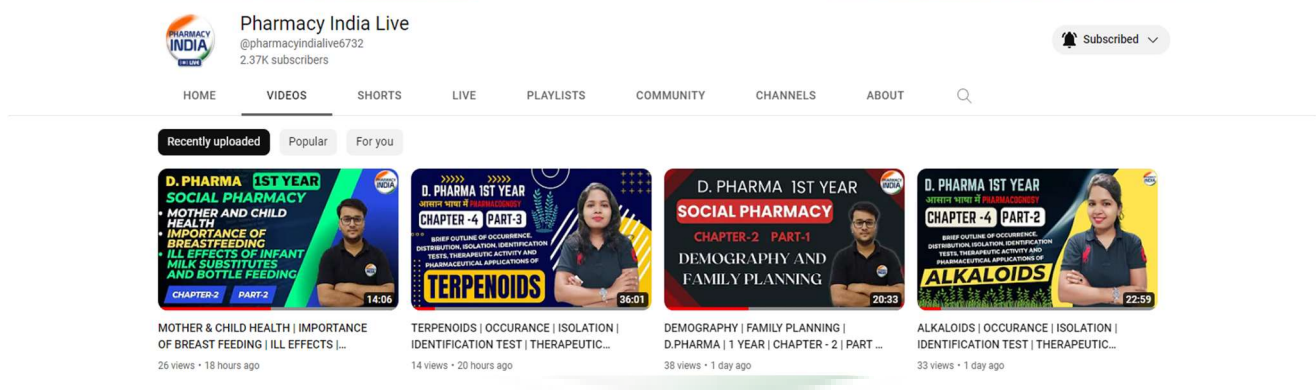


# COMMUNITY PHARMACY AND MANAGEMENT

# MODEL PAPER – 3

## Syllabus to be covered in this module are-

- ❖ Chapter- 7 Health Screening Services in Community Pharmacy
- ❖ Chapter- 8 Over the Counter (OTC) Medications
- ❖ Chapter- 9 Community Pharmacy Management



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# Questions

## Long Questions-

Ques.1 Write in detailed about Health Screening Services in community pharmacy.

Ques.2 Explain in detailed about the role of health screening in various diseases.

Ques.3 Prepare notes on Over The Counter Medications.

Ques.4 Explain in detailed about self-medications.

Ques.5 Write in detailed about pain.

Ques.6 Explain in detailed about dental health.

Ques.7 Prepare notes on vendor selection.

Ques.8 Write in detailed about Standard Operating Procedures.

## Short Questions

Ques.1 Give the importance/significance of health screening services.

Ques.2 Give the types of health screening.

Ques.3 What are the scope of health screening services in community pharmacy.

Ques.4 What are the goals of health services & patient outcomes.

Ques.5 Write a short note o cough.

Ques.6 What are the risk factors and preventions for common cold.

Ques.7 Give the management and treatment for constipation.

Ques.8 What are the causes and risk factors of vomiting.

Ques.9 What are the site selection requirements for wholesale/retail pharmacy store.

Ques.10 Give the steps involve in vendor selection.

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Ques.11 What are the methods of procurement. Also give the procedure for drugs procurement.

Ques.12 Give an account of accounting in community pharmacy.

Ques.13 What are the key features of MARG Software.

Ques.14 What are the conditions of registration of e-pharmacy.



# Long Answers

### Ques.1 Write in detailed about Health Screening Services in community pharmacy.

**Ans-** Health Screening services refer to as a simple investigation/ screening procedures apparently on healthy population. This is conducted for timely prevention and management. According to National Health Service (NHS), United Kingdom, health screening services is a at risk condition or are already affected by a disease or its complication, are asked a question or offered a test, to identify those individuals who are more likely to be helped than harmed by further tests to reduce the risk of a disease or its complication.

**Purpose of Health Screening:** The role of health screening in Community Pharmacies is not to take over the role of the GP (General Practitioner). Screening in Community Pharmacies on the whole is designed to provide access to screening services to the members of the public, who may not be able to access this intervention through their GP. The American college of Physicians recently stated pharmacists' scope of practice is expanding and the medical community must proactively respond to the pharmacy movement by partnering collaboratively with pharmacists, physicians will be able to concentrate and focus on their primary mission- high quality patient care.

#### Screening

Screening is examination or testing of a group of individuals to separate those who are well from those who have an undiagnosed disease or defect or who are at high risk. It is a strategy used to look for as-yet-unrecognized conditions or risk markers. Screening also refers to examination of a group of usually asymptomatic individuals to detect those with a high probability of having a given disease, typically by means of an inexpensive diagnostic test.

**Uses of screening:** The main uses of screening are:

**(a) Case detection:** This is also known as "prescriptive screening". It is defined as the presumptive identification of unrecognized disease, which does not arise from a patient's request, eg., neonatal screening. In other words, people are screened primarily for their own benefit. Prescriptive screening is performed for the early detection of disease or disease precursors in apparently well individuals so that care can be provided at early stage. Since disease detection is initiated by medical and public health personnel, they are under special obligation to make sure that appropriate treatment is started early.

**(b) Control of disease:** This is also known as "prospective screening". People are examined for the benefit of others, eg, screening of immigrants from infectious diseases such as tuberculosis and syphilis to protect the home population; and screening for streptococcal infection to prevent rheumatic fever. The screening programme may, by leading to early diagnosis permit more effective treatment and reduce the spread of infectious disease and/or mortality from the disease.

**(c) Research purposes:** Screening may also be performed for research purposes. For example, there are many chronic diseases whose natural history is not fully known (e.g., cancer, hypertension). Screening may aid in obtaining more basic knowledge about the natural history of such diseases, as for example, initial screening provides a prevalence estimate and subsequent screening, an incidence figure. When screening is done for research purposes, the investigator should inform the study participants that no follow-up therapy will be available.

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## Health Screening Services

Health screening services are the services provided by the health care professionals to screen the health status of individuals with or without positive sign and symptoms.

## Role of Pharmacists in Health Screening Services

The basic eligibility for providing health screening services is that he/she should be qualified and trained adequately before implementation of health screening services.

Pharmacists are well placed in the community to identify people with various diseases; s bring about a drastic change the community pharmacist need to take the lead role in prevention the complications by providing pharmaceutical care. This can be done by providing health screening services such as blood glucose monitoring, blood pressure (BP) measurement, body mass index (BMI) in the community pharmacy and in turn benefit the community by providing optimal care. Pharmacists should be involved in teaching patients how to check their Blood Pressures at home, as patients are taking on a larger role in their self-care.

## Importance/Significance of Health Screening Services

- Early detection of diseases may result in better treatment and management, which reduces the risk of complications whilst increasing the chances of better health outcomes.
- Health screening helps to identify if the patient is at risk of, or has a disease o condition, that was not previously known about.
- Health screening can help people who have family history of diabetes or cardiovascular disease.
- Health screening services are very small and accurate tests. These can be trusted for period of perfect diagnosis of a disease.
- Primary health care tests are easily available near the community or health care center. Even certain pharmacist can also perform such tests like blood pressure, blood glucose estimation, etc.
- These tests do not involve high cost. Such tests can be affordable by most of the population. Whenever they feel need of them Le. at a point occurrence of symptoms, etc.
- Today most of the tests are performed by digital portal devices. These, can be carried out by anywhere. Even the costs of digital devices are not too high and common man can be easily affordable for such devices.
- Certain secondary health screening services have their own side effects. But no side effects are adverse effects on the body were observed with primary health screening services.

## Types of Health Screening

**(i) Mass screening:** is defined as the screening of a whole population or a sub-group. It is offered to all, irrespective of the particular risk individual (e.g., tuberculosis).

**(ii) High-risk or Selective screening:** This type of screening is applied selectively to high-risk groups. For example: screening for cancer cervix in the lower social groups.

**(iii) Multiphasic screening:** It is defined as the application of two or more screening tests combination to many people at one time than to carry out separate screening tests for single disease. e.g., chemical, and haematological tests on blood and urine specimens, lung function assessment, audiometry and measurement of visual acuity.

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**(iv) Primary health screening tests:** These tests are performed either when the physician prescribed or when a patient himself undergo such test after the onset of symptoms. Such tests are helping in diagnosis of disease and stages also.

**(v) Secondary health screening tests:** These tests are performed after the diagnosis or disease or its stage. Such tests are only carried out when the physicians prescribe them.

### History of Health Screening Services

The history of HSR is generally considered to have begun in the 1950s and 1960s with the first funding of grants for health services research focused on the impact of hospital organizations. On the contrary, HSR began with Florence Nightingale when she collected and analysed data as the basis for improving the quality of patient care and outcomes. Also significant in the history of HSR was the concern raised about the distribution, quality, and cost of care in the late 1920s that led to one of the first U.S. efforts to examine the need for medical services and their costs, undertaken in 1927 by the Committee on the Costs of Medical Care. The committee published a series of 28 reports and recommendations that have had a significant impact on how medical care is organized and delivered in the United States. Other key reports of historical importance to HSR were, for example, the national health survey in 1935-1936 by the Public Health Service, the inventory of the nation's hospitals by the American Hospital Association's Commission on Hospital Care in 1944, and studies by the American Hospital Association's Commission on Chronic Illness on the prevalence and prevention of chronic illness in the community.

### Scope of Health Screening Services in Community Pharmacy

- The process of health screening refers to service provided by the health care professional to screen the health status of any individual with or without position signs and symptoms.
- It is important as early detection can make a difference threatening between relationally simple courses of treatment or life-threatening complications.
- It saves lives by early detection of conditions such as hypertension or elevated blood sugar and can help in preventing serious disorders.
- Benefits of health screening are peace of mind and reassurance, reducing economic burden of patient by early diagnosis.
- The longer the patient is undiagnosed, the higher will be the future complications.
- So, in future scope we can say the screening services will increase the patient safety.
- As being small test, they will be very accurate and reliable for the patients.
- As these can be performed by the nearby pharmacists or any community health centres they will provide easy availability for the patients.
- They are easy to be performed so cost effective and without any side effects.

### Goals for Health Services and Patient Outcomes:

The goal of health services is to protect and improve the health of individuals and populations. In a landmark 2001 report, Crossing the Quality Chasm: A New Health System for the 21st Century, the Institute of Medicine (IOM) of the National Academy of Sciences proposed that the goals for health services should include six critical elements:

**1. Patient Safety:** Patients should not be harmed by health care services that are intended to help them. Human found that between 46,000 and 98,000 Americans were dying in hospitals each year due to medical errors. Subsequent research has found medical errors common across all health care settings. The

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problem is not due to the lack of dedication to quality care by health professionals, but due to the lack of systems that prevent errors from occurring and/or prevent medical errors from reaching the patient.

**2. Effectiveness:** Effective care is based on scientific evidence that treatment will increase the likelihood of desired health outcomes. Evidence comes from laboratory experiments, clinical research (usually randomized controlled trials), epidemiological studies, and outcomes research. The availability and strength of evidence varies by disorder and treatment.

**3. Timeliness:** Seeking and receiving health care is frequently associated with delays in obtaining an appointment and waiting in emergency rooms and doctors' offices. Failure to provide timely care can deny people critically needed services or allow health conditions to progress and outcomes to worsen. Health care needs to be organized to meet the needs of patients in a timely manner.

**4. Patient Centered:** Patient-centered care recognizes that listening to the patient's needs, values, and preferences is essential to providing high-quality care. Health care services should be personalized for each patient, care should be coordinated, family and friends on whom the patient relies should be involved, and care should provide physical comfort and emotional support.

**5. Efficiency:** The U.S. health care system is the most expensive in the world, yet there is consistent evidence that the United States does not produce the best health outcomes or the highest levels of satisfaction. The goal is to continually identify waste and inefficiency in the provision of health care services and eliminate them.

**6. Equity:** The health care system should benefit all people. The evidence is strong and convincing that the current system fails to accomplish this goal. The IOM report, Unequal Treatment documented pervasive differences in the care received by racial and ethnic minorities. The findings were that racial and ethnic minorities are receiving poorer quality of care than the majority population, even after accounting for differences in access to health services.

**Community pharmacy-based screening and management services is most appropriate by several means:**

1. Community Pharmacists are the first point of contact between patients and the healthcare system.
2. Community Pharmacies are conveniently located and are open for long hours and can offer consultations without any appointment.

## Advantages of Health Screening Services at Community Pharmacy

### A. From pharmacy perspective

There is a requirement that community pharmacists start involving themselves for such health screening services from pharmacy perspective following are the benefits:

- (i) Opportunity of greater recognition as a member of healthcare team
- (ii) Development of a valuable and viable business
- (iii) Effective utilization

### B. From Consumer Perspective

- (i) Improved easy access to screening and monitoring services
- (ii) Earlier detection and ongoing management of chronic conditions such as hypertension & diabetes.

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(iii) Prevention of many communicable diseases (TB, malaria), early detection and ref thereby reducing the cost of therapy.

### Basic Requirements for Starting Health Screening Services

The requirements are related to personal instrument method and documentation following are the requirements:

1. Trained pharmacists with required skills for conducting health screening and monitoring services.
2. Instruments like sphygmomanometer, glucometer, spirometer and weighing balances
3. Policies for calibration of instruments in specified time period.
4. Policies regarding safety of hand line of body fluids and devices.
5. Policies for documentation of process and results.
6. Standards and policies for interpretation and dissemination of results.
7. Standards for monitoring of outcomes and referral processes

**Ques.2 Explain in detailed about the role of health screening in various diseases.**

**Ans- Hypertension**

Hypertension or high blood pressure is one of the risk factors for stroke heart attacks heart failure and dementia blindness as well as leading cause of chronic renal failure.

