JHARKHAND
Rai University
UGC RECOGNISED UNIVERSITY
ACCREDITED BY NAAC

PRACTICAL LAB MANUAL

COMMUNITY PHARMACY AND MANAGEMENT

D. Pharm IInd Year

Contents

SYLLABUS

1. Handling of prescriptions with professional standards, reviewing prescriptions, checking for legal compliance and completeness.

2. Identification of drug-drug interactions in the prescription and follow-up actions.

3. Preparation of dispensing labels and auxiliary labels for the prescribed medications.

4. Providing the following health screening services for monitoring patients / detecting new patients (one experiment for each disease)

- Blood Pressure Recording
- Capillary Blood Glucose Monitoring
- Lung function assessment using Peak Flow Meter and incentive spirometer
- Recording capillary oxygen level using Pulse Oximeter
- BMI measurement

5. Providing counselling to simulated patients for the following chronic diseases / disorders including education on the use of devices such as insulin pen, inhalers, spacers, nebulizers, etc. where appropriate (one experiment for each disease)

- Type 2 Diabetes Mellitus
- Primary Hypertension
- Asthma
- Hyperlipidaemia
- Rheumatoid Arthritis

6. Providing counselling to simulated patients for the following minor ailments (any three) Headache, GI disturbances (Nausea, Vomiting, Dyspepsia, diarrhoea, constipation), Worm infestations, Pyrexia, Upper Respiratory Tract infections, Skin infections, Oral and dental disorders.

7. Appropriate handling of dummy dosage forms with correct administration techniques - oral liquids with measuring cup/cap/dropper, Eye Drops, Inhalers, Nasal drops, Insulin pen, nebulizers, different types of tablets, patches, enemas, suppositories.

Exp No- 1 **Date:**

Handling of prescriptions with professional standards

Aim: To study and report the handling of prescription with professional standard.

Theory

Prescription

A prescription is a written order from a registered physician, a dentist, or a veterinarian or a surgeon or any other person licensed by law to prescribe drugs, containing instructions for preparation and dispensing to the pharmacist along with the mode of administration for the patient. Pharmacist may accept a prescription on telephone in an emergency and it needs to be followed by a regular written prescription.

PARTS OF A PRESCRIPTION

Prescriptions are generally written on a typical format which is usually kept as pads. A typical prescription consists of following parts:-

1. Date: It helps a pharmacist to find out the date of prescribing and date of presentation for filling the prescription.

2. Name, age, sex and address of the patient: Name, age, sex and address of the patient must be written in the prescription because it serves to identify the prescription.

3. Superscription: It is represented by a symbol & which is written before writing the prescription. is an abbreviation of the Latin word recipe, meaning You take' (Take thou).

4. Inscription: This is the main part of the prescription order, contains the names and quantities of the prescribed ingredients.

5. Subscription: This comprises direction to the pharmacist for preparing the prescription and number of doses to be dispensed.

6. Signature: This consists of the direction to be given to t patient regarding the administration of the drug.

7. Renewal instructions: The prescriber indicate on every prescription order, whether it may be renewed and if so, how many times.

8. Signature, address, and registration number of the prescriber: The prescription must bear the signature of the prescriber along with its registration number and address.

Handling of Prescription

The following procedure should be adopted by the pharmacist while handling the prescription for compounding and

1. Receiving dispensing: The prescription should be received from the patient by the pharmacist himself.

2. Reading and checking: On receiving a prescription, always check it that it is written in a proper format i.e. doctor's pad or OPD slip of the hospital/nursing home and signed by the prescriber along with date.

3. Collecting and weighing the materials: Before compounding the prescription, all the materials required for it, should be collected O the left hand side of the balance. After weighing the material it should be shifted to right hand side of the balance.

4. Compounding, labelling and packaging: Compounding should be carried out in a neat place. All the equipment etc. required should be thoroughly cleaned and dried. Only one prescription should be compounded at one time. The compounded medicaments should be filled in suitable containers depending on its quantity and use. The filled containers are suitably labelled. White plain paper of good quality should be used for labelling the containers. The size of the label should be proportional to the size of the container which is written or typed, giving all the desired information. While delivering the prescription to the patient, the pharmacist should explain the mode of administration, direction for use, and storage.

Observation:

Report:

Exp No- 2 **Date:**

Study of drug drug interaction

Aim: To study and report the identification of Drug-Drug interaction (Activity decrease) in the prescription**.**

Theory:

Prescription

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Drug-Drug interaction

A drug interaction is a reaction between two (or more) drugs or between a drug and a food, beverage, or supplement. "The effects of drugs altered by another drug or food that is prior or concurrent administration with it" Then it is termed as Drug-Drug or Drug-food interaction.

The mechanism of drug interaction comprises pharmacokinetic and pharmacodynamics which means what the body does to the drug and drug does to the body respectively. Kinetic includes drug absorption, distribution, metabolism and elimination, whereas pharmacodynamics is the numerous actions of drug on the body systems or their organs.

Elaborate different drug-drug interactions.

Analgesic Drug Interactions:

S.No	**Combination**	**Mechanism of Interaction**	**Clinical significance**
1.	Aspirin and probenecid	Both compete for same binding site on plasma albumin.	Uricosuric action of probenecid is decreased. Aspirin cannot be given in gout with probensecid.
2.	Aspirin and Heparin, Warfarin (Anticoagulants)	Aspirin potentiates the activity of anticoagulants by interfering with binding site and decreasing platelets (thrombocytes) activity.	Chances of mucosal bleeding are very high. e.g. Nesal and gastric. During oral anticoagulant therapy aspirin should be avoided.
3.	Aspirin and urine alkalinizer	Change in pH of urine towards alkaline, which inhibits reabsorption of aspirin at renal tubules.	Aspirin's serum concentration (level) is reduced. A physician should not prescribe both these drugs at a time.

Diuretic Drug Interactions:

S.No	Combination	Mechanism of Interaction	Clinical significance
1.	Frusemide, Thiazides and Antidiabetics	The action of sulphonyl ureas antagonizes, the loss of potassium may also be responsible for this effect.	Patient should be given potassium supplement. A diabetic patient should be monitored and substituting less diabetogenic diuretic.
2.	Thiazides and Antihypertensive	Diuretics potentiate effect of methyl-dopa and guanethedine.	This combination is valuable for the physician. The patient should be monitored for excessive hypotension.
3.	Thiazides, Acetazolamide and Quinidine	Diuretics make urine alkaline, results into increase in reabsorption of quinidine at renal tubules.	Thiazides shows additive effect with quinidine's parenteral administration. Care should be taken for urine alkalinisation during quinidine therapy.

Cardiovascular drugs interaction:

S.No	Combination	Mechanism of Interaction	Clinical significance
1.	Cardiac glycoside Digitalis and Antacids	GIT absorption of cardiotonics is impaired by Aluminium hydroxyl gel or magnesiumn trisilicate.	The therapeutic level of digoxin may not be achieved. The interval between both the drugs administration timing should be long enough

2.	Antihypertensive Propranolol and Antidiabetics	Inhibits conversion of glycogen to glucose from liver resulting into hypoglycemia	Hypertension and bradycardia during hypoglycaemia. Physician should reduce dose of antidiabetic agent.
3.	Antiarrhythmics Guanethidine and Amitriptyline, nortriptyline	Antipsychotics, antagonises the action of antiarrythmics.	Avoid tricyclic antidepressants

Gastrointestinal agent's interaction:

S.No	**Combination**	**Mechanism of Interaction**	**Clinical significance**
1.	Antacid and Aspirin	Antacid reduces GIT irritation by neutralising hyperacid secretion induced by aspirin.	Facilitates absorption of aspirin. This combination can be useful to the physician in case of patient with acidity syndrome.
2.	Antacid and Antritubercular agent	Aluminium hydroxide gel adsorbs Isoniazide	Decrease in bioavailability of isoniazide. Antacid may be given after some interval.
3.	Purgatives and poorly absorbed drugs	Cathartics increase motility of intestine which motility of intestine which drug. Increase rate of passing of drug through GIT.	Decreased absorption of drug. Concurrent administration with purgative of other drug shall be avoided.

