient motivation	77
3.2.3.5	Compliance aids	78
3.2.3.6	Monitoring therapy.....	78
3.3	Patient Care.....	79
3.3.1	Definition and Principles of Pharmaceutical Care	79

UNIT 4

OTC MEDICATIONS AND HEALTH SCREENING SERVICES

4.1	OTC Medications.....	82
4.1.1	OTC Medications: General Introduction.....	83
4.1.2	OTC Medications: History	83
4.1.3	OTC Medications: Reasons for Prevailing.....	84
4.1.3.1	Shortage of time and comfort	84
4.1.3.2	Cheaper in price	84
4.1.3.3	Availability	84
4.1.3.4	Level of literacy and awareness	84
4.1.3.5	Self-care	84
4.1.3.6	Advertisements.....	84
4.1.4	OTC Medications: Significance	85
4.1.4.1	Benefits and risks of switching from prescription drugs to OTC medications.....	85
4.1.5	OTC Medications: Vulnerable Group of Users.....	86
4.1.5.1	Do's and don'ts for each class.....	86
4.1.6	OTC Medications: List of Commonly Employed Medications.....	90
4.1.7	OTC Medications: Rational Drug Use	91
4.1.8	OTC Medications: Patient Counselling and Pharmacist	91

4.1.9	Implications for Pharmacist.....	92
4.1.9.1	Family pharmacist: need of the hour.....	92
4.1.9.2	Appropriate patient counseling	93
4.1.9.3	Communication: an essential tool	93
4.1.9.4	In-depth subject knowledge: Its proper application.....	93
4.1.9.5	May I help you? – Inculcation of helping attitude.....	94
4.1.9.6	Pharmacist-doctor-patient: A vital triangular relationship	94
4.1.10	Hospital and community pharmacist: essential component of triangle.....	95
4.2	Health Screening Services	96
4.2.1	Introduction	96
4.2.2	Types of Health Screening Tests.....	96
4.2.2.1	Primary health screening tests	96
4.2.2.2	Secondary health screening tests	96
4.2.3	Significance of Health Screening Services	97
4.2.4	Importance of Laboratory Test Results	97
4.2.5	Lung Function Test	98
4.2.5.1	Spirometry	98
4.2.5.2	Gas diffusion test.....	99
4.2.5.3	Body plethysmography	99
4.2.5.4	Inhalational challenge test	100
4.2.5.5	Excessive stress test	100
4.2.6	Estimation of Blood Pressure	101
4.2.6.1	Mercury sphygmomanometer	101
4.2.6.2	Finger monitors	102
4.2.6.3	Digital monitors	103
4.2.6.4	Aneroid sphygmomanometer	103
4.2.7	Blood Glucose Monitoring.....	104
4.2.7.1	Digital glucometers/ blood glucose meters	105
4.2.7.2	Recent and welcome advances include	105
4.2.7.3	GOD-POD test	106
4.2.7.4	Nelson and somogyi’s method	107
4.2.8	Evaluation of Blood Cholesterol	107
4.2.9	Health Related Quality of Life (HRQL).....	108

UNIT 5

HEALTH EDUCATION

5.1 Health Education..... 110

 5.1.1 WHO Definition of Health..... 110

 5.1.2 Objectives of World Health Organization..... 110

5.2 Health Promotion..... 110

 5.2.1 Classification of Health Promotion Activities 110

 5.2.2 Models of Health Promotion 111

 5.2.2.1 Medical approach 111

 5.2.2.2 Behavioral change 111

 5.2.2.3 Education approach 111

 5.2.2.4 Patient-centered approach 111

 5.2.2.5 Patient-centered approach 111

 5.2.2.6 Societal change 111

 5.2.3 Role of Pharmacists..... 112

 5.2.3.1 Sales of goods other than medicines 112

 5.2.3.2 Sales of medicine 112

 5.2.3.3 Prescription medicines 112

 5.2.3.4 Responding to symptoms 112

5.3 Health Care for Pregnant Women..... 112

 5.3.1 Factors Affecting Placental Drug Transfer..... 113

 5.3.2 Health Care in Pregnant and Breast Feeding Woman..... 115

 5.3.2.1 Planning for pregnancy 115

 5.3.2.2 Proper pathological monitoring 115

 5.3.2.3 Counseling 115

 5.3.2.4 Detection of fetus abnormality 116

 5.3.3 Precautions While Prescribing/Administering Drugs to a Pregnant Woman..... 116

 5.3.4 Care for Nursing Mother..... 116

 5.3.5 Transfer of Drugs into Breast Milk 117

 5.3.6 Pre-Administration Considerations 117

5.4 Health Care of Geriatric Patients 118

 5.4.1 OTC Medications: Strategies to be Adopted by Elderly Patients 120

5.5	Health Care for Pediatrics	121
5.6	Communicable Diseases	123
5.6.1	Modes of Transmission	123
5.6.2	Preventive Measures	123
5.7	Nutrition	124
5.7.1	Carbohydrates.....	127
5.7.2	Fats	128
5.7.3	Proteins.....	129
5.7.4	Minerals.....	129
5.7.5	Vitamins	130
5.8	Role of Pharmacist in Family Planning	132