Hypertension is defined as a chronic medical condition in which blood pressure in the arteries is elevated. It is also termed as silent killer. The level of blood pressure in itself is not a chief concern since individuals with high blood pressure may be symptomatic for many years. Hypertension is found to be the single most important contributing factor to cardiovascular disease the leading cause of morbidity and untimely death globally. Blood pressure (BP) is the pressure exerted by the blood on the blood vessels and diastolic BP (during relaxation of the heart muscles). Normal BP at rest is 120(systolic) mmHg. The actual level of pressure that can be considered is difficult to define, it depends on a number of factors including the patient's age, sex, race, and lifestyle.

A B.P. (Blood pressure) reading is given in millimeter of mercury (mm Hg). It has two numbers:

**1.Top or Upper Number (systolic pressure):** It measure the pressure in our arteries when our heart beats.

In normal case it is 120 mm Hg or less and in case of hypertension (High B.P.) it is 140 mm Hg or higher.

**2. Bottom or Lower Number (diastolic pressure):** It measures the pressure in our arteries between beats.

In normal case it is 80 mm Hg or less, and in case of hypertension it is 90 mm Hg or higher.

**Body Mass Index (BMI):** Body mass index (BMI) of weight for height that is commonly used to classify overweight and obesity in adults. The World Health Organization (WHO) definition is:

A BMI greater than or equal to 25 is overweight and,

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A BMI greater than or equal to 30 is obesity.

BMI is useful as a measure of overweight and obesity in both sexes and for all ages of adults.

## Energy Balance

All living organisms, including humans, obey the first law of thermodynamics which states that the amount of energy in a closed system must remain constant. So any imbalance between food intake and energy expenditure results in a change in the amount of body energy stores, which is mainly fat.

## Role of community pharmacist in weight management for screening:

A community pharmacist after a screening should inform people who are obese and are at increased risk for many clinical conditions including the following:

- High blood pressure (Hypertension)
- High LDL cholesterol, low HDL cholesterol, or high levels of triglycerides (Dyslipidemia).
- Type 2 diabetes
- Coronary heart disease
- Stroke
- Osteoarthritis (a breakdown of cartilage and bone within a joint)
- Sleep apnea and breathing problems
- Chronic Inflammation and increased oxidative stress
- Body pain and difficulty with physical functioning

And if any person is obese any of the two or more risk factors he/she should be recommended to consult a physician.

2. He should clearly communicate the benefits of gradual improvements to physical activity and dietary habits.
3. Numerous co-morbidities exist with obesity. Obese Patients often interact with community pharmacist to obtain prescription and/or over the counter (OTC). He should assist/recommend in the selection of appropriate weight loss agents.
4. He should offer appropriate counselling on nutritional and lifestyle modifications, and monitoring to ensure safe and effective pharmacotherapy outcomes.
5. He should act as health advisor by providing credible source of information to community through counselling to achieve and maintain a healthy weight.

## Advices can be related to:

- (i) Diet and exercise (Cycling, walking, taking staircase instead of lift).
- (ii) Prescribed anti-obesity medication.
- (iii) Diet Food (Fruits, vegetables, food with low fat and sugar).
- (iv) Non- prescription products and dietary supplements.
- (v). Self-monitoring (routine weight check noting down activities using Pedometer or an app to track physical activity checking food and drink, etc).

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## Importance of Screening for Hypertension

National Heart Lung and Blood Institute (NHLBI) say that a blood pressure level of 140/91 mm of Hg or higher is considered high. About two thirds of people over the age of 65 years have high blood pressure.

Patient with blood pressure between 120/80 mm of Hg and 139/89 mm of Hg are said to be prehypertensive. This means that they do not have high blood pressure now but are likely to develop it in the future. This group of patients can take steps to prevent high blood pressure by adopting a healthy lifestyle. Those who do not have high blood pressure at the age of 55 years face a 90% chance of developing it during their lifetimes, according to NHLBI. Hence, high B.P. is a condition that most people are likely to develop at some point in their lives. Although high blood pressure (also called hypertension) may not produce any symptoms, it still causes damage, which is why it's often called the "silent killer". Left untreated, high blood pressure can damage a patient's blood vessels, as well as internal organs such as heart or kidneys. Having high blood pressure also means that patients are at a higher risk of developing heart disease or having a stroke. Therefore, screening decreases morbidity and mortality associated with untreated hypertension by identifying patients with hypertension in the early stages of their disease.

### Potential advantages and disadvantages of public blood pressure monitoring:

- Increased screening for hypertension in persons without the resources to own a blood pressure monitor or to see their physician frequently.
- Increased patient involvement in hypertension care and enhanced adherence to therapy.

## 7.2. Obesity

### Definition

Obesity can be defined as excessive accumulation of fat in adipose tissue and various excessive organs of sufficient magnitude to adversely affect health. Obesity has been defined in a number of different ways. Dorland's medical dictionary (1947) defines it as "An increase in body weight beyond the limitation of skeletal and physical requirement, as the result of an accumulation of fat in the body". The Merck manual (1972) describes it as "that physiological state in which excessive fat is stored at various body sites". Fundamentally, obesity results from relative increase in food intake reduced metabolic rate or preferential partitioning of stored calories in the form of fat. The health risks of obesity include type-2 diabetes, hypertension, hyperlipidemia, atherosclerosis, sleep apnea, cholelithiasis, arthritis and certain malignancies Globally, there have been two reasons for overweight and obesity.

- Excessive consumption of high fat foods
- Decreased physical activity due to the sedentary life style

Changes in dietary and physical activity patterns often results from sedentary lifestyle (such as not sleeping enough), endocrine disruptors, some foods which interface with lipid metabolism, medications that make patients put on weight medical and psychiatric illness and infectious agents. Obesity and overweight occurs due to imbalance between calories consumed and calories utilized.

### Causes of Obesity

There are several factors responsible for obesity i.e., genetic, environmental, psychological, and other factors. Potential factors responsible for obesity are:

#### 1. Reduced activity

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- (a) Greater affluence, more cars, less heavy labour
- (b) Television
- (c) Computer in workplace and home
- (d) Computer games, handheld, and desktop
- (e) Organized sports for children, reduces outside playing time

## 2. Changes in food intake

- (a) Increasing affluence among population, food more affordable
- (b) Easier access to food in environment
- (c) Expansion of fast-food sources and availability
- (d) Change in character of food (high fat, refined carbohydrates)
- (e) Larger protein sizes

## Visceral Obesity

Abdominal fat includes the subcutaneous fat beneath the skin, and the visceral fat surrounds the internal organs. Accumulation of visceral adipose tissue is considered as an independent risk factor associated with dyslipidaemia, cardiovascular disease, insulin resistance, type-2 diabetes, liver cirrhosis and all-cause mortality. Visceral adipose tissue displays intrinsic properties that are different from subcutaneous adipose tissue. For example, the rate of visceral than in subcutaneous fat depots, which may be explained by site variations in the function of receptors for insulin, catecholamine's and adenosine. The adverse effects of visceral obesity are due to the increased delivery of fatty acids from the visceral depot to the liver via the portal vein, leading to elevated hepatic triglyceride and glucose production. Another important feature of visceral fat depots is the presence of lymphoid tissue such as lymph nodes in the mesenteric adipose tissue and milky spots in the omentum. Compared with subcutaneous depots, visceral adipose tissue expresses higher levels of different cytokines, immunoglobulin's and complement factors, suggesting a more active role in immune defense. Furthermore, omental, and mesenteric adiposities interact strongly with immune cells such as dendritic cells and macrophages.

## 7.3. Diabetes Mellitus

### Definition of Diabetes Mellitus (DM)

Diabetes mellitus is one of the oldest diseases, which has been and it is a vast area under discussion, which is placing a huge burden of illness on sufferers and Society as well known and a very common disorder which has been defined in different ways.

Diabetes mellitus can also be defined as a chronic metabolic disorder in which the use of carbohydrate is impaired and that of lipid and protein is enhanced. It is due to complete or partial deficiency of insulin in the body resulting in chronic hyperglycemia, glycosuria, ketoacidosis and coma.

### Insulin

Pancreas is an elongated organ which is both an endocrine gland as well as exocrine gland. Endocrinically, it produces hormones such as insulin and glucagon whereas exocrinically it produces trypsin and chymotrypsin enzymes which aids to digestion.

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It contains a set of cells ( $\alpha$ ,  $\beta$ ,  $\gamma$  and F cells) which are known as islets of Langerhans. The central portion of the islets is occupied by B-cells and enclosed by  $\alpha$ ,  $\delta$  and F cells,  $\alpha$ -cells secrete glucagon, B-cells secrete insulin,  $\delta$ -cells secrete gastrin, whereas F cells produce pancreatic polypeptides.

Insulin is a polypeptide hormone, which is synthesized by the B-cells and is stored in the granular form in pancreas. This hormone comprises of two polypeptide chains named as chain A and chain B, which relate to each other through a disulfide bridge. Each chain contains 21 and 30 amino acids respectively, therefore 51 in total.

### Biosynthesis of Insulin

B-cells produce a pre-hormone called as proinsulin, an eventual precursor of insulin. After synthesis it is discharged into cisternal space of rough endoplasmic reticulum where it is cleaved into proinsulin (single polypeptide chain composed of the B and A subunits of insulin joined by the C-peptide region) by proteolytic enzymes. Proinsulin is then transported by microvesicles to the Golgi apparatus and released to the vesicles, where it is converted to insulin during the maturation of secretory vesicles by the action of two proteases (prohormone convertase 2 and carboxy peptidase H).

Average human consumes one million calories per year, and an imbalance of only 1% may be enough to cause an annual weight change of 1-2 kg and body weight depends on very specific regulation of energy balance. If the regulation is not interacting optimally with environmental conditions, even minor differences in energy intake or expenditure may lead to weight change. Unfortunately, the regulatory systems that allow the maintenance of a relatively stable body weight throughout life could also be the most important threat to the capacity to overcome obesity once it is established.

### Mechanism of Insulin

Insulin acts on the cells by binding to its receptor (tyrosine kinase) present in membrane to stimulate the metabolism of proteins, glucose, fats, synthesis of nucleic acids like DNA and RNA via alteration of different enzymes.

Insulin is the primary hormone to control the blood levels in the body. It helps in absorbing glucose by the cells of liver, skeletal muscles and fat tissues as well, Insulin is responsible for the storage of glucose in the form of glycogen in liver. A large amount of absorbed glucose from the small intestine is immediately taken up by hepatocytes, which convert it into glycogen for storage.

It promotes synthesis of fatty acids in the liver and increases protein synthesis as well. It reduces the breakdown of fats in adipose tissue by inhibiting the intracellular lipase responsible for release of fatty acids by hydrolysing triglycerides.

It stimulates the uptake of amino acids by the cells and increases the permeability of many cells to potassium, magnesium and phosphate ions.

The various levels of insulin which maintain the blood glucose level to normal are summarized in table.

### Secretion of Insulin

Insulin is secreted from pancreatic B-cells in response to various stimuli. The secretion of insulin is regulated by different hormonal, chemical, and neuronal controls. Amino acids like leucine and parasympathetic nervous system, aid to release of insulin. Hormones such as human growth hormone, adrenocorticotrophic hormone and gastric inhibitory peptide also stimulate the release of insulin.

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Insulin is the major determinant for glucose secretion, B-cells take up glucose molecules via GLUT-2 receptors where glucose is oxidised by the enzymes glucokinase, which acts like sensor for glucose. When the glucose level reaches to the sub-stimulatory concentration, voltage gated Ca channels are closed. As the concentration of glucose in plasma increases, it leads to depolarization of membrane and opens voltage gated Ca<sup>2+</sup> channels thus ultimate release of insulin occurs.

Insulin secretion is also regulated by the negative feedback mechanism. As glucose uptake by the cells is regulated by insulin, thus a rise in levels of blood glucose stimulates insulin secretion. The secreted insulin lowers the blood glucose level and further inhibits secretion of insulin through negative feedback mechanism.

### Capillary Blood Glucose Screening for Diabetes

- Diabetes is a metabolic disorder in which patients have high blood glucose because:
- Their body's insulin production is inadequate; or
- Their cells do not respond properly to insulin; or
- They suffer from inadequate insulin production and their cells respond poorly to insulin, patients with high blood glucose (commonly referred to as hyperglycaemia) may seem especially irritated or tired. Additionally, patients may drink and urinate more than normal and may present with sweet smelling. Patient with low blood glucose levels (commonly referred to as hypoglycaemia) may be sweaty and shaky or appear confused. Normal blood glucose values are typically between 70 milligrams per decilitre (mg/dl) and 180 mg/dl respectively when tested after fasting and post meal.

Routine checking of capillary blood glucose levels or blood sugar levels (BSL) ultimately serves several purposes. They are performed to:

1. conditions of too high or too low blood glucose levels i.e. hyperglycaemia or hypoglycaemia respectively.
2. Assess the effectiveness of therapy for diabetics (either alone on diet and exercise or oral hypoglycaemia agents or insulin or combination of any these).
3. Assess the adherence level of patients for lifestyle modification strategies and therapy.
4. Screening and detecting new diabetic patients.

In certain cases a community pharmacist should not be engaged in conducting blood glucose screening for individuals:

1. Under 18 years of age.
2. With documented infections on fingers and nails.
3. Immune-compromised patients.

### Requirements and Techniques for Capillary Blood Glucose Level (BGL) Measurement

**Glucometer:** Glucometer is a simplest device to measure capillary blood glucose. Certain basic protocol should be followed by a pharmacist, such as:

Ask the patient to sit down and explain the procedure of screening BSL by glucometer. Wash hands and put on gloves, before conducting the blood sugar test.

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## Detection and Routine Monitoring of Diabetes Mellitus via Health Screening

**Early detection and routine monitoring of diabetes mellitus via health screening:** Diabetes mellitus is a term that describes a series of complex and chronic metabolic disorders characterized by symptomatic glucose intolerance. Type 2 diabetes mellitus is a group of metabolic disorder characterized by high levels of blood sugar (hyperglycemia) resulting from defects in the secretion or action of insulin.