Vitamins Interactions:

S.No	Combination	Mechanism of Interaction	Clinical significance
1.	Cynocobalamin(Vit. B_{12}) and chloramphenicol	Chloramphenicol interfaces with erythrocyte maturity	Patient with pernicious anaemia respond poorly to Vit. B_{12} if chloramphenicol is given with.
2.	Vit. A (Retinol) and Mineral oil	Mineral oils decrease absorption of Vit. A from G.I.T	Separate doses of oil and Vit. are given.

Anti-diabetic agent interaction:

S.No	Combination	Mechanism of Interaction	Clinical significance
1.	Antidiabetic agent and alcohol	Alcohol has hypoglycaemic effect, thus severe hypoglycemia may occur	Alcohol should be completely avoided.

Report:

Exp No-3 **Date:**

Preparation of dispensing labels and auxiliary labels for the prescribed medication

Aim: To prepare dispensing labels and auxiliary labels for the prescribed medications.

Theory:

Dispensing Labels: Dispensing labels for prescribed medications provide information about administration, dose, storage and important warnings. It helps the patient to recall the medication instructions after primary consultation. The following information is provided on a dispensing label:

1. Active ingredients of the medicine and strength.
2. Purpose of active ingredient.
3. Uses of the medicine or problem that will be treated.
4. Warnings include certain drugs or diseases that are not compatible with the medicine.
5. Directions include how, how much and for how much long the medicine sho be used. It also includes other specific directions in case of paediatric patient.
6. Other information tells about the storage conditions and what the medicine does and does not contain.
7. Inactive ingredients tell about the parts of medicine that are in inactive form but may cause allergic reaction in some conditions.

Auxiliary Labels:

Also called as cautionary and advisory label or prescription drug warning la is a label added on to a dispensed medication package by a pharmacist in ad to the usual prescription label. These labels are intended to provide supplementary information regarding safe administration, use and storage of the medication.

Representation of auxiliary label:

These are represented as small stickers that may contain a pictogram and one or more directions for administration and safe use of medicines that are ne mentioned in the prescription labels.

These should include a single-step instruction, using easy-to-read text and use of clear, simple icons, different colours and clarity give good impact.

Font size and style should be easy to understand, including boldface capitalization patterns can also impact the effectiveness of an auxiliary label.

There are no standard guidelines for how to best formulate auxiliary labels on prescription. The label should be as simple as possible and written in plain language.

Where to fix:

Auxiliary labels can be placed on a prescription vial vertically, horizontally, or on the vial cap (interactive placement"). Placement of the label in an interactive manner where the patient must interact with it to open the vial is more likely to be noticed and followed by the patient.

Types of auxiliary label:

The following are common types of auxiliary labels

- Do Not Chew or Crush
- Swallow Whole
- May Cause Urine Discoloration
- May Cause Drowsiness
- Take With Food or Milk
- Take on an Empty Stomach
- Keep Refrigerated
- Shake Well Before Use
- Protect From Sunlight
- For External Use Only
- For the Eye (or Ear) Only
- For Rectal Use Only

Benefits:

1. It is meant for safe use of drugs, so prevent chances of adverse drug reactions.

2. Auxiliary labels help the patients to remind or enhance instructions for use or warnings that have already been given by the pharmacist or doctor verbally.

3. Effective in case of multiple medicines.

4. A picture representation can help the patients with low health literacy.

Procedure:

1. Receive the prescription with normal face expressions.

2. Read it carefully and check for drug incompatibility.

3. Prepare dispensing label in the standard format according to prescription.

4. Attach an auxiliary label for the specific instructions about the medicine if desired.

Report:

Exp No-4 **Date:**

Measurement of blood pressure

Aim: To perform and reports recording of Blood pressure.

Materials required:

- Stethoscope.
- Blood pressure cuff.
- A sphygmomanometer or Digital Blood Pressure monitor.

Theory

Blood pressure (BP) is the pressure exerted by circulating blood upon the walls of blood vessels, and is one of the principal vital signs. When used without further specification, "blood pressure" usually refers to the arterial pressure of the systemic circulation. During each heartbeat, BP varies between a maximum (systolic) and a minimum (diastolic) pressure. The mean BP, due to pumping by the heart and resistance to flow in blood vessels, decreases as the circulating blood moves away from the heart through arteries. Blood pressure drops most rapidly along the small arteries and arterioles, and continues to decrease as the blood moves through the capillaries and back to the heart through veins. Gravity, valves in veins, and pumping from contraction of skeletal muscles are some other influences on BP at various places in the body.

Blood Pressure Blood pressure (BP) is the pressure of circulating blood on the walls of blood vessels. Normal resting blood pressure, in an adult is approximately 120 millimetres of mercury (16 kPa) systolic, and 80 millimetres of mercury (11 kPa) diastolic, abbreviated "120/80 mmHg.

Classification

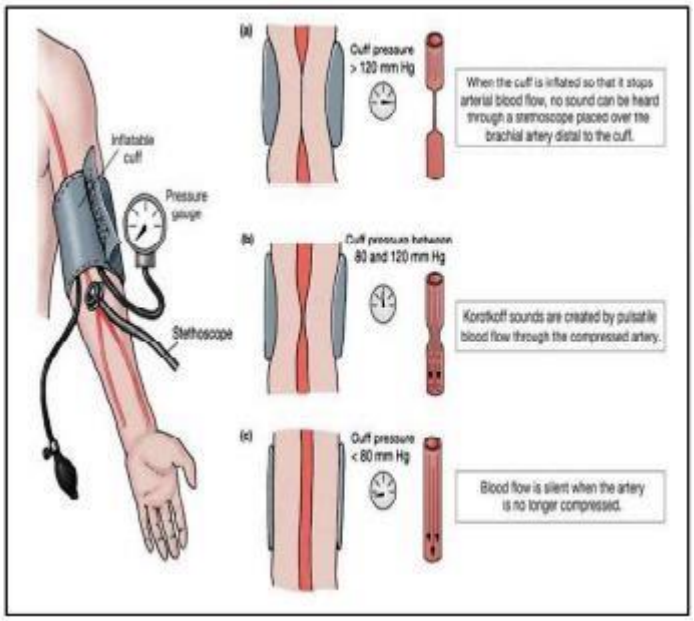
The following classifications of blood pressure are from the American Heart Association, and apply to adults 18 years and older.

Classification of blood pressure for adults		
Category systolic	**Systolic, mmHg**	**Diastolic, mmHg**
Hypotension	< 90	< 60
Desirable	90–119	60–79
Prehypertension	120–139	80–89
Stage1Hypertension	140–159	90–99

Stage2Hypertension	160–179	100–109
Hypertensive Crisis	≥ 180	or ≥ 120

Average blood pressure in (mmHg):

1 year	6–9 years	adults
95/65	100/65	110/65 – 140/90



Procedure:

1. Allow the patient to relax for 15 to 20 minutes before taking their readings.
2. Wrap the blood pressure cuff evenly around the patient's arm above the antecubital fossa for an accurate reading. It is always better to select the right-hand arm for measuring blood pressure.
3. Now place the bell of the stethoscope over the brachial artery at this location to get the strongest pulse sounds.
4. Once, after everything is set, start pumping the cuff bulb gradually and listen to the pulse sounds. Keep on checking the reading in the Sphygmomanometer.

5. Continue to expand the cuff up to the point where the pulse sound is no longer felt. This reading is recorded as the diastolic pressure.

6. Now slowly reduce the cuff until the pulse sounds are felt. This reading is recorded as the systolic pressure.

The normal blood pressure of a healthy individual is measured to be 120 – 140 / 70 – 90 mm Hg along with the normal pulse rate 60 – 80 per min. The normal range of systolic blood pressure should be between 90 – 120 mm Hg. Systolic blood pressure is the reading recorded when the pressure is exerted on the arteries and blood vessels while the heart is beating.

The normal range of diastolic blood pressure should be between 60 – 80 mm Hg. Diastolic blood pressure is the reading recorded when the pressure is exerted on the walls of arteries around the body in between heartbeats when the heart is relaxed.

Result:

The systolic pressure obtained was …… mm Hg.