UNIT 6

PHARMACOECONOMICS AND PHARMACOEPIDEMOLOGY

6.1	Pharmacoeconomics.....	136
6.1.1	Introduction	136
6.1.2	Steps for Conducting a Pharmacoeconomic Evaluation	138
6.1.2.1	Cost-minimization analysis (CMA)	141
6.1.2.2	Cost benefit analysis (CBA)	141
6.1.2.3	Cost-effective analysis (CEA)	141
6.1.3	Case Studies	141
6.1.3.1	Formulary decision-making	141
6.1.3.2	Cost of illness	142
6.1.3.3	Cost benefit	142
6.1.3.4	Cost-effectiveness	142
6.1.3.5	Cost utility.....	142
6.2	Pharmacoepidemiology.....	143
6.2.1	Aims and Applications of Pharmacoepidemiology	143
6.2.2	Levels of Pharmacoepidemiological Studies.....	144
6.2.2.1	Micro level	144
6.2.2.2	Macro level	144
6.2.2.3	Meso level	144
6.2.3	Types of Studies	144

6.2.4	Advantages and Disadvantages of Pharmacoepidemiological Studies	146
6.2.4.1	Randomized control trials	146
6.2.4.2	Cohort studies and prospective studies	146
6.2.4.3	Retrospective cohort.....	146
6.2.4.4	Case control study	147
6.2.4.5	Case reports.....	147
6.2.4.6	Case series	148
6.2.4.7	Trend analysis	148
6.2.4.8	Database studies	148
6.2.5	Measuring Drug Use: Units of Use	149
6.2.5.1	Monetary unit	149
6.2.5.2	In prescription terms	149
6.2.5.3	Number of units of drugs	150
6.2.5.4	Defined daily dose (DDD)	150
6.2.5.5	Outcome measures of drug.....	150
6.2.5.6	Risk	151
6.2.6	Evidence Based Management (EBM) and its Co-relation with Pharmacoepidemiology.....	152

UNIT 7

RATIONAL DRUG THERAPY

7.1	Rational Drug Therapy (RDT).....	154
7.1.1	Objectives of Rational Drug Therapy	154
7.1.2	Factors Stimulating the Concept of Essential Drugs.....	155
7.1.3	Principles of Essential Drug Concept.....	155
7.1.3.1	Maximum treatment with minimum medicines .	155
7.1.3.2	Adequate drug utilization	156
7.1.3.3	Economic and efficient carrying out activities ...	156
7.1.3.4	Proper information to patients	156
7.1.4	Role of Pharmacist in Rational Drug Therapy (RDT).....	156
7.1.4.1	Counseling of patients and physician	156
7.1.4.2	Stating adverse effects of drugs	156
7.1.4.3	Drug procurement	156
7.1.4.4	List preparation	156
7.1.4.5	Inventory control.....	157

7.1.4.6	Pharmaceutical care.....	157
7.1.4.7	Promotion of RDU	157
7.2	Impact of Essential Drugs	157
7.2.1	Essential Drug indicators	158
7.2.1.1	Prescribing indicators	158
7.2.1.2	Patient care indicators	158
7.2.1.3	Facility indicators.....	158
7.2.1.4	Complimentary indicators.....	158
7.2.2	Selection of Essential Drugs	159
7.2.2.1	Pattern of disease	159
7.2.2.2	Cost factor	159
7.2.2.3	Storage conditions	159
7.2.2.4	Treatment facilities	159
7.2.2.5	Patient compliance	159
7.2.3	Model List of Essential Drugs.....	159
7.2.4	Evaluation of Irrational Use of Drugs	160
7.2.4.1	Diminished quality of drug therapy	160
7.2.4.2	Psychological impact.....	160
7.2.4.3	Wastage of resources.....	161
7.2.4.4	Increased risk of unwanted effects	161
7.2.5	Irrational Prescribing Practice	161
7.2.5.1	Prescribing drugs with no value	161
7.2.5.2	Prescription for self-limiting conditions	161
7.2.5.3	Over doing and under dosing	161
7.2.5.4	Preference to costly drugs	161
7.2.5.5	Improper dosage regimen and monitoring of the medication chart	161
7.2.6	Activities Involved in Promotion of Rational Drug Use	162
7.2.6.1	Adoption of essential drug concept.....	162
7.2.6.2	Counseling of health professionals in RDT	162
7.2.6.3	Development of evidence-based clinical guidelines.....	162
7.2.6.4	Consumer education	162
	Bibliography	163