### Criteria for diagnosing Diabetes Mellitus

The criterions that are listed below reflect research evidence on the prevention of diabetes related complications.

1. Diabetes symptoms (that is polyuria, polydipsia, polyphagia and unexplained weight loss) along with: Random venous plasma glucose concentration  $>11.1$  mmol/ltr. Or a fasting plasma glucose concentration  $>7$  mmol/ltr (whole blood  $> 6.1$  mmol/ltr). Or plasma glucose concentration  $> 11.1$  mmol/ltr two hours after 75 gm anhydrous glucose in an oral glucose tolerance test (OGTT).
2. If the patient has no symptoms, diagnosis should not be based on single glucose determination but confirmatory venous plasma glucose must be done.
3. At least one additional glucose test result, on another day with the value in the diabetic range, is essential, either from fasting or from a random values are not diagnostic, the two-hour value should be used.

### Retime Monitoring of Diabetes Mellitus

Community pharmacists should have a fundamental understanding of the processes involved in the accurate operation of glucose monitoring instruments and an understanding of the disease and its treatment. All people with diabetes symptoms such as polyuria, polydipsia and polyphagia, show healing of the wounds, blurred vision, Urinary Tract Infection (UTI) etc. and asymptomatic persons with one or more risk factors listed should be given first importance for the screening of diabetic patients. Risk factors for diabetes includes family history of type 2 DM, obesity (BM $>30$ ), gestational diabetes, sedentary life style, smoking, alcoholics, hyperlipidemia, age $>40$  years.

### Anaemia

#### Pathophysiology

Iron deficiency anaemia occurs in three stages: storage iron deficiency, iron deficient erythropoiesis, and iron deficiency anemia.

**Storage iron deficiency:** Initially blood loss, body preferentially utilizes all the iron it has stored in the liver, bone marrow and other organs for accelerated erythropoiesis (formation of RBCs). Once the stored iron is depleted, erythropoiesis and production of other iron-containing proteins (such as myoglobin) become limited, leading to an evident iron deficiency anaemia.

**Iron deficient erythropoiesis:** Iron is a constituent of haemoglobin and rate limiting for erythropoiesis if erythropoiesis (glycoprotein hormone that controls erythropoiesis) is present without sufficient iron, there is insufficient fuel for RBC production. RBCs produced will be abnormal and do not have a normal Hb carrying, as do normal RBCs. Iron deficient erythrocytes have a shortened survival due to their tenderness, which accelerates reticuloendothelial cell sequestration and destruction. The morphological changes in erythrocyte with essential iron deficiency imitate severely hampered haemoglobin synthesis and are characterized by hypochromasia and microcytosis. Additionally, the

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haemoglobin-deficient erythroid precursors are considered to undergo supplementary mitoses while attempting to achieve ideal cytoplasmic haemoglobin levels, thereby exaggerating the microcytosis.

### Early Detection and Routine Monitoring of Anemia via Health Screening

WHO defines anemia in adults as hemoglobin level less than 13 g/dl for males and less than 12 gm/dl for females. Major causes of Iron deficiency anemia include inadequate iron absorption, dietary deficiency, malabsorption, increased physiological demand and loss through bleeding. Anemia can be classified by size and colour of red blood cells which includes:

1. Hypochromic microcytic anemia. eg. iron deficiency, sideroblastic, thalassaemia.
2. Normochromic macrocytic anemia. e.g. folate deficiency and vitamin B12 deficiency.
3. Poly chromatophilic macrocytic anemia e.g. due to haemolysis.

Non-specific signs and symptoms of anemia include tiredness, pallor, fainting, exertion dyspnoea, tachycardia, palpitations, worsening angina and worsening cardiac failure. The clinical features of iron deficiency anemia include pale skin and mucus membranes, painless glossitis, angular stomatitis, dysphagia and atrophic gastritis's.

### Monitoring

Monitoring is the observation of a disease, condition or one or several medical parameters over time.

It can be performed by continuously measuring certain parameters by using a medical monitor (for example, by continuously measuring vital signs by a bedside monitor), and/or by repeatedly performing medical tests (such as blood glucose monitoring with a glucose meter in people with diabetes mellitus).

Transmitting data from a monitor to a distant monitoring station is known as telemetry or biotelemetry.

### Classification of Monitoring

Monitoring can be classified by the target of interest, including:

Cardiac monitoring, which generally refers to continuous electrocardiography with assessment of the patient's condition relative to their cardiac rhythm. A small monitor worn by an ambulatory patient for this purpose is known as a Holter monitor. Cardiac monitoring can also involve cardiac output monitoring via an invasive Swan-Ganz catheter.

- Hemodynamic monitoring, which monitors the blood pressure and blood flow within the circulatory system. Blood pressure can be measured either invasively through an inserted blood pressure transducer assembly, or noninvasively with an inflatable blood pressure cuff.
- Respiratory monitoring, such as:
  - Pulse oximetry which involves measurement of the saturated percentage of oxygen in the blood, referred to as SpO<sub>2</sub> and measured by an infrared finger cuff.
  - Capnography, which involves CO<sub>2</sub> measurements, referred to as Et CO<sub>2</sub>, or end-tidal carbon dioxide concentration. The respiratory rate monitored as such is called AWR or airway respiratory rate).
  - Respiratory rate monitoring through a thoracic transducer belt, an ECG channel or capnography.

Neurological monitoring, such as of intracranial pressure. Also, there are special patient monitors which incorporate the monitoring of brain waves (electroencephalography), gas anesthetic concentrations, bispectral index (BIS), etc. They are usually incorporated into anesthesia machines. In neurosurgery

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intensive care units, brain EEG monitors have a larger multichannel capability and can monitor other physiological events, as well.

- Blood glucose monitoring
- Childbirth monitoring
- Body temperature monitoring through an adhesive pad containing transducer.
- Cancer therapy monitoring through circulating tumor cells.

## Liver Function Test (LFT)

Liver Function Test (LFT) is a profile of blood tests that provide useful information about the state of the liver. It measures the levels of proteins, liver enzymes and bilirubin in your blood. LFT test includes parameters such as Albumin Test, Bilirubin Test, SGOT, SGPT and more.

Liver function tests, also known as liver chemistries, help determine the health of your liver by measuring the levels of proteins, liver enzymes, and bilirubin in your blood. They can also monitor the progression or treatment of an existing disease.

Depending on the test, either higher-or lower-than-typical levels of these enzymes or proteins can indicate a problem with your liver.

Some of the reasons liver function tests may be performed include screening for diseases such as hepatitis, monitoring the side effects of your medications and examining the severity of liver disease.

In this article, we take a look at when you might need a liver function test, the different types of tests used and how to interpret results.

A liver function test is often recommended in the following situations:

- To for damage from liver infections, such as hepatitis B and hepatitis C especially if it's suspected you were exposed to a virus that causes hepatitis.
- To monitor the side effects of certain medications because some medications are known to affect the liver, including:
  - NSAIDs Trusted Source
  - Statins
  - Antibiotics
  - Antiseizure medications
  - Tuberculosis drugs
- If you already have liver disease, to monitor the disease and how well a particular treatment is working.
- If you're experiencing the symptoms of a liver disorder or have a family history of liver disease, such as fatty liver disease.
- If you have certain medical conditions, such as:
  - High triglycerides
  - Diabetes
  - High blood pressure
  - Anemia
- If you drink alcohol frequently
- If you have gallbladder disease.

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Certain tests can reflect different aspects of liver function. For example, elevated alanine transaminase (ALT) and aspartate transaminase (AST) levels disproportionate to bilirubin and alkaline phosphatase levels often indicate liver disease.

### What are the different types of liver function tests?

Liver function tests are used to measure specific enzymes and proteins in your blood.

Having an atypical result on any of these liver tests usually requires a follow-up to determine the cause of the atypical characteristics. Even mildly elevated results can be associated with liver disease.

### Common liver function tests include:

**Alanine Transaminase (ALT) Test:** Alanine transaminase test (ALT) is used by your body to metabolize protein. If the liver is damaged or not functioning properly, ALT can be released into the blood. This causes ALT levels to increase. A higher result than what's typical on this test can be a sign of liver damage.

It's estimated that about 10 per cent of people in the United States have elevated ALT levels.

**Aspartate Aminotransferase (AST) Test:** Aspartate Aminotransferase (AST) is an enzyme found in several parts of your body, including your:

- Heart
- Brain
- Pancreas
- Liver
- Muscles

When the liver is damaged, AST can be released into the bloodstream. A high result on an AST test might indicate a problem with the liver or muscles.

Since AST levels aren't as specific of a marker for liver damage as ALT, it's usually measured together with ALT to check for liver problems. For example, a high AST: ALT ratio may indicate alcoholic liver disease. Trusted Source.

**Alkaline Phosphatase (ALP) Test:** Alkaline Phosphatase (ALP) is an enzyme found in your bones, bile ducts, and liver. An ALP test is typically ordered in combination with several other tests. An ALP test can be used to evaluate the bile duct system of the liver.

**Albumin Test:** Albumin is the main protein made by your liver. It performs many important bodily functions. For example, albumin nourishes your tissues and transports hormones, vitamins and other substances throughout your body. An albumin test measures how well your liver is making this particular protein.

**Bilirubin Test:** Bilirubin is a waste product from the breakdown of red blood cells. It's ordinarily processed by the liver. It passes through the liver before being excreted through your stool.

A damaged liver can't properly process bilirubin. This leads to an atypically high level of bilirubin in the blood. Certain inherited diseases can raise bilirubin levels, even when liver function works as expected.

### What are the symptoms of a liver disorder?

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Problems with the liver can make a person very sick and can even be life threatening. Approximately 4.5 million Trusted Source adults in the United States have chronic liver disease. Symptoms of a liver disorder include:

- Weakness
- Fatigue or loss of energy
- Weight loss
- Jaundice (yellow skin and eyes)
- Fluid collection in the abdomen, known as ascites
- Discoloured bodily discharge (dark urine or light stools)
- Nausea
- Vomiting
- Diarrhoea
- Abdominal pain
- Atypical bruising or bleeding

Your doctor may order a liver function test if you're experiencing symptoms of a liver disorder.

Liver function tests can also monitor the progression or treatment of a disease and test for the side effect of certain medications.

## How is a liver function test performed?

You may have your blood drawn in a hospital or at a specialized testing facility. To administer the test:

1. The healthcare technician will clean your skin before the test to decrease the likelihood that any microorganisms on our skin will cause an infection. 2. They'll likely wrap an elastic strap on your arm. This will help your veins become more visible. They'll then use a needle to draw samples of blood from your arm.

3. After the draw, the technician will place some gauze and a bandage over the puncture site. Your blood sample will be sent to a laboratory for testing.

## Potential risks of a liver function test

Blood draws are routine procedures and rarely cause side effects. However, the risks of giving sample can include.

1. Bleeding under the skin, or hematoma
2. Excessive bleeding
3. Fainting
4. Infection

## Kidney Function Tests

**Overview of kidney function tests:** You have two kidneys on either side of your spine that are each approximately the size of a human fist. They're located posterior to your abdomen and below your rib cage.

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Your kidneys play several vital roles in maintaining your health. One of their most important jobs is to filter waste materials from the blood and expel them from the body as urine. The kidneys also help control the levels of water and various essential minerals in the body. In addition, they're critical to the production of:

- Vitamin D
- Red blood cells
- Hormones that regulate blood pressure

If a doctor thinks your kidneys may not be working properly, you may need kidney function tests. These are simple blood and urine tests that can identify problems with your kidneys.

You may also need kidney function testing done if you have other conditions that can harm the kidneys, such as diabetes or high blood pressure. They can help doctors monitor these conditions.

## Symptoms of kidney problems

**Symptoms that may indicate a problem with your kidneys include:**

- High blood pressure
- Blood in the urine
- Frequent urges to urinate
- Difficulty beginning urination
- Painful urination
- Swelling of the hands and feet due to a buildup of fluids in the body

A single symptom may not mean something serious. However, when occurring simultaneously, these symptoms suggest that your kidneys aren't working properly. Kidney function tests can help determine the reason.

## Types of Kidney Function Tests

To test your kidney function, your doctor will order a set of tests that can estimate your glomerular filtration rate (GFR). Your GFR tells your doctor how quickly your kidneys are clearing waste from your body.

### Urinalysis

A urinalysis screens for the presence of protein and blood in the urine. There are many possible reasons for protein in your urine, not all of which are related to disease. Infection increases urine protein, but so does a heavy physical workout. Your doctor may want to repeat this test after a few weeks to see if the results are similar.

Your doctor may also ask you to provide a 24-hour urine collection sample. This can help doctors see how fast a waste product called creatinine is clearing from your body. Creatinine is a breakdown product of muscle tissue.

### Serum creatinine test

This blood test examines whether creatinine is building up in your blood. The kidneys usually completely filter creatinine from the blood. A high level of creatinine suggests a kidney problem.

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According to the National Kidney Foundation (NKF), a creatinine level higher than 1.2 milligrams/deciliter (mg/dL) for women and 1.4 mg/dL for men is a sign of a kidney problem.

## Blood Urea Nitrogen (BUN)

The blood urea nitrogen (BUN) test also checks for waste products in your blood. BUN tests measure the amount of nitrogen in the blood. Urea nitrogen is a breakdown product of protein.

However, not all elevated BUN tests are due to kidney damage. Common medications, including large doses of aspirin and some types of antibiotics, can also increase your BUN. It's important to tell your doctor about any medications or supplements that you take regularly. You may need to stop certain drugs for a few days before the test.

A normal BUN level is between 7 and 20 mg/dL. A higher value could suggest several different health problems.

## Estimated GFR

This test estimates how well your kidneys are filtering waste. The test determines the rate by looking at factors, such as:

- Test results, especially creatinine levels
- Age
- Gender
- Race
- Height • Weight

Any result lower than 60 milliliters/minute/1.73 m<sup>2</sup> may be a warning sign of kidney disease.