The diastolic pressure obtained was …… mm Hg.

Report:

Exp No- 5 **Date:**

Determination of capillary blood glucose

Aim: To perform and reports monitoring of Capillary blood glucose.

Materials required: Glucometer

Theory

Blood sugar level is defined as amount of glucose level in blood at any given time. It is also known as serum glucose level. Blood glucose level is expressed in mill mole/l, mg/dl, mg %, blood sugar remain within narrow range but at time rises sharply mainly after meals and is least at morning time.

Measurement of blood sugar level

- A very high level of blood sugar if present for many years will have a damaging effect on the body.
- In diabetic patients this causes late stage complications such as Retinopathy, Nephropathy and various cardiovascular diseases.
- Blood sugar can be determined by an instrument called Glucometer.
- Glucometer has display screen and a specific strip meant for measuring blood glucose level.
- This can be measured in two means with glucometer

a. Colour change method.
b. Digital display method.

Ideal blood sugar values of blood glucose is 4 – 7millimole/ L (before meal) less than 10 millimole/L (90 min after meals).

Control of blood sugar level

The lifestyle of physical instructor is much more different than software engineer. Blood sugar should be measured at once or twice a month and desirable to be controlled therefore following action should also be taken –

a. Controlling B.P. more vigorously
b. Lowering cholesterol level.

c. Starting or increasing exercise

d. Smoking ceasing

e. Meditation.

Procedure –

- Firstly finger surface was cleaned with alcohol or any other antiseptic.
- Finger surface was picked by the sterilized needle.
- Discarding the first drop of blood.
- Applied blood sample on the strip, after 45sec, the reading was appeared.
- The hand was washed after test completed

Result:

The blood sugar level was found …….mg/dl.

Report:

Exp No-6 **Date:**

Determination of Lung function assessment using peak flow meter

Aim: To perform and reports Lung function assessment using peak flow meter.

Theory:

The peak expiratory flow (PEF), also called peak expiratory flow rate (PEFR), is a person's maximum speed of expiration, as measured with a peak flow meter, a small, hand-held device used to monitor a person's ability to breathe out air. It measures the airflow through the bronchi and thus the degree of obstruction in the airways. Peak expiratory flow is typically measured in units of litters per minute (L/min).

Fig: Peak flow meter

<u>Function:</u>

Peak flow readings are higher when patients are well and lower when the airways are constricted. From changes in recorded values, patients and doctors may determine lung functionality, the severity of asthma symptoms, and treatment. Measurement of PEFR requires training to correctly use a meter and the normal expected value depends on the patient's sex, age, and height. It is classically reduced in obstructive lung disorders such as asthma.

Due to the wide range of 'normal' values and the high degree of variability, peak flow is not the recommended test to identify asthma. However, it can be useful in some circumstances.

Measurements may be based on 1 second or less but are usually reported as a volume per minute. Electronic devices will sample the flow and multiply the sample volume (Litres) 60, divided by the sample time (seconds) for a result measured in L/minute:

The highest of three readings is used as the recorded value of the Peak Expiratory Flow Rate. It may be plotted out on graph paper charts together with a record of symptoms or using peak flow charting software. This allows patients to self-monitor and pass information back to their doctor

Peak flow readings are often classified into 3 zones of measurement according to the American Lung Association; green, yellow, and red. Doctors and health practitioners can develop an asthma management plan based on the green-yellow-red zones.

Zone	Reading	Description
Green Zone	80 to 100 percent of the usual or normal peak flow readings are clear.	A peak flow reading in the green zone indicates that the asthma is under good control.
Yellow Zone	50 to 79 percent of the usual or normal peak flow readings	Indicates caution. It may mean respiratory airways are narrowing and additional medication may be required.
Red Zone	Less than 50 percent of the usual or normal peak flow readings	Indicates a medical emergency. Severe airway narrowing may be occurring and immediate action needs to be taken. This would usually involve contacting a doctor or hospital.

Report:

Exp No- 7 **Date:**

Determination of capillary oxygen level using pulse oximeter

Aim: To perform and reports recording capillary oxygen level using pulse oximeter.

Principle:

Pulse oximetry is a noninvasive test that measures the oxygen saturation level of your blood. It can rapidly detect even small changes in oxygen levels. These levels show how efficiently blood is carrying oxygen to the extremities furthest from your heart, including your arms and legs. The pulse oximeter is a small, clip-like device. It attaches to a body part, most commonly to a finger.

Medical professionals often use them in critical care settings like emergency rooms or hospitals. Some doctors, such as pulmonologists, may use them in office settings. Pulse oximetry is considered by some as the '5th' vital sign.

Hemoglobin (Hb) exhibits positive cooperativity. When one O2 molecule binds to one of hemoglobin's four binding sites, the affinity to oxygen of the three remaining available binding sites increases; i.e. oxygen is more likely to bind to a hemoglobin bound to one oxygen than to an unbound hemoglobin. This property results in a sigmoidal oxygen dissociation curve allowing for more rapid loading of oxygen molecules in oxygen rich environments (i.e. alveolar capillaries of the lungs) and easier offloading in oxygen-deficient environments (i.e. metabolically active tissues).

Hemoglobin is composed of 4 subunits (2alpha, 2 beta in adults) and exists in two forms:

Taut (T): deoxygenated form with low affinity for O_2, therefore it promotes release/unloading of O_2.

Relaxed (R): oxygenated form with high affinity for O_2, therefore oxygen loading is favoured.

T and R configurations lead to different electromagnetic absorption and therefore different emission of light.

Oximeter operate based on this principle of different absorption and light emission of the T and R configurations.

- ✓ The oximeter utilizes an electronic processor and a pair of small light-emitting diodes (LEDs) facing a photodiode through a translucent part of the patient's body, usually a fingertip or an earlobe.
- ✓ One LED is red, with wavelength of 660 nm, and the other is infrared with a wavelength of 940 nm.
- ✓ Absorption of light at these wavelengths differs significantly between blood loaded with oxygen and blood lacking oxygen.
- ✓ Oxygenated hemoglobin absorbs more infrared light and allows more red lights to pass through.
- ✓ Deoxygenated hemoglobin allows more infrared light to pass through and absorbs more red lights.

Oxy and Deoxy hemoglobin absorption:

- ✓ The LEDs sequence through their cycle of one on, then the other, then both off about thirty times per second.
- ✓ The amount of light that is transmitted (in other words that is not absorbed) is measured.
- ✓ These signals fluctuate in time because the amount of arterial blood that is present increases (literally pulses) with each heartbeat.
- ✓ By subtracting the minimum transmitted light from the peak transmitted light in each wavelength, the effects of other tissues is corrected for allowing for measurement of only the arterial blood.
- ✓ The ratio of the red light measurement to the infrared light measurement is then calculated by the processor (which represents the ratio of oxygenated hemoglobin to deoxygenated hemoglobin).
- ✓ This ratio is then converted to SpO2 by the processor via a lookup table based on the Beer– Lambert law.

Photoplethysomography:

An important tool for any SpO_2 reading is plethysmography tracings or "pleth" which is a measure of volumetric changes associated with pulsatile arterial blood flow. Inconsistent or distorted pleth may result in changes to the computer calculated value resulting in artificially HIGH or LOW SpO_2 reading. Therefore, plethysomography ensures reliability of the calculated oxygen saturation.

Interpretation Tips:

Always evaluate plethysomograph in conjunction with SpO_2 readings to ensure reliability. The oxygen saturation as determined by the oximeter is calculated using the ratio of OxyHb/Deoxy-Hb. This is a useful piece of data to determine whether a patient is able to transfer oxygen into the blood stream; however 100% saturation on the oximeter does not guarantee that tissues are sufficiently oxygenated. Hemoglobin can normally bind approximately 1.34 mL of O_2/g Hb and a normal Hb of 15 g/dL making the O_2 binding capacity approximately 20 mL O_2/dL blood if 100% saturation.

- When the concentration of Hb is decreased, there is a decrease in total O_2 content of the blood, but no change in the O_2 saturation; hence oximetry is not an effective test to evaluate for anaemia.

  For example, in a patient with normally functioning hemoglobin, but with a Hb concentration of 8 g/dL the O_2 binding capacity is approximately 10.7 mL O_2/dL. Essentially half of the amount of oxygen is being delivered, but the oximeter reading may still read 100%.

- Similarly, if a patient has abnormal hemoglobin molecules, such as in the case of sickle cell anaemia where the oxygen dissociation curve is right-shifted, pulse oximetry is a poor measure of hypoxemia and may lead to over diagnosis and over treatment.
- Therefore, arterial blood gas determination of PaO_2 and SaO_2 is much more accurate in patients with abnormal hemoglobin dissociation curves.
- Pulse oximeters are often applied to areas of thin skin such as an ear lobe or fingertip.
- Fingernail polish and even different types of skin pigmentation may skew pulse oximeter results.
- In a patient with carboxyhemoglobin (i.e. carbon monoxide poisoning) or methemoblobinemia (i.e. hemoglobin with an oxidized iron atom resulting in increased O_2 binding and reduced unloading), this abnormally bound hemoglobin has similar absorption spectrum as when O_2 is bound in the R configuration.
- Therefore, the pulse oximeter may report a high saturation due to the large number of haemoglobin in the R configuration, but in reality the tissues are not receiving sufficient oxygen.

Observation:

SL NO	Pulse Rate	Pulse oximeter pO_2 Level in %

Report:

Exp No-8 **Date:**

Determination of BMI

Aim: To perform and reports measurement of BMI (Body mass index).

Theory: The body mass index (BMI) is a value derived from the mass (weight) and height of an individual. The BMI is defined as the body mass divided by the square of the body height, and is universally expressed in units of kg/m2, resulting from mass in kilograms and height in metres. The BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value. BMI categories are generally regarded as a satisfactory tool for measuring whether sedentary individuals are underweight, overweight, or obese with various exceptions, such as: athletes, children, the elderly and the infirm.

BMI	Weight Status
Below 18.5	Underweight
18.5–24.9	Healthy
25.0–29.9	Overweight
30.0 and above	Obese

Requirements:

Measuring tape and weighing machine.

Procedure:

• Height of the individual was measured using measuring tape

• Weight was measured using weighing machine

• The formula used to calculate BMI:

$$\text{BMI} = \text{weight (kg)} \div \text{height2 } (m^2)$$

Observation:

Height of the individual: _____ m.

Weight of the individual: _____ kg.

Conclusion:

The BMI was found _____kg/m2 of that individual and the person can be Categorized as _____(Underweight/normal weight/ overweight/ obese.

Report:

Exp No- 9 **Date:**

Patient counselling for type 2 diabetes Mellitus patients

Aim: To perform and reports counselling of Type 2 Diabetes Mellitus patients**.**

Theory:

Diabetes mellitus is a chronic disease characterized by a state of chronic hyperglycaemia and is caused due to deficiency of insulin.

Causes of diabetes:

• Hereditary: It can be transferred to children and grandchildren.

• Obesity: It is one of the most important factors in individuals with family history of diabetes mellitus

• Infections some virus like influenza, mumps and coxsackie destroys B-cells of islet of Langerhans.

Types of Diabetes:

1. **Insulin-dependent or juvenile diabetes:** A patient with Type I diabetes mellitus is also known as insulin dependent (IDDM) or having juvenile - onset diabetes. It is an autoimmune condition and occurs when a person's body attacks his or her pancreas with antibodies. It leads to organ damage and thus, insulin production stops. Type 1 diabetes can be a genetic disease.

2. **Insulin non-dependant or maturity onset diabetes:** A patient with Type- II is also known as non-insulin dependent (NIDDM). In this condition, the pancreas generally produces some insulin, either it's not sufficient or it's not utilized by the body as it should. Insulin resistance occurs here meaning the body cells stop responding to insulin. This condition typically occurs in liver, fat, and muscle cells.

Counselling of Type 2 Diabetes mellitus patients:

Since diabetes is a chronic complication affecting the diabetic patient at various levels, the counselling should focus on the nature of the disease, lifestyle modifications, medications, and acute and chronic complications.

I. Counselling regarding the disease:

The diabetic patients should be explained that the disease is lifelong, progressive and needs necessary modifications in the lifestyle pattern. They should also stress upon the importance of pharmacotherapy, especially the need for strict compliance with the prescribed medication. The patients should be also explained that the disease may affect the quality of life if not well controlled.

II. Counselling regarding lifestyle modifications:

While counselling regarding the life style modifications, the pharmacist should focus on the key areas including diet, exercise, smoking and alcohol intake.

A. Diet: Dietary control is the mainstay of treatment in type-2 diabetes and an integral part in type-1 diabetes.

- Carbohydrates: The blood glucose level is closely affected by the carbohydrate intake. Daily intake should be kept fairly constant and the amount given should be appropriate to the level of physical activity.

- Fat: Since there is an increased risk of death from coronary artery disease in diabetics, it is wise to restrict saturated fats and to substitute them with unsaturated fats. Furthermore, obesity is a major problem in diabetes, and fats contain more than twice the energy content per unit weight than either carbohydrate or proteins.

- Fiber: Dietary fibre has two useful properties. Firstly it is physically bulky and increases satiety. Secondly, fiber delays the digestion and absorption of complex carbohydrates, thereby minimizing hyperglycemias.

B. Exercise and physical activity: Exercise can help to promote weight loss and maintain ideal body weight when combined with restricted caloric intake. In type 2 diabetes, the desired level of exercise is 50% to 80% of maximal uptake of oxygen three to four times a week.

C. Alcohol intake: Even if the blood glucose of the patient is well controlled, modest amount of alcohol will significantly alter blood glucose levels.

D. Smoking: People with diabetes, especially those over age 40 years, who smoke and have high blood pressure and cholesterol, are at a higher risk for cardiovascular problems. When the large blood vessels (arteries) are blocked, heart attack and stroke often result.

III. Counselling regarding medications:

Though lifestyle modifications play an important role in diabetes management, it is well established by land mark studies that the chronic complications can be prevented by strict glycaemia control.

1. **Oral hypoglycaemic agents (OHAs):** If the patient is diagnosed with Type 2 diabetes, he/ she is more likely to be prescribed OHAs. Some of the commonly prescribed oral hypoglycemic agents and the important counselling points are discussed below

Drugs	Administration time	Dosing schedule	Possible side effects	Comments
Glibenclamide	Taken with meal or 15 to 30 mins before food.	Usually taken in one or two doses	Hypoglycemia, obesity	Interacts with Oral anticoagulants
Glimiperide	Taken with meal	Usually taken in a single dose	Hypoglycemia	Interacts with Oral anticoagulants
Gliclazide	Taken with meal	Usually taken in one or two doses	Hypoglycemia	Interacts with Oral anticoagulants
Glipizide	Taken with meal	Usually taken in one or two doses	Hypoglycemia	Interacts with Oral anticoagulants
Metformin	Take during or immediately after a meal to minimize gastrointestinal side effects.	Usually taken in one to three doses	GI disturbances	Should be stopped before surgery and radiological investigations involving contrast media
Acarbose	Swallow whole with liquid before meal or chew with the first few mouthfuls of food.	Usually taken in one to three doses	GI disturbances	Sucrose should not be administered if the patient experience hypoglycemia
Repaglinide	Taken with meal	Usually taken three times in a day	Hypoglycemia	-
Pioglitazone	Taken with meal	Usually taken in a single dose	Hypoglycemia	-

Fig: - Counselling points for oral hypoglycaemic agents

Insulin: All patients with type 1 diabetes require insulin. Some patients with type 2 diabeteswho initially respond to dietary modification and/ or oral anti diabetic medications eventually require insulin therapy.