## How the Tests are Performed?

Kidney function tests usually require a 24 hour urine sample and a blood test.

**24 hour urine sample:** A 24 hour urine sample is a creatinine clearance test. It gives your doctor an idea of how much creatinine your body expels over a single day. On the day that you start the test, urinate into the toilet as you normally would when you wake up.

For the rest of the day and night, urinate into a special container provided by your doctor. Keep the container capped and refrigerated during the collection process. Make sure to label the container clearly and to tell other family members why it's in the refrigerator.

On the morning of the second day, urinate into the container when you get up, this completes the 24 hour collection process.

Follow your doctor's instructions about where to drop the sample off. You may need to return it either to your doctor's office or a laboratory.

## Blood Samples

BUN and serum creatinine tests require blood samples taken in a lab or doctor's office. The technician drawing the blood first ties an elastic band around your upper arm. This makes the veins stand out. The technician then cleans the area over the vein. The technician slips a hollow needle through your skin and into the vein. The blood will flow back into a test tube that will be sent for analysis.

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You may feel a sharp pinch or prick when the needle enters your arm. The technician will place gauze and a bandage over the puncture site after the test. The area around the puncture may develop a bruise over the next few days. However, you shouldn't feel severe or long-term pain.

### Treatment of early kidney disease

Your doctor will focus on treating the underlying condition if the tests show early kidney disease. Your doctor will prescribe medications to control blood pressure if the tests indicate hypertension. They'll also suggest lifestyle and dietary modifications.

If you have diabetes, your doctor may want you to see an endocrinologist. This type of doctor specializes in metabolic diseases and can help ensure that you have the best blood glucose control possible.

Health Screening Services in Community Pharmacy

### Ques.3 Prepare notes on Over The Counter Medications.

**Ans-** Over-the-counter medicine is also known as OTC or nonprescription medicine. All these terms refer to medicine that you can buy without a prescription. They are safe and effective when you follow the directions on the label and as directed by your health care professional. Over-the-counter (OTC) medicines are those you can buy at the store. You don't need a prescription from your doctor. They help you feel better by treating or preventing common health problems. These could include pain, allergies, constipation, cold and flu, or nausea.

Over-the-counter (nonprescription) drug products play an increasingly vital role in America's health care system. OTC drugs are defined as drugs that are safe and effective for use by the general public without seeking treatment by a health professional.

FDA's review of OTC drugs is primarily handled by CDER's Office of Nonprescription Drugs. The Nonprescription Drug Advisory Committee meets regularly to assist the agency in evaluating issues surrounding these products. This committee has played a major role in the growth of prescription to OTC switches in recent years.

Because there are over 300,000 marketed OTC drug products, FDA reviews the active ingredients and the labelling of over 80 therapeutic classes of drugs, for example analgesics or antacids, instead of individual drug products. For each category, an OTC drug monograph is developed and published in the Federal Register. OTC drug monographs are a kind of "recipe book covering acceptable ingredients, doses, formulations, and labelling. Many of these monographs are found in section 300 of the Code of Federal Regulations.

### Advantages and Disadvantages of OTC Medication

1. It is most convenient for a patient.
2. OTC medicines are considered to be safe and effective with the minor elements.
3. No need to visit physician so patient can save consultation time and charges.
4. OTC medicines are comparatively cheaper than the prescription drugs.
5. Pharmacist can dispense these medicines without prescriptions, taking more responsibility of therapy and its outcomes, which helps to improve patients-pharmacist relations.

### Disadvantages

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1. OTC medicines can promote practice to self medications, which may be dangerous, for example, gastrointestinal bleeding on frequent use of pain killers (NSAIDS).
2. Community pharmacist dispensing OTC drugs upon demand by patients/consumer do not have sufficient knowledge and attitude to communicate them regarding the precaution to be taken.
3. A regulated advertisement of OTC medicines can promote rational use of OTC drugs. For example, FREQUENT use of Disprin for headache, addictive use of Dulcolax for constipation.

### Role of Pharmacists in OTC Medication

The pharmacists play a vital role in controlling the number of medications being dispensed as OTC drugs. They can also counsel and advise the consumers regarding OTC medications.

Community Pharmacist should take complete responsibility of outcome of OTC medication. He should ensure the need of the OTC medication for a particular patient. For this purpose enquiring patient about his illness and maintaining Patient Medication Record (PMR) are the best. The various roles and responsibilities are as follows:

1. A community pharmacist may apply WHAM process for evaluation of the need of OTC by a patient.

W : Who is the patient?  
W : what are the symptoms  
H : What are the How long have the symptoms been present?  
A : Action taken so far?  
M : medication being taken

This process of evaluation will briefly clarify the reason for requesting of OTC product by patient. The following aspects are identified such as:

- (a) Age and past medication history.
  - (b) Nature and duration of signs and symptoms.
  - (c) Any medication or remedies taken by a patient and its outcome.
  - (d) Presence of co-morbid conditions and use of any prescription medicines.
  - (e) Presence of known contraindications and precautions.
2. He should take special precautions or care before recommending and dispensing y OTC to children, elderly and pregnant or breast-feeding mothers. In case of pregnant ladies and breastfeeding mothers, whenever possible, he should non-pharmacologic therapy, as most of the medications have the ability to cross the placenta and transfer into breast milk to some extent. recommend
  3. He should apply his ethics, technical knowledge, and expertise for selection of right OTC medicines for right clinical condition to promote rationality in drug use.
  4. He should initially recommend non-pharmacological management strategy for mild symptoms to agreed patients, if not agreed then recommend OTC drugs.
  5. He should take responsibility of not promoting self-medication of OTC products.

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6. He should educate and counsel people regarding safe use of OTC medicines.

### Counselling for OTC Products

Accordingly, apart from patient education, the primary objective of OTC counselling becomes to educate pharmacists on basic principles used in assisting patients in the selection of over-the-counter (OTC) products, provide examples of proper communication techniques for effective patient counselling concerning the OTC.

Over-the-counter counselling (or OTC counselling) refers to the counselling that pharmacist may provide on the subject of initiating, modifying, or stopping an over-the-counter (OTC) drug product. OTC counselling requires an assessment of the patient's self-care concern and drug-related needs. The types of drugs that are involved in OTC counselling are, for example used to treat self-diagnosable conditions like heartburn, cough and rashes, though prescription drugs and professional diagnosis are also to the recommendation process.

The aim of OTC counselling is to empower [patients to take control of their healthcare-related needs for conditions that do not require an appointment with a medical doctor. This benefits the healthcare system by reducing physician visits. The pharmacist can also use OTC counselling to ensure the highest likelihood of success for the patient's self-care attempt and minimize the risk of any drug-related problems.

Although OTC drugs are generally regarded safe for use without a prescription (by definition), medication errors still occur. For example, patients sometimes misuse OTC products by taking larger than recommended doses, in order to bring about symptomatic relief more quickly or even intentionally abuse them for unlabelled indications. Even when a patient is instructed not

Over The Counter (OTC) Medication OTC products without speaking with their primary care physician, patients can still fail to identify products as OTC medications worth avoiding to use

**Counselling Techniques:** A pharmacist can use both open-ended questions (that start with the word who, what, how, why or where) as well as close ended questions (that start with the word will, can, do or did) which are to be used only if the former do not get the appropriate response in order to obtain relevant information about a patient's potential needs for treatment or potential drug, therapy problems. Pharmacists ask patients about comorbidities to avoid any drug-disease state contraindications.

### Ques.4 Explain in detailed about self-medications.

#### Ans- Self-medication

Self-medication is a human behaviour in which an individual uses a substance or any exogenous influence to self-administer treatment for physical or psychological ailments. The most widely self-medicated substances are over-the-counter drugs and dietary supplements, which are used to common health issues at home. These do not require a doctor's prescription to obtain and, in some countries, are available in supermarkets and convenience stores.

#### Benefits of Self-medication

##### 1. At individual level

- An active role in his or her own health care.
- Self-reliance in preventing or relieving minor symptoms or conditions.
- Education opportunities on specific health issues (ie stop smoking aids and treat heartburn).

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- Convenience
- Economy, particularly since medical consultations will be reduced or avoided.

2. At community level: good self-medication can also provide benefits such as:

- Saving scarce medical resource from being wasted on minor conditions.
- Lowering the costs of community funded health care programs.
- Reducing absenteeism from work due to minor symptoms.
- Reduce the pressure on medical services where health care personnel are insufficient
- Increase the availability of health care to populations living in rural or remote areas.

## Risks of Self-medications

1. At individual level

- Incorrect self-diagnosis.
- Failure to seek appropriate medical advice promptly.
- Incorrect choice of therapy.
- Failure to recognize special pharmacological risks.
- Rare but severe adverse effects.
- Failure to recognize or self-diagnosis contraindications, interactions, warnings and precautions.
- Failure to recognize that the same active substance is already being taken under a different name. Failure to report current self-medication to the prescribing physician (double medication/harmful interaction).
- Failure to recognize or report adverse drug reactions.
- Incorrect route of administration.
- Inadequate or excessive dosage.
- Excessively prolonged use.
- Risk of dependence and abuse.

The field of psychology surrounding the use of psychoactive drugs is often specifically in relation to the use of recreational drugs, alcohol, comfort food, and other forms of behavior to alleviate symptoms of mental distress, stress and anxiety, including mental illnesses or psychological trauma, is particularly unique and can serve as a serious detriment to physical and mental health if motivated by addictive mechanisms. In postsecondary (university and college) students, the use of self-medicating of study-drugs such as Adderall, Ritalin, and Concerta has been widely reported and discussed in literature.

Products are marketed by manufacturers as useful for self-medication, sometimes on the basis of questionable evidence. Claims that nicotine has medicinal value have been used to market cigarettes as self-administered medicines. These claims have been criticized as inaccurate by independent researchers. Unverified and unregulated third-party health claims are used to market dietary supplements.

Self-medication is often seen as gaining personal independence from established medicine, and it can be seen as a human right, implicit in, or closely related to the right to refuse professional medical treatment. Self-medication can cause unintentional self-harm.

## Role of Pharmacist to Self-medication

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Yet pharmacists can play a key role in helping people to make informed self-care choices. Self-care and self-medication raise the issue of the responsibility of consumers and patients to ensure that the care or medication they select is appropriate to their needs, safe and effective.

Pharmacists are much more appropriate to provide support and advice to the general public compared with other health care professionals. The role of pharmacists in promoting the safe practices during self-medication can be explained as:

## 1. Management of minor illness-medicine reclassification

**2. Prevention of potential risks associated with self-medication:** Pharmacists play a valuable role in identifying, solving and preventing drug related problems for the purpose of achieving optimal patient outcomes and quality of life. Ambulatory based pharmacists have the opportunity and responsibility to foster safe, appropriate, effective and economical use of all medications, especially those therapies patients are self-selecting. Pharmacists should guide their customers to consult the physician before taking any medication by self.

**3. Communicator:** In order to address the condition of the patient appropriately the pharmacist must ask the patient key questions and pass on relevant information related to self-medication (e.g. how to take the medicines and how to deal with safety issues).

**4. Quality drug supplier:** The pharmacists also act as the supplier of quality products to the patients.

**5. Trainer and supervisor:** To achieve this pharmacist must develop a protocol for referral to the pharmacist, protocols for community health workers involved with the handling and distribution of medicines related to self-medication.

**6 Collaborator:** It is imperative that pharmacists develop quality collaborative relationships with the other health care professionals, national professional associations, the pharmaceutical industry, governments (local/national), patients and general public.

**7. Health promotor:** As a member of the health-care team, the pharmacist must participate in health screening to identify health problems and those at risk in the community, participate in health promotion campaigns to raise awareness of health issues and disease prevention, provide advice to individuals to help them make informed health choices.

- "Self-medication" is just one element of self-care and can be defined as the selection and use of medicines by individuals to treat self-recognized illness or symptoms. How these medicines are made available to the public varies from country to country but all have been approved by regulatory agencies as safe and effective for people to select and use without the need for medical supervision or intervention. Products come with comprehensive labelling, and evidence suggests that the majority of consumers will read this information before taking a new medicine. Whether the decisions made are correct is largely unknown.
- Self-selection medicines are commonly referred to as "over-the-counter" medicines or "non-prescription" medicines. In this review, the term "non-prescription" will be adopted since different markets place varying restrictions on their availability, but all fall under the umbrella term of "non-prescription".
- Community pharmacists are uniquely placed to provide support and advice to the general public compared with other health care professionals. The combination of location and accessibility means that most consumers have ready access to a pharmacy where health professional advice is available on demand. A high level of public trust and confidence in pharmacists' ability to advise on non-prescription medicines is afforded to community pharmacists. Although there is a general

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global move to liberalize non-prescription markets, pharmacies in many countries still are the main suppliers of non-prescription medicines. Pharmacists are therefore able to facilitate consumer self-care and self-medication, which needs to be built on and exploited.

### Ques.5 Write in detailed about pain.

**Ans-** Pain is a general term that describes uncomfortable sensations in the body. It stems from activation of the nervous system. Pain can range from annoying to debilitating. It may feel like a sharp stab or dull ache. It may also be described as throbbing, pinching, stinging, burning, or sore. Pain may be consistent, it may start and stop frequently, or it may occur only under some conditions. It may be acute, developing suddenly and lasting for a short period of time. Or it may be chronic, with ongoing sensations that last or return repeatedly over several months or years. Pain may be localized, affecting a specific part of your body. Or it may be generalized, such as the overall body aches associated with the flu. People respond to pain differently. Some people have a high tolerance for pain, while others have a low tolerance. Pain is highly subjective. Pain lets us know when something is wrong and gives us hints about the cause. Some pain is easy to diagnose and can be managed at home. Other types of pain are signs of serious health conditions that require medical attention to treat.

#### What causes pain?

In some cases, pain is clearly caused by a specific injury or medical condition. In other cases, the cause of the pain may be less obvious or unknown.