Steps	Counseling points
Drawing of insulin from the vial	Draw air into the syringe in an amount corresponding to the prescribed amount of insulin. Inject the air into the vial. Invert the vial and draw up insulin little more than prescribed amount. Hold the vial vertically at eye level. Inject the excess amount of insulin, together with any air bubbles, back into the vial. Pull out the needle.
Site of self injection	The best sites for self injection are the front and outer sides of the thigh, and the abdomen.
Injection techniques	Clean the injection site with spirit. Pinch the skin at the injection site in a broad fold and insert the needle at an angle of 45 degrees into the subcutaneous tissue. Inject the insulin slowly. Then press your finger against the injection site while pulling out the needle.
Rotating the injection site	Rotate the injection site in the chosen area so as not to injure the tissue beneath the skin.
Disposal of the needles	Disposable syringes must be discarded, so that they do not cause harm to others. Glass and metal syringes have to be thoroughly cleaned before every use.
Time of administration	The patient should be advised to administer the insulin as per the doctor's advice. In general insulin preparations should be taken 30 mins before food.
Storage of insulin	Insulin should be stored at a temperature of 2-8 degrees Centigrade. In case the patient doesn't have a refrigerator he can be advised to put the vial in a glass of water. The patient can be also advised to have thermostat bags that can retain the stability of the preparation.
Adverse drug reactions	Advice the patient to monitor for allergic reactions (especially with bovine/porcine insulin) and also for hypoglycemia.
Specialized devices in administering insulin	Insulin pen has several advantages (easy to carry, less pain and accurate dose administration). Suitable candidates for insulin pen should be isolated and advised by the pharmacist.

Fig: - Counselling points for insulin

IV. Counselling regarding acute complications:

Though rare and not directly linked with the quality of life the acute complications of diabetescan be morbid if not treated properly.

Hypoglycemia: It is a condition caused by abnormally low level of blood glucose. Hypoglycemia is caused by taking too much of certain diabetic medicines, missing a meal ordelaying a meal, exercising more than usual, or drinking alcohol.

Diabetic keto acidosis (DKA): DKA is a serious complications characterized by hyperglycemia, elevated serum ketones, and an anion gap metabolic acidosis.

Non Ketotic Hyperosmolar Syndrome (NKHS): It is a constellation of severe hyperglycemia, dehydration, and hyperosmolarity in the absence of severe ketosis.

V. Counselling regarding chronic complications: Since diabetes is a chronic illness and the chronic complications of diabetes can adversely affect the quality of life, these complications should be emphasised. Some of the chronic complications and the role of pharmacist in counselling the patients regarding these complications are mentioned below.

- Diabetic neuropathy: It is characterized by nerve damage caused by chronic high blood glucose levels. Neuropathy can lead to loss of pain or touch sensations on the feet. Hence regular check ups to rule out diabetic neuropathy is essential.
- Diabetic retinopathy: Retinopathy is a disorder of the eye that occurs in majority of the adults with diabetes. Once detected proper treatment of diabetes can reduce the progression of retinopathy.
- Diabetic nephropathy: Nephropathy (disorder of the kidney) is one of the potential life threatening complications of diabetes.
- Infections: Many infections are seen commonly in diabetic patients. This is an indication of poor diabetes control. Infections at mild stages, if not treated, can lead to life threatening sepsis in these patients.

VI. Counselling in special populations:

Since the progression and the management pattern of diabetes vary significantly among different populations, the pharmacist should also tailor his counselling pattern according to the population.

VII. Counselling regarding self Monitoring of Glucose:

With the availability of Blood glucose monitoring devices for the monitoring of blood glucose, patients can monitor glucose levels more frequently and have a control over blood glucose.

Report:

Exp No- 10 **Date:**

Patient counselling for counselling of Hypertensive patients

Aim: To perform and reports counselling of Hypertensive patients.

Theory:

Hypertensionn is a condition in which the force of the blood against the artery walls is too high. The increase in systolic pressure above 150 mmHg and diastolic pressure above 90 mmHg is frequently used to describe hypertension.

Types of Hypertension

1. Primary hypertension: More than 90% of patients with elevated arterial blood pressure without a clear reason also have what is known as essential hypertension**.**

2. Secondary hypertension: This type of hypertension has a known underlying cause. The following are the causes.

- Acute/Chronic renal diseases.
- Renal artery stenosis.
- Hyperaldosteronism. (Endocrine disorder).
- Drug induced hypertension.
- Oral contraceptives (estrogen, progestins)
- MAO inhibitors
- Cyclosporin.

Counselling of Hypertensive patients:

Encourage patients to follow their treatment plan and visit their doctor regularly in order to keep their HBP under control. Describe how a good diet, regular exercise, limiting salt intake, and quitting smoking can all help lower HBP**.**

Counselling hypertension patients takes intelligence, imagination, and innovation because pre-packaged messages won't cut it. However, effective counselling addresses three key areas: supporting healthy behaviours, disclosing information about side effects and contraindications, and improving health status with adherence.

Role of the pharmacist:

Pharmacists are in a prime position to advice patients on HBP since they are champions for medication adherence and patient educators who interact with both patients and their doctors. Electronic blood pressure monitoring is available from many pharmacies, and some offer blood pressure tests as part of screenings, health fairs, and community outreach initiatives. Make sure patients are familiar with the idea of HBP: Blood pressure is the force of blood on the artery walls; a classic analogy compares it to water in a garden hose. Patients should be informed about systolic and diastolic pressure and what a normal blood pressure value is

I. Counselling regarding Patients:

- Take all of the HBP drugs that your doctor has advised. Understand how to take the names. Consult your pharmacist or doctor if you have any questions regarding your medications.
- Make careful to get your prescriptions renewed before they expire. Do not halve or skip days while taking your drugs; follow the directions exactly. Inform your pharmacist and consult your doctor if you have any negative side effects from your prescriptions. He or she might have to change the dosages or recommend different medicines.
- You shouldn't decide to stop taking your prescriptions on your own.
- Be cautious of any potential drug interactions when using OTCs. Some over-the-counter (OTC) medications warn consumers not to use them if they have high blood pressure (HBP). When in doubt, seek advice from your pharmacist.

II. Counselling regarding lifestyle modifications:

When giving advice on lifestyle changes, the pharmacist should focus on the important factors, such as nutrition, exercise, quitting smoking, and alcohol consumption.

III. Counselling regarding self-monitoring of HBP:

Patients can monitor blood pressure levels more regularly and have control over blood pressure with the use of blood pressure monitoring devices, which are now readily available.

Report:

Exp No-11 **Date:**

Patient counselling for Asthma patients

Aim: To perform and reports counselling of Asthma patients**.**

Theory:

Asthma is a condition in which the airways become narrow and swell and may produce extra mucus. This can make breathing difficult and trigger coughing, a whistling sound (wheezing) when you breathe out and shortness of breath. For some people, asthma is a minor nuisance. For others, it can be a major problem that interferes with daily activities and may lead to a life-threatening asthma attack.

Signs and symptoms:

1. Wheezing

2. Shortness of breath.

3. Chest tightness.

4. Cough.

5. Use of accessory muscle.

6. Extreme difficulty in breathing, rapid pulse, sweating and severe anxiety.

Types of Asthma:

- Allergic asthma.
- Seasonal' asthma.
- Occupational asthma.
- Non-allergic asthma.
- Exercise induced' asthma.
- Difficult asthma.

- Severe asthma.
- Brittle' asthma.
- Adult onset asthma
- Childhood asth**ma**

Counselling of Asthma patients:

The pharmacist may be very helpful in many ways with asthma, and counselling is definitely something that is needed.

I. Counselling regarding disease:

The sufferers should be informed that the illness won't affect their kids or their neighbours. Additionally, it won't spread if you eat from the same dishes or with the same cutlery, etc. If drugs are used as prescribed, disease development can be stopped, which could lead to better results and symptom-free conditions.

II. Counselling regarding medication:

The counselling regarding medication depends upon the type of medications.

I. **Beta 2 agonists (salbutamol, salmeterol and bambuterol):** Metered-dose inhalers (MDIs), dry powder inhalers (DPIs), oral liquids, and tablets are all forms in which these medications are sold. Patients should be told not to use salbutamol if they have ever experienced an adverse reaction to it and to call their doctors if they experience any of the following symptoms: tremor, tightness in the chest, difficulty breathing, irregular heartbeat, seizure, and allergic reaction. Patients should be instructed to immediately take any missing doses.