#### Some common causes of pain include:

- Headache
- Toothache
- Sore Throat
- Stomach Ache or Cramps.
- Muscle Cramps or Strains
- Cuts, Burns or Bruises
- Bone Fractures

Many illnesses or disorders, such as the flu, arthritis, endometriosis, and fibromyalgia, can cause pain. Depending on the underlying cause, you may develop other symptoms as well. For example, these may include fatigue, swelling, nausea, vomiting, or mood changes.

#### Types of pain

There are several different types of pain. It's possible to experience more than one type at the same time. If you're in pain, identifying the type of pain may help your healthcare professional narrow down the potential causes and develop a treatment plan.

#### Acute pain

Acute pain develops over a short period of time. It tends to occur suddenly, often as a result of a known injury, illness, or medical procedure.

For example, acute pain may result from:

- Injuries such as cuts, burns, muscle strains, or bone fractures
- Illnesses such as food poisoning, strep throat, or appendicitis

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- Medical procedures such as injections, dental work, or surgery

Acute pain tends to be sharp, rather than dull. It usually goes away within a few days, weeks, or months, after the cause has been treated or resolved.

Almost everyone experiences acute pain at some point in their lifetime.

## Chronic pain

Chronic pain lasts, or comes and goes, over multiple months or years. It may result from a variety of health conditions, such as arthritis, fibromyalgia, chronic migraine, or cancer. Some people also experience chronic pain following an injury, even after the initial injury has healed. In some cases, the cause of chronic pain is hard to identify. Some people experience chronic pain when there's no other evidence of underlying injury or illness. This is known as functional pain.

The National Health Interview Survey Trusted Source found that in 2019, roughly in 5 adults in the United States had chronic pain. More than 7 per cent had chronic pain that frequently limited their activities at work or in wider life.

## Ways to reduce pain:

1. Do some little exercise.
2. Breathe deeply to relieve pain.
3. Read pain-related literature and pamphlets. management.
4. Counselling can assist with pain.
5. The pain-relieving power of sleep.
6. Learn to relax by practising deep breathing or meditation.
7. Reduce the amount of stress in your life. Chronic pain is made worse by stress.
8. Limit alcohol consumption, which might exacerbate sleep issues.
9. Get a massage to relieve chronic discomfort.
10. If you have chronic pain, you should eat a nutritious diet.
11. Find strategies to divert your attention away from your suffering so that you can enjoy life more.

## Treatment and Care

Pain is complex, so there are many treatment options- medications, therapies, and mind-body techniques.

- 1. Treating Chronic Pain:** Medications, mind-body techniques, and acupuncture can help relieve chronic pain.
- 2. Bioelectric Therapy:** This is a safe alternative to pain medication. Learn how bioelectric therapy can block pain messages to the brain.
- 3. Treating Pain in Children:** The most difficult task involved in treating pain in children is obtaining an objective and accurate measurement of the pain.

## WHO Analgesic Ladder

The analgesic ladder is used as a guideline, and is described as follows:

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**Step 1:** Mild pain (eg. rating of 0-3 on a scale of 0-10): Uses non-opioid and/or a nonsteroidal anti-inflammatory drug (NSAID) and other non-pharmacological strategies to improve quality of relief.

**Step 2: Moderate pain (eg. rating of 4-6):** Continue with medications and methods described in step 1. plus add a mild opioid.

**Step 3: Severe pain (eg. rating of 7-10):** Along with medications and strategies described in steps 1 and 2, add a more potent opioid (eg, morphine, hydromorphone, fentanyl).

**Pharmacological treatment:** The use of medications to treat pain can be complex. Multiple factor must be considered including age, current medications, patient medical and substance use history, type of pain (such as neuropathic versus nociceptive), etc. Pharmacologicla treatments include

**Analgesic:** Acetaminophen is a common analgesic used for mild pain or in a combination with opioids for moderate pain. There must be caution taken in the amount of acetaminophen used per day, which can result in hepatic toxicity.

**Non-steroidal anti-inflammatories (NSAIDs):** Common examples include salicylates, ibuprofen, naproxen and ketorolac. These are used to reduce inflammation which can decrease pain. NSAIDs can be used for mild pain or in combination with opioids for moderate pain. Caution is needed with dosages for paediatric and elderly patients and is contraindicated in patients with hepatic or renal impairment, bleeding disorders or gastrointestinal ulcers.

**Tricyclic antidepressants (TCAs):** Examples include amitriptyline, nortriptyline and desipramine TCAs can be effective in treating neuropathic pain and can provide a mild analgesic effect. Caution should be taken with paediatric and elderly patients.

**Selective serotonin reuptake inhibitors (SSRIs):** Common examples include fluoxetine, paroxetine, paroxetine serotonin and sertraline. SSRIS can be used as adjunct therapy for depression and neuropathic pain. Caution is required with paediatric and elderly patients, as there is a risk of suicidal thoughts.

**Anticonvulsants:** Examples include carbamazepine and pregabalin Anticonvulsants can provide sedation and a graded analgesic effect.

**Topical agents:** Common examples include creams that have analgesic or local anesthetic agents. Topical agents may be used with neuropathies or arthritis.

**Anesthetics:** Anesthetics can be used for epidurals or nerve blocks to assist with acute or chronic pain. These are temporary and may be effective up to three or four months, Risks and benefits must be evaluated prior to performing a block.

**Opioids:** Common examples of mild opioids include codeine, oxycodone, and hydrocodone. Common examples of more potent opioids are morphine, fentanyl, and hydromorphone, used for moderate to severe pain. Opioids can be used with both acute and chronic pain.

### **Ques.6 Explain in detailed about dental health.**

**Ans- Dental Health**

#### **(a) Mouth Ulcer**

Mouth ulcers are small sores that form on your gums; lips, inner cheeks, or palate (roof of mouth). They can be triggered by several different factors, including minor injuries, hormonal changes, and emotional stress. Mouth ulcers are not contagious-and they go away on their own - but there are treatments to help

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ease pain and discomfort. A mouth ulcer is a sore that develops in the soft tissue lining of your gums, tongue, inner cheeks, lips or palate. They're usually yellow

or red and they can be quite painful. Mouth ulcers may also be called aphthous ulcers or canker sores.

**Effects of Mouth Ulcers:** Mouth ulcers can affect people of all ages. Most of the time, having a mouth ulcer is more of an inconvenience than a serious medical concern. While mouth ulcers themselves are not considered dangerous, they have been linked to serious health conditions, including:

- Diabetes
- Immune disorders
- Inflammatory bowel disease
- Celiac disease
- Behcet's disease
- HIV and AIDS

**Symptoms of a Mouth Ulcer:** Mouth ulcers are easy to spot. They usually appear as sores on your lips, gums, tongue, inner cheeks, or roof of the mouth. While red around the edges, mouth ulcers are typically white, yellow or Gray in the centre. You may only develop one ulcer, or there might be more. Other symptoms could include:

- Swelling around the ulcer.
- Increased soreness when brushing your teeth.
- Pain that worsens when eating spicy, salty or sour foods

**Causes of Mouth Ulcers:** The exact cause of mouth ulcers is unknown. But there are several factors that can contribute to the development of these sores:

- Minor tissue injury from dental work, such as having a cavity filled.
- Accidentally biting your cheek or tongue.
- Allergic reaction to certain bacteria.
- Wearing orthodontic braces or retainers
- Vitamin deficiencies,
- Using harsh or abrasive toothpaste.
- Eating a lot of acidic foods, such as oranges, pineapples and strawberries.
- Hormonal changes during your period.
- Stress.
- Lack of sleep.
- Viral, bacterial, or fungal infections

**Diagnosis of Mouth Ulcers:** Your healthcare provider can diagnose a mouth ulcer with a visual examination. If you have a severe breakout- or if they suspect the condition is caused by a

Virus or mineral deficiency-they may order blood tests,

**Treatment of Mouth Ulcers:** While most mouth ulcers heal on their own, topical treatment may be prescribed to ease discomfort and reduce the risk of complications. Common mouth ulcer treatments include antiseptic gels, steroid ointments, or medicated mouth rinses. In serious toothaches need treatment by a dental professional to resolve the pain and whatever severe cases, your healthcare provider may prescribe immunosuppressants.

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## (b) Dental Pain

A toothache can be caused by anything from a popcorn hull stuck in your gum to a broken tooth or a bacterial infection. Some toothaches may come from temporary gum irritation. But problem is causing it.

### Caused by:

- Tooth decay
- Abscessed tooth
- Tooth fracture
- A damaged filling
- Repetitive motions, such as chewing gum or grinding teeth.
- Infected gums

### Symptoms of toothache:

- Tooth pain that may be sharp, throbbing, or constant. In some people, pain results only when pressure is applied to the tooth (biting down on something)
- Swelling around the tooth
- Fever or headache.
- Foul-tasting drainage from the infected tooth.
- A bad odour from the mouth

If you experience trouble breathing and swallowing along with your pain, call a dental professional right away

### What treatments are available for a toothache?

Treatment for a toothache depends on the cause. If a cavity is causing the toothache, your dentist will fill the cavity or possibly extract the tooth, if necessary. A root canal might be needed if the cause of the toothache is determined to be an infection of the tooth's nerve. Bacteria that have worked their way into the inner aspects of the tooth cause such an infection. An antibiotic may be prescribed if there is fever or swelling of the jaw.

**Treatment of Toothache at Home:** For temporary relief of a toothache, you can do the following:

**Rinse with warm saltwater:** Saltwater can loosen debris between your teeth, act as a disinfectant and reduce inflammation. Stir a  $\frac{1}{2}$  teaspoon of salt into a glass of warm water and rinse your mouth thoroughly.

**Rinse with hydrogen peroxide:** A hydrogen peroxide (3% solution) helps to reduce inflammation and pain. Dilute the hydrogen peroxide with equal parts water and rinse thoroughly. Don't swallow it.

**Cold compress:** For swelling and pain hold a cold compress of ice wrapped in a towel to the painful area for 20-minute periods. Repeat every few hours

**Pain medications:** Over-the-counter pain medications can reduce pain and inflammation. NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) such as aspirin, ibuprofen (Motrin®, Advil) and naproxen (Aleve) can be used, or take acetaminophen (Tylenol) if you can't take NSAIDs. Don't give a child under the age of 16 aspirin; use Tylenol instead.

### Natural or herbal treatments:

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**Clove oil:** A natural antiseptic that numbs pain and reduces inflammation. Dab a small amount of clove oil on a cotton ball and apply to the painful area. Or add a drop of clove oil to a small glass of water and rinse your mouth thoroughly.

**Vanilla extract:** The alcohol in vanilla extract numbs pain temporarily and its antioxidants help the area heal. Use your fingertips or cotton ball to apply the extract to the tooth and gum a few times a day.

**Peppermint tea:** Peppermint's soothing properties can be applied to the painful area with a cooled down peppermint tea bag. Hold this warm tea bag against the tooth and gum

**Garlic:** Make a paste of a crushed garlic clove and apply to the affected area. Garlic can kill bacteria (it contains the antimicrobial allicin) and relieve pain.

### (c) Gum Swelling

Swollen gums tend to be a sign of an underlying issue, such as gum disease or infection. There are many effective home remedies for swollen gums and basic oral hygiene may help prevent the issue. Anyone experiencing swollen gums should see a dentist for a full diagnosis and treatment. Numerous issues can lead to swollen gums. Most of them relate to oral health or from oral health issues.

**Causes:** Causes of swollen gums include gingivitis and food particles becoming stuck in the teeth. The cause of swollen gums may be simple, such as getting food particles stuck in the teeth. For instance, eating popcorn may cause hard pieces of kernel to become stuck between the teeth, sometimes lodging in the gums. This can easily cause irritation and in the area. Most of the time, these symptoms do not last long and will go away once the person brushes and flosses out the food particles.

**Prevention:** Taking steps to treat swollen gums is a key part of any dental treatment. These measures may help prevent swelling or ease the symptoms:

- Brush regularly, at least twice each day or after every meal
- Floss regularly.
- Use gentle oral products such as toothpaste and mouthwash.
- Avoid sugary drinks, as they can contribute to bacteria buildup in the mouth.
- Avoid tobacco, including smoking or chewing it.
- Avoid alcohol and alcoholic mouthwashes, as the alcohol may dry out and irritate the gums.
- Avoid sharp foods such as chips, seeds and popcorn, which may get stuck in the teeth and cause pain.

It is important to note that these tips are only supplements to a proper diagnosis and treatment. Swollen or irritated gums typically signal an underlying issue. Ignoring these symptoms may make the issue worse in the long term.

**Home remedies:** Although maintaining good oral hygiene will protect against health problems in many cases, issues may still occur. If oral symptoms such as swelling in the gums do occur, there are some home remedies that show promise.

### **Ques.7 Prepare notes on vendor selection.**

#### **Ans- Vendor Selection**

Remember, a good Supplier is a key part of your team. Selecting competent Vendors in the first place, results in an almost problem-free buying department.

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## Vendor selection process

**Awareness:** The first step is to get to know the firm so that we can have a better understanding of what is it that you are looking for.

**Need:** Once we get to know the firm better, work out your needs and the ways in which we can source merchandise. Armed with this background, we will club what we have learnt about your firm with the information that we have about the industry to seek out the most appropriate Vendor to work with.

**Strategy:** Once we outline the needs, we need to strategize course of action. This is where we will sketch out your specific case and chart out what steps need to be taken in order to achieve your needs in sourcing of merchandise.

**Business case:** A critical decision-making factor when it comes to selecting Vendor is the decision of long term.

**Budget:** A critical decision-making factor when it comes to selecting Vendor is the budget that you have allocated on the project. Now that we have worked out what needs to get done, together we can finalize a number that can be realistically spent on this.

**Request for proposal (RFP) process:** It is now time to draft up a request for proposals. This is where it will help you communicate your needs in a written format along with a request for a quote from the Vendor. Your proposal will then be sent to a few potential Vendors who can match your requirements.

**Select Vendor:** Once we have finalized an agreement with a Vendor, the last step is to sign on the dotted line.

## Factors influencing Vendor Selection

While the key criteria for Vendor selection are quality, price, terms, delivery and service, there are various other related factors which need to be considered as well:

- Vendor have the capacity to meet your volumes.
- Vendor financial stability background and resources to manage supplies at the desired scale.
- Delivery of the right quality at the right cost.
- To make on time deliveries every time,
- Capability of reacting quickly if unforeseen and unanticipated requirements crop up suddenly.
- Commitment to the product and will they see your success as their success?
- Working as a true partner with an understanding of your needs, processes and timescales.
- Ability to grow and evolve with you.
- Vendor technologically equipped to work with your system requirements?
- Their performance on previous orders.
- Vendor compare with other Vendors in terms of efficiency, price and delivery.

This is the way you can manage your business, scale it, and grow your customer base.

The following points should be generally taken into consideration while preparing approved list.

1. Reputation of the supplier in the market.
2. Financial condition of the supplier.
3. Manufacturing capabilities of the supplier.

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4. Capability of the supplier to supply at a short notice.
5. After sales service facilities provided by the supplier.
6. Terms and conditions of payment.

### Steps in Vendor Selection

The vendor selection process can be a very complicated and emotional undertaking if you do not know how to approach it from the very start. Here are five steps to help you select the right Vendor for your business. This guide will show you how to analyze your business requirements, search for prospective Vendors, lead the team in selecting the winning Vendor and provide you with insight on contract negotiations and avoiding negotiation mistakes. Let us learn these steps in detail

**1. Analyse the business requirements:** Before you begin to gather data or perform interviews, define your requirements, business requirement and also vendor requirements, create a final document. Consider following:

- (i) Assemble an evaluation team
- (ii) Define the product, material, or service
- (iii) Define the technical and business requirements
- (iv) Define the vendor requirements
- (v) Publish a requirements document for approval

**2. Vendor search:** Now that you have agreement on the business and vendor requirements, the team now must start to search for possible vendors that will be able to deliver the material, product or service. The larger the scope of the vendor selection process, the more vendors you should put on the table. Of course, not all vendors will meet your minimum requirements and the team will have to decide which vendors you will seek more information from. Next, write a Request for Information (RFI) and send it to the selected vendors. finally, evaluate their responses and select a small number of vendors that will make the "Short List" and move on to the next round. In summary:

- (i) Compile a list of possible vendors
- (ii) Select vendors to request more information from
- (iii) Write a request for information (RFI)
- (iv) Evaluate responses and create a "Short List" of vendors.

**3. Request for proposal (RFP) and request for quotation (RFQ):** The business requirements are defined and you have a short list of vendors that you want to evaluate. It is now time to write a Request for Proposal or Request for Quotation. Whichever format you decide, your RFP or RFQ should contain the following sections:

- (i) Submission details
- (ii) Introduction and executive summary
- (iii) Business overview and background
- (iv) Detailed specifications
- (v) Assumptions and constraints

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(vi) Terms and conditions.

(vii) Selection criteria

## 4. Proposal evaluation and vendor selection

The main objective of this phase is to minimize human emotion and political positioning in order to arrive at a decision that is in the best interest of the company. Be thorough in your investigation, seek input from all stakeholders and use the following methodology to decide vendor selection.

- (i) Preliminary review of all vendor proposals.
- (ii) Record business and vendor requirements.
- (iii) Assign importance value for each requirement.
- (iv) Assign a performance value for each requirement.
- (v) Calculate a total performance score.
- (vi) Select the winning vendor.

## 5. Contract negotiation strategies

The final stage in the vendor selection process is developing a contract negotiation strategy. Remember, you want to "partner" with your vendor and not take them to the cleaners. Review your objectives for your contract negotiation and plan for the negotiations by covering the following items:

- (i) List rank your priorities along with alternatives.
- (ii) Know the difference between what you need and what you want.
- (iii) Know your bottom line so you know when to walk away.
- (iv) Define any time constraints and benchmarks.
- (v) Assess potential liabilities and risks.
- (vi) Confidentiality, non-completion, dispute resolution, changes in requirements.
- (vii) Do the same for your vendor (i.e., walk a mile in their shoes).

**6. Contract negotiation mistakes:** The smallest mistake can kill an otherwise productive contract negotiation process. Avoid these ten contract negotiation mistakes and avoid jeopardizing on otherwise productive contract negotiation process.

**Phases for Selection of Vendor:** In deciding which vendor to use, the selection process involves the following phases:

- The Survey phase involves the identification of suitable suppliers. Purchasing manager may also take the following into consideration:
- Lead time of the vendor, it is from initiation to completion of the order competitiveness of price.
- Vendor's flexibility.

**The investigation phase:** Involves the analysis and comparison of the identified vendors. **The selection phase:** Involves the negotiation and the selection of the most suitable vendors.

**The relationship phase:** Consists of maintaining good relations with vendors.

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## Definition of credit

1. Through which the items can be bought or sold without making cash payment?
2. Whenever any sale deed is done between buyer and seller, the terms of payment is also finalized in order to avoid any misunderstanding at the later stage.
3. In pharmaceutical marketing, 45 days credit facility is provided by many manufacturer to the wholesalers.
4. This facility is not for new wholesaler in initial stage.
5. A wholesaler, usually gives 21 days credit facility to its retailers in business.
6. Now-a-days a substantial amount of trading involves credit.
7. It is advantageous to both buyer and seller.
8. When the sale is done on credit, it will certainly increase the sale, but it involves the risk of bad debts and delayed payments.

## The following information may be obtained about the buyer before selling the goods on credit:

- 1. The character of buyer:** He should be honest, reliable, trustworthy, and having reputation for fairness and justice.
- 2. Financial position of the buyer:** This is done to know the financial position of the buyer, in order to find its capacity to pay debt, etc.
- 3. Assets and liability of the firm:**

The information helps to judge its state of business.

This information can be obtained by going through the financial statements of the firm, bank reference and salesman's report.

## Tenders' definition

A tender or a quotation is a written offer to do a work or to provide a material at a given price within a prescribed period and under specified condition.

## Open tenders

- Used when the value of purchase is high, and when supply sources are not known.
- Open tenders are very expensive.
- These tenders are given in leading newspaper.
- It gives wide publicity and is open to any vendor. The vendor must deposit an earnest money with the tender information and tender number.
- The purpose is for fixing and finalizing prices of materials, terms, and conditions.

## Limited tender

The system is used only in those cases where the value of tender is moderate.

The tenders are invited only from those firms which are on the approved list of suppliers.

## Single tender

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When the items to be purchased are proprietary in nature or the order is to be repeated within a short period.

The tender is send only to a single supplier who is dealing with the items of specific specifications.

### Oral tender

- In case the supplies are of minor character and are urgently required, a person or a committee is deputed to purchase the specified items from the market.
- After collecting the information regarding the price charged and quality of product to be supplied from three to four suppliers.
- The items are purchased from the supplier which has quoted the minimum price of the specified items.

### Global tender

The tenders are invited from all parts of the world.

These are for large contracts for supplies from foreign countries or when foreign collaboration is required in proposed project.

The notice containing the following information is issued to call the tender:

- (a) Name and detailed specification of material to be purchased.
- (b) Quantity to be purchased.
- (c) Period of delivery.
- (d) Earnest money to be deposited.
- (e) Terms and conditions of purchase.
- (f) Date, time and place for receiving and opening of the tenders.

Factors like sample specification, make guarantee period, period of supply, other expenses like freight, sale tax, packing and forwarding charges are also considered.

### Advantages

1. The suppliers are well conversant with the items to be supplied.
2. The suppliers generally submit realistic quotations because they are regular suppliers of those items specifications.
3. There are less chances of any error in supplying the items of required. There are chances of progressing reduction in price.

### **Ques.8 Write in detailed about Standard Operating Procedures.**

**Ans-** A standard operating procedure (SOPs) is a set of written instructions that document a routine or repetitive activity followed by an institution. The term "SOP" is sometimes used synonymously with terms such as protocols, instructions, and worksheets. There are different definitions for SOPs depending on the area where it is being applied. Other definitions of SOPs are:

1. A written document that describes in detail, step-by-step, how a procedure should be done.

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2. A set of instructions with the force of a directive that defines or standardizes a procedure or specific.
3. Function; An effective catalyst to drive performance improvement and improve organizational results.
4. SOPs are to create the level of quality and accepted practice for a specific procedure,
5. The foundation of every good quality system.

A document which describes the regularly recurring operations relevant to the quality of a particular activity.

### **A SOP is a compulsory instruction?**

Specifies in writing what should be done, when, where and by whom.

Common to all the definitions regarding an SOP is that it is applied to a task or function or operation or procedure being undertaken. It provides the details/instructions (chronological steps) of how the task should be carried out. It is an authorized document (officially approved). The components of SOPs are as follows:

- Scope- the activity which is to be covered by the SOP
- Objective - the purpose of following the procedure
- Responsibility who will be carrying out the activity
- Procedure-instructions on what should be done
- Audit to identify areas of improvement.

### **Specific Objectives**

Explain the importance of standard operating procedures.

State the benefits of standard operating procedures.

Discuss the benefits of SOPS in the pharmacy.

### **Importance of SOPS**

Standard operating procedures are essential in order to maintain:

Consistency which helps to maintain the level of services offered and therefore always maintains good pharmaceutical practice;

Accuracy - to ensure that the services are offered with highest level of attention, care, and due diligence to guarantee safety of the patient and confidence of both the patient and the health worker.

Reliability this ensures that the outlined processes are dependable to achieve outcomes.

Validity- to legalise processes within the pharmacy.

People need consistency to achieve top performance and that is what SOPS provide. They reduce system variation especially in systems where quality is very important e.g., manufacturing. Having SOPs in place in a hospital, the pharmaceutical staff can show that they operate systems of practice which are safe and which encourage continuous improvement.

**Benefits of SOPS:** SOPS provide benefits to the facility in different aspects and a organizational level.

### **Improved productivity and performance**

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SOPs help to assure the quality and consistency of medicine supply activities. People need consistency to achieve top performance. Productivity and performance are improved when jobs and tasks are done in a consistent way. SOPs help staff to do that by giving clear instructions, which are available to all staff that does a certain task. Thus nobody should have to ask another person on how a job has to be done.

**Improved quality of products and services:** The development and use of SOPs minimizes variation and promotes quality through consistent implementation of a process or procedure within the organization, even if there are temporary or permanent personnel changes.

**Cooperation among staff:** SOPs provide an opportunity to fully utilize the expertise of all members of a department or team. People tend to be supportive of the things they help create. Involving employees in developing SOPs can help assure the final product is more complete, useful, and accepted. The SOP also helps senior managers to delegate responsibilities, and among staff, it assists in clarifying the roles of staff with respect to specific tasks.

**Facilitating training:** SOPs are useful tools for training staff especially new members. Having complete step-by-step instructions helps trainers ensure that nothing is missed and provides a reference resource for trainees. For employees filling in on jobs they do not perform on a regular basis, an SOP can be an excellent reference document on how a task is done.

**Safety and legal protection:** SOPs minimize opportunities for miscommunication and can address safety concerns. Correct and consistent use of SOP can help keep employees safe at work and may provide some legal protection from national regulatory agencies.

**Evaluation:** SOPs provide a contribution to the audit process. Having SOPs can encourage regular evaluation of work activity and continuous improvement in how things are done.

**Benefits of sops in the pharmacy:** SOPS give clarity to the pharmacy personnel, to follow steps/procedures, systematically, and uniformly. SOPs assist the pharmacy personnel to know who does what, and when, thus avoiding confusion, and function overlapping. They assist to ensure that good pharmacy practice is followed and always achieved. SOPS are useful tools for training new members of staff. And they help to assure the quality and consistency of the service, and thus minimize harm to the patient.

**Developing of SOPS:** A SOP can be created by modifying an existing one or by writing down the steps taken when performing specific tasks in your operation and following a template of choice. When developing SOPS, one must choose a process which will be easy to implement. It is easier to modify an existing SOP to suit the needs of an institution, however in some cases one might be forced to develop a new one from scratch. Before developing an SOP, one must assess the need and then review available resources. One should start developing the activities that are done most often. Assess areas in your operation in which standard procedures are necessary, start with those in which you are currently communicating most often e.g., dispensing. Review available resources to use as a template, or start fresh using these elements.

## Steps Involved in developing SOPS

- Preparation for SOP development
- Information gathering phase
- Write the SOP
- Test the SOP
- Sign-off the SOP
- Release the SOP

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- Update and maintain the SOP

**Preparation for SOP development:** Put together a team to undertake the effort. SOP development should be an inclusive process that considers the input of everyone within the department. All members of staff that will be affected by the SOP should be involved in the development process. Hospital managers who write procedures without input from other members of staff run the risk of upsetting workers and producing a poorly written SOP. Incorporating the members of staff will increase buy-in and produce better SOPs. The process creates teamwork among workers and managers. In the preparatory phase, it is important to identify one individual within the organization with the skills and expertise in the particular area to lead the development process. Then select other people to form a team to support this individual to prepare the SOP. And ensure support from management.

**Information gathering phase:** Identify and prioritize an area for SOP development. For an activity to become the topic of an SOP, it must be either subject to regulations or it must address an important task within quality control systems or between quality systems and other functional units. SOPs can be established for every task within the pharmacy. SOPs should be made to cover different functions that are carried out in a pharmacy, and following legal and ethical procedures should always be kept in mind while writing and following the SOPs. A needs assessment should be done to:

- Evaluate existing systems to determine what is happening and/or not happening.
- Evaluate existing systems to understand who does what.
- Help identifying gaps in practices and resources.
- Help in prioritization of SOPs and target setting.