II. **Xanthine alkaloids (Theophylline):** It is available as tablets or injections. The patients should not change the dose without doctors' advice and should inform their doctor if they have any cardiac or lung problems.

III. **Anticholinergics (Ipratropium bromide):** An MDI form of the medication is offered. If a patient has experienced an adverse reaction to the medication, atropine, peanuts, or soya beans, they should be cautioned not to take it.

IV. **Corticosteroids (prednisolone, budesonide, fluticasone, beclomethasone):** These medications can be obtained orally, as MDIs, or as DPIs (Prednisolone). If the patient has experienced an allergic reaction to any of these, they should be cautioned not to take them.

V. **Leukotriene-receptor antagonists and leukotrient-synthesis inhibitors:** The main drugs of this class are Montelukast, Zafi rulekast and Zileuton. The patient should not use these medicines if he/she has had an allergic reaction to these drugs. The patients should not take more medicine than what their doctor has advised.

III. Counselling on inhalation techniques:

1. **Metered-dose inhaler (MDI):** When compared to more traditional ways of medicine administration for asthma, MDIs have significant benefits. The primary benefit of inhalation therapy is the direct administration of drugs in far lower effective levels than systemic methods, which minimises side effects.

2. **Metered-dose inhaler with spacer**: Use of spacer with metered-dose inhaler allows greater evaporation of the propellant, reducing particle size and velocity, which reduces the oropharynx deposition and potentially increases lung deposition.

3. **Dry powder inhaler**: The dry powder inhalers (DPIs) are made to be simpler to operate and are propellant-free. Using a dry powder inhaler is easier for children, the elderly, and people with arthritis than using an MDI because it doesn't need hand-lung coordination.

4. **Nebulizer:** A n aerosol or mist-forming machine that produces tiny droplets of liquid medication that can be inhaled through a mouthpiece or mask.

5. **Baby mask:** This customised tool facilitates inhaler use by paediatric patients. When a nebulizer is unavailable, this device is perfect for paediatric patients.

IV. Counselling regarding lifestyle modifications : Patients with asthma should make some lifestyle changes, just like anyone else with a chronic illness. The following are some examples of these lifestyle changes:

1. **Avoiding/recognizing asthma triggers:** Patients should be made aware that asthma attacks can still happen to those with well-controlled asthma if they are exposed to asthma triggers.

2. **Wearing a face mask**: If the patient cannot avoid exposure to his or her asthma triggers, it should be suggested that they do so when appropriate.
3. **Over-the-counter medicines**: A few OTC medicines can also trigger an asthma attack.

4. **Exercise**: Hard workouts can also make attacks more likely to happen. In these situations, the patient needs to take a prophylactic dose of the medication (often salmetrol) before working out.

5. **Cold weather:** Since cold weather can trigger an attack, asthma patients should be encouraged to dress warmly during the winter months.

6. Emotion/stress: Asthma attacks can also be brought on by excessive emotional stress, anger, etc., so patients should be advised to avoid such situations.

Report:

Exp No- 12 **Date**

Patient counselling for Hyperlipidaemia patients

Aim: To perform and reports counselling of Hyperlipidaemia patient.

Theory:

Hyperlipidemia is a term that encompasses various genetic and acquired disorders that describe elevated lipid levels within the body. It is a very common disorder, especially in the Western hemisphere, but also throughout the world. Hyperlipidemia itself does not typically lead to critical symptoms itself, however, having this underlying pathology will often lead to serious illnesses that may ultimately lead to death.

There are two main classifications of Hyperlipidaemia: familial and acquired. The familial type stems from genes you inherit from your parents. Hyperlipidaemia doesn't cause any symptoms. The condition is diagnosed by routine blood tests, recommended every five years for adults. Treatments include medication, a healthy diet and exercise.

Counselling of Hyperlipidaemia patients:

Evidence suggests that intensive and thorough hyperlipidemia counselling produces more significant behavioural improvements. Assessing the patient's knowledge of hyperlipidemia, including LDL cholesterol, high-density lipoprotein (HDL) cholesterol, and triglycerides should be the first step in counselling. The distinction between healthy fats and unhealthy fats can be explained by the pharmacist. The pharmacist can go through side effects and go over the updated recommendations with the patient if they are taking cholesterol-lowering medication, stressing that there is no "magic" figure.

I. Counselling regarding lifestyle modifications:

- Make clear that taking a cholesterol-lowering medicine does not give you permission to eat poorly.

- Review the effects of elevated cholesterol, which include vascular disease, atherosclerosis, heart attacks, and strokes. Encourage regular cholesterol checks.

- Some recommendations call for screening to start at age 20. Others advise having the initial screening for women at 45 and men at 35.

- Discuss quitting smoking. Giving up smoking can result in a 10% increase in HDL.

- Boost your physical activity.

- Recommend limiting intake of saturated fats by cutting back on red meat and full-fat dairy products and increasing omega-3 fatty acids (eg, cold-water fish, walnuts, canola or soy bean oil, flax seeds).

II. Counselling regarding medication:

1. **Statins**: These medicines, also referred to as HMG CoA reductase inhibitors, function in the liver to stop the production of cholesterol. As a result, less cholesterol is circulating in the blood. Statins consist of- Atorvastatin, Fluvastatin, Lovastatin, Pravastatin.
2. **Ezetimibe (cholesterol absorption inhibitors):** Prevents cholesterol from being absorbed in the intestine. It's the most commonly used non-statin agent.
3. **Bile Acid Sequestrants:** Also known as bile acid-binding agents, these substances encourage the gut to expel more cholesterol. These consist of- Cholestyramine, Colestipol , Colesevelam Hcl.
4. **PCSK9 inhibitors:** Inhibitors of PCSK9 are effective LDL-lowering medications. To reduce LDL (bad) cholesterol, they bind to and deactivate a protein on cells in the liver. Alirocumab and evolocumab are two of its names.

Report:

Exp No-13 **Date-**

Patient counselling for Rheumatoid Arthritis

Aim: To perform and reports counselling of Rheumatoid Arthritis patients.

Theory:

An autoimmune and inflammatory condition known as rheumatoid arthritis (RA) occurs when your immune system mistakenly attacks healthy cells in your body, resulting in inflammation (painful swelling) in the body parts affected. Rheumatoid arthritis signs and symptoms may include: Tender, warm, swollen joints; joint stiffness, which is typically worse in the morning and after inactivity; fever, appetite loss, and exhaustion. Rheumatoid arthritis affects the joints in about 40% of patients, but there are additional symptoms and signs that don't involve the joints. Skin, eyes, kidneys, nerve tissue, bone marrow, lungs, heart, and salivary glands are some of the areas that could be impacted.

Counselling of Rheumatoid Arthritis patients:

One can better comprehend the symptoms of RA and manage the difficulties associated with your condition with the aid of education and counselling.

I. Counselling regarding lifestyle modifications:

1. **Rest** — Fatigue is a common symptom of RA. While it's important to rest inflamed and painful joints, it's also important to remain physically active to the extent possible. Several studies have shown that staying physically active improves the quality of sleep, which in turn helps with fatigue.

2. **Exercise** — Pain and stiffness can make it difficult to exercise, leading many people with RA to limit physical activity. However, inactivity can lead to a loss of joint motion, contractions, and a loss of muscle strength. Weakness, in turn, decreases joint stability and further increases fatigue.

3. **Physical and occupational therapy** — In addition to helping you design an individualized exercise program, a physical or occupational therapist can offer other approaches to help relieve pain, reduce inflammation, and help preserve joint structure and function.

Specific types of therapy are used to address specific effects of RA. For example:

- The application of heat or cold can relieve pain or stiffness.
- Ultrasound (the use of sound waves) may reduce inflammation of the sheaths surrounding tendons (called tenosynovitis).
- Passive and active exercises can improve and maintain range of motion of the joints.

4. Nutrition and dietary therapy — People with active RA sometimes lose their appetite or are unable to eat enough food. If you have this problem, dietary therapy can help to ensure that you are getting enough calories and nutrients. If you are overweight or obese, your health care provider might recommend trying to lose weight in order to reduce stress on your joints.