So where should one start? One should start by gathering existing SOPs that cover the areas from the hospital and from your department. Analyse what you have, and where the gaps are. Then start editing existing SOPs and creating additional SOPs for the needed areas. In prioritizing, you are looking for areas where there are bottlenecks (these are processes in a system that limits performance). Where do you have a lot of delays in the system? Delays imply you are not utilizing efficiently the resources available to you. Are there steps and decisions that can be standardized? And finally, are there tasks that can be improved? Once you know all this you can select an operation for SOP.

**Writing SOPs:** Standard operating procedures are instructions that should be understandable to everyone who uses them. Procedure writers must use short, direct sentences so readers can quickly understand and memorize the steps in the procedure. Information should be conveyed clearly and explicitly to remove any doubt as to what is required.

**Content of SOPs:** Since each pharmacy operates and functions differently depending on varying circumstances, and has its own ways of carrying out certain procedures, the SOPs in different pharmacies will differ. However, the basic content, structure, and the concepts of SOPs will obviously be the same. The make-up of the SOPs should meet a minimum number of requirements:

- SOP name
- Scope of the SOP
- Aim or objective of the SOP.
- Processes/Steps to be carried out, in sequential order.
- Whose responsibility it is to carry out the SOP?
- Scheduling review.

## Steps for writing SOPs

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**Name the SOP:** The name is important for identification, filing and retrieval. The naming should use descriptive action words. The name of the SOP should uniquely identify it from other SOPs within the pharmacy by using a SOP number. Mention also the name and address of the pharmacy/hospital.

**Write a scope:** The scope indicates what is covered from the beginning to the end of the process. To define the scope, one needs to answer the following questions: Which specific operations or tasks within the pharmacy will be covered? Which are not covered? Who is the SOP written for?

**Aim or objective of the SOP:** This part indicates the purpose for following the procedure.

**Write the detailed steps for the task:** In this step one provides an overall description of the tasks involved in carrying out the activity. The active voice and present verb tense should be used. The term "you" should not be used, but implied. It should also include any equipment that may be used e.g., tablet counters. Procedures should include all steps that are essential and that should be performed the same way by all workers. Omitting any of these essential steps may lead to confusion for the reader or performance variation among different workers. On the other hand, procedures should not be so detailed that they are cumbersome and impractical for everyday use.

**Responsibility:** Who is responsible for carrying out the procedure and who ensures that staff members are suitably trained to carry out a procedure? In a working pharmacy this would also include contingency plans detailing what to do in cases of sickness or holiday leave, etc.

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## Short Answers

**Ques.1 Give the importance/significance of health screening services.**

**Ans- Importance/Significance of Health Screening Services**

- Early detection of diseases may result in better treatment and management, which reduces the risk of complications whilst increasing the chances of better health outcomes.
- Health screening helps to identify if the patient is at risk of, or has a disease or condition, that was not previously known about.
- Health screening can help people who have family history of diabetes or cardiovascular disease.
- Health screening services are very small and accurate tests. These can be trusted for period of perfect diagnosis of a disease.
- Primary health care tests are easily available near the community or health care centre. Even certain pharmacist can also perform such tests like blood pressure, blood glucose estimation, etc.
- These tests do not involve high cost. Such tests can be affordable by most of the population. Whenever they feel need of them Le. at a point occurrence of symptoms, etc.
- Today most of the tests are performed by digital portal devices. These, can be carried out by anywhere. Even the costs of digital devices are not too high and common man can be easily affordable for such devices.
- Certain secondary health screening services have their own side effects. But no side effects are adverse effects on the body were observed with primary health screening services.

**Ques.2 Give the types of health screening.**

**Ans- Types of Health Screening**

**(i) Mass screening:** is defined as the screening of a whole population or a sub-group. It is offered to all, irrespective of the particular risk individual (e.g., tuberculosis).

**(ii) High-risk or Selective screening:** This type of screening is applied selectively to high-risk groups. For example: screening for cancer cervix in the lower social groups.

**(iii) Multiphasic screening:** It is defined as the application of two or more screening tests combination to many people at one time than to carry out separate screening tests for single disease. e.g., chemical, and haematological tests on blood and urine specimens, lung function assessment, audiometry and measurement of visual acuity.

**(iv) Primary health screening tests:** These tests are performed either when the physician prescribed or when a patient himself undergo such test after the onset of symptoms. Such tests are helping in diagnosis of disease and stages also.

**(v) Secondary health screening tests:** These tests are performed after the diagnosis or disease or its stage. Such tests are only carried out when the physicians prescribe them.

## COMMUNITY PHARMACY AND MANAGEMENT

### Ques.3 What are the scope of health screening services in community pharmacy.

#### Ans- Scope of Health Screening Services in Community Pharmacy

- The process of health screening refers to service provided by the health care professional to screen the health status of any individual with or without position signs and symptoms.
- It is important as early detection can make a difference threatening between relationally simple courses of treatment or life threatening complications.
- It saves lives by early detection of conditions such as hypertension or elevated blood sugar and can help in preventing serious disorders.
- Benefits of health screening are peace of mind and reassurance, reducing economic burden of patient by early diagnosis.
- The longer the patient is undiagnosed, the higher will be the future complications.
- So in future scope we can say the screening services will increase the patient safety.
- As being small test they will be very accurate and reliable for the patients.
- As these can be performed by the nearby pharmacists or any community health centers they will provide easy availability for the patients.
- They are easy to be performed so cost effective and without any side effects.

### Ques.4 What are the goals of health services & patient outcomes.

#### Ans- Goals for Health Services and Patient Outcomes:

The goal of health services is to protect and improve the health of individuals and populations. In a landmark 2001 report, Crossing the Quality Chasm: A New Health System for the 21st Century, the Institute of Medicine (IOM) of the National Academy of Sciences proposed that the goals for health services should include six critical elements:

**1. Patient Safety:** Patients should not be harmed by health care services that are intended to help them. Human found that between 46,000 and 98,000 Americans were dying in hospitals each year due to medical errors. Subsequent research has found medical errors common across all health care settings. The problem is not due to the lack of dedication to quality care by health professionals, but due to the lack of systems that prevent errors from occurring and/or prevent medical errors from reaching the patient.

**2. Effectiveness:** Effective care is based on scientific evidence that treatment will increase the likelihood of desired health outcomes. Evidence comes from laboratory experiments, clinical research (usually randomized controlled trials), epidemiological studies, and outcomes research. The availability and strength of evidence varies by disorder and treatment.

**3. Timeliness:** Seeking and receiving health care is frequently associated with delays in obtaining an appointment and waiting in emergency rooms and doctors' offices. Failure to provide timely care can deny people critically needed services or allow health conditions to progress and outcomes to worsen. Health care needs to be organized to meet the needs of patients in a timely manner.

**4. Patient Centered:** Patient-centered care recognizes that listening to the patient's needs, values, and preferences is essential to providing high-quality care. Health care services should be personalized for each patient, care should be coordinated, family and friends on whom the patient relies should be involved, and care should provide physical comfort and emotional support.

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**5. Efficiency:** The U.S. health care system is the most expensive in the world, yet there is consistent evidence that the United States does not produce the best health outcomes or the highest levels of satisfaction. The goal is to continually identify waste and inefficiency in the provision of health care services and eliminate them.

**6. Equity:** The health care system should benefit all people. The evidence is strong and convincing that the current system fails to accomplish this goal. The IOM report, Unequal Treatment documented pervasive differences in the care received by racial and ethnic minorities. The findings were that racial and ethnic minorities are receiving poorer quality of care than the majority population, even after accounting for differences in access to health services.

### **Ques.5 Write a short note o cough.**

#### **Ans- Cough**

A cough is your body's way of responding when something irritates your throat or airways. An irritant stimulates nerves that send a message to your brain. The brain then tells muscles in your chest and abdomen to push air out of your lungs to force out the irritant. An occasional cough is normal and healthy.

#### **What is a cough?**

A cough is a natural reflex that is your body's way of removing instants from your upper (throat) and lower (lungs) airways. A cough helps your body heal and protect itself,

#### **What are the types of coughs?**

There are many types of cough. Some of the names for coughs describe how long they last. while other types describe how they feel or sound, and other types are actual conditions.

Types of coughs may be related to how they last: Acute cough begins suddenly and lasts for two to three weeks.

- Subacute cough is one that stays around after you've had an infection and lasts three to eight weeks.
- Chronic cough lasts longer than eight weeks. Long-lasting coughs may also be called persistent coughs. Refractory cough is a chronic cough that hasn't responded to treatment.

#### **What are the most common causes of a cough?**

There are many things that can make you cough. Some of them include:

- Irritants or allergens
- Smoke
- Strong smells (like cleaners and perfumes)
- Mold
- Dust
- Pollen
- Pet dander
- Mucus
- Certain medications, like the blood pressure medications known as ACE inhibitors.

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## Medication

- **Anti-Tussive Drugs:** Centrally acting drugs (opioids and non-opioids) and peripherally acting anti-tussives. Morphine and codeine.
- **OTC Medicines:** Combinations of antihistamines, decongestants, cough suppressants and expectorants.
- **Peripheral Antitussive:** Levodropropizine.
- Expectorants
- Antihistamines

## Ques.6 What are the risk factors and preventions for common cold.

### Ans- Risk Factors

These factors can increase your chances of getting a cold:

- **Age:** Infants and young children are at greatest risk of colds, especially if they spend time in child care settings.
- **Weakened immune system:** Having a chronic illness or otherwise weakened Immune system increases your risk.
- **Time of year:** Both children and adults are more likely to get colds in snow fall and winter, but you can get a cold any time.
- **Smoking:** You're more likely to catch a cold and to have more-severe colds if you smoke or are around secondhand smoke.

**Exposure:** If you're around crowds, such as at school or on an airplane, you're likely to be exposed to viruses that cause colds.

### Prevention

There is no vaccine for the common cold, but you can take common sense precautions to slow the spread of cold viruses:

**Wash your hands:** Wash your hands thoroughly and often with soap and water for at least 20 seconds. If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol. Teach your children the importance of hand-washing. Avoid touching your eyes, nose, or mouth with unwashed hands.

• **Disinfect your stuff:** Clean and disinfect high-touch surfaces, such as doorknobs, light switches, electronics, and kitchen and bathroom countertops daily. This is especially important when someone in your family has a cold. Wash children's toys periodically.

**Cover your cough:** Sneeze and cough into tissues. Throw away used tissues right away, then wash your hands thoroughly. If you do not have a tissue, sneeze or cough into the bend of your elbow and then wash your hands.

**Do not share:** Don't share drinking glasses or eating utensils with other family members. Use your own glass or disposable cups when you or someone else is sick. Label the cup or glass with the name of the person using it.

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**Stay away from people with colds:** Avoid close contact with anyone who has a cold. Stay out of crowds, when possible. Avoid touching your eyes, nose, and mouth.

**Review your child care center's policies:** Look for a child care setting with good hygiene practices and clear policies about keeping sick children at home. •

**Take care of yourself:** Eating well and getting exercise and enough sleep is good form your overall health.

### **Ques.7 Give the management and treatment for constipation.**

#### **Ans- Management and Treatment of Constipation**

##### **Self-care**

Most cases of mild to moderate constipation can be managed by you at home. starts by taking an inventory of what you eat and drink and then making changes.

Some recommendations to help relieve your constipation include:

- Drink two to four extra glasses of water a day. Avoid caffeine-containing drinks and alcohol, which can cause dehydration.
- Add fruits, vegetables whole grains and other high-fiber foods to your diet. Eat fewer high-fat foods, like meat, eggs and cheese.
- Eat prunes and/or bran cereal.
- Keep a food diary and single out foods that constipate you
- Get moving, exercise.
- Check how you sit on the toilet Raising your feet, leaning back or squatting may make having a bowel movement easier
- Add an over-the-counter supplemental fiber to your diet (like Metamucil®, Citrucel®,and Benefiber®).
- If needed, take a very mild over-the-counter stool softener or laxative (such as docusate [Colace] or Milk of Magnesia), Mineral oil enemas, like Fleet, and stimulant laxatives, like bisacodyl (Dulcolax) or senna (Senokot), are other options. There are many laxative choices. Ask your pharmacist or doctor for help in making a choice. Do not use laxatives for more than two weeks without calling your doctor. Overuse of laxatives can worsen your symptoms.
- Do not read, use your phone or other devices while trying to move your bowels.

##### **Medication/Supplement Review**

In addition to self-care methods, your doctor will review your medications and supplements (if you take any). Some of these products can cause constipation. If they do, your doctor may change the dose, switch to another drug and/or ask that you stop taking the supplement. Never stop taking your medications or supplements before talking with your doctor first.

##### **Non-pharmacological therapy:**

- Adequate diet replete with nutrition and fibre and physical activity.
- Fibre intake
- Physical activity
- Laxatives

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- Bulking agents- ispaghula-husk, methyl cellulose
- Stool softeners and stimulants
- Biofeedback programs

### Pharmacological drug therapy:

- Stool softeners: Docusate sodium
- Suppositories: glycerin and bisacodyl
- Enemas
- Lactulose
- Linaclotide
- Lubiprostone
- Plecanatide
- Polyethylene glycol

### Ques.8 What are the causes and risk factors of vomiting.

#### Ans- Causes and Risk Factors of Vomiting

Vomiting is an involuntary reflex that empties the stomach forcefully. Some people may also self-induce vomiting due to an eating disorder. According to the Mayo Clinic, causes for nausea and vomiting vary widely and can include:

- Early stages of pregnancy
- Medication-induced vomiting
- Intense pain
- Emotional stress (such as fear)
- Gallbladder disease
- Food poisoning
- Infections (such as the "stomach flu")
- Overeating
- A reaction to certain smells or odors
- Heart attack
- Concussion or brain injury
- Brain tumor
- Ulcers
- Some forms of cancer
- Bulimia or other psychological illnesses
- Gastroparesis or slow stomach emptying (a condition that can be seen in people with diabetes)
- Ingestion of toxins or excessive amounts of alcohol
- Migraines
- Labyrinthitis, which also causes dizziness and a feeling of spinning (vertigo)
- Motion sickness, nausea and vomiting associated with travelling
- Certain medicines, such as antibiotics and opioid painkillers
- Kidney infections and kidney stones
- A blockage in your bowel, which may be caused by a hernia or gallstones

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- Chemotherapy and radiotherapy
- An inflamed gallbladder (acute cholecystitis)

### **Ques.9 What are the site selection requirements for wholesale/retail pharmacy store.**

#### **Ans- Site Selection Requirements**

- 1. Availability of finance:** Availability of finance is the most important factor. Sufficient finance and meager financial resources mainly effect on opening of drug store.
- 2. Business locality:** It is preferable to open a drug store in a business locality because the number of people visiting such locality is quite large. Opening of drug store in such locality required huge investment because of high rent and land price.
- 3. Thickly populated residential area:** Such area is more preferable. Because people may buy required medicines during their evening walk.
- 4. Developing area:** Now-a-days in big cities new localities are coming up very fast. So ideal place is there. No problem of competition. Drug store will meet the needs of its customers by extending all types of facilities.
- 5. Hospital:** Hospital and nursing home does not have its own drug store and physicians have a good practice, then its ideal one for opening of drug store.
- 6. Flow of traffic:** Avoid locations near traffic signals because shop in the vicinity of traffic signals must face parking problems for cars, scooters and cycles, etc. Avoid the one-way traffic, road circles.
- 7. Parking:** While selecting the location for drug store in a busy shopping centre, there must be enough parking space outside the drug store. In a big city there are certain restricted areas where parking is not allowed to prevent obstruction in smooth traffic. Such areas are not ideal.
- 8. Drug Store:** As far as possible there should not be any competitor or already existing near the location of a new drug store. If sales potential is good even for another store, then one can consider opening a new one.
- 9. Near to Hotel, School, Seminar Hall:** These locations are not preferable. If the site is near a restaurant, it may create problems of maintaining cleanliness. In case cold drinks or ice creams facilities also extended, then it is preferable to pen a drug store near a cinema hall because people buy drugs when they visit for a soft drink.

### **Ques.10 Give the steps involve in vendor selection.**

#### **Ans- Steps in Vendor Selection**

The vendor selection process can be a very complicated and emotional undertaking if you do not know how to approach it from the very start. Here are five steps to help you select the right Vendor for your business. This guide will show you how to analyse your business requirements, search for prospective Vendors, lead the team in selecting the winning Vendor and provide you with insight on contract negotiations and avoiding negotiation mistakes. Let us learn these steps in detail

- 1. Analyse the business requirements:** Before you begin to gather data or perform interviews, define your requirements, business requirement and also vendor requirements, create a final document. Consider following:

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- (i) Assemble an evaluation team
- (ii) Define the product, material, or service
- (iii) Define the technical and business requirements
- (iv) Define the vendor requirements
- (v) Publish a requirements document for approval

**2. Vendor search:** Now that you have agreement on the business and vendor requirements, the team now must start to search for possible vendors that will be able to deliver the material, product or service. The larger the scope of the vendor selection process, the more vendors you should put on the table. Of course, not all vendors will meet your minimum requirements and the team will have to decide which vendors you will seek more information from. Next, write a Request for Information (RFI) and send it to the selected vendors. Finally, evaluate their responses and select a small number of vendors that will make the "Short List" and move on to the next round. In summary:

- (i) Compile a list of possible vendors
- (ii) Select vendors to request more information from
- (iii) Write a request for information (RFI)
- (iv) Evaluate responses and create a "Short List" of vendors.

**3. Request for proposal (RFP) and request for quotation (RFQ):** The business requirements are defined and you have a short list of vendors that you want to evaluate. It is now time to write a Request for Proposal or Request for Quotation. Whichever format you decide, your RFP or RFQ should contain the following sections:

- (i) Submission details
- (ii) Introduction and executive summary
- (iii) Business overview and background
- (iv) Detailed specifications
- (v) Assumptions and constraints
- (vi) Terms and conditions.
- (vii) Selection criteria

### 4. Proposal evaluation and vendor selection

The main objective of this phase is to minimize human emotion and political positioning in order to arrive at a decision that is in the best interest of the company. Be thorough in your investigation, seek input from all stakeholders and use the following methodology to decide vendor selection.

- (i) Preliminary review of all vendor proposals.
- (ii) Record business and vendor requirements.
- (iii) Assign importance value for each requirement.
- (iv) Assign a performance value for each requirement.

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(v) Calculate a total performance score.

(vi) Select the winning vendor.

### 5. Contract negotiation strategies

The final stage in the vendor selection process is developing a contract negotiation strategy. Remember, you want to "partner" with your vendor and not take them to the cleaners. Review your objectives for your contract negotiation and plan for the negotiations by covering the following items:

(i) List rank your priorities along with alternatives.

(ii) Know the difference between what you need and what you want.

(iii) Know your bottom line so you know when to walk away.

(iv) Define any time constraints and benchmarks.

(v) Assess potential liabilities and risks.

(vi) Confidentiality, non-completion, dispute resolution, changes in requirements.

(vii) Do the same for your vendor (i.e. walk a mile in their shoes).

**6. Contract negotiation mistakes:** The smallest mistake can kill an otherwise productive contract negotiation process. Avoid these ten contract negotiation mistakes and avoid jeopardizing on otherwise productive contract negotiation process.

**Ques.11 What are the methods of procurement. Also give the procedure for drugs procurement.**

**Ans- Methods of procurement:**

1. Direct purchase from the manufacture.

2. Direct purchase from wholesalers and stockiest.

3. Purchase from rack jobbers.

4. Purchase through bids

- Open tenders
- Restricted tenders
- Quotation invitation

5. Purchase through competitive negotiation

6. Purchase through a contract

- Fixed quantity contract
- Running contract
- Rate contract

7. Local purchase

8. In house manufacture of medicines in the hospitals.

**Procedure for drugs procurement:**

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1. Purchase request form
2. Quotation invitation:
3. Purchase order form
4. Return of goods

## Purchase

**request form:** The pharmacist or a person authorized by him should complete a purchase request form. This form provides the purchase department with the data concerning description, specifications, packing and price quantity needed and also information about the inventory balance and anticipated monthly use.

**Quotation invitation:** On receipt of "request for purchase", invites competitive rates (quotations) from different suppliers. To prevent delay in supply, an annual rate contract can be undertaken.

**Purchase order form:** The purchase officer scrutinizes quotations received, checks the quality expected to be supplied in consultation with pharmacists and prepares a purchase order. The purchase order may take the form of any different type-it may consist of two pages of a many page or a many page "snap out" form. However, a multicopy snap out form is suitable as it provides a copy for the supplier, accounts department, purchasing number file, department which has sent the purchase requisition, two receiving reports and a copy which indicates the history of the purchase,

## **Ques.12 Give an account of accounting in community pharmacy.**

**Ans- Accountancy/Accounting:** Accounting may be defined as the process of identifying, measuring, recording, and communicating the economic events of an organisation.

### Objectives of Accounting

- To prepare profit and loss accounts of the company.
- To record all business transactions in a ledger regularly.
- To know the quantity and value of the goods.
- To know the position of cash in hand at bank.
- To know the progress and growth or down fall of business.

### Branches of Accounting

- 1. Financial Accounting:** It is mainly concerned with record keeping directed towards the preparation of profit and loss account and balance sheet.
- 2. Cost Accounting:** It is the systematic procedure for determining the unit cost of output produced or services rendered.
- 3. Management Accounting:** It is primarily concerned with the supply of information which is useful to the management in making decisions for smooth and efficient running of its business.

**Types of Accounts:** There are three types of account, namely:

**1. Personal Account:** It deals with the individual person, firm, company, and institution. The person or firm which supplies the goods to the business is a creditor and entries are made on credit side of his account. Similarly, a person or firm who receives the goods from business becomes a debtor and the transaction is made on debit side of his account.

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**2. Real Account:** These accounts are maintained to deal with transactions related to building, cash, furniture, land etc. When an item is purchased or received the transaction is recorded on the debit side.

**3. Nominal Account:** These accounts are maintained to deal with discounts, insurance, rent, wages, salaries, etc. The entries of expenses or losses are made on debit side while the entries of profits or gains are made on credit side.

### **Ques.13 What are the key features of MARG Software.**

#### **Ans- Key Features of MARG Software**

Marg software is the only Real Accounting and Inventory Software which gives you 100% control on your business. Due to easiness, flexibility, self-customization options and time to time up-gradations are the major reasons behind its success. That's why in a very short period i.e., August 2002, it is widely adopted by more than 10 Lakh plus users.

- Financial Account with IT-ST-Auditors Reports
- State/Country wise Sales Tax Reports and Registers
- State/Country wise VAT and E>Returns
- Operator wise Powers and Boundations
- Multi Location Inventory Management
- TDS/Excise/Service Tax
- Self-designed Invoice and other Formats
- Sales and Purchase Order Management
- Challan and Counter Sales
- Post Dated Cheque Management with Bank Paying Slip
- Direct E-Mail and SMS Facility
- 1000+ Sale, Purchase, MIS and Gross Profits Analysis
- Self-definable Currency Symbols
- Provision to show bill value in 5 Currency self, Dollar, Pond Euro, Rubbles
- Multi Store with Separate store for Breakage/Expiry/Waste
- Manufacturing (BOM) on Issue/Receipt, Direct Receipt, Reverse and Lot Bases
- Zoom-In-Zoom-Out (Eagle View)
- Photo/Logo provisions to make your printouts attractive
- 1750+ Setups to customise MARG on customer site
- Softcopy of bill direct Email to party
- Purchase Import from Excel, DBF, Csv, Txt files (No need to feed manual purchase)
- Self-designed Item/batch/size wise BARCODE
- Pdf, Word, Excel, Html, Rtf, Dot matrix View and Print
- Separate pre-defined Ports/Printers for Bills and Reports
- 18 self-defined Hot keys and My Menu with unlimited keys
- 100's of utilities like multi edit to make your business smooth
- 7 Different types of Accounting Voucher Entry System
- 18+ type of Inventory Entry System
- Fund/Bank/Budget Planning, Targets and CMS/Purchase Cheque
- Screen Saver with operator password

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- Internet support on single click (Inbuilt Support Link)
- Inbuilt chatting system to give message to users

### **Ques.14 Define e-pharmacy. What are the conditions of registration of e-pharmacy.**

**Ans-** (a) "e-pharmacy" means business of distribution or sale, stock, exhibit or offer for sale of drugs through web portal or any other electronic mode.

(b) "e-pharmacy portal" means a web or electronic portal or any other electronic mode established and maintained by the e-pharmacy registration holder to conduct business of e-pharmacy.

(c) "Central Licensing Authority" for the purposes of this PART, the Central Licensing Authority means licensing authority appointed by the Central Government under clause (b) of rule 21 of the Drugs and Cosmetics Rules, 1945.

(d) "prescription" means an instruction from a Registered Medical Practitioner to a patient, written by hand or in any electronic mode duly signed, to dispense a drug and quantity of drug to a patient.

(e) "sale by way of e-pharmacy" means a sale whether to a hospital, or dispensary, or a medical, educational or research institute or to any other person through e-pharmacy by way of retail sale."

#### **Registration of- e-pharmacy:**

1. With effect from the commencement of PART VIB of these rules, no person shall distribute or sell, stock, exhibit or offer for sale of drugs through e-pharmacy portal unless registered under rule 67N.
2. The e-pharmacy registration holder shall receive the orders for retail sale through e-pharmacy portal.
3. e-pharmacy registration holder shall arrange or provide the drugs, as per the prescription received from the customer, within the period specified by the e-pharmacy registration holder at the time of placement of the order through e-pharmacy portal.
4. The e-pharmacy registration holder shall have a facility for customer support and grievance redressal of all stakeholders which shall run not less than twelve hours for all seven days of a week: Provided, that the facility for customer support shall have registered pharmacist in place to answer the queries of customers through such customer helpline.

## COMMUNITY PHARMACY AND MANAGEMENT

### Very Short Answers

1. Health screening services refer to as a simple **investigation/screening** procedure.
2. Normal BP at rest is **80/120** mmHg.
3. ABMI greater than or equal to **30** is obesity.
4. **Obesity** can be defined as excessive accumulation of fat in a adipose tissue.
5. B-cells produce a pre **hormone** called as preproinsulin.
6. Insulin is a secreted from pancreatic **β-cells** in response to various stimuli.
7. Device used to measure capillary blood glucose known as **glucometer**
8. Normal blood glucose level is between **70mg/dl and 180mg/dl** respectively.
9. Monitoring is the **observation** of a disease condition.
10. **Hypertension** or **High Blood Pressure** is one of the risk factors for scroll heart attack, heart failure.
11. Over the counter medicine is also known as **non-prescription** medicines
12. OTC medicine can promote practice to **self-medication**.
13. the most widely self-medicated substance are **over the counter** drugs.
14. Self-selection medicines are commonly referred to as **over the counter** medicines.
15. **Pain** is a general term that describe uncomfortable sensation in the body.
16. Acute pain **develops** over a short period of time
17. A **Cough** is your body's way to respond when something **Irritates** your throat or airways.
18. Quitting **smoking** and avoiding of the **irritants** are also ways to relieve a cough.
19. Most cases of mild to moderate constipation can be **managed** by you at home.
20. Constipation happens because your **colon** absorbs too much water from waste stool.
21. Minimum qualification for registered pharmacist is **diploma in pharmacy**.
22. Minimum area for retail pharmacy is **15** sq. meter.
23. m-Health stand for **Mobile Health**.
24. In VED 'E' stand for **Essential**.
25. EOQ stand for **Essential Order Quantity**
26. CRM stand for **Customer Relation Management**.
27. SOP stand for **Standard Operating Procedure**.

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