II. Counselling regarding medication:

Medications are the cornerstone of treatment when rheumatoid arthritis (RA) symptoms are active. The goals of medication treatment are to achieve remission of symptoms and signs of RA and prevent further damage of the joints and loss of function, without causing permanent or unacceptable side effects.

MARDs — Disease-modifying antirheumatic drugs (DMARDs) can substantially reduce the inflammation of RA, reduce or prevent joint damage, preserve joint structure and function, and enable a person to continue his or her daily activities.

NSAIDs — Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (sample brand names: Advil, Motrin) and naproxen (sample brand name: Aleve), may be recommended to relieve pain and reduce minor inflammation.

Steroids — Steroids, also called glucocorticoids or corticosteroids, have strong anti-inflammatory effects. Drugs in this class include prednisone and prednisolone. Steroids may be taken by mouth, injected into a vein, or injected directly into a joint. Steroids quickly improve RA symptoms such as pain and stiffness and decrease joint swelling and tenderness.

Non-NSAID pain relievers — Pain relievers can help with pain, but they have no effect on inflammation. Examples include acetaminophen (sample brand name: Tylenol) and capsaicin cream or ointment.

III. Counselling regarding complementary and alternative therapies:

Spa therapy: Also called "balneotherapy," this involves soaking in a mineral water bath, sometimes with mud. Some people find that this helps relieve joint symptoms associated with RA, and it is unlikely to be harmful.

Fish and plant oils — Certain fish and plant oils have been found to decrease inflammation in the body. However, it's important to talk to your health care provider before trying these or other supplements, as some of them can interact with certain medications and be harmful.

Mind-body techniques — "Mind-body" techniques include practices such as biofeedback, relaxation, and meditation. There is some evidence that these techniques may be helpful in improving symptoms; they might also help with managing anxiety and stress.

Report:

Exp No- 14 **Date:**

Patient counselling for GIT disturbance patients

Aim: To perform and reports counselling of GIT disturbance patients.

Theory:

Gastrointestinal (GI) disturbances commonly include symptoms of stomach pain, heartburn, diarrheal, constipation, nausea, and vomiting.

Common gastrointestinal disorders include:

Celiac disease is a serious autoimmune disorder where the small intestine is hypersensitive to gluten. Ingestion of gluten causes the immune system of the body to attack the small intestine, leading to damage to the villi of the small intestine.

Constipation is the term used to describe difficulty or infrequency in passing stools (feces). Not everybody has a daily bowel movement, so the passage of time between bowel motions before constipation occurs varies from person to person.

Crohn's disease is a chronic bowel disease that causes patches of inflammation in the GI tract anywhere between the mouth and the anus, although the area where the small intestine joins the large intestine is most commonly affected.

Diarrheal: Symptoms of diarrhea include frequent, loose, watery stools (feces) which are usually accompanied by an urgent need to go to the toilet. Abdominal pain or cramping may also occur, and sometimes nausea or vomiting.

Counselling regarding lifestyle modifications:

Fiber diet: Fiber, a sort of carbohydrates found in plants that cannot be digested, is crucial when it comes to digestive health. It helps you feel full *and* aids in the digestion of certain foods. Everyone is talking about gut health - your microbiome health, and fiber is an important part of this.

Stressed: Stress and anxiety don't only affect your mental health; they can also take a toll on your digestive health, especially the gut microbiota. Being stressed has been found to cause a broad range of digestive issues that include: appetite loss, inflammation, bloating, cramping and changes in microbiota.

Not drinking enough water: - Water is important to your digestive health because it helps cleanse the whole gastrointestinal tract. In particular, water softens the stool, helping prevent constipation. More crucially, water is known to aid your digestive system by helping break down food, assisting

the GI tract to absorb nutrients faster and more effectively. If you don't drink enough water, you are inviting all sorts of digestive problems.

Inactive lifestyle: - Not getting enough physical exercise is not good for your overall health and digestive health.

Counselling regarding treatment:

Celiac disease: Celiac disease has no known cure. But the good news is that following a strict gluten-free diet is in general very effective in reducing and often stopping these symptoms. Multivitamin supplementation *may* help complement this lifelong gluten-free diet.

Crohn's Disease:

Medication – You may need to take medications such as antidiarrheal drugs, anti-inflammatory drugs, immunomodulators, antibiotics, and biologics to block inflammation.

Change in diet – Although there aren't generally any specific dietary restrictions necessary, a diet with low impact on areas of the intestine that can be narrowed by the inflammation is usually recommended. Also, other, more sophisticated changes are likely to be advised by your doctor and dietician.

Surgery – This is a last-resort treatment option if lifestyle changes and medications don't work. However, three-quarters of people with Crohn's disease usually undergo elective surgery at some point.

Chronic Diarrheal: Your doctor will choose the best treatment option based on the underlying cause of diarrheal that has been identified. It may include steroids, antibiotics, pain killers, immunosuppressant's, anti-diarrheal, and other prescription medication. A specific diet and lifestyle changes may also help reduce symptoms of chronic diarrheal.

Report:

Exp No- 15 **Date:**

Patient counselling of pyrexia patients

Aim: To perform and reports counselling of pyrexia patients.

Theory:

Pyrexia, also known as fever, is an increase in the body temperature of an individual beyond the normal range. This increase in temperature is usually considered dangerous, but it is a natural defensive mechanism of the body to fight against infections.

Pyrexia is a natural immune response of the body to fight against disease-causing organisms and severe illnesses. 98.6^{o}F is considered normal temperature, but it varies according to the area of the body from which the measurement is made.

Hypothalamus, a small gland present in the brain regulates the body temperature.

Fever is clinically manifested as additional signs and symptoms such as: Shivering or chills, Headache, Generalised body pains and weakness, Irritability, Dehydration, Loss of appetite, Joint pains, Sweating.

People with the following conditions are at a higher risk for developing fever: Bronchitis, Rheumatoid arthritis, Allergic rhinitis (hay fever).

Counselling regarding treatment

Medications: The medications should be used at the exact doses as recommended by the physician as higher doses may damage the liver or kidney.

Antibiotics: These drugs are recommended if the doctor suspects that the fever is caused by some bacterial infections in the bladder or bowel.

Antiviral drugs: These medicines are used if the doctors diagnose that the fever is caused by viral infections.

Rest: The patient should take adequate rest.

Fluids: Adequate fluids along with regular supplements should be taken to prevent dehydration.

Counselling regarding Diet

Miso Soup – Miso soup is an excellent source of vitamins, minerals and beneficial plant compounds. It is typically made with seaweed, green onion, dashi broth base and tofu although many variations exist. Apart from providing vital nutrients, it also helps to hydrate you and improves electrolytic balance.

Berries – Berries are high in vitamin C, fibre, antioxidants and anthocyanins. Berries like strawberry, cranberry and blueberry. The anthocyanins are highly beneficial against respiratory infections while simultaneously the immune system.

Chicken Soup – The classic chicken soup when you're sick has enormous benefits to regain your health during or after pyrexia. Chicken soup contains proteins and liquids, to meet the higher energy requirements while you're sick as well as keep you hydrated.

Counseling regarding lifestyle modifications

- Maintaining a proper self-hygiene
- Washing hands regularly before eating
- Using hand sanitizers where there is no access to water
- Covering the nose and mouth when travelling in public transport to prevent the entry of disease-causing organisms into the body.
- Sharing plates, glasses or cups along with other people must be avoided.

Counselling regarding medication

Antipyretic agents, mainly paracetamol and NSAIDs, and physical cooling methods can be used to control pyrexia. Cooling with surface devices is usually preferred for fever control while endovascular methods are more commonly restricted to therapeutic hypothermia.

Report:

Exp No- 16 **Date:**

Counselling of Skin infections patients

Aim: To perform and reports counselling of Skin infections patients.

Theory:

A skin infection is a condition in which germs (bacteria, viruses, or fungi) infect your skin and sometimes the deep tissues underneath it. In some cases, it's caused by a parasite invading your skin.

There are different types of skin infections:

- **Bacterial skin infections:**

  Bacterial skin infections often begin as small, red bumps that slowly increase in size. Different types of bacterial skin infections include: cellulitis, impetigo,boils, Hansen's disease (leprosy).

- **Viral skin infections:**

  Viral skin infections are caused by a virus. These infections range from mild to severe. Different types of viral infections include: shingles (herpes zoster), chickenpox, Molluscum contagiosum, warts, and measles.

- **Fungal skin infections:**

  These types of skin infections are caused by a fungus and are most likely to develop in damp areas of the body, such as the feet or armpit. Different types of fungal infections: yeast infection, ringworm, nail fungus, oral thrush.

- **Parasitic skin infection:**

  These types of skin infections are caused by a parasite. These infections can spread beyond the skin to the bloodstream and organs. A parasitic infection isn't life-threatening but can be uncomfortable. Different types of parasitic skin infections include: lice, bedbugs, and scabies.

Counselling regarding lifestyle modifications

Wash your hands:

After using the toilet.
After touching your skin infections.

Clip your nails:

Keep your nails short to make it easier to clean the infected area.

Shower or bathe daily using soap:

Before-wrap a waterproof covering (plastic wrap) around the bandage.

After- change bandage if there is drainage showing.

Do not let other touch your infections:

To prevent spreading of infection to the other person.

Change into clean clothes:

After you take a shower or bathe.

If wound drainage gets on your clothes.

Do not sharp personal care item:

Do not share razors, nail clippers, towel, clothes and soap.

Cover your wound

Is your bandage comes off, then throw it away in a plastic bag and wash your hands.

Cover your wound with a clean dry bandage.

Counselling regarding treatment

Apply cold compresses to your skin several times a day to reduce itching and inflammation.

Take over-the-counter antihistamines to decrease itching.

Use topical creams and ointment to reduce itching and discomfort.

Antibiotics that may be used include cephalosporins, dicloxacillin, clindamycin, or vancomycin. Swelling can be lessened by elevating the affected area, such as the legs or arms. To stop cellulitis from occurring again, it is important to keep applying lotion to the skin and to maintain good skin cleanliness.

Report:

Exp No- 17 **Date:**

Study and report administration technique of Eye drops

Aim: To study and report administration technique of Eye drops.

Eye drops: liquid medication to be applied in very small amounts to the eyeball. The most common active ingredients include polyethylene glycol, polyvinyl alcohol, propylene glycol, carboxymethylcellulose, povidone, glycerine, and mineral oil.

Eye drops are used to treat a variety of eye disorders, such as glaucoma (high eye pressure), conjunctivitis (inflammation of the eye), and dry eye disease. They may also be recommended following eye surgery, when it may be necessary to lessen swelling or avoid infection. There are primarily three categories of eye drops:

Artificial tears.
Allergy drops.
Anti-redness drops.

Administration technique of Eye drops:

(a) Read your doctor's instructions

- Use your drops exactly when and how your doctor tells you to.
- If you need to take more than one type of eye drop at the same time, wait 3 to 5 minutes between the different kinds of medication.

(b) Get prepared

- Always wash your hands before handling your eye drops or touching your eyes.
- If you're wearing contact lenses, take them out — unless your ophthalmologist has told you to leave them in.
- Shake the drops vigorously before using them.
- Remove the cap of the eye drop medication but do not touch the dropper tip.
- clipping from a magazine to the ceiling, so that your eyes can focus on it.

Use one hand to pull your lower eyelid down, away from

(c) Place the drops into your eye

- Tilt your head back slightly and look up. Some people find it helpful to focus on a specific point on the ceiling. It might help to tape a photo or
- the eye. This forms a pocket to catch the drop.
- Hold the dropper tip directly over the eyelid pocket.
- Don't touch the bottle to your eye or eyelid.

(d) Close your eyes and don't blink

- Apply gentle pressure to your tear ducts, where the eyelid meets the nose. Hold the tear ducts closed for a minute or two—or as long as your ophthalmologist recommends—before opening your eyes.

(e) Wash your hands

- It's important to wash your hands with soap and water after handling medication and touching your face.

Report:

Exp No- 18 **Date:**

Study and report administration technique of Inhaler

Aim: To study and report administration technique of Inhaler.

Theory:

Inhaler: - A device for giving medicines in the form of a spray that is inhaled (breathed in) through the nose or mouth. Inhalers are used to treat certain medical problems, such as bronchitis, angina, emphysema, and asthma. They are also used to help relieve symptoms that occur when a person is trying to quit smoking.

Many inhalers contain steroids, like prednisone, to treat inflammation. Others have a type of drug called a bronchodilator to open up your airways. Some have both -- this is known as a combination inhaler.

The main types of inhaler devices are metered dose inhalers and dry powder inhalers. Examples of dry powder inhalers include:

- Turbuhaler.
- Accuhaler.
- Handihaler.
- Ellipta inhaler.
- Breezhaler.

Inhalers, also known as bronchodilators, are drugs that are inhaled into the lungs through the mouth to assist relax the muscles that constrict your airways. The medication facilitates the opening of the airway, enables greater airflow into and out of the lungs, and facilitates easier breathing.

Administration technique of Inhaler

(a) Using an MDI with a valved holding chamber.

1. Remove the cap from the MDI and chamber. Shake well.
2. Insert the MDI into the open end of the chamber (opposite the mouthpiece).
3. Place the mouthpiece of the chamber between your teeth and seal your lips tightly around it.
4. Breathe out completely.
5. Press the canister once.
6. Breathe in slowly and completely through your mouth. If you hear a "horn-like" sound, you are breathing too quickly and need to slow down.

7. Hold your breath for 10 seconds (count to 10 slowly) to allow the medication to reach the airways of the lung.
8. Repeat the above steps for each puff ordered by your doctor. Wait about 1 minute in between puffs.
9. Replace the cap on your MDI when finished.

(b) Using an MDI without a chamber

1. Shake the MDI thoroughly after removing the cap.
2. Complete your exhalation.
3. Tightly seal your lips around the inhaler mouthpiece by placing it between your teeth.
4. Press down on the canister once as you begin to inhale slowly.
5. Continue to inhale as deeply as slowly as you can. (It should take you around 5 seconds to inhale fully.)
6. Hold your breath for 10 seconds while gently counting to 10 to let the medicine enter the lung's airways.
7. Recite the previous procedures for each puff that your doctor has prescribed. Take a minute or so between each puff.
8. After using the MDI, replace the cap.

Report:

Exp No- 19 **Date:**

Study and report administration technique of Nasal drops

Aim: To study and report administration technique of Nasal drops**.**

Theory:

Nasal drops: - A medicated liquid instilled into the nostrils with a medicine dropper.

These medications include phenylephrine hydrochloride (Neo-Synephrine) and oxymetazoline hydrochloride (Afrin, Dristan, Sinex). You can purchase them from a store. This drug is used to temporarily relieve nasal congestion brought on by a variety of illnesses, such as the common cold, sinusitis, hay fever, and allergies. It reduces edoema and congestion by constricting the blood vessels around the nose.

Administration technique of Nasal drops:

Step 1: Gently blow your nose.

Step 2: Thoroughly wash your hands with soap and water.

Step 3: Verify that the dropper tip is not damaged or chipped.

Step 4: -Avoid contacting your clean nose with the dropper tip.

Step 5: Tilt your head as far back as you can, or lay on a flat surface (like a bed) with your back straight and dangle your head over the side.

Step 6: Add the appropriate amount of drops to your nose.

Step 7: Hold the position for a short period of time. Make use of warm water to wash the dropper tip. Cap the bottle as soon as possible.

Wash your hands to get any medication off.

Report:

Exp No- 20 **Date:**

Study and report administration technique of Insulin pen

Aim: To study and report administration technique of Insulin pen.

Theory:

Insulin pen: An injectable tool with a needle that administers insulin to the subcutaneous tissue is known as as insulin pen.

Importance: - Insulin pen devices have several advantages over the traditional vial-and-syringe method of insulin delivery, including improved patient satisfaction and adherence, greater ease of use, superior accuracy for delivering small doses of insulin, greater social acceptability, and less reported injection pain.

There are the 5 types of insulin are:

Rapid-acting insulin

Short-acting insulin

Intermediate-acting insulin

Mixed insulin

Long-acting insulin

Report: