GOVERNMENT OF TAMIL NADU

HIGHER SECONDARY SECOND YEAR

GENERAL NURSING

Theory and Practical

A publication under Free Textbook Programme of Government of Tamil Nadu

Department of School Education

Untouchability is Inhuman and a Crime

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How to use the book?

Introduction	Student would be motivated and focus attention to the subject matter.
Learning objectives:	List out all the major topics and provide students with a clear purpose to focus their learning efforts.
Case study	Life experiences and indepth understanding of the concept given.
Do you know?	Gives additional related information for broader understanding.
Activity:	Given to elicit critical thinking , creative thinking and application in day to day activities.
QR Code	Enhance long term memory through Audio Visual learning.
ICT Corner	References to the relevant website for enhanced information.
Summary	An outline map of the entire information given in gist.
Glossary	Detailed meaning in English and Tamil for new terms.
References/ Website links	Basic raw materials used for the birth and development of the text.

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GENERAL NURSING

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E-book

HAZYX

Assessment

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1 HUMAN ANATOMY AND PHYSIOLOGY

நோய்நாடி நோய்முதல் நாடி அதுதணிக்கும்
வாய்நாடி வாய்ப்பச் செயல்.

Let the physician enquire into the (nature of the) disease, its cause and its method of cure and treat it faithfully according to (medical rule).

Learning Objectives

At the end of the chapter students will be able to;

- understand the anatomy and physiology of various organs
- gain knowledge about sense organs and their function
- understand the skeletal and muscular system
- follow the health and hygiene of reproductive system

D4G2P

Introduction

Anatomy and physiology are the branches of biology. Many of the concepts in physiology, also incorporate other basic sciences including chemistry and physics.

Anatomy is the study of the structure of living organisms. The form of an organism is the structure of its body and body parts.

Physiology is the study of the function of living organism. The function of the body and its parts determines how an organism carries out its daily activities.

1.1 Integumentary System

It comprises the skin and its appendages which protects the body from various kinds of damages such as loss of water or damages from outside.

DO YOU KNOW?

The skin is the largest organ that covers the entire body.

The integumentary system consists of the

- Skin
- Hair
- Finger and toe nails
- Sebaceous glands
- Sweat glands

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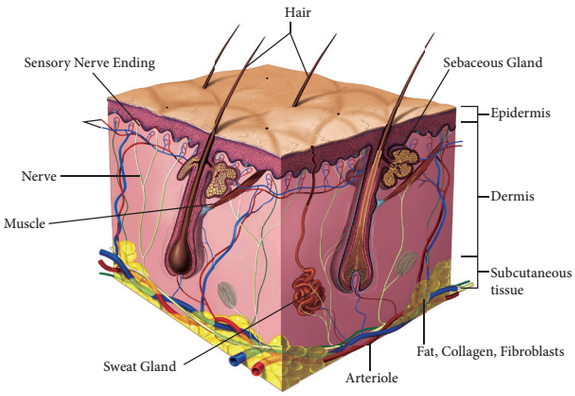
Skin

The human skin is the outer covering of the body and is the largest organ of the integumentary system. The main functions are protection, regulation and sensation.



Cross-section of all skin layers.

The skin has the following layers from exterior to the inner layer.

- The epidermis
- The dermis
- The hypodermis (subcutaneous layer)

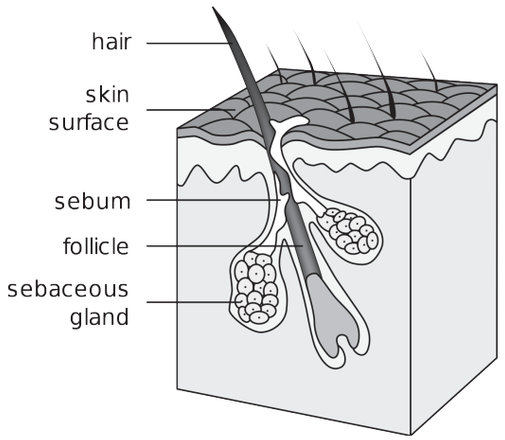
The epidermis is a vascular (without blood vessels); the skin contains keratin which protects and prevents the skin from becoming water logged.

The dermis, the middle layer of the skin, contains blood vessels, gives the skin its elasticity to stretch.

The hypodermis, the subcutaneous layer, stores fat that are ready for use when energy is needed. This layer of skin fat also maintains body temperature by serving as an insulator.

Hair

Hair keeps the body warm. Hair covers the majority of the body surface; thick hair is found on the head and face and fine hair is found on other parts of the body such as the pubic area. Hair has a follicle below the skin, and a shaft above the skin. Hair contains keratin.



Schematic view of hair follicle and sebaceous gland

Eye lashes protect the eyes from foreign debris getting into the eye.

Sebaceous Glands

Sebaceous glands are exocrine glands. It lubricate and moisturize the skin with an oily secretion which is called as sebum and maintains thermoregulation.

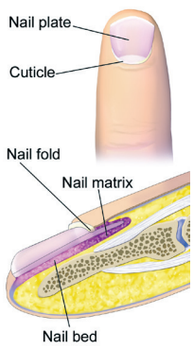
There are no sebaceous glands in the palms and sole of the feet.

Nail

The finger and toe nails are made of keratin. Nails protect the tips of our fingers and toes from injury.

Three parts of the nail are:

- Nail bed
- Nail matrix
- Nail plate.



Nail

Sweat Glands

Sweat glands are exocrine and apocrine glands that secretes sweat to the surface of

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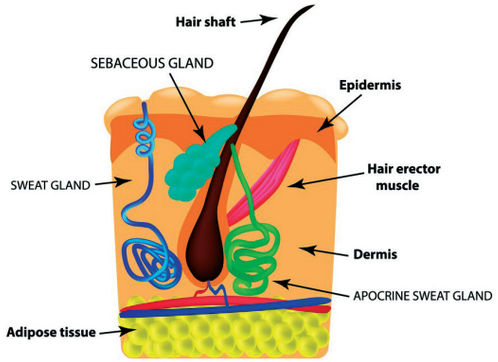
the skin. They are found under the arms in the axillary area and perform little function in humans. Sweat glands, are exocrine glands secrete a substance that cools the body off with perspiration and eliminate wastes.



Sweat gland

Disease related to Integumentary system

- Acne
- Athlete's foot
- Sunburn
- Albinism
- Impetigo
- Rosacea
- Rash
- Pressure ulcers
- Skin cancer
- Herpes
- Psoriasis

Functions of Integumentary System

- Protects the body against the external environment as the first line of defence from germs and infections.
- The skin, its thickness and sweat glands, maintain the body temperature
- Vitamin D production
- Protection against UV rays
- Perspiration.
- Dehydration
- Reception of tactile sensory messages such as heat, cold, and pain sensations.

1.2 The Cardiovascular System

Heart is the master of the cardiovascular system. It pumps out blood all over the body to circulate and supply oxygen, electrolytes, nutrients and hormones. Blood circulation controls the body temperature, the PH or acid base balance of the body. Circulation fights against infection, helps in clotting of blood during injury and eliminates waste products such as carbon dioxide.

Position

The heart lies in the thoracic cavity at the mediastinum [the space between the lungs]. It lies obliquely a little more to the left than the right. The apex is about 9cm to the left of the midline at the level of the 5th intercostal space and the base extends to the level of the 2nd rib.

Organs associated with the heart

Inferiorly- The apex rest on the central tendon of the diaphragm .

Superiorly- The great vessels in the aorta, superior venacava, pulmonary artery and pulmonary veins.

Posteriorly- Oesophagus ,trachea, left and right bronchus, decending aorta, inferior venacava, and thoracic vertebrae.

Lateraly- The left lung overlaps the left side of the heart.

Anteriorly- The sternum, rib, and intercostal muscles.

Structure

The heart wall is composed of three layers of tissues. Namely

- Pericardium
- Myocardium
- Endocardium.

Pericardium

The pericardium is the outmost layer and is made up of two sacs. The outer sac and inner side

1. Fibrous pericardium –consists of fibrous tissue.

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2. Serous pericardium- double layer of serous membrane.

The Fibrous Pericardium continues with the tunica adventitia of the great blood vessels above and is adherent to the diaphragm. It consists of two layers.

- The outer layer of the serous pericardium is the parietal pericardium
- The inner layer is visceral pericardium adherent to the heart muscles.

It secretes serous fluid called pericardial fluid. Pericardial fluid present in the space between the visceral and parietal layer, which allow smooth movement of the heart.

Myocardium

The myocardium is composed of specialized cardiac muscles found only in the heart. The Muscle arrangement of the myocardium enable the atria and ventricles to contract in a coordinated and efficient manner. It is also important for electrical activity of the heart.

Endocardium

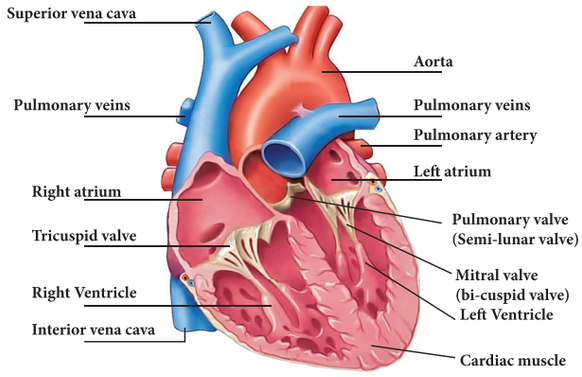
It lines chambers and valves of the heart. It is a thin, smooth membrane to ensure smooth flow of blood through the heart. It consists of flattened epithelial cells, and it is continuous with the endothelium lining of blood vessels.

The cardiovascular [cardio-heart, vascular-blood vessels] system is divided for descriptive purpose into two main parts.

1. The heart pumping action ensures constant circulation of the blood.
2. The blood vessels which form a lengthy network through which the blood flows.

The lymphatic system is closely connected by both structurally and functionally with a cardiovascular system.

The heart pumps blood in to three anatomically separate systems of blood vessels.



Heart

- The pulmonary circulation
- The systemic circulation
- The coronary circulation.

Pulmonary Circulation

The portion of the circulatory system which carries deoxygenated blood away from the right ventricle of the heart, to the lungs and returns oxygenated blood to the left atrium and ventricle of the heart.

Systemic Circulation

Systemic circulation carries oxygenated blood from the left ventricle, through the arteries to the capillaries in the tissues of the body. From the tissue capillaries the deoxygenated blood returns through a system of veins to the right atrium of the heart.

Coronary Circulation

Coronary Circulation is the circulation of blood in the blood vessels that supplies the heart muscles.

The cardiovascular system ensures a continuous flow of blood to all body cells. Heart plays a major role in continual physiological adjustment to maintain an adequate blood supply.

Interior of the heart

The heart is divided into a right and left side by the septum, partition consisting

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of myocardium covered by endocardium. It subdivided into 4 chambers they are

- Left atrium.
- Right atrium
- Left ventricle
- Right ventricle.

Right Atrium

Right atrial chamber is located in the upper portion of the right side of the heart which receives blood from all parts of the body by superior and inferior venacava. They are thin less muscular walls and smaller than ventricles.

Left Atrium

Left atrium receives oxygenated blood from the lungs and pumps it down into the left ventricle.

The lower portion of the heart left side of is left ventricle.

Right Ventricle

Deoxygenated blood flows in the right atrium, passes through the tricuspid valve and in to the right ventricle, which pumps the blood up to the lungs by pulmonary artery, through the pulmonary valve.

Left Ventricle

It is larger and more muscular chamber. It pumps and delivers the blood to all parts of the body by a larger artery [**aorta**] for systemic circulation.

Flow Of Blood Through The Heart

- The right atrium receives deoxygenated blood from all over the body by superior and inferior venacava.
- Deoxygenated blood from right atrium passes through right atrioventricular valve to right ventricle.
- Pulmonary artery collects deoxygenated blood from right ventricle to lungs through pulmonary valve or semilunarvalve.
- Pulmonary artery is divided in to left and right carries either side of the lungs.
- In lungs exchange of gases takes place.
- Oxygenated blood passes through pulmonary veins to the left atrium.
- In left atrium blood passes through left atrioventricular valve to the left ventricles carries blood from left ventricles through aortic valves.
- Arteries-Oxygenated blood passes through all parts of the body.

Valves

These are the fibrous flaps of tissues that are present in cardiac chamber, between the arteries chambers and veins. They ensure unidirectional flow and prevent backflow of blood.

They are

Arterioventricular Valve

It is present in every ventricle and atrium.

Tricuspid Valve

The valve lies between the right ventricle and right atrium.

Mitral Valve

It is present between left atrium and left [bicuspid valve] ventricle.

Semilunar Valve

It is present between arteries and ventricles.

Aortic Valve

An aortic valve is present between the aorta and left ventricle.

Pulmonary Valve

Pulmonary valve exists between the pulmonary artery and right ventricle.

Functions of heart

The structure of the heart is primarily responsible for transportation of blood and

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to supply nutrients to all parts of the body. This continuous activity uplifts the role of the heart as a vital organ.

Blood pumping cycle of the heart is called as cardiac cycle, which ensure that the blood is distributed throughout the body. The oxygen distribution process begins when oxygen –free blood (impure) enters in to the heart through the right atrium goes in to the right ventricle, enters the lungs for oxygenation and release of carbondi-oxide and transfers in to left atrial chambers, ready for re-distribution. About **5-6 liters** of blood circulates in the body and cardiac cycles are completed per minute.

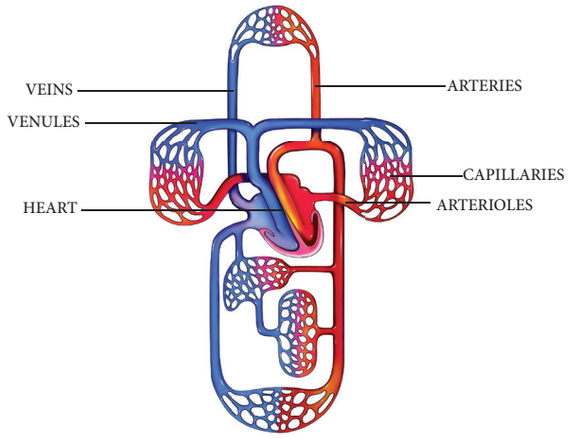
DO YOU KNOW?

A healthy heart beats 70 to 75 times per minute, each cardiac cycle, or heartbeat, takes about 0.8 seconds to complete the cycle.

Oxygen reloading process occur in two phase. The **systole** is a short period that occurs, when the tricuspid and mitral valve close.

The **diastole** is a relatively longer period when the aortic and pulmonary valve close. The systole –disastole relationship is the **mean** blood pressure. Other ways of physically determining the regular functioning of the heart is through examining the pulse rate.

Circulatory System



Circulatory system

In the fig - 1.6 shows Red color indicates oxygenated blood carried in arteries. Blue indicates deoxygenated blood carried in veins.

The relationship between the heart and different types of blood vessels.

Heart

- Aorta
- Arteries
- Arterioles
- Capillaries
- Venules
- Veins
- Venacava
- Heart

Arteries

Arteries are the blood vessels that carries oxygenated blood through out the body. Arteries consists of several layers and smooth muscles that enable them to pump blood throughout the body after it leaves the heart.

ARTERIES - It has three layers

- Tunica adventica
- Tunica media
- Tunica intima

Arterioles

Blood valve that receives blood from the arteries. Those are present next to the arteries and before the capillaries. Arterioles also have smooth muscles.

Capillaries

These are the smallest structure of the circulatory system. The point at which the exchange of oxygen and corbon di-oxide occurs through the thin walls of the capillaries.

Venules

Blood vessels that receive blood from the capillaries and transport deoxygenated blood to the veins.

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Veins

Veins are blood vessels that carry blood towards the heart. Blood vessels receive blood from the venules and transport blood back to the heart. Like arteries, veins, have three layers.

Blood Components

Blood is a body fluid that consists of:

- Plasma
- Red Blood Cells
- White Blood Cells
- Platelets

Plasma

Plasma in blood is over 50% of the volume of blood and over 90% of plasma is water. The main component of plasma is plasma albumin which is a protein that enables and controls the osmotic pressure of the blood.

Red Blood Cells (RBC)

Red blood cells or erythrocytes are disc like in shape. RBCs are enucleated, do not contain a nucleus. The red blood cells contain iron laden haemoglobin which carries oxygen to the cells. Red blood cells also contain glycoproteins which determine the blood group of an individual. The blood types are type A, type B, type AB and type O.

White Blood Cells

White blood cells or leukocytes are part of the immune system which fights against infections from pathogens. When the white blood cell count rises, it is a sign of infection. All leukocytes have a distinct nucleus.

The various types of white blood cells are:

- Eosinophils
- Basophils
- Neutrophils
- Lymphocytes
- Monocytes

Platelets

Platelets or thrombocytes(do not have a nucleus) maintain haemostasis (clotting). Haemostasis is enabled by the coagulation or thickening of blood by production of fibrin from the clotting factors found within the platelets to prevent blood loss, when a blood vessel has been broken due to injury.

Lymphatic system

The lymphatic subsystem, a part of the circulatory system, is closely aligned with the body's immune system and removes excessive fluid from the body. The lymphatic vessels contain lymph including lymphocytes. Lymphatic system also consists of lymph nodes and lymphatic organs. These organs include the **thymus gland**, **spleen**, **bone marrow** and **tonsils**. Nodes are found throughout the lymphatic system and they serve to filter the blood as it travels throughout the body. **Swollen lymph nodes** are a signal of a disease or an **infection**. Many lymph nodes are found in the neck area, under the arms and in the groin area, although there are hundreds of them throughout the body.

Spleen

Spleen is an organ present in the upper left part of the abdomen and to the left side of the stomach. The spleen plays multiple supporting roles in the body. It acts as a filter for blood as part of the immune system. Old red blood cells are recycled in the spleen, platelets and white bloods are stored.

Diseases related to blood and blood vessels

- Phlebitis
- Deep Vein Thrombosis (DVT)
- Anaemia, including pernicious anaemia and sickle cell anaemia
- Leukaemia
- Lymphoma
- Thrombocytopenia.

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DO YOU KNOW?

A Blood bank is a place, for carrying out all or any of the operations for collection, aphaeresis', storage, processing and distribution of blood drawn from donors and/or for preparation, storage and distribution of blood components. By an organization. One of the earliest blood bank was established by Frederic Durán-Jordà during the Spanish Civil War in 1936. A blood collection program was initiated in the US in 1940.

Someone needs blood every two seconds. About 1 in 7 people entering a hospital need blood. Healthy adults who are at least 17 years old, and at least 110 pounds may donate about a pint of blood—the most common form of donation—every 56 days, or every two months. Females receive 53 percent of blood transfusions; males receive 47 percent.

Dr. Karl Landsteiner first identified the major human blood groups – A, B, AB and O – in 1901. One unit of blood can be separated into several components: red blood cells, plasma, platelets and cryoprecipitate. Red blood cells live about 120 days in the circulatory system. Healthy bone marrow makes a constant supply of red cells, plasma and platelets. Donated red blood cells can be stored for 42 days.

Donated platelets can be stored for five days. Frozen plasma can be stored for one year. According to the Central Drug Standard Control Organisation (CDSCO), India has 2,760 licensed blood banks. Maharashtra (308) had the highest number of blood banks followed by Tamil Nadu (265), Uttar Pradesh (248), Karnataka (185), Kerala (166), Telangana (153), Gujarat (134), Madhya Pradesh (133), Andhra Pradesh (125), West Bengal (115) and Rajasthan (102).

1.3 Musculo skeletal system

It consists of

- Bones
- Muscles
- Cartilage
- Tendons
- Ligaments
- Joints
- Facia

Bones

Bone tissue is a hard tissue, a type of dense connective tissue. Bone tissue is made up of different type of bone cells.

Bone cells

Osteocytes are the building blocks of the bone and form the inner matrix of bone tissue that gives strength to bones.

Osteoclasts maintain the integrity and strength of the bones.

Osteoblasts build new bones by producing collagen and minerals so that the osteocyte can remain in good functioning condition.

Stem cells form in the inner surface of the bone will later transform into osteoblasts.

Lining cells protect the bones and they also release calcium into the blood when the blood calcium levels are low.

Types of the bones

1. **Long bones:** Present in the arms and legs. They act as levers to move parts
2. **Flat bones:** These includes the ribs, scapulae, sternum, and bones of the cranium
3. **Irregular bones:** These bones are seen in face and spine bones.
4. **Short bones:** These bones are seen in wrist and ankle bones.

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Human Skeleton

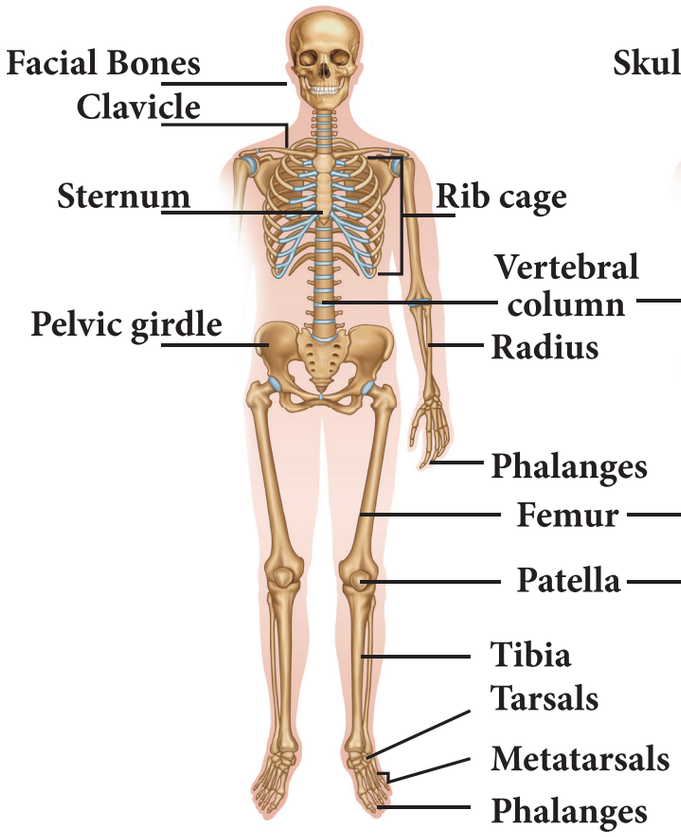

Diagram of the front view of the human skeleton.

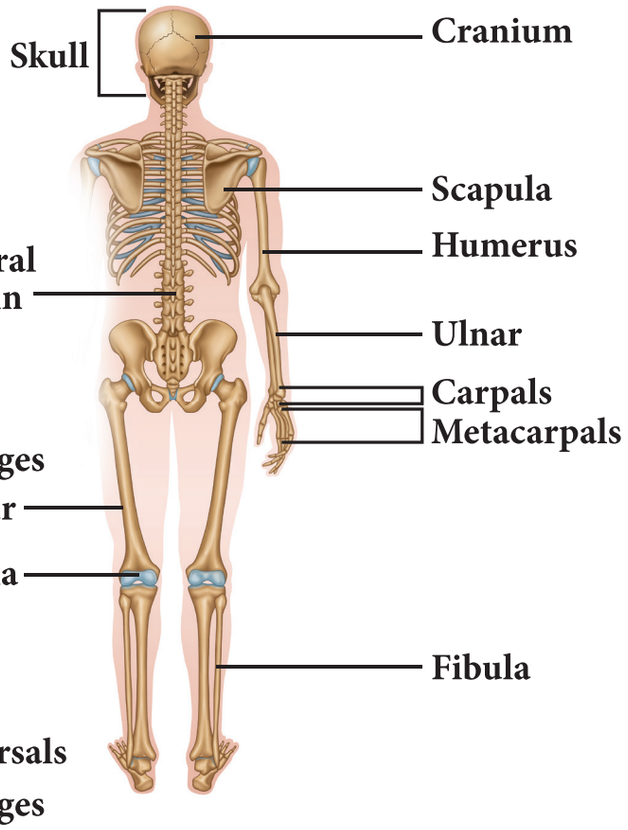

Diagram of the rear view of the human skeleton.

BONES OF THE BODY 206

THORAX OR CHEST BONE (25)
Sternum (breast bone)
Ribs - 24

CRANIUM (8)
1 - Frontal bone
2 - Temporal bone
2 - Parietal bone
1 - Occipital bone
1 - Ethomoid
1 - Sphenoid

FACE BONES (14)
Lacrimal bone - 2
Nasal bone - 2
Cheek bone - 2
Curled bone - 2
Palate - 2
Upper Jaw bone - 2
Lower jaw bone - 1
Vomer - 1

SPINE
(Vertebral Column)
Cervical Vertebrae - 7
Thoracic vertebrae - 12
Lumbar vertebrae - 5
Sacral Vertebrae - 5
Coccyx - 4

UPPER LIMB (64)
Clavicle - 1 (Collarbone)
Scapula - 1 (Shoulder bone)
Humerus - 1
Radius - 1
Ulna -1
Carpals - 8
Metacarpals - 5
Phalanges - 14

LOWER LIMB (31)
Hipbone - 1
Femur -1
Patella -1
Tibia -1
Fibula -1
Tarsals - 7
Metatarsals - 5
Phalanges - 14

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5. **Cortical bone:** the stronger bone that is needed for support and movement.
6. **Axial bones:** Found in the skull, the ribs and the spinal column
7. **Appendicular bones**: found in the arms,legs, shoulders and the pelvis.
8. **Cancellous bone or spongy bone:** not as strong as cortical bone.
9. **Seasmaoid bones:** embedded in tendons eg. Patella.

The skeleton is compossed of 206 separate bones in an adult. The cartilages and ligaments helps to unite the bones at the joint

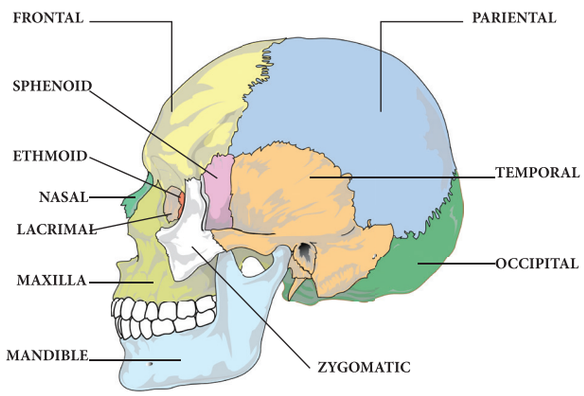
Skull

The skull is a body structure that forms the head. It supports the structure of the face and provides a protective cavity of the face.

Skull bones

The skull consists of two parts

- The cranium, which is like a box in which the brain is well protected
- The bones of the face



Skull bone

The Cranium

The cranium (skull) is the skeletal structure of the head that supports the face and protects the brain. It is subdivided into the facial bones and the brain case, or cranial vault. The facial bones underlie the facial structures, form the nasal cavity, enclose the eyeballs, and support the teeth of the upper and lower jaws. The rounded brain cases surrounds and protects the brain and house the middle and inner ear structures.

In the adult, the skull consists of 22 individual bones, 21 of which are immobile and united into a single unit. The 22nd bone is the mandible (lower jaw), which is the only moveable bone of the skull.

The Cranium is made up of eight bones as follows:

Frontal bone:	Two frontal bones, which forms the forehead and helps to protect eyes
Parietal bone:	One at each side of the top of the skull joined into the middle
Temporal bone:	One on each side below the parietal bones. These protect the inner parts of the ears and brains
Occipital bone	This forms the back of the head and part of the base of the skull
One sphenoid	A Butterfly or bat shaped bone, which also forms part of the base of the skull
Ethmoid	Which forms the roof of the nose and in between the eyes

- The only movable joint in the skulls is mandible.
- Human beings are the only living organisms which sleep on their back.

The face has the following 14 bones

Facial Bones	
Two nasal bones	which form the bridge of the nose
Two lacrimal bones	Near the eyes it is very thin and small

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Two cheek bones – Zypomatic bone – Two zygomatic bones	forms the check
Two upper jaw bones Two Maxilla bones	Forms upper jaw.
Two palatine bones	which join with the upper jaw bones forming the hard palate
Two Nasal concha	one in each side of wall of the nose
One Vomer bone	which rests on the palate and helps to form the nasal septum
One Mandible bone	It forms the lower jaw and horse shoe shaped

The vertebral column

The vertebral coloum, also known as the back bone or spine, is part of the axial skeleton. It separated by intervertebral disc.

Spine or Vertebral column is the central part of the skeleton. It supports the head and encloses the spinal cord. It consists of 33 irregular bones called "vertebrae"

The parts of the vertebral column are as follows:

- **7 Cervical vertebral column** in the neck region. The first two bones called **atlas** and **axis** are important for nodding and turning the head.
- **12 dorsal or thoracic vertebrae** at the back of the chest. The ribs are joined to these vertebrae
- **5 lumbar vertebrae** in the waist region
- **5 sacral vertebrae** are fused together to form the sacrum, a triangular shaped bone with a hollow anteriorly. The sacrum helps to form the pelvis.
- **4 small vertebrae** in the tail region are fused to form a small triangular bone called the **coccyx**. It is attached to the lower part of sacrum.

Upper limbs.

Upper limb is divided into three regions. Its consists of,

- **Arm** - located between the shoulder and elbow joint.
- **Fore arm** - between the elbow and wrist joints
- **Hand** - which is located distal to the wrist.

Chest (thorax)

The rib cage forms the thorax portion of the body. It consists of 12 pairs of ribs with their costal cartilage and the sternum. The ribs are anchored posteriorly to the 12 thoracic vertebrae. It protects the heart and lungs.

Lower limbs

Lower limb includes foot, thigh, hip and gluteal region.

Ear bones (MIS)

Following are the 3 ear bones

M-Malleus

I-Incus

S-Stapes

Together they form a short chain that crosses the middle ear and transmit vibrations caused by sound waves from the eardrum to the liquid of the inner ear.

Throat bone (Hyoid bone): is a horseshoe shaped bone situated in the anterior midline of the neck between the chin and the thyroid cartilage.

1.4 Muscular system

A brand or bundle of fibrous tissue in a human body that has the ability to contract, producing movement in or maintaining the position of parts of the body.

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The muscular system has three different types of muscles

- Cardiac muscle
- Skeletal muscle
- Smooth muscle

Cardiac muscles are striated muscles only found in the heart. Cardiac muscles works involuntarily without the control of a person.The cells found in cardiac muscle are the myocardiocytes which contract the myocardium.

Skeletal muscle is striated and voluntary, that enables the skeletal structures to move. These muscles are also controlled by the nervous system and the majority of skeletal muscles are attached to the bones of the body with tendons to enable body movement.

Smooth muscles are non striated and involuntary muscles. Muscles that control the movements and actions of the internal organs and systems of the body like peristalsis.

Role of muscular system

- **Voluntary movement** with the skeletal muscles
- **Involuntary actions** with the smooth muscles
- **Involuntary contractions and relaxation** of the heart with the cardiac muscles

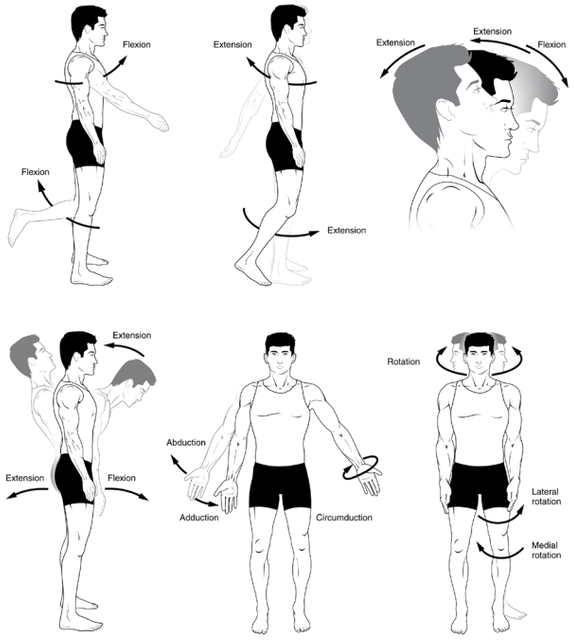
Abduction: Movement away from the centre of the body.

Adduction: Movement towards the middle of the body

Flexion: Bending movement of a joint or muscle

Hyperflexion: The flexion of a joint that is beyond what it normally should do, for example, can occur with a traumatic car crash when the head is forced to the chest, or flexed, beyond what it normally should do.

Extension: Normal straightening movement of a joint or muscle.

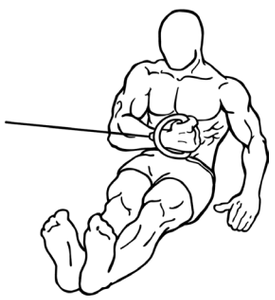


The Movements of Muscles

Hyperextension: Extension of a joint is beyond what it normally should do, for example, can occur with a traumatic car crash when the head is forced backwards, or extended, beyond what it normally should do.

Rotation: Circular movement of a joint or muscle that allows the body part to move in a circular manner.

External rotation: Muscular and joint movement that entails both circular movement and also movement away from the center of the body.



Rotating the arm closer to the body is internal rotation

Internal rotation: Muscular and joint movement that entails both circular movement and also movement towards the center of the body.

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- **Circumduction**: The muscular and joint movement that entails complete 360° movement
- **Inversion:** The turning of a joint inward
- **Eversion:** The turning of a joint outward
- **Plantar flexion:** Movement of the foot downward
- **Dorsiflexion:** Movement of the foot upward

Cartilage

Cartilage is an important structural component of the body. It is less hard than bones and more flexible than bones and helps in articulations It protects the ends of the bone. It is found in elbows , knees and ankle.

Cartilage does not have a blood supply, nerves and marrow.

Tendons

A tendon is a tough band of fibrous connective tissue that usually connects muscle to bone and is capable of withstanding tension. It is made up of collagen.

Ligaments

A ligament is a short band of tough, flexible fibrous tissues, tissues that connects bones to bone to form a joint. It also maintain position of the organs.

Joints

Joint or articulation is the connection made between bones in the body which link the skeletal system into a functional whole.

Types of Moveable Joints

- **Hinge joint,** e.g. interphalangeal joints – fingers and toes.
- **Ball and socket joint**, e.g. **hip** and **shoulder** joints
- **Pivot joint**, e.g. atlantoaxial joint between the atlas and axis – **neck**
- **Gliding joint ("Condyloid" joint)**, e.g. between radius, scaphoid and lunate bones – wrist.

Structural and functional

Structural (binding tissue)

- **Fibrous joint** - joint by connective tissue.
- **Cartilage joint** - joint by cartilage
- **Synovial joint** - not directly joined.
- **Facet joint** - between two vertebrae.

Functional (movement)

- **Synarthrosis** means no mobility (skull)
- **Amphiarthrosis** means slight mobility (vertebrae)
- **Diarthrosis** means freely movable (knee)

Fascia

A fascia is a band or sheet of connective tissue, primarily collagen, beneath the skin that attaches, stabilize, enclose and separates muscles and other internal organs.

It is classified as

- Superficial fascia
- Deep fascial fascia
- Visceral fascia
- Parietal fascia.

Diseases related to the bone

- Arthritis
- Rheumatoid arthritis
- Osteoporosis
- Osteoarthritis
- Osteomyelitis
- Fractures

Functions of musculo skeletal system

The human skeleton and the skeletal system perform several functions.

1. The protection of the vital organs of the body

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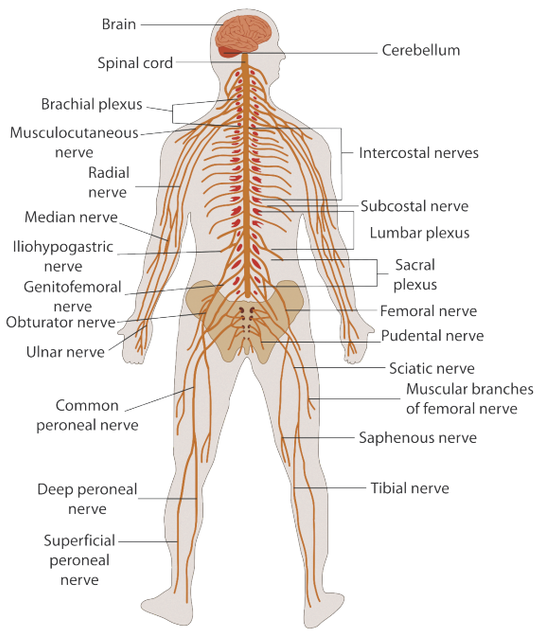
2. The support of the human body which gives it its form and stability
3. Body movement
4. Control of metabolic functions like the calcium and calcium storage as well as iron metabolism and iron storage in the bone marrow
5. Hematopoiesis, the production of red blood cells in the bone marrow of bones.

1.5 Nervous System

The nervous system is the most complex of all the systems which coordinates controls and enables all body functions like movement, thinking, autonomic, or automatic, reflexes and sensory perception. The nervous system sends messages to all parts of the body and receives it. For example, when a person touches fire, the message is sent to the brain which interprets and sends a message to the person's finger to suddenly remove it.

The Parts of the Nervous System

- The central nervous system
- The peripheral nervous system



Nervous System

The parts of the central nervous system are the

- Brain
- Spinal cord

The Brain

The brain is placed inside a skull or cranium which protects it. The brain consists of three major parts, two hemispheres (right and left hemisphere) and meninges, the protective membrane.

The meninges have three layers (PAD)

P-Pia mater (inner)

A-Arachnoid (middle)

D-Dura mater (outer).

The spinal cord is covered with meninges. The subarachnoid space (space between the arachnoid layer and the pia mater) contains the cerebrospinal fluid.

Cerebrospinal fluid (CSF)

CSF fluid is a clear, colorless body fluid found in the brain and spinal cord. It is about 125ml of CSF at any one time and about 500ml is generated everyday.

CSF acts as a cushion or buffer for the brain, providing basic mechanical and immunological protection to the brain inside the skull.

Note: Both the brain and the spinal cord are comprised of gray matter and white matter. Gray matter plays a higher role in the central nervous system's functioning than the white matter. The white matter consists of lesser cells than the gray matter.

The brain is also divided into three major areas

- Cerebrum
- Cerebellum
- Brain stem

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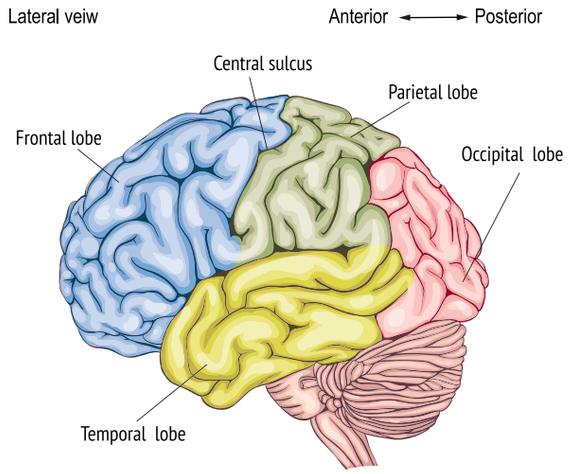
Cerebrum

The cerebrum is the largest part of the brain and its lobes coordinate and enable body movement, sensory perception, learning, olfactory sense, gustatory sense, optic sense, auditory sense, memory, thinking, judgment and communication abilities.



Cerebrum

The cerebrum has four major lobes which, as shown in the picture above, are:

- The frontal lobe
- The temporal lobe
- The parietal lobe
- The occipital lobe

The frontal lobe is responsible for thinking, movement, judging and writing.

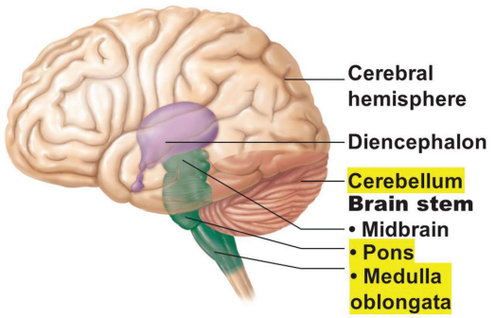
The temporal lobe plays a role in terms of memory and hearing.

The parietal lobe helps in sensory perception.

The occipital lobe facilitates understanding written language and vision.

Cerebellum

The cerebellum, referred as the little brain or hind brain is much smaller than the cerebrum and lies behind the other parts of the brain. The cerebellum controls motor nerves, balance, equilibrium, fine motor coordination and gross motor coordination.



Cerebellum

Brain stem

The brain stem lies at the base of the skull and between the right and left hemispheres of the brain.

The brain stem has three sections

- Midbrain
- Pons
- Medulla oblongata

The midbrain controls messages sent from other higher areas of the brain to the pons and medulla below it and it also controls posture.

The pons connects the midbrain and the medulla. The pons controls the rhythm of respirations.

The medulla oblongata connects the pons and the spinal cord through a hole in the base of the skull called the **foramen magnum**. The medulla is the center of control for breathing and cardiac functioning and manages swallowing, vomiting, cough, and sneeze reflexes.

The Spinal Cord

The spinal cord connects the brain to the peripheral nervous system throughout the body. The spinal cord is protected with the meninges and the spinal column.

The spinal cord is divided into different parts, which are:

- Cervical region
- Thoracic region
- Lumbar region

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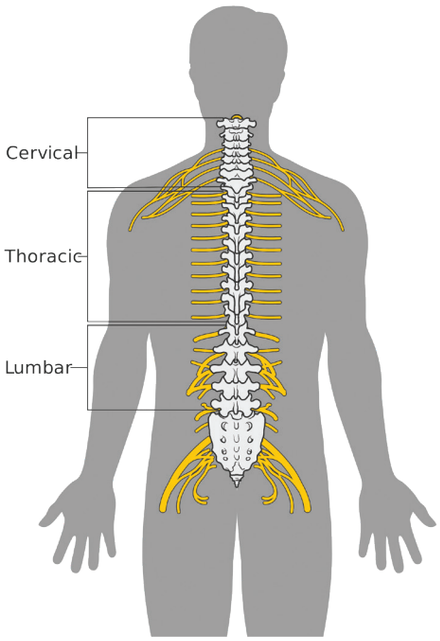
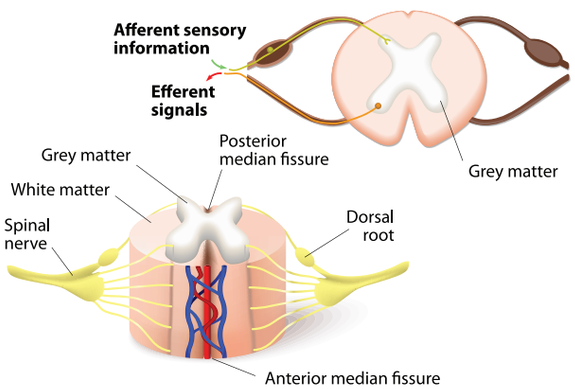
- Sacral region
- Coccyx, or tail bone, region



Spinal Cord



Spinal Cord C.S

The spinal cord has 31 nerve clusters which sends and receives motor and sensory messages to and from the rest of the body and it coordinates reflex action.

The Peripheral Nervous System

The Parts of the Peripheral Nervous System

Peripheral nervous system consists of all the parts of the nervous system other than the brain and the spinal cord. The peripheral nervous system is not protected with bones.

The peripheral nervous system is divided into two:

- Autonomic nervous system
- Somatic nervous system

Autonomic nervous system

The autonomic nervous system controls automatic and involuntary physiological functions of the body that are out of our control like the movements of smooth, involuntary muscles. For example, the constriction of the eye's pupil when it is exposed to bright light.

The autonomic nervous system's functions can be further divided into:

Sympathetic nervous system

Sympathetic nervous system is responsible for the fight and flight syndrome that results from stress. These responses include an increased heart rate, pupil dilation and decreased peristalsis.

Parasympathetic nervous system

The parasympathetic nervous system manages the functions related to rest. For example, the parasympathetic nervous system manages involuntary control of tears, digestion and the production of saliva.

Somatic nervous system

The somatic nervous system controls voluntary muscular movement with the skeletal muscles of the body. The somatic nervous system has efferent and afferent nerves which send and receive motor function related nerve signals.

Reflexes

A reflex is a muscle reaction that automatically occurs in response to a stimulus.

There are two types of reflexes.

Infant reflexes

Reflexes present at the time of birth, but disappear shortly thereafter.

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Other reflexes

Reflexes present at the time of birth and remain active throughout life time. For example, the pupil reflex, sneeze reflex, blinking reflex, cough reflex and yawn reflex.

Twelve Cranial Nerves

Remember the mnemonic: **O**ne **O**ld **O**wl **T**urned **T**op, **A** **F**at **A**unt **G**o **V**iewed **S**ome **H**op

- **Olfactory**: smell
- **Optic**: vision
- **Oculomotor**: eye movements.
- **Trochlear**: eye movements.
- **Trigeminal**: chewing and sensory to face
- **Abducens**: eye abduction.
- **Facial**: facial expressions, the tongue and the salivary glands.
- **Acoustic/Auditory**: hearing
- **Glossopharyngeal**: taste impulses and the secretion of saliva from the parotid gland.
- **Vagus**: respiratory and the digestive systems such as the pharynx and swallowing.
- **Spinal accessory**: movement of shoulder.
- **Hypoglossal:** Tongue movement.

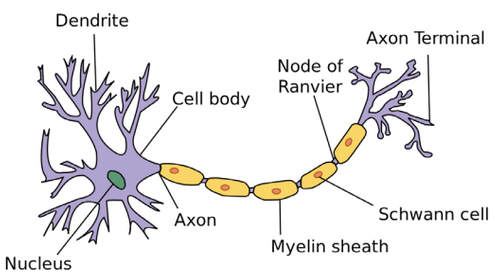
Functional Units of Nervous System

The nervous system is comprised of millions of neurons and glial cells.

Types of nerves

- Sensory or afferent nerves
- Motor or efferent nerves
- Mixed nerves

Neuron



Neuron

The neuron is the primary type of nerve cell in the nervous system. Glial cells forms myelin sheath over the neuron for protection.

Neurons communicate with other neurons by sending impulses at the synapse, a point of junction between any two neurons. There are two types of neurons which are sensory neurons and motor neurons. Sensory neurons sense and transmit information such as taste, touch and sight. Motor neurons send and transmit messages that involve muscle movement.

Glial Cells

Glial cells are non-neuronal cell that provide support and nutrition, maintain homeostasis, form myelin and patricipate in signal transmission in the nervous system.

Types of nerves

Sensory or afferent nerves When action potentials are generated by sensory receptors on the dendrites of these neurons, they are transmitted to the spinal cord by the sensory nerve fibres. The impulses may then pass to the brain or to connector neurons of reflex arcs in the spinal cord motor or efferent nerves.

Motor nerves originate in the brain, spinal cord and autonomic ganglia. They transmit impulses to the effectors organs muscles and gland. There are two types:

Somatic Nerves – involved in voluntary and reflex skeletal muscle contraction.

Autonomic Nerves (sympathetic and parasympathetic) – involved in cardiac and smooth muscle contraction and glandular secretion.

Mixed Nerves: In the spinal cord, sensory and motor nerves are arranged in separate groups or tracks. Outside the spinal cord, when sensory and motor nerves are enclosed with the same sheath of connective tissue they are called mixed nerves.

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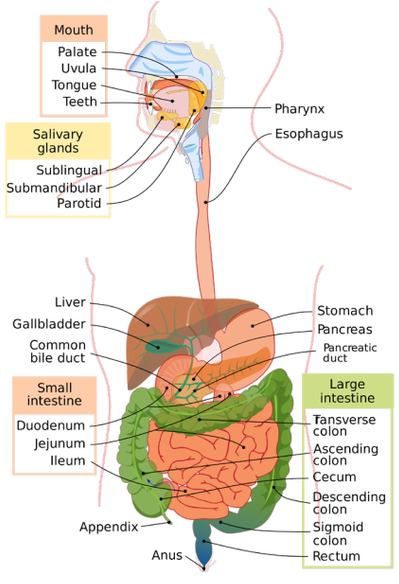
Disease related to nervous system

- Seizures
- Stroke
- Epilepsy
- Meningitis
- Paralysis
- Multiple sclerosis
- Parkinson's diseases
- Alzheimer's disease
- Bell's palsy.

1.6 Gastro Intestinal System

Introduction

The alimentary canal, is a continuous hollow tube from the mouth to the rectum. The alimentary canal along with the associated organs like the salivary glands, liver, pancreas and the gallbladder is called the digestive or gastrointestinal system. The primary role of the digestive system is to supply blood stream with nutrients that can be used by the body for its fuel, energy and fluid needs.



Parts of digestive system

The organs that contribute to digestion are the tongue, salivary glands, the liver, the gallbladder, and the pancreas. The gallbladder and the pancreas secrete and deposit bile and digestive enzymes, respectively through the common bile duct to the duodenum of the small intestine.

Mouth

The cheeks,tongue and palate frame the mouth, which is also called oral cavity .its boundaries are defined by the lips, cheeks, soft palate and epiglottis. It is divided in to two sections.

They are

- The vestibule- the area between the cheeks and the teeth.
- The oral cavity- filled by the tongue

The mouth is the opening through which the person ingests food and fluids. Incisors, canines, premolar and molars are the types of teeth helps in mastication

Tongue

Tongue is one among the five sensory organ. It is a muscular structure used for moving food in the mouth and to swallow fluid and food. Taste buds are found on the upper surface of the tongue and the salivary glands.

Salivary glands

Salivary glands produce saliva which contains the digestive enzyme amylase. Amylase digests and breaks down starch into glucose and maltose.

Pharynx

The pharynx receives air from the nares or the mouth and it also receives food from the mouth. When people say that their food has gone down the wrong pipe, they are experiencing an abnormal small amount of food moving from the pharynx to the trachea.

Epiglottis

The epiglottis is the flap like projection in the back of the mouth attached to the

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larynx. It goes up during breathing to allow the air to enter into the trachea and it moves down during the swallowing of food and drinking fluids to allow the food to enter the oesophagus.

Oesophagus

The oesophagus is a long straight hollow structure that starts at the pharynx and ends at the stomach. The upper portion of the oesophagus has skeletal muscles and the lower portion has smooth muscles. Oesophagus has a sphincter at the top of pharynx end and it has a sphincter at the bottom of the stomach which prevent food from flowing back into the pharynx from oesophagus and backing up from the stomach into the oesophagus. The primary role of the oesophagus is peristalsis, wave like movements that move and propel food and fluids along the digestive tract with the help of muscles.

Stomach

The stomach is a hollow organ on the left side of the abdomen that collects and processes food and fluids. The stomach has the fundus, body and antrum. The stomach secretes digestive enzymes, such as pepsin, hydrochloric acid and gastric acid to facilitate the digestive process. As the food and fluids are processed in the stomach, a partially digested chyme is formed. Pepsin digests proteins; and hydrochloric acid provides the pH of acidity that is necessary for digestion. Minimal absorption of water soluble vitamins and some medications such as aspirin takes places at stomach.

Liver

The liver is an abdominal organ and gland on the right side of the abdominal cavity and near the center of the body. The liver produces bile which is then transported to the gallbladder through the common bile duct and then to the small intestine. Bile is used for the breakdown and digestion of fats.

Small Intestine

The chyme from the stomach is mostly absorbed in the small intestine as usable minerals and nutrients. The small intestine also receives bile and the pancreatic enzymes from the bile ducts. These pancreatic enzymes break down carbohydrates, fats and proteins for absorption. The small intestine is also a hollow abdominal tube that connects to the stomach at its upper end and to the large intestine at its lower end which sphincter prevents back flow.

The three parts of the small intestine are the duodenum, jejunum and ileum

Iron is absorbed in the duodenum, jejunum absorbs all of the products of digestion and the ileum absorbs any remaining nutrients that has left behind.

Large Intestine

The large intestine is involved in the absorption of water and the removal of by products of digestion through defecation. The two major parts of the large intestine are the cecum and sigmoid colon.

The caecum is connected to the appendix which has an unknown role and the colon absorbs water and propels waste to the rectum.

Rectum

The rectum is a part of the lower gastro intestinal tract. It is a continuation of a sigmoid colon and connects to the anus. The key role of the rectum is to act as a storehouse for feces.

Anus

The anus is the last part of the digestive tract. The lining of the upper anus is specialized to detect rectal contents. It knows whether the contents are liquid, gas or solid.

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The stages of digestion are:

Mastication

Digestion of the food starts by the action of mastication(chewing) aided by teeth, a form of mechanical digestion.

Saliva secreted by the salivary glands which contains the following:

Salivary Amylase - Starts the digestion of starch

Mucus - Lubricates the food

Hydrogen carbonate - Maintains the ideal condition of PH (Alkaline) for Amylase to work

Digestion

Digestion is the breakdown of large insoluble food molecules into small water-soluble food molecules. So that they can be absorbed into the watery blood plasma. Digestion is a form of catabolism that is divided into mechanical and chemical digestion. The term mechanical digestion refers to the stepwise physical breakdown of large pieces of food into smaller pieces. In chemical digestion, enzymes break down food into the small molecules the body can use.

Absorption

95% of absorption of nutrients occurs in the small intestine. Water and minerals are reabsorbed by the colon .

Diseases related to digestive system

- Poisonings
- Diarrhea
- Constipation
- Diverticulitis
- Gastric Eosophageal Reflux Disorder (GERD)
- Peptic ulcers
- Cholelithiasis
- Cirrhosis of liver
- Hepatitis
- Colitis
- Irritable Bowel Syndrome (IBS)
- Cancer

1.7 Urinary system

Introduction

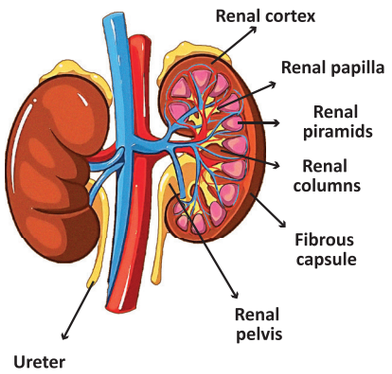
Urinary system also known as the renal system consist of the kidneys, ureters, bladder, and urethra. The purpose of the urinary system is to eliminate the excess water from the body, regulate blood volume and blood pressure, control and regulate the level of electrolytes and blood PH.

The parts of the urinary system

- Kidneys
- Ureters
- Bladder
- Urethra

Kidneys

The kidneys are bean shaped bilateral urinary organs that lie in the upper abdominal area in close proximity to the stomach and liver. The two main layers of the kidney are the medulla and the renal cortex. The medulla is the inside portion of the kidney and the cortex is the outer layer of the kidney. The kidneys are made up of millions of **nephrons**, the primary functional unit of the kidney.



Kidney

Ureters

The bilateral ureters connect the pelvis of each kidney to the bladder. The ureters consist

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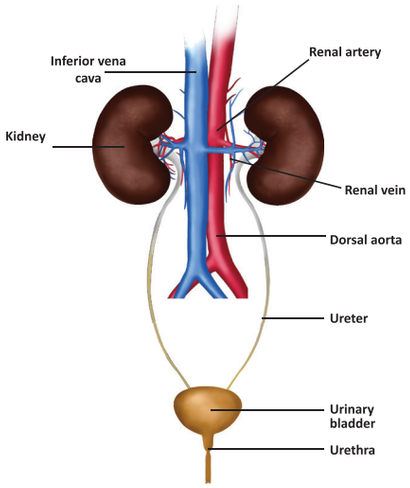
of smooth involuntary muscle which serves as the conduit of urine from the kidneys into the bladder.



Ureters

Bladder

The bladder is the muscular organ that serves as the collection and retention vessel which temporarily holds and retains urine prior to urination. A normal urinary bladder can hold up to 800 milliliters of urine.

Urethra

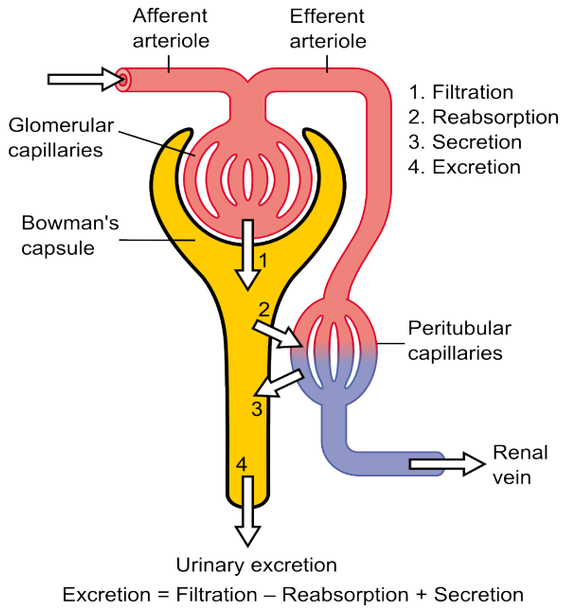
Urethra transports urine from the bladder to the outside of the body. This image shows (a) a female urethra and (b) a male urethra.

The urethra is the opening through which the urine passes out.

The male gender has two urethral sphincters to control both the passage of urine and sperm and the female gender has only one urethral sphincter to control the flow of urine only.

Physiology Of Urinary System

The functional unit of the urinary system is the nephron. The actual filters are tiny structures called nephron and each kidney is made up of one million nephrons. A nephron is made up of two parts, a cluster of capillaries called glomerulus, and a long fine tube. The nephrons are doing the following functions.



Urinary System

Filtration

Filtration occurs when the circulating blood passes through the kidney where the removal of proteins and other cellular particles. The ultra filtrate becomes urine after reabsorption and secretion.

Re absorption

Reabsorption occurs after filtration, entails the re-entry of some particles and molecules from the ultrafiltrate back into the blood for future use.

NOTE: Anti Diuretic Hormone controls the amount of water in the body and the blood. Excessive water in the blood causes high blood pressure and fluid overload, and a low amount of water in the blood causes low blood pressure and dehydration. Anti diuretic hormone also decreases the amount of aldosterone in the body.

Secretion

Secretion is the opposite of reabsorption which entails the movement of wastes and

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other molecules into the urine from the blood after it is processed by the kidney.

The process of urine production

The entry of blood into the kidneys → filtration of blood → ultra filtration → Re absorption → Secretion → Excretion of urine

Kidney physiologically prompts the secretion of Antidiuretic hormone and Aldosterone and production of enzymes like Renin and Angiotensin II

NOTE: A normal adult human void from 800 to 2,000 ml of urine per day. Urinary output less than 800 mLs per day and less than 30 mLs per hour are considered oliguria; urinary output in excess of 2,000 ml per day is considered polyuria; and the absence of all urine production is referred to as anuria.

Functions of the urinary system

- Eliminates wastes from the body
- Manages and controls the homeostasis of the body in terms of its pH or acid-base balance
- Manages and controls the homeostasis of the body in terms of its electrolytes and electrolyte balance
- Manages and controls the blood pressure
- Stores urine until voiding is prompted
- Enables the process of urination
- Remove wastes like urea and ammonia from the blood
- Manage and control the fluids and fluid balance in the body by holding or retaining water and releasing and removing water from the blood stream
- Serve with endocrine functions such as the production of erythropoietin and calcitriol which are needed for the production of red blood cells and the reabsorption of calcium, respectively.

Disease related to urinary system

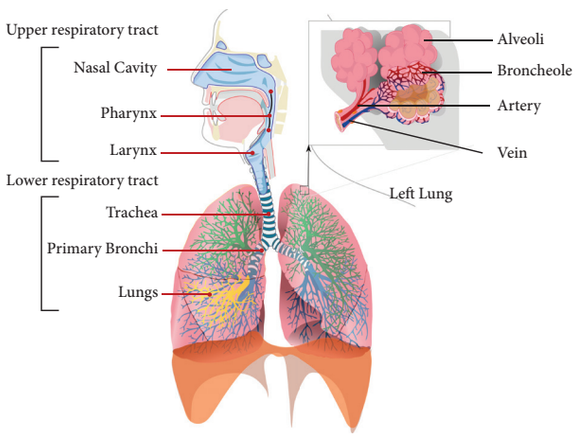
- Urinary tract infection
- Urolithiasis
- Nephrolithiasis
- Renal failure
- Renal cysts
- Glomerulonephritis
- Cancers of the urinary tract
- Dialysis

1.8 Respiratory system

Introduction

Respiratory system provides the body with oxygen required to sustain life and to eliminate carbon dioxide. The respiratory system works in association with the heart and lungs.

Air is breathed in through the nose or the mouth. In nasal cavity, a layer of mucus membrane acts as a filter and traps pollutants and other harmful substances found in the air. Next air moves in to the pharynx, a passage that contains the intersection between the oesophagus and the larynx. The opening of the larynx has a special flap of cortilage the epiglottis that opens to allow air to pass through but closes to prevent food from moving in to the airway.



Respiratory System

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From the **larynx** air moves in to the **trachea** and down to the intersection that branches to form the **right** and **left primary bronchi**, each of these bronchi, branch in to **secondary bronchi** that branch into **tertiary bronchi** that branch in to smaller airways called **bronchioles** that eventually connect with tiny specialized structure called **alveoli** that function in gas exchange.

The respiratory system is divided into the upper and lower respiratory system.

Upper Respiratory Tract	Lower Respiratory Tract
Nostril	Trachea
Pharynx	Bronchi
Larynx	Bronchioles
Epiglottis	Alveoli

Nostrils

A nostril is one of the two channels of the nose from the point where they bifurcate to the external opening.

Pharynx

Pharynx is the part of the throat. It is situated at behind the nasal cavity, besides the larynx, and above the oesophagus. It has three part, they are nasopharynx, oropharynx and laryngopharynx.

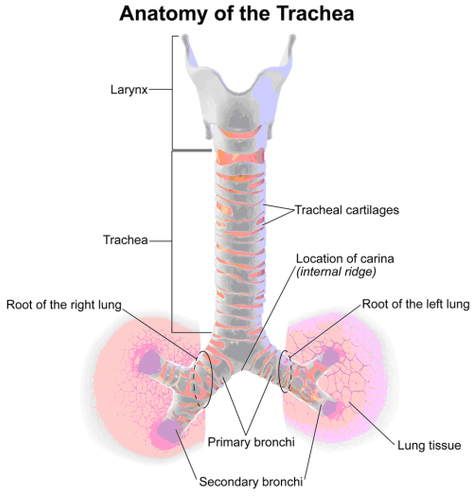
Epiglotis

Epiglotis is a flap in the throat. It is present between the pharynx and larynx. It helps to prevent the food from entering the windpipe [trachea] and the lungs. It is made up of elastic cartilage covered with a mucus membrane attached to the entrance of the larynx.

Larynx

Adam's apple or the voice box. Larynx connects the lower part of the pharynx and trachea. It received inspired air from the pharynx and passes it to the trachea.

Trachea



Trachea

Trachea called as windpipe, is a cartilaginous tube that connects the pharynx and larynx to the lungs allowing the passage of air.

Lungs

The lungs are the primary organs of the respiratory system. Human lungs are conical in shape and spongy organ. Right and left lung are situated in the thoracic cavity, either side of the heart, and above the diapharam.

The lungs are protected by ribcage and the spine. The right lung is larger than left lung. The left lung has two lobes, upper and lower lobes. The right lung has three lobes upper, middle and the lower lobe.

Bronchus

The bronchus is passage of airway in the respiratory system. They conducts air in to the lungs. It is divided in to primary, secondary, and tertiary bronchi.

Bronchioles

They are bronchus of the bronchi. The bronchioles further divided in to smaller terminal bronchioles.

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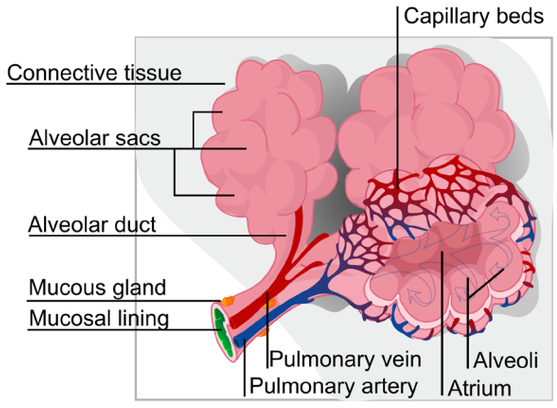
Alveoli

The alveoli are located in the respiratory zone of the lungs. It is the smallest units in the respiratory tract. Human lungs contain about 480 million alveoli.



Alveoli

Each alveolus is surrounded by numerous capillaries and is the site of gas exchange by diffusion.

NOTE: Diaphragm is the major breathing muscle of the body.

Respiratory cycle

The respiratory cycle includes two phases, inspiration or inhaltion of oxygen and expiration or exhalation of carbon dioxide.

NOTE: Each inspiration plus one expiration is one breath. Normally, adults breathe 16 to 20 times per minute or 960 to 1,200 times per hour.

The lungs expand with inspiration and deflate and relax during expiration. Both the expansion and contraction of the lungs are aided by the muscular diaphragm and the intercostal muscles.

Disease of the respiratory tract

- Pneumonia
- Emphysema
- Bronchitis
- Asthma
- Chronic Obstructive Pulmonary Disease (COPD)
- Influenza or the "flu"
- Tuberculosis
- Laryngitis
- Pharyngitis
- Lung Cancers
- Dyspnea
- Respiratory arrest

1.9 Endocrine System

The endocrine system provides the body with the hormones that are needed to sustain life and create life. Hypo and hyper secretion of the endocrine glands leads to physiological problems.

NOTE: Endocrine glands are different from exocrine glands. Endocrine glands secrete hormones to an internal part of the body; and exocrine glands secrete substances to the exterior or near the surface of the body. Salivary glands secrete saliva into the mouth and sebaceous glands secrete an oily substance on the skin.

Physiology

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Endocrine system is a control system of ductless glands that secrete hormones within specific organs. Hormones acts as "messengers" and are carried by the blood stream to different cells in the body, which interpret these messages and act on them. It provides an electrochemical connection

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from the hypothalamus of the brain to all the organs that control the body metabolism, growth and development, reproduction and also maintain homeostasis.

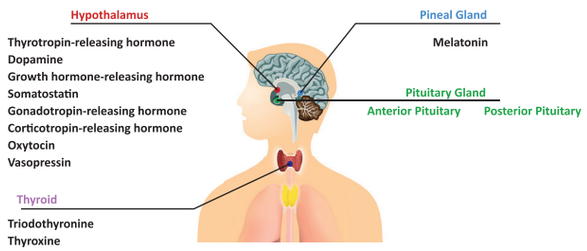
The endocrine system regulates its hormones through negative feedback. Increases in hormones activity decrease the production of that hormone

The endocrine system consists of these glands

- Hypothalamus
- Pineal gland
- Parathyroid
- Pancreas
- Testes
- Pituitary gland
- Thyroid
- Adrenal glands
- Ovaries

NOTE: The Thymus is the only endocrine gland that does not secrete any hormones

The Thymus is considered as an endocrine gland because it plays a role in the immune system of the body.



Endocrine System

Hypothalamus

The hypothalamus lies within the cranium which regulates the homeostasis. The hypothalamus regulates the release or slow down and stop the release of hormones from other endocrine glands based on the blood levels of these hormones.

Pituitary Gland

Located at the base of the brain, is the **master gland** which controls the secretion of several other glands included in the endocrine system.

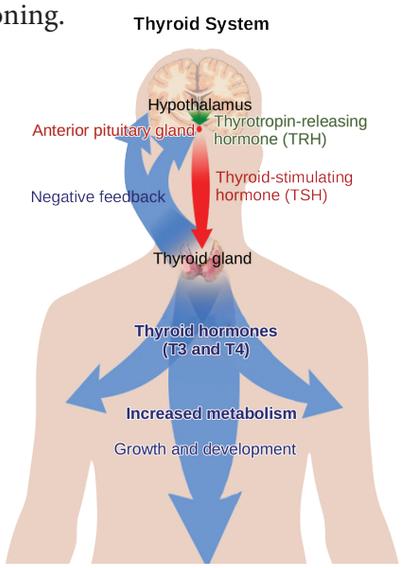
Pineal Gland

The pineal gland is a small endocrine gland that lies close to the hypothalamus, performs the coordination of **circadian rhythm (sleep - wake cycle)**.

Thyroid Gland

The Thyroid gland shaped like angel wings on each side of the throat just above the trachea, are connected to each other with a thin connecting area called the Isthmus.

The Thyroid gland regulates the body's metabolism, basal metabolic rate, cardiac system's function, physical growth and sexual functioning.



Thyroid System

Parathyroid Glands ("para" means around and "thyroid" is thyroid gland).

The parathyroid glands are two pairs of glands found bilaterally on both sides of the neck just behind the Thyroid gland. The body has four parathyroid glands which is unique when compared to the other glands of the endocrine system. The role of the glands is to control the circulating amount of two electrolytes, calcium and phosphorous with the secretion of parathyroid hormone.

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Adrenal Glands

The adrenal glands, which are in the abdominal area, are located bilaterally just above each kidney and the diaphragm. The adrenal glands consist of two layers, the cortex (outer layer) and the medulla (inner core).

The cortex secretes:

- Androgen - male hormone
- Aldosterone - controls blood pressure and fluid balance
- Cortisol - regulates and coordinates metabolism

The medulla secretes stress reaction hormones such as:

- Adrenaline
- Noradrenaline
- Catecholamine

The Pancreas

The pancreas is located behind the stomach. The islets of Langerhans secrete glucagon, insulin, pancreatic polypeptide and somatostatin. The pancreas produces and releases digestive enzymes and juices that break down foods as they enter the small intestine.

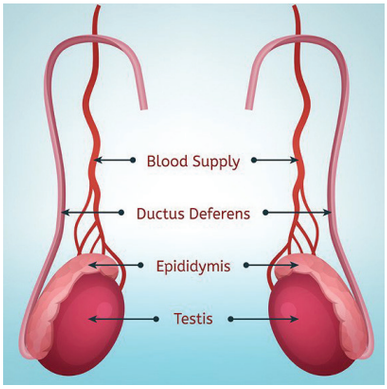
NOTE: Pancreas is called as a mixed gland since it serves both as an endocrine gland and as a digestive organ and exocrine body.

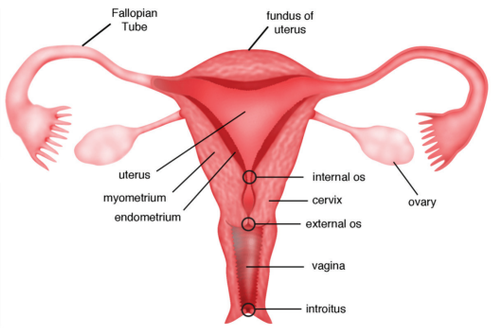
Testes and Ovaries

Ovaries and Testes are the endocrine glands and gonads, which is called as a sex and reproduction glandular structure.

The ovaries produce progesterone, estrogen, inhibin and androstenedione. Progesterone regulates menstrual cycle and the preparation of the uterus for the implantation of the egg. Estrogen regulates the development of breasts. Inhibin inhibits Follicle Stimulating Hormone (FSH) in females and in males it inhibits the development of sperm and androstenedione (androgen that is weaker than testosterone).

The testes produce androgens, testosterone and sperms.





Testes and Ovaries

Diseases related to endocrine system

- Diabetes insipidus
- Acromegaly
- Gigantism
- Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)
- Hyperthyroidism
- Hypothyroidism
- Cushing's syndrome
- Addison's disease

1.10 Reproductive System

The role of the male and female reproductive system is to procreate and to provide sexual gratification to the person.

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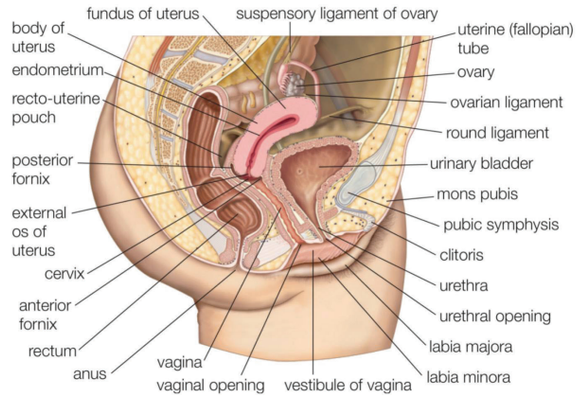

Female Reproductive System

Female reproductive system

The female reproductive system is made up of the internal and external sex organs that function in reproduction of new offspring. The female reproductive system is immature at birth and develops to maturity at puberty and able to produce gametes, and to carry a foetus to full term.

Parts of Female Reproductive System.

External Organs	Internal Organs
• Vulva • Mons pubis • labia majora • Labia minora • clitoris • Vestibule	• Vagina • Cervix • Uterus • Fallopian tubes • Ovaries

External Organs

Vulva

The vulva is the external part of the female genitalia. It protects the woman's sexual organs urethra, vestibule, and vagina.

Mons Pubis

The mons pubis is a pad of fat lying in front of the symphysis pubis where pubic hair develops with puberty.

Labia majora

The labia majora are two thick folds which form the sides of the vulva.

Labia minora

The labia minora lies just inside the labia majora and surround the openings to the vagina and urethra.

The Clitoris

The clitoris lies above the vagina is covered with a protective cover or hood.

Vestibule

It is a small space or cavity at the beginning of a vaginal canal.

Internal Organs

Vagina

The Vagina is an elastic, muscular canal that extends from the vulva to the cervix. The vaginal canal travels upwards and backwards between the urethra at the front and the rectum at the back.

The outer vaginal opening is normally partly covered by a membrane called the hymen. It joins the internal and external female reproductive organs and protects against infection by a moist secretion.

Cervix

The cervix is the lower part of the uterus. The lower narrow portion where it joins with the upper part of the vagina. The cervix is usually 2-3 cm long and roughly cylindrical in shape which changes during pregnancy. As labour progresses, the cervix becomes softer and shorter, beings to dilate and facilitate normal labour.

Uterus

The uterus is a pear shaped muscular organ and the major female reproductive organ. It provides mechanical protection, nutritional support, and removal of the waste for developing embryo and fetus.

- It has three layers, they are perimetrium, myometrium and endometrium.

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- Major functions are to accept a fertilized ovum which becomes implanted into the endometrium, and menstruation.

The fallopian tube

The fallopian tubes are two tubes leading from the ovaries in to the uterus. They enable the passage of ovum from the ovaries to the uterus. Different segments are interstitial, isthmus, ampulla, infundibulum and fimbriae. Fertilization takes place in the ampulla of the fallopian tube.

Ovaries

The ovaries are considered as the female gonade. Each ovary is whitish in colour and located alongside the lateral wall of the uterus. It secretes estrogen, testosterone, Inhibin and progesterone. These hormones are responsible to maintain menstrual cycle, pregnancy and development of breast.

Functions of the female reproductive system

- To produce ovum.
- To protect and nourish fertilized egg until it is fully developed.
- To give birth.
- Menstruation.
- To have sexual intercourse.

Diseases related female reproductive system

- Breast cancer
- Cervical cancer
- Ovarian cancer
- Poly cystic ovarian disorder
- Menorrhagia
- Fibroids

Male Reproductive System

The male reproductive system consists of internal and external organs.

The external organs

- Penis
- Scrotum

The Penis

The tip of the penis is protected with foreskin. The penis enlarges and becomes erect with sexual excitation because there is a rich supply of blood.

The Scrotum

The scrotum lies bilaterally behind the penis. The scrotal sac holds and protects the testes.

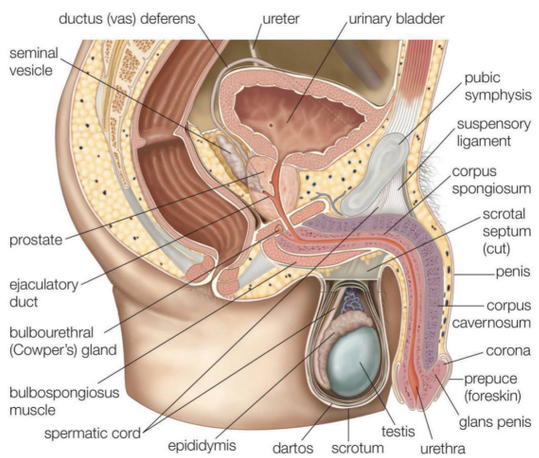
NOTE: The scrotum moves upward and downward when it is exposed to cold and warm environmental temperatures, respectively.

The internal organs are the

- Testes
- Vas deferens
- Ejaculatory ducts
- Urethra
- Epididymis
- Seminal vesicles
- Prostate gland

Testes

The testicles, or testes, lie bilaterally to the penis in the scrotum. The testes are endocrine glands and gonads.



Male Reproductive System

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Epididymis

The epididymis is the connecting tube between the testes and the vas deferens which stores, transports and matures the sperm from the testes. The epididymis has three parts such as, the head, body and tail.

Vas Deferens

The vas deferens moves the mature sperm from the epididymis to the ejaculatory ducts and then to the urethra for ejaculation.

Seminal Vesicles

The seminal vesicles are the pair of glands which attach to the vas deferens near and under the bladder. It produces a fructose substance that provides the sperm with the energy it needs to locomote and move through the male reproductive tract.

Prostate

The prostate is an exocrine gland which secretes an alkaline fluid that preserves the life of the sperm when it hits the acidic female vagina.

Ejaculatory Ducts

The pair of ejaculatory ducts forms the union of the vas deferens and the seminal vesicles. Sperm enters the ejaculatory ducts from the vas deferens.

Urethra

The urethra is an organ common for both reproductive system and urinary system.

The primary male reproductive hormones are

Follicle stimulating hormone which produces sperm (spermatogenesis).

Luteinizing hormone which produces testosterone.

Testosterone which leads to the development of primary and secondary sexual characteristics during puberty.

Disease related to reproductive system

- Prostate cancer
- Testicular cancer
- Gynecomastia
- Erectile dysfunction
- Varicocele
- Hydrocele.

Sensory system

It is an organ of the body which response to external stimuli by conveying impulses through the sensory neuron to the appropriate places within the sensory nervous system.

There are five sense organs in the human body. It includes,

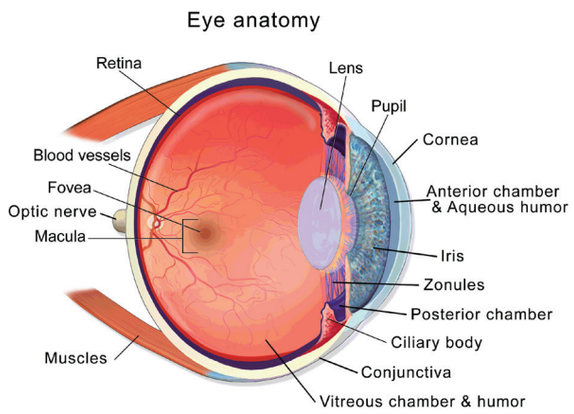
- Skin
- Eye
- Ear
- Tongue
- Nose

Skin

The human skin is the outer covering of the body and is the largest organ of the integumentary system. The main functions are protection, regulation and sensation.

Anatomy of the Eye

The eye is a sensory organ. It absorbs light rays from our environment and transforms them in such a way that the information in the brain can be processeced further.



Anatomy of Eye

- The eye has many parts work together to produce clear vision.
- The **sclera** or white part of the eye protects the eyeball.

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- The **pupil** or black dot at the center of the eye is a hole through which light can enter the eye.
- The **iris** or coloured part, surrounding the pupil. It controls how much light enters the eye by changing the size of the pupil.
- The **cornea**, a clear window at the front of the eye covers the iris and pupil.
- A clear **lens**, located behind the pupil, acts like a camera lens by focusing light in to the retina at the back of the eye.
- The **retina** is a light sensitive inner lining at the back of the eye. Ten different layers of cells work together in the retina to detect light and turn it into electrical impulses.
- The retina has special cells called **cones** and **rods** are located in the retina. These all are known as photoreceptors and help absorb light.
- Cones cone cells help us see **colour** and detail.
- Rods rod cells allow us to see in poor lighting and give us our **night vision**.

Functions [Physiology] of the Eye

1. Light reflects of the object we are looking at
2. Light rays enter the eye through the cornea at the front of the eye.
3. The light passes through a watery fluid and enters the pupil to reach the lens.
4. The lens can change in thickness to bend the light, which will focus it on to the retina at the back of the eye.
5. On the way to the retina, light passes through a thick, clear fluid called a vitreous humour. The vitreous humor fills the eyeball and helps maintain its round shape.
6. The light then reaches the back of the eyes and hits the retina. The retina translates the light into electrical impulses which are then carried to the brain by the optic nerve.

Finally, the visual cortex of the brain interprets these impulses at what we see.

ABOUT EYE BANK

In India, we have an estimated 4.6 million people with corneal blindness that is curable through corneal transplantation made possible by eye donation. The cornea is the transparent outer portion of the eyeball that transmits light to the retina. It is a 1/2-inch wide film of tissue that forms a protective covering on the front of the eye. Corneal blindness can be cured in many cases through the transplant of a donated cornea. In 1905 Eduard Konrad Zirm, MD, performed the first successful corneal transplant. In 1944 Paton established the world's first eye bank, the Eye-Bank for Sight Restoration, in New York. Certified Eye Bank Technicians are re-certified every 3 years. **Anyone can be an eye donor!** Cornea donation is not dependent on age, eye colour, blood type or even eye sight quality. The eyes have to be removed within six hours of death. Cornea transplant is usually performed within 4 days after donation, depending upon the method of cornea preservation. Eye donation gives sight to two blind persons. One blind person is given one eye. Almost anyone between the ages of 2 and 75 can be an eye donor, regardless of poor vision, diabetes, or cancer. In fact, only under the following conditions can eye donation definitely not occur: HIV or AIDS, Active Hepatitis, Active Syphilis, Rabies, Viral Encephalitis, Leukemia, Active Lymphoma, or Active Meningitis. It is illegal to buy and sell human eyes, organs and tissues. Any cost associated with eye procurement are absorbed by the eye bank.

MAKE EYE DONATION A FAMILY TRADITION

Your eyes after death need not perish. Help blinds to see, donate eyes after death.

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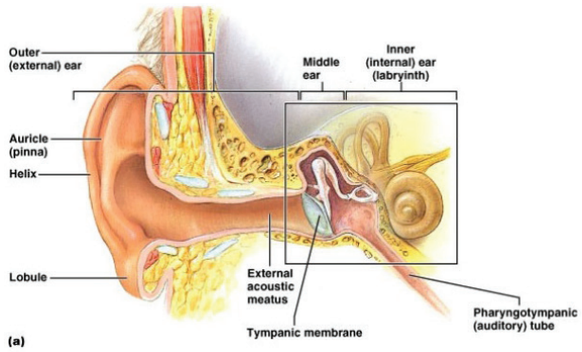
Ears



Ear

The ear is the organ for hearing. It is divided into three parts.

- Outer ear-pinna /auricle, auditory canal
- Middle ear-ear drum, ossicles, Eustachian tube
- Inner ear- cochlea, vestibule and semicircular canal.

The outer ear

Pinna: receives sound waves that travel the auditory canal or ear canal.

The curved formation on the outside [the pinna] helps funnel sound down the ear canal to the ear drum.

Auditory canal

Acts as a funnel and leads to the ear drum. which protects the eardrum from shock and intrusion by external objects.

Ear drum

- It is a cone shaped piece of skin.
- It is very sensitive, even the slightest pressure variation will cause it to vibrate.
- It is also separates the outer ear from the middle ear.

The middle ear

It transfer the energy of a sound wave by vibrating the three bones found there.

Ossicles:- smallest bone of the body. Ear bones are malleus, incus and stapes.

Eustacian tube

A tube that connects the middle ear to the back of the nose. It equalizes the pressure between the middle ear and the air outside.

The inner ear

It has two main parts.

Cochlea

This is a spiral that is covered in a stiff membrane. It contains thousands of hair cells attached to the end of the organ of the auditory nerve called organ of corti. These tiny hairs bend because of the vibrations caused by the sound waves.

The auditory nerve

The vibration from the hairs stimulated tiny nerve cells. The nerve cells then send signals along the auditory nerve to the brain.

Functions of Ear

Any source of sound sends vibrations or sound waves in to the air. These funnel through the ear opening, down the ear canal and strike eardrum acquiring in to vibrate. The vibrations become nerve impulses and transported to the brain, which interprets the impulses sound [music, voice, etc.]

Tongue

Tongue is a muscular organ situated in the floor of the mouth. It is associated with the function of taste, speech, mastication, degurtition.

Parts of the tongue

- Root
- Tip
- Body – it consists of two
- Dorsum – oral part
- Pharyngeal part
- Posterior part
- Inferior – inferior surface.

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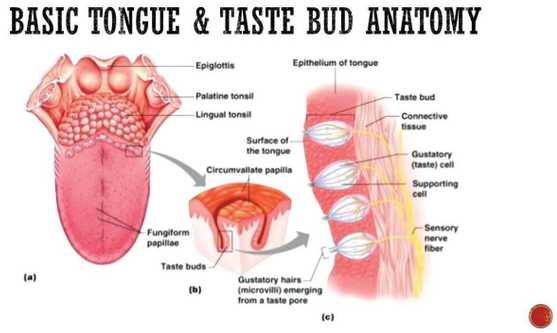


Tongue

There are two groups of muscles of the tongue.

1. **Four intrinsic** - alter the shape of the tongue and not attached to the bone.
2. **Four paired extrinsic muscles**- change the position of the tongue and are anchored to the bone.

The tongue upper surface is covered by taste buds housed in numerous lingual papillae. It is responsible for taste.

Nose

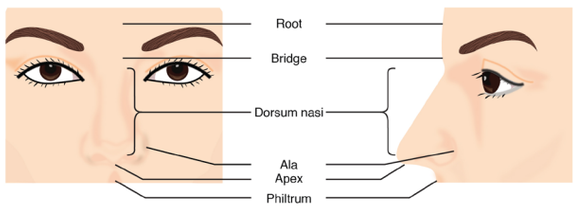
The organ of smell is located in the middle of the face. The internal part of the nose lies above the roof of the mouth.

The nose consists of external nose and nasal cavity both are divided by the septum into right and left.

Functions of the nose

- Respiration
- Olfaction

1. Nose is the first part of the upper respiratory tract.
2. Warming and moistening of the inhaled air.
3. Filter the air by removing particulates.



Nose

Olfaction

It has olfactory receptor neuron and it is responsible for sense of smell.

Speech

The normal speech is produced with pressure from the lungs, this can be modified using airflow through the nose in a process called nasalization.

SUMMARY

- ❖ Integumentary system comprises the skin. Appendages protect the body from various kinds of damage. Such as loss of water or damages from outside.
- ❖ It consists of the skin, hair, finger nails, toe nails and other structures including glands.
- ❖ Heart is the master of cardiovascular system. It pumps out blood to supply oxygen, electrolytes, nutrients and hormones through out the body.
- ❖ Blood circulation controls the body temperature, the PH or acid base balance of the body.
- ❖ Blood pumping cycle of the heart is called cardiac cycle. The heart consists of four chambers, valve, and three layers of covering.
- ❖ Heart has three types of circulation like coronary, systemic and pulmonary circulation. It is considered as a one of the vital organ of the body.

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SUMMARY (CONTD)

- The musculo skeletal system is made up of the body's bones, muscles, cartilage, tendons, ligaments, joints, and other connective tissue that supports and bind tissues and organs together.
- The primary functions of the system is forming and supporting the body, allowing motion, and protecting vital organs.
- The nervous system is the most complex of all the systems which coordinates controls and enables all body functions like movement, thinking, autonomic, or automatic, reflexes and sensory perception.
- The nervous system sends messages to all parts of the body and receives it.
- The alimentary canal, with the other organs of digestion, is a continuous hollow tube from the mouth to the rectum.
- The alimentary canal along with the associated organs like the salivary glands, liver, pancreas and the gallbladder is called the digestive or gastrointestinal system.
- The stages of digestion are mastication, digestion, and the absorption.
- Urinary system also known as the renal system, consist of kidneys, ureters, bladder, and the urethra.
- The purpose of the urinary system is to eliminate the excess water from the body, regulate blood volume and blood pressure, control and regulate the level of electrolytes and blood PH.
- The physiology of urinary system are filtration, reabsorption and secretion.
- Respiratory system provides required oxygen to the body, to sustain life and to eliminate carbon dioxide. The respiratory systems' work is associated with the heart and lungs. It is divided into upper and lower respiratory tract.
- Air is breathed in through the nose or the mouth. Alveoli plays major role in process of diffusion .
- The endocrine system provides the body with the hormones that are needed to sustain life and create life. Hypo and hyper secretion of the endocrine glands leads to physiological problems.
- The purpose of reproductive system is to procreate, and to provide sexual gratification to the person.
- Sensory organ responses to external stimuli by conveying impulses through the sensory neuron to the appropriate places within the sensory nervous system.
- The skin is the outer covering of the body and is the largest organ of the integumentary system. The main functions are protection, regulation and sensation.
- The eye is a sensory organ. It absorbs light rays from our environment and transforms them in such a way that the information in the brain can be processed further.
- The ear is the organ for hearing. The ear can be divided into outer and inner ear. Inner ear plays major role in conduction of sound waves.
- Tongue is a muscular organ situated in the floor of the mouth. It is associated with the function of taste, speech, mastication, and deglutination.
- Nose is the organ of smell located in middle of the face. The internal part of the nose lies above the roof of the mouth.

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GLOSSARY A-Z

Bradycardia	-	A pulse rate of less than 60 per minute
Tachycardia	-	A pulse rate of more than 100 per minute
Systole	-	The phase of the cardiac cycle when the heart gets contract
Diastole	-	The phase of the cardiac cycle when the heart is at rest
Pericardium	-	The sac that encloses the heart; the heart's outermost layer
Purkinje fibers	-	Bundles of nerve tissues that allows the heart to conduct nerve impulses
Pulse	-	The rate of the heart this is documented as the number of heart beats per minute
Sinoatrial (SA) node	-	The natural heart pacemaker that controls the rate of the heart
Atrioventricular (AV)node	-	This node sends an electrical impulse to the bundle of His
Bundle of His	-	sends electrical impulse to Purkinje fibers
Cardiac arrhythmia, or dysrhythmia	-	Abnormal and irregular heart beats
Electrocardiogram	-	ECG, records the electrical activity of the heart and the heart's rhythm
Hypertension	-	High blood pressure
Hypotension	-	Low blood pressure
Angina or angina pectoris	-	Chest pain that results from the lack of adequate oxygen to the heart muscle. The lack of oxygen to the heart muscle is referred to as ischemia.
Myocardial infarction	-	Heart attack
Mastication	-	Chewing
Digestion	-	The breaking down of food particles into smaller particles and molecules
Taste buds	-	Taste sensors found on the upper surface of tongue
Parotid salivary gland	-	One of the salivary glands
Amylase	-	The digestive enzyme that is produced by the salivary glands in the saliva.
Peristalsis	-	Wave like involuntary muscular movements that move and propel food and fluids along the digestive tract
Chyme	-	Partially digested food in the stomach
Diarrhea	-	Loose and often difficult to control fecal evacuation
Constipation	-	The lack of a bowel movement and fecal evacuation
Fecal Impaction	-	The drying of stool in the intestines that cannot be evacuated

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Diverticulitis	-	The inflammation or infection of the intestine affected with diverticulosis
Gastric acid reflux	-	The movement of acids and contents from the duodenum of the small intestine back into the esophagus
Cholelithiasis	-	Gall bladder stones
Cholecystitis	-	An inflammation or infection of the gall bladder
Cirrhosis	-	Damage to the liver and its hepatic tissues
Hepatitis	-	A type of liver infection by hepatitis virus
Colitis	-	An acute or chronic inflammation of the colon
Crohn's disease	-	inflammation of the gastrointestinal tract
Irritable bowel syndrome	-	A disorder of the large intestine that can lead to abdominal pain, diarrhea and other gastrointestinal system disorders
Hemorrhoids	-	Enlarged veins in the lower rectum and/or anus
Hormones	-	Chemical substances that control manage and coordinate several body functions
Gland	-	An organ that secretes and releases a substance.
Circadian rhythm	-	The normal human being's 24 hour cycle of sleep and wakefulness.
Diurnal beings	-	Day time active and nighttime sleep beings
Nocturnal beings	-	Nighttime active and daytime sleep beings
Progesterone	-	The hormone secreted by the ovaries and plays a role in the menstrual cycle and the preparation of the uterus for the implantation of the fertilized egg or ovum
The testes	-	The endocrine system gland that produces testosterone
Diabetes insipidus	-	A pituitary gland disorder, lack of insulin production
Acromegaly	-	A pituitary gland disorder, swelling or overgrowth of extremities including head
Gigantism	-	A pituitary gland disorder, over growth of the entire body including tallness
Hyperthyroidism	-	An overactive thyroid gland
Hypothyroidism	-	An underactive thyroid gland
Cushing's syndrome	-	Over production of cortisol by the adrenal glands
Addison's disease	-	Under production of cortisol by the adrenal glands
Skin	-	The largest organ of the body that covers the entire body
Thermoregulation	-	The regulation of the bodily temperature
Tactile sense	-	sense of touch
Lunula	-	The half-moon (luna) white area at the base of the nail.
Acne	-	Clogging of skin pores with dead skin and skin oils
Rash	-	An often itchy irregular reddened area on the skin that can occur from a number of different causes

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Athlete's foot	-	Also referred to as tinea pedis (foot), it is a fungal infection of the feet
Sunburn	-	Burning of the skin as the result of exposure to the sun
Albinism	-	Defective melanin that causes an abnormal coloration of the skin and hair
Herpes	-	A viral infection
Impetigo	-	A contagious skin condition that appears as a rash on the skin
Psoriasis	-	Thick skin surface as the result of an abnormal buildup of cells on the skin surface
Rosacea	-	A skin disorder that causes redness and skin break outs
Ligaments	-	Connective tissue with collagen at the point of articulation
Tendons	-	Connective tissue with collagen that allow joint movement
Fascia	-	Connective tissue that connects muscles to other muscles
Fractures	-	The breakage of a bone
Greenstick fracture	-	A fracture that occurs when only one side of the bone is fractured
Dislocation	-	The joints are completely separated and are no longer articulated and connected with each other
Arthritis	-	One of the many types of skeletal disorders that is characterized with the inflammation of one or more skeletal joints in the body
Rheumatoid arthritis	-	A type of arthritis that affects the younger population, auto immune disorder
Osteomyelitis	-	An infection of bone tissue
Glial cells	-	A type of nervous system cell, other than a neuron, that forms myelin which is the covering or sheath over parts of the neuron
Synapse	-	The point at which neurons gently touch each other to send or receive a nerve impulse or message.
Meninges	-	The protective membrane that covers the brain and the spinal cord
Brain	-	The major organ of the body that controls and manages virtually all physiological and emotion bodily responses
Pons	-	The mid-section of the part of brain stem that connects to the midbrain above and the medulla below and the part that controls the rhythm of respirations
Reflex	-	A muscle reaction that automatically occurs in response to a certain type of stimulus, or stimulation
Seizures	-	Abnormal nervous system nerve activity in the brain that can lead to a wide variety of signs and symptoms including uncontrolled body movement and jerking or a short lapse of consciousness
Stroke	-	An episode of bleeding or a clot in the brain that causes symptoms and damage to the brain and its functioning
Epilepsy	-	A group of disorders that lead to seizures

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Paralysis	-	The neurological loss of function to one or more parts of the body
Parkinson's disease	-	A chronic and progressive disorder of the nervous system that can lead to disability
Alzheimer's disease	-	A progressive degenerative form of dementia
Bell's palsy	-	A disorder of the facial nerve that adversely affects the face and the muscular movements of the face
Neuralgia	-	Pain originating from a nerve or group of nerves
Procreate	-	To give life to a new person
Salpinges	-	An alternative name for the fallopian tubes
Fimbria	-	The hair like fringes of the fallopian tubes nearest to the ovaries
Vaginitis	-	Infection of the vagina and vaginal vault
Cystocele	-	The collapse of the urinary bladder into the vagina
Rectocele	-	The pushing of the rectum and part of the large intestine against the vaginal wall
Nares	-	The nostrils of the nose
Pneumonia	-	An inflammation and infection of the lungs
Emphysema	-	A disorder characterized with an inability to expel air from the alveoli
Bronchitis	-	An inflammation and infection of the bronchi
Asthma	-	A lung inflammation that makes the work of breathing more difficult
Chronic obstructive pulmonary disease (COPD)	-	A chronic lung disorder that consists of chronic bronchitis and/or emphysema
Influenza or the "flu"	-	An acute inflammation and infection that can adversely affect the lungs and respiratory functioning
Tuberculosis	-	A serious lung infection that is contracted with a bacillus pathogen
Laryngitis	-	An inflammation and infection of the larynx
Pharyngitis	-	An inflammation and infection of the pharynx
Dyspnea	-	Difficulty breathing
Erythropoietin	-	The substance that is needed for the production of red blood cells
Vasopressin	-	An alternative name for antidiuretic hormone
Micturition	-	The synonym for urination or voiding
Urolithiasis	-	A kidney stone or calculi
Renal cysts	-	Infections in the kidney
Glomerulonephritis	-	Inflammation of the glomeruli of the kidneys

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Evaluation

I. Choose the best answer.

1. The largest organ of human body is
   a. skin b. liver
   c. heart d. lungs

2. Sweat glands are a part of
   a. skeletal system
   b. integumentary system
   c. urinogenital system
   d. circulatory system

3. _____ protect the eyes from foreign debris getting into the eye
   a. eye brows
   b. eye lids
   c. eye lashes
   d. fore head

4. The finger and toe nails are made of
   a. chitin b. protein
   c. insulin d. keratin

5. There are no sebaceous glands in
   a. palms and sole of the feet
   b. palms alone
   c. sole of the feet alone
   d. all are wrong

6. Sweat glands are
   a. endocrine glands
   b. eccrine and apocrine glands
   c. eccrine glands
   d. apocrine glands

7. _____ is the master of circulatory system
   a. brain b. kidney
   c. heart d. liver

8. The blood vessels that carry oxygenated blood throughout the body are
   a. veins alone
   b. both arteries and veins
   c. arteries alone
   d. all are correct

9. The point at which the exchange of oxygen and carbon dioxide occurs
   a. lungs b. arteries
   c. veins d. capillaries

10. The red colour of blood is due to the presence of
    a. hemoglobin b. erythrocin
    c. xanthophyll d. rhodopsin

11. Thymus gland is a part of
    a. muscles b. lymphatic system
    c. skin d. inner ear

12. 90% of plasma consists of
    a. protein b. sugar
    c. water d. salt

13. Red blood Cells contains
    a. a prominent nucleus
    b. a dormant nucleus
    c. a pronucleus
    d. no nucleus

14. Hemostasis is aided by
    a. thrombocytes b. leucocytes
    c. erythrocytes d. granulocytes

15. Adult human has
    a. 206 bones b. 216 bones
    c. 226 bones d. 236 bones

16. Malleus Incus and Stapes are
    a. bones b. ear ossicles
    c. tarsus d. carpals

17. Sternum is a _____
    a. leg bone b. hand bone
    c. breast bone d. hip bone

18. The building blocks of bones are called
    a. osteocytes
    b. melanocytes
    c. thrombocytes
    d. leucocytes

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19. Haematopoiesis is
    a. production of WBCs
    b. production of RBCs
    c. production of haemoglobin
    d. production of insulin

20. Cartilage does not have
    a. blood supply b. nerves
    c. marrow d. all of the above

21. Ligaments are connective tissue made up of
    a. chitin b. carbohydrates
    c. collagen d. fatty acids

22. Rheumatoid arthritis is
    a. dystrophy
    b. Alzheimer's disease
    c. auto immune disorder
    d. anemia

23. The basic units of nerves are called
    a. neurons b. nephrons
    c. transposons d. exons

24. A point of junction between any two neurons is called
    a. collapse b. synapse
    c. prolapse c. relapse

25. The brain is protected by the
    a. pericardium b. diaphragm
    c. cranium d. osphradium

26. CNS consists of
    a. heart and skin
    b. liver and bones
    c. skin and nails
    d. brain and spinal cord

27. _____ is the largest part of brain
    a. cerebrum
    b. cerebellum
    c. medulla oblongata
    d. spinal cord

28. The respiratory rhythm is controlled by
    a. gyri b. sulci
    c. pons d. glial cells

29. Spinal cord has ___ nerve clusters
    a. 11 b. 21
    c. 31 d. 41

30. Abducens is a
    a. muscle tissue b. cranial nerve
    c. exocrine gland d. protein derivative

31. Digestion starts from
    a. small intestine b. large intestine
    c. tongue d. stomach

32. The salivary amylase is called
    a. ptyalin b. pepsin
    c. insulin d. renin

33. Bile is produced in
    a. lungs b. liver
    c. stomach d. kidney

34. Stomach secretes
    a. oxalic acid b. citric acid
    c. nitric acid d.hydrochloric acid

35. The point of fertilization is
    a. fallopian tube b. vagina
    c. uterus d. endometrium

36. The male hormone is called
    a. estrogen b. Androgen
    c. thyroid d. progesterone

37. The sugar present in semen is
    a. glucose b. galactose
    c. fructose d. mannose

38. _____ is the master gland
    a. thyroid b. adrenal
    c. prostate d. pituitary

39. Diabetes is caused due to the lack of production of
    a. glucagon b. insulin
    c. thrombin d. keratin

40. The major breathing muscle is
    a. trachea b. bronchus
    c. diaphragm d. meniscus

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41. Larynx in males are also called as
    a. Eve's apple
    b. Guyton's apple
    c. Newton's apple
    d. Adam's apple

42. Alveoli are the
    a. air sacs b. water sacs
    c. water bags d. hairs in lungs

43. Adults breathe ____ times in a minute
    a. 20-24 b. 16-20
    c. 12-16 d. 18-22

44. COLD is expanded as
    a. child of limited dystrophy
    b. city old lantern dialling
    c. chronic obstructive lung disease
    d. children of lifetime diseases

45. Human urine majorly consists of
    a. uric acid b. ammonia
    c. nitrogen d. urea

46. Kidneys are _____ shaped
    a. pearl b. bean
    c. triangle d. spherical

47. The inner layer of kidney is called the
    a. lamella b. cortex
    c. medulla d. glabella

48. _____ is performed in case of kidney failure
    a. paralysis b. haemolysis
    c. plamolysis d. dialysis

49. Antidiuretic hormone controls the amount of water in
    a. blood b. urine
    c. sweat d. tears

50. Polyuria is
    a. frequent urination
    b. excess urination
    c. less urination
    d. blood in urine

Answer The Following Questions

1. Illustrate the structure of sebaceous glands and label the parts
2. Briefly write about the layers present in the skin
3. Write short notes on lymphatic system
4. What are the types of leucocytes?
5. What are the functions of platelets?
6. Briefly write about the structure of bone
7. Other than bones, what are the other tissues and structure of musculo skeletal system?
8. Illustrate and briefly write about the structure of a neuron
9. Write about peripheral nervous system
10. What are the functions of small intestine?
11. What are the internal organs of male reproductive system?
12. Substantiate kidney as an organ
13. Illustrate the structure of larynx
14. What is respiratory cycle?
15. Draw and explain the structure of nephron

Write In Detail

1. Explain the arrangement of integumentary system and in its functions
2. Illustrate and explain the structure and function of human heart
3. Classify human bones
4. Illustrate and explain the structure of human brain
5. What are the different stages of digestion?
6. Illustrate and explain the structure of human ovaries
7. List down the endocrine glands and the corresponding hormones secreted by it.
8. Explain the structure and function of Thyroid gland
9. Illustrate and explain the structure of human lungs
10. Explain the structure and function of kidneys

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3. Mahendra Kumar Anandkumar & Meena Verma," Anatomy & physiology for Nurses," 2nd Edn, Jaypee Publication, New Delhi.
4. Indi Khurana & Arushi," Anatomy & physiology for Nurses, 1st Edn, CBS publication, New Delhi.
5. Yalayyaswamy," Human Anatomy & physiology for Nursing Courses and Allied Health sciences, 1st Ed, CBS publication, New Delhi.

INTERNET LINKS

1. https://www.youtube.com/watch?v=vii3YLGouv0
2. https://www.youtube.com/watch?v=dYYHaPkKqIA
3. https://www.youtube.com/watch?v=eXQgPCsd83c

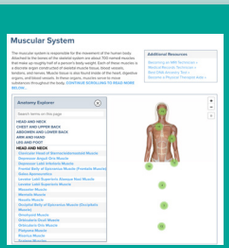
ICT CORNER

HUMAN ANATOMY

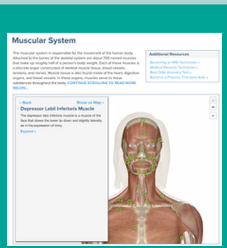
Through this activity you will be able to learn the structure of human

Steps

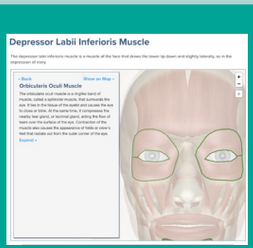
- **Step 1:** Type the URL link given below in the browser or scan the QR code.
- **Step 2:** Click on the name of the organ system you want to learn. A new page with a diagram on the right side and list of parts on the left side will open.
- **Step 3:** You can further explore detailed information of a particular part by clicking either the part on the diagram or part name fom the list given.
- **Step 4:** You can browse back to the previous page or to the home page and learn more about the other systems.



Step1



Step2



Step3

Step4

URL : https://www.innerbody.com/htm/body.html

*Pictures are indicative only
*Allow flash player.

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CHAPTER 2

Medical Surgical and Nursing Management of Human Diseases

மருந்தென வேண்டாவாம் யாக்கைக்கு அருந்தியது
அற்றது போற்றி உணின்

No medicine is necessary for him who eats after assuring (himself)
that what he has (already) eaten has been digested.

Learning Objectives

At the end of this chapter, the students will be able to:

- gain knowledge about the conditions related to Nursing Or Medical and Surgical
- know about definition of the disease condition
- observe the causes of the specific diseases
- understand the signs and symptoms of the diseases
- acquire knowledge about the methods of the diagnostic evaluations
- learn about the management of the specific disease conditions
- list out the complications of the diseases
- demonstrate the skills in Nursing management
- know about the prevention and promotion of the health condition

PQR92

Introduction

Medical and Surgical Nursing is a specialized and skilled branch of nursing. It can be considered to be the foundation of nursing because it has served as a launch pad to the several interdisciplinary advanced specializations in several vital areas of nursing, such as cardiology, neurology, etc

Medical-Surgical nursing is a specialized branch of nursing that involves the nursing care of adult patients, whose conditions or disorders are treated pharmacologically and with surgical procedures. The major beneficiaries of health care in India have been adult clients. The special knowledge required in medical surgical aspect for nurses is to provide quality care. Medical and surgical nursing went unrecognized for several years. But now it has been developed by experts serve as guide to the nursing practice.

Medical-Surgical Nursing provides the student with opportunities to apply the nursing knowledge in the care of individuals and families experiencing alterations in system stability related to the acute and chronic conditions

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2.1 Infection and Infestation

Infection

In Integumentary system, skin, hair, and nails are prone to different types of infections and infestations which needs to be diagnosed early and treated promptly to prevent spread.

Definition: Infection is defined as the invasion and multiplication of microorganisms such as bacteria, viruses and parasites that are not normally present within the body.

Different types of skin infections according to the causative organism:

1. **Bacterial skin infections** - Bacterial skin infections often begin as small, red bumps that slowly increase in size. Some bacterial infections are mild and easily treated with topical antibiotics, some infections require an oral antibiotic and good personal hygiene. Bacterial skin infections includes Cellulitis, Impetigo, Boils and Leprosy.
2. **Viral skin infections** - Skin infection are caused by a virus are called Viral skin infection.

Common Viral Skin infection include: Herpes Zoster (Akki). Chickenpox, Warts, Measles and Molluscum contagiousum.

3. **Fungal skin infections** - Skin infections which are caused by fungus, are mostly to develop in damp areas of the body, such as the groin, nail and armpit. Common fungal infections are Athelete's foot, Fungal Nail, Oral thrush and Diaper rash.

Infestation

Infestations can be classified as either external or internal with regards to the parasites' location in relation to the host.

External or ectoparasitic infestation is a condition in which organisms live primarily on the surface of the host and includes mites, ticks, head lice and bed bugs.

An internal (or endoparasitic) infestation is a condition in which organisms live within the host and includes those involving worms

Worm Infestation

Worm infestations are long-term diseases that produce few symptoms in their early stages and sometimes serious effects at well developed stages or may be quite fatal at times.

Worms are generally classified as

1. **Round Worms:** is also known as "Ascaris"
2. **Pin worms:** Is also known as "threadworm"
3. **Hook worms**
4. **Flat Worms:** tape worm (teniasis)

Clinical manifestation of worm infestation:

Abdominal pain, nausea, loss of appetite, sleeplessness, irritability, anemia and diarrhea

Diagnosis

History collection: history of passage of worms

Stool examination: It is done to detect which type of worm is present

Blood examination

Management

Anthelmintic

Albendazole (15mg/kg) or Mebandazole (100mg) twice Daily for 3 days irrespective of patients age.

Correction of anemia should be done with iron therapy

Complications - Intestinal obstruction, Perforation, Jaundice, Appendicitis, Pancreatitis, Ascaris encephalopathy, Liver abscess, Peritonitis and Protein loss (kwashiorkar)

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Preventive Measures

For Round Worm

- Prevention of round worm infestation can be done by interrupting its transmission
- Sanitary disposal of human excreta
- Reduction of feacal contamination of the soil
- Provision of safe drinking water, food hygiene, good personal hygiene, improving habits of hand wash before and after defecation, avoidance of open field defecation

Pin Worm Prevention

The preventive measures include maintenance of personal hygiene, careful hand washing with soap and water after defecation and before meal, treatment of all infected family members

Hook Worm Prevention

- avoiding contact of contaminated soil by using foot wear
- use of sanitary latrine for the sanitary disposal of feces to prevent soil pollution
- change in farming practice, that is not to use raw feces or untreated sewage as fertilizer

Tapeworm Prevention

Treatment of infected person, meat inspection, consumption of meat with proper cooking, adequate sewage treatment and disposal creating awareness about preventive aspects by health education

Scabies

Definition

Scabies is an infestation caused by itch mite due to poor personal hygiene.

Causes

- Infestation by the itch mite otherwise called as Sarcoptes Scabiei"
- skin contact with affected person (physical contact)
- Direct contact with skin, clothing and furniture containing infected mites.

Signs and Symptoms

- **ITCHING:** Itching is a common symptom, often worse at night and can be severe and intense.
- **RASH:** When the mite burrows into the skin it forms rashes.
- **SORES:** These occur in infested areas where a person has scratched at the skin.
- **THICK CRUSTS:** Crusted scabies, is a form of severe scabies.

The most common site of infection

- In between the finger webs
- Around finger nails
- Armpits
- Waist lines
- Inner parts of the wrists
- Inner elbow
- Soles of the feet
- Breasts
- Genitalia

Diagnosis based on

- Onset of generalized pruritis (itching) and the characteristic eruptions
- Itchy burrows and vesicles
- Microscope examination
- Dermatoscopy
- Digital Photography

Management

Medical management: Tropical application

- Permethrin 5 % Cream/lotion
- Benzyl Benzoate 10 – 25% lotion
- Crotamition 10% ointment
- Lindane 1% lotion/cream
- Oral medication according to the severity.

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Nursing management

- Maintenance of personal hygiene
- Isolation - separate clothing and toiletries.
- Necessary care to be given to the family members
- Topical treatment must be applied to the entire skin surface.
- After completion of treatment patients should use fresh, clean bedding and clothing.
- Other family members and Close personal contacts should be treated at the same time.
- Teach them to wash all linens, towels, and clothing used by the patient during the 2 days before treatment in hot water and dry them in sunlight.

Psoriasis

Psoriasis is one of the commonest skin disorders. Psoriasis is a chronic autoimmune skin disease. In auto immune disease immune system of our body attacks our own tissues, which leads to the rapid build-up of skin cells and causes scaling on the skin's surface. Psoriasis may begin at any age, but most diagnoses occur in adulthood. The average age of onset is between 15 to 35 years old. According to the World Health Organization (WHO) some studies estimate that about 75 percent of psoriasis cases are diagnosed before age 46.

Definition

Psoriasis is an inflammatory and proliferative immune mediates disease of the skin that results in a rapid turnover of the skin cells.

Types

- Plaque type Psoriasis
- Guttate Psoriasis, Pustular Psoriasis
- Inverse Psoriasis
- Erythrodermic Psoriasis
- Nail Psoriasis
- Psoriasis of the Scalp
- Palmar-Plantar Psoriasis
- Psoriatic Arthritis
- Systemic diseases in Psoriasis

Causes

The exact cause of psoriasis is not fully undestood.

Immune system: Autoimmune conditions are the result of the body cell reacting against its own cells.

Genetics: Approximately 35 to 50 percent of people genetically inherit the condition.

Triggers

Food: Whole milk, citrus fruits, gluten and fatty foods.

Drugs: Lithium, Non Steroidal Anti-Inflammatory Drugs (NSAIDs), malaria drugs, beta-blockers, tetracycline etc.

Weather: Excess sun exposure, Cold, dry weather

Infections

Others: Alcohol, Smoking, Stress, Obesity, Scratches, bites and Skin injury.

Risk Factors

- Family history
- Viral and bacterial infection

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- Stress
- Obesity
- Smoking

Signs and Symptoms

- Red, raised, inflamed patches of skin
- Whitish-silver scales or plaques on the red patches
- Dry skin that may crack and bleed
- Soreness around patches
- Itching and burning sensations around patches
- Thickened, pitted nails
- Painful, swollen and stiff joints

Diagnosis

- Nose specific blood test or diagnostic procedures
- Physical Examination
- Skin Biopsy or scraping

Management

Psoriasis has no cure. Treatments aim is

- to reduce inflammation and scales
- to slow the growth of skin cells
- to remove plaques.

Topical treatments: Creams and ointments applied directly to the skin can be helpful for reducing mild to moderate psoriasis.

- Steroid creams
- Vitamin D3 creams
- Phototherapy (ultra violet light).
- Immune system suppressing medications.
- Photo chemotherapy (PUEA).

Nursing Management

- Assist patient with daily tub bath to soften scales and plaques.
- Apply topical preparation after bath and scale removal.
- Advise patient to wear goggles during phototherapy.
- Encourage patient to follow up.
- Encourage patient to try to identify triggers.
- Teach patient to avoid direct sun exposure.
- Advice patient to use good lubricants to prevent drying and cracking of skin.

Complications

- Psoriatic arthritis
- Obesity
- Type 2 Diabetes
- Hyper tension
- Cardio Vascular disease
- Parkinson' Disease

2.2 Myocardial Infarction (MI)

A heart attack is a life-threatening condition that occurs when blood flow to the heart muscle is abruptly cut off, causing tissue damage. This is usually the result of a blockage in one or more of the coronary arteries. It occurs as a result of sustained ischemia, causing irreversible myocardial cell death (necrosis). 80% to 90% of all acute Myocardial Infarctions (MIs) are secondary to thrombus formation. Acute myocardial infarction is the medical name for a heart attack.

Definition

Myocardial infraction refers to a dynamic process by which one or more regions of the heart experience a severe and prolonged decrease in oxygen supply because of insufficient coronary blood flow, subsequently necrosis or death to the myocardial tissue occurs.

Types

1. Non-ST segment elevation myocardial infarction or heart attack (NSTEMI)

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2. ST segment elevation myocardial infarction or heart attack (STEMI).

Causes And Risk Factors

- Bad cholesterol, Saturated fats, Trans fat - intake
- Obesity - cause of 20% cases
- Genetics
- High Blood Pressure (hypertension)
- High Triglyceride level
- Diabetes and high blood sugar level
- Smoking causes above 36% cases
- Lack of exercise linked 7 to 12% cases
- The use of certain illegal drugs including cocaine and amphetamines
- A history of preeclampsia or high Blood pressure during pregnancy

Signs and Symptoms

The classic symptoms of a heart attack are chest pain and shortness of breath, the symptoms can be quite varied.

The most common symptoms of a heart attack include:

- Prolonged cardiac pain (severe, sharp stabbing, radiating to neck, shoulders and back)
- Breathlessness
- Collapse / Syncope / Fainting
- Pallor
- Hypotension (or) Hypertension
- Disorientation
- Sweating
- Anxiety
- Tachycardia
- Nausea and Vomiting

Diagnosis

- ECG (Electro Cardio Gram)
- X-ray Chest.
- Serum Cardiac Markers Blood tests such as Troponin and Creatine KinaseMB (CK-MB).
- Angiogram with coronary catheterization to look for areas of blockage in the arteries.
- Echocardiography
- Coagulation Studies
- Nuclear imaging

Medical Management

- Made the patient in a comfortable bed and provide complete bed rest
- Administration of oxygen
- Starting IV line
- Monitoring ECG
- Administration of analgesics (opiates)
- Oral antianginal drug.
- Thrombolytic therapy.
- Anti-coagulants.
- B-adrenergic receptor antagonist.
- Anti-arrhythmic.
- Antiplatelet.

Surgical Management

- Percutaneous Transluminal Coronary Angioplasty (PTCA)
- Coronary Artery Bypass Grafting (CABG)

Nursing Management

- Vital Signs
- Provide comfortable bed.

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- Oxygen administration
- Start Intra Venous (IV) line
- Intake and output chart

Complications

- Thromboembolism
- Dysrhythmias
- Heart failure
- Cardiogenic shock
- Papillary muscle dysfunction leads to mitral regurgitation
- Ventricular Aneurysm
- Pericarditis
- Acute Circulatory failure

2.3 Congestive Cardiac failure

Heart failure, sometimes known as congestive heart failure, occurs when the heart muscle doesn't pump blood. In certain conditions, such as narrowed arteries in the heart (coronary artery disease) or high blood pressure, gradually the heart become too weak and failed to pump efficiently.

Definition

Congestive Cardiac Failure (CCF) Cardiac failure often referred to as congestive heart failure is the inability of the heart to pump sufficient blood to meet the need of the tissues for oxygen and nutrients.

The term congestive heart failure is most commonly used when reopening to left sided and right sided failure.

Common types

Left-sided CHF is the most common type of CHF. It occurs when the left ventricle doesn't properly pump blood out to the body.

There are two kinds of left-sided heart failure:

Left-sided heart failure

- **Systolic heart failure** occurs when the left ventricle fails to contract normally.
- **Diastolic failure**, or diastolic dysfunction, happens when the muscle in the left ventricle becomes stiff.

Right-sided CHF occurs when the right ventricle has difficulty pumping blood to the lungs. Blood backs up in the blood vessels, which causes fluid retention in the lower extremities, abdomen, and other vital organs.

Causes

- Cardiac muscle disorder
- Coronary atherosclerosis
- Systemic or pulmonary hypertension
- Systemic factors
- Degenerative diseases of the myocardium
- Stenosis of a semilunar valve.
- Hemorrhage
- Anemia

Risk factors

- Hypertension and diabetes
- Alcohol and smoking
- Use of cardio toxic
- Cocaine abuse drugs

Signs and Symptoms

- Pulmonary edema
- Dyspnea
- Cough
- Shortness of breath
- Congested lungs
- Sodium and Fluid retention
- Low perfusion
- Dizziness
- Fatigue and weakness
- Rapid or irregular heart beats

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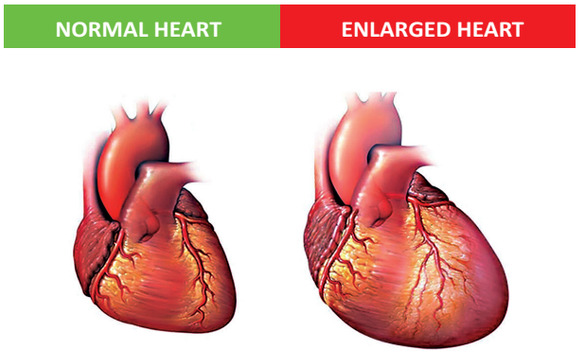
- Oliguria
- Nacturia



The difference between the normal and enlarged heart

Diagnosis

- Echocardiography.
- ECG
- X-ray chest
- Blood test
- Cardiac catheterization
- Arterial Blood Gas analysis (ABG)

Management

- Pharmacologic therapies include the use of diuretics, vasodilators, inotropic agents, anticoagulants, beta-blockers.
- Invasive therapies for heart failure include electro physiologic intervention
- Cardiac resynchronization therapy (CRT)
- Pacemakers
- Implantable cardioverter-defibrillators (ICDs); revascularization procedures

Nursing management

- Provide comfortable bed
- Oxygen administration
- Start Intra Venous (IV) line
- Vital signs

Diet therapy

- Restricted sodium
- Restricted fluids

Complications

- Intractable heart failure
- Cardiac arrhythmias
- Myocardial failure
- Cardiac arrest
- Pulmonary infraction
- Pneumonia

Prevention

Lifestyle changes can help to prevent heart failure include:

- No smoking
- Controlling certain conditions, such as high blood pressure and diabetes
- Staying physically active
- Eating healthy foods
- Maintaining a healthy weight
- Reducing and managing stress

2.4 Fracture

Bone fracture is a medical condition where the continuity of the bone is broken. A significant percentage of bone fractures occur because of high force impact or stress. A fracture caused by medical conditions which weakens the bone (e.g Osteoprosis) is known as a **pathological fracture**. A crack (not only a break) in the bone is also known as a fracture. Fractures can occur in any bone in the body.

Definition

A fracture is a breakage in the continuity of bone and is defined according to type and extended.

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Types

1. **Complete fracture** involves the break across the entire cross section of the bone and is frequently displaced.
2. **Incomplete Fracture:** The break occurs only through part of the cross section of the bone.
3. **Open fracture:** The skin may be pierced by the bone or by a blow that breaks the skin at the time of the fracture. The bone may or may not be visible in the wound.
4. **Closed Fracture:** Does not produce a break in the skin.
5. **Pathologic fracture**: A pathologic fracture (also called insufficiency fracture) is a bone fracture caused by disease that led to weakness of the bone structure.

Pattern of fracture

- **Transverse fracture:** This type of fracture has a horizontal fracture line.
- **Oblique fracture:** This type of fracture has an angled pattern.
- **Comminuted fracture:** In this type of fracture, the bone shatters into three or more pieces.
- **Other types:** Avulsion fracture, Compression (crush) fracture, Greenstick fracture, Hairline fracture, Impacted fracture, Intra articular fracture, Longitudinal fracture, Spiral fracture, Stress fracture, Torus (buckle) fracture.

Causes

Most fractures are caused by

- Fall
- Automobile accident.
- Osteoporosis, infection
- Tumor
- Direct violence
- Bending forces
- Crushing force
- Sudden twisting motion.

Signs and symptoms

- Pain, swelling, bruising, discoloration of the skin
- Angulation
- False motion
- deformity
- Shortening and Crepitus
- Tenderness
- The patient is unable to put weight on the injured area
- The patient cannot move the affected area
- Pale and clammy skin
- Dizziness

Diagnosis

1. History of incident whether fall, accident, trauma should be asked to patient or witnesses.
2. Physical examination, identify signs and symptoms, and make a diagnosis.
3. X-ray, CT scans, MRI done as required.

The treatment of fractures

Goals of fracture treatment

- Restore fracture fragments to their normal anatomic position (Reduction)
- Maintain reduction in place until heating occurs (Immobilization)
- Promote regaining of normal function and strength of the affected part (rehabilitation)

Methods for obtaining fracture reduction

- Closed reduction
- Traction
- Open reduction

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Methods for maintaining immobilization

External Devices

- Splint
- Case
- Bandage
- Brace
- External fixator

Internal devices

- Nails
- Screws
- Rods
- Plates
- Wires

Maintaining and Restoring function

- Maintain reduction and immobilization
- Elevate to minimize swelling
- Control anxiety and pain
- Isometric and muscle setting exercise

Complications of fractures

- Fat embolism
- Infection
- Hypovolemic or traumatic shock
- Delayed healing
- Nerve or blood vessel damage
- Arthritis
- Unequal leg length
- Mal union or non union

Nursing Management of fractures

- Bed rest
- Vital signs
- Skin care
- Prevent infection
- Intake and output chart
- Encouraging mobility
- Providing adequate nutrition.

Surgical Management

- Open reduction
- Closed reduction
- Internal fixation
- Bone graft
- Arthroplasty
- Joint replacement
- Amputation

2.5 Osteoporosis

Osteoporosis is a disease where increased bone weakness increases the risk of breakage of bone. Osteoporosis literally leads to abnormally porous bone that is compressible, like a sponge. It is the most common reason for a broken bone among the elderly. The most common site include the vertebrae in the spine, the bones of the forearm, and the hip.

Definition

Osteoporosis is a condition characterized by a decrease in the density of bone, decreasing its strength and resulting in fragile bones.

Causes

1. Genetic factor
2. Vitamin D and Deficiency factor
3. Post Menopausal women but may also occur in men
4. Chronic illness e.g. Malabsorption syndromes and Renal failures
5. Chemotherapy such as Cortico steroids
6. Cigarette smoking, alcohol consumption
7. Lack of exercise
8. Body type- small frame / short stature, low body fat.

Signs and Symptoms

1. Asymptomatic until later stages
2. Fracture after minor trauma may be first indications
3. Most frequent fractures associated with Osteoporosis include fractures of the distilled radius, spinal vertebrae, humorous pelvis

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4. May have vague complaints related to aging process (Stiffness pain, weakness)
5. Estrogen deficiency may be noted.

Diagnosis

1. X-ray
2. Scan to measure Bone Mineral Density (BMD).
3. Bone density scanning uses a type of X-ray technology known as Dual-Energy-X-ray Absorptiometry (DEXA) and bone densitometry.
4. Serum Calcium phosphate
5. Serum bone matrix Glaprotein is elevated.
6. Bone biopsy shows thin porous.

Nursing Management

- Adequate intake of calcium and Vitamin D.
- Major food sources are dairy products egg yolks, fish and liver.
- Weight bearing exercise
- Hormone Replacement Therapy (HRT)
- Prevention of falls.
- Encourage exercise for all age groups.
- Provide dietary education for daily intake of calcium and Vitamin D.
- Encourage young woman at risk to maximize bone mass through nutrition and exercise.

Complications

- Fractures
- Kyphosis, loss of height
- Chronic back pain

2.6 Hypertension

Worldwide prevalence is projected to increase from approximately 1.0 billion in 2000 to 1.5 billion by 2025. It is a major, independent risk factor for cardiovascular disease (CVD), and the chief risk factor for stroke (accounted for about 62% of strokes). It's often called "the silent killer" because it can be asymptomatic for many years, and people suffering of this problem can have a sudden fatal heart attack

Definition

Hypertension(High Blood Pressure (BP)) is a disease of vascular regulation in which the mechanisms that control arterial pressure with in the normal range are altered. (The systolic pressure is above 140 mm Hg and the diastolic pressure is above 90 mm Hg).

Classification of Blood pressure for adults

Blood pressure classification (BP)	SBP* (mm of hg)	DBP* (mm of hg)
Normal	<120	<80
Prehypertension	120-139	80-89
Stage 1-hypertension	140-159	90-99
Stage 2-hypertension	≥160	≥100
DBP: Diastolic blood pressure SBP: Systolic blood pressure		

Causes

- Increased Cardiac output
- Excessive dietary sodium intake
- Endocrine disturbances
- Medications like Antidepressant steroids.
- Stroke

Risk factors

- Age between 30-70
- Diabetes Mellitus
- Metabolic syndrome
- Over weight
- Family history
- Smoking and alcohol
- Sedentary lifestyle.

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Signs and Symptoms

- Usually asymptomatic
- Head ache and dizziness, Blurred vision
- high BP
- Confusion
- Shortness of breath
- Nose bleeds
- Chest pain
- Irregular heart beat

Diagnosis

- BP measurements.
- ECG
- Chest X-ray
- BUN (Blood urea nitrogen) test and creatinine levels
- Proteinuria
- Urine (24-hours) for catecholamine's
- Renal scan to detect renal vascular diseases

Management

- Lose weight
- Avoid alcohol
- Regular aerobic exercise
- Lower sodium intake (2.4 gram or less per day)
- Stop smoking
- Reduce cholesterol and trans fat diet

Drug therapy

- Diuretics
- Beta-adrenergic blockers
- Alpha-receptor blockers
- Central alpha agonists
- Peripheral adrenergic agents
- Angiotensin converting enzyme (ACE) inhibitors

Nursing management

- Provide comfortable bed
- Measuring monitoring and charting BP.
- Advice low fat and low cholesterol diet
- Vital signs.
- Advice life style modification
- Regular follow up

Complications

- Myocardial infarction (MI)
- Heart failure
- Renal failure
- Stroke, hemorrhage
- Retinopathy

2.7 Stroke (Cerebrovascular Accident)

Stroke occurs when there is an ischemia (inadequate blood flow) to a part of the brain or hemorrhage into the brain that results in death of brain cells. Functions such as movement, sensation, or emotions that were controlled by the affected area of the brain are lost or impaired. The severity of the loss of function varies according to the location and extent of the brain involved. Following the onset of a stroke, immediate medical attention is crucial to reduce disability and death.

Definition

Stroke or Cardiovascular Accident (CVA) is the onset and persistence of neurologic dysfunction lasting longer than 24 hours and resulting from disruption of blood supply to the brain.

Types and Causes

Ischemic Stroke : About 80 percent of strokes are ischemic strokes. A stroke may be caused by a blocked artery (ischemic stroke)

- **Thrombotic stroke:** A thrombotic stroke occurs when a blood clot (thrombus) forms in one of the arteries that supply blood to brain. A clot may be caused by fatty deposits (plaque) that build up in arteries and cause

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reduced blood flow (atherosclerosis) or other artery conditions.

- **An Embolic Stroke:** Occurs when a blood clot or other debris forms away from the brain commonly in the heart and is swept through bloodstream to lodge in narrower brain arteries. This type of blood clot is called an embolus.

Haemorrhagic stroke

Haemorrhagic stroke occurs when a blood vessel in the brain leaks or ruptures. Brain haemorrhages can result from many conditions that affect the blood vessels. These include:

- Uncontrolled high blood pressure (hypertension)
- Over treatment with anticoagulants (blood thinners)
- Weak spots in the blood vessel walls (aneurysms)

Types of haemorrhagic stroke include

- **Intracerebral hemorrhage.** In an intracerebral hemorrhage, a blood vessel in the brain bursts and spills into the surrounding brain tissue, damaging brain cells.
- **Subarachnoid hemorrhage.** In a subarachnoid hemorrhage, an artery on or near the surface of the brain bursts and spills into the space between the surface of your brain and the skull. This bleeding is often signaled by a sudden, severe headache.

Transient ischemic attack (TIA)

A transient ischemic attack (TIA) - sometimes known as a ministroke - is a temporary period of symptoms similar to stroke.

Risk Factors

Lifestyle risk factors : Being overweight or obese, Physical inactivity, Alcohol consumption, Use of illicit drugs such as cocaine and methamphetamines

Medical risk factors: Blood pressure readings higher than 140/90 millimeters of mercury, Cigarette smoking or exposure to secondhand smoke, High cholesterol, Diabetes, Obstructive sleep apnea, Cardiovascular disease, including heart failure, heart defects, heart infection or abnormal heart rhythm, Personal or family history of stroke, heart attack or transient ischemic attack.

Other factors associated with a higher risk of stroke include

- Age - People age 55 or older, race, sex, men have a higher risk of stroke than women, Hormones- use of birth control pills or hormone therapies that include estrogen, as well as increased estrogen levels from pregnancy and childbirth.

Signs and Symptoms:

- Sudden weakness, paralysis or numbness of the face, arm or leg especially on one side of the body.
- Sudden dimness or loss of vision in one or both eyes.
- Sudden loss of speech, confusion, or difficulty speaking or understanding speech.
- Unexplained sudden dizziness, unsteadiness, loss of balance or coordination.
- Sudden severe headache.

Diagnosis

- **Blood tests:** blood sugar levels, platelet levels, Bleeding time and clotting time
- Magnetic Resonance Imaging (MRI) scan
- Computerized Tomography (CT) scan.

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- Electro cardio gram (ECG)
- Cerebral angiography
- Carotid ultrasound
- Echocardiogram
- **Glasgow Coma Scale** (GCS)
- VSH/Doppler study of carotid arteries

Management

- **Anti-platelet drugs** Anti-platelet drugs make these cells less sticky and less likely to clot.
- **Anticoagulants** Reduce blood clotting
- **Physical therapy** such as walking, eating and dressing.
- **Speech Therapy**

Nursing Management

- Vital Signs
- Maintain neurologic flow sheet (Stroke scale)
- Assess for voluntary or involuntary movement.
- Monitor bowel and bladder function
- Assess the skin care
- Personal hygiene
- Support of vital function- Maintain air way. Breathing oxygenation circulation
- Assess the stroke scale
- Intra venous fluids at maintenance until able to tolerate oral diet
- Maintain Blood Pressure
- Acces the level of conciousness by usingn (GCS)
- Thrombolytic therapy - ischemic stroke
- Maintain normal body temperature
- Antispasmodic agents can be used for spastic paralysis

Surgical Treatment

- Carotid Endarterectomy to treat carotid artery disease
- Thrombectomy
- Hemycraniaetomy

Prevention

- Healthy diet
- Controlling high blood pressure (Hypertension)
- Quitting tobacco use
- Controlling diabetes
- Maintaining a healthy weight
- Exercising regularly
- Routine health assessment

Complications

- Aspiration pneumonia
- Dysphagia (Difficulty in swallowing)
- Spasticity, Contractness
- Brain stem herniation
- Deep vein thrombosis, pulmonary embolism
- Post stroke depression.

2.8 Head Injury

A head injury is any sort of injury to brain, skull, or scalp.

Common head injuries include concussions, skull fractures, and scalp wounds. The consequences and treatments vary greatly, depending on what caused your head injury and how severe it is.

Head Injury

Head injury can include fractures to the skull and face, direct injuries to the brain (as from a bullet) and indirect injuries to the brain (such as concussion, contusion or intracranial Haemorrhage).

Head injuries commonly occur from motor vehicle accidents, assaults or falls.

Key terms

Concussion: A temporary loss of consciousness

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Contusion: A bruising of the brain tissue.

Intracranial Haemorrhage: Significant bleeding into a space or a potential space between the skull and the brain.

Haematomas: Collections of blood that develop within the cranial vault are the most serious results of brain injury.

Head injuries causes by a blow to the head are usually associated with:

- Motor vehicle accidents
- Falls
- Physical assaults
- Sports-Related Accidents

Specific Problems after Head Injury Includes

Concussion Skull fracture, Lacerations to the scalp and resulting haemorrhage of the skin, Traumatic subdural haematoma, Traumatic extradural, or epidural haematoma, Traumatic subarachnoid haemorrhage, Cerebral contusion, (a bruise of the brain), a loss of motor sensory an reflex function due to trauma, a severe injury may lead to a coma or death.

Signs and Symptoms

- Vertigo
- Pain
- Changes in vital signs
- Immobility
- Visual and hearing impairment
- Bleeding
- Nausea and Vomiting
- Loss of consciousness
- Seizures
- Leaking of clear CSF fluid from the ear or the nose

Diagnosis

- History
- Physical Examination
- Complete blood counts
- Coagulation studies
- Arterial Blood Gas (ABG)
- X-rays
- CT Scans
- MRI (Magnetic Resonance Imaging)
- Glasgow Coma Scale (GCS)
- Increased Intra Cranial Pressure (ICP)

Management

- Maintenance of Airway: Oral suction
- Administer high-flow oxygen.
- Control Bleeding.
- Intravenous fluid (IVF) – to prevent hypovolemic shock.
- Maintain normothermia

Pharmacotherapy

- Anticonvulsants – to control seizures
- Diuritics – to reduce cerebral edema.
- Antibiotics – to prevent infection
- Antipyretics – to control hyperthermia
- Cortico steroid - to reduce intracranial pressure
- In severe condition of brain injury, the anti-seizure medication is very essential, because the patient is at risk for seizures.
- Diuretics may be given if injury has caused pressure buildup in brain. Diuretics cause to excrete more fluids. This can help relieve some of the pressure.

Surgery

- Surgical decompression
- Craniotomy: Surgical incision into the cranium (may be necessary to evacuate a hematoma or evacuate contents)
- Ventriculostomy: insertion of a drain into the ventricles.

Nursing Management

- Assess the neurologic and respiratory status.

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- Monitor and record vital sign and intake and output.
- Check cough and gag reflex to prevent aspiration.
- Administer IV fluids to maintain hydration.
- Providing Suctioning to maintain airway
- Provide eye, skin and mouth care to prevent tissue damage.

2.9 Epilepsy/Seizure Disorders

Definition: Seizures (also known as epileptic seizures and, if recurrent, epilepsy) are defined as a sudden alteration in normal brain activity that causes distinct changes in behavior and body function. Seizures are thought to result from disturbances in the cells of the brain that cause cells to give off abnormal, recurrent, uncontrolled electrical discharges.

Classification

The International League Against Epilepsy developed an international classification of epileptic seizures that divides seizures into two major classes: partial-onset seizures and generalized-onset seizures.

1. Simple-partial seizures can have motor, somato sensory, psychic, or autonomic symptoms without impairment of consciousness.
2. Complex-partial seizures have an impairment (but not a loss) of consciousness with simple-partial features, automatisms, or impairment of consciousness only.
3. Generalized seizures have a loss of consciousness with convulsive or non convulsive behaviors.
4. Simple-partial seizures can progress to complex-partial seizures, and complex-partial seizures can secondarily become generalized.

Causes

The etiology may be unknown or due to one of the following:

- Trauma to head or brain resulting in scar tissue or cerebral atrophy
- Tumor in the brain
- Cranial surgery
- Metabolic disorders (hypocalcemia, hypoglycemia)
- Drug toxicity, such as theophylline, lidocaine, penicillin
- CNS infection
- Circulatory disorders
- Drug withdrawal states (alcohol, barbiturates)
- Congenital neuro degenerative disorders.
- Non epileptogenic behaviors, which can emulate seizures but have a psychogenic, rather than an organic, origin

Signs and Symptoms

Manifestations are related to the area of the brain involved in the seizure activity and may range from single abnormal sensations, aberrant motor activity, altered consciousness or personality to loss of consciousness and convulsive movements.

1. Impaired consciousness
2. Disturbed muscle tone or movement
3. Disturbances of behavior, mood, sensation, or perception
4. Disturbances of autonomic functions.

Diagnostic Evaluation

- EEG (Electroencephalography) – locates epileptic focus, spread, intensity, and duration; helps classify seizure type
- MRI, CT scan–to identify lesion that may be cause of seizure
- Neuropsychological studies–to evaluate for behavioral disturbances

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- Serum laboratory studies or lumbar puncture–to evaluate for infectious, hormonal, or metabolic etiology.

Management

- Pharmacotherapy - Anti-Epileptic Drugs selected according to seizure type.
- Surgery–operations (temporal lobectomy, extratemporal resection, corpus callosotomy, hemispherectomy)
- Vagal nerve stimulation anterior thalamic stimulation
- A ketogenic diet

Nursing Management

- Establish airway
- Maintain blood pressure (BP).
- Monitor vital and neurologic signs on a continuous basis.
- Administer oxygen–there is some respiratory depression associated with each seizure,
- Establish I.V. lines, and keep open for blood sampling, drug administration, and infusion of fluids.
- Administer I.V. anticonvulsant *slowly* to ensure effective brain tissue and serum concentrations.
- Monitor the patient continuously; depression of respiration and BP induced by drug therapy .
- Determine (from family member) if there is a history of epilepsy, alcohol/drug use, trauma, recent infection.
- Counsel patients with uncontrolled seizures about driving or operating dangerous equipment.
- Assess home environment for safety hazards in case the patient falls, such as crowded furniture arrangement, sharp edges on tables, glass. Soft flooring and furniture and padded surfaces may be necessary.
- Support patient in discussion about seizures with employer, school, and so forth.

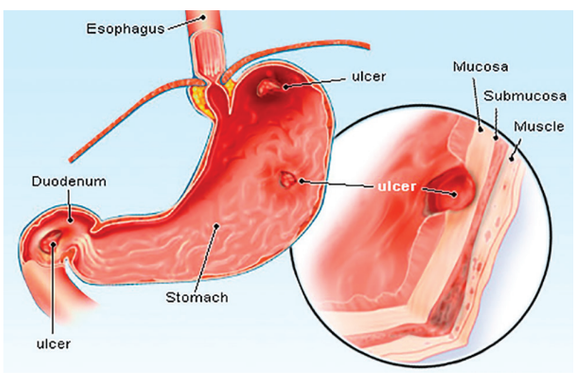
Complications

- Difficulty learning.
- Aspiration pneumonia
- Injuries from falls, bumps, and self-inflicted bites.

Self-care at home for epilepsy

- Loosen any tight neckwear.
- Turn the person on his or her side.
- Do not hold the person down or restrain the person.
- Do not place anything in the mouth or try to pry the teeth apart. The person is not in danger of swallowing his or her tongue.
- Observe seizure characteristics – length, type of movements, and direction of head or eye turning. These characteristics may help the doctor diagnose the type of seizure.

2.10 Gastric Ulcer



Gastric ulcers are open sores within the lining of the stomach. Stomach ulcers (gastric ulcers) are a type of peptic ulcer, meaning having to do with acid. Because of the amount of acid present in the stomach and the damage that can occur, they are often extremely painful. Although gastric ulcers can occur

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in any portion of the stomach, they are most commonly found on the lesser curvature close to the antral junction.

Definition

Gastric ulcer that develop inside the stomach.

Gastric ulcer occurs in the lesser curvature of the stomach to acid secreting parietal cell mass.

Causes

The most common cause of stomach ulcers is

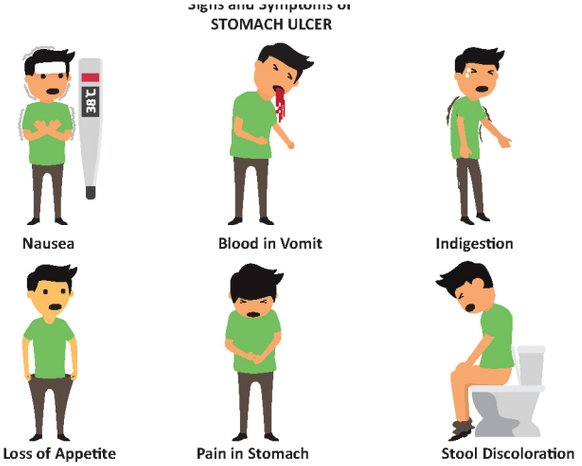
- Helicobacter pylori, or H. pylori infection.
- Ulcers may also be caused by overuse of painkillers, such as aspirin (Bayer), and other nonsteroidal anti-inflammatories (NSAIDs)

Risk Factors

- Alcohol
- Burns
- Cigarette Smoking
- Drug induced NSAID
- Emotion / Stress
- Family history
- Gastritis
- Hyperchlorohydria
- Injection of toxins

Signs and Symptoms

- Dull pain in the stomach
- Weight loss
- Not wanting to eat because of pain / Anorexia
- Nausea or vomiting
- Bloating
- Feeling easily full
- Burping or acid reflux
- Heartburn (burning sensation in the chest)
- Pain that may improve when you eat, drink, or take antacids
- Anemia (symptoms can include tiredness, shortness of breath, or paler skin)
- Dark, tarry stools
- Vomit that's bloody or looks like coffee grounds



Diagnosis

- Barium Meal Study
- Routine blood test
- Oesophago Gastro Duodenoscopy (OGD) Ulcer appear with or without slough or bleeding in their typical locations.
- Gastric secretary Studies.
- Serology to test for H.pylori.
- Breath test to detect H.pylori.

General Measures

- Avoid use of NSAID drugs.
- Avoid cigarette smoking.
- Well balanced diet with meals at regular intervals.

Drug Therapy

- Multiple drug regimens are used to treat H.Pylori.

Surgical Treatment: May perform in advanced disease condition

- Billroth I Partial Gastrectomy with removal of antrum and pylorus of stomach.

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- Billroth II Gastrectomy: Here the gastrectomy is done below the ulcer and remant of the stomach is unastomosed to a jejunal loop.

Nursing Management

- Take vital signs and BP.
- Promote healthy life style.

Complications

- Gastric Perforation, haematemesis, melaena
- Gastric Outlet Obstruction (GOO)
- GI haemorrhage

2.11 Duodenal Ulcer

Duodenal ulcers account for about 80% of all peptic ulcers. Approximately 10% of men and 5% of women at some time in their lives will experience a duodenal ulcer. Duodenal ulcers may occur at any age, but the incidence is especially high between 35 and 45 years of age. Duodenal ulcers can develop in anyone, regardless of occupation or socioeconomic group. Although many factors are associated with the development of duodenal ulcers, H. Pylori has been identified as playing a key role. H. Pylori is found in approximately 90% to 96% of patients with duodenal ulcers.

Definition

Duodenal ulcer: A crater (ulcer) in the lining of the beginning of the small intestine (duodenum).

Causes

- **Infection** with *Helicobacter pylori* (*H. pylori*)
- **Anti-inflammatory medicines** are sometimes called non-steroidal anti inflammatory drugs (NSAIDs).
- **Other factors** such as smoking, stress and drinking heavily may possibly increase the risk of having a duodenal ulcer.
- **Genetic causes** family history of duodenal ulcer.
- Hyper secretion of stomach acid

Risk Factors

- Blood group 'O'
- Alcohol
- Smoking stress

Signs and Symptoms

- **Pain** in the upper tummy (abdomen) just below the breastbone (sternum) is the common symptom food intake may releive the pain
- Pain may flare at night
- Weight gain
- Vomiting
- Hemorrhage
- Haematemesis

Diagnosis

as same as gastric ulser

Management

- Change in Lifestyle
- Lose weight.
- Avoid any trigger foods.
- Eat smaller meals and eat your evening meal 3-4 hours before going to bed.
- Stop smoking.
- Stop alcohol consumption.
- Acid-suppressing medication
- A Proton Pump Inhibitor (PPI) -90-95% of healing within 2-4 weeks.
- H2 receptor blockers for 6 weeks.
- Triple drug rigimens are used to treat H.pylori infection.

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Surgical treatment

- Highly Selective Vagotomy (HSV)
- Pyloroplasty.

2.12 Gall Bladder Stone

The gall bladder is a storage place for digestive (bile) juice. It is tucked below the liver, in the right upper side of the abdomen. When you consume fatty foods, the gall bladder pushes bile juice into the intestine through the bile duct, to aid digestion.

Any changes in the bile juice can result in formation of small pebble like stones in the gallbladder, commonly called as gallstones or gallbladder stones.

Gallstones can either be as big as golf ball or as small as a pebble. Also, there can be one large stone or many small stones or a combination of both.

Definition

Gallstones (Cholelithiasis) usually form in the gallbladder from the solid constituents of bile and vary greatly in size shape and composition.

Types

The two main kinds are

- **Cholesterol stones.** These are usually yellow-green in color. They're the most common kind, accounting for 80% of gallstones.
- **Pigment stones.** These stones are smaller and darker. They're made up of bilirubin, which comes from bile, a fluid your liver makes and your gallbladder stores.

Risks Factors

- Pregnant women and those who are on birth control pills
- People of age >40 years
- Obese people
- People undergoing sudden weight loss
- Those with a positive family history of gallstones
- Individuals with health issues such as diabetes and certain intestinal and liver diseases
- Patient with Cirrhosis, hemolysis and infections of the biliary tree.
- Warning signs of a serious problem are fever, jaundice, and persistent pain.

Signs and Symptoms

- Asymptomatic even for years
- Fullness
- Abdominal distension
- vague pain in the right upper quadrant of the abdomen.
- Reffered Pain and Billary Colic
- Jaundice
- Vitamin Deficiency- A, D, E and K

Diagnosis

- Abdominal X-ray
- Ultrasonography
- Cholescintography
- Cholecystography
- Percutaneous Transhepatic cholangiography (PTC)
- Serum bilirubin and phosphatase

Nursing management

- Dissolving Gallstones by infusion of a solvent into the gall bladder.
- Two types of non-surgical or noninvasive treatment options can be used to dissolve cholesterol gallstones:
- **In laparoscopic cholecystectomy**, the gall bladder is removed through a tiny slit in the abdomen with the help of a tiny video

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camera. The recovery is faster and patient can be discharged on the next day.

- **Open cholecystectomy** is performed when laparoscopic cholecystectomy is not possible. Open surgery causes more pain and recovery time in hospital is around a week.
- Extra Corporeal Shock-Wave Lithotripsy (ECSW)

Supportive Management

- Intravenous fluids administration
- Nasogastric tube suction
- Pain management
- Antibiotics

Complication

- Cholangitis
- Necrosis
- Gallstoneileus leads to intestinal obstruction

2.13 Hernia

A hernia occurs when an organ pushes through an opening in the muscle or tissue that holds it in place.

Definition

Hernia is a localized bulge in the abdomen that occurs when there is a weakness in the muscular wall.

Causes

- Congenital - failure of the abdominal wall to close.
- Age – after 60 years
- Chronic cough
- Pregnancy - which puts pressure on the abdomen
- Constipation
- Lifting heavy weight
- Fluid in the abdomen, or ascites
- Abdominal surgery
- Obesity

Types

Inguinal hernia: Intestines push through the inguinal canal.

Incisional hernia: Resulting from an operated site.incision

Hiatal hernia: Part of the stomach protrudes up through the diaphragm into the chest cavity.

Umbilical hernia: A part of the bowel protrude through the belly button (umbilicus).

Congenital diaphragmatic hernias is a birth defect in which there is an abnormal opening in the diaphragm.

Sports hernia is a tear or strain of any tissue in the lower abdomen or groin due to gym activity.

Signs and Symptoms

- Swelling in the abdomen or in the groin which disappears when lying down.
- Pain on palpation
- Vomiting
- Feeling of weight in the abdomen.
- Constipation
- Discomfort in the abdomen or groin when coughing, lifting a weight or bending over.
- Fever
- Upper abdominal pain
- Chest pain

Diagnosis

- History collection
- Physical examination
- Abdominal X-rays
- Complete blood count, electrolytes.
- Ultrasonography of the abdomen
- CT abdomen

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Management

Non Medical: Abdominal binder

Surgical management:

- Herniorrhaphy
- Hernioplasty

Nursing management

- Provide trendelenburg's position
- Administer stool softners

Inguinal hernias are the most common type of hernia

Prevention

- Stop smoking
- Avoid developing a persistent cough
- Maintain appropriate body weight for the age.
- Avoid straining during bowel movements
- Lift objects with knee flexion and not with hip flexion.
- Heavy lifting should be avoided for 4 to 6 weeks after treatment.

Complication

- **Strangulation**: reduced blood supply to a herniated organ.
- **Obstruction**: the bowel contents may no longer be able to pass through the herniated area, leading to cramps, the absence of defecation and vomiting.
- Recurrence hernia

2.14 Haemorrhoids (Piles)

Haemorrhoids, also known as piles are swelling containing enlarged blood vessels found inside or around the rectum and anus.

Definition

An abnormal mass of dilated and engorged blood vessels either internally in the anal canal or externally around the anus

Causes

- Straining during bowel movements
- Sitting for long periods of time on the toilet
- Chronic diarrhoea or constipation
- Obesity
- Pregnancy

Types

- **Internal haemorrhoids** - inside the rectum.
- **External haemorrhoids** - around the anus.

Symptoms

- Painless bleeding during bowel movements
- Itching or irritation in anal region
- Pain or discomfort
- Swelling around the anus

Diagnosis

- **Digital rectal examination** - to detect the unusual growths.
- **Inspection** - examine the lower portion of the colon and rectum with proctoscope
- **Colonoscopy** to examine the entire colon

Management

- Home remedies
- Eat high-fibre foods (fruits, vegetables and whole grains.)
- Increase fluid intake
- Use topical ointment
- Sitz bath for 10 to 15 minutes, two to three times a day.
- Keep the anal area clean.
- Apply ice packs or cold compresses on anus to relieve swelling and pain

Medical management

- Lidocaine that can relieve pain and itching

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- Sclerotherapy - injecting a chemical solution into the haemorrhoid to shrink it.

Surgical management

- **Rubber band ligation**. placing one or two tiny rubber bands around the base of haemorrhoid to cut off its circulation.
- Haemorrhoidectomy
- **Haemorrhoids stapling** - Surgical staples block the blood flow to haemorrhoids

Nursing management

- Educate to take plenty of water.
- Care of drainage tubes

Complications

- Anemia.
- Strangulated hemorrhoid.
- Infection
- Anal fistula

Prevention

- Eat high fibre foods.
- Drink plenty of fluids.
- Don't strain when trying to pass a stool
- Defecate as soon as the feeling of urge occurs
- Exercise.
- Avoid long periods of sitting Obesity

Nearly three out of four adults will have hemorrhoids

2.15 Renal Failure

Kidneys are two bean-shaped organs located in lower back. It excretes wastes and extra fluids from the body and producing and balancing chemicals that are necessary for body to function

Types

Acute real failure(ARF)

- Sudden onset
- Rapid reduction in urine output-usually irreversible

Chronic renal failure(CRF)

- Progressive
- Not reversible

Acute Renal Failure

Definition

Acute Renal Failure –is a sudden and almost complete loss of kidney function caused by failure of the renal circulation or by glomerular or tubular dysfunction

Causes of ARF

- **Pre-renal** (60-70 %)
- Volume Depletion
- Hemorrhage
- Renal losses
- Sepsis
- Cardiac failure
- Anaphylaxis

Intra renal (5-10%)

- Pigment Nephropathy
- Myoglobinuria
- Hemoglobinuria
- Nephrotoxic agents

Post-renal (20-40% cases)

- Urinary tract obstruction
- Calculi
- Tumors in lower urinary tract

People in risk

- Being hospitalized especially for a serious condition that requires intensive care
- Advanced age

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- Blockages in the blood vessels in arms or legs
- Diabetes
- High blood pressure
- Heart failure
- Kidney diseases
- Liver disease

Signs and Symptoms of ARF

- Oliguria - Urine output less than 400ml/day
- Anuria - Urine output less than 100ml/day
- Increased BUN creatinine
- Hyper Kalemia
- Metabolic acidosis
- Edema
- Mental changes
- Heart failure
- Nausea, vomiting
- Pruritus

Diagnosis

- History of underlying cause
- Blood- Increased potassium, BUN, Creatinine
- Urine: decreased volume and specific gravity is fixed or increased
- Renal ultrasound, renal scan, renal biopsy, CT scan or MRI, KUB X-ray, Retrograde pyelogram.

Management

- Removal of the underlying cause
- Diuretics
- Fluid restriction (600 ml plus previous day output) Calcium supplements or phosphate binding agents
- Nutritional therapy
  -Protein intake 0.6/kg/day
  -Potassium restriction
  -sodium restriction
  -Calorie intake 30 to 35 kcal/day/kg body weight
  -Dialysis

Chronic Renal Failure (ESRD-End stage Renal Disease)

Definition

Chronic or irreversible renal failure is a progressive reduction of functioning renal tissue or loss of renal function in which the body's ability to maintain metabolic and fluid electrolyte balance fails, resulting in uremia or azotemia over a period of months or years.

Causes

- Diabetic Nephropathy
- Hypertension
- Glomerulonephritis
- Pyelonephritis.
- HIV nephropathy
- Reflux nephropathy in children
- Polycystic kidney disease
- Kidney infections and obstructions
- Chronic pyelonephritis
- Head, Cadmium, mercury and chromium

Clinical manifestation

- Amenorrhea
- Testicular atrophy
- Malaise and Fatigue
- Pitting edema
- Periorbital edema
- Engorged neck veins
- CHF
- Anorexia
- Nausea
- Vomiting
- Seizure
- Constipation
- Peptic ulceration
- Diverticulosis

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- Anemia
- Pruritus
- Jaundice
- Hypertension
- Pericarditis
- Peripheral neuropathy, dialysis dementia

Diagnosis

- History collection
- Physical examination
- Identification of reversible renal disease
- Renal ultrasound
- CT scan / Doppler
- Renal biopsy
- Blood-BUN, creatinine, electrolytes, Hb level
- Urine analysis
- Renal biopsy

Management

Medical

- Calcium and phosphorous binders and phosphate binders
- Anti hypertensive drugs-to control BP
- Hypoglycemic agents-to reduce and maintain blood sugar level
- Fluid restriction-600 ml plus previous day output)
- Diuretics-to increase the output
- Erythropoien-to maintain RBC count
- Dialysis
  1. Peritoneal
  2. Hemodialysis

75% of kidney function can be lost before it is noticeable

Diet

- Low protein - 0.8 gm protein/kg/day with normal carbohydrate
- Low potassium (avoid bananas, dry fruits, fruit juices), low phosphorus (soak vegetables 24 hr prior to cooking).
- Fluid allowances per day is 500 ml to 600 ml plus previous day urine output

Surgical management

- Renal transplantation

Nursing management

1. Assessing fluid status and ideentifying potential source of imbalance
2. Implementing a dietery program to ensure proper nutrional intake
3. Promoting positive feelings by encouraging increased self-care and greater independence
4. Provide explanations and information to the patient and family concerning ESRD, treatment options and potential complications.
5. Provide emotional support to the patient and family
6. Health education on diet and fluids.

Complications

- Hyperkalemia
- Pericarditis
- Pericardial effusion
- Pericardial tamponade
- Hypertention
- Anaemia
- Increased incidence of fracture

2.16 Renal Stone/Renal Calculi / Urolithiasis

A stone is a hard, solid mass that can form in the gallbladder, bladder, and kidneys. Kidney stones usually originate in kidneys.

Definition

Urolithiasis refers to the presence of stone (Calculi) in the urinary tract.

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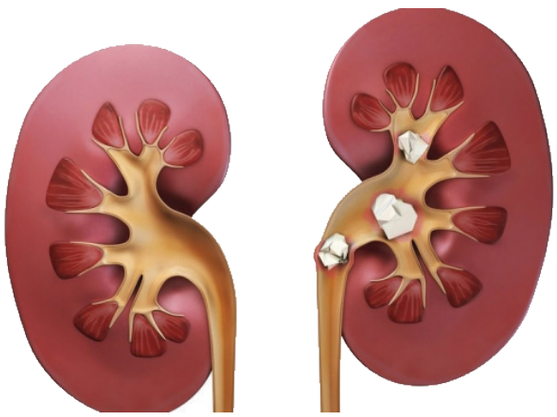
Incidence

It is associated with urinary tract infection. Commonly seen between the age of 20 and 55yrs.

Types of kidney stones

- **Calcium stones:** Are the most common type made of calcium and oxalate.35-40%
- **Cystine stones:** Are very rare 1-2%
- **Uric acid stones:** Formed when urine is too acidic.5-8%
- **Struvite stones:** Can happen when there is urinary tract infections.10-15%
- **Upper urinary tract stones:** That involve the renal pelvis and extend into at least 2 calyces are classified as *staghorn calculi*



Causes

- Genetic factors-- family history of kidney stones
- Previous history of kidney stone.
- Certain medications
- Infection
- Urinary stasis
- Hyper Calcemia
- Hypercalcuria
- Diets that are high in protein and sodium but low in calcium
- Sedentary lifestyle, obesity, pressure, immobility
- Dehydration
- Warm climate

Signs and Symptoms

- Severe pain and is called renal colic.
- Flank pain
- Haematuria
- Obstruction
- Infection
- Edema
- Pyuria
- Nausea and vomiting
- Fever with chills
- Frequent urination
- Urinating small amounts of urine
- Increased urge to urinate

Diagnosis

- Health history
- Physical examination.
- 24 hour urine test
- Urography.
- Blood tests for calcium, phosphorus, uric acid, electrolytes, urea and nitrogen
- Urinalysis to check for crystals, bacteria, blood, and white cells
- Examination of passed stones to determine the type
- KUB X-rays
- Intravenous Pyelogram (IVP)
- Ultrasound of the kidney
- MRI of the abdomen and kidneys
- Abdominal CT scan

Management

Medical management

- Antispasmodic drug-relieves colic pain
- Antibiotics-prevents infection
- Narcotics-relieves pain

Surgical management

- Cystoscopy: Scopic removal of stones

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- Lithotripsy-Extracorporeal shock wave lithotripsy (ESWL) uses sound waves to break up large stones into smaller pieces and they pass through the ureters in to the bladder.
- Nephrectomy
- Ureterolithotomy

Nursing Management

- Increase the fluid intake of 3000 ml/day
- Encourage Urination at frequent intervals
- Avoid stone-forming foods like Beets, chocolate, spinach and colas

North Indians are prone for renal calculiand so North India is called as stone belt region

2.17 Bronchial Asthma

Asthma is a chronic disease involving the airways in the lungs. These airways, or bronchial tubes, allow air to come in and out of the lungs.

Definition

Asthma is a chronic inflammation of the airways characterized by reversible air flow obstruction. This can make breathing difficult and trigger coughing, wheezing and shortness of breath.

Causes

- Airborne substances, such as pollen, dust mites, mold spores, pet dander or particles of cockroach waste
- Respiratory infections, like common cold
- Physical activity
- Air pollutants and irritants, such as smoke
- Medications, like aspirin, ibubrufen
- Strong emotions and stress
- Preservatives added to some foods and beverages, including shrimp, dried fruits, processed potatoes, beer and wine
- Gastro esophageal reflux disease (GERD), a condition in which stomach acids back up into the throat
- Drugs/food allergies.

Signs and Symptoms

- Shortness of breath
- Chest tightness or pain
- Trouble sleeping caused by shortness of breath
- coughing
- wheezing
- Difficult in breathing(dyspnea)
- A whistling or wheezing sound when exhaling (wheezing is a common sign of asthma in children)
- Coughing or wheezing attacks

Types

- Exercise-induced asthma
- Occupational asthma
- Allergy-induced asthma
- Extrinsic Asthma
- Intrinsic Asthma

Asthma triggers

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Diagnosis

Tests to measure lung function

- **Spirometry.** This test estimates the narrowing of your bronchial tubes
- **Peak flow.** A peak flow meter is a simple device that measures how hard you can breathe out.
- **Skin testing to identify causative allergens**
- **X-ray chest**

Medical management

- Antibiotics
- Immunotherapy
- Corticosteroids.
- Bronchodialators

Nursing management

- Assess the airway of the patient
- Assess the skin turgor for dehydration
- Patient room should be free of respiratory irritants

Lifestyle and home remedies

Avoid triggers

- Maintain optimal humidity.
- Reduce pet dander.
- Change the bed linen once in a week.
- Cover the nose and mouth during cold season.

Stay healthy

- Exercise regularly.
- Maintain a healthy weight.
- Control heartburn and Gastro Esophageal Reflux disease (GERD).

Alternative medicine

- Breathing exercises.
- Herbal and natural remedies includes black cumin seeds.

Prevention

- Get vaccinated for influenza and pneumonia.
- Avoid asthma triggers

The more ozone you breathe, the greater the likelihood of developing asthma.

2.18 Chronic Obstructive Pulmonary Disease (COPD)

Chronic Obstructive Pulmonary Disease (COPD) is an umbrella term used to describe progressive lung diseases including emphysema and chronic bronchitis.

Definition

COPD is a obstructive lung disease characterized by long-term breathing problems and poor airflow.

Causes

- Cigarette smoking
- Indoor air pollution
- Exposure to fumes from burning wood
- Chronic respiratory infections
- Allergy autoimmunity
- Occupational exposure
- Hereditary and genetic factors
- Alpha-antitrypsin deficiency

Signs and Symptoms

- Dyspnea Shortness of breath,
- Chronic coughing,
- Wheezing,
- Chest tightness
- Production of thick, gelatinus sputum
- Acute or chronic reparatory failure,
- Weight loss,
- Respiratory insufficiency,
- Tachypnea,Fatigue,Peripheral edema

2.18.4 Diagnosis

- Lung (pulmonary) function tests
- Spirometry

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- Chest X-ray
- CT scan
- Arterial blood gas analysis

Medical Management

- Inhaled Bronchodilators
- Anticololinergic
- Antibiotics
- Corticosteroids nebulization
- Methylxanthines
- Digitalis – to treat LVF, if present
- Mucolytics eg: potassium iodide, guaifenesin
- Immunization
- Oxygen therapy
- Chest physiotherapy

Surgical management

- Lung volume reduction surgery
- Lung transplantation

Prevention

- Avoid cigarette smoking and other inhaler irritants.
- Control of environmental temperature and humidity
- Proper nutrition and adequate hydration
- Pneumococcal vaccination

Nursing management:

- Eliminate pulmonary irritants like cigarette smoking
- Train and monitor patients inhaler using techniques
- Restrict sodium
- Encourage relaxation exercises

Complications

- Respiratory infection.
- Respiratory failure
- Right side heart failure
- Pneumonia.
- Depression

Incidence of COPD is 9/1000 per year globally with a higher incidence in males and in smokers.

2.19 Diabetes Mellitus

Diabetes mellitus is a chronic disease caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by the increased insulin resistance such a deficiency results in increased concentrations of glucose in the blood, which in turn damage many of the body's systems, in particular the blood vessels and nerves.

Definition

The term Diabetic mellitus describes a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbance of carbohydrate fat and protein metabolism resulting from defects of insulin secretion, insulin action or both.

Types

- Type 1
- Type 2
- Prediabetes
- Gestational diabetes

Type 1 diabetes/Insulin dependent/ Diabetes mellitus (IDDM)

Type 1 diabetes is also referred to as Juvenile diabetes Mellitus. It results from destruction of pancreatic β cells which produce insulin leading to absolute insulin deficiency.

Etiology

- Viral
- Autoimmune
- Environmental factors.

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Type 2 diabetes/Non-Insulin dependent diabetes mellitus(NIDDM)

Most common form of diabetes. Body produces insulin, but do not use it properly, glucose doesn't move into cells, they pile up in the bloodstream.

Risk factors

- Genetic
- Autoimmune
- Stress
- Environmental factors
- Obesity

Prediabetes

Slight elevation of blood glucose levels, regarded as indication that the person is at risk of progressing to Type 2 diabetes.

Gestational Diabetes Mellitus (GDM)

is defined as carbohydrate intolerance during pregnancy.

Risk factors

- Polycystic ovary syndrome
- women under age 25
- Hydraminos

Causes

- Family history of diabetes
- Overweight prior to pregnancy

Signs and Symptoms

- Hyperglycemia - Polyuria, Polydipsia, Polyphagia
- Weight loss
- Fatigue
- Blurred vision
- Poor wound healing
- Recurrent infection

Diagnosis

Urine analysis

- Glucose
- Ketone
- Microalbuminuria

Blood chemistry

- Blood glucose estimation, fasting and random blood sugar
- Oral Glucose tolerance test (OGTT)
- Check HbA1c (GLYCOSYLATED HAEMOGLOBIN LEVEL)

Management

Type 1

- Maintain and control sugar level
- Insulin therapy
- Healthy life style – exercise and diet.
- Islet transplantation
- Oral Antidiabetic agents
- Lipid control
- **DIET**
- Meal plan for Caloric restriction
- Weight reduction
- **EXERCISE:** Regularly scheduled, moderate exercise performed 30 to 60 minutes/day.
- Islet transplation

Type 2

- Maintain a healthy lifestyle
- Oral hypoglycemic agent and injection insulin if needed
- Dietary management and exercise

Gestational diabetes

- Insulin
- Physical activity
- Diet
- Plan Increase fiber intake

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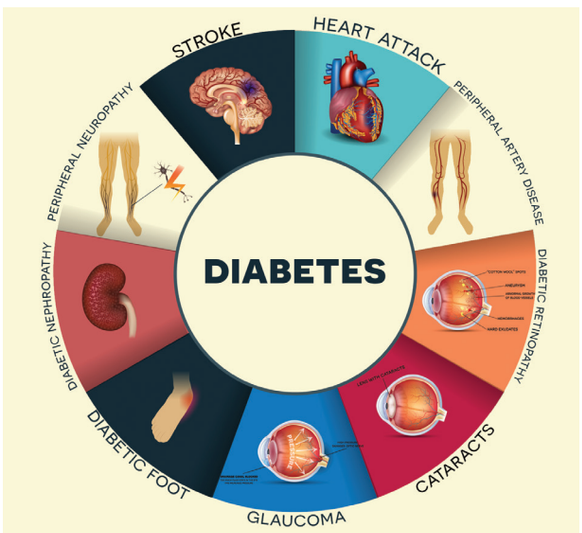
Nursing management

- Monitoring blood glucose.
- Administering antidiabetics/insulin.
- Foot care.
- Monitoring for hyper/hypoglycemia.
- Offering snacks at bedtime if permitted.
- Lifestyle management

Prevention

Complications of uncontrolled diabetes



- Hypoglycemia
- Macroangiopathy
- Peripheral Neuropathy
- Micro angiopathy
- Autonomic Neuropathy
- Diabetic Keto acidosis (DKA)

2.20 Hypothyroidism

The thyroid is a butterfly-shaped endocrine gland located in the lower front of the neck, below the larynx (the voice box). The main hormone secreted by the thyroid is Thyroxin, (T4) and Triiodothyronine (T3).

Definition

Inadequate secretion for thyroid hormone during fetal and neonatal development, resulting in retardation of growth and mental development in children and adults.

Causes of hypothyroidism

- Iodine deficiency
- Lithium therapy
- Autoimmune disease
- Surgical removal of the thyroid
- Radiation treatment
- Overdose of anti-thyroid drugs

Signs and Symptoms

- Body's functions to slow down, leading to dry skin, fatigue, loss of energy, and memory problems.
- Thinly hair
- menorrhagia.

Diagnosis

Blood test for Thyroid-Stimulating Hormone (TSH) T3 and T4.

- Elevated TSH level
- elevation of cholesterol level
- Electro cardio gram (ECG)

Management Medical

- Replacement of thyroid hormone

Side effects of thyroid harmone

- Headache.
- Shaking and trembling of arms and feet.
- Nausea and Vomiting.
- Diarrhea.
- Abdominal cramps.

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- Nervousness and irritability.
- Sleeplessness.
- Excessive sweating.

Foods to be avoided

Foods that contain gluten: Bread, pasta, cereals, beer, etc.

- Soya and it's products Tofu and soya milk.
- Cruciferous vegetables: Broccoli, kale, spinach, cabbage, etc.
- Certain fruits: Peaches, pears and strawberries.

Effects of exercise

- Maintain a healthy weight.
- Decrease joint pain.
- Relieve depression.
- Boost energy.
- Increase muscle mass.

Prevention

- Taking iodized salt and iodine supplements

Complications

- Goiter.
- Heart problems.
- Peripheral neuropathy.
- Myxedema.
- Infertility and Birth defects.
- Hypotension
- Bradycaudia
- Convulsions
- Hypothermia

2.21 Hyperthyrodism

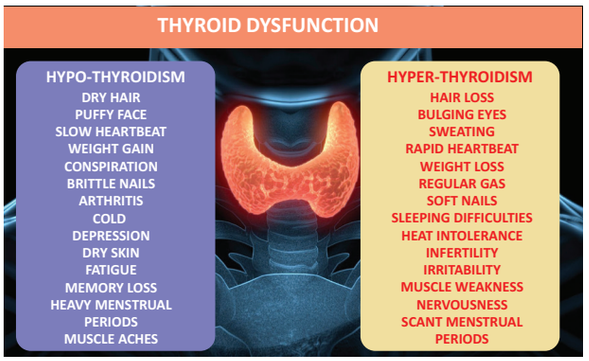
Definition

Hyperthyroidism is a condition in which thyroid glands performs excessive functional activity and produces excess thyroid hormone

Causes

- Diffuse hyperfunction of the thyroid gland.
- Grave's disease.

Signs and Symptoms



Diagnosis

Blood test

- Elevated T3 and T4
- Low TSH
- Presence of TSI antibodies

Management

Medical

- Antithyroid medications to suppress the production of thyroid hormones.
- Radioactive iodine therapy
- Glucocorticoids

Surgical

Thyroidectomy : Removal of the part or entire thyroid gland

Nursing management

- Promote adequate rest (back rubs, hot milk)
- Encourage short walk, rest between activity
- Promote good eye care (dark glass)

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- Facilitate improved coping.
- Enhance client knowledge about hyperthyrodism

Dietary management

- Iodized salt.
- Vitamins or supplements that contain iodine
- Milk or other dairy products including ice cream, cheese, yogurt and butter.
- Seafood including fish, shellfish.
- Herbal supplements.

Foods to be included

- Non-iodized salt.
- Coffee or tea (without milk or dairy- or soy-based creamers)
- Egg whites.
- Fresh or canned fruit.
- Unsalted nuts and nut butters.
- Breads made without salt, dairy, and eggs.
- Popcorn with non-iodized salt.
- Oats.

Women are 4-7 times more likely to have THYROID disorders than men

Complication

- Arrhythmia
- Congestive heart failure.
- Hypertension.
- Sudden cardiac arrest.

2.22 Fibrosis

Fibrosis, or scarring, is a condition where the wound healing is exaggerated. It is progressive in nature eventually leading to organ malfunction and death. Fibrosis affects nearly every tissue in the body. The growth of new capillaries into the inert material (exudates or thrombus), the migration of macrophages and the proliferation of fibroblasts resulting in fibrosis.

Definition

Pathological accumulation of extracellular matrix (ECM) proteins resulting in fibrosis or scarring and thickening of the affected tissue.

Causes

- Unknown
- Radiation
- Cigarette smoke
- Chemicals
- Chronic alcoholism
- Occupational hazards (silicosis, asbestosis)
- Chronic infection
- Fatty liver disease
- Hepatitis B or hepatitis C.

Types

- **Lung fibrosis or pulmonary fibrosis** - occurs as a result of long standing infections such as tuberculosis or pneumonia.
- **Cirrhosis of liver** refers to the scar tissue and nodules that replace liver tissue that disrupt liver function.
- **Heart fibrosis** - areas of the heart that have become damaged due to myocardial infarction.
- **Mediastinal fibrosis** - calcified fibrosis of the lymph nodes, which can block respiratory channels and blood vessels.
- **Retroperitoneal cavity fibrosis** - fibrosis of the soft tissue in the retro-peritoneum
- **Myelofibrosis** - scarring of the bone marrow that prevents the normal production of blood cells.

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- **Keloid-fibrosis** on the skin in response to injury
- **Scleroderma or systemic sclerosis** - an autoimmune disease of the connective tissue that primarily affects the skin but can also involve other organs such as the kidneys, heart and lungs.

Diagnosis

- Tissue biopsy

Management

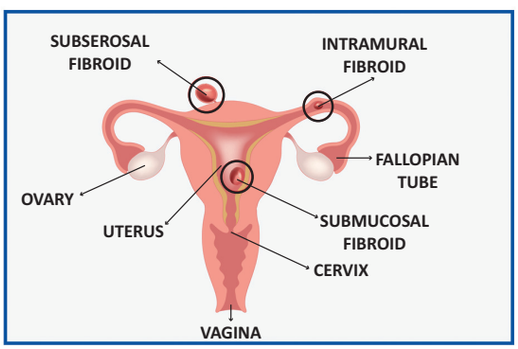
- Stem Cell therapy

Complication

- Joints - stiffness and pain
- Tendons – contracture, deformity
- Shoulder capsule - adhesive capsulitis and frozen shoulder
- Fibrosis of the soft tissue in the penis

2.23 Fibroid Uterus

Uterine fibroids are noncancerous growths of the uterus that often appear during childbearing years. It is also called leiomyomas or myomas.



Definition

The benign tumors that originate in the uterus.

Classification

- Submucosal (submucous) fibroids
- Intramural fibroids
- Subserosal fibroids

Signs and Symptoms

- Abnormal uterine bleeding
- Spotting between menses
- Iron deficiency anemia
- Mild or severe, localized pain in lower abdomen or back during / after sexual contact
- Pelvic pain, including pain during sexual contact
- Pressure on the bladder
- Obstructed urination
- Painful or difficult defecation

Diagnosis

- Pelvic exam
- Ultrasound.
- Hystero Salpingo Graphy (HSG)
- MRI, CT Scan

Management

Management in general

- Preventive
- Conservative

Medical

- Hormonal Therapy
- Low dose of oral contraceptives
- Analgesics for pain

Surgical

- Hysterectomy,
- Myomectomy
- Cryosurgery

Preventive

- Effective antenatal care
- Adequate intranatal care
- Adequate postnatal care

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Conservative

- Assurance
- Improvement of nutritional status
- Pelvic floor exercises.

Nursing management

- Assess the blood loss
- Assist and teach the pain relieving techniques
- Educate about hormonal therapy
- Advice calcium rich diet to prevent osteoporosis
- Advice to consult doctor in case of bleeding per vagina during Hormonal therapy
- Advice to do yoga and meditations

Increased risk of pregnancy complications in the presence of fibroids, such as first trimester bleeding, breech presentation, placental abruption, and problems during labor. Fibroids have also been associated with an increased risk of cesarean delivery

2.24 Menstrual Disorders

Menstrual cycles often bring about a variety of uncomfortable symptoms. Menstruation can be either too heavy or too light, or complete absence of a cycle.

Disorders of cycle length

Oligomenorrhea –Infrequent menstruation

Polymenorrhea - cycles with intervals of 21 days or fewer.

Amenorrhea -absence of a menstrual period in a woman of reproductive age.

Disorders of Flow

Hypomenorrhea - light or scantly menstrual blood flow.

Menorrhagia - abnormally heavy and prolonged menstrual period.

Metrorrhagia - bleeding at irregular times, **Menometrorrhagia** (meno = prolonged, metro = uterine, rrhagia = excessive flow/ discharge) prolonged or excessive uterine bleeding occurs irregularly and frequently.

Dysmenorrhea - cramps or painful menstruation

Causes

- Uterine abnormalitites (Fibroids)
- Sexually transmitted diseases (gonorrhea)
- Steroid consumption
- Chronic pelvic diseases
- Immaturity of the hypothalamic-pituitary axis
- Polycystic ovarian disease

Psychological factors

- Anxiety
- Stress
- Emotional trauma;
- Drugs
- Drug addiction
- Steroid administration
- Metabolic or endocrine diseases
- Nutritional deficiency

Peripheral causes:

- Ovarian cyst,
- Pelvic tumors

Diagnosis

- General examination
- Abdominal and pelvic examination
- Transvaginal ultrasound
- Dilatation and Curettage
- Hysteroscopy

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Management

General Management

- Encourage to eat a healthy diet that includes plenty of whole grains, fruits, vegetables, protein and calcium.
- Exercise regularly
- Adequate sleep
- Use absorbent tampon
- Avoid caffeine.
- Eat smaller, and frequent meals
- Vitamin or mineral supplements
- Avoid alcohol,
- Avoid self medications

Medical Management

- Hormonal therapy
- Iron supplementation to prevent anaemia.

Normal menstrual cycle is 28 days + 7 days

2.25 Uterine Prolapse

Uterus (or womb) is normally held in place inside pelvis with various muscles, tissue, and ligaments. Because of pregnancy, childbirth or difficult labor and delivery, in some women these muscles weaken. Also, as a woman ages and with a natural loss of the hormone estrogen, the uterus can drop into the vaginal canal, causing the condition known as a prolapsed uterus

Definition

Descend of uterus from its normal position in the pelvis further down into the vagina.

Types

First degree: The cervix drops into the vagina.

Second degree: The cervix drops to the level just inside the opening of the vagina.

Third degree: The cervix is outside the vagina.

Fourth degree: The entire uterus is outside the vagina. This condition is also called procidentia. This is caused by weakness of the supporting muscles.

Risk factors

- Excess weight lifting
- multiple deliveries

Causes

- Pregnancy/childbirths with normal or complicated delivery through the vagina
- Advancing age with weak pelvic muscles
- Weakening and loss of tissue tone after menopause and loss of natural estrogen
- increased pressure in the abdomen such as chronic cough
- Major surgery in the pelvic area leading to loss of external support
- Smoking

Signs and Symptoms

- Pelvic heaviness or pulling
- Vaginal bleeding or an increase in vaginal discharge
- Difficulties with sexual intercourse
- Urinary leakage, retention or bladder infections
- Bowel movement difficulties, such as constipation
- Lower back pain
- Uterine protrusion from the vaginal opening
- Sensations of sitting on a ball or feeling of something is falling out of the vagina
- Weak vaginal tissue

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Diagnosis

Diagnose uterine prolapse with

- A medical history and physical examination of the pelvis.
- Intra Venous Pyelogram (IVP)
- Renal sonography.
- X-rays.
- Ultrasound.
- Vaginal examination
- Rectal examination.

DO YOU KNOW?

High post – pregnancy BMI raises pelvic organ prolapsed risk

Research suggests that having a high BMI after pregnancy increases the risk of a prolapse

Management

Prolapse up to the third degree may spontaneously resolve.

Complications

- Infertility
- Abortion
- Preterm labour
- Risk of operative delivery
- Anaemia due to heavy bleeding
- Uterine cancer

Vaginal pessary: It is a removable device placed into **the vagina**.

Surgery: Hysterectomy

Nursing management

Teach and insist to practice Kegel exercise during pregnancy and post natal period

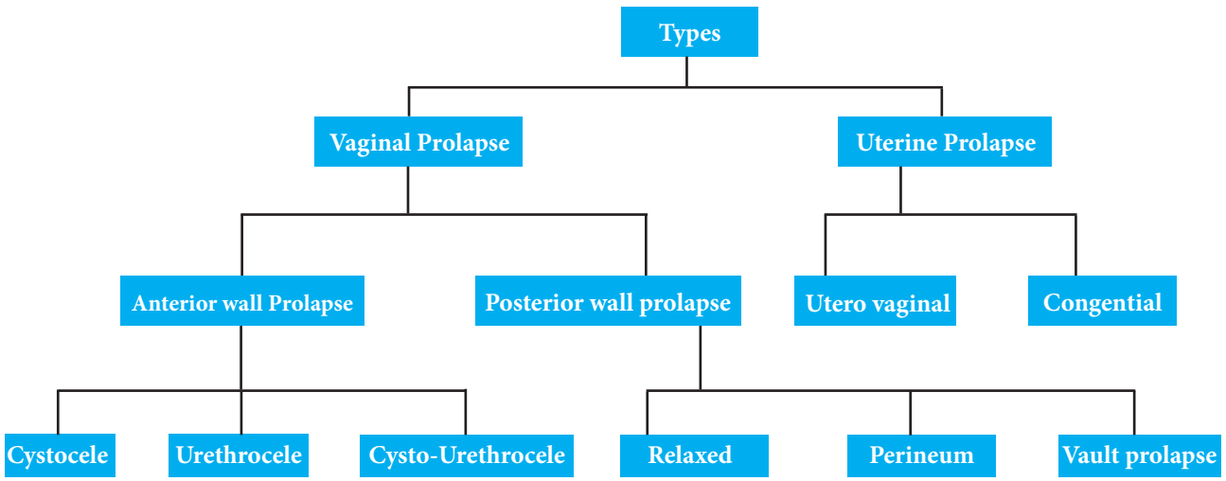
Exercise

Mild uterine prolapse can be treated with Kegel exercises

- Tighten the pelvic floor muscles, as you are attempting to stop urinating and hold for 5 seconds
- Take a 5-second break and repeat for three to 10 times per day.
- Avoid more child birth.

Prevention

- Maintain optimal weight.
- Avoid constipation by eating a high-fiber diet.
- Perform Kegel exercises to strengthen the pelvic muscles.
- Avoid heavy lifting or straining. Preventing and treating constipation
- Avoid chronic cough



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2.26 Benign Prostatic Hyperplasia (BPH)

Prostrate is a gland about the size of a walnut and is present only in males. It lies below the urinary bladder and surrounds the urethra. The prostate secrete a fluid that helps to nourish sperm as part of the semen (ejaculatory fluid). It is a noncancerous enlargement or hypertrophy of the prostate.

Definition

A benign (not cancer) condition in which an over growth of prostane tissue pushes against the urethra and bladder, blocking the flow of urine.

Risk factors

- Aging occurs after 50- 80 years.
- Family history
- Obesity
- Diabetes
- Heart diseases.
- Diabetes and heart diseases and use of beta blockers
- Obesity
- Ethnicity Black men may get symptoms at a younger age.

Causes

- Hormonal changes androgen/estrogen imbalance
- Neoplastic theory is of all the elements of prostoke
- Frequency

Signs and Symptoms

- Hesitancy, urgency, weak stream and straining to pass urine
- Nocturia
- Acute retention of urine
- Chronic retention of urine
- Dribbling or leaking during urination after urination

Diagnosis

- History collection
- Physical examination -digital rectal exam to check the size and shape of the prostate.
- Urine culture and sensitivity to rule out infection
- Uroflowmetry: Urine flow test to measure the urine stream.
- Measurement of post voidal residual volume
- PSA (Prostate-Specific Antigen) blood test. High PSA levels are a sign of a large prostate.
- Ultra Sonogram
- Biopsy to rule out cancer.
- Cystocopy as part of treatment.

Management

Medical

- Alpha blockers- relax the muscles of the prostate and neck of the bladder.
- 5-Alpha Reductase Inhibitors (5-ARIs)- shrinks the prostate and prevents additional growth.
- Phosphodiesterase 5 Inhibitors (PDE5 inhibitors) - relieves the symptoms and increases the flow rate of urine

Surgical

- Transvesical suprapubic Prostatectomy
- Transurethral resection of the prostate (TURP)
- Retropubic prostatectomy.

Nursing

- Ensure patient voids at regular intervals
- Provide warm environment as cold worsens the symptoms

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Lifestyle changes:

Exercise to strengthen the pelvic floor muscles

- Reduce the intake of fluids in the night before going to bed
- Avoid caffeine and alcohol

Complications

- Urinary tract infection(UTI)
- Renal stone
- Bladder outlet obstruction
- Renal failure.

BPH is not cancer, and it does not raise the risk for prostate cancer

2.27 Hydrocele

The testes, or testicles, are the two male reproductive glands that produce sperm and the male hormone testosterone. They are located in the scrotum, which is a pouch located behind the penis. Hydroceles can occur on either side of the scrotum or, in rarer cases, on both sides.

Definition

Hydrocele is a collection of excessive fluid in the tunica vaginal sac.

Types

1. **Vaginal Hydrocele** occurs when hydrocele sac in patient only in the scrotum.
2. **Infantile Hydrocele** The sac from the scrotum in patient upto the deep ingunial rings
3. **True congenital Hydrocele** The scrotal sac communicates with peritoneal cavity.
4. **Hydrocele of canal of Nuck:** It presents as a smelling in the inguinal region in female.

Risk factors

- Injury or inflammation of the scrotum

Causes

- Excessive production of fluid within the sac
- Defective absorption of fluid
- Defective lymphatic drainage of scrotal structures as in case of elephantiasis
- by connection with a hernia of the peritoneal cavity in the congenital variety, which presents as hydrocele of the cord

Symptoms

- Soft, Cystic, Not reducible, Scrotal swelling
- Scrotal pain
- Redness of the scrotum
- Heaviness
- Fullness
- Fluid accumulation with translumination
- Dragging sensation
- Fever
- Chills
- Nausea
- Vomiting

Diagnosis

- History.
- Physical examination
- Ultrasound.
- Blood and urine tests to check for underlying infection.

Management

- **Lord/s Plication** is indicated in small hydrocoeles. The sac is opened and the cut edge of the sac is plicated to tunica albuginea.
- **Partical excision and eversion of the sac:** Jaboula's operation
- Aspiration-is a temporary method.

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Nursing management

- Teach about the hydrocele bandage
- Teach coping techniques

Complications

- Infection
- Inguinal hernia.
- Haematocoele
- Pyocoele

Though hydroceles are associated with males, it can occur in females too. It is termed as Hydrocele of canal of nuck. Most cases of hydrocele, which are present from the birth, resolve within the first year.

GLOSSARY

Dyspnoea	(மூச்சுத்திணறல்)	Difficulty in breathing.
Expectrant	சளி	(expulsion of mucus)
Dyspnoea	மூச்சு திணறல்	(difficulty in breathing)
Prostate	விந்துப்பை	a gland surrounding the neck of the bladder in male mammals and releasing a fluid component of semen.
Hyperplasia	மிகைப்பெருக்கத்தில்	the enlargement of an organ or tissue
Pee	சிறுநீர்	urine.
Kidney Stone	சிறுநீரக கல்	a hard mass formed in the kidneys
Hemarrhoid	மூலநோய்	a swollen vein or group of veins in the region of the anus.
Thrombus	இரத்த உறைவு	a blood clot formed in situ within the vascular system of the body and impeding blood flow.
Prolapse	இறக்கம்	a slipping forward or down of a part or organ of the body.
Lump	கட்டி	a compact mass of a substance, especially one without a definite or regular shape.
Topical	மேற்பூச்சு	applied directly to a part of the body.
Ligation	கட்டுக்கட்டுதலுக்கு	the surgical procedure of tying a ligature tightly around a blood vessel or other duct or tube in the body.
Strangulated	நெரித்து	prevent circulation of the blood supply through (a part of the body, especially a hernia) by constriction.

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Hernia	**குடலிறக்கம்**	a condition in which part of an organ is displaced and protrudes through the wall of the cavity containing it (often involving the intestine at a weak point in the abdominal wall).
Womb	**கருவில்**	the organ in the lower body of a woman or female mammal where offspring are conceived and in which they gestate before birth; the uterus.
Congenital	**பிறவிக் குறைபாடு**	physical abnormality present from birth
Constipation	**மலச்சிக்கல்**	a condition in which there is difficulty in emptying the bowels, usually associated with hardened faeces.
Palpation	**பரிசபரிசோதனை**	an examination of something, usually an organ or part of the body, by touching it with the fingers or hands
Renal Stone	**சிறுநீரக கல்**	A stone formed in the kidney
Renal Colic	**சிறுநீரக வலி**	A sharp pain in the lower back that radiates in to the groin
Cystoscopy	**சிறுநீர்ப்பையின் உட்புறத்தை ஆய்வதற்கான கருவி**	Examination of the inside of urethra with a Cystoscope
Anaemia	**இரத்த சோகை**	(decreased rbc level in the blood)
Oxygen Toxicity	**ஆக்ஸிஜன் நச்சுத்தன்மை**	(harmful effects of breathing high molecular oxygen)
Renal Failure	**சிறுநீரக செயலிழப்பு**	Malfunction of the kidney
Acute Renal Failure	**கடும் சிறுநீரகக் குலைவு**	Sudden and often temporary loss of kidney function
Chronic Renal Failure	**நாட்பட்ட சிறுநீரகச் செயலிழப்பு**	Permanent loss of kidney function
Azotemia	**இரத்தத்தில் யூரியா மிகைமை**	A higher-than-normal blood level of urea
Oliguria	**சிறுநீர்க்குறைவு**	Not enough urine
Anovulation	**அண்டம் விடுபடாமை**	Absence of ovulation
Lactation	**பால்கொடுத்தல் / பாலூட்டல்**	A women who is breast feeding the child
Menopause	**மாதவிடாய் நிற்றல்**	Absence of menstruation
Anorexia Nervosa	**பசியிழப்புநோய்**	is an eating disorder characterized by low weight, fear of gaining weight, and a strong desire to be thin, resulting in food restriction
Epimenorrhoea	**மாதவிலக்கு சீரின்மை, குருங்கால மாதவிடாய்**	if the menstrual cycle is frequent and excessive bleeding
Myometrium	**கருப்பத் திசுச்சுவர்**	Middle layer of the uterine cavity

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Endometrium	**கருப்பையகம்**	Inner layer of the uterus
Infertility	**மலட்டுத்தன்மை/ கருவுறா விகிதம்**	Inability of the women to become pregnant even after 1 year of on protected sexual intercourses
Autoimmune Disease	**தன்தடுப்பாற்றுநோய்**	any disease in which the body's immune system, designed to protect the body from viruses and bacteria attacks a normal (healthy) part of the body.
Endocrine Gland	**நாளமில்லாச் சுரப்பி**	glands that produces and releases hormones directly into the blood; for example, the thyroid, pituitary, adrenals, and pancreas
Gland	**சுரப்பி**	an organ or tissue that makes and sends out a hormone or other substance
Hormone	**உட்சுரப்புநீர்; இயக்கு நீர்**	substance, made by an organ or tissue, that affects the function of one or more other organs
Hyperthyroidism	**கூடுதல் தைராய்டு சுரப்பிச் செயலாக்கம்**	an overactive thyroid
Hypothyroidism	**தைராய்டு சுரப்புக் குறை**	an underactive thyroid
Immune System	**நோய் எதிர்ப்பு அமைப்பு**	the body's way of protecting itself from invaders like bacteria and virus
Hyperglycemia	**இரத்தச் சர்க்கரை அதிகரிப்பு**	high blood sugar that is a sign that diabetes is out of control. It occurs when the body does not have enough insulin or can not use the insulin it does have.
Insulin	**இன்சுலின்**	a hormone that helps the body use glucose for energy. The beta cells of the pancreas make insulin.
Metabolism	**வளர்சிதை மாற்றம்**	all of the physical and chemical processes in the body which occur when food is broken down, energy is created, and wastes are produced.
Pancreas	**கணையம்**	an organ behind the lower part of the stomach that is about the size of a hand. It makes insulin so the body can use glucose (sugar) for energy.
Peripheral Vascular Disease (Pvd)	**நோய் (PVD) / புற இரத்த நாளம்**	any abnormal condition that affects the blood vessels outside the heart and lymphatic vessels. Often occurs as decreased blood flow to the hands and feet. People who have had diabetes for a long time may develop PVD.
Polydipsia	**வெகுதாகம் / வெகு நீர் வேட்கை**	excessive thirst that lasts for long periods of time; may be a sign of diabetes.
Polyphagia	**அளப்பரிய பசி**	excessive hunger and eating.

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Evaluation

I. Choose the correct answer

1. The common characteristic feature of persistent asthma is
   a) Family history
   b) Airway inflammation
   c) Oral steroids
   d) Nocturnal wheeze.
2. Simple instrument to roughly determine lung function is a
   a) Barometer
   b) Manometer
   c) Peak flow meter
   d) Sphygmomanometer
3. What is the most common cause of chronic obstructive pulmonary disease (COPD)?
   a) Bronchiectasis
   b) Chronic bronchitis
   c) Cigarette smoking
   d) Emphysema
4. What is BPH
   a) Benign Prostate Hyperplasia
   b) Blood Pressure High
   c) Big Painful Headache
5. What is Prostatitis
   a) Inflammation of the urethra
   b) Inflammation of the prostate
   c) Inflammation of the bladder
6. What is PSA
   a) Public Service Announcement
   b) Psoriatic Arthritis
   c) Prostate-Specific Antigen
7. Common abdominal Hernia is
   a) Inguinal Hernia
   b) Sports Hernia
   c) Hiatal Hernia
8. Cause of Hernia is
   a) Over eating
   b) Obesity
   c) Snoring
9. Symptom of Hernia is
   a) Coughing
   a) Sneezing
   b) Swelling
10. Prevention of Hernia is
    a) Eating more food
    b) Drinking alcohol
    c) Not smoking

L7QAW

11. Complication of hernia is
    a) Strangulation
    b) Incision
    c) Vomiting
12. The bluish discoloration of the skin and nail beds is called?
    a) Cyanosis b) Anameia
    c) Hemorrhage d) Dyspnea
13. The device fits snugly over the mouth and nose and is secured in place with a strap is?
    a) BP Apparatus
    b) Nasal cannula
    c) O2 tent
    d) face mask
14. Which of the following best describes chronic renal failure?
    a) Rapid decreases in urinary output with azotemia
    b) Progressive irreversible destruction of both kidney
    c) Creatinine clearance increases as urinary output decreases
15. What are the alert signs and symptoms of oliguric phase of acute renal failure?
    a) Urine with high specific gravity and low sodium concentration
    b) Hypotension and fluid volume deficit
    c) Fluid volume excess and hypertension
    d) Kussmaul's respiration and increased appetite

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16. One of the symptoms of hypothyroidism is
    a) Intolerance to cold
    b) Hair loss
    c) All of the above

17. A person with untreated hypothyroidism may also suffer from_____
    a) High cholesterol
    b) Low blood pressure
    c) Low blood sugar
    d) None of the above

18. How is hypothyroidism treated?
    a) With radiation
    b) With surgery
    c) With a synthetic hormone
    d) The condition can't be treated

19. Where is the thyroid gland located?
    a) At the base of the spine
    b) Neck
    c) Abdomen
    d) Back

20. Thyroxine is contains the following.
    a) Tyrosine b) Selenium
    c) Iodine d) a and c

21. Menstrual bleeding that is scanty and last for less than 2 days.
    a) Oligomenorhea b) Hypomenorrhea
    c) Metrorhagia d) Menorrhagia

22. Absence of menarche until the age of 16 years
    a) Amenorrhea
    b) Primary Amenorrhea
    c) Secondary Amenorrhea
    d) Dysmenorrhea

23. Benign tumours that originate in the uterus
    a) Fibroids uterus b) Prolapse
    c) Rectocele d) Cystocele

24. Expansion of HSG
    a) Hystero salpinjography
    b) Ultrasonography
    c) Hydro sonography
    d) Hystoscopy

25. The risk factors for type 1diabetes include all of the following except
    a) Diet b) Genetic
    c) Autoimmune d) Environmental

26. Prediabetes is associated with all of the following except
    a) Increased risk of developing type 2 diabetes
    b) Impaired glucose tolerance
    c) Risk of heart disease and stroke

27. Risk factors for type 2 diabetes include all of the following except
    a) Advanced age b) Obesity
    c) Smoking d) Physical inactivity

28. Untreated diabetes may result in all of the following except
    a) Blindness
    b) Cardiovascular disease
    c) Kidney disease
    d) Tinnitus

29. Blood sugar is well controlled when Hemoglobin A1C is
    a) Below 7%
    b) Between 12%-15%
    c) Less than 180 mg/dL
    d) Between 90 and 130 mg/dl

II. Answer the following questions in one or two lines

1. Define asthma.
2. Define Dyspnoea?
3. Define COPD?
4. What is the main cause of COPD?
5. What is haemorrhoids?
6. Name any two types of haemorrhoids?
7. What is thrombosed haemorrhoids?
8. What is the use of digital examination?
9. What is hernia?
10. Name any 2 types of hernia?

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III. Short notes

1. List down Triggering factors for Bronchial Asthma.
2. Explain briefly about nursing management of Bronchial asthma.
3. Explain about stages of COPD?
4. Draw the grades of the internal haemorrhoids?
5. List out the symptoms of the haemorrhoids?
6. Write the home remedy for haemorrhoids?
7. Discuss the preventive measures of haemorrhoids?
8. Write the risk factors of hernia?
9. Write the symptoms of hernia?
10. List out the causes of hernia

IV. Long essay

1. Mrs. Padma 68years old lady got admitted in the medical ward with the complaints of cough, wheezing, and dyspnoea. So it is diagnosed as bronchial asthma. Write in detail about it.
2. Explain in detail about the management and preventive aspects of COPD?
3. Write about the minimal invasive procedures?
4. Discuss the management for Haemorrhoids?
5. Discuss about the Benign Prostate Hypertrophy(BPH)?
6. Describe about the Hernia in detail?
7. What is Renal stone? Write the causes, signs & symptoms, diagnostic management of Renal stones?
8. Write about management prevention of Renal stones?
9. Explain in detail about the procedure of oxygen administration?
10. Describe about the renal failure in detail?

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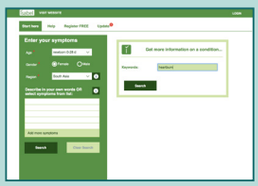
ICT CORNER

MEDICAL SURGERY

Through this activity you will be able to associate symptoms with conditions and learn to differentiate the common and serious conditions. anatomy



Steps

- **Step 1:** Type the URL link given below in the browser or scan the QR code.
- **Step 2:** Fill the mandatory fields such as 'Age, Gender and Region'.
- **Step 3:** Input some symptoms in the search tab and click the search button.
- **Step 4:** A list of possible conditions are displayed on the right side of the activity window. Serious complications are marked with red flag icon.

URL : https://symptomchecker.isabelhealthcare.com/suggest_diagnoses_advanced/landing_page

*Pictures are indicative only

*Allow flash player.

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CHAPTER 3

APPLIED PSYCHOLOGY

தன்நெஞ் சறிவது பொய்யற்க பொய்த்தபின்
தன்நெஞ்சே தன்னைச் சுடும்.

"Utter not a word which the conscience tells is false, lest your own conscience should smite you". Even to entertain the very thought of stealing is an evil to be avoided

Learning Objectives

At the end of this chapter, the students will be able to:

- define the term Psychology
- explain the importance of psychology in Nursing
- describe Maslow's theory of motivation
- understand the concept of individual differences
- describe attitude
- explain emotional adjustment
- describe the personality development and its disorders.
- understand conflict and frustration
- explain regarding crisis intervention

3LEKM

Introduction

The word "Psychology" has originated from two Greek words-"psyche" and "logos". The word logos stand for a rational discourse or a study. The word psyche is interpreted in different ways by psychologists at various periods. Initially the word psyche was interpreted as 'soul', then 'mind' and at later stage as 'consciousness'. Now psychology is viewed as a science which aims to give us better understanding and control of the behavior of the organism as a whole. In simple terms, it is a science of human behavior. A human being is best understood through his behavior. The following quote by Johann Wolfgang Von Goethe reveals the importance of study of human behavior.

"Behavior is a mirror in which everyone displays his image."

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3.1 Definition of Psychology

Psychology is the science of mental life, both of its phenomena and their conditions. The phenomena are such things as we call feelings, desires, cognitions, reasoning decisions and the like. (William Jamel 1890).

"Psychology is the scientific study of the activities of the individual in relation to his environment" Woodworth and Marquis, (1948).

According to N.L. Munn, "Psychology today concerns itself with the scientific investigation of behavior".

3.2 Importance of psychology in Nursing

Psychology helps the nurses to

i. understand and help the patient

Nurses must understand the patients to provide quality nursing care. The study of psychology helps nurses to understand the individual differences found in behavior and personality traits of the patients and the meaning of their behavior at different circumstances.

ii. understand and help the relatives

Nurses in the process of providing holistic care, they encourage the relatives and well wishers to participate in the patient care. It's a challenging task for the nurses to get their cooperation and make them understand why certain actions are performed for the patients. The study of psychology helps nurses to understand the genuine demand of the relatives and concern for the patient.

iii. provide needed advice, guidance and support to the patient

Nurses by studying psychology they understand the principles of guidance and counselling and its techniques. Understanding the techniques of guidance and counseling helps nurses to provide individual or group guidance as well as counseling services whenever they need it.

iv. provide quality nursing care

Any individual is the combination of the body and mind. If something goes wrong with the body, it affects the mind and vice versa. Individuals get admitted to the hospital for their problems in the body or mind. The study of psychology helps nurses to understand the importance of body mind relationship and apply the principles of psychology in the care of the patients. The knowledge on psychology gives a nurse awareness about the attitude, conflicts, positive thinking, crisis intervention which in turn helps to provide quality nursing care.

v. adjust to the professional environment

Nursing is a team work and has to work together with other health care team members including her colleagues. She should understand the psychology of people around her to work effectively. She is expected to work in collaboration with other health team members and face the challenges in the professional environment. The knowledge on psychology helps nurses to overcome these challenges in their profession.

vi. understand oneself

The nurse must understand them that is her attitude, way of thinking, coping abilities, mental mechanisms, overall strength and weakness. Understanding self helps to adjust to the personal and professional life and to lead a well balanced life.

3.3 Maslow's theory of Motivation

Maslow's hierarchy of needs is a theory in psychology proposed by Abraham Maslow in 1943. This theory is often portrayed in the shape of a pyramid with the largest, most fundamental needs at the bottom and the need for self actualization at the top. From the bottom, the

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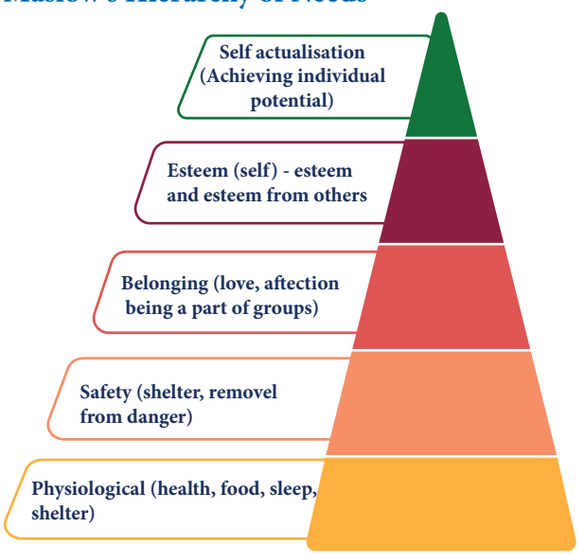
first four levels of the pyramid contains "deficiency needs" such as physiological, safety, love/belonging and esteem needs. The basic needs must be met before the individual will strongly desire for the next level needs. For example, an individual will not expect safety needs until unless his physiological needs are met. He will not desire for love and belonging before the safety needs are met. Maslow also coined the term 'meta motivation' to describe the motivation of people who go beyond the scope of the basic needs and strive for constant betterment. If these "deficiency needs" are not met, the individual will feel anxious and tense.

Maslow's Hierarchy of Needs



Physiological needs

Physiological needs are the physical requirements for human survival. If these requirements are not met, the human body cannot function properly and will ultimately fail. Physiological needs are the first and basic need in the hierarchy. Without them, the other needs cannot follow up. Physiological needs include breathing, water, food, sleep, clothing, shelter and sex.

Safety needs

Once a person's physiological needs are relatively satisfied, their safety needs take precedence and dominate behavior. For example in the absence of physical safety – due to war, natural disaster etc. – people may experience stress and tension. Safety and Security needs include personal security, emotional security, financial security, health and well being and safety needs against accidents/illness and their adverse impacts.

Love/Belonging

The third level of human needs is interpersonal and involves feelings of belongingness. Social Belonging needs include friendships, family and intimacy. Human beings need to feel a sense of belonging and acceptance among social groups, regardless whether these groups are large or small. The example for large social groups may include clubs, religious groups, sports teams, gangs, etc and some small social connections include family members, intimate partners, mentors, colleagues, etc. Human beings need to love and be loved – both sexually and non-sexually – by others.

Self esteem

Self Esteem is a belief about one's own worth based on an overall self evaluation. Esteem needs are ego needs or status needs which are related to getting recognition, status, importance, and respect from others in the society. All humans have a need to feel respected; this includes the need to have self esteem and self-respect. These activities give the person a sense of contribution or value. Deficiency in this level leads to low self esteem.

How people with low and high self esteem view themselves?

Those with low self esteem tend to view themselves in negative terms. They do not feel good about them, tend to have trouble in dealing effectively with others and are hampered by self doubts. High self esteem individuals, in contrast, see themselves as worthwhile, capable and acceptable.

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Self-actualization

Self actualization refers to an individual's need to develop his or her potentialities: in other words, to do what he or she is capable of doing. It means a person's motivation to reach his or her full potential.

Who are Self actualizers?
Self-actualizers are people who make the fullest use of their capabilities.

3.4 Individual differences

We all know that whatever lies around us in the form of non-living or living beings differ, from each other in so many respects. Humans, though we are a common species, differ in sizes, shapes, appearances, colour, personality and behaviour. There are individual variations and differences found in ourselves.

Definition of individual differencesy

It is defined as the differences among individuals, that distinguish or separate them from one another and make one as a unique individual in oneself.

Types of individual differences

1. Physical or physiological differences
2. Psychological differences

In total the differences may be found in the following respects. They are differences related to

- Physical differences
- Differences in intelligence
- Differences in attitudes
- Differences in achievement
- Differences in motor ability
- Differences on accout of sex
- Racial differences
- Differences due to nationality
- Differences due to economic status.
- Emotional differences
- Personality differences

Causes of individual differences

- Heredity
- Influence of caste, race and nation
- Sex differences
- Age an intelligence
- Temperament and emotional stability
- Economic condition and education
- Environment

Implications for Nursing

- Nurses must understand that it is quite natural for their patients and people under their care to differ in respect of their likes and dislikes, levels of IQ and understanding, tolerance for the pain, adjustment to the new situations and environment, social and emotional adjustment etc. She must plan her nursing actions considering these differences in her mind.
- The knowledge on individual differences helps nurses to learn and provide care which is unique for each individual.
- Nurses can make their patients and relatives realize that all are not same and there is no point in comparing their treatment with that of others. They cannot simply copy the treatment of others and all cannot be benefitted in the same way.
- Nurses can understand and guide or protect the patients with inferiority or superiority feelings under their care.

3.5 Attitude

The main aim of education is modification of one's behavior according to the expectations of the society. One's behaviour to a larger extent, depends upon one's attitude towards the things,idea, person, or object in his environment. The entire

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personality and development of an individual is influenced by his attitude.

Definition

An attitude has been defined as a predisposition or tendency toward a particular congnitive, behavioral or emotional reaction to objects or people.

Meaning of Attitude

An attitude is a readiness to respond in such a way that behavior is given a certain direction-Travers, 1973.

An attitude is a predisposition or readiness to respond in a pre-determined manner to relevant stimuli. –Whittaker, 1970.

Nature of Attitude

- Attitude is concerned with the relation of an individual with the specific persons, groups, values or norms related to his environment.
- Attitude are learnt and acquired.
- They are not innate and inherent in an individual.
- It is the state of readiness to respond to a certain stimuli.
- Attitude have definite motivational characteristics.
- It ranges from strongly positive to strongly negative attitude.

Factors influencing the development of Attitude

Attitudes are learnt and acquired. Heredity does not play any role in the development of attitudes. Environment plays an important role in the development of attitude. An attitude at any stage is essentially a product of the interaction of one's self with one's environment. So the factors can be classified as

- Factors within the individual himself
- Factors within the individual's environment

Factors within the individual

Physical growth and development: Poor physical health and growth are responsible for poor emotional and social adjustment. The colour of the skin, weight of the body, or biochemical changes in the body tissues and fluids. for example, sex hormones have a vital effect on the development of attitude through their connection with social adjustment.

Intellectual development: Intelligence influences the attitude formation. The components of intelligence like memory, understanding, thinking etc play a significant role in formation of attitude.

Emotional Development: Emotions play a dominant role in overt or covert (hidden) behavior manifestation and behaviour is related to attitude.

Social development: Social interaction and group processes is the key to attitude formation at any stage of human development. Children having poor social adjustment are more likely to have antisocial attitude.

Ethical and moral development: Each individual develops certain ideals, values and concept of the self in which he takes pride. For enhancing his feelings of self esteem, one tries to develop those attitudes that suit his values and ideals.

Factors within the individual's environment

Home and Family: A healthy family environment and positive attitude of the parents and other members bring desirable impact on the children in picking up desirable attitudes. Many antisocial attitude are said to be the product of the faulty upbringing and unpleasant environment at home.

Social environment: Contact with the people in neighbourhood, school, community, society and norms, traditions etc influences attitude formation and its reshaping. For example, in schools factors like teachers and

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their behaviours, class mates or school mates and their behaviours, teaching methods and discipline all contribute towards attitude formation.

Attitudinal changes

Attitude can be changed. It is not fixed one. They can be changed through the acquisition of new experiences. The following are the ways and means of attitudinal changes:-

- Providing proper education
- Making use of the propaganda machinery (eg, family planning, sanitation, road safety)
- Using fear inducing mechanism (eg. Rules and legal laws against dowry, child marriage, child abuses)
- Using modeling technique (eg. Imitating the behaviours of the heroes and heroines)
- Direct personal experience (eg. Lack of exercise leading to obesity and diabetes in a person will develop favourable attitude towards exercises).
- Using cognitive dissonance mechanism (eg, In smoking, making a person to think rationally instead of criticizing his negative attitude towards smoking).
- Bringing desired changes in beliefs and values.

Implications for Nursing

- Nurses can help patients to develop positive and desirable attitude towards the things and persons
- She can help patients and their relatives to bring about attitudinal changes.
- She can use the techniques of attitudinal change whenever and wherever applicable.

3.6 Emotions

Human beings are emotional beings and emotions add colour and spice to our life. Emotions are the outward expressions of the feelings. They are usually aroused by external stimuli and emotional expression is directed towards the stimuli in the environment that arouses it.

Meaning of emotion

Emotions are agitated states of our mind and body leading us to perform some or other types of behavioural acts.

It is a subjective response that is usually accompanied by a physiological change and is associated with a change in behavior.

Types of emotions

Emotions are categorized as positive emotions and negative emotions.

Positive emotions

The Positive emotions are pleasant emotions like amusement, love, curiosity, joy and happiness which are helpful and essential for the development of an individual.

Negative emotions

Negative emotions are the unpleasant emotions like fear, anger, jealousy which are harmful to the well being and development of an individual.

At the same time, too much of everything is bad. Emotions with too much intensity and frequency whether positive or negative bring harmful effects.

Components of emotion there are three basic components:

- **Congnitive:-** Physiological and behavioural
- **Cognitive component:-** Includes the thoughts, values and expectations that help in determining the intensity and type of emotions.
- **Physiological component:-** It is also known as a arousal. This is an internal

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physical changes that occur in the bodies when one experiences an emotion.

- **Behavioural or Expressive component:-** Action done as a result of cognitive and physiology. Ex. Emotional expression is a form of communication. A baby's smile can create bonding.

Bodily changes accompanying emotions

There are bodily changes happening during positive as well as negative emotions.

Internal bodily changes: It includes changes in

- Functioning of heart
- Blood circulation
- Functioning of digestive system
- Sugar level
- Red Blood cells
- Temperature
- Secretions of ducts and ductless glands
- Sweating and perspiration
- Tone of the muscles
- Functioning of the brain

External bodily changes: These are observed in

- Face as facial expressions
- Body postures
- Voice as vocal expressions

Emotional Adjustments

Emotional adjustment is the realization of one's emotions and feelings and controlling feelings when making relationship with others.

It is the capability of adjusting to his self and environment in relation to the use and expression of his own emotions. An emotionally adjusted person has an ability to express all types of emotions, positive or negative, in an appropriate degree with reasonable control at the appropriate time.

Characteristics of an emotionally adjusted person

- All emotions are easily recognized in him
- He/She expresses emotions in a socially desirable way
- He exercises control over his emotions
- He is not a day dreamer.
- He will not run away from realities
- He is guided more by his intellect than his emotions
- He never puts the responsibility of his own mistakes on others
- He possess adequate self concept and self respect
- He thinks for others
- He never engages in antisocial behavior
- He maintains social relationships
- He has emotional stability

Emotions in Health and illness

- All emotions are basically useful to our survival.
- Emotions are capable of exercising a leading role in the health and happiness of the individual.
- An emotionally adjusted person is found to possess a good health, free from illness or diseases.
- An emotionally maladjusted individual is characterized with a poor health and ailing personality.
- The person with positive emotions enjoys good physical health
- Many of our chronic physical conditions and illnesses are linked with emotional maladjustment.
- Emotional maladjustments increases the individual's susceptibility to many physical and mental ailments.

3.7 Personality disorders

Personality of an individual is all that possessed by him in terms of his physique,

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intellect and behavioural traits determining his unique adjustment to the self and the environment.

Personality is the totality of emotional and behavioural characteristics that are peculiar to a specific person and that remain somewhat stable and predictable over time.

Types of personality disorder

1. **Paranoid personality disorder:** Individuals with this condition suffer from distrust and suspiciousness of others. They are oversensitive and trust no one.
2. **Schizoid personality disorder:** These individuals display social withdrawal, have discomfort with human interaction, and are unsocial.
3. **Schizotypal personality disorder:** Individuals have magical thinking, illusions, hallucination etc.
4. **Antisocial personality disorder:** These individuals have a general disregard for law, socially irresponsible behaviours and violate the rights of others.
5. **Borderline personality disorder:** These people will have fluctuating attitude, impulsive, self destructive behavior, and form chaotic relationships.
6. **Histrionic personality disorder:** These people will have dramatic and extroverted behavior and are excitable, emotional people. They have a tendency to be self dramatizing, attention seeking, overly gregarious and seductive.
7. **Narcissistic personality disorder:** They are overly self centered and exploiting others to fulfill their own desires. They view themselves as superior and they believe that they deserve to receive a special rights and privileges.
8. **Avoidant personality disorder:** They have extreme shyness and fear or rejection and are uncomfortable in social situations.
9. **Dependent Personality disorder:** They are dependent on others, allow others to decide for them, submissive, and also tolerate mistreatment by others.
10. **Obsessive-Compulsive personality disorder:** They are very serious, formal and have difficulty expressing emotions. They are overly disciplined, perfectionist and preoccupied with rules.
11. **Passive-Aggressive personality disorder:** They feel cheated and unappreciated. They believe that life has been unkind to them, and they express envy and resentment over the easy life that they perceive others having.

Causes of Personality disorders

- Hereditary
- Parental antagonism and harassment
- Neurochemical dysfunction
- Poverty and poor socio economic conditions
- Faulty parenting styles
- Excessive disciplining
- Parental rejection
- Parental attitude and behaviours

Treatment Modalities

Psychotherapy: It is given by the trained psychotherapist to establish therapist-client relationships.

Milieu or Group therapy: It is given by taking support and feedback from peers which is more effective than one to one interaction with a therapist.

Cognitive Behaviour therapy: Behavioural strategies offer reinforcement for positive change. Social skills training and assertiveness training teach alternative ways to deal with frustration.

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Psychopharmacology: Medications such as anxiolytics, antidepressants, and antipsychotics are available to manage the patients with personality disorders

3.8 Conflicts and frustration

All individuals at one or other time in our day to day life have conflicts and frustration. Continuous feeling of chronic conflict and frustration will have a negative impact on our well being. Frustration and unresolved needs and desires cause great emotional unhappiness.

Meaning of conflict

Douglas and Holland defines conflict as a painful emotional state which results from a tension between opposed and contradictory wishes.

Barney and Lehner defines conflict is a state of tension brought by the presence in the individual of two or more opposing desires.

Types of conflict

- **Approach-Approach conflict:** This arises when an individual is faced with the problem of making a choice between two or more positive goals almost equally motivating and important. For example, a child may have to choose between watching a movie in TV or going out to play games.
- **Avoidance-Avoidance conflict:** In this, an individual is forced to choose between two negative courses of action. For example, a child who does not want to study and at the same time does not want to displease the parents by failing in the examination may experience such conflict.
- **Approach-Avoidance conflict:** In this, an individual is faced with a problem of choice between approaching and avoiding tendencies at the same time.

Sources of Conflict

The conflict arises from the home, school, occupational social and cultural environment. The faulty upbringing at home, unhealthy relationships, over protection is the sources of conflict from home environment. Unpleasant school or college environment, role of teachers, faulty method of teaching, denial of opportunities for self expression and classmates are some of the sources of conflict in youngsters. Improper working environment, dissatisfaction with the working conditions, unsatisfactory relationships and poor salary or wages is the sources of conflict in occupational environment. The taboos, inhibitions and the negative attitude towards sex are the causes of many sex conflicts in the minds of youth and adults.

Conflict resolution

- Negotiation is an important part of conflict resolution
- First of all, accept each desire as it arrives without judgment or resistance
- Remove any barrier or resistance in choosing among conflicting desires
- Think the goals of life and which one of the desires will be helpful to achieve the life's goal
- Choose one desire and follow it with full enthusiasm

Meaning of Frustration

Frustration means emotional tension resulting from the blocking of a desire or need (Good, 1959)

According to Barney and Lehner (1953), frustration refers to failure to satisfy a basic need because of either condition in the individual or external obstacles.

Causes of Frustration

External factors

Physical factors: Natural calamities, floods, droughts, earthquakes, fire and accidents cause frustration in an individual.

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Social and societal factors: Societal norms and values impose certain obstacle in meeting the individual needs which leads to frustration

Economic and financial factors: Unemployment and lack of money causes frustration in an individual.

Internal factors

Physical abnormality or defects: Too small or too big a stature, very heavy or thin body, an ugly face or dark complexion etc causes frustration.

Conflicting desires or aims: When a person has conflicting desires, he develops frustration. For example, a nurse wants to work in abroad and does not want to leave her family in home country causes frustration.

Individual's morality and high ideals: An individual's moral standards, code of ethics and high ideals may become a source of frustration to him.

Level of aspirations: One may aspire very high in spite of one's incapabilities or human limitations which may lead to frustration

Lack of persistence and sincerity in efforts: Frustration may result in one's own weakness in putting continuous and persistent efforts with courage, enthusiasm and will power.

Reaction to frustration

It can be classified as simple reactions and violent reactions

Simple reactions: It includes

- Increasing trials or improving efforts
- Compromising with what is available
- Withdrawal from the situation
- Submissiveness

Violent reactions: It includes aggression

3.9 Crisis intervention

Stressful situations are a part of everyday's life. Any stressful situation can precipitate a crisis. Crisis result in a disequilibrium from which many individuals require assistance to recover.

Meaning of crisis

A sudden event in one's life that disturbs homeostasis, during which usual coping mechanisms cannot resolve the problem (Lagerquist, 2001)

Characteristics of a crisis

Crisis occurs in all individuals at one time or another

- They are precipitated by specific identifiable events.
- Crises are personal by nature. What may be considered as crisis by one individual may not be so for another.
- Crisis are acute, not chronic and will be resolved in one way or another within a brief period.
- A crisis situation contains the potential harm for psychological growth or deterioration.

Causes of crises

Crisis may arise as a result of

- Stress or from the environment
- Life transitions
- Traumatic experience in life like death of loved one, accidents,
- Life threatening illnesses
- Stress out of promotions.
- Existing psychiatric problems

Crisis Intervention

Individuals experiencing crisis have an urgent need for assistance. In crisis intervention the therapist, or other intervener becomes a part of the individual's life situation. Because of the individual's emotional state, he or she is unable to solve a problem, so requires

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guidance and support from another to help mobilize the resources needed to resolve the crisis.

Goal of crisis intervention

- Resolution of immediate crisis
- Restoration of the individual to his pre-crisis level of functioning

Phases of crisis intervention

Phase 1: Assessment: It includes gathering of information regarding the precipitating stressor and resulting crisis that prompted individual to seek professional help. It includes assessment of physical and mental status, coping methods, support systems, individual's personal strengths and limitations.

Phase 2: Planning: In these phase, goals are established and appropriate activities are planned to meet the goals based on the individual's needs and strengths.

Phase 3: Intervention: This is the actual phase of implementation in which the person suffering from crisis is helped to overcome/ manage the crisis. It includes guidance services and utilizing the support systems in favour of the individual.

Phase 4: Evaluation of crisis resolution: It includes reassessment to determine if the stated objective was achieved. It includes reassessment for positive behavioural changes, adaptive coping strategies, growth and learning from the crisis and plan of action for dealing with stressors similar to the one that precipitated the crisis. At the end of this phase, decision is made regarding follow up therapy; if needed, the nurse provides referral information.

Activity 1

Study the individual differences among your classmates on any five aspects such as height, weight, BMI, colour of skin, IQ, academic achievement etc and submit a report.

Recall the various emotions experienced in the past one week, state the reason and classify and submit the report.

DO YOU KNOW?

Sigmund Freud is known as Father of Psychology.

National Mental Health Programme was launched in year 1982 by Govt of India.

World mental Health day is observed on 10th October every year.

Institute of Mental Health, Kilpauk was founded in 1794 by British.

Child Helpline- No: 1098, to call for help when any child is in distress.

SUMMARY

- Psychology is the scientific study of the activities of the individual in relation to his environment.
- Maslow's hierarchy of needs is a theory in psychology proposed by Abraham Maslow in 1943.
- This theory is often portrayed in the shape of a pyramid with the largest, most fundamental needs at the bottom and the need for self actualization at the top.
- Individual difference is defined as the differences among individuals that distinguish or separate them from one another and make one as a unique individual in oneself. The differences in individual are due to heredity or environment or both.
- An attitude is a readiness to respond in such a way that behavior is given a certain direction.

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- ❖ Emotions are agitated states of our mind and body leading us to perform some or other types of behavioural acts. Emotions are categorized as positive emotions and negative emotions. The components of emotions are knowing, feeling and doing.
- ❖ Emotions are capable of exercising a leading role in the health and happiness of the individual. An emotionally adjusted person is found to possess a good health, free from illness or diseases.
- ❖ Personality is the totality of emotional and behavioural characteristics that are peculiar to a specific person and that remain somewhat stable and predictable over time.
- ❖ Frustration refers to failure to satisfy a basic need because of either condition in the individual or external obstacles.
- ❖ Conflict is a state of tension brought by the presence in the individual of two or more opposing desires. The conflict arises from the home environment, school environment, occupational environment and social and cultural environment.
- ❖ Stressful situations are a part of everyday's life. Any stressful situation can precipitate a crisis.
- ❖ Crises result in a disequilibrium from which many individuals require assistance to recover.
- ❖ Individuals experiencing crises have an urgent need for assistance. In crisis intervention the therapist, or other intervener becomes a part of the individual's life situation.
- ❖ The goal of crisis intervention is the resolution of immediate crisis and restoration of the individual to his pre-crisis level of functioning

GLOSSARY

Aggression	-	feelings of anger resulting in hostile or violent behaviour
Anxiolytics	-	drug used to relieve anxiety
Antidepressants	-	drug used to reduce feelings of sadness and worry
Antipsychotics	-	drug used to manage psychiatric disorders
Stress	-	A state of mental or emotional strain

Evaluation

I. Choose the correct answer

1. The theory of hierarchy of need is proposed by
   a) Abraham Maslow
   b) Abraham Marlow
   c) Abraham Mundro
   d) Abraham Muller

4N9M1

2. Which one of the following is **not** a physiological need according to hierarchy of needs theory?
   a) Breathing b) Water
   c) Food d) Belongingness

3. Which one of the following is the self esteem need?
   a) Physiological need
   b) Status need
   c) Safety need
   d) Security need

4. Which one of the following is **not** the ways of attitudinal changes?
   a) Providing proper education
   b) Using modeling technique
   c) Direct personal experience
   d) Avoiding /neglecting

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5. The example for positive emotion is
   a) Fear b) Anger
   c) Joy d) jealousy
6. Which one of the following is not the component of emotions?
   a) Knowing b) Enjoying
   c) Feeling d) Doing
7. Which one of the following is Not the treatment modality of people with personality disorder?
   a) Psychotherapy
   b) Milieu therapy
   c) Cognitive Behaviour therapy
   d) Hydrotherapy

II. Short answers

8. Define the following terms
   a) Psychology
   b) Individual differences
   c) Attitude
   d) Personality
   e) emotion
   f) Conflict
   g) Frustration
   h) Emotional adjustment
   i) Crisis intervention
9. List any four individual differences
10. List the nature of attitude
11. Explain types of emotions
12. List any four bodily changes accompanying emotions
13. Enlist any four causes of personality disorder
14. List any four causes of frustration
15. Explain the types of conflict

III. Brief answers

16. Importance of Psychology
17. Factors influencing the development of attitude and attitudinal changes
18. Types and components of emotions
19. Characteristics of emotionally adjusted persons
20. Cause of frustration and reaction to frustration
21. Types and sources of conflict and its resolution

IV. Detailed answers

22. Explain in detail Maslow's hierarchy of needs
23. Individual differences
24. Explain the personality disorders and development
25. Describe crisis and crisis intervention

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INTERNET LINKS

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3. https://www.psypost.org

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ICT CORNER

APPLIED PSYCOLOGY

Through this game activity you will be able to know the maslow hierarchy of needs.anatomy

Steps

- **Step 1:** Type the URL link given below in the browser or scan the QR code.
- **Step 2:** Click the START button to begin the game.
- **Step 3:** Drag and drop the picture icons into the rectangle given, using the mouse.
- **Step 4:** Continue and complete the pyramid.

Step1

Step2

Step3

Step4

URL : http://planeta42.com/psychology/maslow/

*Pictures are indicative only
*Allow flash player.

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CHAPTER

4

Applied Sociology

வையத்துள் வாழ்வாங்கு வாழ்பவன் வான்உறையும்
தெய்வத்துள் வைக்கப் படும்.

He who on earth has lived in the conjugal state as he should live, will be placed among the Gods who dwell in heaven

Learning Objectives

At the end of this chapter, the students will be able to:

- define sociology
- enumerate the importance and principles of sociology
- explain about family and marriage
- discuss the application of sociology in health management

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Introduction

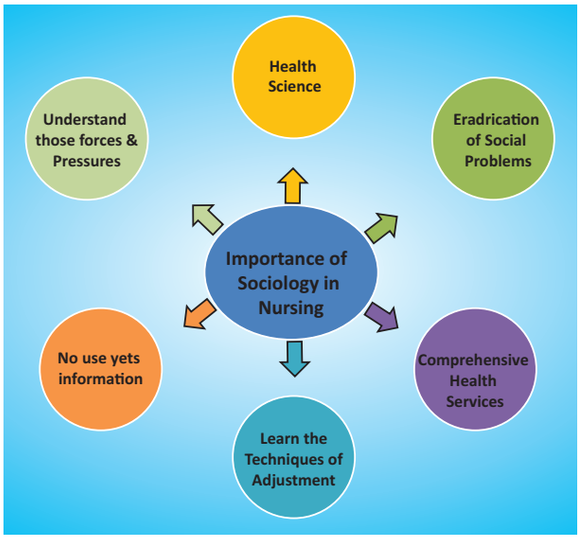
A dictionary defines sociology as the systematic study of society and social interaction. The word "sociology" is derived from the Latin word socius (companion) and the Greek word logos (speech or reason), which means "study of society". Father of sociology is Auguste Comete a French philosopher.

4.1 Definition

Father of sociology, defines sociology as the science of social phenomena "subject to natural and invariable laws, the discovery of which is the object of investigation".

- Auguste Comete.

Henry Fairchild: "Sociology is the study of man and his human environment in their relations to each other".



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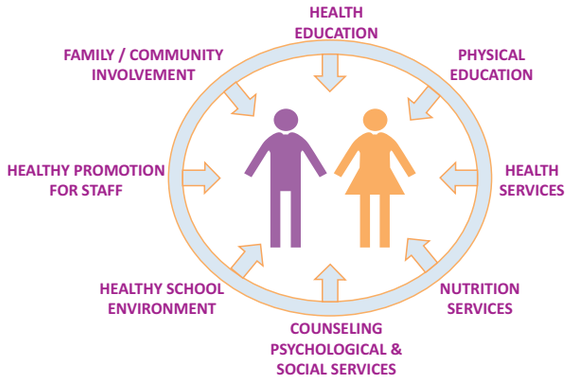
Scope of Sociology



4.2 Principles of Sociology

Hirschman's Principles of Sociology

- Things are real because they are socially constructed.
- Society is not just the aggregation of discrete, pre-existing individuals. That is, the individual is not ontologically prior to the social.
- The ideas we hold about the world change the world.
- The language we use to describe the world changes the world.
- Society cannot be understood by looking at individuals separately from their interconnections and their environments (both social and physical).
- The economy is not separate from the political or social world.

Nature of Sociology

- It is the science of society and studies organized in an organized society.
- It is a general science with all kind of social relationship.
- It is an analytical science.
- In sociologist point of view, man is a social animal.
- It has wider scope.
- It studies both conscious and unconscious activities of human being.

4.3 Importance of sociology in Nursing

Sociology plays an important role in the area of health sciences medicine and nursing with the common goal of preventing illness and restoration of health.

The study of sociology is important for nurses due to the following reasons

- Helps to understand those forces and pressures which affect patient adversely.
- It helps the nurses to understand the behaviour, conflicts, Inter Personal Relationship (IPR), hierarchy, groups and adaptation of different people working in hospitals.
- Through sociology, the nurse gets information about the socio cultural life of the patient.
- To study the structure of family, community and society.
- To understand the characteristics of social relationship, its complexities, and its impact on health care.
- Helps in the understanding and eradication of social problems.

4.4 Family

The family forms the basic unit of social organization and it is difficult to imagine how human society could function without it. The family has been seen as an universal social institution and it is an inevitable part of the society.

Definition

The family is a group of persons united by ties of marriage, blood or adoption constituting a single household interacting with each other in their respective social role of husband and wife, mother and father, brother and sister creating a common culture

-Burgess and Lock

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Family is a more or less durable association of husband and wife with or without child or of a man or woman alone with children.

-Nimkoff

Characteristics Of Family

Universality: Malinowski writes the typical family a group consisting of mother, father and their progeny is found in all communities, savage, barbarians and civilized.

Emotional basis: It is built upon sentiments of love, affection, sympathy, cooperation and friendship.

Limited size: The family is smaller in size. It is a smallest social unit.

Formative influence: It shapes the personality and molds the character of its members.

Responsibility of the members: The members of the family has certain responsibilities, duties and obligations.

Social regulation: The society takes precaution to safeguard this organization from any possible breakdown.

Types of The Family

Based on Birth

Family of Orientation: The family in which an individual is born is his family of orientation his family of orientation.

Family of Procreation: The family where an individual sets up after his/her marriage is his/her family of procreation.

Based on Marriage

Monogamous Family: This family consists of one husband and wife, including children and is based on monogamous marriages.

Polygynous Family: A family consisting of one husband, and more than one wife, and all the children born to all the wives or adopted by each of them.

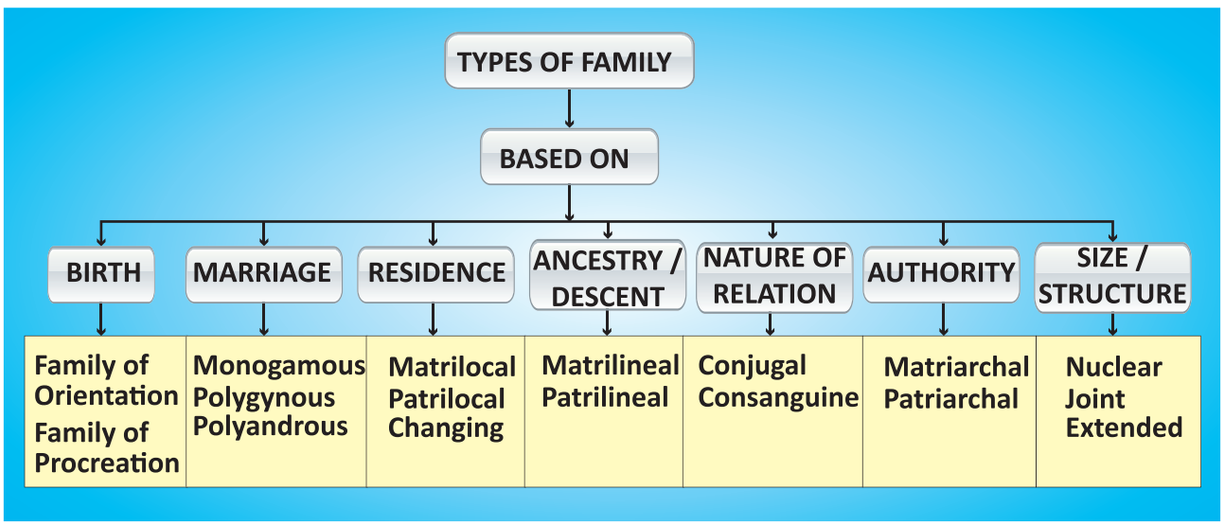
Polyandrous Family: A family made up of one wife and more than one husband, and the children, either born or adopted with each one of them.

Based on Residence

Family of Matrilocal Residence: When a couple stays in the wife's house, the family is known as family of matrilocal residence.

Family of Patrilocal Residence: When a family stays in the house of husband, the family is known as family of patrilocal residence.

Family of Changing Residence: When a family stays in the husband's house for some time, and moves to wife's house, stays there for a period of time, and then moves back to husband's parents, or starts living in another place, the family is called a family of changing residence.



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Based on Ancestry or Descent

Matrilineal Family: When ancestry or descent is traced through the female line, or through the mother's side, the family is called matrilineal family.

Patrilineal Family: A family in which the authority is carried down the male line, and descent is traced through the male line or the father's side, is called a patrilineal family.

Based on Authority

Matriarchal Family: In these families, a woman is the head of the family, and authority is vested in her.

The matriarchal family is known as mother centered or mother dominated family. The mother or the woman is the head of the family.

Patriarchal Family: In patriarchal families, the head of the family is a male, and authority is vested with him.

The patriarchal family is also known as father centered or father dominated family.

Based on the Nature of Relations

Conjugal Family: A conjugal family includes only the husband, wife and unmarried children who are not adults. This is also referred as nuclear family.

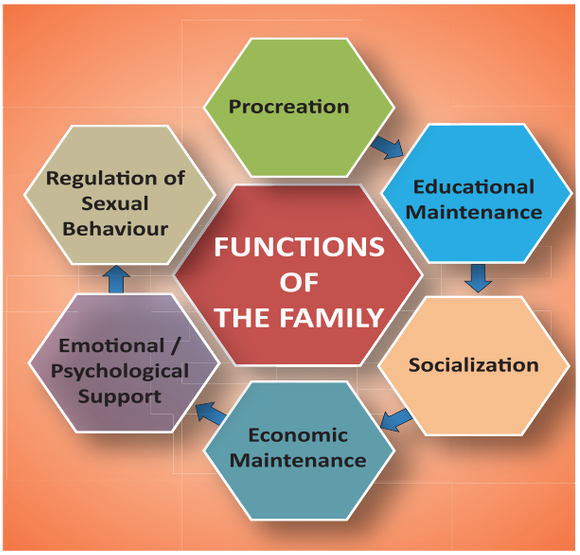
Consanguine Family: A consanguine family consists of a parent, his or her children and other relatives

Based on the size or structure:

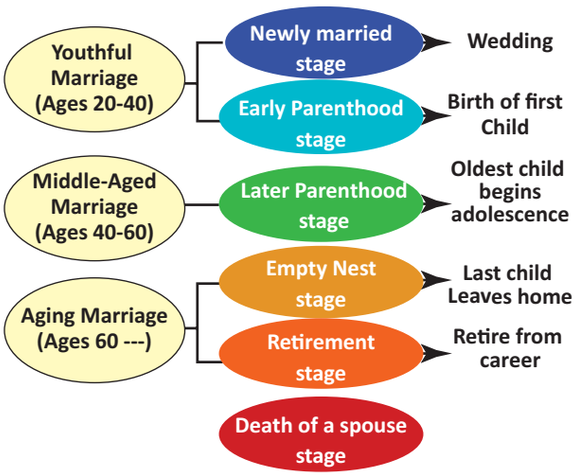
Nuclear Family: A nuclear family is a small group consisting of a husband, a wife and children, natural or adopted.

Joint Family: A joint family consists of three generation, living together under the same roof, sharing the same kitchen and purse or economic expenses.

4.5 Functions Of The Family



FAMILY LIFE CYCLE



4.6 Needs of the Family

According to psychologist Abraham Maslow, the needs of family can be divided into following:

- **Basic needs:** The most rudimentary human needs, associated with the survival of human beings, are called basic needs. Human beings cannot survive in the absence of these things. One needs of food to eat, water to drink and house to live.
- **Physiological needs:** Physiological needs are associated with the function of body

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organ. Sex is biological needs of the youth. After this, human being moves to safety needs. After one's stomach is full, she/ he needs a safe environment. Cloth and shelter provide security from the general environmental torments and the foes.

- **Additional needs:** The secondary human needs, associated with career development and better living standard, are termed as additional needs. He needs love, care, affection, respect, freedom and eventually self fulfillment.

4.7 Marriage

Introduction

Marriage is one of the most ancient, important, universal and indispensable social relationship which has been in existence since the inception of human civilization.

Definition of Marriage

1. According to Encyclopedia Britannica, "Marriage is a physical, legal and moral union between man and woman in complete community life for the establishment of a family."
2. According to Malinowski, "Marriage is a contract for the production and maintenance of children."

Characteristics of Marriage

1. Marriage is a permanent bond between husband and wife. It is designed to fulfill the social, psychological, biological and religious aims.
2. Marriage is a specific relationship between two individuals of opposite sex and based on mutual rights and obligations. Relationship is enduring.
3. Marriage requires social approval. The relationship between men and women must have social approval without which marriage is not valid.
4. Marriage establishes family. Family helps in providing facilities for the procreation and upbringing of children.
5. Marriage creates mutual obligations between husband and wife. The couple fulfills their mutual obligations on the basis of customs or rules.
6. Marriage is always associated with some civil and religious ceremony. This social and religious ceremony provides validity to marriage. Though modern marriage performed in courts still it requires certain religious or customary practices.
7. Marriage regulates sex relationship according to prescribed customs and laws.
8. Marriage has certain symbols like ring, vermillion, special cloths, special sign before the house etc.

Prohibition of Child Marriage Act states that a girl in India should not marry before the age of 18, and a boy before 21.

Functions of marriage

1. Regulation of sex life and inheritance or procreation
2. Marriage leads establishment of family
3. Provides economic cooperation
4. Marriage contributes to emotional and intellectual interstimulation of the partners
5. Marriage aims at social solidarity

Social Benefits Of Marriage

Marriage and Health

- On average, husbands and wives are healthier, happier and enjoy longer lives than those who are not married.

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- Men appear to reap the most physical health benefits from marriage and suffer the greatest health consequences if they divorce.
- Married mothers have lower rates of depression than single or cohabiting mothers, probably because they are more likely to receive practical and emotional support from their husband and his family.

Marriage and Wealth

- Married couples build more wealth on average than singles or cohabiting couples.
- Married men earn more money than do single men with similar education and job histories.
- Married women are economically better off than divorced, cohabiting or never-married women.

Marriage and Children

- Less likely to be poor or to experience persistent economic insecurity.
- More likely to stay in school, have fewer behavioural and attendance problems, and earn four-year college degrees.
- Less vulnerable to serious emotional illness, depression and suicide attempts.
- More likely to have positive attitudes towards marriage and greater success in forming lasting marriages.

Marriage and Crime/Domestic Violence

- Married women are at lower risk for domestic violence than women in cohabiting or dating relationships.
- Boys raised in single-parent homes are more likely to engage in criminal and delinquent behaviours than those raised by two married biological parents.
- Married women are significantly less likely to be the victims of violent crime than single or divorced women. Married men are less likely to perpetrate violent crimes than unmarried men.

Marriage and Society

- The institution of marriage reliably creates the social, economic and affective conditions for effective parenting.
- Being married changes people's lifestyles and habits in ways that are personally and socially beneficial. Marriage is a "seedbed" of pro-social behaviour.
- Marriage generates social capital. The social bonds created through marriage yield benefits, not only for the family, but for others as well, including the larger society.

4.8 Application of Sociology in Nursing

- Sociology is a recent addition to the syllabus of medical education.
- Sociology is needed in general to all the medical professions and especially nursing because social conditions are sometimes responsible for health problems.
- Sociology helps to understand the relationship between disease and social condition.

Importance of social environment

- A patient with physical handicap should be understood in the context of his social milieu.
- Psychological, social and vocational handicaps of the disabled person and patients are often related with false attitute of the people.
- The nurse should understand the social environment for develop the patients health conditions.

SUMMARY

Sociology is just as valuable and important to nursing as is psychology. Sociology explores the issues of genders, social classes, stratification, families and economic policies which have impacts on health care and nursing.

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GLOSSARY

Sociology	–	சமூகவியல்	the study and classification of human societies
Universality	–	பொதுமை	the quality of being universal; existing everywhere
Procreation	–	இனப்பெருக்கம்	the sexual activity of conceiving and bearing offspring
Materialism	–	பொருள்முதற் கோட்பாடு	a desire for wealth and material possessions with little interest in ethical or spiritual matters

Evaluation

I. Multiple choice question

1. Family started with patriarch belongs to
   a) matriarchal
   b) patriarchal
   c) polygamy
2. What are key structure of societies
   a) marriage
   b) family
   c) a and b

II. Answer in one or two lines

1. Define sociology
2. Define family
3. Define marriage
4. What is consanguine family?
5. List out the benefits of marriage

III. Short notes

1. List out the importance of sociology
2. Explain the principles of sociology
3. Enlist the types of family
4. Discuss the function of marriage
5. Enumerate the functions of family

IV. Write in detail about

1. Explain about the family
2. Discuss about marriage
3. Explain the application of sociology in health management
4. Describe the characteristics of family

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CHAPTER 5

Applied Nutrition

மாறுபாடு இல்லாத உண்டி மறுத்துண்ணின்
ஊறுபாடு இல்லை உயிர்க்கு.

There will be no disaster to one's life if one eats with moderation, food that is not disagreeable.

Learning Objectives

At the end of the lesson students will be able to

- understand the classification of food
- understand the ICMR suggested food pyramid
- know the food source of carbohydrates, fats, and protein
- know in details about vitamins.
- apply therapeutic diets related to hypertension, peptic ulcer, chronic renal failure and Diabetes Mellitus
- know the additives in food

14KD7

Introduction

To eat is a necessity, but to eat intelligently is an art.

- **La Rochefoucauld.**

Hippocrates first coined the word clinical nutrition in 4th century B.C. The word diet is derived from the Greek word "data" which means healthful living according to proper reflection of food. The science of nutrition is defined as "the study of the Nutrients in food and the body's handling of them". Nutrition means "the process of nourishing or being nourished especially, the series of processes by which organism assimilates food and uses it for growth and replacement of tissues".

5.1 Terminology

Nutrition: It may be defined as the science of food and its relationship to health. It is concerned with the part played by nutrients in body growth, development and maintenance.

Dietetics: Dietetics is the practical application of the principles of nutrition. It includes the planning of meals for well and the sick.

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Nutrients: A substance in suitable amount is essential for the growth, maintenance, function and reproduction of a cell or organism is called Nutrients. Nutrients consist of carbohydrates, fats, proteins, Vitamins and Minerals.

Macronutrients: Proteins, carbohydrates, and fats are called macronutrients. It supply energy in large quantities to the body and build tissues.

Micronutrients: Vitamins and minerals are called micronutrients. It is needed in small quantity but they play a crucial role to regulate and control body processes.

Malnutrition: Malnutrition is an impairment of health resulting from a deficiency, excess or imbalance of nutrients. It includes under nutrition and over nutrition.

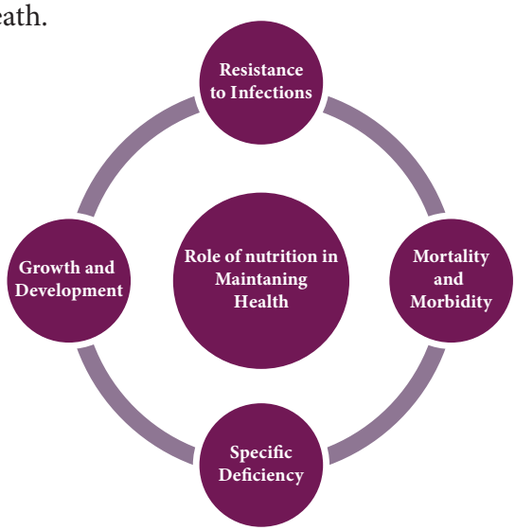
Metabolism: Metabolism is the sum total of building up reactions (anabolism) and breakdown reactions (catabolism) going on inside the body of a living organism.

5.2 Classification of Food

1. Classification by origin
    - Foods of animal origin
    - Foods of plant origin.
2. Classification by chemical composition
    - Protein
    - Fats
    - Carbohydrates
    - Vitamins
    - Minerals
3. Classification by predominant function
    - Body building foods: milk, meat, poultry, fish, egg, pulses, peanuts etc.,
    - Energy giving food: cereals, sugars, roots and tubers, fats and oils.
    - Protective foods: vegetables, fruits and milk.

5.3 Role of nutrition in maintaining health

Nutrition is a basic element of health. Nutrition influence the health from birth to death.



Growth and development

- Good nutrition is essential for attainment of normal growth and development during fetal life and childhood. Physical growth, intellectual development, learning and behavior are affected by malnutrition.
- Adequate nutrition is needed for adult life maintenance for optimum health and efficiency.
- Elder people needs special nutrition due to their physiological and chronological changes. Pregnant and lactating mothers require more proteins and nutrients to prevent abortion, growth retardation and low birth weight babies and provide adequate breast feeding for their babies.

Specific deficiency diseases

- The most common deficiencies find in Indians are Protein energy malnutrition, blindness, goiter, anemia, beriberi, rickets etc. There is increased incidence of abortion, prematurity, still birth and low birth weight babies in malnourished mothers.

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- Hence, good nutrition is essential to prevent nutritional deficiency diseases, promotion of health and treatment of deficiency diseases.

Resistance to infection

- A well balanced nutrition prevents infections like tuberculosis. Good nutrition enhances wound healing. Improves resistance of an individual towards infections.

Mortality and morbidity

- Malnutrition leads to increased death rate, infant mortality rate, still births and premature deliveries. Prematurity is the major cause of deaths.
- Over nutrition causes diseases like Obesity, diabetes, hypertension, cardiovascular and renal diseases and causes death.

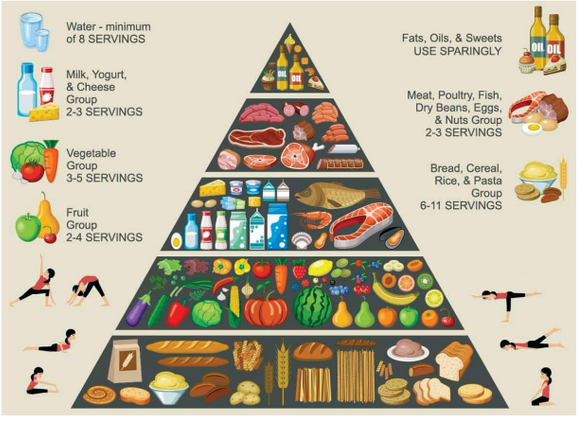
5.4 Factors affecting food and nutrition

The following factors affects food and nutrition

- Basal metabolic rate
- Weight
- Age
- Sex
- Climate and environment
- Physical activities
- Physiological state
- Socio economic factors
- Cultural factors
    - Life style and food habits
    - Food fads
    - Cooking practices
    - Child rearing practices
- Religion
- Traditional factors
- Food production and distribution.

Food Pyramid

According to Indian Council of Medical Research, foods are grouped as shown in Pyramid according to the requirement for healthy life.



Each food groups is a source of different nutrients. Balanced diet should include all the food groups.

One of the world's healthiest food is lemon. One lemon contains our daily dose of vitamin C it cleanses our liver, boost our immunity and aids in weight loss.

5.5 Carbohydrates

Carbohydrates are the main source of energy for daily activities. Carbohydrates (primarily starches) are the least expensive, the most available, easily obtainable and readily digestible form of nutrient.

Composition of Carbohydrates

Carbohydrates are organic compounds of carbon, hydrogen and oxygen with the latter elements in the ratio of 2: 1. The general formula is $C_6H_{12}O_6$. Carbohydrates are widely

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Table -1 - Food Groups Suggested by ICMR (2011)

Nutrient content of food groups	Nutrients
1. Cereals, Millets and Pulses:	
Rice, Wheat, Ragi, Bajra, Maize, Jowar, Barley, Rice flakes, Wheat flour, Breakfast cereals.	Energy, Protein, Invisible fat, Vitamin B_1, Vitamin B_2, Folic acid, Iron, Fiber.
Pulses and Legumes: Bengal gram, Black gram, Green gram, Red gram, Lentil (Whole as well as dhal), Cowpea, peas, Rajmah, Soya bean, Beans.	Energy, Protein, Invisible fat, Vitamin B_1, Vitamin B_2, Folic acid, Calcium, Iron, Fiber.
2. Milk and Animal products:	
Milk, Curd, Skimmed milk, Cheese, Chicken, Liver, Fish, Egg, Meat.	Protein, Fat, Vitamin – B_1, Vitamin B_2, Calcium, Iron
3. Vegetables and Fruits:	
Fruits: Mango, Guava, Tomato, papaya, Orange, Sweet lime, Water melon.	Carotenoids, Vitamin C, Fiber, Invisible fat, Vitamin B_2, Folic acid, Iron.
Green leafy vegetables: Amaranth, Spinach, Gogu, Drumstick leaves, Coriander leaves, Fenugreek leaves.	Carotenoids, Vitamin B_2, Folic acid, Calcium, Iron, Fiber.
Other vegetables: Carrots, Brinjal, Ladies finger, Beans, Capsicum, Onion, Drumstick, Cauliflower	Carotenoids, Folic acid, Calcium, Fiber.
4. Oils, Fats and Nuts:	
Fats: Butter Ghee, Hydrogenated fat, Cooking oils like groundnut, mustard, Sunflower.	Energy, Fat, Essential fatty acids.
Sugar: Jaggery and cane – sugar.	Energy
Almonds, walnuts and gingelly seeds	Protein, ω-3 fatty acids.

distributed in plants. Foods which contain carbohydrates are called energy foods.

Classification of Carbohydrates

Carbohydrates are classified according to the number of saccharide (sugar) groups present. They are broadly classified as simple carbohydrates and complex carbohydrates. The simple carbohydrates include monosaccharides (Single sugar) and disaccharides (Double sugars). Complex carbohydrates include starch, glycogen and fibers. The classification of carbohydrates is schematically represented below:

Recommended daily allowances

Table: 2

Age Group	Recommended carbohydrate/Gms/day
Adults	50 – 70
Expectant and nursing mothers	40 – 60
Infants (1 – 12months)	40 – 50
Preschool children (1-25years)	40 – 60
Older chidren and adolescents	50 - 70

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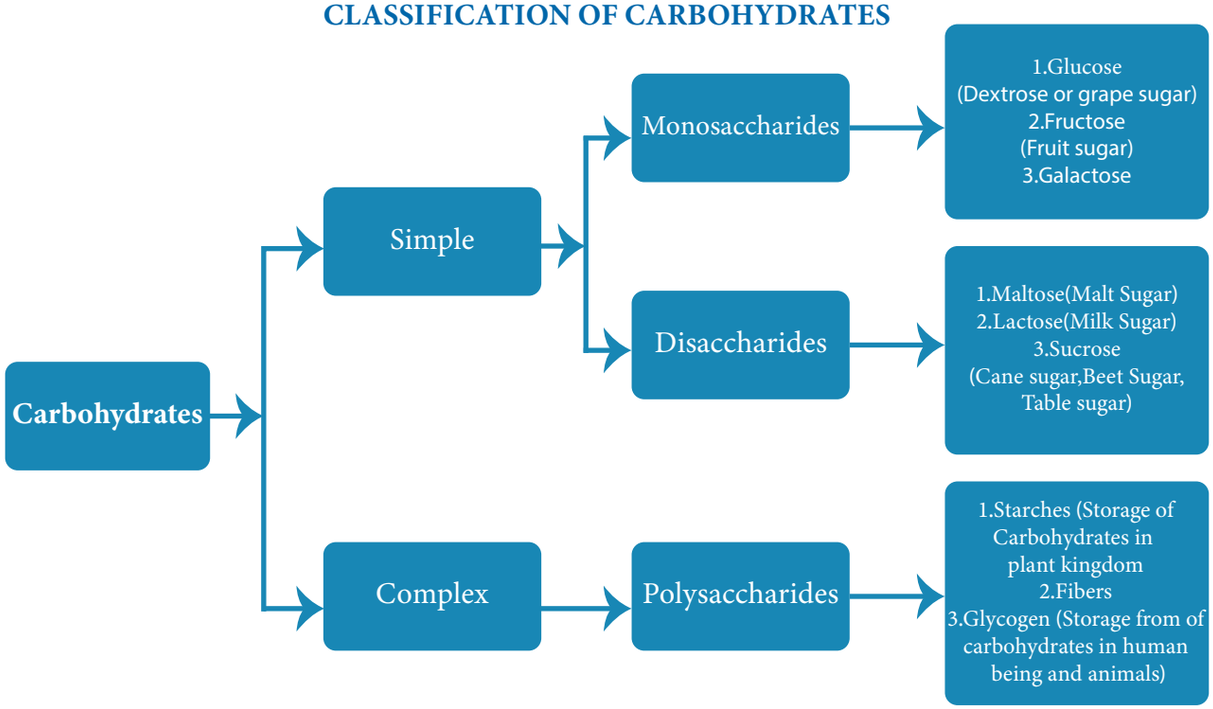
CLASSIFICATION OF CARBOHYDRATES



Dietary sources

The important sources of carbohydrates in the diets are cereals, millets, roots, tubers pulses, sugar and jaggery.

Table: 3

Food	Carbohydrate g / 100 g
Cereals and millets (rice, jowar)	63 – 79
Pulses (Bengl gram, red gram, etc)	50 – 60
Nuts and oilseeds	10 – 25
Roots and tubers	22 – 39
Arrow root flour	85 – 87
Cane sugar	99
Sago	87 – 89
Honey	79 – 80
Jaggery	94 – 95
Milk	4 – 5
Dried fruits	67 – 77
Fresh fruits	10 - 25

Functions

1. Supply energy for body functions and for doing work. Each gram of carbohydrate yield 4 kcal of energy.
2. Essential for the oxidation of fats
3. Exert a sparing action on proteins.
4. Provide carbon skeleton for the synthesis of some non – essential amino acids.
5. Add flavor to the diet.

Digestion, absorption and storage, metabolism of carbohydrates

The first stage of digestion takes place in the mouth while the food is chewed. In saliva the enzyme called alpha – amylase which is called as ptyalin acts on starch. The enzyme acts on starch splitting it into dextrin and maltose. As soon as the food reaches the stomach it mixes with acidic gastric juices for digestion. The main digestion takes place in the intestines.

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The final products of digestion of carbohydrates are glucose, fructose and galactose, these products are absorbed in the intestines. The non – digestible carbohydrates present in the food such as cellulose, hemicelluloses, pentosans, galactans, fructosans etc add bulk to the contents of large intestine and are excreted in the faeces.

Storage, metabolism of carbohydrates

Glucose, galactose and fructose absorbed in the intestines pass through the portal circulation to the liver. In the liver a part of the glucose and the entire galactose and fructose are converted into glycogen. A portion of glucose enters into the general circulation and to the various tissues for being oxidized and used as energy. A small portion of the glucose is stored in liver and muscle as glycogen and some portion of the glucose is converted into fat and stored in adipose tissue. The oxidation of glucose in the tissues occurs in two stages as indicated below;

1. Glycogen $\longrightarrow$ Glucose $\longrightarrow$ Pyruvic acid $\longrightarrow$ Lactic acid

2. Pyruvic acid $\xrightarrow{\text{Oxidation}}$ $CO_2 + H_2O$

The first stage is called 'glycolysis. The oxidation of pyruvic acid takes place through a series of reactions known as tricarboxylic acid cycle (Krebs's cycle).

Drinking tea / coffee can severely inhibit your body's ability to absorbs vitamins and minerals – especially Iron.

Deficiencies

A deficiency of carbohydrates makes the body to utilize fats for energy, if it is not rectified it leads to ketone bodies formation which occurs due to oxidation of fats.

Excessive carbohydrates

Excessive consumption of carbohydrates leads to heart disease, diabetes, and obesity.

5.6 Fat

The name fat may make it sound like something you shouldn't eat. But fat is an important part of a healthy diet. Fat from your diet gives you energy. As a bonus, fat in food helps you feel full, so you don't eat too much.

Some foods, including most fruits and vegetables, have almost no fat. Other foods have plenty of fat. They include nuts, oils, butter, and meats like beef.

The lipids are a heterogeneous group of substances found in plant and animal tissues, which share the property of being relatively insoluble in water, and soluble in organic solvents, such as ether, chloroform and benzene. Fat contain 9 kcal per gram.

Functions of fats

1. They are the chief energy stores of the body, which form an important source of energy during starvation or other emergencies.
2. Fats play a role in the absorption of fats soluble vitamins like vitamins A, D, E and K.
3. Fats are the constituents of cell membrane structure and regulate the membrane permeability.
4. Subcutaneous fat acts as an insulator and helps in retaining body heat.
5. Fats are important as cellular metabolic regulators (Steroid hormones and prostaglandin).
6. Fat is the main energy store in the body and the most concentrated source of energy in the diet – 1 g of fat provides 37kJ (9Kcal), more than double that provided by either protein or carbohydrate (4Kcal).

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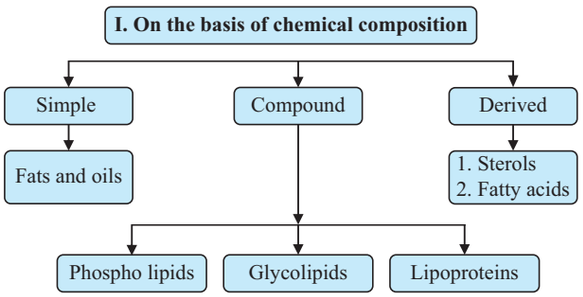
DO YOU KNOW?

World Food Day – October 16

Classification of lipids

Lipids are classified into 4 categories as follows:

I. On the basis of chemical composition



II. On the basis of sources

Fats are divided into 2 types based on their source, namely **visible** and **invisible** fats.

III. On the basis of fatty acids

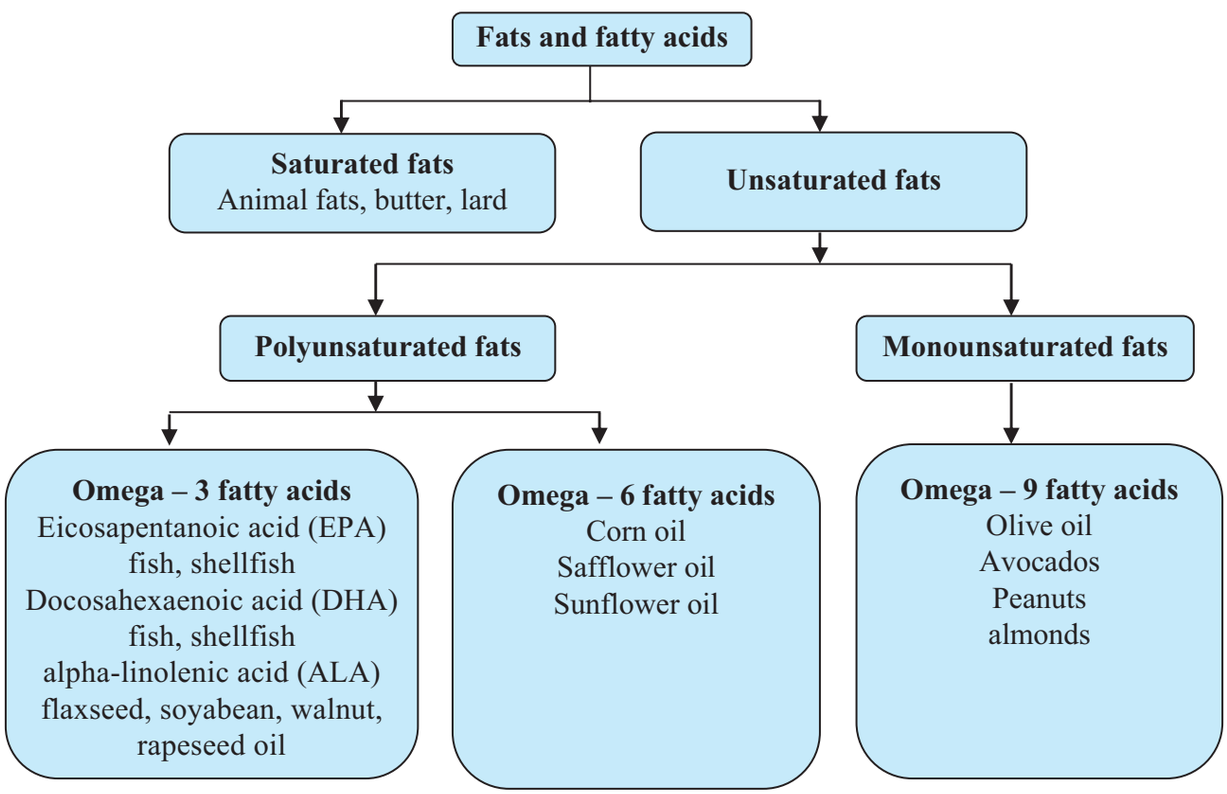
IV. On the basis of requirement

Fatty acids are of 2 types:

1. Essential fatty acids: Fatty acids which are essential to be taken in our diet because they cannot be synthesized in our body are known as essential fatty acids. (eg.) Linoleic, linolenic and arachidonic acids.
2. Non-essential fatty acids: Non-essential fatty acids are those which can be systhesized by the body and which need not be supplied through the diet. Palmitic acid, oleic acid and butyric acid are examples of non-essential fatty acids.

Digestion, absorption and storage metabolism

Fats are not digested in the stomach. Fats delay emptying of the stomach. Fats are hydrolyzed by the pancreatic and intestinal lipases in the intestines into diglycerides, monoglycerides and fatty acids. Bile is essential for the digestion and absorption of fats.



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Sources of fat

Storage of fats

Fat is stored in the adipose tissues. In normal human beings adipose tissue constitutes of 10 – 15% of the body weight.

Fat metabolism

Fatty acids are oxidized by certain enzymes in the tissues to carbon dioxide and water. The oxidation takes place through the tricarboxylic acid cycle.

Deficiencies

• Dry, scaly skin • Hair loss • Low body weight • Cold intolerance • Bruising	• Poor growth • Lower resistance to infection • Poor wound healing • Loss of menstruation

Over consumption

- Over weight
- Obesity
- Coronary heart disease
- Cancer
- High cholesterol

5.7 Proteins

Proteins are made of amino acids linked together by peptide bonds. Amino acids can be divided into essential amino acids and non – essential amino acids. Proteins and carbohydrates contain 4 kcal per gram.

Composition

Proteins are chemical compounds that contain the same atoms as carbohydrate and lipid – carbon (C), hydrogen (H) and oxygen (O) – but proteins are different in that they also contain nitrogen (N) atoms. These nitrogen atoms gives the name 'amino' (nitrogen containing) to the amino acids that are the links in the chains referred to as proteins.

Classification of proteins

Proteins are large molecules formed by the combination of a number of aminoacids. About 20 amino acids have been found to occur in proteins and are important from the point of view of human nutrition.

Table 4

Classification of Proteins (Based on chemical composition)				
Simple		**Conjugated**	**Derived**	
Globular proteins • Albumins • Globulins • Glutelins • Prolamines • Histones • Globins • Protamines	Scleroproteins • Collagens • Elastins • Keratins	• Nucleoproteins • Glycoproteins • Mucoproteins • Lipoproteins • Phoshoproteins • Chromoproteins • Matalioproteins	Primary • Coagulated Proteins • Proteans • Metaproteins	Secondary • Proteoses • Peptones • Polypeptides • Peptides

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Sources of protein

- Excellent sources of protein include tuna, shrimp, turkey, and cod.
- Very good sources of protein include snapper, venison, halibut, salmon, scallops, chicken, lamb, beef, calf's liver, spinach, tofu, mustard greens, mushrooms, soybeans, and mozzarella cheese.
- Good sources of protein include eggs, milk, collard greens, cauliflower and many legumes including lentils, split peas, kidney beans, black beans, pinto beans and garbanzo beans.

Sources of Protein

Table 5

Nutritional classification of amino acids		
Essential	**Semi-essential**	**Non-essential**
Histidine	Arginine	Glutamic acid
Lysine	Tyrosine	Aspartic acid
Tryptophan	Cystine	Alanine
Phenylalanine	Glycine	Proline
Methionine	Serine	Hydroxyproline
Threonine		Cysteine
Leucine		
Isoleucine		
Valine		

Functions of protein

- Production and maintenance of structural proteins
- Production of enzymes and hormones
- Production of transport proteins and lipoproteins
- Production of antibodies
- Maintenance of proper fluid balance
- Maintenance of proper acid – base balance.

Protein deficiency diseases – Maras muss and kwashiorkor

Table: 6

Recommended daily protein allowances			
Group	**Particulars**	**Protein allowance**	
		(g/kg/day)	**(g/day)**
Man (60kg)	Sedentary work Moderate work Heavy work	1	60.0
Woman (50kg)	Sedentary work Moderate work Heavy work Pregnancy Lactation (0 go 6m)	1 1 1	50.0 +15.0 +25.0
Infants	0 to 3 Months 3 to 6 months 6 to 9 months to 12 months	2.3 (a) 1.8 (a) 1.65 (b) 1.5 (b)	
Children	1 to 3 years 4 to 6 years 7 to 9 years	1.83 1.52 1.46	22.0 30.0 41
Adolescents	**Males** to 12 years 13 to 15 years 16 to 18 years **Females** to 12 years 13 to 15 years 16 to 18 years	 1.46 1.40 1.31 1.45 1.33 1.21	 54 70 78 57 65 63

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5.8 Vitamins

Vitamins are essential organic, compounds that are needed in small amounts in the diet both to prevent deficiency diseases and to support optimal health. The term vitamin (vital amines) was coined by Casmir Funk. The term vital denoting essential for life and amines because these compounds contained an amine functional group.

Characteristics of vitamins

- Vitamins are vital, organic, dietary substance that is necessary in only very small amounts to perform a specific metabolic function or prevent an associated deficiency disease.
- Vitamins are not synthesized by the body and therefore must be supplied through food.

Table: 7

Fat – Soluble Vitamins	Water – Soluble Vitamins
Vitamin A	Vitamin C
Vitamin D	B – Complex vitamins (8) Thiamine Riboflavin Niacin Pyridoxine Folate Cyanocobalamin Biotin Pantothenic acid
Vitamin E	
Vitamin K	

Functions of Vitamins

Each vitamin has its specific metabolic task. However the general functions are:

- Function as control agents in cell metabolism
- Components of body – tissue construction.
- Prevent specific nutritional deficiency disease, which is considered as a result of their primary role in cell metabolism.

Classification of Vitamins

Thirteen (13) recognized vitamins classified in two groups, based on their solubility in fat or in water are as follows:

Fat – soluble vitamins

The four fat – soluble vitamins – vitamins A, D, E and K are often present in the fat portion of foods, they are not easily lost from foods or destroyed by exposure to water, heat, air, or light.

Vitamin A (retinol and beta – carotene)

Vitamin A and carotene can be obtained from either animal or vegetable sources. The animal form is divided between retinol and dehydroretinol whereas the vegetable carotene can be split into four very potent groups– alpha– carotene, beta–carotene, gamma carotene and crypto– carotene.

Function

Vitamin A has a variety of functions in the body. It is required for the synthesis of rhodopsin and other light – receptor pigments in the eye and thus is essential for vision. Vitamin A is needed for normal growth and development to occur in the body, including the formation of bone and cartilage.

Healthy epithelial or skin cells, which line surfaces inside and outside the body, require vitamin A. Vitamin A plays a role in reproduction, metabolism, and immune system function also.

Digestion and absorption

Retinol esters in food are hydrolyzed by pancreatic and intestinal enzymes to form free retinol. After absorption, the retinol, is reesterified and transported to blood.

Carotenes are split in the intestines to form retinaldehyde, which is then reduced to

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Table 8: A summary of the fat soluble vitamins

Vitamin	Functions	RDA	Deficiency Symptoms	Toxicity
Vitamin A	Aids in vision, especially night vision promotes growth, development, reproduction, healthy skin cells, and health immune system acts as an antioxidant	Men : 1000 retinol equivalents (RE) 5000 1μ	Short – term: Night blindness, flaking skin. Long term : Xerophthalmia (dry, hard cornea); progresses to softening of corneas and blindness if untreated	Toxic symptoms appear with chronic intake of 10 times the RDA, usually due to supplement abused. Symptoms include lack of appetite; dry, itch skin; loss and coarsening of hair; liver damage; fetal defects and miscarriage.
Vitamin D	Aids in absorption, transport, and use of calcium and phosphorus Maintains optimal blood calcium levels	5 – 10 μg	Rickets (faulty bone formation) in children. Osteromalacia (Softening of bones) in adults	Toxic symptoms appear with regular intake of 5 times the RDA, usually due to supplement abuse. Symptoms include lack of appetite, high blood pressure, excessive thirst and urination, high blood calcium and calcium deposits in tissues, kidney stones, and kidney failure can lead to death.
Vitamin E	Acts as an antioxidant, protecting cell membranes from oxidative damage.	20 – 25 mg	Damage to all membranes, leading to destruction of red blood cells (hemolyticanemi) Rare in humans except in premature infants and those with certain diseases	Relatively nontoxic; use of supplements with 80 times or more of the RDA may cause symptoms. Symptoms include muscular weakness, fatigue, and nausea.
Vitamin K	Promotes formation of some blood – clotting factors	Men : 70 – 80 μg Women : 60 – 65 μg	Poor blood clotting, possibly leading to hemorrhage (Rare in humans excepts in newborn infants and people on long term general antibiotic therapy)	Natural forms are nontoxic; excessive synthetic supplementation can cause toxic symptoms in infants. Symptoms include anemia and jaundice.

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retinol. Some carotene may be absorbed intact and later converted to vitamin 'A' in the liver or kidney. Bile is necessary for the absorption of vitamin A and carotene. Vitamin E in the intestinal tract prevents oxidation of the vitamin. Mineral oil hinders absorption since it dissolves the vitamin but is not absorbed.

Food sources

Sources of Vitamin A

Liver, milk, egg – yolk, carrots, dark green leafy vegetables and yellow fruits are high in vitamin A or beta – carotene.

Deficiency

A diet deficient in vitamin A for several months may lead to night blindness and flaking skin.

A long – term vitamin A deficiency leads Xerophthalmia, major symptom of which is dry, hard cornea. If this condition is left untreated, damage to the cornea progresses, leading to a softening of the cornea and eventually total blindness.

Vitamin A deficiency also affects the skin, causing it to become dry and rough.

If xerophthalmia and the underlying vitamin A deficiency are treated at an early stage, blindness can be prevented.

Vitamin D (Calciferol)

The human body can produce vitamin D from cholesterol present in the skin. This conversion depends on exposure of the skin to the ultraviolet rays in sunlight and yields inactive pro-vitamin D. Both inactive vitamin D formed in the skin and vitamin D absorbed from dietary sources are transported through the bloodstream to the liver, where they are stored.

Functions

- Vitamin D helps with the absorption, transport and use of calcium.
- Vitamin D assists in bone growth and the integrity of bone and promotes strong teeth.
- It also helps to regulate the amount of phosphorus in the body as well as assisting in a healthy heart and nervous system.

Food sources

Sources of Vitamin D

Vitamin D is present in fatty fish like kipper, sardines, salmon, tuna and mackerel, liver, egg yolk and butter. Smaller amounts are also present in dark leafy vegetables.

Absorption

Dietary vitamin D is absorbed along with dietary fats in the small intestines and transported to the lymph system. Bile is essential for the absorption of this vitamin Excess vitamin is stored in the body.

DO YOU KNOW?

Which is the only non-animal natural source of vitamin-D – Mushroom. The best source of vittamin D is Sun.

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Deficiency

Vitamin D deficiency affects the mineralization of bones and teeth.

-Rickets, osteomalacia

Vitamin E (Tocopherol)

Vitamin E is an essential, fat – soluble vitamin that includes eight naturally occurring compounds in two classes designated as tocopherols and tocotrienols.

Vitamin E is an effective chain – breaking, lipid – soluble antioxidant in biological membranes, and aids in membrane stability.

Sources of Vitamin E

Function

- Vitamin E is a powerful antioxidant.
- Antioxidant capability helps to prevent degenerative diseases.
- Vitamin E is also useful in preventing blood clots forming and promotes fertility.
- An increase in stamina and endurance is also attributed to vitamin E.
- Vitamin E is also used to great effect for skin treatments.

Deficiency of vitamin E

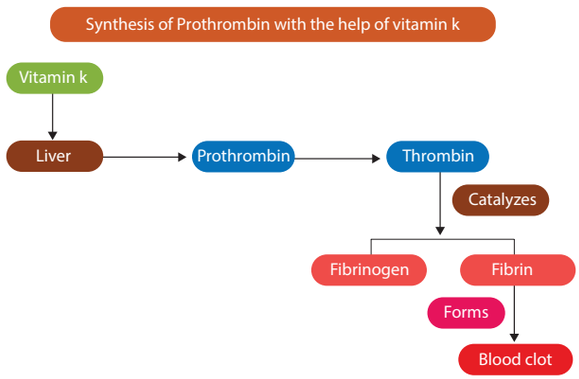
Deficiency of vitamin E is a not common, and the symptoms not very clear cut, but may include fatigue, inflamed varicose veins, slow wound healing, premature ageing and sub – fertility.

Vitamin K

Vitamin K can be produced in the intestines and this function is improved with the presence of cultured milk, like yogurt, in the diet.

Functions

- The major function of vitamin K is to promote coagulation of blood after injury, thereby preventing haemorrhage.
- Vitamin K is necessary for the synthesis of prothrombin, an inactive form of thrombin.
- It is involved in the formation of prothrombin.
- It is also involved in bone formation and repair.



Food Source

Sources of Vitamin K

The best dietary sources of this vitamin are green leafy vegetables, cheese and liver.

Deficiency

Increased tendency to haemorrhage defective blood clotting

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Table: 9 Water soluble vitamins

Vitamin	Functions	RDA
Vitamin C	Involved in synthesis of collagen, and norepinephrine Promotes immune – system functioning, acts as antioxidant	60 – 70 mg
Thiamine	Coenzyme involved in catabolism of carbohydrates to yield energy	Men : 1.2 – 1.6 mg Women : 1.1 – 1.5mg
Riboflavin	Coenzyme involved in many energy – yielding pathways	Men: 1.4 – 1.9 mg Women 1.1 – 1.5mg
Niacin	Coenzyme involved in nearly all / energy – yielding path – ways and in synthesis and breakdown of fats	Men : 16 – 12 Women 12 – 16 mg
Pyridoxine	Coenzyme involved in proteins and amino acids synthesis	2.0 mg
Folate	Coenzyme involved in amino acid metabolism and synthesis of DNA	100$\mu\mu$g
Cyanocobalamin	Various coenzymes involved in energy metabolism; work with folate in synthesizing methionine	2 - 10μgμg
Biotine	Coenzyme involved primarily in gluconeogenesis, fatty acid synthesis, leucine metabolism and synthesis of purine structure carbohydrate and lipid metabolism	30 – 100 μgμg
Pantothenic acid	Coenzyme form (coenzyme A) involved in carbohydrate, lipid, and protein metabolism	4 – 7 mg

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Sources	Deficiency Symptoms	Toxicity
Dietary, excellent sources; citrus fruits and their juices, sweet red and green peppers, strawberries, cantaloupe, broccoli, Brussels sprouts, papaya, cauliflower. Good sources: potatoes, tomatoes, peas, kale, asparagus, cabbage.	Scurvy: fatigue, bleeding gums, poor appetite, slow wound healing, muscle fatigue. Seen occasionally in infants fed only cow's milk and in elderly people	Relatively nontoxic; supplement abuse may cause diarrhea
Dietary, excellent sources: pork, sunflower seeds, fortified grain products, fresh peas. Good sources: legumes, whole and enriched grains	Beriberi: poor coordination, Muscle weakness, edema, heart diseases	Nontoxic except for high dose injections.
Dietary, excellent sources: liver, milk and milk products Good sources: oysters, mushrooms, green vegetables (broccoli, spinach, asparagus)	Ariboflavinosis: inflammation of the mouth and tongue, cracks at the corners of the mouth and lips, anemia, dermatitis, eye – related problems	Nontoxic
Dietary, excellent sources: tuna, chicken, liver, beef, fortified cereals. Good sources: Mushrooms, whole grains	Pellagra: diarrhea, dermatitis, dementia, and possibly death (the four Ds) common in Africa and Asia	Nicotinic acid form is toxic with high dose supplements. Symptoms include flushing (>100 mg); liver damage, increased levels of uric acid and glucose in blood (>3 grams); increased use of glycogen during exercise.
Dietary, excellent sources: liver, potatoes, bananas, prune juice, light poultry meat, fortified grain products Good Sources : Sweet potatoes, water – melon	Convulsions, dermatitis, inflamed tongue, and anemia. Deficiency symptoms often seen in alcoholics, the elderly, and women taking birth control pills	Toxic with long – term supplement abuse (>1 gram per day). Symptoms include nerve damage and lack of muscular control (usually reversible)
Dietary, excellent sources: legumes, liver spinach and turnip greens, artichokes. Good sources : asparagus, oranges, green peas, broccoli, beets, beet greens, green beans, corn	Macrocytic megaloblastic anemia, diarrhea, mental confusion, depression, fatigue.	Nontoxic
Dietary, excellent sources: organ meats, shellfish, milk and milk products (found only in animal foods)	Pernicious anemia: a macrocytic megaloblastic anemia accompanied by nerve damage. Most commonly results from poor absorption due to lack of intrinsic factor, not from low dietary intakes of vitamin	Nontoxic
Dietary, excellent sources: liver, soy flour, egg yolks. Dietary, good Sources: cereals. Nondietary: synthesized by bacteria in the intestinal tract.	Poor appetite, nausea, sore tongue, depression, pallor, hair loss, dry skin, increased blood levels of cholesterol and bile Rare in humans.	Nontoxic
Dietary, excellent sources: egg yolks, liver, kidney. Dietary, good sources: meat, legumes, whole grains	Deficiency symptoms are rare. In severely malnourished individuals symptoms such as paresthesia in the toes and soles of feet, burning sensations in the feet, fatigue, insomnia, depression may be seen	Nontoxic

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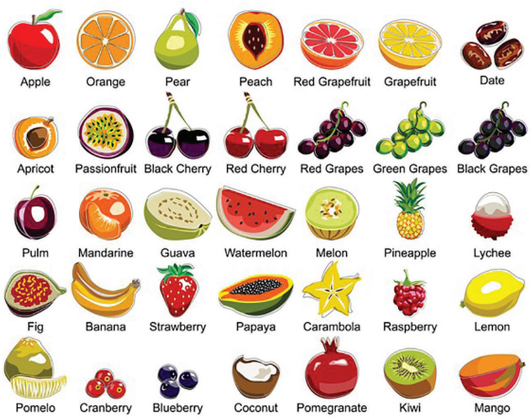
Water – soluble vitamins

Water – soluble vitamins are essential of health, and each one has its own function in the body and due to its solubility in water. It is normally easily lost in urine. The water soluble vitamins include vitamin C and 8 B complex vitamins – thiamine, riboflavin, niacin, pyridoxine, folate, cyanocobalamin, biotin and pantothenic acid. Most of these are unstable and thus easily destroyed by exposure to water, heat, air or light.

Vitamin C

Many fruits and vegetables are rich in vitamin C, also known as ascorbic acid. To ensure optimal physiological functioning and to prevent subclinical deficiencies, a person needs to consume a good source of vitamin C every day because the body normally stores only small amounts of Vitamin C.



Sources of Vitamin C

Functions

- Vitamin C is required in the synthesis of collagen in connective tissue, steroid hormones, carnitine, etc.
- Vitamin C is required for the conversion of cholesterol to bile acids.
- It enhances iron bioavailability.
- Ascorbic acid is a great antioxidant and helps to protect the body against pollutants.
- Ascorbic acid also promotes healthy cell development.
- Vitamin C is essential for the formation and maintenance of intercellular cement substances such as bone matrix, cartilage dentine, collagen, connective tissue, etc.
- Vitamin C is needed for healthy gums and to protect against infection.

Food sources

Good sources of vitamin C are green leafy vegetables, berries, citrus fruits, guavas, tomatoes, melons, papayas, etc.

Deficiency

In infants and children, vitamin C deficiency results in defective bone formation leading to retardation of growth.

B – complex vitamins

The eight B – complex vitamins include thiamine (B1), riboflavin (B2), niacin (B3), pyridoxine (B6), cyanocobalamin (B12), folic acid, biotin (B7), and pantothenic acid. The B vitamins are easily lost in cooking water because they are water soluble. With the exception of niacin, all other B vitamins lose some activity when exposed to heat, oxygen, light, or alkaline conditions.

Thiamine (Vitamin B1)

Thiamine also called B1 is used in many different body functions and deficiencies may have far reaching effects on the body, yet very little of this vitamin is stored in the body and depletion of this vitamin can happen within 14 days. Thiamine is integrally involved as a coenzyme in the catabolism of carbohydrates to yield energy.

Functions

- It is also required for the health of the nervous system.
- It is used in the manufacture of hydrochloric acid, and therefore plays a part in digestion.

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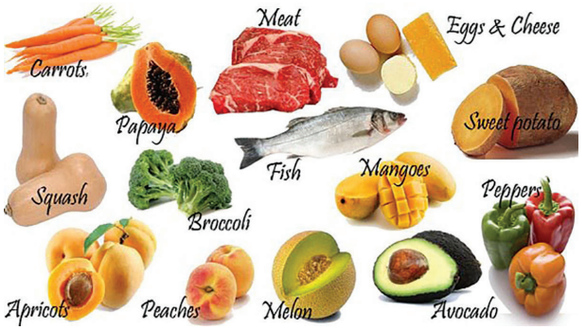
- In children it is required for good appetite and proper growth.

Food sources



Sources of Vitamin B

Sunflower seeds, peanuts, wheat bran, beet liver, pork, seafood, egg – yolk, beans whole grains and yeast contain good amounts of thiamine.

Deficiency

Beriberi occurs in two forms, wet beriberi and dry beriberi, whose prominent symptoms differ.

Riboflavin – (Vitamin B2)

Riboflavin is another B – complex vitamin involved as a coenzyme in the metabolism of carbohydrates, as well as of fats and proteins. The adult RDA for riboflavin has been established at a minimum of 1.2 milligrams per day.

Functions

- It is required by the body to use oxygen and the metabolism of amino acids, fatty acids, and carbohydrates.
- It is a used for red blood cell formation, antibody production, cell respiration, and growth.
- It may be helpful in the prevention and treatment of cataracts.

Food sources

Organ meats, nuts, cheese, eggs, milk and lean meat are best sources of riboflavin. It is also available in good quantities in green leafy vegetables, fish, legumes, whole grains, and yogurt.

Deficiency

A dietary deficiency of riboflavin leads to ariboflavinosis.

Niacin (B3)

Niacin also called nicotinic acid or niacin amide and can be manufactured by body. Niacin is derived from two compounds – nicotinic acid and niacin amide.

Functions

- Niacin functions as a coenzyme in nearly all the metabolic pathways yielding energy from carbohydrates, fats, proteins, and alcohol.
- Niacin also plays a role in tissue respiration.
- It is involved in the synthesis and breakdown of fats, and helps to maintain healthy skin.

Food sources

Liver, lean meat, fish, nuts, cereals, legumes, asparagus, milk, green leafy vegetables and fish. A cup of coffee also provides 3 milligrams of niacin.

Deficiency

A deficiency of niacin is known as pellagra, which means rough skin (from the Italian words pelle for skin and Agra for rough).

Pyridoxine (Vitamin B6)

Pyridoxine is part of the B group vitamins and is water – soluble and is required for both mental and physical health.

Functions

- Pyridoxine is required for the balancing of hormonal changes in women.

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- It is essential for the metabolism and proteins, fats and carbohydrates.
- It assists in the maintenance of serum level of sodium and potassium
- It helps to promote red blood cell production.
- It is linked to cancer immunity and fights the formation of the toxic chemical homocysteine.

Food sources

Good sources to obtain pyridoxine are brewer's yeast, egg, chicken, carrot, fish, liver, kidney, pea, wheat germ and walnuts. Roots and tubers, cabbage, legumes, molasses, whole grains, etc., contain moderate amount of this vitamin.

Deficiency

Irritability, nervousness, insomnia, anemia, general weakness, skin changes such as dermatitis.

Folic acid (Vitamin B9) – folic acid, folacin, folate

Folic acid is also referred to as folacin or folate. Its chemical name is pteroylglutamic acid. This vitamin can be produced by the body and be stored in the liver.

Functions

- Folic acid is required for DNA synthesis and cell growth and is important for red blood cell formation, energy production as well as the forming of amino acids.
- Folic acid is essential for synthesizing heme, the iron containing substance in hemoglobin, crucial for oxygen transport.

Folic acid is very important in the development of the nervous system of a developing fetus.

Food sources

Fresh green vegetable such as spinach and broccoli contains folic acid. It is also found in fruit, starchy vegetables, beans, whole grains, liver, kidney, egg, yeast etc.

Deficiency

A deficiency of folate can lead to macrocytic, megaloblastic anemia, diarrhea, fatigue, depression, and mental confusion.

Cyanocobalamin (Vitamin B12)

Cyanocobalamin also known as cobalamin is referred to as the energy vitamin. It is a very widely researched vitamin, and used in supplementation to a very large degree.

Functions

- Cobalamin is required in the metabolism of fats, proteins and carbohydrates.
- It is needed in the manufacture of red blood cells and the maintenance of red blood cells.
- It stimulates appetite and Promotes growth.

Food sources

Liver, organ meat, muscle meat, shellfish, egg, cheese and fish are rich sources of this vitamin. It can be manufactured in the body. Milk contains vitamin B_{12} however processing of milk may destroy the vitamin.

Deficiency

Vitamin B12 deficiency results in macrocytic, megaloblastic anemia (pernicious anemia) similar to that occurring with folate deficiency.

Biotin (Vitamin B7)

Biotin is also referred to as anti – egg white injury factor.

Biotin present in foods in not affected by exposure to light. Biotin is also produced by bacteria in the intestine.

Function

- Biotin is involved in carbohydrate and lipid metabolism.

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- Biotin is also indicated for healthy hair and skin, healthy sweat glands, nerve tissue, and bone marrow.
- Biotin is also helps in maintaining a steady blood sugar level.

Food sources

Biotin is widely distributed in both animal and plant foods. Liver, kidney, egg, yolk, milk, tomatoes are rich sources.

Deficiency

Dietary deficiency of biotin is rare. Symptoms of biotin deficiency include lack of appetite, nausea, an enlarged tongue, mental depression, pallor, loss of hair.

Pantothenic acid (vitamin B6)

Pantothenic acid referred to as the "anti – stress vitamin" is part of the B group vitamins. This vitamin can be produced in the body by the intestinal flora.

Functions

- Pantothenic acid plays an important role in the secretion of hormones, such as cortisone because of the role it plays in supporting the adrenal gland.
- Pantothenic acid is also used in the release of energy as well as the metabolism of fat, protein and carbohydrates.
- It is used in the synthesis of lipids, neurotransmitters and haemoglobin.

Food sources

Beef, brewer's yeast, egg, fresh vegetables, kidney, legumes, liver, mushrooms, nuts, pork, royal jelly, saltwater fish, torula yeast, whole rye flour, and whole wheat contain this vitamin.

Deficiency

Symptoms of a pantothenic acid deficiency though rare, may occur in severely malnourished individuals and include fatigue, irritability, low blood pressure upon standing, lack of appetite, constipation, and tingling and numbness in both the feet and hands.

5.9 Minerals

The essential minerals are classified according to their recommended intake. Macro minerals, also called major minerals, are needed in amounts greater than 100 milligrams per day. Micro minerals, also called trace minerals or trace elements, are needed in less than 100 milligrams per day.

Table: 10 Classification of essential minerals

Macro minerals (> 100 mg/day)*	Micro minerals (<100 mg/day)*
Calcium	Iron
Phosphorus	Zinc
Magnesium	Copper
Sulfur	Iodine
Sodium*	Fluoride
Potassium*	Manganese
Chloride*	Selenium
	Chromium
	Molybdenum

*Recommended intakes are greater or lesser than 100mg per day, as indicated.

Macro minerals

There are seven macro minerals; calcium, phosphorus, magnesium, sulfur, sodium, potassium, and chloride. As well as being needed in amounts greater than 100 milligrams per day, each of the macro minerals makes up more than 0.01% of the body's weight.

Calcium

Calcium is by far the most prevalent mineral in the body. About 98% of the 1200 grams (2.5 pounds) of calcium in the average adult body is found in the bones. Small amounts of calcium (1%) are also found in the extracellular fluid, certain intracellular structures, and cell membranes.

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Function

- Calcium is one of the minerals needed for the growth and strength of the bones.
- Calcium is needed for muscle contraction
- Calcium ions are essential for blood clotting.
- Calcium is needed for the functioning of neuro transmitters.

Food sources

Milk and milk products are among the best sources of calcium, other sources of calcium includes leafy greens, firm tofu, and small fish with bones, such as sardines.

Deficiency

A severe deficiency of calcium leads to the condition hypocalcemia resulting in rickets in children and osteomalacia in adults.

Phosphorus

Approximately 85% of the 700 grams of phosphorus in the adult body is present in the bones. The ratio of calcium to phosphorus in the bones is 2: 1. After calcium, phosphorus is the second most common mineral in the body by weight.

Function

- Phosphorus is involved in a variety of chemical reactions in the body, many of which are related to energy metabolism.
- Mineralization of bones and teeth
- Facilitation of energy transaction
- Absorption and transport of nutrients
- Regulation of protein activity
- Component of essential body compounds.

Food sources

In general, good sources of protein are also good sources of phosphorus. Meat, poultry, fish and eggs are rich in phosphorus. Milk and milk products, nuts, legumes, cereals and grams are good sources.

Deficiency

A phosphorus deficiency is characterized by weakness, lack of appetite, fatigue and muscle pain.

Magnesium

About 60% of the body's magnesium is contained in the bones; most of the remaining magnesium is present in the muscles and other tissues, with about 1% circulating extracellular fluids.

Function

- The activity of hundreds of enzymes depends on magnesium
- Magnesium also helps maintain calcium and potassium homeostasis.

Food sources

Nuts, legumes, dark green leafy vegetables, soya beans and milk are good sources.

Deficiency

Symptoms of magnesium deficiency include weakness, confusion, lack of appetite, nausea, and lack of coordination.

Sulfur

Because sulfur is part of the essential amino acid methionine and the nonessential amino acid cysteine, it is present in the body's proteins. Interactions among sulfur atoms in cysteine helps to give proteins their three dimensional shape.

The Electrolytes

Three of the macrominerals – Sodium, potassium and chloride are the body's main electrolytes. The major function of the electrolytes is to maintain the proper distribution of water inside and outside cells. If this water balance is not maintained, cells will shrink or swell beyond their normal size. Sodium and chloride are found in the extracellular fluid; potassium is found in the intracellular Fluid (ICF).

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Sodium

Sodium is the principal cation of extracellular fluid. Human body has approximately 1.8 g of sodium per kilogram of body weight. The body regulates the sodium concentration in the extracellular fluid within narrow limits.

Function

In addition to its role in maintaining the body's water balance, sodium functions in maintaining extracellular fluid volume and in regulating the body's acid – base balance.

Food sources

The major dietary source of sodium is sodium chloride, more commonly called table salt. One teaspoon of table salt supplies 2132 milligrams of sodium.

Deficiency

Excessive sodium loss, not a low dietary intake; is the usual cause of sodium deficiency. Trauma, long – term diarrhea, vomiting and kidney disease may also lead to excessive sodium losses.

A sodium deficiency, with fluid levels remaining constant or increasing, leads to a decrease in the extracellular sodium concentration. As a result, water migrates into cells, leading to water intoxication. Water intoxication causes loss of appetite, muscle twitching, mental apathy, coma, and seizures.

Potassium

The electrolyte potassium is found mainly in the intracellular fluid

Functions

- The main function of potassium, like sodium, is to maintain water balance.
- Potassium is required for maintaining a normal heartbeat.

Food sources

This mineral is widely distributed in foods, but fruits and vegetables are generally the most nutrient – dense sources of potassium.

Deficiency

As with sodium, deficiencies of potassium are usually caused by excessive losses, not low intakes. Losses occur primarily via the urine; lesser amounts are lost in sweat. Excessive potassium losses via the kidneys may result from use of potassium – depleting diuretics, which are often prescribed to treat high blood pressure. High levels of activity in hot, humid climates may lead to excessive potassium losses via perspiration. Much potassium can also be lost through long-term vomiting or prolonged diarrhea.

Symptoms of a potassium deficiency include weakness, loss of appetite, nausea, listlessness, apprehension, fatigue, irrational behavior, muscle weakness, and muscle cramping. A severe deficiency may cause an abnormal heartbeat and possibly death.

Chloride

The electrolyte chloride is found primarily in the extracellular fluid.

Functions

- Chloride's major functions are maintaining the body's water and electrolyte balance.
- Chloride is mainly a component of hydrochloric acid, which is secreted in the stomach and helps in the digestion of protein.

Food sources

The main dietary sources of chloride is sodium chloride, that is, table salt. Chloride is also found in many processed food that contain added salt.

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Deficiency

As with the other two electrolytes, chloride deficiency rarely results from poor dietary intake. Rather, chloride deficiencies are typically caused by excessive losses due to diarrhea or vomiting, heavy perspiration, trauma, or kidney disease.

Micro minerals

We require intakes of the essential trace minerals, or micro minerals, in amounts of less than 100 milligrams per day. The essential trace minerals are iron, zinc, copper, iodine, manganese, fluoride, chromium, selenium, and molybdenum.

Iron

About 30% of the iron in the body is stored in the spleen, liver, and bone marrow. Iron is a constituent of haemoglobin and myoglobin, which are iron-binding proteins found in red blood cells and muscle, respectively. Iron also function as a cofactor for a number of enzymes and is required for their activity.

Deficiency

Iron deficiency develops in stages; the last stage is iron-deficiency anemia.

Zinc

Most zinc in the body is found in the bones and muscles. This trace mineral is necessary for optimal activity of many enzymes and for various bodily processes, including the following:

- Protein metabolism, wound healing, and growth
- Metabolism of DNA, the genetic material
- Development of sexual organs and bones
- Immune responses
- Memory formation
- Alcohol metabolism

Particularly high needs for zinc occur during growth and development.

Food sources

Meat, fish, eggs, milk and nuts are rich sources.

Deficiency

A zinc deficiency impairs protein synthesis, collagen formation, and energy production; it also decreases alcohol tolerance.

Copper

The trace mineral copper is required for proper use of iron by the body and for the activity of certain enzymes. This trace mineral also aids in the production of connective tissue, blood vessels, phospholipids, and melanin (a skin pigment).

Food sources

The main dietary sources of copper are shellfish, whole grains, legumes, and nuts.

Deficiency

Symptoms include decreased blood levels of copper, fewer white blood cells, anemia, bone demineralization, deterioration of the nervous system.

Iodine

The micro mineral iodine is a necessary component of two hormones produced by the thyroid gland (thyroxine and triiodothyronine). These thyroid hormones are critical in regulating the body's metabolic rate.

Food sources

The amount of iodine present in a particular food depends on the amount of iodine in the environment in which that food was raised. Therefore, food from the sea lobsters, oysters, sardines etc.

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Deficiency

A prolonged deficiency of iodine causes enlargement of the thyroid gland, known as goiter.

Fluoride

Although some scientists have doubted that fluoride is an essential nutrient for humans, this trace mineral is currently considered essential. The main function of fluoride is to harden the bones and teeth.

Food sources

The only good dietary sources of fluoride are fluoridated water, seafood, seaweed, and tea. Some natural water sources are also high in fluoride.

Deficiency

Deficiency of fluoride results in the development of dental caries.

Manganese

The trace mineral manganese is required for normal brain function. This micro mineral also aids in the synthesis of collagen, urea, fatty acids, and cholesterol. Manganese is involved in bone growth and is required for the digestion of protein.

Food sources

Manganese is present in many vegetable foods, and our diets supply plenty to meet the requirement, which is minimal.

Deficiency

For the above reason, deficiency of this trace mineral has not been observed in humans, although it can be induced in experimental animals.

Selenium

The best understood role of the micro mineral selenium is its involvement in an enzyme system that helps to protect cell membranes against oxidative damage. Thus selenium has an effect similar to that of the antioxidant vitamin E.

Food sources

Selenium is widely distributed in both animals and plant foods.

Deficiency

Deficiency resulting from low dietary intake is unlikely because of its wide distribution in animals and plant foods.

Chromium

The trace mineral chromium is involved in the normal use of glucose and blood lipids and in the functioning of insulin. The active form of chromium in the body is called the Glucose Tolerance Factor (GTF).

Molybdenum

Molybdenum is required for several enzyme systems in the body. One of these enzyme systems involved in the formation of uric acid, a waste product of protein metabolism is excreted in the urine.

Food sources

The molybdenum of plant foods depends on the type of soil in which they are grown. (Neutral or alkaline soil).

Deficiency

Molybdenum deficiency has not been observed in human beings or any other species.

Ultra trace mineral

Seven minerals present in foods and in human bodies have been found to be essential nutrients for animals and may be essential for humans, but nutritional requirements for them have not yet been clearly defined. This group of minerals sometimes called ultra-trace minerals, includes arsenic, boron, cobalt, nickel, silicon, tin, and vanadium.

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Table 11: Functions and dietary sources of ultra-trace minerals

Mineral	Essential for	Functions	Good dietary sources
Arsenic	Animals possibly humans	Aids normal growth and use of iron; needed for conversion of methionine to cysteine.	Fruits, vegetables, fish, shellfish, grains
Boron	Plants Possibly animals Possibly humans	Affects use of calcium, magnesium and copper and protein metabolism; involved in composition of kidney and brain; may be needed for membrane function; may help prevent loss of calcium from bone in postmenopausal women.	Noncitrus fruits, leafy greens, nuts, legumes, cider, wine, beer.
Cobalt	Animals Possibly humans	Is part of vitamin B_{12}, which is necessary for production of normal red blood cells.	Liver and red meat.
Nickel	Chickens, rats, pigs, and goats possibly humans	Involved in iron absorption, use of calcium, zinc, and vitamin B_{12}, and metabolism of genetic material (DNA)	Nuts, legumes, whole grains.
Silicon	Animals possibly humans	Probable required for deposition of minerals, especially calcium, in bones; needed for synthesis of collagen and elastin, major proteins in connective tissue.	Whole grains, cereal products, root vegetables (e.g. potatoes, carrots)
Tin	Rates	Is necessary for normal growth	Commercial fats
Vanadium	Experimental animals	Probably involved in iodine and glucose metabolism and thyroid function	Whole grains and grain products; meat, poultry, and fish (moderate levels)

5.10 Therapeutic Diets

Modification of nutrients in therapeutic Diets

The general principles of nutrition related to health apply also to the treatment of patients suffering from various diseases. Diet in disease must be planned as part of the complete care of the patient many modifications may have to be made according to the disease and the condition of the patient, but there are certain general principles which may be used for guidance.

Principle of Therapeutic Diets

1. Carbohydrates are usually well – tolerated and are necessary to maintain the stores of liver glycogen.
2. The tolerance of fats varies in different individuals and this nutrient should not be forced if there is nausea and vomiting.
3. In illness, there is usually an increased demand for proteins, due to wasting and this should be given in easily digestible forms such as milk, egg, chicken and fish.
4. The requirements of calcium and iron must be maintained during illness and it is necessary to check.
5. Fat – soluble vitamins often need to be added as concentrates if a patient has to be on a fat – restricted diet for a long time. The demand for Vitamin C is greatly increased in fevers, and it is especially necessary for the healing of wound after surgery.

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6. Roughage: Excessive bulk hinders the penetration of the digestive juice, but it may be necessary to include foods with a moderately high residue content to produce daily bowel action.
7. Fluids are very important to prevent dehydration which is common in conditions of fevers, diarrhea and vomiting. In such condition 2,500 – 3,000 ml must be given in 24 hours with as much variety as possible, both in appearance and in taste.

Diabetes mellitus

Diabetes mellitus is a condition in which the secretion of insulin by the islets of Langerhans in the pancreas is deficient or absent. It is characterized by hyperglycemia,

Table 12: Diabetes Mellitus

Vegetarian	Non – vegetarian
Morning	
Tea or coffee (without sugar)	Tea or coffee (without sugar)
Breakfast	
Corn flakes with milk	Corn flakes with milk
Cheese	Boiled egg
Toast with butter	Toast with butter
Tea or coffee	Tea or coffee
Mid – morning	
Tea or coffee (without sugar)	Tea or coffee (without sugar)
Lunch	
Cooked rice or chapatti or bread	Cooked rice or chapatti or bread
Cooked soup	Cooked dal
Vegetable soup	Mutton or fish curry
Pappad	Pappad
Curds	Curds
Roasted groundnut or cashewnut	Roasted groundnut or cashew nut
Fruit (half apple or one slice of papaya or mango)	Fruit (half apple or one slice of papaya or mango)
Tea	
Salt biscuits	Salt biscuits
Roasted nuts	Roasted nuts
Tea or coffee (without sugar)	Tea or coffee (without sugar
Dinner	
Similar to Lunch	

Table 13: Daily menu for high blood pressure

Vegetarian	Non – vegetarian
Morning	
Weak tea – 1 cup	Weak tea – 1 cup
Breakfast	
Bread or corn flakes with skin milk or idly – 1 serving (with sugar and jam) (without salt)	Bread or corn flakes with skin milk or idly – 1 serving (with sugar and jam) (without salt)
Fruits – 1 serving	Fruits – 1 serving
Weak tea – 1 cup	Weak tea – 1 cup
Mid – morning	
Fruit juice – 1 glass	Fruit juice – 1 glass
Lunch	
Cooked rice or chapatti – 1 serving	Cooked rice or chapatti – 1 serving
Cooked dal – half cup	Meat or fish curry – half
Curds – 2 cups	Curd – 1 cup
Cooked vegetables and potato – 1 serving	Cooked vegetables and potato – 1 serving
Fruits – 1 serving	Fruits – 1 serving
Skimmed milk pudding – 1 cup	Skimmed milk pudding – 1 cup
Evening	
Biscuits – 2 Fruit juice – 1 glass	Biscuits – 2 Fruit juice – 1 glass
Dinner	
Similar to Lunch	

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and glycosuria accompanied by polyuria, polydipsia, polyphagia, and if untreated for a long time by loss of weight.

Hypertension

Hypertension develops due to some reason, there is increased resistance to the normal circulation of blood. This may be temporary, as the result of exercise, pregnancy, or menopause; it may be permanent, associated with atherosclerosis, cardiac failure or chronic kidney disease.

Notes

1. Salt should not be added in cooking
2. One multivitamin tablet providing the daily requirements of all essential vitamins should be included along with the diet
3. Strong coffee is not permitted.

Table 14: Daily menu for Hypertension

Food stuffs	Vegetarian	Non – vegetarian
Milled cereals	200	200
Skin mil (fluid)	1000	1000
Pulses	60	40
Cheese	60	20
Meat or fish	-	20
Leafy vegetables	100	100
Other vegetables	100	100
Fruits	300	300
Vegetable oils (sesame or safflower or sunflower seed oil)	60	60
Sugar and jam	40	40

Coronary Heart Diseases

A majority of coronary heart diseases are due to coronary antheroma (A fatty deposit in the inner lining of an artery) and atherosclerosis, are used to denote conditions in which lipid is deposited in the intima of the blood vessels.

Calories – 1800 – 2000 Kcal; Fat (rich in essential fatty acids) – 60 gm; Proteins – 50 – 60 gm

Note: one multivitamin tablet providing the daily requirements of all essential vitamins should be given daily.

Table 15: Daily menu for coronary heart disease

Vegetarian	Non – vegetarian
Morning	
Weak tea	Weak tea
Breakfast	
Corn flakes with skimme milk or bread of idly – 1 serving Cheese – 2 slices Fruits – 1 serving Weak tea – 1 cup	Corn flakes with skimmed milk or bread or idly – 1 serving Cheese – 2 slice Fruits – 1 serving Weak tea – 1 cup
Lunch	
Cooked rice or chapatti – 1 serving Dal soup – 1 cup Cooked vegetables – 1 serving Cheese – 2 slices Curds – 2 cups Fruits – 1 serving Skimmed milk pudding – half cup	Cooked rice or chapatti – 1 serving Mutton soup – 1 cup Mutton or fish curry – 1 serving Curds – 1 cup Fruits – 1 serving Skimmed milk pudding – half cup
Tea	
Biscuits – 2 Fruits – 1 serving Weak tea – 1 cup	Biscuits – 2 Fruits – 1 serving Weak tea – 1 cup
Dinner	
Similar to Lunch	

Chronic Renal Failure

Chronic Renal Failure occurs in glomerulonephritis, and chronic pyelonephritis. In this condition, the glomeruli and tubules are heavily damaged.

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Diet

The diet in chronic uratemia (presence of abnormal of uric acid salts in the blood) should be below in protein depending on the urea content of blood. The pattern of diet and the daily menu for an adult suffering from chronic renal failure are given in Tables 16 and 17.

Table: 16 Diet for an adult suffering from chronic renal failure

(Calories 1500 – 2000 Kcal; Proteins 15 – 20 gm; Fat 40 – 50 gm, Carbohydrates 300 – 40 gm; Salt free)

Foodstuffs	gm/caput/day
Cereals	200
Vegetables (potato, carrot)	100
Milk	200
Egg	30
Butter and vegetable fats	40 – 50
Sugar	50
Glucose	200
Fruit juice	1000 ml

Table 17: Daily menu for chronic renal failure

Morning	Fruit juice with glucose – 1 glass
Breakfast	Bread – 2 slice Butter – 2 teaspoons Jam – 2 teaspoons Fruit juice with glucose – 1 glass
Lunch	Cooked rice or bread – 1 serving Butter or ghee – 2 teaspoons Potato and carrot curry – 1 serving Curds – 1cup Fruit juice with glucose – 1 glass
Tea	Biscuits – 3 Butter – 1 teaspoon Fruit juice with glucose – 1 glass
Dinner	Similar to Lunch

Note: Common salt should not be added during or after cooking. One multivitamin tablet providing the daily requirements should be taken

Peptic Ulcer

Chronic ulcer formed in the region of the gastrointestinal tract where the gastric juice comes in direct contact with the mucous membrane is known as peptic ulcer. Such ulcers usually occur in the duodenum (duodenal ulcer) and in the stomach (gastric ulcer). Duodenal ulcer is associated with hyperacidity while gastric ulcer is not.

Diet in Peptic Ulcer

The diet is the most important factor in the treatment of peptic ulcer. Three main types of diets have been used in the treatment of peptic ulcer.

Table 18: Types of therapeutic diet for peptic ulcer

Name of Diet	Ingredients
Sippy's diet and its modification by Hurst	Hourly feeds of milk, cream and olive oil with antacid medication
Lenhartz diet	Fluid diet based on milk and eggs
Meulengracht diet	A mixed bland diet containing milk, egg, meat and fish (Minced and strained) given once in 2 hours.

Sippy's diet consisting of milk and olive oil was used widely. Since it is monotonous and not adequate to meet the calorie needs, it has been replaced by a bland diet containing large quantities of milk.

Table 19: Diet for adult suffering from peptic ulcer (gm/caput/day)

Foodstuffs	Vegetarian	Non – vegetarian
Milled rice and refined wheat flour, or bread and biscuit	200	200

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Dal (decuticled split legumes)	50	50
Milk	1800	1500
Cheese	50	-
Eggs	-	30
Meat or lean fish	-	60
Fats and oils (2/3 as vegetable oils rich in essential fatty acids)	60	60
Sugar	60	60
Tender vegetables	50	50
Potato	50	50
Fleshy fruits (banana, apple and mango)	100	100

Note: One vitamin C tablet (100mg) may be taken once daily.

Table 20

Vegetarian	Non – vegetarian
Morning 6 am	
Milk – 2 cups (with 2 teaspoon sugar)	Milk – 2 cups (with 2 teaspoon sugar)
Breakfast 8 am	
Breads – 2 slices Butter – 2 teaspoons Cheese – 2 slices Milk – 1 cup	Breads – 2 slices Butter – 2 teaspoons Boiled egg – one Milk – 1 cup
10 am	
Milk – 2 cups (with sugar)	Milk – 2 cups (with sugar)
12 noon (Lunch)	
Cooked rice or bread – 1 serving Smashed dal – 1 cup Cheese – 2 slices Boiled potato – 2 Milk pudding – 1 cup	Cooked rice or bread – 1 serving Smashed dal – 1 cup Cooked minced meat – 1 serving Boiled potato – two Milk pudding – 1 cup
2 pm	
Milk – 1 cup	Milk – 1 cup
4 pm	
Biscuits – 2 Milk (with sugar) – 1 cup	Biscuits – 2 Milk (with sugar) – 1 cup
6 pm	
Milk (with sugar) – 2 cups	Milk (with sugar) – 2 cups
8 pm (Dinner)	
Same as Lunch	Same as Lunch
10 pm	
Milk – 1 cup	Milk – 1 cup

Table 21: Foods permitted and not permitted in peptic ulcer

Permitted	Not permitted
1. Milled cereals (milled rice, refined wheat flour and semolina) 2. Dal (decuticled split legumes) 3. Milk 4. Eggs 5. Tender vegetables free from fiber 6. Meat and fish in limited amounts 7. Fruits without fiber 8. Fats and oils 9. Sugar	1. Whole cereals and whole millets 2. Legumes with husk (Bengal gram, field bean, cow gram, dried pea, etc.). 3. Vegetables containing fiber, raw onions, garlic, etc. 4. Spices and condiments and pickles 5. Meat soups and extractives 6. Fried foods 7. Alcohol and alcoholic drinks 8. Chewing betel leaves, arecanut and tobacco

5.11 Adulteration of Food Additives

Food additives are defined as non-nutritious substances which are added intentionally to food generally in small

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quantity, to improve its appearance, flavor, texture or storage properties.

Food additives may be classified into two categories. Additives of the first category includes:

- Coloring agents, e.g. saffron, turmeric
- Flavoring agents, e.g. vanilla essence
- Sweeteners, e.g.saccharin
- Preservatives, e.g.ascorbic acid, sodium benzoate
- Acidity imparting agents, e.g. citric acid, acetic acid, etc.

These agents are generally considered safe for human consumption. Additives of the "Second category" are, strictly speaking, contaminants incidental through packing, processing steps, farming practices (insecticides) or other environmental conditions.

Uncontrolled or indiscriminate use of food additives may pose health hazards among consumers. For example, certain preservatives such as nitrites and nitrates can lead to the production of toxic substance, e.g. nitrosamines that have been implicated in cancer etiology.

Food Fortification

Fortification of food is a public health measure aimed at reinforcing the usual dietary intake of nutrients with additional supplies to prevent / control some nutritional disorders.

WHO has defined "Food fortification" as the process whereby nutrients are added to foods (in relatively small quantities) to maintain or improve the quality of the diet of a group, a community or a population." For example,

1. Foods artificially fortified with vitamin 'D' e.g. milk, margarine, Vanaspati and infant foods.
2. Foods fortified with vitamin 'A' e.g. margarine, milk, Vanaspati.

Adulteration of Food

Adulteration of food is an age – old problem. It is done through a large number of practices:

- Mixing
- Substitution
- Abstraction
- Concealing the quality
- Putting up decomposed foods for sale
- Misbranding or
- Giving false labels and
- Addition of toxicants.

Food adulteration practices vary from one part of the country to another, and from time to time.

The types of adulteration commonly found in India are as follows:

1. **Milk:** Addition of water, removal of fat and addition of starch to make the milk thicker are the common forms of milk adulteration.
2. **Ghee:** This is adulterated with dalda and animal fats such as pig's fat.
3. **Rice and wheat:** These are mixed with stone chips and mud to increase the bulk
4. **Flour:** Wheat flour is mixed with soap stone powder and cheaper flours such as singhada flour.
5. **Pulses:** Chemical substances are added to old stocks to improve the appearance.
6. **Tea and coffee:** Tea leaves are adulterated with old tea leaves; leather and saw dust, coffee is adulterated with chicory
7. **Honey:** This is adulterated with sugar or jaggery and boiled with empty beehives.
8. **Medicines:** Even drugs are adulterated.

The prevention of Food Adulteration Act 1954

Any food that does not confirm to the minimum standards is said to adulterated standards. Provisions have been laid down under this Act for various foods.

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In 1954, the Government of India enacted a Central Prevention of Food Adulteration Act. The act has been amended several times, the latest amendment is that of 1976 and in lately in 1986 to make the Act more stringent.

Although it is a Central Act, its implementation is largely carried out by the local bodies and State Governments.

Food Standards

FAO/WHO formulates food standards for international market. Codex Alimentarius commission which is the principal organ of the joint FAO/ WHO food standards programme. The standards in India are based on the standards of the Codex Alimentarius.

PFA Standards

Under the Prevention of Food Adulteration Act, 1954 standards have been established which are revised from time to time by the "Central Committee for Food standards".

The purpose of PFA standards is to obtain a minimum level of quality of foodstuffs attainable under India conditions.

The Agmark Standards

These standards are set by the Directorate of Marketing and Inspection of the Government of India.

Bureau of India Standards

The ISI mark on any article of food is a guarantee of food quality in accordance with the standards prescribed by the Bureau of Indian Standards (BIS) for that commodity.

SUMMARY

- Nutrition is the science of food and its relationship to health. It is concerned with the part played by nutrients in body growth, development and maintenance.
- Good nutrition is essential for attainment of normal growth and development during fetal life and childhood. Physical growth, intellectual development, learning and behavior are affected by malnutrition.
- Adequate nutrition is needed for adult life maintenance for optimum health and efficiency.
- Carbohydrates are the main source of energy for daily activities. Carbohydrates (primarily starches) are the least expensive, the most plentifully available, easily obtainable and readily digested form of nutrient.
- The lipids are a heterogeneous group of substances found in plant and animal tissues, which share the property of being relatively insoluble in water, and soluble in organic solvents, such as ether, chloroform and benzene.
- Proteins are polymer chains made of amino acids linked together by peptide bonds. Amino acids can be divided into essential amino acids and non – essential amino acids. Proteins and carbohydrates contain 4 kcal per gram as opposed to lipids which contain 9 kcal per gram of energy.
- Vitamins are essential organic, compounds that are needed in small amounts in the diet both to prevent deficiency diseases and to support optimal health. The term vitamin (vital amines) was coined by Casmir Funk. The term vital denoting essential for life and amines because these compounds contained an amine functional group.
- The four fat – soluble vitamins – vitamins A, D, E and K are often present in the fat portion of foods, they are not easily lost from foods or destroyed by exposure to water, heat, air, or light.

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- ❖ The water soluble vitamins include vitamin C and B complex vitamins – thiamine, riboflavin, niacin, pyridoxine, folate, cyanocobalamin, biotin and pantothenic acid. Most of these are unstable and thus easily destroyed by exposure to water, heat, air or light.
- ❖ WHO has defined "Food fortification" as the process whereby nutrients are added to foods (in relatively small quantities) to maintain or improve the quality of the diet of a group, a community or a population.

GLOSSARY A-Z

1.	Assimilates	-	தன்மயமாக்கு	To absorb into the system / absorb
2.	Organic	-	கரிம	Derived from living matter
3.	Inorganic	-	கனிம	Not derived from living matter
4.	Resistance	-	எதிர்ப்பு	The refusal to accept
5.	Metabolism	-	வளர்சிதை மாற்றம்	The chemical processes that occur within a living organism in order to maintain life
6.	Heteragenous	-	பலவகைப்பட்ட	Diverse in character / content
7.	Steroid	-	ஊக்க மருந்து	Type of chemical substance artificially introduced to improve strength
8.	Bruising	-	சிராய்ப்பு	a brown or purple mark on your skin
9.	Sedantary work	-	உடல் உழைப்பு தேவைப்படாத	very limited amount of physical activity
10.	Pigment	-	நிறமி	The natural colouring matter
11.	Flaking	-	செதில் செதிலாக	To come off a surface in small, thin pieces
12.	Degenarating	-	கொஞ்சம் கொஞ்சமாக சீரழிந்த	decline / to fall below a normal
13.	enzyme	-	நொதிகள்	proteins that speeds up the rate of a chemical reaction in a living oraganism
14.	Goiter	-	முன்கழுத்துக் கழலை நோய்	abnormal enlargement of thyroid gland result from under or over production of hormone due to deficiency of iodine
15.	Fortification	-	வலுவூட்டல் / ஊட்டமேற்றுதல்	addition of nutrients to foods irrespective of whether or not the nutrients were orginally present in the food
16.	Adulteration	-	கலப்படம்	The act of making food by adding something to them
17.	Additives	-	சேர்க்கைப் பொருட்கள்	
18.	Anabolism	-	வளர்சிதை மாற்றம்	In living organisms synthesis of more complex substances from simpler ones
19.	Lactation	-	பாலூட்டும்	The action of sucking of milk by an infant
20.	Pastries	-	மாவுப்பண்டம்/கேக்	a mixture of flour, fat and water which is used as base or covering for other foods baked

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Evaluation

I. Choose the best answer.

1. Proteins, Carbohydrates and fats are e.g. of
   a) Micro Nutrients
   b) Macro Nutrients
   c) Protective food
   d) Diets

2. Pick the odd one out classification of nutrients is based on
   a) Body building b) Energy giver
   c) Protective food d) Healthy food

3. Find the water soluble vitamin
   a) Vitamin A b) Vitamin B
   c) Vitamin C d) Vitamin D

4. This Vitamin plays the role in the synthesis of rhodopsin.
   a) Vitamin B b) Vitamin A
   c) Vitamin D d) Vitamin K

5. Varicose vein inflamation occurs due to deficiency of the following Vitamin
   a) Vitamin K b) Vitamin E
   c) Vitamin D d) Vitamin B

6. Which Vitamin is responsible for nervous system development of a fetus
   a) Folic acid b) Niacine
   c) Pyridoxine d) Cyanocobalamin

7. Each gram of carbohydrates yield _____ of energy.
   a) 2k cals b) 4k cals
   c) 6k cals d) 8k cals

8. Carbohydrates is stored in animals in the form of
   a) Starch b) Glycogen
   c) Malt sugar d) Disaccharide

9. 1g of fat provide _____ KJ of energy.
   a) 40 b) 50
   c) 35 d) 37

10. Anti stress vitamin is _____.
    a) Pantothenic acid
    b) Biotin
    c) Miacin
    d) Cyanocobalamin

6MB1I

II. Short Answer.

11. Brief on Malnutrition.
12. Define Hypertension
13. Tabulates the food permitted and to be avoided in peptic ulcer.
14. Give two examples of flavouring agents.
15. What is “food fortification”?
16. What are the functions of vitamins?
17. Note on Calciferol.
18. Note on Vitamin B_1.
19. What are the food sources rich in Vitamin B_6?

III. Brief Answers.

20. What are the factors affecting food and nutrition?
21. What are the major food groups given by ICMR?
22. Note on functions of Carbohydrate.
23. What is glycolysis?
24. What are the functions of Riboflavin?
25. Brief on Micro minerals.
26. What are the uses of zinc in our body?
27. Tabulate the functions of Boron, Cobalt, Nickel and Silicon.

IV. Detail answer.

28. Give a brief note on fat and its classification.
29. Give a menu plan for diebetes mellitus.
30. Write in detail on any four major mineral sources.
31. Brief on adulteration.

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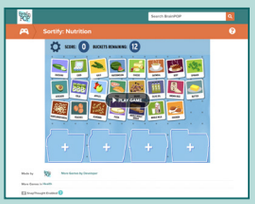
ICT CORNER

APPLIED NUTRITION

Through this game activity you will be able to differentiate the food varieties based on their nutritional classification.



Steps

- **Step 1:**
- **Step 2:** Click the START button to start the game activity.
- **Step 3:** A page with pictures of food varieties are arranged as a grid of picture tiles will open.
- **Step 4:** Drag and drop the tiles into the buckets give below to sort. Continue the activity as per the instructions displayed during the game and complete the game.

URL : https://www.brainpop.com/games/sortifynutrition/

*Pictures are indicative only

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CHAPTER 6

Introduction to Sex Education

ஒழுக்கம் விழுப்பந் தரலான் ஒழுக்கம்
உயிரினும் ஓம்பப் படும்.

Propriety of conduct leads to eminence, it should therefore be preserved more carefully than life.

Learning Objectives

At the end of this chapter, the students will be able to:

- define sex education
- distinguish between good and bad types of touching.
- describe the basics of sexual harassment and Child protection schemes.

GN5JX

Introduction

India's National Population Policy also reiterates the need for educating adolescents about the risks of unprotected sex. Unfortunately, a complete sex education drive on a regular basis is still to be introduced in the Indian schools. If we were to go by the data published by WHO, sex education should be imparted to children of 12 years and above.

6.1 Aims of Sex Education

- Prepare the youngsters to adolescence and make then capable of accepting the physical and functional changes calmly and naturally without emotional judgments.
- Help adolescents to realize the relation between sexual life, making them to love the human relationships and free from fear disgrace and guilt.
- Help adolescents adapt associations between age and maturity and views on sexual life which would be in harmony with their own personality.
- Help adolescents make their own emotional and sexual choices.
- Stress the importance of responsibility and respect of sexual relationships both in and out marriage.

Lack of Sex Education

creates problems such as:

- Undesired pregnancy
- Transmitting sexual diseases
- Sexual abuse
- Ignorance of facing sexual problems

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"Good" touch and "bad" touch are words most commonly used to explain to children what is acceptable and not acceptable, and how they should treat other people. Good touch or physical affection is a wonderful way to bond with your child.

6.2 Good Touch

It feels good to be hugged and kissed by the people you love. For example:

- When Mommy gives you a hug and kiss after you wake up.
- When Daddy gives you a good-night hug and kiss.
- When Grandma and Grandpa come to visit and everyone gets hugs and kisses.

6.3 Bad Touch

Touches that make you feel uncomfortable are usually bad touch.

Good Touch

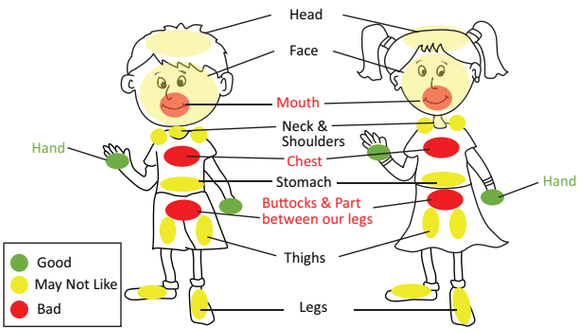
+ Parents hug and kisses.
+ Grandparents love.
+ Teacher pats you on the head "Good Job".
+ Brief friendly hugs by family members.
+ Brief kiss on the cheek or forethead.
+ Shaking hands or giving Highs.
+ Doesn't scare or make you feel bad.

Bad Touch

= Makes you feel scared / nervous / ashamed.
= Forced or Hurts.
= Told to keep it a *SECRET*
= Touching or patting areas covered by a SWIM SUIT.
= Kissing on the mouth.
= Touching the buttocks.
= Hitting, slapping, spitting, pushing or punching.

It is a bad touch

- if it hurts you.
- if someone touches you on your body where you don't want to be touched.
- if the person touches you under your clothing or tickles you under the clothing.
- if a person touches you in a way that makes you feel uncomfortable.
- if that touch makes you feel scared and nervous.
- if a person forces you to touch him or her.
- if a person asks you not to tell anyone.
- if a person threatens to hurt you if you tell.



Teach your children the following safety rules:

It is not okay

- to touch someone else's private body parts.
- for someone to touch his or her own private body parts infront of you.
- for someone to ask you to touch his or her private body parts.
- for someone to ask you to take your clothes off except if they are a doctor helping to see if you are hurt or sick
- for someone to take photos or videos of you with your clothes off.

DO YOU KNOW?

Worldwide, around 15 million adolescent girls aged 15 to 19 have experienced forced sex in their lifetime.

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DO YOU KNOW?

POCSO Act (protection of children's from sexual offences)

A special law has been passed to address the issue of sexual offences against children.

The Act has come into force with effect from 14th November, 2012 along with the rules.

- It is a comprehensive law to provide for the protection of children
- From the offences of sexual assault, sexual harassment and pornography
- To safeguard the interests of the child at every stage of the judicial process.
- For the proper development of the child in view of his/her protection of the right to privacy and confidentiality

6.4 Sexual Harassment

Sexual harassment is unwelcome sexual advances, requests for sexual favours, and/or other verbal, visual or physical conduct of a sexual nature .

Sexual harassment includes many things

1. Verbal
2. Non verbal
3. Physical

FI9OM

Verbal

- Referring to an adult as a girl, hunk, doll, babe, or honey
- Whistling at someone, cat calls
- Making sexual comments about a person's body
- Making sexual comments or innuendos
- Turning topics
- Telling sexual jokes or stories
- Asking personal questions about social or sexual life
- Making sexual comments about a person's clothing, anatomy, or looks
- Repeatedly asking out a person who is not interested

DO YOU KNOW?

India has a strong prevention program which goes hand in hand with care, support and treatment. We have been able to contain the epidemic with a prevalence of just 0.31%. We have also brought about a decline of 50% in new infections annually.

— Shri Gulam Nabi Azad, Hon'ble Minister of Health and Family Welfare, 2011.

Non-Verbal

- Looking a person up and down (Elevator eyes)
- Staring at someone
- Blocking a person's path
- Following the person
- Giving personal gifts

DO YOU KNOW?

The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013

[Act No 14 of 2013]

An Act to provide protection against sexual harassment of women at workplace and for the prevention and redressal of complaints of sexual harassment and for matters connected therewith or incidental .

Physical

- Giving a massage around the neck or shoulders
- Touching the person's clothing, hair, or body
- Hugging, kissing, patting, or stroking

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DO YOU KNOW?

I. The number of cases registered for child abuse raised from 8,904 in the year 2014 to 14,913 in the year 2015, under the POCSO Act. Sexual offences and kidnapping account for 81% of the crimes against minors

II. Preventive measures designed to ward off strangers (installing CCTV cameras and providing self-defence training) will be ineffective, as children do not know how to ward off unwanted sexual offences from their known relatives, acquaintances or workplace seniors, who they trust.

III. POCSO: State wise cases - Uttar Pradesh led the highest number of child abuse cases (3,078) followed by Madhya Pradesh (1,687 cases), Tamil Nadu (1,544 cases), Karnataka (1,480 cases) and Gujarat (1,416 cases).

Along with workplace cases, here are other findings of rapists being known to children: 94.8% of rape cases saw children being raped by someone they knew, not strangers. These acquaintances include neighbors (3,149 cases) who were the biggest abusers (35.8%). 10% of cases saw children being raped by their own direct family members and relatives.

- Touching or rubbing oneself sexually around another person
- Standing close or brushing up against another person

6.5 Schemes and Programmes on Child Protection

The Government has initiated various Schemes to address the problems. Some of the Schemes are outlined as follows:

- **Integrated Child Development Services (ICDS)** is a Centrally Sponsored Scheme which provides a package of six services to children below 6 years and pregnant and lactating mothers.
- **Integrated Child Protection Scheme (ICPS)** was introduced in 2009-10 with the aim to the improve the well being of children in difficult circumstances, as well as the reduction of vulnerabilities to situations that lead to abuse, neglect, exploitation, abandonment and separation of children from their families.
- **Scheme for Welfare of Working Children** in Need of Care and Protection provides opportunities including non-formal education, vocational training, etc. to working children to facilitate their entry / re-entry into mainstream education.
- **Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG)-SABLA** aims at an all-round development of adolescent girls (AGs) of 11-18 years by making them self reliant by facilitating access to learning, health and nutrition through various interventions such as health, education, vocational training etc. Such empowerment also addresses the issue of Child Marriage.
- **Indira Gandhi Matritva Sahyog Yojana (IGMSY)** is a Conditional Cash Transfer Scheme for pregnant and lactating women which was introduced in October, 2010 for improved health and nutrition to pregnant and nursing mothers.
- **Trafficking: "Ujjawala"** – is a Comprehensive Scheme for Prevention of Trafficking and Rescue, Rehabilitation, Re-integration and Repatriation of Victims of Trafficking for Commercial Sexual Exploitation.

Unit_6_Sex_education_and family_life_Gen_Nur.indd 145 19/01/2024 15:49:02

- **The POCSO Act** was passed to strengthen legal provisions for the protection of children below 18 years of age from sexual abuse and exploitation. Under this Act, if any girl under 18 is seeking abortion the service provider is compelled to register a complaint of sexual assault with the police.
- **Rehabilitation of Child Labour** National Child Labour Project (NCLP) is a Scheme with the objective to withdraw children working in hazardous occupations and processes, and mainstream them into formal education system. All children rescued/withdrawn in the age group of 9-14 years are enrolled in the NCLP Special Training Centres, where they are provided with bridge course, vocational training, mid-day meal, stipend, health care, etc. before being mainstreamed into formal education system.

In addition to implementing the Schemes and programmes as above, the Government has also initiated several legislative measures viz

- The Protection of Children from Sexual Offences Act, 2012 (POCSO Act)
- The Prohibition of Child Marriage Act (PCMA) 2006
- The Immoral Traffic (Prevention) Act, 1956,
- The Child Labour (Prohibition and Regulation) Act, 1986
- The Right of Children to Free and Compulsory Education (RTE) Act, 2009 etc.,Workshops, Seminars, legal awareness camps and consultation are held with the State Governments, NGOs and other stakeholders for sensitisation and wider public awareness.

DO YOU KNOW?

India was the first country in the world to establish a government family planning program way back in 1952. According to 2011 Family Welfare Programme, some major achievements are as follows:

Awareness of one or more methods of contraception.

Increase in contraceptives use over the years.

Evaluation

I. Short Answer

1. Define Health
2. Explain good touch
3. Describe bad touch
4. Explain harassment

R4Q0M

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ICT CORNER

SEX EDUCATION

Through this activity you will be to know the various changes happen during the menstrual cycle

Steps

- **Step 1:** Type the URL link given below in the browser or scan the QR code.
- **Step 2:** Click and drag the slide bar given below to start the activity.
- **Step 3:** The changes can be observed from the tabs given such as Temperature change, Hormonal change, Folicular change, Uterine lining change.
- **Step 4:** Changes happening on any of the 28days can be observed and compared with the help of the slide bar.

Step1

Step2

Step3

Step4

URL: http://owensborohealthse3.adam.com/content.aspx?productId=147&isArticleLink=false&pid=17&gid=000087&Category=Interactive%20Tool

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CHAPTER 7

Midwifery Nursing

பெறுமவற்றுள் யாமறிவது இல்லை அறிவறிந்த தெய்வத்துள் வைக்கப் படும்.

Among all the benefits that may be acquired, we know no greater benefit than the acquisition of intelligent children

Learning Objectives

At the end of this chapter, the students will be able to:

- define Midwifery
- discuss the physiological changes during pregnancy
- briefly discuss about the normal pregnancy
- explain the labour process
- enumerate the care during puerperium.
- brief out the reproductive health care and family planning.

Introduction

Maternity care is professionaly of a high quality and maintains the safety of the mother and fetus that makes the integrity of the family. A professionaly trained person is a midwife.

The midwife must be able to give necessary supervision, care and advice to women during pregnancy, labour and postpartum period. Midwife has to conduct deliveries on her own responsibility and to take care of the newborn and the infant.

This care includes preventive measures, detection of abnormal conditions among mother and newborn, the procurement of medical assistance and the execution of emergency measures in the absence of medical aid. She plays an important role in health counseling and education.

7.1 Definition

Midwifery is the art and science, its caring for woman undergoing pregnancy, labour and the following child birth.

Normal Pregnancy

Normal pregnancy involves a continuous process. It is divided into three trimesters.

- I trimester - 0-12 weeks (3 months)
- II trimester - 13-24 weeks (4-6 months)
- III trimester - 25 to till delivery (7-10 months)

Unit_7_Midwifery_Gen_Nur.indd 148 12/10/2021 10:27:34 PM

I trimester events

- Fertilization occurs
- Fetilized egg (Zygote) develops into a hollow ball of cells called the **blastocyst**
- The aminotic sac begins to form
- Brain and spinal cord (neural tube) begins to develop
- The heart and major blood vessels begins to develop
- Arms and legs begins to appear
- Bones and muscles form
- Kidneys begin to function
- Almost all organs are completely formed

II trimester events

- Fetus sex can be identified
- Fetus moves, the mother can felt (Quickening)
- Hair appears on the skin and head
- Eyebrows and eyelashes are present
- Placenta fully formed
- The woman gain more weight

III trimester events

- The fetus is active, often changing positions
- The lungs continue to mature
- The fetus head moves into position for delivery

7.2 Maternal Physiological Changes During Pregnancy

Physiological changes during pregnancy.

Genital Organs

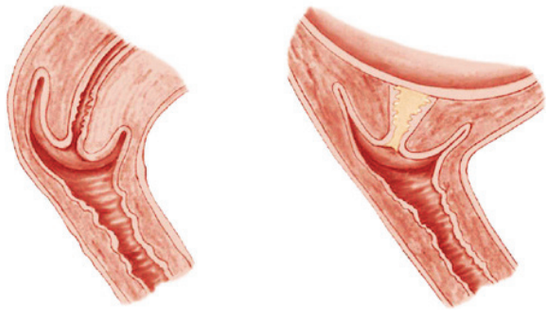
Vulva- Vulva becomes oedematous. Labia minoria are pigmented and enlarged.

Vagina- Vaginal walls becomes oedematous, Because of more blood supply, the vaginal walls mucosa looks in bluish colour.

Uterus- The uterus which in non-pregnant state, weighs about 60 gm, during pregnancy uterus increases in size upto 10-12kgs.

Cervix- Softening of the cervix is evident at 6 weeks. It occurs due to fluid accumulation inside the fibros tissue of the cervix and increased vascularity.

Normal Cervix **Pregnant Cervix**



Other Organs

Fallopian tube- The total length is increased. The tube becomes congested.

Ovary- Both the ovarian and uterine cycles of the normal menstruation remain suspended.

Changes In Breast

In early pregnancy the women feel fullness of breast or tingle and increase in size as pregnancy progresses. The areola of the nipples darkens and the diameter increases. The Montgomery's glands (the sebaceous glands of the areola) enlarge and tend to protrude. The surface vessels of the breast may become visible due to increased circulation. By the 16th week (2nd trimester) the breasts begins to produce colostrum. It is a thin, watery, yellowish secretion which thickens as pregnancy progresses. Colostrum may leak from breasts.

Changes In Skin

Skin changes occurs due to increased secretion of Melanocyte Stimulating Hormone (MSH) from pituitary.

Face- There is an extreme form of pigmentation present around the cheeck, forehead and around the eyes. It is called as **chloasma gravidarum or pregnancy mask**.

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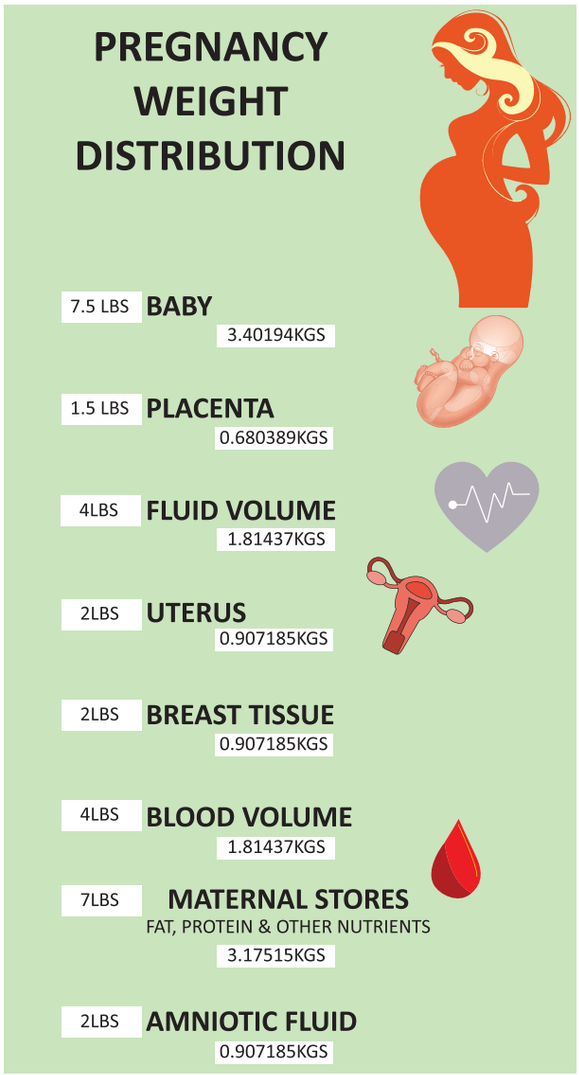
Abdomen- A brownish black pigmented line appears on the abdomen stretching from the Xiphisternum to the symphysis pubis. It will disappear after delivery (Linea Nigra).

Striae gravidarum-It is a specific form of scarring of the abdominal skin area due to rapid expansion of the uterus. It looks pinkish in first pregnancy, in subsequent pregnancy both pinkish and white striae are visible (Striae albican).



Maternal Weight Gain

The total weight gain during the course of a singleton pregnancy for a healthy woman averages 11kg. 1kg in first trimester (1-3 months). 5 kg each in second (4-6 months) and third trimester (7-9 months).

Ideally the weight gain depends on pre-pregnancy body mass index (BMI) level. Weight gain for a woman with normal BMI (20-26) is 11 to 16kg. An obese woman (BMI>29) should not gain more than 7 kg. Where as an underweight woman (BMI<19) may be allowed to gain upto 18kg.

Maternal weight gain 6 kg

- Increase blood volume 1.3 kg
- Increase in extracellular fluid 1.2 kg
- Accumulation of fat and protein 3.5 kg

Reproductive weight gain 6 kg

- Fetus 3.3 kg
- Placenta – 0.6 kg
- Liquor (amniotic fluid)-0.8 kg
- Uterus-0.9 kg
- Breast – 0.4 kg

Systemic Changes

Respiratory System:

Because of enlargement of the uterus, there is an elevation of the diaphragm and breathing becomes diaphragmatic. Upper respiratory tract mucosa becomes congested. The respiratory rate rises to from 18 to 20 breathes per minute to meet demand of fetus. Decreased functional residual capacity 1.7 to 1.35 litres due to the compression of the diaphragm by the uterus.

Cardiovascular Changes:

The heart enlarges by 70 to 80ml due to small increase in wall thickness and venous filling. Cardiac output increases from 4.5 - 6.0 litre/min. Heart rate increases from 70bpm in non-pregnant state to 78bpm at 20 weeks gestation and a peak around 85 bpm in late pregnancy.

Haematological Changes

Blood volume increases by 40-50% at 30-32 weeks of pregnancy. It causes Haemodilution. Haematocrit decreases. The number of white

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blood cells (which fight against infection) increases slightly during pregnancy. Blood plasma volume increases to the extent of 1.25 litres (Non pregnant plasma volume is 2500 ml, increase about 3750ml during pregnancy.

Urinary System

- Glomerular filtration rate (GFR) is increased by 50% all throughout pregnancy. Frequency of micturation is a common symptom of early pregnancy. This is due to changes in pelvic anatomy. A degree of hydronephrosis and hydroureter exist. These result from the loss of smooth muscle tone due to the progesterone, aggravated by mechanical pressure from the ureters at the pelvic brim.
- Vesicoureteric reflux is also increased. These changes predispose to urinary tract infection.
- Glycosuria of mild degree in 35% to 50% of all pregnant woman. Increased glomerular filtration leads to more sugar reaching the tubules that can be reabsorbed.

Gastrointestinal System

- The gums become congested and spongy and may bleed to touch.
- Relaxation of lower oesophageal sphincter produces regurgitation and heart burn.
- Slight reduction in gastric secretion and diminished gastric motility result in slow emptying and more effective pulping of food and causes nausea.
- Reduced motility of large intestine increased time for water reabsorption which leads to induce constipation.

Nervous System

- There may be generalised neuritis probably due to Vitamin B_1 (Thiamine) deficiency.
- Compression of the median nerve underneath the carpal ligament over the wrist joint, leading to pain in the hands and arm called **CARPAL TUNNEL SYNDROME** may appear in late pregnancy.
- Nausea, vomiting, mental irritability and sleeplessness due to some psychological background.

7.3 Diagnosis of Pregnancy

First Trimester

Presumptive signs:

- Amenorrhoea-Absence of menstruation.
- Morning sickness- Nausea, vomiting on rising from bed, loss of appetite.
- Frequency of micturition due to congestion of the bladder mucosa.
- Breast discomfort- feeling of fullness and 'Pricking sensation' is present.
- Darkening of the nipples, primary and secondary areolar change.
- Fatigue or tiredness.

Probable signs

- Breast changes: The breasts are enlarged, evident between 6 to 8 weeks.
- Vaginal Sign- The walls become softened and looks bluish in colour. Copious non irritating mucoid discharge appears at 6th week.
- Osiander's sign- There is increased pulsation, felt through the laternal fornices at 8th week.
- Jacquemier's or Chadwick's sign - a bluish discoloration of the cervix, vagina and labia. This is due to local vascular congestion.
- Hegar's Sign- Upper part of the uterus is enlarged by the growing fetus, and lower part of the body of the uterus is empty and extremely soft.

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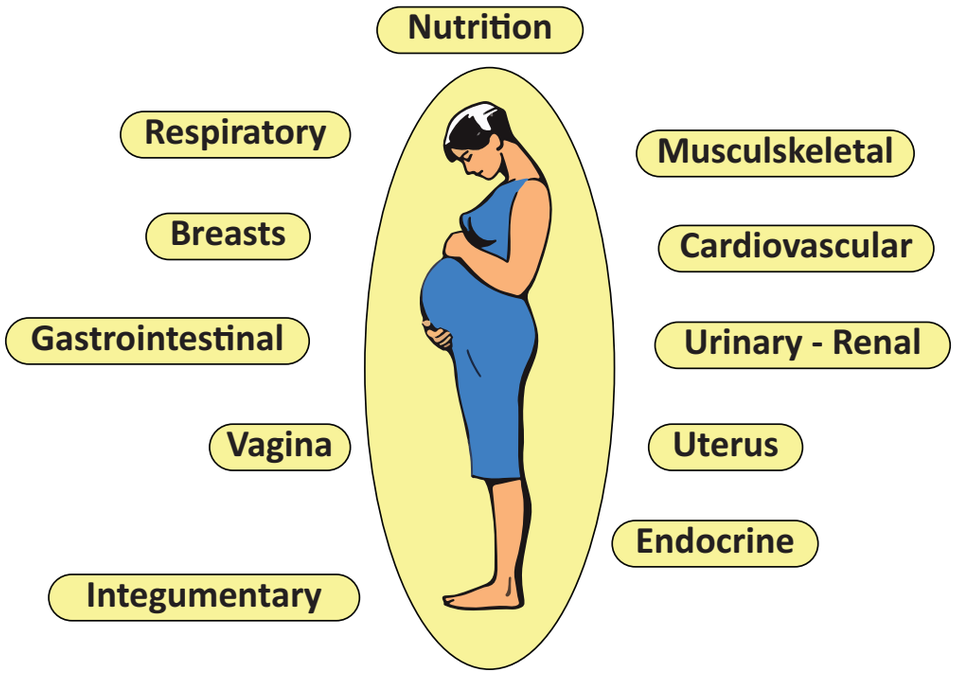
PHYSIOLOGICAL CHANGES IN PREGNANCY



Positive signs

- Fetal heart sounds.
- Fetal movements.
- Fetal parts.

Diagnostic test:

- Blood/urine test for Beta HCG (Human Chorionic Gonadotropin)
- Ultrasonogram

Second Trimester (13-28 Weeks)

- Quickening(feeling of life): The perception of active fetal movement by the woman. Usually felt during 18-20 weeks of pregnancy.
- Progressive enlargement of the lower abdomen by a mass(fetus)
- chloasma-Pigmenation over the forehead and cheek, appear at 24th week.
- Braxton-Hicks contraction: Braxton-Hicks contraction-Irregular, Infrequent, spasmodic painless uterine contraction without any effect on dilation of cervix.
- Ballottment of the uterus.
- Fetal heart sound (FHS) is elicited around 20th weeks by fetoscope with doppler by 16th weeks.

Third Trimester (29-40 Weeks)

Symptoms

- Amenorrhea continues
- Enlargement of the abdomen
- Lightening(fetal head sink in to the pelvic brim)
- Frequency of micturition

Signs

- Skin changes are more prominent
- Uterine shape is changed from cylindrical to spherical
- Fundal height up to the level of ensiform cartilage
- Braxton Hicks contraction
- Fetal movement are easily felt.
- Fetal parts are Palpable.
- Fetal heart rate

Calculation of Expected Date of Delivery

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[EDD]

EDD is calculated from first day of the Last Menstural Period [LMP] by using Naegle's formula. For calculation, 9 calendar months and 7 days are added in the LMP

Gestational age – It is to be calculated as completed weeks of gestation

- 9 out of 10 women experience a change in skin tone during pregnancy called hyperpigmentation. This is because the increased production of melanin during pregnancy.
- During gestation, babies develop hair all over their body called "lanugo". This hair is typically shed before birth.
- Uterus stretches from the size of a pear to approximately the size of watermelon over the course of pregnancy.
- Morning sickness is very common and typically goes away by the second trimester. Try to eat bland diet like bananas, rice, and toast to settle your stomach. Avoid spicy, oily and fried foods during night.

Antenatal Care

Antenatal care refers to the care given to an expectant mother from the time of conception to the beginning of labour. It includes,

- Maternal health check ups.
- Evaluation of fetal health and development
- Detection of high risk pregnancies e.g GDM, PIH
- Prompt intervention to prevent complications.
- Health education. e.g Diet, exercise and follow up

Aims

- To achieve a healthy mother and baby.
- To provide psychological support to the women and her family.
- To educate the women regarding health care during pregnancy.
- To monitor progress of pregnancy and the baby.
- To recognize deviation from the normal and provide treatment as required.
- To prepare women physically and emotionally for the child birth, lactation and care of the baby.
- To prevent congenital deformities by educating the mother to avoid smoking, substance abuse and self medications.

Antenatal Visits

Routine prenatal visits has been followed as convention and not an evidence based benefits.

- Initial visits at early pregnancy (when a women missed her first period.
- Every 4 weeks until 28 weeks
- Every 2 weeks until 36 weeks
- Every week until delivery

Antenatal visits should cover the following

- History collection
- Examination
- Investigation

History Collection

a) Socio economic status

Low socio-economic status increases the risk of perinatal morbidity and mortality.

b) Age

Maternal age younger than 20 years increases the risk of premature births, late prenatal care, low birth weight, uterine dysfunction, fetal death, neonatal death.

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Maternal age older than 35 years increases the risk of first trimester miscarriage, genetically abnormal fetus, medical complication (Hypertension, Diabetes, Eclampsia), multiple gestation, fetal morbidity and mortality.

c) Menstrual history

- Age of menarche
- Cycle : regular/irregular
- Amount and duration of blood flow
- LMP- date is counted from the first day of the last menstrual period
- EDD- calculate from LMP

b) Contraceptive history

Use of contraceptives copper T, or oral pills.

c) Past obstetric history

- Previous miscarriage
- Previous viable pregnancies
- Still births or neonatal deaths
- Method of delivery
- Gestational age, sex and weight of infants
- Previous antenatal or postnatal complications

d) Previous medical history

- Diabetes
- Cardiac diseases
- Hypertension
- Renal diseases
- Infectious diseases such as HIV, Hepatitis B or C

e) Personal history

- Smoking
- Alcohol
- Substance abuse

f) Family history

- Diabetes
- Hypertension
- Tuberculosis
- Twins

Examination

General state of health:

- Build - obese, average, thin
- Nutritional status - good, average, poor
- Gait - normal, with a limp,
- Postures - Kyphosis, Scoliosis, Lordosis
- Personal hygiene

Height – A short stature women (<145cm) may have a small pelvis leading to difficulty in labour.

Weight - Monitor for weight gain regularly

- Inadequate weight gain may indicate low birth weight baby,Intra Uterine Growth Retardation(IUGR)and poor perinatal outcome.
- Excessive weight gain may be due to fluid retention, pre-eclampsia, multiple pregnancies, polyhydramnios.

Pallor – It is a indicative of anemia, examine conjunctiva, tongue and nails for pallor.

Jaundice – Yellowish discoloration of the sclera, palate and skin.

Oedema – Examine for pitting oedema over the legs above the medial malleolus.

Breast and nipple – Observe the skin changes over the breast, gently palpate the breast for any tumor or nodule, look for any crack or retracted nipple.

Teeth and gums – women with dental carries, gingivitis or poor oral hygiene should be reported.

Varicosities – Note the presence of varicose vein and their distribution.

Vital signs – Record pulse, respiration, temperature and blood pressure and report any abnormality.

Abdominal Examination should be performed in each visit.

Steps of Abdominal Examination:

- Inspection
- Palpation
- Auscultation

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Inspection

- Abdomen
- Size
- shape
- Contour – spherical, cylindrical, pendulous, flattened anteriorly, unduly enlarged or small.
- Skin – Striaegravidarum and lineanigra
- Scar of previous operations
- Prominent veins, evidence of skin infections
- Umbilicus - Flat and dimple

Uterus Size

12 Weeks-at the level of symphysis pubis

16 weeks- Half way between symphysis pubis

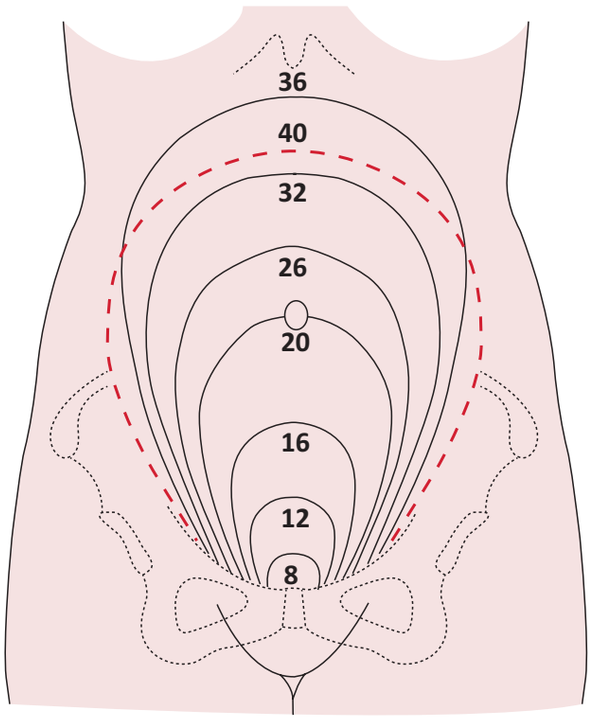
22 weeks- at the level of umbilicus

28 weeks- between umbilicus and Xiphoid process

32 weeks- below the xiphoid process

38 weeks- level of the xiphoid process

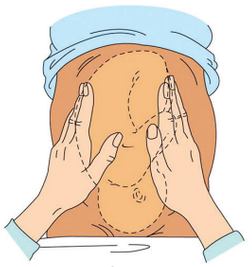
48 weeks- below the xiphoid process (if lightening occurs).

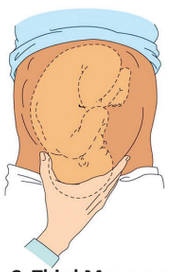


Palpation

- Measure symphysis pubis - fundal height
- Between 18-34 weeks measurements from pubis symphysis to the top of the uterus in cm correlates well with the weeks of gestation

A. First Maneuver


B. Second Maneuver


C. Third Maneuver

D. Fourth Maneuver

Abdominal –palpation

- Measuring fundal height (Leopold maneuver).
- Fundal palpation(first maneuver)
- lateral palpation(second maneuver)
- Pelvic grip-I
- Pelvic grip-II(Pawlik's grip)

Feel for presenting part

- Determine lie
- Determine position of the presenting part
- Engagement

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Auscultation

Fetal heart rates can be identified by Doppler ultrasound by 12 – 24 weeks and by fetoscope at 18– 20 weeks.

Investigations

- Urine test for confirmation of pregnancy, albumin and sugar
- Blood test for
  1. grouping
  2. Rh-typing
  3. Blood sugar
  4. Haemoglobin
  5. HIV Antigen.
  6. VDRL
  7. HbsAg.

Antenatal Advice

Nutrition

- Weight gain - the recommended weight gain in a normal pregnancy is 11.5 to 16 kg. Failure to weight gain may lead to IUGR, Low birth weight babies and poor perinatal outcome. Excessive weight gain may be due to fluid retention pre-eclampsia.
- Calories & proteins – The pregnant women require 300 kcal/day protein promotes growth of the fetus, placenta, uterus, breast, red cells and production of milk. During pregnancy 1 g of protein is deposited half to the fetus and half to mothers.
- Fats – Fats are important sources of energy. Phospholipids lower the surface tension in the lungs of the newborn.
- Iron – Recommended iron intake is 30 – 60 mg of elemental iron per day. During pregnancy iron stores are depleted, supplementary iron is needed for both mother and fetus.
- Calcium – Recommended calcium intake is 1200 mg per day.
- Vitamins – Folic acid is required for the formation of heme. Deficiency of folic acid may cause megaloblastic anaemia and neural tube defect in fetus.

Life Style Modification

- Exercise– It is not necessary for a pregnant mother to limit her exercise but restriction may require in Placenta previa, Cervical incompetence, Pregnancy induced hypertension, Premature labour and multiple gestation.
- Travel – No harmful effects have been identified. A pregnant woman should move around every 2 hours to prevent venous stasis and thrombus formation.
- Bowel habit in pregnancy due to progesterone induced GI smooth muscle relaxes lead to increased transit time. Late in pregnancy compression on the bowel by the presenting part may cause constipation. Women may avoid constipation by liberal fluid intake, exercise and stool softner, bulking agents & mild laxatives.
- Nausea & vomiting are common in the first and second trimesters, usually in the morning. Small frequent meals and avoidance of strong odours.
- Sexual intercourse does no harm but should be avoided if there is pregnancy complication such as placenta praevia, rupture of membrane, preterm labour.
- Smoking– women who smoke often have smaller infants with increased perinatal morbidity. Mothers are encouraged to quit smoking completely during pregnancy.
- Alcohol should not be consumed during pregnancy. The fetal abnormalities associated with drinking (fetal alcoholic syndrome) include craniofacial defects, limb and CVS defects, prenatal and postnatal growth restriction and mental retardation.
- Caffeine has no increase in teratogenic or reproductive risk.

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DO YOU KNOW?

These are some of the beneficial pregnancy tips: -

- Eat 5 to 6 meal a day
- Take a prenatal vitamin each day as directed by the doctor
- Drink plenty of fluids
- Take adequate rest and sleep
- Do proper exercise
- Wear comfortable clothes
- Don't take over the counter drugs
- Wear safety belts while traveling
- Avoid exposure to smoking

7.4 High Risk Pregnancy

Definition

High Risk Pregnancy is a pregnancy complicated by a disease or a disorder that may endanger the life or affect the health of the mother, the fetus or the newborn

Maternal Death Incidence

A maternal death is death of a Woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and the site of the pregnancy, from any course related to or aggravated by the pregnancy or in management but not from accidental or incidental causes. - WHO

- 20-25% deaths occur during pregnancy.
- 40-50% deaths occur during labour and delivery.
- 25-40% deaths occur after childbirth (More during the first seven days)
- Annually, 585,000 women die of pregnancy related complications

High risk mothers are

- Women below 18 years, over 35 years in primigravida
- Women who had four or more pregnancies
- Short Structure (height <145 cm and below)
- Twins
- Aneamia
- Previous Abortion, Intra uterine death.
- Malnutrition mother.

Placenta Praevia

DEFINITION: Placenta Praevia is a condition where the placenta is implanted completely or partially in the lower part of the uterus.

Cause: Unknown

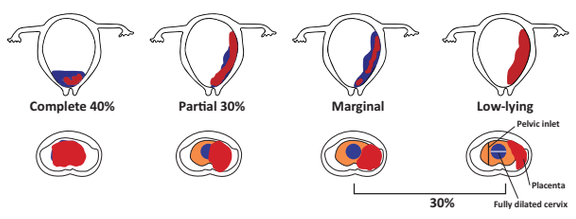
Risk factors: Multiparity, multiple gestations, previous uterine surgery

Manifestations: Painless, bright red bleeding > 20th week; episodic, starts without warning, stops & starts again.

Vaginal examination is contra - indicated.

Types of Placenta Praevia

- First degree (Type I): Low lying Placenta the lower edge of the placenta reaches the lower uterine segment but not the internal cervical os.
- Second degree (Type II): Marginal the lower edge of the placenta reaches the margin of the internal os but does not cover it.
- Third degree (Type III): Incomplete or partial the placenta covers the internal os partially.
- Fourth degree (Type IV): Total placenta covers the internal os completely.



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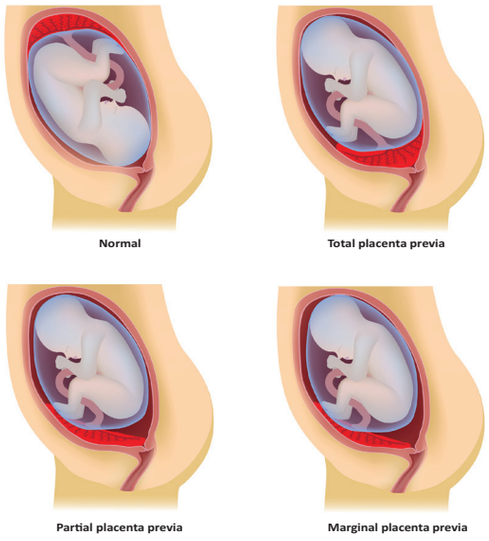


Management

Management depends upon gestational age, amount of bleeding and fetal condition.

- Monitor Fetal Heart Rate, maternal Vital signs
- Intra Venus Fluid administration
- O_2 administration
- Assess intake and output, amount of bleeding
- Do complete Blood count and Rh factor test (CBC), Type and cross match for transfusion.
- Ultrasound
- No pelvic exams
- No vaginal delivery- may lead to haemorrhage
- Prepare for caesarean section

Prognosis: depends on amount of bleeding & gestational age

Abruptio Placenta

Abruptio Placenta: Premature separation of normally situated placenta.

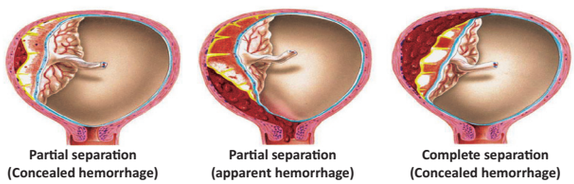
Cause: Unknown

Types of Abruptio placenta:

1. **Concealed** - The blood collects behind the separated placenta or collected in between the membranes and decidua. (Blood is not visible outside) Rare type.
2. **Revealed** - Following separation of the placenta, the blood comes out of the cervical canal to be visible externally (commenest type)

Risk factors

- Smoking
- Short umbilical cord
- Advanced maternal age
- HTN
- PIH
- Cocaine use
- Trauma to or near abdomen.



Manifestations: Tenderness mild to severe constant pain; mild to moderate bleeding depending on degree of separation.

Management

- Monitor Fetal Heart Rate, maternal Vital signs
- Intra Venous Fluid administration
- O_2 administration
- Assess intake and output, amount of bleeding
- Do complete Blood count and RH factor test (CBC), Type and cross match for transfusion.
- Ultrasound
- No pelvic exams
- No vaginal delivery- may lead to haemorrhage
- Prepare for caesarean section

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Amniotic Fluid

DEFINITION: Amniotic fluid is a clear, slightly yellowish liquids surround and protects the fetus during pregnancy. Normal Amniotic fluid is around 800 ml

Amniotic fluid is made up of fetal urine & fluid that is transported through placenta from maternal circulation.

Polyhydramnios

Polyhydramnios is defined as a state where amniotic fluid exceeds more than 2000 ml.

Risk factors

- Multiple pregnancy.
- Fetal abnormalities.
- Fetal skeletal malformations.
- Obstruction of GI tract- prevents normal ingestion of amniotic fluid.
- Rh Iso immunization
- Maternal Diabetes Mellitus.
- Spinabifida; Anencephaly, Hydrocephaly.

Diagnosis: Sonography-To detect Amniotic Fluid Index (AFI) is more than 20 cm. (Normal AFI is 8-18 cm).

Management

- Bed rest.
- Monitor weight gain.
- Remove excess amniotic fluid every 1-2 weeks through amniocentesis.
- Most women with mild polyhydramnios deliver healthy baby.

Oligohydramnios

It is a condition where the amniotic fluid is less than 500 ml in the amniotic sac.

Causes

- Failure of fetal kidney development
- Obstruction in urinary tract
- Intra Uterine Growth Restriction (IUGR)
- Post-term pregnancy
- Premature rupture of membrane
- Fetal anomalies
- Poor placental function.

Diagnosis

- AFI < 5-6 cm
- Small uterine size.
- Less fetal movements
- Prominent fetal parts on palpations
- Small for date uterine size.
- Fetal demise.
- Ultrasonogram

Prognosis: Depends on severity of disease.

Management

- Careful assessment of mother/fetus
- Frequent ante-partum testing
- Determine optimal time for delivery (early)
- Antibiotics/corticosteroids with PROM (Premature Rupture Of Membranes)

Ectopic Pregnancy

The fertilized ovum is implanted and develops outside the normal uterine cavity usually in fallopian tubes, rare on ovary, cervix or abdominal cavity.

Incidence

- Leading cause of death from hemorrhage in pregnancy
- Reduces fertility
- 1 in 100 pregnancies

Causes

- Scarring of fallopian tubes (Chlamydia/ Gonorrhea).
- More common with infection of fallopian tubes or surgery to reverse Tubale Ligation.
- Previous ectopic
- Multiple induced abortions
- Diethylstilbestrol (DES) exposure

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Symptoms

- Colicky, cramping pain in lower abdomen on affected side
- Tubal rupture: sudden/sharp/steady pain before diffusing throughout pelvic region
- Heavy bleeding causes shoulder pain, rectal pressure
- Dizziness/weakness - If tube ruptures, weak pulse, clammy skin, fainting. Assess for s/s shock.

Diagnosis

Estimation of Beta hCG (more than 1500 IU/L

- Ultrasonogram

Treatment

- Immediate surgery to remove/repair tube.
- If no rupture, Methotrexate - stops cellular division in fetus; causes cell death. Conceptus expelled with bleeding.

Hypertension In Pregnancy

Global cause of maternal/fetal morbidity & mortality. Responsible for 76,000 deaths/ year. Normotensive patient may become hypertensive in late pregnancy, during labor, or 24 hours postpartum.

Pre-Eclampsia

Defined As

Pre-Eclamsia is characterised by hyper tention protrinuria and oedema.

Dangers of Pregnancy Induced Hyper tention (PIH)

- BP ≥ 140/90 mmHg
- Systolic ↑ of 30mm Hg > pre-pregnancy. levels
- Diastolic ↑ of 15mm Hg > pre pregnancy. levels.
- Presents with HTN (Hypertension), proteinuria, edema of face, hands, ankles.
- Can occur anytime > 20th week of pregnancy.
- Usually occurs closer to due date. Will not resolve until birth.

General Signs of PRE-ECLAMPSIA

- Rapid weight gain; swelling of arms/face
- Headache; vision changes (blurred vision, seeing double, seeing spots)
- Dizziness/faintness/ringing in ears/ confusion; seizures
- Abdominal pain, ↓ production of urine; nausea, vomiting.
- Alarming signs:
  U - Urinary output dimished
  S - Sleep disturbance
  H - Headache
  E - Epigastric pain and eye symptoms.

Eclampsia

Seizures or coma due to hypertensive encephalopathy

Incidence

- Most serious complication.
- Affects ~ 0.2% pregnancy.
- Major cause of maternal death due to intracranial hemorrhage.
- Maternal mortality rate is 8-36%.

Risk factors

- < Age 20 years or > 40 years
- Twins, triplets
- Primigravida
- Molar pregnancy
- Preexisting HTN, Diabetes mellitus
- Renal or vascular disease
- Previous history of preeclampsia/eclampsia

Causes: Unknown.

Management: Usually only cure is termination of pregnancy. It depends upon symptoms.

Mild preeclampsia

- Bedrest
- Monitor at home or hospital.

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- Deliver close to EDD
- Frequent Blood Pressure, 24 hours urine, liver enzymes
- Fetal Heart Rate
- Ultrasounds.

Severe preeclampsia: BP = 160/110 mmHg, epigastric pain, 2-4+ proteinuria, ^ liver enzymes, thrombocytopenia [↓ 100,000].

Goal: prevent convulsions & control BP. Magnesium sulphate is the drug of choice

Magnesium Toxicity based on clinical signs: such as sharp drop in BP, respiratory paralysis and disappearance of patellar reflex.

- STOP infusion
- O_2 administration
- Calcium gluconate if magnesium sulphate toxicity present

Gestational Diabetes Mellitus

Glucose intolerance beginning in pregnancy.ussually present in the second or during the third trimester. Fasting blood sugar exceeds 90 mg/dl and post prandial value is greater than 120 mg/dl

Maternal risk	Infant risk
Hypertention disorders	Birth trauma
Pre term labour	Shoulder dystocia
Polyhydramnios	Hypoglycemia
Macrosomia (C/S rate)	Hyperbilirubinemia
	Respiratory distress syndrome
	Thrombocytopenia
	Hypocalcemia
	Fetal death

Pathophysiology

- Pregnancy hormones estrogen, HPL, prolactin, cortisol, progesterone, blocks insulin receptors > 20 weeks pregnancy.
- Results in increased circulating glucose
- More insulin released to attempt to maintain glucose homeostasis
- Patient feels "hungry" due to increased insulin
- vicious cycle of increased appetite & weight gain results

Diagnosis

- Oral Glucose Challenge Test (OGCT)
- Screen all women at 24-28 weeks.
- HIGHER Risk patient to be screened in 1st trimester/1st prenatal visit and at 24-28 weeks.

Determining High Risk Clients

- Family history DM; Previous GDM
- Marked obesity; Glycosuria
- Maternal Age > 30
- Previous infant > 4000g
- Member of high-risk racial/ethnic group
- Hispanic, Native American, South or East Asian, African American, Pacific Islander.
- If results negative, repeat during 24-28wks.

Interventions

Antepartum Goal: strict glucose control.

- Provide immediate education to patient. and family members
- Standard diabetic diet [2000-2500 cal/day].
- Total calories – 30Kcal/Kg for normal weight women

Distribution of calories: 40-50% carbs, 20% protein, 30-40% fat,

Recommend: 3 meals & 3 snacks evenly spaced to avoid swings in blood glucose. Snack at bedtime.1200 mg/day calcium, 30 mg/day iron, 400 mcg/day folate.

Intrapartum: monitor glucose levels and titrate with insulin

Postpartum: Mostly return to normal after delivery.

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- 50% patients. with GDM develop type II later in life.
- After 6 wk. PP (Postprandial) serum glucose estimation to be done
- Children of GDM (Gestational Diabetes Mellitus) patients. ^ risk for obesity/ diabetes in childhood/adolescence

Pre-Conception Planning:

- Begin during reproductive years
- Maintain normal HbA1c 3-6 months before conception & during organogenesis (6-8weeks) –minimize risk of spontaneous AB & congenital anomalies.
- HbA1c level > 7: increased risk for congenital anomalies & miscarriage. (Normal HbA1c = 4-6 %.)
- Multidisciplinary team: nutritionist, endocrinologist, high risk OBG nurse.
- Educate patient.- managing diet, activity, insulin Excercise
- Daily food diary to assess compliance.

7.5 Normal Labour

Definition

Labour is the process resulting from uterine contraction leading to expulsion of products of conception from the uterine cavity through vagina.

Normal labour

Labour is called normal when it satisfies the following criteria

- Spontaneous onset of labour
- Starts at 38 – 40 weeks
- Vertex presentation
- Occipito-anterior position
- Labour is not unduly prolonged (average 12 hours)
- No complication to the mother and baby

Causes of onset of labour

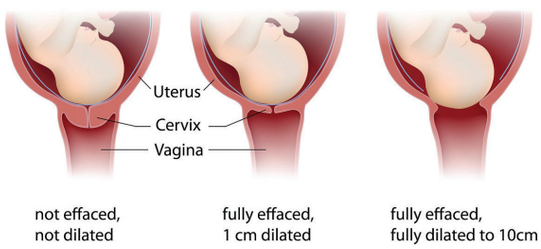
- The exact mechanisms are not known. The theories are,
- Biological – ageing of conceptus, cell degeneration, hypoxia.
- Mechanical – myometrial stretch, decidual cell stretch.
- Hormonal – prostaglandin release, oxytocin stimulation, fetal cortisol production and progesterone withdrawal.

Characteristics of uterine contraction

- Effective uterine contraction lasts for 30 – 90 secs create 20 – 30 mmHg of intrauterine pressure and occur every 2 – 4 minutes.
- The pain of contraction is throughout labour to be caused by one or more of the following
- Hypoxia of the contracted myometrium.
- Compression of nerve ganglia in the cervix and lower uterus by the tightly interlocking muscle bundles.
- Stretching of the cervix during dilatation.
- Stretching of the peritoneum overlying the uterus.

Changes in cervix

Cervical Effacement and Dilatation



Effacement of the cervix: it is the shortening of the cervix. The cervix is pulled up and become a part of the uterine segment. Effacement is expressed as ranging from 0% (no reduction in length) to 100% palpable below the fetal presenting part.

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Dilatation of cervix: cervix dilates to a maximum of 10 cm to enable the head to pass through the cervix.

Diagnosis Of Labour

True labour pain:

- Starts over the back (sacrum) radiates to lower abdomen and thigh.
- Intermittent colicky pain.
- Gradually the intensity, duration and frequency of contraction increases.
- Pain is associated with uterine contraction.
- Pain is not relieved by enema.

Dilatation of cervix: Progressive dilatation & effacement of cervix

Show: Blood stained mucus discharge per vagina due to separation of the cervical mucus plug.

Stages and Phases Of Labour

First stage: The first stage of labour is the interval between the onset of true pain and full cervical dilatation. Duration is 6-12 hours. The first stage is further divided into a latent and an active phase.

- Latent phase:

The latent phase extends from the onset of labour till 3 – 4cm dilatation. During this phase, uterine contraction are mild and irregular. They become intense, frequent and regular as the latent phase progress.

- Active phase:

The active phase is characterized by increased rate of cervical dilatation.

Second stage: The duration of the 2nd stage averages 2 hours for primi and 30 minutes for multiparaThe 2nd stage of labour is the interval between full cervical dilatation to delivery of the baby.

Diagnosis of second stage of labour:

- Bearing down pain with strong uterine contraction.
- Bulging of the perineum and gapping of the anus.
- Full dilatation of the cervix.

Third stage: The 3rd stage of labour is the interval between the delivery of the fetus to delivery of the placenta, umbilical cord and fetal membranes and lasts 15-30 minutes. Separation of the placenta is the result of continuous uterine contraction after delivery of the fetus . The contraction reduces the area of uterine placental bed, with placental separation occurring in the spongiosa layers of the decidua Vera. Blood loss is controlled by compression of spiral arteries by the continued contraction which transport the placenta from fundus into the lower uterine segment and through cervix into the vagina.

Fourth stage: The 4th stage is the stage of observation for atleast one hour after the expulsion of the placenta and membranes.

Mechanism Of Normal Labour

Definition: A Series of movements adapted by fetus in the birth passage during expulsion.

Mechanism of normal labour falls on: - **(3 P's)**

- **Power** – strength of contraction
- **Passage** – pelvic dimensions and configurations
- **Passenger** – size of the baby

Mechanism

a. Engagement:
   - When the greatest diameter of the presenting part (biparietal diameter in vertex) has passed the plane of the pelvic brim, the head is said to be engaged.It occurs in late pregnancy (primi) or at the time of labour (multi).

b. Descent:

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- The Presenting part descends slowly and progressively.It depends on cephalopelvic relationship

c. Flexion:
   - Good flexion aids engagement and descent.

d. Internal rotation:
   - It occurs on pelvic floor. The resistance of the pelvic floor helps.
   - The head must rotate to anterior (or posterior) to pass ischial spines.

e. Crowning:
   - After internal rotation and further descent, vulva form a crown around the head (i.e.) the biparietal diameter distends the valval outlet without any recession of the head even after contraction is over.

f. Extension:
   - Distension of perineum by vertex.
   - Occiput beyond symphysis &Head stands out.

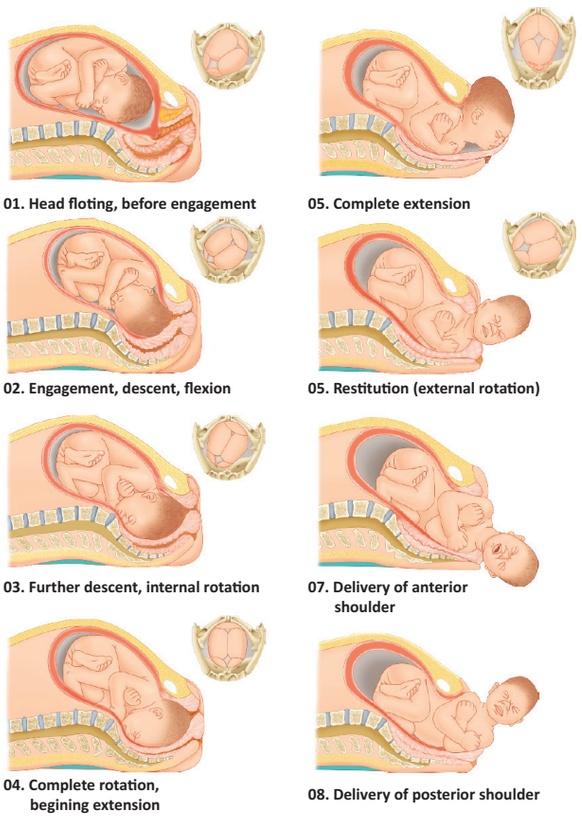
g. Restitution:
   - Untwisting of the neck, head rotates to the position occupied at engagement.

h. External rotation:
   - Shoulder descends in the path similar to that followed by the head and rotates anteroposteriorly.
   - Head swings.

i. Lateral flexion:
   - Anterior shoulder comes under the symphysis pubis.
   - Posterior shoulder sweep the perineum.

j. Expulsion:
   - After delivery of the shoulder under the symphysis pubis, the rest of the body expelled quickly. Rest of the body expelled with lateral flexion

MECHANISM OF NORMAL LABOUR



At the moment a baby's born , 1/3 of their blood is still outside their body. If you delay cord clamping 90 seconds they get 60% more blood cells. They get enough iron to last them through their first year. They get white blood cells to fight infection. They get antibodies. They get stem cells to help repair their body.

7.7 Normal Puerperium

Puerperium is the period following childbirth during which the body tissues especially the pelvic organs, revert approximately to the pre-pregnant state both anatomically and physiologically.

Anatomic and physiologic changes

- Uterus involution
- Regeneration of endometrium

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- Reduced bladder sensitivity to over distention
- Increased coagulability
- Fall in plasma volume

Uterine Involution

- In pregnancy, uterus increases 11 times in size and weight.
- Rapid involution – immediately following delivery it reduces from 1000gm to 100gm at the end of 6 weeks.
- Reversal of hypertrophy due to withdrawal of sex hormone causes increases collagenase, proteolytic enzyme causes autolysis of intracellular protein.
- Decrease uterine volume due to increase myometrial force and intrauterine pressure 150 mmHg.
- After pains 2 – 3 days more in multiparous and more during lactation due to increase in oxytocin.
- Uterine cavity- sterile, bactericidal effects of granulation tissues.

Lochia

Lochia is the vaginal discharge after giving birth.

Rubra– last for 3 days, contains fresh blood and necrotic tissue.

Serosa – last for 4-9 days, contains liquefied blood, leucocytes, serous, palour and reddish brown in colour.

Alba – last for 10-15 days ,contains leucocytes, mucus decidual cells, yellowish white in colour.

Cervix

- 1ST week – closes to 1 cm.
- External os – transverse slit.
- Complete healing 6 – 12 weeks.

Vagina

- Smooth, swollen and poor tone after delivery.
- 3 weeks – rugae first appear.
- 6 – 10 weeks – epithelium restored to normal.
- Lower vagina – suffers superficial laceration.

Pelvic Floor

Normal by 6 weeks except varying degree of musculoskeletal laceration.

Urinary Tract

- Immediate postpartum – bladder mucosabecomes edematous
- Over distension – incomplete emptying and presence of , residual urine are common urinary problem in puerperium
- 1 – 2 days – mild proteinuria in 50 % of women
- By 8 weeks – renal plasma flow reduces to normal, glomerular filteration returns to normal.
- Creatinine clearance becomes normal by 1st week.

Fluids And Electrolytes

- Weight loss - immediately after delivery – 5.5 kg – fetus, placenta, amniotic fluid 4 kg – excretion of fluids and electrolytes.
- Fluid loss – 2 liltres during 1st week. – 1.5 litres – next 5 weeks.

Electrolytes

- Total exchangeable sodium decreased but body water loss exceeds sodium loss.
- Decreased plasma progesterone causes decreased aldosterone antagonism and increased sodium.
- Tissue involution – cellular breakdown, increases potassium level.

Cardio Vascular Changes

i. Blood coagulation:
   - Rapid and dramatic changes in the coagulation and fibrinolytic system after delivery.

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- Extensive activation of clotting factors together with immunity.

ii. Blood volume: During delivery and soon after 1/5 of the volume is reduced due to
  - Blood loss in normal delivery – 400 ml and in caesarean section – 1000 ml
  - Obliteration of loss – resistance uteroplacental circulation
  - Maternal vascular bed decreases 10 – 15 %

iii. Hematopoiesis:
  - Leukocytosis – 25000/mm^3 during labour and puerperium.
  - Bone marrow hyperactivity present
  - Iron decreases,becomes normal by 2nd week.

Respiratory Changes

- Residual volume increase.
- Vital capacity and inspiratory capacity decrease.
- Post partum decreased progesterone and decreased respiration increase PCO2.

Menstruation

- Non-lactating: starts at about 12 weeks.
- Lactating: starts after 6 months
- 1st cycle: anovulatory or inadequate

Lactation

- Prolactin is an obligatory hormone which increases as pregnancy advances.
- Prolactin induced secretory activity is placental sex steroid.
- After delivery decreased sex steroid of lactation.
- Milk ejection by myoepithelial cells contraction. Milk propelled along with the ducts into lactiferous sinus beneath the areola.
- Neurohormonal reflex: afferent pathway to hypothalamus are stimulated by suckling through 4th and 6thintercostals nerve. Oxytocin is released by stimulation of auditory and visual efferent limb.
- Maintenance: suckling and emptying of duct and alveoli.

Complications Of Puerperium

- Genital tract infection
- Urinary tract infection
- Wound infection
- Mastitis
- Thromboembolism
- Incontinence/ urinary retention
- Anal sphincter dysfunction
- Episiotomy wound gaping

Postnatal Care

Mother:

a) Rest and sleep: Adequate rest and sleep are vital for maternal health, lactation and baby care.

b) Diet: A balanced diet contains high protein, carbohydrate, fats, minerals and vitamins. Additional calories are required for lactation. (500 calories/day)

c) Ambulation: Ambulation should be encouraged as soon as possible, 6 hours after normal delivery and 24 hours after a caesarean delivery. This helps preventing thrombo-embolism complications, improve venous return and muscle tone.

d) Bladder: The postnatal mother usually passes urine within 6 hours. In case of any difficulties, she should be encouraged to do so, by ambulation, plenty of oral fluids, opening the water tap while she is trying to pass urine, pour hot and cold water over vulva.

e) Bowel: Constipation is common due to painful perineum. Plenty of fluids, green leafy vegetables and roughage in diet will help.

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f) **Hygiene**: Bed sheet, linen and clothing should be clean and changed as when required. This will prevent infection. Bath, body sponging, cleaning at the breast and nipple and toileting of the perineum should be done.

g) **Exercise:** pelvic floor and abdominal exercise to restore muscle tone

7.8 Care of Newborn

First 24 hours is crucial for the newborn where most of the complication occur during that period.

Vital signs: Monitor cardio, pulmonary function and vital signs at frequent intervals.

Temperature: once a day, may be recorded 6 hourly if indicated.

Respiration: Normally regular, smooth and quite with a rate of about 30 - 60 breaths per minute. Any abnormality e.g:- grunting, dyspnoea may be noted.

Skin: Look for cyanosis, jaundice and dehydration.

Head, eyes mouth – must be inspected for any abnormalities and infection.

Umbilical cord: check daily for any inflammation, discharge, smell. Cord usually comes out by 6 – 7 days.

Stool: Number, color and character of stools should be noted. First stool known as meconium is dark, greenish viscid substance. After Subsequent to feeding of the baby, the color of stool changes to brownish yellow.

Urine: Usually passed during or shortly after birth. Most infant pass urine within first 24hours. Urine may stain napkin pink due to the heavy deposits of urates. Napkins should be changed immediately following soiling and local parts are cleaned and kept dry.

Feeding: Encourage demand feeding baby should be breast fed every 3 – 4 hours. Any abnormality like vomiting, distension should be noted.

Underfeeding: It is diagnosed by (1) failure to gain in weight.(2) dissatisfied with feeds (e.g) cry, disturbed sleep, (3) constipation or frequent small stool (or) scanty urine.

Overfeeding: usually occurs at the end of first week. Diagnosed by (1) vomiting soon after feeding, (2) frequent loose bulky stool with undigested curds (3) excoriation over buttock.

Clothing: Should be appropriate for climate.

7.9 Reproductive Health Care and Family Planning

Definition Reproductive Health Care

- Ability to reproduce and regulate fertility
- Safe motherhood – safe pregnancy and child birth with resultant safe mother and infant
- Safe sex with no fear of pregnancy and of controlling diseases.

Components of reproductive health	
• Pre-reproductive years:	Adolescent girl's health problem Nutrition Sex education Contraception and Adolescent pregnancy
• Reproductive years:	Age at marriage (ideally girls 21 – 25 yrs, boys 26 – 30 yrs) Family planning Legal abortion Infections Infertility
• Post-menopausal years:	Education on menopause Screening for genital cancer Prevention and cure of genital cancer

Definition Family Planning

Practices that help individuals or couples achieve the following:

- Avoid unwanted pregnancy

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- Achieve wanted pregnancy and child birth
- Spacing the pregnancies
- Determine the number of children in the family
- Choose the age for becoming pregnant

Contraception

Measures designed to prevent pregnancy due to coital act either temporary or permanenty

Temporary Methods Of Contraception

I. Natural Method

Rhythm Method:

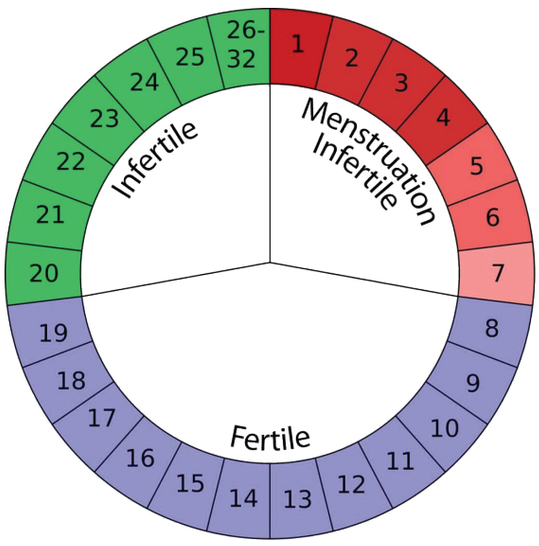
The menstrual cycle is divided into three phases for purpose of assessment of likelihood of conception.

Phase-1: relatively infertile phase last from onset of menstruation until the time of preovulation.

Phase-2: fertile phase. last from seven days preovulation to 48hrs post ovulation.

Phase-3: absolutely infertile phase lasts from 48hrs after ovulation until the onset of menstrual, bleeding about 10 – 16 days.

Methods to determine the phase of the cycle:



Testing cervical mucus:

During phase 1 and 3, the mucus is scanty , thick and breaks quickly when stretches. During phase 2, the mucus is more abundant thick and clear and stretches easily.

Measuring basal body temperature:

Basal body temperature should be measured in the morning. A sustained rise of temperature of 0.2 to 0.6 C indicates that ovulation has occurred

Advantages	Disadvantage
• No physical side effects • Economical • No method-related health risks	• High failure rate • No protection against sexually transmitted diseases (STD's) Hepatitis - B, HIV

Abstinence Complete abstinence

Coitus interruptus - During sex the man withdraws his penis from the vagina before he ejaculates

Lactational Amenorrhoea Method

It suppresses ovulation and thickens cervical secretions. It is effective in women less than 6 weeks of postpartum, who are breastfeeding.

Emergrncy Contraception

It reduces sperm transport and changes the endometrium thus unfavorable for fertilization. It is effective for women who have had unprotected intercourse within 72 hours and for victims of sexual assault.

Advantages of natural methods

- Natural method that does not require devices or medicine in the body.
- There are no side effects.
- No cost. Is morally and culturally acceptable.
- Better than not using any birth control method

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II. Barrier Methods

Condoms:

Types: -Latex (plain or treated with spermicide)

- The spermicide will immobilize or kills sperm providing added protection if breakage or leaks occur.

Direction of use:

- The condom should be applied before vaginal penetration and should cover the entire length of the erected penis. Adequate lubrication should be used and the condom should be removed immediately after ejaculation and disposed properly.

Advantages	Disadvantages
• Fairly effective in preventing pregnancy • Only contraceptive method that provides protection against STD's.	• High failure rate 3 to 15 per 100 women. • Only synthetic condom can provide protection against HIV and HBV's • If either partners has latex allergy, a non-latex product should be used.

Diaphragm:

Advantages	Disadvantages
• Effective in preventing pregnancy if used properly and provide same protection against STD's • Decreased risk of cervical cancer	• High failure rate • Slight risk of toxic shock syndrome. • Increased risk of UTI • It requires initial fitting.

Types:

i) flat spring ii) Coil spring iii) Arching spring

The diaphragm should lie just posterior to symphysis pubis and deep into the cul-de-sac, so that the cervix is completely covered and behind the centre of the membrane. Spermicide should be applied before each coital act. The diaphragm should left in place for a maximum of 8 hrs after the last coital act.

Cervical Cap

- It is a dome shaped cup that fits over the cervix.
- It cannot be left in the cervix for more than 48 hours.
- Only women with normal pap smear can use.

Spermicide

They are agents that cause destruction of the sperm cell membrane; thereby affecting mobility.

- Aerosol foams
- Creams and Jellies
- Vaginal suppositories
- Films & sponges

All contain spermicidal agents usually nontoxic.

Advantages	Disadvantages
• Serves as a lubricant and also provides some protection against STD's • Reduced risk of cervical neoplasia	• High failure rate • Effective for only 1-2 hours

III. Iucd- Intra Uterine CONTRACEPTIVE Devices

Modern Methods

They are flexible plastic device medicated with slowly released hormones. Copper – released devices interferes with the ability of sperm to pass through the uterine cavity.

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Progestin releasing device thicken the cervical mucus and thin the endometrial lining thus prevents conception.

Types:

Copper

- Copper - T 380 A
- Nova T
- Multiload 375

Silastic

Hormone releasing

- Progestasert
- Levonova / Mirena

Insertion:

1. Bladder empty, lithotomy position.
2. Posterior vaginal speculum is introduced in vagina and cervix are cleansed by antiseptic lotion.
3. Anterior lip grasped by Allis forceps. Uterine sound passed through the cervical canal to normal position of uterus and length of cavity.
4. Insert the device through the cervical Os up to the fundus and after positioning, inserter is withdrawn keeping the plunger in position.
5. Excess of nylon thread is to be cut.

Advantages	Disadvantages
• Highly effective in preventing pregnancy. • Immediately effective after insertion. • Long term protection is provided with copper T. • Can be used for emergency post coital contraception. • Do not affect breast feeding.	• Risk for pelvic inflammatory diseases. • Dysmenorrhoea and menorrhea within first few months after insertion. • IUD's offer no protection against STD's.

Side effects

- Cramping
- Abnormal menstrual bleeding

Complications

- Uterine and pelvic infection
- Expulsion
- Uterine perforation
- Ectopic pregnancy

IV. Hormonal Contraceptives

Combined oral contraceptives

They consist of synthetic oestrogen and progestin preparations, act by suppressing lactation, thickening of cervical mucus and alteration of endometrium.

Contraindication

Absolute	Relative
• Breast carcinoma • History of DVT, Pulmonary embolism • Acute liver diseases • Concurrent treatment with rifambicin • Familial hyperlipidemia • Pregnancy	• Smoking • Age > 35yrs • Obesity • Hypertension • Breast feeding

Side effects

- Amenorrhoea
- Breast fullness or tenderness
- Depression, severe vascular headache
- Hypertension
- Spoting or intermenstrual bleeding

Missed pills

- If one pill is missed, instruct the patient to take two pills at the next scheduled time and complete the pack as usual.
- If two or more consecutive pills are missed, instruct the patient to finish the package of pills.

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Progestron Only Pills

They cause suppression of ovulation, thickening of cervical mucus and alteration of the endometrium.

Advantages	Disadvantages
• Pill is rapidly effective • Fertility returns immediately when the pill is discontinued • Does not affect breast feeding • May improve anemia • Menstrual flow is decreased • Protects against endometrial cancer and pelvic inflammatory diseases	• Amenorrhoea • Intermenstrual bleeding • Must be taken everyday

Progestron only Injectable Contraceptives

They cause suppression of ovulation, thickening of cervical mucus, alteration of endometrium and change in tubal motility.

Advantages	Disadvantages
• Very & rapidly effective and long acting • Can be used by women more than 35 years.	• Return to fertility is delayed up to 5 – 7 months • Some patients experience weight gain, irregular bleeding, amenorrhea & excessive bleeding.

Implants (Norplant)

It consists of thin, flexible capsules filled with levonorgestrel that are inserted under the skin of women's arm. They cause suppression of ovulation, thickening of cervical mucosa, alteration of the endometrium and change in tubal motility.

Advantages	Disadvantages
• Highly effective and acts within 24 hours placement • Long term protection (3 – 5 yrs) • Immediate return of fertility on removal.	• Requires minor surgical procedure to insert and removal. • Provides no protection against STD's.

Advantages	Disadvantages
• Highly effective in preventing pregnancy. • Protection against endometrial cancer. • Benign breast disease, ectopic pregnancy and iron deficiency anaemia are also reduced.	• No protection against HBV, HIV or other STD's. • Must be taken every day.

Side effects

- Mastalgia
- Breast tenderness
- Weight gain or loss
- Irregular bleeding or spotting
- Amenorrhoea
- tHirsutism
- Hair loss

Permanent Method

Surgical Sterilization

It is appropriate to couples who desire permanent sterilization.

1. FEMALE: Tubal ligation OR Tubectomy

Types

- Puerperal sterilization
- 2. Interval tubal ligation:
- Minilaprotomy: The Pomeroy procedure performed using a 3 to 4 cm suprapubic incision under local anaesthesia with sedation.

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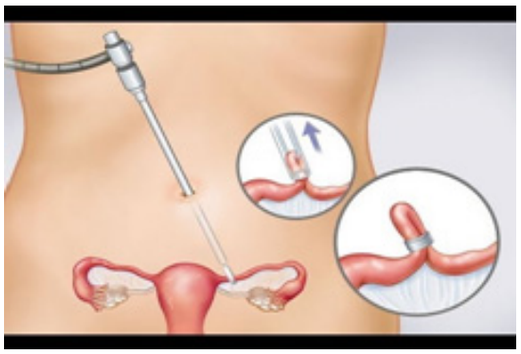
- Laparoscopic: Silastic rings are placed around loop of the tube, resulting in necrosis and occlusion.

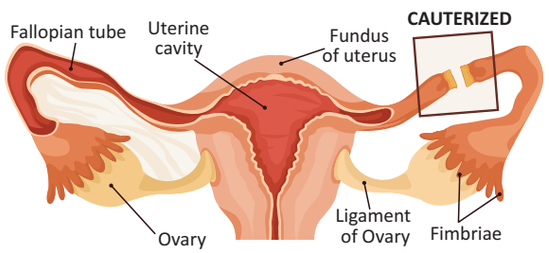


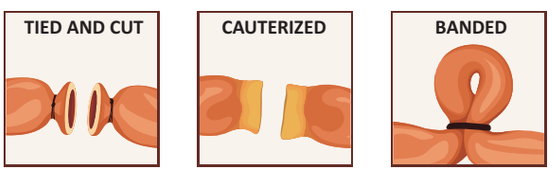
Advantages	Disadvantages
• Highly effective and no longterm side effects • Provided in outpatient basis	• Permanent procedure • No protection against STD's • Risk of ectopic pregnancy

DO YOU KNOW?

- World population 711 crore
- Indian population 1,251,695,584 (July 2015)
- Second most populous country
- Will become the first by 2022
- Occupies 17.5% of world population and 2.4% of land area
- Population growth ratio is 1.25%
- Birth rate is 20.22
- Death rate is 7.4

SURGICAL STERLIZATION





Advantages	Disadvantages
• Outpatient procedure under local anesthesia • Less expensive • Fewer complication	• Permanent procedure • No protection against STD's

Activity 1

Calculate EDD for the women whose LMP is 16th june 2018.

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SUMMARY

- Midwifery is the art and science of caring for woman undergoing normal pregnancy, labour and the period following child birth.
- Normal pregnancy involves a continuous process. It is divided into three trimesters. It starts from fertilization to delivery of the fetus.
- Physiological changes occur during pregnancy especially there is marked changes in genitourinary system. Pregnancy is diagnosed by first in urine testing of beta HCG and confirmed by ultasonogram. Expected date of delivery is calculated by last menstrual period.
- Antenatal care refers to the care given to an expectant mother from the time of conception to the beginning of labour. Importance of regular follow up should be insisted to the women. Advise them to take regular calcium, iron and folic acid.
- Identification of high risk pregnancy and provide appropriate treatment to reduce the maternal and fetal morbidity and mortality.
- Each visit should check blood pressure and weight in order to identity the early signs of pregnancy induced hypertension which is major cause of maternal death and fetal death.
- Labour is the process resulting from uterine contraction leading to expulsion of products of conception from the uterine cavity through vagina. Labour is diagnosed by dilatation of cervix and contraction of uterus.
- A serious of movements adapted by fetus in the birth passage during expulsion is called mechanism of normal labour. Mechanism of normal labour falls on: - (3 P's) power, passage, and passenger.

There are three stages of labor.

- **First stage:** First stage of labour is the interval between the onset of labour and full cervical dilatation. Duration is 6 – 12 hours.
- **Second stage:** It is the interval between full cervical dilatation and delivery of the fetus.
- **Third stage:** It is the interval between the delivery of the fetus and delivery of the plancenta, umbilical cord and fetal membranes and last 15 – 30 minutes.
- Puerperium is the period following childbirth during which the body tissues especially the pelvic organs, revert approximately to the pre-pregnant state both anatomically and physiologically. Post natal care which includes of rest, sleep, early ambulation, diet, hygiene, etc.
- First 24 hours is crucial for the newborn where most of the complication occur during that period. Feeding should be planned for every 2 – 4 hours intervals including demand of the baby
- Early initiation of breast feeding should be initiated within 1 hour of child birth. Educate the mother about the exclusive breast feeding for six month and continue for 2 years along with weaning food.
- Mother has to be instructed to follow contraceptive methods. There are two types of contraception temporary and permanent. Temporary methods divided into natural, hormonal, intrauterine devices and barrier methods. Tubectomy and vasectomy are the permanent methods.

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GLOSSARY A-Z

Conception – the action of conceiving a child or of one being conceived.

Antenatal – relates to the medical care of women when they are expecting a baby.

Labour – childbirth, the process of delivering a baby and the placenta, membranes & umbilical cord.

Puerperium – the period of about 6 weeks after childbirth during which the mother's reproductive organs return to their original non-pregnant condition.

Gravid – total number of confirmed pregnancies that women has had, regardless of outcome.

Parity – the number of births that a women has had after 20 weeks.

Abortion – the deliberate termination of human pregnancy during the first 28 weeks.

Caesarean – it is the use of surgery to deliver babies.

Lactation – it is the production of milk by women during the period after they give birth.

Ammenorrhoea – the absence of menstruation.

Expand the following	Expansions
AF	Amniotic Fluid
AFI	Amniotic Fluid Index
BP	Blood Pressure
C/S	Caesarean Section
CBC	Complete Blood Count
CNS	Central Nervous System
DES	Diethylstilbestrol
DM	Diabetes Mellitus
EDD	Expected Date of Delivery
FH	Fetal Heart
FHR	Fetal Heart Rate
GDM	Gestational Diabetes Mellitus
GI	Gastro Intestinal
HTN	Hypertension
HIV	Human Immunodeficiency Virus
IUGR	Intra Uterine Growth Retardation
IVF	In Vitro Fertilization
LMP	Last Menstrual Period
PIH	Pregnancy Induced Hypertension
PP	Post Prandial
PPROM	Preterm Premature Rupture of Membranes
RL	Ringer Lactate
WHO	World Health Organization
PTL	Pre Term Labour
HPL	Human Placental Lactogen
STD	Sexually Transmitted Disease
UTI	Urinary Tract Infection
IUD	Intra Uterine Device
IM	Intra Muscular
HBV	Hepatitis B Vaccine
DVT	Deep Vein Thrombosis

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Evaluation

I. Choose the correct answer

1. The dramatic changes of uterus is influenced by hormone during pregnancy
   a) oestrogen
   b) progesterone
   c) oxytocin
   d) prostaglandins

2. At term the weight of the pregnant mother is increased upto (12.5 kg)?
   a) 10kg
   b) 11.5kg
   c) 12.5kg
   d) 15kg

3. The first fetal movement heard by the pregnant mother is called as. (quickening)
   a) Quickening
   b) Softening
   c) Soufling
   d) Meconium

4. The mucoid discharge and the development of antibacterial plug of mucous in the cervix (None of the above)
   a) Chloasma
   b) Operculum
   c) Lineanigra
   d) None of the above

5. The phase extends from onset of labour to till 3 – 4 cm of cervix dilation(latent)Fear
   a) Latent
   b) Active
   c) Maximum curve
   d) MaximumSlope

6. The untwisting of the neck in mechanism of labour is referred as (restitution)
   a) Crowning
   b) Restitution
   c) Desent
   d) Engagement

7. Puerperium is a period of _____ weeks (six)
   a) 6 b) 10
   c) 12 d) 15

8. The common side effects for Intrauterine devices (hypertension)
   a) Cramping
   b) Abnormal Mentural Bleeding
   c) Amennorhea pelvic inflammatory disease
   d) Expulsion hypertension

9. Emergency contraception is effective within _____ Hours (72)
   a) 48 b) 24
   c) 72 d) 6

10. Sudden expulsion of normally implanted placenta (Abruptio placenta)
    a) Abruptio placenta
    b) Placenta praveia
    c) Placenta accrete
    d) Placenta percreta

II. Short answers

1. Define midwifery.
2. Define labour
3. Define puerperium?
4. How will you diagnose pregnancy?
5. Write the management for gestational diabetes mellitus.
6. Define placenta praevia?
7. Define family Planning

III. Brief answers

1. What are the physiological changes in pregnancy?
2. Explain about the mechanism of labour.
3. Explain physiological changes occur during puerperium briefly.

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4. What are all the postnatal care?
5. What are the benefits of intra uterine devices.
6. Mention the types of intra uterine devices.
7. Write the importance of combined oral pills.
8. What do you mean by emergency contraception?
9. What are all the components of reproductive health?
10. What do you mean by norplant?
11. What are the two methods of permanent sterilization?

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ICT CORNER

CHILD HEALTH

Through this activity you will be to know the various changes happen during the menstrual cycle

Steps

- **Step 1:** Type the URL link given below in the browser or scan the QR code.
- **Step 2:** A picture of the foetus is displayed, week numbers of the trimester is given above and trimester timeline is given below the picture.
- **Step 3:** Click any week number to know the position and growth condition of the fetus on the particular week
- **Step 4:** Click the picture to see it enlarged.

Step1

Step2

Step3

Step4

URL : https://www.healthlinkbc.ca/health-topics/tn10283

https://www.webmd.com/baby/interactive-pregnancy-tool-fetal-development?week=3

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CHAPTER 8

Child Health Nursing

குழல்இனிது யாழ்இனிது என்பதம் மக்கள்
மழலைச்சொல் கேளா தவர்.

"The pipe is sweet, the lute is sweet," say those who have not heard the prattle of their own children

Learning Objectives

At the end of this chapter, the students will be able to:

- understand about the newborn
- explain the medical and special care of newborn
- explain the universal immunization programme
- explain the importance of exclusive breast feeding
- understand the growth and development
- describe weaning
- explain the maternal and child health services

HSL7B

Introduction

"A person is a person no matter how small" said by Dr. Seuss. Children, though small, they are unique individual and are our most valuable resources. They are the gift to the society and a nation's wealth depends on the health of its children. They need healthy atmosphere for their all round development and also need special care since they are world's most valuable resource and among the most vulnerable in the society. Knowledge about the needs and problems of the children will help us to provide healthy atmosphere there by to create a better world for them.

8.1 Definition of Newborn

A newborn is otherwise known as a "neonate" is a child under 28 days of age.

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Neonatal period

The period between birth to first 28 days is known as neonatal period. Early neonatal period is the first seven days of life after birth. Late neonatal period includes from the 8th day to 28th day. Proper care of the newborn during this period is mandatory to pave a foundation for a healthy life.

Characteristics of Newborn Baby

Physical characteristics

- Birth weight of the normal term newborn ranges from 2.5 to 4.0 kg.
- Length ranges from 47-52 cm.
- Babies head circumference ranges from 34 cm - 35 cm and chest circumference ranges from 31 cm -32 cm
- The chest circumference is approximately 2-3 cm less than the head circumference at birth.
- The chest is rounded and abdomen is prominent.
- Newborn's trunk is relatively larger and the extremities are short.
- Newborn has flexed attitude.

Physiological characteristics

- Temperature is 36.5°C to 37.5°C
- Heart rate is 120-160 beats per minute
- Respiratory rate is 40-60 breaths per minute
- Baby has a vigorous cry.
- Baby has normal breathing, pink in colour, sucking and swallowing normally
- Newborn passes its first stool within 24 hours and are dark green coloured and thick. The first stool is known as **meconium**. The colour of the stool changes after initiation of breast feeding.
- The first urine is passed during or shortly after birth.
- The newborn loses 10% of its body weight during the first week. The initial weight loss is regain by 10th day.
- Hemoglobin is high (around 18g/dl)

DO YOU KNOW?

A newborn usually sleeps around 18 hours a day

Important Neonatal Reflexes

Rooting Reflex

Eliciting Rooting reflex

It helps the baby to locate the mother's nipple without the mother directing the baby's mouth. When the corner of the baby's mouth is touched, the lower lip is lowered and the tongue is brought forward towards the contact.

Sucking and swallowing reflexes

Eliciting sucking reflex

Introduce a clean finger in to the mouth of the newborn and the baby will start sucking the finger.

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Moro reflex

Newborn exhibiting Moro reflex

It is elicited by raising the shoulder for 45° from ground and then dropping by 30°. There will be abduction and extension of arms with opening of fingers. This is followed by flexion and adduction of arms.

Palmar Grasp reflex

Eliciting Palmar grasp

It is elicited by touching the baby's palm from the ulnar side with finger or any other suitable object. The fingers close and grasp the object.

8.2 Medical and Special Care of Newborn

The first week of life is the most crucial period in the life of an infant. In India, 61.3 percent of all infant deaths occur within the first month of life. Of these, more than half may die during first week of birth. This is because the newborn has to adapt itself rapidly and successfully to an alien external environment. The risk of death is the greatest during the first 24-48 hours after birth.

Principles of Newborn care

- To promote adequate oxygenation
- To prevent hypothermia
- To promote early breastfeeding
- To prevent neonatal infections
- To identify at risk newborn
- To facilitate stabilization of the newborn

MNAX1

Care of newborn

Maintenance of normal respiration and oxygenation

The first cry of the baby after birth is the sign of respiration. All babies should cry immediately after birth. If the baby doesn't cry, it needs immediate attention of the health care personnel. As soon as the baby is born, the airway should be cleared of mucus and any other secretions within the labour room. Then continuous monitoring of respiration and heart rate is done for every 15 minutes for first 2 hours or till adaptation to external environment. Positioning the baby with its head extended may help in the drainage of secretions. A gentle suction in the mouth first and nostrils second can facilitate removal of secretions and amniotic fluid. Resuscitation is necessary for babies who do not breathe within a minute.

The **APGAR** score is taken at 1 minute and again at 5 minutes after birth. It requires immediate and careful observation of the Appearance, Pulse, Grimace, Activity and Respiration. Each sign is given a score of 0, 1 or 2. It provides an immediate estimate of the physical condition of the baby. A perfect score should be 9 or 10. A score below 5 needs prompt action.

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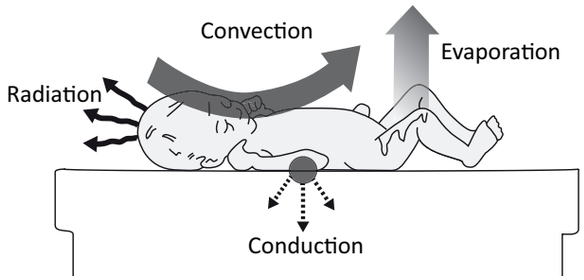
APGAR Score

Sign		Score	
	0	1	2
Appearance (colour of the baby)	Blue/pale	Body pink Extremities blue	Completely pink all over
Pulse(Heart rate)	Absent	Below 100	Above 100
Grimace (Reflex response)	No response	Facial movement only with stimulation	Sneezes, Coughs
Activity (Muscle tone)	Lethargic and extremities extended	Some flexion of extremities	Active movements
Respiration	Absent	Slow and irregular	Regular with cry

Maintenance of Body temperature (warmth)

Body heat is lost from the newborn by four ways. They are as follows:-



- Convection- Leaving the baby in a draught (Cool air)
- Radiation – If the baby's head is not covered, the body heat is able to pass into surrounding air.
- Conduction – Leaving the baby on a cold surface
- Evaporation – Baby not dried after birth the amniotic fluid evaporate by using by body heat.
- The body temperature below 36.5°C is known as hypothermia.

To maintain the temperature of the newborn one must do the following

Provide skin to skin contact to the baby if possible

If skin-to-skin contact is NOT possible:

- Wrap the baby in a clean dry warm cloth
- Mummify the baby
- Cover the baby's head with cap.
- Assess warmth every 4 hours by touching baby's feet
- Keep the room warm
- Remove all wet cloths
- Rooming in. The mother should be encouraged to keep the baby with her.

How to provide skin to skin contact?
In skin-to-skin contact, the baby is placed naked on the mother's bare chest, between her breasts. A blanket should be draped over both of them for warmth. If the mother is unable to provide skin-to-skin contact, then the father can provide.

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Breast feeding

It should be initiated as early as possible after birth. The first milk which is called **"colostrum"** is the most suitable food for the baby during early period because it is rich in anti-infective factors. It contains high concentration of protein and other nutrients the baby needs.

Cord care

The stump is kept dry and clean. Nothing should be applied over stump. Bandages should not be applied. Fold diaper below stump. If the stump is wet, wash with clean water and soap, dry with clean cloth. Usually the stump will fall in 7-10 days time. If umbilicus is red or draining pus or blood, the mother should be advised to see the health worker.

Eye care

Eyes of the babies are cleaned from inner canthus to outer canthus using sterile wet gauze or cotton in the hospital and with a clean cloth at home. Nothing should be poured into the eyes of the newborn unless medically indicated.

Vitamin K injection: Vitamin K injectioning is given intra muscularly to prevent bleeding.

Care of Skin: It is advisable to postpone the formal bath to the second week. However sponge bath may be given after 24 hour of birth.

Urine and meconium: Check for passage of urine and meconium.

Immunization: Hepatitis B vaccine and zero doses of OPV and BCG is given immediately. Thereafter, the child should be immunized on specific dates.

Harmful practices which should not be followed for newborn

- Giving prelacteal feeds soon after birth like sugar water or honey or donkey milk, jaggery water.
- Discarding the colostrums (the first milk secretion from the mother)
- Applying ashes or soot or powder or dry cow dung on the umbilical cord of the baby.
- Applying kajal on the baby's face to prevent bad eye
- Tying black thread or bangles to the baby's hand or leg to prevent bad eye.
- Exposing baby to a "holy" smoke (Sambirani) after bath.
- Giving home remedies for digestion like vasambu
- Pouring of oil into eye or ear.
- Blowing of nose and ear during bath

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Red flag signs

These are danger signals to be identified at newborn. Presence of one or more of these sings is an indication for prompt evaluation and treatment.

- Feeding difficulty
- Persistent vomiting
- Fast breathing (more than 60 breaths per minute)
- Hypothermia (temperature less than 35.5°C
- Hyperthermia or Fever,Temperature more than 37.5°C
- Seizures
- Lethargy
- Fatigue yellowish discoloration

A newborn usually In India, the newborn death rate is 25.4 in 1000 live births as per 2016 statistics

8.3 Universal immunization programme

Immunization is a mass means of protecting the greatest number of people. It has to be planned according to the needs of the situation and the prevailing health issues. Every country has its own immunization schedule to suit the local needs. Under immunization, immunizing agents such as antisera, live vaccines and inactivated or killed vaccines are administered.

Cold Chain and Equipments

The vaccines should be stored at an appropriate temperature (preferably low) and the temperature should be maintained during its transport from the manufacturing site to the actual vaccination site. This system of storage and transport is known as the **"cold chain".** If the temperature is not maintained, there is a possibility of vaccine failure. It is expected to maintain 6 rights of supply chain. They are as follows:-

- Right vaccine
- Right dose
- Right site
- Right time
- Right condition(temperature)
- Right person

To maintain cold chain, certain equipments are used in Universal Immunization Programme. They are as follows:-

- Walk in freezers
- Walk in coolers
- Deep freezer
- Ice lined refrigerator
- Domestic refrigerator
- Cold boxes
- Vaccine carriers
- Ice pack

Ice lined Refrigerator

Deep Freezer

Cold box and vaccine carrier

Ice pack

Vaccine carrier

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Universal Immunization Programme

The **World Health Organization** officially launched a global immunization programme, known as **Expanded Programme on Immunization (EPI)** in May 1974, to protect all children of the world against six vaccine –preventable diseases. They are namely diphtheria, whooping cough, tetanus, polio, tuberculosis and measles. EPI was launched in India in January 1978. This programme is now called as **Universal Immunization Programme (UIP)** in India.

National Immunization Schedule for Infants and Children in India

BCG Vaccination

In addition to the above mentioned vaccines, Rota Virus vaccine & Japanese Encephalitis vaccine is given in selected states.

Diseases and its vaccine

S. N	Vaccine	Protection against
1	BCG	Tuberculosis
2	Hepatitis B	Hepatitis B, liver infection
3	Oral Polio Vaccine	Polio
4	Inactivated Polio Vaccine	
5	Pentavalent vaccine	Diptheria, Pertussis, Tetanus, Hepatitis B &Haemophilus Influenza B
6	Measles Vaccine	Measles
7	DPT Vaccine	Diptheria, Pertussis, Tetanus
8	TT (Tetanus Toxoid)	Tetanus
9	Rota virus Vaccine	Diarrhoea
10	Japanese Encephalitis Vaccine	Japanese Encephalitis - a brain infection

Vaccine	When to give	Dose	Route	Site
BCG (Bacilli galmetteGurein)	At birth	0.05ml	Intra dermal	Left Upper arm
Hepatitis B birth dose	At birth	0.5ml	Intra muscular	Left Antero lateral side of mid thigh
OPV zero dose	At birth	2 drops	Oral	
OPV 1, 2, &3 (Oral Polio Vaccine)	At 6, 10 & 14 weeks	2 drops	Oral	
IPV (Inactivated Polio Vaccine)	At 14 weeks	0.5ml	Intra muscular	Right-Antero lateral side of mid thigh
Pentavalent 1,2 & 3 (Diptheria, Pertussis, Tetanus, Hepatitis B &HIB)	At 6, 10 & 14 weeks	0.5ml	Intra muscular	Left Antero lateral side of mid thigh
Measles – 1st Dose	At 9 completed months	0.5 ml	Subcutaneous	Right Upper arm
DPT Booster-1	16-24 months	0.5ml	Intra muscular	Left Antero lateral side of mid thigh
Measles – 1st Booster Dose	16-24 months	0.5 ml	Subcutaneous	Right Upper arm
OPV Booster	16-24 months	2 drops	Oral	
DPT Booster-2	5-6 years	0.5ml	Intra muscular	Left Upper arm
Tetanus Toxoid (TT)	10 years & 16 years	0.5 ml	Intra muscular	Upper arm

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8.4 Breast feeding

Breast feeding should be initiated as soon as after birth of the baby. A baby is usually alert immediately after birth which is the ideal time to facilitate breast feeding. The baby will spontaneously seek the breast if it is put on skin to skin contact with its mother's body. Breast milk is the best milk, suited for a newborn. It contains all the nutrients for the normal growth and development of a baby from birth to first six months of life.

Exclusive Breast feeding

In exclusive breast feeding, the infant is given only breast milk. Even the water is not given – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines.

Healthy neonates when placed skin to skin on their mother's tummy and chest after birth, shows amazing behaviours. The baby moves, crawls, smells and licks the mothers nipple. Finally, the baby on its own attaches to the breast and feeds.

The first milk secreted from the breast is known as colostrum, also called the baby's 'first vaccine' as well as considered as **"liquid gold"** which is extremely rich in nutrients and antibodies.

WHO recommendations on Breast feeding

Babies should be **exclusively** breast fed for the **first 6 months** of life to achieve optimal growth, development and health. Thereafter, infants should be given complementary foods which are nutritionally adequate and safe to meet their nutritional requirements,while continuing to breastfeed for up to two years or beyond.

Advantages of Breast feeding

For babies

- It is safe, clean and hygienic
- It is cheap and available in correct temperature to the infant
- It completely meets the nutritional requirement of infants upto 6 months
- It provides immunity to the infants
- It protects babies from diarrhoea and respiratory infection
- It is easily digestible
- It promotes bonding between the mother and infant
- It prevents under nutrition as well as over nutrition
- It reduces the risk of overweight and obesity in children
- It increases the Intelligence Quotient of the babies
- It ensures food security for the babies

For the mother

- Breast feeding delays next pregnancy
- It lowers risk of breast and ovarian cancer
- It decreases mother's work load

For the family and society

- Breast feeding saves money
- It promotes family planning
- It decreases the need for hospitalization

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Reflexes useful for breast feeding

- The following two reflexes are helpful for the babies in breast feeding.
- Rooting reflex: To find the nipple and proper attachment to breast.
- Sucking reflex: To draw out milk from mother's breast.

Types of Breast Milk

The breast milk secreted undergoes changes as the days goes on to meet the demands of the baby.

S. N	Breast Milk	Characteristics
1	Colostrum	This milk is secreted in the first week of life.Thick and yellow. Rich in protein and antibodies
2	Transitional milk	Milk that is secreted between the 1st and the 2nd week. The fat and sugar content starts increasing.
3	Mature milk	After 2 weeks, the milk secreted is known as mature milk It is thinner and watery Rich in all necessary nutrients

Colostrum Foremilk Hindmilk

Foremilk vs Hindmilk

The milk that is secreted when the baby initiates feeding is foremilk whereas the milk that is secreted at the end the feed is hindmilk. The foremilk satisfies the thirst of the baby whereas the hindmilk which is high in fat provides satiety.

Techniques of breast feeding

Positioning

- The mother is relaxed and comfortable.
- The baby's head and body are in a straight line
- The baby's face is opposite the nipple and the breast
- The baby's upper lip or nose is opposite the mother's nipple
- The baby is held or supported very close to the mothers body
- The baby's whole body is supported if the mother is in a sitting position

Attachment: It is otherwise known as latching. It means attachment of nipple along with areola in baby's mouth and not nipple alone.

Key points to good attachment

- The mouth is widely open
- The tongue is forward in the mouth, and may be seenover the bottom gum
- The lower lip is turned outwards
- The chin is touching the breast

More areola is visible above the baby's mouth than below it

Burping: After feed the baby should put on to the left shoulder of the mother with its head supported and then with the right arm, the mother should gently pat on the baby's back. It avoids regurgitation.

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Don'ts in Breast feeding

- Avoid prelacteal feeds
- Avoid bottle feed
- Do not discard colostrum
- Do not give water

Checking adequacy of breast feeding

The following indicates that baby is getting adequate breast milk.

- Baby is passing urine 6-7 times a day
- Baby is passing well formed stools
- Sleeping comfortably after feed for atleast 2-3 hours
- Gaining weight adequately.

8.5 Growth and Development

Growth refers to an increase in size and development refers to maturation of function. Starting from conception, growth and development is influenced by various factors both inside the uterus and external environment. Growth and development begin at conception and end at maturity.

Definition of growth and development

Growth is defined as an increase in size of an individual. This increase in size is due to increase in the number and diameter of the cells.

Development denotes the functional maturity of the child. It is the mental maturation with acquisition of skills.

Though growth and development are not the same, they are assessed simultaneously. They are unique characteristics of children and any problem in this process at any stage can result in deviation of growth and /or development.

Stages of Growth

The following are the stages of growth in children

S.N.	Stages	Growth period
1	Embryo	Implantation to 8 weeks of gestation
2	Fetus	9th week of gestation to birth
3	Newborn	Birth to 28 days of life
4	Infant	Birth to 1 year of age
5	Toddler	1-3 years of age
6	Preschool	3-5 years of age
7	School age	6-12 years of age
8	Adolescence	13-18 years of age

Assessment of growth

- Physical anthropometry (weight, height, circumferences of head, chest, abdomen and pelvis)
- Assessment of tissue growth (skin fold thickness and measurement of muscle mass)
- Bone age (x ray of the bone)
- Dental age (by counting the number of erupted teeth)
- Biochemical and histological means.

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Examples of developmental tasks

S. N.	Developmental areas	Examples
1	Gross motor	Sitting, walking, running, climbing & jumping etc
2	Fine motor	Hand skills like writing, buttoning, holding objects and visual development
3	Cognitive development	Thinking, decision making, recalling, learning of maths etc.,
4	Speech, Language and hearing development	Speaking, understanding language, replying and responding by verbal and non verbal communication
5	Personal social behavior development	Feeding, toileting, dressing, establishing and maintaining social relationship.

Assessment of development

Development can be assessed under various categories. They are

- Motor (gross and fine motor) development
- Speech, Language and hearing development
- Cognitive development
- Personal social behavior development

Principles of growth and development

- Growth is a continuous process
- Growth is an orderly process
- There is period of rapid growth and slow growth
- Growth follows a sequence
- Growth proceeds from general to specific
- Head grows faster than the body and extremities
- Growth pattern is same for all children
- Rate of development varies from child to child
- Boys and girls grow differently

Factors influencing growth

Growth is influenced by interaction of both genetic and environmental factors. Children generally grow to their genetic height potential with little outside assistance. Parents have to provide best possible environment for their growth to take place.

Genetic factors: In general, Asians tend to be smaller than Europeans while Afro Americans are taller than white Americans

Parental influence: Tall parents tend to have taller children.

Gender: Boys tend to be taller and heavier than girls

Genetic disorders: Chromosomal disorders such as down syndrome, Turner syndrome and genetic mutations can adversely influence growth.

Prenatal (before delivery) growth: The size at birth is primarily influenced by maternal health and uterine environment. Maternal health condition affects the growth of the foetus. Certain diseases like diabetes, hypertension during pregnancy affects the growth in the uterus.

Post natal (after delivery) growth

Nutrition: Lack of nutrition during first two years of life after birth has remarkable influence on the growth of the child.

Chronic illnesses in children: Congenital heart diseases, recurrent pneumonia, persistent diarrhea, tuberculosis leads to growth failure.

Hormonal influences: Growth hormone and thyroxin deficiency and sex hormone deficiency during puberty affects growth.

Emotional factors: Emotional deprivation, anxiety may affect the child's growth.

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Developmental mile stones in gross motor functions

Age	Mile stones
3 months	Neck holding
5 months	Sitting with support
8 months	Sits independently without support
9 months	Standing with support
10 months	Walking with support
11 months	Crawling (creeping)
12 months	Standing without support
13 months	Walking without support
18 months	Running
2 years	Climbing upstairs
3 years	Riding tricycle

Roll over

Sitting

Crawling

Squatting

Standing with support

Walking

Standing on one leg

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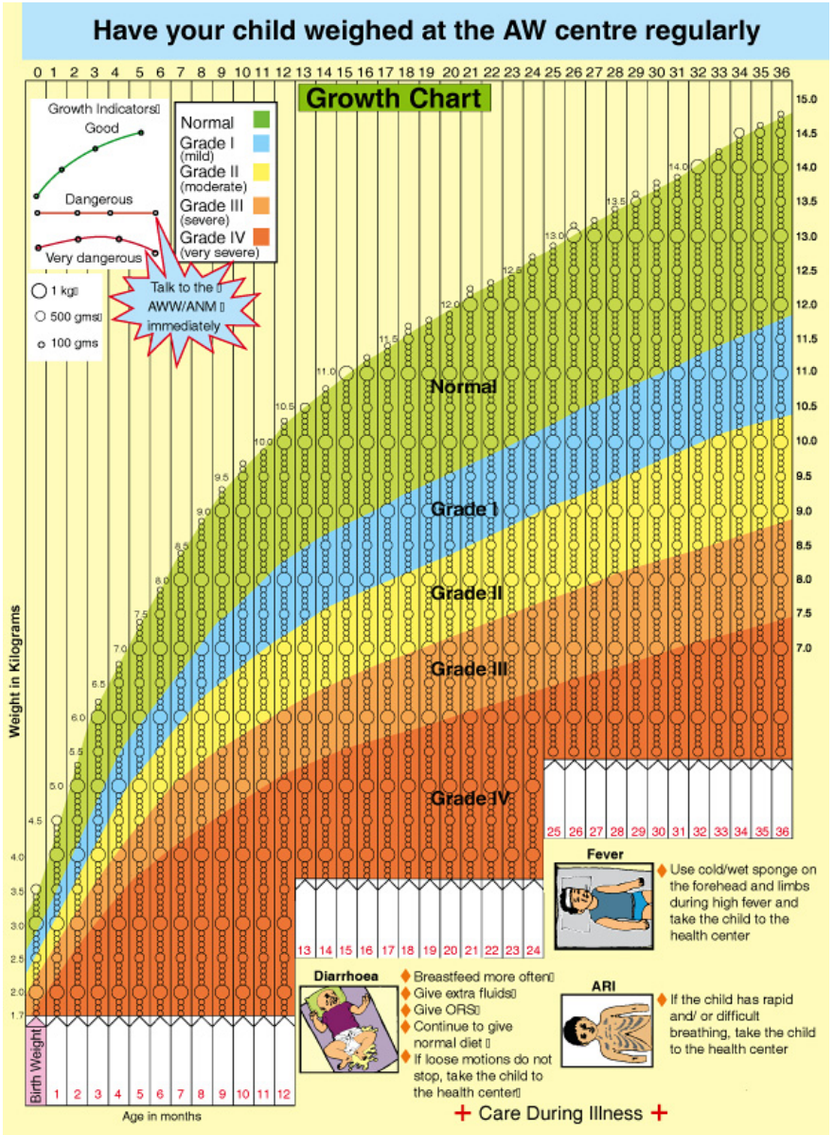
Growth Chart



WHO growth chart

Growth chart is developed by **Prof. David Morley.** It is a visual display of child's growth and development. In growth chart, child' weight is recorded periodically and a curve is drawn. A flat curve indicates that the child's growth is arrested or slowed down. There are reference curves printed in the growth chart. One has to compare the child's growth curve with the reference curve to detect normalcy or any deviation. There are Height for age and Weight for height chart is available. The various types of growth chart available in India are

- WHO growth chart
- Govt. of India Growth chart
- ICDS growth chart

Uses of growth chart

- To ensure normal growth
- To identify any deviation in growth
- To assess the health status
- To teach mother about the importance of proper care
- To motivate the mother to promote normal growth

8.6 Weaning

Weaning is giving family foods in addition to breast milk. Family foods are foods that the rest of the family normally eat, can give babies all the nourishment they need without any additional cost. Weaning is a gradual process by which the infant becomes accustomed to the adult diet. The weaning period is the most crucial period in the child's development. Weaning, if not done properly, lead to diarrhea and malnutrition.

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Definition of Weaning

Weaning is the gradual replacement of breastfeeding with other foods.Weaning is the process by which a baby slowly gets used to eating family or adult foods and relies less and less on breast milk.

Time of weaning

It is a gradual process starting around the age of 6 months, because the mother's milk alone is not sufficient to sustain growth beyond 6 months.

Supplementary foods

During weaning, suitable foods rich in protein and other nutrients are given to the child. These foods are called supplementary foods. These are usually cow's milk, fruit juice, soft cooked rice, dhal, vegetables and egg yolk. As far as possible, locally available foods should be used in weaning the child. The weaning/ supplementary foods do not replace breastmilk, they complement it. As the baby gets older it needs more food to grow and stay healthy.

Characteristics of ideal weaning foods

- High in energy
- Easy to digest
- Low in bulk and viscosity (not too thick)
- Fresh and clean
- Inexpensive and easy to prepare
- Not too highly seasoned

VDQO4

Techniques of weaning

- Wash hand thoroughly with soap before preparation of weaning foods.
- Introduce one food at a time
- Let the baby get used to one food for a few days before introducing another.
- Start by giving one or two teaspoons and gradually increase the quantity
- Give food in addition to regular breast feeds.
- Do not use a feeding bottle.
- Slowly increase the number of meals and the amount of food given.
- Feed babies using a clean cup and spoon.
- Do not add water to the weaning food.
- Encourage the child to hold the food
- Encourage eating on its own
- Avoid force feeding
- Avoid ready made processed foods

By the age of eight months, most babies need four 'meals' a day including a variety of foods, in addition to regular breastfeeding. At one year old a child should be able to be given all types of family foods, although the food may still need to be softened or mashed. Patience is needed when babies are first starting to eat family foods. There is no need to buy expensive commercially manufactured weaning foods.

Rules for safe preparation of weaning foods

- Wash hands before preparing food
- Prepare weaning foods immediately before they will be eaten
- Wash all utensils before preparing food, and scrub chopping boards and tables
- Cook or boil food well
- Mash foods up with a clean spoon.

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- Use the cleanest water available for making weaning foods and for washing uncooked foods.
- If possible boil the water if it has not come from a clean source such as a tap or water pump.
- Boiling water will kill the germs that cause diarrhoea.
- Do not store weaning foods for more than two hours if possible.
- Keep them stored in clean covered containers that keep out flies and other insects.

8.7 Maternal and Child Health services

Maternal and Child Health services include the curative, preventive and social aspects of maternity services, paediatrics, family welfare, nutrition, child development and health education. The specific objectives of MCH are:

- Reduction of morbidity and mortality rate for mothers and children
- Promotion of reproductive health and
- Promotion of the physical and psychological development of the child within the family.

Components of MCH

- Family planning and reproductive health service
- Maternal, newborn and child health service
- Health Communication
- Health Commodities and supplies
- Health systems strengthening

The Ministry of Health and Family Welfare has launched National Health Mission in May 2013. Many different health and welfare programmes have been brought together under the umbrella of National Health Mission (NHM) with National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM) as its two sub missions. The programme components include Reproductive-Maternal-Newborn-Child and Adolescent Health (RMNCH+A); and control of communicable and non communicable diseases.

Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A)

This programme has been launched in 2013. It aimed to reduce the maternal mortality and child mortality and addressed the delays in accessing and utilizing health care and services. Under this programme, the areas of care include

- Reproductive care
- Maternal care
- Neonatal care
- Child care and
- Adolescent health care

The three goals that are relevant to RMNCH+A strategic approach in 12th Five Year Plan which has to be achieved by 2017 is as follows:

- Reduction of Infant Mortality Rate (IMR) to 25 per 1,000 live births
- Reduction in Maternal Mortality Ratio (MMR) to 100 per 100,000 live births
- Reduction in Total Fertility Rate (TFR) to 2.1

Priority interventions in RMNCH+A

The following are the intervention for children. They are

- Home-based newborn care and prompt referral
- Facility-based care of the sick newborn
- Integrated management of common childhood illnesses (diarrhoea, pneumonia and malaria)
- Child nutrition and essential micronutrients supplementation

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- Immunization
- Early detection and management of defects at birth, deficiencies, diseases and disability in children (0–18 years)

Janani SurakshaYojana (JSY)

It is a safe motherhood intervention under the National Rural Health Mission (NRHM). It was launched in 12th April 2005. The objective of JSY is reducing maternal and neo-natal mortality by promoting institutional delivery among the poor pregnant women. A monetary benefit is given to the mother under this programme for institutional delivery.

Janani Shishu Suraksha Karyakaram (JSSK)

Government of India has launched Janani Shishu Suraksha Karyakaram (JSSK) on 1st June, 2011. This programme aimed to motivate the mother for institutional delivery.

The following are the free entitlements for pregnant women:

- Free delivery
- Free Caesarean Section
- Free drugs and consumables
- Free diagnostics
- Free diet in the hospital
- Free provision of blood
- Exemption from user charges
- Free transport from home to hospital
- Free transport during referral services
- Free drop back from hospital to home

The following are the free services for sick newborns till 30 days after birth.This has now been expanded to cover sick infants:

- Free treatment
- Free drugs and consumables
- Free diagnostics
- Free provision of blood
- Exemption from user charges
- Free Transport from Home to hospital
- Free transport during referral services
- Free drop back from hospital to home

Rashtriya Bal Swasthya Karyakram (RBSK)

It is a new initiative launched in February 2013. It includes provision for child health screening and early intervention services through early detection and management of 4 Ds, prevalent in children. These are

- Defects at Birth
- Deficiencies
- Diseases of Childhood
- Developmental delays and disabilities

Integrated Management of Neonatal and Childhood Illnesses (IMNCI)

It is one of the main interventions under the Reproductive and Child Health programme as well as under NRHM. It has two components.

Care of Newborns and Young Infants (infants under 2 months)

It includes

- Keeping the child warm
- Initiation of breastfeeding immediately after birth
- Counseling for exclusive breastfeeding and non-use of pre lacteal feeds
- Cord, skin and eye care.
- Recognition of illness in newborn and management and/or referral
- Immunization
- Home visits in the postnatal period.

Home visits are an essential part of this intervention. Home visits done by health workers help mothers and families to understand and provide essential newborn care at home and detect and manage newborns with special needs due to low birth weight or sickness.

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Care of Infants (2 months to 5 years)

It includes

- Management of diarrhoea, acute respiratory infections (pneumonia) malaria, measles, acute ear infection, malnutrition and anemia
- Recognition of illness in children and management/referral
- Prevention and management of Iron and Vitamin A deficiency
- Counseling on feeding for all children below 2 years
- Counseling on feeding for malnourished children between 2 to 5 years
- Immunization

Dr.Muthulakshmi Reddy Maternity Benefit Scheme

This scheme is being implemented in Tamil Nadu with a noble objective of providing financial assistance to poor pregnant mothers to meet expenses on nutritious diet, to compensate for the loss of income during motherhood and to avoid low birth weight of new born babies. In this scheme, Rs. 12,000 per beneficiary is given from 20 Feb 2017, it is increased to Rs. 18000 for the improvement of healthy motherhood.

Amma Baby care kit

This is launched in Tamil Nadu in the year 2015. Under this scheme, all the babies born in Government institutions are given Amma Baby Care Kit worth of Rs.1,000/-. It is distributed with the objective of improving the hygiene of the postnatal mothers and the newborn baby and inculcating hygienic practices among the mothers for self and baby care. The Amma Baby Care kit contains 16 items viz. baby towel, baby dress, baby bed, baby protective net, baby napkin, baby oil, baby shampoo, baby soap, baby soap box, baby nail clipper, baby rattle, baby toy, liquid hand wash, bathing soap, sowbagyasundilehiyam and a kit bag to securely keep all the items.

Activity 1

Go to nearby Primary Health centre and observe the Immunization process and cold chain systems followed and write a report.

Go to nearby ICDS centre and ask for the growth chart of the children. Study in detail the growth chart and write a report.

SUMMARY

- A newborn otherwise known as a "neonate" is a child under 28 days of age.
- The period between birth to first 28 days is known as neonatal period.
- The APGAR score is taken at 1 minute and again at 5 minutes after birth.
- It requires immediate and careful observation of the Appearance, Pulse, Grimace, Activity and Respiration.
- Heat is lost from the newborn by four ways such as convection, radiation, conduction and evaporation.
- The first milk which is called "colostrum" is the most suitable food for the baby during early period because it is rich in anti-infective factors.
- Immunization is a mass means of protecting the greatest number of people

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- ❖ vaccines should be stored at an appropriate temperature (preferably low) and the temperature should be maintained during its transport from the manufacturing site to the actual vaccination site.
- ❖ This system of storage and transport is known as the "cold chain". The World
- ❖ The Health Organization officially launched a global immunization programme, known as Expanded Programme on Immunization (EPI) in May 1974, to protect all children of the world against six vaccine –preventable diseases.
- ❖ Babies should be exclusively breastfed for the first 6 months of life to achieve optimal growth, development and health. Thereafter, infants should be given complementary foods which are nutritionally adequate and safe to meet their nutritional requirements,while continuing to breastfeed for up to two years or beyond.
- ❖ Growth is defined as an increase in size of an individual
- ❖ This increase in size is due to increase in the number and diameter of the cells. Development denotes the functional maturity of the child.
- ❖ It is the mental maturation with acquisition of skills. Growth chart is developed by Prof. David Morley.
- ❖ It is a visual display of child's growth and development. Weaning is the process by which a baby slowly gets used to eating family or adult foods and relies less and less on breast milk
- ❖ Maternal and Child Health services include the curative, preventive and social aspects of maternity services, paediatrics, family welfare, nutrition, child development and health education

GLOSSARY

Rooming in	-	An arrangement in hospitals where newborn babies stay with their mothers
Prelacteal	-	Any food except mother's milk provided to a newborn before initiating breastfeeding.
Abduction	-	Movement of a limb or other part away from the midline of the body, or from another part.
Adduction	-	Movement of a body part toward the body's midline.
Mortality	-	Death
Morbidity	-	Sickness
Satiety	-	State of being completely satisfied

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Evaluation

I. Choose the correct answer

1. The neonatal period is
   a) Birth to 28 days
   b) Birth to 1 year
   c) Birth to 90 days
   d) Birth to 120 days

2. The normal birth weight of newborn ranges from
   a) 2-4 kg
   b) 1.5-3 kg
   c) 2.5 -4 kg.
   d) 4-6 kg

3. An ideal APGAR score for newborn is
   a) 6-8 b) 9-10
   c) 4-6 d) 5-6

4. The injection given to newborn to prtevent bleeding is
   a) Vitamin A b) Vitamin D
   c) Vitamin K d) Vitamin C

5. Rota virus vaccine is given to protect the child from
   a) Pneumonia b) Polio
   c) Tuberculosis d) Diarrhoea

6. Exclusive breast feeding to the infant is recommended for upto
   a) 4 months b) 6 months
   c) 8 months d) 10 months

7. The child will be able to walk independently by the age of
   a) 12 -14 months b) 10-12 months
   c) 16-18 months d) 18-20 months

8. Free delivery & Free Caesarean Section is done under
   a) Rashtriya Bal Swasthya Karyakram (RBSK)
   b) Janani Shishu Suraksha Karyakaram (JSSK)
   c) Janani Suraksha Yojana (JSY)
   d) Janani Bal Swathya Yojana(JBSY)

9. The breast milk which is thick and yellow is
   a) Foremilk b) Hindmilk
   c) Mature milk d) Colostrum

10. 10. The first milk which is secreted from the mother immediately after delivery is known as
    a) Colostrum b) Foremilk
    c) Hind milk d) Mature milk

11. The technique done to avoid regurgitation in newborn in
    a) Latching b) Burping
    c) Positioning d) Attachment

12. The example for fine motor activity is
    a) Hand skills
    b) Maintaining social relationship
    c) Walking
    d) Running

13. The system of storage and transport of vaccine is known as the
    a) Cold chain b) Hot chain
    c) Warm chain d) Ice chain

14. The child from birth to one year is known as
    a) Neonate b) Infant
    c) Toddler d) Preschooler

15. The child will be able to sit independently by
    a) 12 months b) 14 months
    c) 8 months d) 6 months

16. Early detection and management of 4 Ds is done in
    a) Janani Shishu Suraksha Karyakaram (JSSK)
    b) Janani Suraksha Yojana (JSY)
    c) Rashtriya Bal Swasthya Karyakram (RBSK)
    d) Janani Bal Swathya Yojana(JBSY)

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17. RMNCH+A is launched in the year
    a) 2013 b) 2012
    c) 2014 d) 2015
18. The milk which satisfies the thirst of the infant is
    a) Hind milk b) Mature milk
    c) Cow milk d) Foremilk
19. The vaccine which protects the child from Tuberculosis is
    a) DPT b) OPV
    c) BCG d) MMR
20. The ideal time of starting of weaning is
    a) 3 months b) 6 months
    c) 8 months d) 10 months

II. Short answers

1. Define newborn
2. Define cold chain
3. List any four red flag signs
4. List any four principles of newborn care
5. List the methods of Heat loss
6. List any four cold chain equipments
7. What is colostrum?
8. Name two reflexes useful for breast feeding?
9. Define growth and development
10. Define weaning
11. Expand the Following
    - ❖ WHO ❖ ICDS
    - ❖ JSSK ❖ JSY
    - ❖ RBSK ❖ RMNCH+A
    - ❖ APGAR ❖ IMNCI
    - ❖ NRHM ❖ DPT

III. Brief answers

1. Characteristics of Newborn
2. Neonatal Reflexes
3. Harmful practices for the newborn
4. Diseases and protecting vaccine
5. Advantages of breast feeding
6. Stages of growth & development
7. Gross motor mile stones
8. Factors influencing growth & development
9. Janani Shishu Suraksha Karyakaram (JSSK)

IV. Detailed answers

1. Write in detail about Newborn care
2. Write Universal Immunization Programme
3. Explain exclusive breast feeding
4. Explain in detail about the weaning
5. Explain maternal child health services

Answers

1. a	2. c	3. b	4. c
5. d	6. b	7. a	8. b
9. d	10. a	11. b	12.a
13. a	14. b	15. c	16. c
17. a	18. d	19. c	20. b

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INTERNET LINKS

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CHAPTER 9

Community Health Nursing

நலம்வேண்டின் நாணுடைமை வேண்டும் குலம்வேண்டின்
வேண்டுக யார்க்கும் பணிவு.

He who desires a good name must desire modesty; and he who desires (the continuance of) a family greatness must be submissive to all.

Learning Objectives

At the end of the lesson, students will be able to:

- explain the Health Problems.
- understand the National Health Programmes
- elaborate the National Health Policy and Planning
- analyse the Health Care delivery system in India
- understand the FIVE YEAR PLANS
- evaluate the Social Welfare Programmes
- understand the Qualities and Functions of a Public Health Nurse
- follow the principles of Home visiting

LWGJF

Introduction

"Community health nursing is a synthesis of nursing practice applied in promoting and preserving the health of the population. Community health implies integration of curative, preventive and promotional health services. The aim of community diagnosis is the identification of community health problems. Remarkable development in public health was successful control of many communicable diseases. Nursing and medical services were strengthened to promote positive health. Now a days more emphasis is focused on the sick to the well person, from the individual to the community. To attain **Health For All** through **Primary Health Care** led to the restructuring of the rural health services. At present Public health nurses are called as Community health nurses who are registered nurses (RN) trained to work in public health settings. It includes nursing services in all phase of health services which is organized for the welfare of the community. In 1958 Indian Nursing Council has integrated Community health into basic curriculum in nursing.

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Community Health Nurse (Village Health Nurse, Sector Health Nurse, and Community Health Nurse) is responsible for her defined area of work in the provision of community health services.

9.1 Community Health nursing

Definition

- It is a synthesis of nursing and public health practice applied to promoting and preserving the health of the people.
- Public health: It is the art and science of preventing illness, prolonging life and promoting through organized efforts of the society.
- Community health: It refers to the health status of the members of the community, to the problems affecting their health and to the totality of the health care provided for the community.

Aims of Community Health Nursing

- To promote health and efficiency.
- Prevention and control diseases and disabilities.
- Need based health care to prolong life.

Objectives of Community Health Nursing

- Provide antenatal, intranatal and postnatal, care to ensure safe pregnancy and delivery.
- Immunization
- Provide under five children care
- Health education
- To improve the ability of the community to deal with their own health problems
- To strengthen the community resources
- To prevent and control communicable and non-communicable diseases
- To provide specialized services
- To conduct research

Principles of Community Health Nursing

- It should be planned based on the needs of the community.
- It is based on identified needs and functions.
- Integration of Health education, guidance and supervision with community health nursing services.
- Health services should be realistic in terms of available resources.
- Community is the focus which is the unit of health care services.
- Professional relationship with etiquette and dignity
- Community participation is the integral part of the community health services.
- Individual and family members participation in decision making.
- Health services must be continuous.
- Proper records and reports are essential.
- Proper evaluation of health services
- Health services must be available to all without any difference.

9.2. Health problems in india

Poor health is a major problem in India which contributes to the many health problems. Following are three causes of poor health in India.

- High Birth Rate and Rapid Growth of Population
- Malnutrition
- Unsanitary Conditions and Housing

Health problems are classified in to

- Communicable disease
- Non-communicable diseases
- Nutritional Problems
- Environmental Sanitation problems
- Medical Care Problems
- Population Problems

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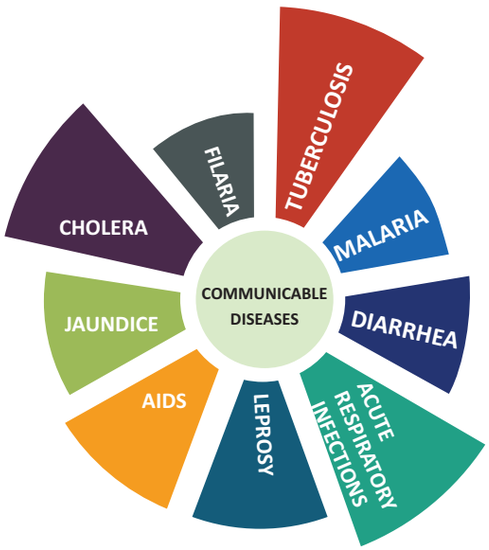
Communicable Diseases Problem:

Communicable diseases continue to be the major problem in India, but many of them are controlled in developed countries such as USA. It is estimated that nearly 54% of deaths in India are due to communicable diseases.

Common communicable diseases found in India are



I. Malaria

Till today Malaria is a major health problem in India which is a big challenge to eliminate and control. Malaria is transmitted by the bites of infected female anopheles mosquito(Parasite). If not treated properly which can become life threatening. The National Malaria Control and Eradication Programmes launched in 1953 and 1958 respectively. During 2016 1.09 millon cases were reported and about 331 deaths were registered due to malaria. Whereas the scenario in 2017 was about 0.84 millon cases were reported and about 194 deaths were registered dut to malaria

II. Tuberculosis

Tuberculosis is a leading communicable disease in India accounting for one-fifth of the world incidence. Pulmonary Tuberculosis is contagious bacterial infection caused by Mycobacterium Tubercle, which mainly affects lung. According to the Global TB report 2017 the estimated incidence of TB in India was approximately 28,00,000 accounting for about a quarter of the world's TB cases. Every year about 1.2 million persons develop Tuberculosis of which 0.64 million cases are sputum positive which is highly infectious and 0.32 million people die due to TB. The emergence of HIV-TB co-infection and multidrug resistant TB has become a challenge today.

III. Diarrheal Diseases

Diarrheal diseases constitute one of the major causes of sickness and death specially in children below 5 years of age accounting for approximately 8% of all deaths among children below 5 years worldwide in 2016. Outbreaks of diarrheal diseases including cholera continue to occurs due to the poor environmental conditions. Diarrheal diseases are caused by viral, bacterial and parasitic organisms.

IV. Acute Respiratory Infections (ARI)

Acute respiratory diseases are one of the major causes of sickness and death in children below 5 years of age. During 2011, nearly 26.3 million episodes of Acute Respiratory Infection were reported with 2,492 deaths.

V. Leprosy

Leprosy is a chronic infectious disease which is caused by Mycobacterium Leprae. It mainly affects the skin, the peripheral nerves, the mucosa of the upper respiratory tract and the eyes. It is curable when the treatment started in the early stages prevents disability. Multidrug therapy, made available by WHO free of cost to all patients worldwide since 1995, provides a simple but highly effective cure for all types of leprosy. Control of leprosy has improved significantly by Integration of basic leprosy services into general health services to diagnose and provide treatment of the disease within easy reach(PHC). WHO has launched a new global

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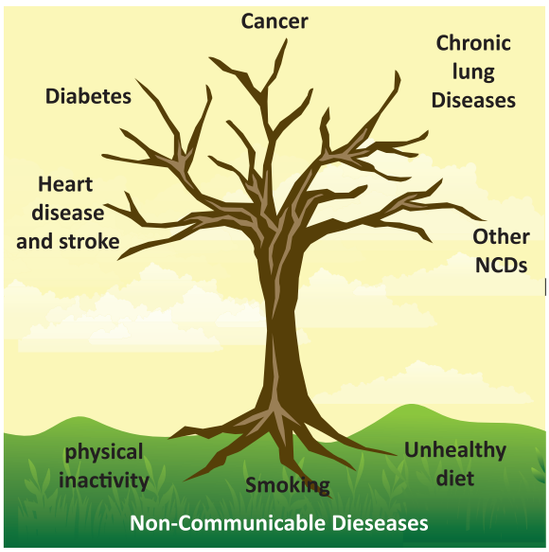
strategy in 2016 –2020: accelerating towards a leprosy-free world – which aims to leprosy control and prevent disabilities.

Leprosy is recorded in ancient vedic writings and it is termed as "Kusht" in those days

VI. Acquired Immuno Deficiency Syndrome(AIDS)

Since AIDS was first detected in the year 1986 and worldwide it stands in third place. It is estimated that by the end of year 2016, there were about 2.1million cases of HIV positive cases and 62000 people died from AIDS related illnesses in the country.

Non Communicable Diseases Problem (NCD)



NCDs are the leading cause of death in the world, responsible for 63% of the 57 million deaths that occurred in 2008.The majority of these deaths are due to cardiovascular diseases and diabetes, cancers and chronic respiratory diseases. More than nine million of all deaths attributed to noncommunicable diseases (NCDs) occur before the age of 60. Behavioral risk factors, including tobacco use, physical inactivity, and unhealthy diet, are responsible for about 80% of coronary heart disease and cerebro vascular disease. Millions of deaths due to Non Communicable Diseases which can be prevented by promoting the public awareness and participation.

Measures to Control Non Communicable Disease

- Stronger anti-tobacco controls - No smoking
- Promoting healthier diets
- Promoting Physical activity
- Reducing/Stop the use of alcohol;
- Improving people's access to essential health care.

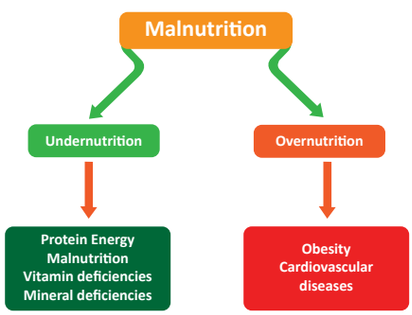
Nutritional Problems

According to WHO, "Malnutrition refers to deficiencies, excess or imbalances in a person's intake of energy and/or nutrients"

Malnutrition covers two broad spectrums of under nutrition and over nutrition.

Undernutrition: Refers to lack of proper nutrition, caused by not having enough food or not eating enough food containing substances necessary for growth and health.

Over nutrition: Is a form of Malnutrition in which nutrients are oversupplied relative to the amounts required for normal growth, development and metabolism.



According to World Bank report, India is ranking 2nd in the world of the number of children suffering from malnutrition (i.e. Under weight (43.5), Stunting (47.9), Wasting (20) and overweight (1.9)).

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Source: Asamadu et al, Nutritional Problems and Intervention Strategies in India, A technical Report (2012)

a) Protein Energy Malnutrition- : Caused by the defeciencies of protein and calories. It occurs more commonly among weaned infants and pre school children

Kwashiorkor is the deficiency of protein in the diet.

Marasmus - severe deficiency of protein and energy in the diet.

b) Vitamin Defeciencies: caused by the deficiency of vitamins in the diet.

- Vitamin A deficiency – leads to Night blindness and Xerophthalmia(dryness of cornea)
- Vitamin C deficiency – leads to Scurvy
- Vitamin D deficiency – leads to Rickets

c) Mineral defeciencies: caused by the deficiency of minerals in the diet

- Nutritional anemia – decreased haemoglobin in the blood due to the insufficient iron in the diet
- Iodine deficiency disorder (Goitre) – decreased iodine intake.

d) Out of these defeciencies **the two major nutritional problems** of India are

- **Under Nutrition**
- **Nutritional Anaemia**

Environmental Sanitation problem

Environmental sanitation is the most difficult problem to handle in our country which is multi-factorial and multifaceted.

Major environmental problems in India are

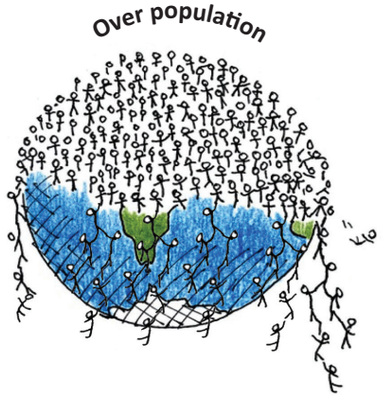
- Air and water pollution
- Depletion of natural resources
- Improper waste disposal and low level of sanitation leads to soil pollution and breeding places of insects, flies and rodents.
- Sound pollution Traffic pressure.
- Degradation of land Industrialization and urbanization
- Radiation hazards
- Excessive use of fertilizers and chemicals in agriculture.
- Destruction of forests
- Increasing population, poverty, illiteracy, unemployment further increases environmental problems.

Medical Care Problems

In rural area 74% population doesn't get benefit of modern curative and preventive health services. Approximately 80% of health services are concentrated in urban area. Addressing to meet inadequate and uneven distribution of doctors, and medical services between rural and urban is the challenging task to health sector.

Population Problem

During Independence in 1947 India's Population was 30 crores. As on 2018 now it is the second most populated country in the world, current population is 1.35 billion. The population problem is the important problem faced by our country which affects all aspects of, sanitation, housing, health care and environment.



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India's population As of February 01, 2019 is 1,350,262,913 (1.35 billion) and estimated to lead China by the year of 2030

9.3 National Health Policy And Planning

The Ministry of Health and Family Welfare evolved a National Health Policy which was approved by Parliament in 1983. The National Health policy of 1983 and 2002 have served well in guiding the health sector (Five year Plans). Now in 2017 the last health policy is introduced. The National Health Policy laid down specific targets to be achieved by 2025 AD.

Definition

"Health Policy provides a broad framework of decisions for guiding health actions that are useful to the community in improving the health status which ultimately contribute to the quality of life.

Objectives

- The need to establish comprehensive primary helath care services within the reach of population even in the remotest area of the country.
- To achieve an acceptable standard of good health among the general population.
- To Improve the health status in all sectors and provide preventive, curative, palliative and rehabilitative services through the public health sector with focus on quality.
- Improve health status preventive, promotive, curative, palliative and rehabilitative services provided through the public health sector with focus on quality.
- Assure availability of free, comprehensive primary health care services
- Ensure improved access and affordability, of quality secondary and tertiary care services

National Health Policy Goals 2017

1. Increase Life Expectancy from 67.5yrs to 70yrs by 2025
2. Reduction of Total Fertility to 2.1 at National level by 2025.
3. Reduce under five Mortality to 23 by 2025 and MMR(167) to 100 by 2020.
4. Reduce IMR to 28 by 2019.
5. Reduce neonatal and still birth rate to 'single digit by 2025.
6. Achieve and maintain elimination status of Leprosy by 2018
   Kala-Azar by 2017 and Lymphatic Filariasis by 2017.
7. Reduction of disease prevalence/incidence of HIV Global target of 90:90:90
   - 90% of people know about HIV/AIDS,
   - 90% of all people diagnosed receive Antiviral treatment and
   - 90% of all people receiving antiviral will have viral suppression.
8. Achieve and cure rate of more than 85% to elimination status by 2025.
9. To reduce the prevalence of blindness to 0.25 / 1000 by 2025.
10. Increase utilization of public health facilities by 50% by 2025.
11. Reduction in prevalence of tobacco use by 15% by 2020 and 30% by 2025.

9.4 Health Planning

Planning of Health service is based on the health needs and demands of the population. The main aim of health planning is to achieve the optimum level of health.

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Objective

- To give a social and economic development. The achievement of optimal level of health.

Planning commission:

In March 1950, the Govt. of India has appointed a Planning commission to "Promote a rapid improvement in the standard of living of the people by the effective utilization of the resources, increasing production and providing employment in the service of the community.

For the purpose of Planning the health sector has been divided into the following sub Services.

1. Water Supply and Sanitation.
2. Control of Communicable diseases.
3. Medical Education, training and Research.
4. Medical Care.
5. Public Health Services.
6. Family Planning.
7. Indigenous system of Medicine.

The health plan is implemented at all levels such as National, State, District, Block, and Village. Because of the Five Year Plans, considerable improvement has taken place in the field of health. Health is an important sector for the national development, the Planning Commission gave due importance to health for the formulation of Health programmes.

9.5 Health Services Organization

The purpose of the health services is to improve the health status of the population. It depends upon the health needs and problems and available resources. In India it is represented the five major sectors.

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Health Care System In India

1. Public Health Sector

a. Primary Health Care

- Primary Health Centre
- Sub centre

b. Hospitals/health centre

- Community health Centre
- Rural Hospitals
- District hospital/ Health Centre
- Specialist Hospitals
- Teaching hospitals

c. Health Insurance Schemes

- Central Government Health Scheme
- Employees State Insurance Scheme

d. Other agencies

II. Private Sector

- Private hospitals
- Polyclinics
- Nursing homes and Dispensaries
- General Practitioners and clinics.

III. Indiginious System Of Medicine

AYUSH - Ayurveda, Yoga, Unani, Siddha and Homeopathy

IV. Voluntary Health Agencies

V. National Health Programmes

Health Services Organization

The health services are organized in the country from the national level to the sub-centre level in the remote rural areas.

9.6 National Health Programmes

After independence of our nation, the National Health Programmes are launched by the Central Government for the control/ eradication of the communicable diseases, improvement of environmental sanitation, improving the standard of nutrition, control of population and promotion of rural health. Various International agencies have been providing technical and material assistance in the implementation of these programmes.

Following are the some of the Health Programmes: -

1. National Health Mission
2. Reproductive And Child Health Programs
3. Revised National Tuberculosis Control Program (RNTCP) : DOTS Strategy
4. National AIDS Control Program
5. National Vector Borne Disease Control Program
6. Nutritional Programs
7. National Anti-Tobacco Program
8. National Program For Prevention And Control Of Cancer, Diabetes, Cardio vascular Diseases And Stroke
9. Integrated Disease Surveillance Project
10. Basic Minimum Service Program
11. Programs For Water And Sanitation

1. Nation Health Mission (NRHM and NUHM)

National Health Mission is a strategic plan of central health ministry to strengthen the health systems in rural and urban areas National Health Rural Mission was launched in 2005 for strengthening health systems and provide better rural health Services. It was converted to National Health mission in 2013.

It is provided under 2 sub - missions

NRHM - National Rural Health Mission was launched in 2005 to provide health care to the remote rural population.

NUHM - To meet the health care needs of the urban population with the focus on urban poor.

Goals of NHM

- Reduction in Maternal Mortality Rate and Infant Mortality Rate
- Universal access to integrated public health services

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- Child health, water, sanitation and hygiene
- Prevention and control of Communicable and noncommunicable deseases including locally endemic diseases and emerging diseases
- Population stabilization
- Revitalize Indigenous System of Medicine

Functions of NHM

- Antenatal and postnatal check up
- Improved facilities for Institutional deliveries
- Trained commuity level worker
- Complete Immunization
- Good Hospital care
- Provision of household toilets
- Mobile Medical units
- Health and Nutrition

2. National Malaria Eradication Programme:

The National Malaria Control Programme (NMCP) was launched in 1953 which was upgraded to National Eradication Programme (NMEP) in 1958. The NMEP achieved remarkable success during the period 1958-1965, by which the incidence of Malaria came down to only 1lakh cases and no deaths in 1965. In 1994 Resurgence of malaria forced Govt. of India to appoint an Expert committee on Malaria to identify the problem areas and specific control measures. Thus the Malaria Action Programme (MAP) was evolved and is being implemented. The objective of the MAP is to prevent deaths, outbreaks and complications due to Malaria. It has been decided to observe Anti Malaria Month before the onset of monsoon i.e. month of June every year.

3. National Tuberculosis Control Programme:

The National Tuberculosis Control Programme was established in 1962 with the objective of reducing the disability and death from TB by effective treatment. The Govt. of India, WHO and world Bank together reviewed the NTP in 1992. Based on the findings a revised strategy for NTP was evolved. Short term chemotherapy has been introduced in 5 districts to achieve at least 85% cure rate through DOTS (Direct Observation Treatment Short course). It is done by voluntary workers such as teachers, anganwadi workers, dais, ex-patients and social workers. NGOs are involved in Information, Education and Communication.

4. National Aids Control Programme:

National AIDS Control Program was launched in India in the year 1987 is to prevent further transmission of HIV, to decrease morbidity and mortality associated with HIV infection and to minimize the socio economic impact resulting from HIV infection.

5. National Family Welfare Programme

Family planning was started in the year 1951. In 1977, the Govt. of India re-designated National Family Planning into National Family Welfare Programme and was integrated with Mother and Child Health services. The aim of family welfare programme is to improve the quality of life through education, nutrition, health, employment, women's welfare and rights, shelter, safe drinking water and all factors vital to the life.

6. Universal Immunization Programme (UIP)

UIP is a vaccination programme launched by the Govt. of India in 1985. Currently UIP is one of the key areas under NRHM (National Rural Health Mission) since 2005. It consists of vaccination against 12 diseases namely Tuberculosis, Diphtheria, Pertussis, Tetanus, Polio, Measles, Hepatitis B, Japanese Encephalitis, Rubella Pneumonia and Pneumococcal diseases. Immunization is one of the most effective methods of preventing childhood diseases. With the implementation of the Universal Immunization Programme

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(UIP) by the Government of India, significant achievements have been made in preventing and controlling vaccine-preventable diseases (VPDs). Introduction of Pentavalent vaccine (pilot project in Tamil Nadu)will further reduce the incidence of pneumonia and meningitis caused by Haemophilus, influenza type b (Hib) bacteria.

7. National Diarrheal Diseases Control Programme

Diarrhea is one of the leading causes of child mortality. National diarrheal disease control programme was launched in the year of 1978. It was actually a renamed version of national cholera control programme. The programme emphasized on the use of Oral rehydration Salt (ORS) therapy. It also focussed on the rational use of medications, adequate nutritional and fluid replacements during diarrhea, education on personal hygiene, feeding practices among the mothers of under five.

DO YOU KNOW?

You can make your ORS at home

8. National Iodine Deficiency Disorders Control Programme

National Goitre Control Programme was launched in the year of 1963 with the objectives of reducing the incidence and prevalence of goitre in the country. Goitre is a condition occurs due to the lack of iodine in the blood. Iodine cannot be supplemented by any foods. Even after 20 years of measures, it was found that the prevalence of goitre was high. Hence the programme was renamed as Iodine Defeciency Disorder Control Programme in 1992 and enforced on the fortification of iodine in salts at the manufacturing level.

DO YOU KNOW?

Our body requires very minimal quantity of Iodine (150 µg for an adult). It can be supplied in 10 gm of salt. Excess of Iodine in blood can be excreted in urine.

9. National Leprosy Control Programme

The programme was launched in the year of 1955. In 1983 it was renamed into National Leprosy Eradication Programme. The main objectives of the programme are to reduce the leprosy cases, early detection and treat the known cases with effective multi drug therapy.

Types of units functioning in the country

1. National Leprosy Control Units are established in highly endemic areas.
2. Survey, Education and Treatment (SET) Centers attached to Primary Health centers.

10. National Cancer Control Programme

National Cancer Control Programme(NCCP) is a community health programme designed to reduce the number of cancer cases and deaths and improve quality of life of cancer patients. NCCP helps to reduce the cancer burden and improve services for cancer patients and their families. The National Cancer Control Programme was launched in the year1975 - 76.

11. National Mental Health Programme

The Mental Health programme was launched during 1992 with a view to ensure availability of Mental Health Services for all, especially the community at risk and under privileged section of the population.

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12. Respiratory Disease Control Programme

The standard case management of ARI and prevention of death due to pneumonia is an integral part of RCH programme. Peripheral health workers are being trained to recognize and treat pneumonia with Co-trimoxazaole.

13. Nutritional Programmes

The Govt. of India have initiated several nutritional programmes to combat malnutrition. ICDS, Vit. A prophylaxis programme, Prophylaxis against Nutritional Anemia, Special Nutrition Programme, Mid-day Meal Programme, Special Nutrition Programme are sum ofthe nutritional programmes.

14. Reproductive and Child Health Programme (RCH):

Refer: Child Health Nursing Unit 8.

9.7 National Programme for control of Blindness

The National Programme for control of visual impairment and blindness was launched in 1976 is the 100% centrally sponsored and incorprates the earlier trachoma control programme was started in 1963.

Goals

- To reduce the prevalence of blindness 1.49% to < 0.3%
- To establish an infrastructure and efficiency levels in the programme.

Objectives

- To establish eye care facilities for every 5 lakh population
- To develop human resources for eye care services at all levels.
- To imporve quality of service delivery.
- To secure participation of civil society and the private sector.

9.8 20 Point Programme TPP twenty

In addition to the Five Year Plans and Programme, in 1975 the Govt. of India initiated a special activity called as 20 points programme as an agenda to promote social justice and economic growth. On August 20, 1986 the existing 20 point programme was restructured to eradicate poverty, increase productivity, reduce inequalities, remove social and economic disparities and improve the quality of life.

8 out of 20 points are directly or indirectly related to health.

Components / ACTIVITIES

1. Cataract surgery
2. Eye screening(camp)
3. Eye Dination
4. Vitamin A prophylaxis
5. voluntary organization
6. IEC Activities

Point 1 - Poverty eradication.
Point 2 - Power to people
Point 3 - Support to farmers
Point 4 - Labour Worker
Point 5 - Food security
Point 6 - Housing for all
Point 7 - Clean Drinking water.
Point 8 - Health For All
Point 9 - Education for all
Point 10 - Welfare of schedule caste ST, minority and OBCs
Point 11 - Women welfare
Point 12 - Child welfare
Point 13 - Youth developments
Point 14 - Improvement of slums
Point 15 - Environment protection and a forestation
Point 16 - Social security
Point 17 - Rural Road
Point 18 - Energisation of rural area
Point 19 - Development of backward areas

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Point 20 - IT enabled E - Governance

9.9 School Health Programme

School health is an important branch of community health nursing. In 1961 the five year plan, school health and school feeding program was started in many states.

Health problems of the school children

- Infectious diseases
- Malnutrition
- Dental carries
- Intestinal parasites
- Disease of eye, ear and skin

AIMS

Promotion of Health & Well being of all school children by Comprehensive health care.

1. Promotion of Positive Health
2. Prevention of Diseases
3. Early Diagnosis and adequate Treatment & Follow up.
4. Promoting Health awareness among children.
5. Provision of Healthy environment.

Services provided in School Health Programme

- Health check up
- Prevention of communicable disease
- Spot treatment
- Referral services
- Health education

9.10. Five Year Plans

Centrally sponsored Five year plans (FYPs) are integrated national economic programs. India launched its first FYP in 1951 after the independence under the influence of our first Prime Minister Jawaharlal Nehru. The First Five Year Plan was one of the most important because it had a great role in India's development. Health as an important factor in the utilization of the manpower and the uplifting the development of the country, health programmes were given considerable importance in the Five Year Plans. The main objectives of the health programmes are the control or eradication of major communicable diseases, strengthening of the basic health services, population control and the development of health manpower resources. 11th Five Year Plan (2007-2012) aims to raise the average economic growth rate to 9% from 7.6% during 10th Five Year Plan.

Eleventh Five Year Plan

The Eleventh Five Year Plan provides an opportunity to restructure policies to achieve good health for the people, especially the poor and the under-privileged. The 11th Five year Plan will give special consideration to adolescent girls, women of all ages, children below the age of 3, older persons, disabled and tribal groups.

Goals to by Achieved by the 11th Five Year Plan

1. Reduction of MMR to 1 per 1000 live births.
2. Reducing IMR to 28 per 1000 live births.
3. Reducing Total Fertility Rate (TFR) to 2.1.
4. 4. Provision of clean drinking water for all by 2009.
5. Reducing the Malnutrition among the children age group of 0-3 years
6. Reducing the anaemia among women and children by 50%.

Twelfth five year plan

The twelfth five year plan emphasized more on the strengthening of the health system

Goals:

- Universal access to services

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- Safe drinking water and sanitation
- Wholesome nutrition
- Basic education and safe housing
- Hygienic environment

Targets to be achieved

- Reduce IMR to 25 by 2017
- Reduce MMR to 100 by 2017
- Reduce TFR to 2.1
- Prevent and reduce anemia among women to 28%
- Prevent and reduce burden of communicable diseases and non communicable diseases

NITI Aayog

After the completion of 12th five year plan, NITI Aayog (National Institution for Transforming India) takes up the planning and programming of the health sector functioning.

It was formed in January 1, 2015. It is the 'Think Tank' of the Government of India. It provides both directional and policy inputs. It designs policies, programmes and strategies for the Government of India.

Prime Minister of India is the Chair person of the NITI Aayog

9.11 Social Welfare Services

Social welfare services are organized to cater to the people who are very poor. These include women and children, aged scheduled castes and tribes.

The Ministry of Welfare

The Ministry of welfare, Govt. of India has been formed by pooling subjects related to welfare of the disabled, welfare of the scheduled castes and tribes and minorities. Women and child welfare development programme is looked after by a separate department of Women and Child Development set up in the Ministry of Human Resources Development.

Welfare Programmes

1. Welfare of the disabled: The Number of disabled persons in the country has been estimated to be around 2.21% of the total population that is 2.68 Cr. (2016 updated) The Ministry of Welfare is implementing programmes for the early detection, treatment, education and rehabilitation of disabled persons, namely the blind, the deaf, the orthopedically handicapped, spastics, the mentally retarded and the leprosy cured patients.

2. Social defense : Problems of family and social disorganization are manifest in the form of delinquency, juvenile vagrancy, drug addiction, alcoholism and crimes of various types. In order to control these problems, programmes of social defense have been launched by the Government, mainly within the framework of specific legislation and allied measures.

3. Women and child development: The Department of Women and Child Development in the Ministry of Human Resource Development has two sectors : (i) Nutrition and child development, and (ii) Women's welfare and development. The Central Social Welfare Board and the National Institute of Public Co-operation and Child Development assist the Department in its functions.

Central Social Welfare Board

The Central Social Welfare Board was set up in 1953 which surveys the needs and requirements of social welfare organizations in the country. Social welfare schemes sponsored by the Board are implemented through voluntary agencies such as Mahila Mandals. The Mahila Mandals receive grants up to the extent of 75% for approved activities.

Some of the Activities of Social Welfare Board

1. Nutrition Programmes : These are feeding programmes to children in the age group 0-6 years, nursing and expectant mothers.

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2. ICDS Project: In the fifth year Plan highest priority had been accorded to child welfare programmes. The most important scheme in this field was the Integrated Child Development Services.(ICDS) for children in the age group 0-6 years, nursing and expectant mothers, etc., Under the scheme supplementary nutrition, immunization, health check up, referral services, nutrition and health education and non-formal pre-school education are provided. There are now 5422 ICDS projects operating in the country.

A Child Development Project Officer is in-charge of each ICDS project. An Anganwadi is the focal point for the delivery of services to the community.

9.12 Voluntary Organizations/ Agencies

Apart from Central and State Governments, More than 10,000 voluntary organizations are also engaged in social welfare activities.

Functions

1. Supplimenting and gurding the work of government agencies
2. Pioneering: Example research
3. Education
4. Demonstration: bore hole latrins by Rockefeller foundation
5. Advancing health legislation

9.13 Special Community Health Nursing Services

1. Industrial Nursing

The aim of occupational health nurse is to keep the people at work healthy and to prevent them from illness and injury due to the working environment.

The following are the basic functions of Occupational or Industrial Nurse

- Identify the occupational Hazards
- Educate them about the control of the occupational hazards.
- Initial treatment for the emergencies such as injuries and illnesses.
- Early diagnosis of the occupational or other illnesses and to screen the people at risk.
- Assist the management in placement of the people in suitable work.
- Provide advice and supervision of conditions at work which may affect the health such as environmental sanitation.
- Health Education

Role of Nurses in Occupational Health Services

- Assist the doctor for the examination of the employees.
- Protect and improve the physical and mental health of the workers.
- Provision of first aid and treatment for minor illnesses and injuries.
- Assess, identify and notify the management regarding the hazards affecting the workers.
- Conduct health education
- Home visit to the employees to educate regarding the health and family welfare.
- Nutrition
- Communicable Disease prevention
- Environmental sanitation
- Protective Measures for the employees
- Medical Check - up and Immunization

2. Tuberculosis Nursing

In the control of communicable diseases nurses play a vital role in the community level. The following are the nurses role in control of Tuberculosis which an airborne infectious disease affecting the people living in poor living standards and with low immunity. Pulmonary tuberculosis is responsible for the majority 85% of TB infections.

1. Case finding
2. Health Supervision (DOTS)
3. Domiciliary care - Isolation
4. Prevention of the spread of infection
5. Drug compliance

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6. Nutrition
7. Health Education

3. Leprosy Nursing

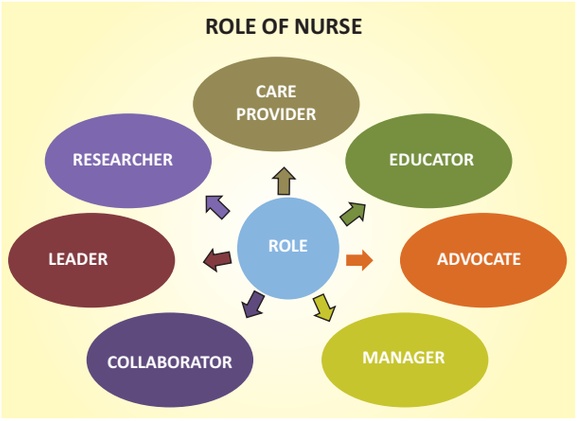
Leprosy is one of the major health and socio-economic problems in the country. Nurses responsibility in the care of Leprosy patients is divided into the following categories

1. Nurse - patient relationship - An effective Nurse Patient Relationship enhances the appropriate management of Leprosy cases.
2. Recorder and observer of facts - Accurate observation and correct recording of facts are vital role of a nurse and she has to provide accurate account of health.
3. Health Education regarding

- **Leprosy is curable and the deformities are preventable** and must be educated about the drug compliance.
- Family Education - about the preventive measures, Isolation of under 15 years children, especially infants from active patients who are infective.
- Need for assistance and support during the course of illness and recovery stage.
- Family Education - Educate the family regarding the misconceptions regarding Leprosy.

Qualities of a community Health Nurse

- The nurse must have interest on the people.
- Understand the human behavior.
- Sincere.
- Empathy.
- Honest.
- Charitable.
- Resourceful.
- She must have observation, communication, interview skills and technical skills.
- She must have ability to make interpretations, make judgment, and take decisions.
- Self discipline on emotions and other aspects of behaviour and action.



Functions of Public Health Nurse

1. General Duties

- ✓ Provision of nursing services to the community.
- ✓ Maternal health (Antenatal, Intra natal and postnatal care)
- ✓ Infant and pre-school health
- ✓ Prevention of Communicable diseases.

2. Administrative Duties - is responsible for the implementation of policies and programme relating to nursing and midwifery services.

3. Supervisory- To promote harmony and efficiency within the health teams to improve the quality of life.

4. Educational - Participating and organizing In-service training programme.

5. Caregiver - They provide prenatal care and education for expectant mothers, including information about maternal nutrition, referrals for childbirth classes, and postpartum assistance.

6. Community Educator - As educators, community health nurses focus on presenting materials in a clear and understandable format. They provide information to individuals, families, and communities that create a framework for healthy living and healthy choices.

7. Leader - Community health nurses use evidence to implement policy changes and quality-based practices..

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8. Researcher- As researchers, community health nurses collect and use evidence to execute positive changes for better health.

9. Advocate - Advocate on the local, state, and federal level to provide better access to healthcare, protect funding for public health programs, and reduce or eliminate health disparities.

10. Disease prevention specialist - Community health nurses focus on long- and short- term care for disease prevention. Their work includes averting or controlling the spread of the flu and other communicable diseases.

11. Director and Co-ordinator - Community health nurse has to plan and organize and make sure that the work is done as planned and organized.

12. Collaborator - Community health problems cannot be solved by single health worker. It involves many people who work together in a team.

Healthcare experts say public health has made great strides in the past decades, allowing people to live longer and healthier lives.

9.14 Home Visiting

Home visiting is the back bone of all MCH services.

Purposes

- To carry out simple nursing care in home.
- For the prevention of disease
- promotion of health of the members of the family.
- To investigate the service of an infection disease
- To make use of the inter – referral system

Principles Of Home Visiting

1. Based on the needs of the people.
2. Planned prior to the visit
3. Collect the background information regarding the family and community (family size, occupation, income religion, resources, customs and culture).
4. Identify the health problems of the family.
5. Use safe technical skills and nursing procedures.
6. In health teaching be sure of what you teach to the family.
7. Be kind and courteous to the family will help to gain the confidence.

Planning And Evaluation Of Home Visit

The purpose of planning is to achieve definite objectives within a specified time and with the available resources.

1. First make survey and prepare a map of the area with following details
   a. Topography(Area Map)
   b. Location of the village
   c. Population
   d. roads
2. Prepare the family folders and individual cards with adequate information.
3. Identify the families or individuals in need of home visiting e.g. Antenatal, postnatal, toddlers, infants, sick and those who are not in a position to reach the health care settings.
4. Treat minor illness with the help of community bag. Refer if necessary.
5. Follow up to find out how far the instructions given were followed.
6. Evaluation - Evaluate what has been achieved.

Even if the mother is attending the antenatal clinic regularly, it is suggested that she must visited at least one home visit by the health care provider (ANM/VHN) because the AN mother will be relaxed at home and also we can evaluate social and environmental conditions at home.

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- Smallpox was the first disease to be eliminated from the world through public health efforts and vaccination.

- India, with 1,350,117,491 (1.35 billion) people is the second most populous country in the world, while China is on the top with over 1,415,489,506 (1.41 billion) people
- Anti Malaria Month before the onset of monsoon i.e. month of June every year.
- Major Milestones in National Health Programs are

  1992 – Child Survival And Safe Motherhood Program (CSSM)

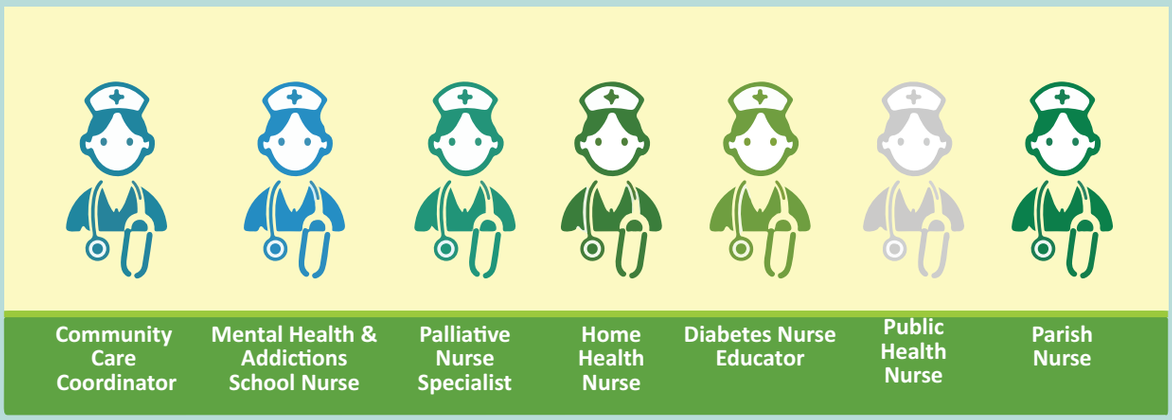
  1997 – RCH I and RCH II

  2005 – National Rural Health Mission

  2013 – RMNCH + A Strategy

  2013 – National Health Mission

Nursing Career Profiles in Community Health



SUMMARY

Community health nursing is the newer aspect of healthcare that has grown in response to changing environmental and social structure changes into a worldwide movement. Fast growing elderly people, improvement in health technologies and rising healthcare costs has an impact upon the development and scope of practice for community health nurse.

GLOSSARY

Anemia	Dcreased number of circulating red blood cells in the body	இரத்த சோகை
Xeropthalmia	Abnormal dryness of the conjunctiva and cornea	நீர்க் கசிவற்ற கண்ணழற்சி
Kwashiorkor	Malnutrition caused by protein deficiency in the diet	புரதச்சத்துப் போதாமையால் வரும் நோய்

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Marasmus	Severe malnutrition characterized by energy deficiency	உடல் இளைப்பு
Juvenile delinquency	A young person who commits crimes	இளம் குற்றவாளிகள்
Eradication	the complete destruction of something	அழிப்பு
Immunization	the process of protecting a person from infectious diseases	நோய்த்தடுப்பு
Isolation	the complete separation of a person from others a person suffering from contagious or infectious disease	தனிப்படுத்தப்பட்ட நிலை
Domiciliary	of or relating to a domicile, or place of residence	இருப்பிடத்தைச் சார்ந்த
Empathy	the ability to share someone else's feelings or experiences	பரிவு / பச்சாத்தாபம்
Parasite	Organism obtaining nourishment from or living one another organism	பிறரை அண்டி வாழ்பவர்; ஒட்டுயிர்
Outbreak	Sudden onset more than the normal expectation	திடீர்
Prevalent	existing very commonly or happening often	அதிகமாக
Incidence	the rate at which something happens	நோய்நிகழ்வு
Goiter	an enlargement of the thyroid gland	முன்கழுத்துக் கழலை
Depletion	the act or process of emptying or removing	சிதைவு
Radiation	the action or process of radiating	கதிர்வீச்சு
Palliative	specialized medical care for people with serious illness	நோய்த் தணிப்பு
Rehabilitative	to restore to a condition of good health	மறுசீரமைப்பு
Hospice care	supportive care to people in the final phase of a terminal illness	இறப்புநிலை உதவி

Student Activity

1. Make a Visit to the Sub Center and observe the functions of a village health nurse in your area.
2. Make a Visit to the ICDS unit and assess the anganwadi worker in your area.

Teacher Activity

Assign the students to conduct a survey in a street and find the prevalence of Clients with Non communicable diseases such Diabetes, Hypertension and Heart Attack (Myocardial Infarction.

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Evaluation

I. Choose the correct answer

1. Malaria is transmitted by the bite of
   a) Female Mosquito
   b) Female Housefly
   c) Male mosquito
   d) Male housefly
2. Airborne disease which mainly affects lungs
   a) Typhoid
   b) Cholera
   c) Tuberculosis
   d) AIDS
3. Protein deficiency leads to
   a) Anemia
   b) Protein Energy Malnutrition
   c) Goitre
   d) Rickets
4. Xeropthalmia is caused the deficiency of
   a) Vitamin C
   b) Vitamuin D
   c) Vitamin A
   d) Vitamin K
5. WHO was started
   a) 1948
   b) 1950
   c) 1986
   d) 1990
6. Following are the vector borne diseases except
   a) Malaria
   b) Filaria
   c) AIDS
   d) Dengue
7. Identify the communicable disease from the following
   a) Cholera
   b) Cancer
   c) Diabetes
   d) Cardiovascular Diseases
8. Following are the common health problems of the school children except
   a) Infectious diseases
   b) Malnutrition
   c) Dental caries
   d) Diabetes
9. Tuberculosis is a
   a) Waterborne disease
   b) Airborne disease
   c) Vector borne disease
   d) Food borne disease
10. DOTS is a treatment given for the effective treatment of
    a) AIDS
    b) Leprosy
    c) Cancer
    d) Tuberculosis

BVGF4

II. Define the following

1. Health.
2. Community Health Nursing
3. Primary Health Care

III. Write short notes on

1. What are the aims of community health nursing?
2. Mention the health problems of India.
3. What are the components of NRHM
4. Discuss the environmental sanitation problem.
5. Write about the targets of National Health Policy
6. Enumerate the functions of Village Health Guide
7. Mention the principles of Primary Health Care
8. **V. Answer in detail:**
9. Explain in detail about the national health problems.

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10. Write about the National Health programmes
11. What are the roles and functions of the public health nurse?
12. Write about the non communicable diseases and preventive measures
13. Explain the Five year Plan.
14. Write about the Home visiting.
15. Voluntary Health Agencies
16. Write about the role of nurse in Tuberculosis nursing
17. 10 What are the qualities of community health nurse?
18. Explain about home visiting
19. Write about the School Health Programme

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2. Gulani K.K, "Community Health Nursing", 2nd edition, Kumar Publishing Home, Delhi, Pp-673-683.
3. Park. K "Essentials of Community Health Nursing", 5th Edition M/s Barnabas Bhanot Publishers, Pp -320-357

INTERNET LINKS

1. www.tbcindia.com
2. www.google.co.in
3. www.who.int/malaria/en

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CHAPTER 10

Mental Health Nursing

Principles and Practices

மனநலம் நன்குடையார் ஆயினும் சான்றோர்க்கு
இனநலம் ஏமாப்பு உடைத்து.

"Even one has good mental strength already,
Having the company of great men will give more strength"

LEARNING OBJECTIVES

At the end of this chapter, the students will be able to:

- define health, mental health, psychiatry, psychiatric nursing and mental illness
- enlist the characteristics of mentally healthy person
- enumerate misconceptions about the mental illness
- understand the mentally ill clients
- differentiate psychosis and neurosis
- elaborate mental disorders causes, types and management
- describe about drug abuse, alcohol abuse and management
- explain about childhood disorders like learning disabilities, ADHD and care of mentally challenged
- gain knowledge about therapeutic nurse - patient relationship
- know about the mental health services and prevention of mental illness

YXS0B

Introduction

As you start to study psychiatric – mental health nursing, you may be excited and even anxious. The field of mental health often seems a little unfamiliar. The mind is about mental processes, thought and consciousness, the body is about the physical aspects of the brain – neurons and how the brain is structured.

Mental health includes our emotional, psychological and social well-being, it affects how we think, feel and act. It also helps to determine how we handle stress, relate to others and make choices. Mental health is important at every stage of life, from childhood, through adolescence to adulthood.

10.1 Terminologies

Health

The World Health Organization defines health as "a state of complete physical, mental, and social well being, not merely an absence of disease or infirmity".

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Mental Health

Mental health is a state of balance between the individual and the surrounding world, a state of harmony between himself, with others and their environment.

Mental Illness

Mental illness is a collective term that refers to all the different types of mental conditions, including those that affect your mood, your thinking and your behaviour".

Psychiatry

Psychiatry is a branch of medicine that deals with the diagnosis, treatment and prevention of mental illness.

Psychiatric Nursing

Psychiatric Nursing deals with the promotion of mental health prevention of mental illness, care and rehabilitation of mentally ill individuals both in hospital and community.

The word psychiatry is derived from the **Greek word** "Psyche" means soul or mind; "iatros" means healer.

10.2 Characteristics Of Mentally Healthy Person

- They have self-respect
- Accept their mistakes
- Emotionally mature
- They respect others
- They maintain a good relationship with others
- They accept their responsibilities
- They shape their environment

Some Warning Signs of Mental Illness

- Change in personality
- Inability to cope with problems and daily activities
- Strange ideas
- Anxiety, assaultive
- sadness
- disturbed sleep
- suicide
- alcohol intake
- anger, lonely

Difference Between Mentaly Healthy person and Mentaly Ill person

Mental Health	Mental Illness
Accepts self to others	Feelings of inadequacy, poor, self-concept.
Ability to cope and tolerate stress.	Inability to cope.
Ability to form close and lasting relationship.	Inability to establish meaningful relationship.
Uses sound judgment to make decision.	Displays poor judgment.
Accepts responsibility.	Irresponsibility.
Optimistic (all is going well)	Pessimistic (the feeling of things badly)
Recognizes limitations.	Does not recognize limitations.
Functions effectively and independent.	Exhibits dependency.
Able to perceive.	Unable to perceive reality

Mental health team constitutes the following members

- Psychiatrist
- Psychiatric Nurse Clinical Specialist
- Registered Nurse working in a psychiatric unit / hospital
- Clinical Psychologist
- Psychiatric social worker.
- Psychiatric Para-Professionals

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- Psychiatric Aids-ECT Technician
- Occupational Therapist
- Recreational Therapist
- Diversional / Play Therapist / Art Therapist
- Clergyman (religious leader)

Principles of Psychiatric Nursing

- Accept the patients as exactly as they are
- Use self-understanding as a therapeutic tool
- Use self-awareness when dealing with clients
- Focuses on the strengths, not on weaknesses of client
- Views the client's behavior non-judgmentally
- Establish and maintain therapeutic nurse –client relationship
- Ensure clients security
- Give reassurance to the client in an acceptable manner
- Change the client's behavior by emotional experience
- Avoid approaches which will increase the client's anxiety
- Avoid physical and verbal forces as much as possible
- Maintain the basic principles of nursing while following any procedure
- Nursing care centered on client as a person
- Explain routines and procedures at the client level of understanding

10.3 Misconception about Mental Illness

- Mental illness is caused by supernatural power
- It is the result of curse by evil spirit.
- Mentally ill people are violent.
- Mental illness is something to be ashamed of.
- Mental illness can not be cured.
- Marriage can cure mental illness.
- Only adults and older adults experience mental illnesses.

- The father of psychiatry is Asciepiades.
- The first mental asylum in India is Dhar near Madhya Pradesh

Activity 1

Teacher Activity

Arrange a visit to nearby mental health hospital and orient the functions of that unit

Student Activity

Submit a report on orientation programme to mental health hospital and its functions.Recall the various emotions experienced in the past one week, state the reason and classify and submit the report.

10.4 Understanding of Patients

Understanding of psychiatric patients is very important in mental health nursing. So a psychiatric and nursing assessment is necessary. A psychiatric assessment is a process of gathering information about a client from a person within a mental health service, with the purpose of making a diagnosis. The assessment is usually the first stage of a treatment process, but psychiatric assessments may also be used for various legal purposes.

Nursing process is defined as a systematic, continuous and dynamic method of providing care to clients.

Steps in Nursing Process

- **ASSESSMENT:** collection of all the data that are adequate and relevant.
- **DIAGNOSIS:** Analyzing the data and find out the diagnosis.

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- **PLANNING:** Developing a care plan according to the need of the client
- **IMPLEMENTATION:** implementing the actions to restore the physical and mental health
- **EVALUATION:** Evaluating the client's response for nursing actions taken.

Methods of Assessment in Psychiatry

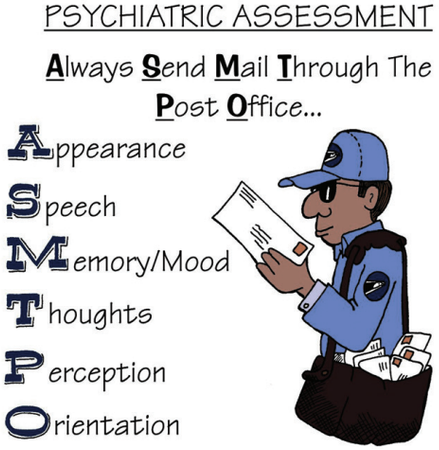
- History taking
- Mental status examination
- Neurological examination
- Physical examination
- Laboratory investigations
- Psychological tests

History Taking

History taking includes, patient's identification data, presenting complaints, history of present illness, past history of medical, surgical, and psychiatric, family history,Personal history, birth history, developmental history, occupational history, marital history and personal habits.

Mental Status Examination

Mental status examination includes general appearance, behaviour, speech pattern, mood, delusion, changes in perception like hallucination and illusion. And also assessment of higher mental functions of consciousness, attention, concentration, memory, orientation, intelligence and insight about illness.



Neurological Examination

Neurological examination for cranial nerve functions to be assessed.

Physical Examination

Physical examination includes head to foot assessment of the client.

Laboratory Investigations

Suggested for all psychiatric admissions. Complete haemogram, blood chemistry, serology studies, thyroid functions test, HIV antibody, urine analysis, imaging studies like chest x-ray, CT / MRI and also EEG and ECG.

Psychological Test

Usually conducted by clinical psychologist.

Documentation

Assessment information is documented in the nursing registers

Moreover, documentation is recognized by legal authorities

10.5 Psychosis and Neurosis

Psychotic disorders are a group of illnesses that affects the mind. These illnesses alter a person's ability to think clearly, make good judgments, respond emotionally, communicate effectively, understand reality and behave appropriately.

Neurotic disorders have common historical origin, about one fourth of the population in developed countries will suffer from neurotic disorders during its lifetime course.

Definition for Psychosis

Psychosis (psychotic disorders)are severe mental disorders that cause abnormal thinking and perceptions. People with psychoses lose touch with reality. Two of the main symptoms are delusions and hallucinations

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Definition for Neurosis

Neurotic disorder (neurosis) is a mild mental illness that is not caused by organic disease of brain and not involve hallucinations and delusions, and not loss of touch with reality.

S. No	Psychosis	Neurosis
1	Loss of contact with reality present/lost	No loss of contact with reality
2	Personality changes present	Purely functional. Do not affect the personality
3	The person with psychosis does not realize his / her disorder	Aware of his/ her personal problems
4	The thought, speech, and communication changed	Does not affect language communication and thought
5	Hallucination and delusion marked symptoms	No hallucination and delusion
6	Organic reason present	No organic reason
7	Genetic factors more important	Genetic factors less important
8	Stressful life events less important	Stressful life events more important
9	Difficult to treat	Easy to treat

10.6 Mental Disorders

Mental illness is maladjustment in living. It produces disharmony in the person's ability to meet the human needs. In general, the physical health of an individual is given greater importance and mental health aspect is often neglected.

World wide Prevalence Rates of Mental Disorders are

Disorder	Prevalence Rate
Any mental or substance use disorder	1.1 billion
Depression	268 million
Anxiety disorders	275 million
Bipolar disorder	40 million
Eating disorders	10.5 million
Schizophrenia	21 million
Alcohol use disorder	100 million
Drug use disorder (excluding alcohol)	62 million

Classification Of Mental Disorders

Classification of mental disorders is also known as psychiatric "nosology" or "taxonomy".

Classification of Mental Disorders Under (International Classification of Diseases) ICD-10

- Organic including symptomatic mental disorders

Causes For Mental Illness

Biological Factors	Psychological Factors	Social Factors
• Genetic cause • Bio chemical alterations • Infections • Intoxications • Brain damage • Vascular causes • Perinatal causes	• Maternal separation • Abnormal parent – child relationship • Marriage problems • Stress • Season • Sexual difficulties • Low self - esteem	• Poverty • Unemployment • Urbanization • Alcoholism • Broken homes • Religion and traditions

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- Mental and behaviour disorders due to psychoactive substance use
- Schizophrenia, schizotypal and Delusional disorders
- Mood (Affective) Disorders
- Neurotic, Stress related and Somatoform disorders
- Behavioural syndromes associated with physiological disturbances and physical factors
- Disorders of adult personality and behaviour
- Mental retardation
- Disorders of psychological development
- Behavioural and emotional disorders with onset occurring in childhood and adolescence
- Unspecified mental disorders

Indian Classification of Mental Disorders

It is a modification of ICD-8 to suit Indian conditions. It is broadly grouped as follows

- Psychosis
  - Functional
  - Affective
  - Organic
- Neurosis
- Special disorders
  - Childhood disorders
  - Conduct disorders
  - Substance abuse
  - Psycho physiological disorder
  - Mental retardation

Signs and Symptoms of Mental Illness

- Alterations in personality and behaviour
- Alterations in biological functions (sleep, appetite, sexual desire)
- Disorders of consciousness (conscious, unconscious, coma, drowsy, and stupor)
- Disorders in orientation (time, place and person)
- Disorders of attention and concentration
- Disorders of thought
- Disorders of motor activity (increased, decreased, stereotype, violence, echolalia, echo praxia, waxy flexibility, restlessness and excitement)
- Disturbances in speech (word salad, circumstantiality, mutism and neologism)
- Disturbances in perception (hallucination, delusion and illusion)
- Disturbances in emotions (elevation, panic, agitation, hostile, depressed and anxiety)

Management of mental disorders

- Antidepressants
- Antipsychotics
- Mood stabilizing drugs
- Anxiolytics, hypnotics and sedatives
- Anti parkinsonian drugs
- Psychoanalytic therapy
- Supportive psychotherapy
- Benzodiazepines
- Psychotherapy
- Behaviour therapy
- Cognitive therapy
- Group therapy
- Play therapy
- Interpersonal psychotherapy
- Stress reducing techniques – Music , Dance, Yoga, Medication and breathing exercises

Schizophrenia

Meaning

The term schizophrenia was coined in 1908 by the Swiss psychiatrist Eugen Bleuler. The word was derived from Schizo (split) and phren (mind).

Definition

Schizophrenia a psychotic condition characterized by a disturbance in thinking, emotions, volitions and clear consciousness which usually leads to social withdrawal.

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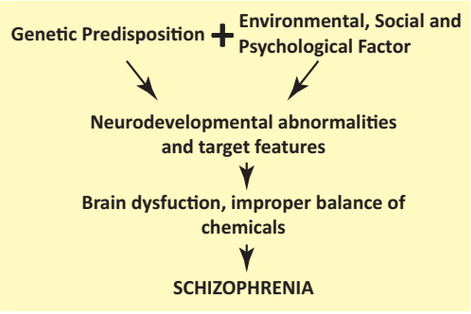
Causes: The exact cause is not known

- Genetic causes and hereditary
- Bio chemical – abnormalities in dopamine, epinephrine, serotonin.
- Psychological factors – impaired ego, crisis situation
- Family factors – parent – child relationship, family dysfunction
- Social causes – social crisis,
- Endocrine and metabolic causes.



Types of Schizophrenia

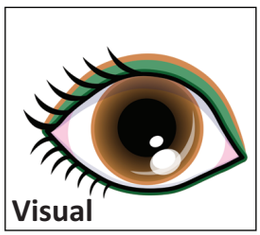
- Paranoid Schizophrenia -
- Hebephrenic Schizophrenia
- Catatonic Schizophrenia
- Undifferentiated Schizophrenia
- Post schizophrenic depression
- Residual Schizophrenia
- Simple Schizophrenia
- Schizo typal disorder

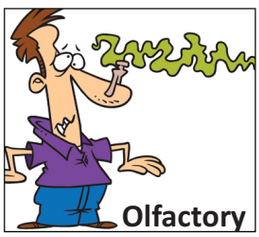
Symptoms of Schizophrenia

Positive Symptoms	Negative Symptoms
Delusions (false unshakable belief)	Affective flattening
Hallucinations (Sensory perception without any external stimuli)	Avolition-Apathy (lack of initiative)
Excitement/Agitation	Attention impairment
Aggressive behaviour	Anhedonia (Inability to experience pleasure)
Suspiciousness (doubt)	Alogia (lack of speech output)
Suicidal tendencies	

Types of Hallucinations

Hallucination	Example
Auditory hallucination	hears voices frequently, the voice tells when to eat, dress, and go to bed each night
Visual hallucination	seeing spiders and snakes on the ceiling of his room without any external stimuli
Olfactory hallucination	smells rotten garbage, although there is no evidence of any foul-smelling material in the room.
Gustatory (taste) hallucination	complaints of a constant taste of salt water in mouth.
Tactile hallucination	complaints of feeling worms crawling all over body.





Diagnosis

1. History collection
2. Substance history
3. CT, MRI and brain studies
4. Blood investigations
5. Mental status examination

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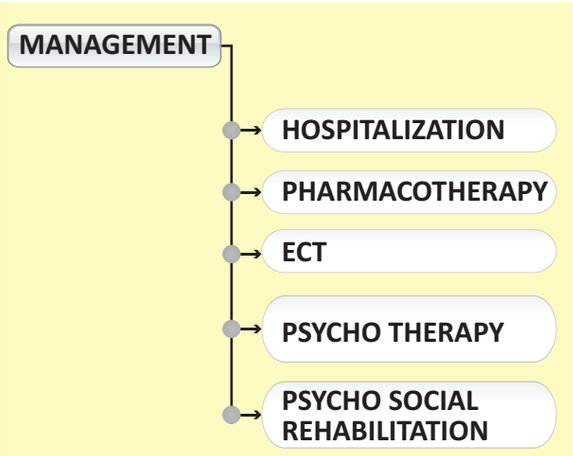
Management of Schizophrenia



Nursing Management

- Nursing assessment
- Health education

Paranoid

Definition

Paranoid is a thought process that causes an irrational suspicion (doubtfulness) or mistrust of others.

Cause

Genetics, stress, brain chemistry and also drug abuse.

Symptoms:

- A consistent stress or anxiety beliefs about others
- A mistrust of others
- Feeling disbelieved /misunderstood
- Isolation

Diagnosis

History collection, physical examination and mental status examination.

Management

- Accept their vulnerability
- Develop trust in others
- Encourage to express emotions in positive manner.
- Psychotherapy

Depression

Depression (The Common Cold of Psychiatric Disorders)

Definition

"An alteration in mood that is expressed by feelings of sadness, despair, and pessimism. There is a loss of interest in usual activities, and somatic symptoms may be evident. Changes in appetite and sleep pattern are common".

- Mary C. Townsend

Etiology

- Due to loss of loved object
- Repeated losses in the past
- Negative expectations of environment, Negative expectations of the self
- Negative expectations of the future
- Stressful life events, Death, Marriage, Financial loss

Symptoms of Depression

- Sadness
- Sleep disturbances Insomnia -early morning or over sleeping
- Hopelessness, Helplessness, Worthless ness, restless, irritable.
- Guilt,
- Anger
- Fatigue

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- Thoughts of death
- Spontaneous crying
- Avoids interactions with family or friends.

Diagnostic Measure for Depression

- History collection
- Mental status examination
- Depression assessment tools

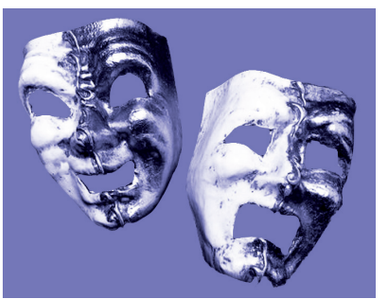
Treatment for Depression

- Medication - antidepressants
- Electro Convulsive Therapy
- Psychotherapy

Mania

Mania refers to a syndrome in which the central features are over activity, mood changes which may be towards elation or irritability and self-important ideas.

- Dr. R. Sreevani



Postpartum Psychosis

Postpartum psychosis (some times called puerperal psychosis) that occurs in women who have recently delivered a baby. The syndrome is often characterized by the mother's depression, delusions, and thoughts of harming either herself or her baby.

- Sadock and Sadock

Neurotic (Stress related) Disorders

A. Phobia

Phobia is defined as unreasonable fear of a specific object, activity or situation.

Examples

Acrophobia	Fear of heights
Haematophobia	Fear of sight of blood
Claustrophobia	Fear of closed spaces
Insectophobia	Fear of insects
Zoophobia	Fear of animals
Microphobia	Fear of germs
Algophobia	Fear of pain

B. Panic Attack

Intense feeling of fear or terror that occurs suddenly and intermediately without warning.

C. Anxiety

Anxiety is a feeling of uneasiness or tension that a person experience to an unknown object or situation.

D. Obsessive Compulsive Disorder

Obsessive Compulsive Disorder is a common chronic and long lasting disorder in which a person has uncontrollable recurrent thoughts and behaviour that he/she feels the urge to repeat over and over like frequent hand washing, checking the doors.

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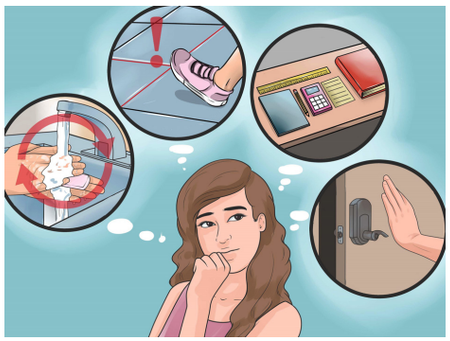

E. Conversion Disorder

Conversion disorder formerly known as HYSTERIA, which is a loss of or change in body function resulting from a psychological conflict, the physical symptoms of which cannot be explained in terms of any known medical disorder or pathophysiological mechanism.

F. Psychosomatic Disorders

The term psychosomatic disorder is mainly used to mean a physical disease that is thought to be caused or made worse by mental factors. Eg. Chest pain may be caused by stress and not by physical disease.

The word psychosomatic is now replaced with psychophysiologic disorder. They are also called as stress related disorders. Most of the symptoms are treated in general hospital rather than in mental hospital.

G. Post-Traumatic Stress Disorder (PTSD)

Post-traumatic stress disorder is a severe anxiety disorder that can develop after exposure to any event which results in psychological trauma.

H. Generalised Anxiety Disorder (GAD)

Generalised anxiety disorder is characterized by excessive anxiety and worry about every day life events with no obvious reasons for worry. It may be about money, health, family, work or school

Personality Disorders

(Refer Applied psychology Chapter.)

Eating Disorders

Definition

An eating disorder is when you have an unhealthy attitude to food, which can take over your life and make you ill.

Types Of Eating Disorder

a) ANOREXIA NERVOSA: anorexia nervosa is an eating disorder in which people have an intense fear of gaining weight and can become dangerously ill.

b) BULIMIA NERVOSA: Bulimia nervosa is a psychological and severe life threatening eating disorder characterised by ingestion of an abnormally large amount of food in short time followed by attempt to avoid weight gain, they induce vomiting.

Usually found in school girls and college students.

Management:

- Medications
- Behaviour modification therapy
- Psychotherapy

Sleep Disorders

Definition

Sleep disorders are changes in sleeping pattern or habit that can negatively affects health.

Types Of Sleep Disorders:

A) Insomnia: Disorder of initiation and maintenance of sleep

B) Hypersomnia: Excessive sleep pattern

Sleep Disorders

- Sleep walking (somnambulism)
- Bruxism (Tooth grinding)
- Sleep talking (somniloqy)
- Sleep enuresis (Bed wetting)
- Night terrors

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Management

- Treat the cause
- Medications
- Sleep hygiene
- Relaxation techniques

Sexual Disorder

Definition

Any disorder that involving sexual functioning, desire or performance

Types Of Sexual Disorders:

1. Gender Identity Disorders

TRANSSEXUALISM: Sense of discomfort about one's own sex. They want to change their sex permanently. (Male to female or female to male)

DUAL ROLE TRANSVESTISM: Wearing clothes of opposite sex to enjoy temporarily, but they do not want to change their sex

2. Psychological and behavioural problems related to sexual development and maturation

- Homosexuality of females (Lesbians)
- Homosexuality of males (Gay)

3. Paraphilias

Fetishism	Sexual activity with non-living objects
Transvestism	Sexual desire occurs by wearing clothes of opposite sex
Sexual sadism	Physical and psychological injury to opposite sex
Exhibitionism	Exposure of ones genitals to strangers
Paedophilia	Involvement of children in sexual activity
Frotteurism	Act of touching and rubbing against an unsuspecting person

Management:

- Treat the underlying physical and psychological problems
- Medications
- Psychotherapy
- Behaviour therapy

10.7 Drug Abuse, Alcohol Abuse and De-Addiction

Drug Abuse

Drugs are a pervasive part of our society. Certain mood altering substances are quite socially acceptable and are used moderately. They include alcohol, caffeine, and nicotine. A wide variety of substances are produced for medicinal Purposes. On the other hand, the dangerous effects of other illegal substances have been well documented.

"At the bottom of every person's dependency, there is always pain. Discovering the pain and healing is an essential step in ending dependency".

Definition for Abuse: To use wrongfully or in a harmful way. (APA-2000)

Types

- Alcohol
- Amphetamines and related substances
- Caffeine
- Cannabis
- Cocaine
- Hallucinogens
- Inhalants
- Nicotine
- Opioids
- Phencyclidine (PCP) and related substances
- Sedatives, hypnotics, or anxiolytics

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Causes

- **Genetic Factors**

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- **Biochemical Factors:** Alterations in neurotransmitters
- **Psychological:** curiosity, escape from reality, personality, life style and self-medication
- **Social:** peer pressure, easy availability, Culture, media, and popularity of drugs

Management of drug abuse

Care for a substance using patient starts with an assessment during the phase of drug intoxication and detoxification

- Vital signs
- Intra Venous Fluid (IVF)
- Medication
- Rehabilitation

Alcohol Abuse

Alcohol abuse can steal the best years of your life. Alcohol does not kill the addict. It kills the family, kids and people who tried to help. Alcohol abuse is temporary fun with permanent consequences.

The word "alcoholism" was first coined by "Magnus Huss". It was derived from Arabic word 'alkuhl', means 'essence'.

Definition

"Alcoholism is defined as a chronic diseases manifested by repeated drinking that produces injuries to the drinker's health or to his social or economic functioning" - S. Nambi

Epidemiology

The World Health Organization estimates about 140 million people throughout world

Incidence	- 2% in India
Above 15 years	- 20 – 40 %
Regular or excessive users	- 10%

Process of Development

- **Experimental** - person start drinking alcohol due to peer pressure and curiosity
- **Recreational** - functions like marriages, hostel days or college day, parties, conference
- **Relaxation** – whenever they want relaxation, on holidays and Sunday, they start enjoying their drink and continue to do so.
- **Compulsive** – some people who started drinking occasionally, start drinking almost daily or drinking heavily for a period of time for pleasure or to avoid the discomfort of withdrawal symptoms.

Diagnostic Evaluation

- Blood Alcohol level
- Serum electrolyte
- Urine toxicology
- Liver function test
- ECG
- CAGE Questionnaire: (Cut down, Annoyed, Guilt, Eye-opener)
- AUDIT - Alcohol Use Disorders Identification Test
- DAST - Drug Abuse Screening Tool

Management

The management includes outpatient and Inpatient modalities

- Informed consent
- Medications
- Vitamin and nutritional supplementary to correct nutrition deficiencies
- IV fluids and electrolyte balance
- Symptomatic treatment
- Alcohol Deterrent therapy

Rehabilitation of Alcoholic Dependence

- Alcoholics Anonymous (self-help groups)
- Aversion therapy
- Psychological method
  - Counseling

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Complications

Physical Complications	Psychiatric Complications	Social Complications
• Accidents. • Suicide rates increased • GI ulcers, • liver disease, • malnutrition, • anaemia, and • Dehydration. • cardiac dysrhythmia, • seizures, • Acute renal failure. • Mood changes • Psychosis. • short- and long-term memory loss	• Dementia • Brain damage • Anxiety • Depression • Psychosis • Confusion • Antisocial personality • Bipolar disorder	• Suffering in relationships with family, friends, and coworkers. • divorce and separation • Domestic violence • aggressive behavior. • Missed work, • poor job performance, • On job accidents are common. • Legal problems

- Individual and group psychotherapy
- Marital and family therapy
- Behavioral modification (aversion therapy)
- Relapse prevention therapy

Patient Education and Health Maintenance

- Instruct patient and family about adverse physiologic and psychological effects of substance use.
- Discuss health maintenance practices to minimize potential effects of substance use (e.g., vitamin use, proper diet).
- Explain the potential for injury from risk-taking behaviours. Reinforce the need for aftercare groups and activities.

10.8 Mental Retardation

Mental handicap is more complex enterprise. Some children can go through life but others need help depending upon their disability. Institutionalization and special schooling are required for a number of mentally handicapped children.

Mental retardation has a new name "Intellectual disability" or "Intellectual Developmental Disorder or General Learning Disability".

Meaning

Retarded is derived from Latin Word

"Retardare" = which means to make slow, keep back, or hinder.

Definition of Mental Retardation:

Mental retardation is a generalized neuro developmental disorder characterized by significantly impaired intellectual and adaptive functioning" –American Association on mental deficiency (1983).

Causes for Mental Retardation

- **Genetic Causes:** Abnormal genes form parents (chromosomal abnormalities)
- **Metabolic:** Phenylketonuria, Wilson's disease and Galactosomia
- **Cranial malformations:** Microcephaly and hydrocephaly

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- **Prenatal:** Infection Eg. Rubella
- **Intranatal:** Birth asphyxia
- **Postnatal:** Infections, Accidents, Lead poisoning
- **Environmental And Socio – Cultural Causes:** Low socio economic status, cultural deprivations.

Classification of Intellectual Disability

S. No	Types	IQ Ranges
1	Mild mental retardation	50-70
2	Moderate mental retardation	35-50
3	Severe mental retardation	20-35
4	Profound mental retardation	<20

IQ Calculation (Interlligent Quotient)

IQ = Mental Age (MA)/ Chronological Age (CA) × 100

For example: If 8 year old child has 4 year of mental age , it would be considered as 4 years of mental age.

Calculate as follow: IQ =4/8 × 100=50

(Mental age is calculated by psychiatrist and chronological age is the actual age from birth)

Clinical Features

Mild Mental Retardation: (IQ 50 to 70)

- Deficit in intellectual, and academic performance,
- Motor or sensory deficits are slight.
- Their mental retardation can not be detected until the start of schooling.

Moderate Mental Retardation: (IQ 35 to 50)

- Trainable, unaware of the needs
- Poor communication skills,
- Partially dependence on others for this care,
- Difficulty in social relationship

Severe Mental Retardation (IQ 20 to 35)

- Poor verbal skills, Poor psychomotor development,
- Only able to develop simple focus

Profound Mental Retardation: (IQ < 20)

- No capacity for socialization skills,
- Lack of both fine and gross motor skills,
- Requires constant supervision,
- May associated with other psychosocial disorders.

Signs and Symptoms

- Failure to Milestones
- Deficiencies in cognitive Function
- Reduced ability
- Expressive or accepting language problem
- Psychomotor skill deficits
- Neurologic impairments
- Lack of curiosity

Dignosis

- **History:** Family History, and abnormalities in pregnancy and delivery, Developmental milestone and Associated behavioural disorders.
- **Physical Examination**: Height, weight, head circumference physical sign of specific disorders.
- **Detailed Neurological Examination**: Especially vision, hearing of specific sign.
- **Mental Status Examination**
- **Investigation**: Blood, Urine, CT Brain, and chromosomal studies.
- Intelligence test
- EEG.

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Management

Treatment Modalities

- No satisfactory treatment is available till today. No drugs available to increase intelligence.
- Behaviour and environmental supervision
- Monitoring the child's developmental needs and problems.
- Programs that maximize speech, language, cognitive, psychomotor, social, self-care, and occupational skills.
- Ongoing evaluation for overlapping psychiatric disorders
- Family therapy and Early intervention programs for children
- Provide day schools to train the child in basic skills, such as bathing, brushing and eating.

Prevention of Mental Retardation

- Genetic counselling, avoid consanguinity marriages.
- Good perinatal care and hospital deliveries
- Avoiding marriages of mentally retarded
- Early diagnosis and treatment.

Rehabilitation

Rehabilitation is aimed at

- Physical (appliances for handicaps),
- Social (social skills training) and
- Occupational areas (e.g. by teaching and training the patients to make them self-sufficient).
- Day care centres and schools, integrated schools, vocational training centres, sheltered forms and workshops are useful.

Tips for Parents of Mentally Challenged Children:

- Mental retardation will not be caused by sin, god's anger.
- Do not consider them as a burden.
- Home training will give good result.
- Home is the best place to train the child.
- Home training will lead to independent life

Do you know an Indian girl who holds the world record for highest IQ level?

K. Visalini, 19 year old female from Tirunelveli. Her IQ level is **225**.

TEACHER ACTIVITY

Make a field visit to nearby mental retardation school and orient the training of mentally challenged children and their parents.

Social welfare schemes available for mentally retarded in India

- Monthly maintenance charge of Rs.1000/-
- Self-employment subsidy to persons through banks, and free travel concession with one escort, free special education, appointment of legal guardianship, homes and vocational training programme from non-governmental organizations are available.

10.9 Learning Disability

Difficulties with reading, writing and/or math are recognizable problems during the school ages, the signs and symptoms of learning disabilities are most often diagnosed during that time. Learning disabilities are referred to as **"hidden disabilities".** The person looks perfectly "normal" and seems to be a very bright and intelligent person, yet may be unable to demonstrate the skill level expected from someone of a similar age. Children with learning disabilities are as smart as or smarter than their peers.

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Definition

Learning disabilities are disorders that affects one's ability to understand or use spoken or written language, do mathematical calculations or direct attention.

Causes

The causes for learning disabilities are not well understood, and sometimes there is no apparent cause for a learning disability. However, some causes of neurological impairments include:

- ***Heredity and genetics:*** Learning disabilities often run in the family.
- ***Problems during pregnancy and birth:*** Malnutrition Anomalies in the developing brain, illness or injury, fetal exposure to alcohol or drugs.
- ***Accidents after birth:*** Head injuries, Malnutrition, Toxic exposure to heavy metals

Characteristics of Learning Disability:

- Slow reading rate
- Difficulty in recalling
- Difficulty in finding
- Confusion
- Problems with reasonings

Types of Learning Disabilities

A. Dyscalculia

This is a type of learning disability, where the children have difficulty in math fact. They have poor understanding of math symbols, numbers and feel difficulty in counting the numbers.

Management: Allow use of fingers, use diagrams and provide peer assistance. Also use mnemonic devices and schedule time for practice.

B. Dysgraphia

Type of learning disability that affects children handwriting ability and fine motor activity. It may be illegible handwriting, spelling mistakes, spatial problem in paper.

Management

- Conduct oral exams. Provide notes to decrease writing.
- Allow to use ruled paper and graph paper.

C. Dyslexia

A learning disability that affects reading and related skill. This also known as language based learning disability. It may affect fluency, recall, writing, spelling and sometimes speech.

The student may read slowly, trouble in spelling, cannot exhibit recalling words. May feel difficulty in handwriting.

Treatment:

- Intensive teaching techniques
- Improve both spoken and written language skills
- Classroom modification

Management

Provide calm area for study. Provide copy of notes, small unit of lessons, large print books. Do not count the spelling in tests.

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Non-Verbal Learning Disabilities

It is defined as trouble in interpreting nonverbal cues like facial expression and body language.

Management: rehearse getting from place to place. Orally point out the difference, connection on resemblance.

Assessment

Many normed assessments can be used in evaluating skills in the primary academic domains: it includes;

- Word recognition,fluency, and comprehension;
- Mathematics, including computation and problem solving;
- Written expression, including handwriting, spelling and composition.

The purpose of assessment is

- to determine what is needed for intervention,
- which also requires consideration of contextual variables and
- whether there are comorbid disorders that must also be identified and treated,
- such as behavioral issues or language

The World's Most Famous Genius, The Nobel Prize Winner Is Believed To Have Learning Disability. Do You Know Who Is He? Yes…… He Is Albert Einstein.

10.10 Attention Deficit Hyperactivity Disorder

Attention Deficit Hyperactivity Disorder is otherwise known as Hyperkinetic disorder.

The syndrome was first described by Heinrich Hoff in 1854.

Definition

Attention Deficit and Hyperactivity Disorder is a Neuro behavioral developmental disorder characterized by inattentiveness, over activity, easily distractable and impulsiveness. The child responds to multiple stimuli at same time.

Epidemiology

ADHD is most commonly studied and diagnosed in, primary school children 1.7%, school aged children 3 %– 5%.

The ratio of boys and girls ranges from 2: 1.

Risk Factors for ADHD

- Drug exposure of baby during pregnancy
- Birth complications
- Low birth weight
- Lead poisoning

Causes for ADHD:

Biological causes:

- Genetic: biological parents of ADHD.
- Bio chemical: alterations in dopamine and nor – epinephrine.
- Anatomical causes: Alteration in the regions of frontal lobes, basal ganglia, and cerebellum in brain

Psychosocial Causes

- Family dysfunction
- Stressful events
- Emotional deprivation
- Paternal criminality
- Low socio economic status and poverty

Perinatal Causes

- Alcohol and tobacco smoke exposure during pregnancy.
- Head injuries.
- Infections during pregnancy, at birth and early childhood.
- Prolonged labour
- Perinatal asphyxia
- Postnatal infections, CNS abnormalities due to trauma

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Environmental Causes

Environmental lead. Elevated body levels of lead affects the cognitive and behavioural development in children. Food dyes and additives (colouring preservatives), artificial flavours.

Clinical Features

- Sensitive to stimuli
- Easily upset by noise, light and environmental changes
- Short attention span, easily distractible,
- Failure to finish works
- Poor learning capacity and memory.

Types of ADHD

An Inattentive Type	A Hyperactive Impulsive Type	Combined Type
• Unable to pay attention and careless • Poor play activities • Listening problems • Cannot able to follow instruction • Avoiding works which needs mental efforts • Loses things like note books, pencil and homework frequently in school • Forgetting the daily activities • Unable to wait for their turn and respond	• Excessive running and climbing • Excessive talking • Cannot be seated in a place • Answering before hearing a full question • Cannot wait for their turn or in queue	This is the most common type and combination of both types.

Diagnosis

- A detailed history about pre natal and developmental history
- Teachers school report and parents report
- Child guidance clinic and complete psychiatric evaluation with psychologist
- Medical examination for neurological examination, hearing and vision.

Treatment

- Medications
- Therapies
- Behaviour modification therapy
- Family education
- Social skill training
- Attention training
- Visual training
- One to one talking

ADHD in Classroom

- Reduce seating distractions
- Supervision
- Give positive reinforcement
- Homework folder for parents

Diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) at age 9, swimmer Michael Phelps, winner of 14 **Olympic** gold medals, overcame the challenges of his condition and hit his stride in the pool - thanks, in large part, to his mother's help.

TEACHER ACTIVITY

Make a visit to child guidance clinic and show the assessment of ADHD child.

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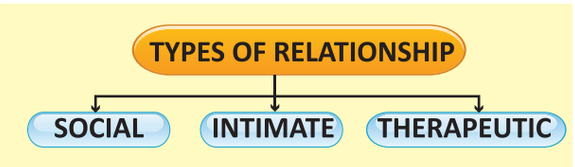
10.11 Therapeutic Nurse – Patient Relationship

Repeated human contacts are essential to develop trust, love, tenderness concern and acceptable nature. The nurse has to act as a parental role, and accept the client's thoughts, feelings, interest and problems. The nurse–client relationship is the foundation upon which psychiatric nursing is established.

Definition for Relationship

"Relationship is a state of being related or interrelated" -Webster new collegiate dictionary



Social Relationship

To satisfying needs of each other. - Example: work colleagues, friends, functions and parties

Intimate Relationship

Two individuals committed to one another. - Example: partner type and to reduce loneliness

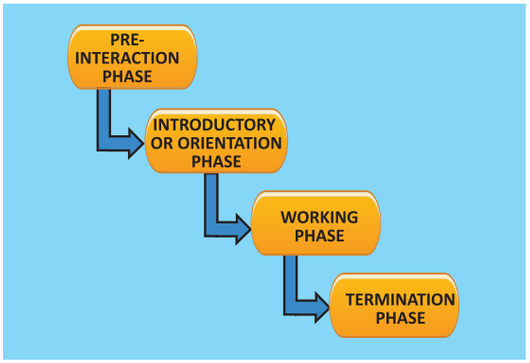
Therapeutic Relationship

Nurse – client or therapist – differs from both social and intimate - client work together towards the goal.

Components of Therapeutic Nurse – Patient Relationship

- Rapport
- Trust, Respect and Genuineness
- Empathy, Sincerity and Concern
- Immediacy
- Communication skills
- Warmth
- Active listener
- Self-discipline

Phase and Tasks



Pre – interaction phase:

Nurse is assigned to take care of client. Plan for first meeting with patient.

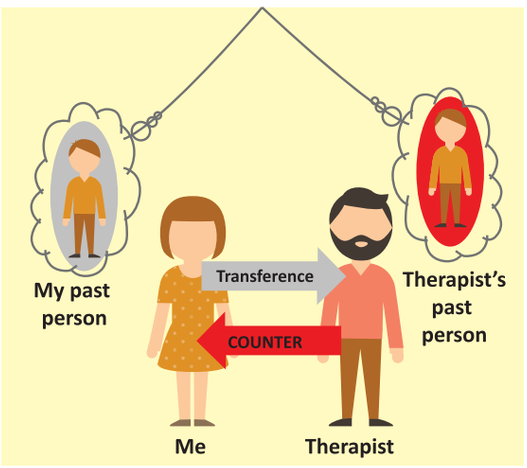
Introductory/ orientation phase: During this phase the nurse and patient meet for first time. Establish rapport, trust and acceptance. Gather data including patient`s feeling, strengths and weakness.

Working phase: Most of work is carried out during this phase.

Termination phase: Patient has achieved the treatment goals

Therapeutic Impasses

For variety of reasons therapeutic relationship is hindered. Therapeutic impasses are blocks in the progress of nurse – patient relationship.



Resistance: Resistance is the patient's avoidance of verbalizing

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Transference: It is an unconscious response in which the patient experiences feelings towards nurse. The nurse viewed as a person from past life, loved object and expecting privileges.

Counter Transference: It is created by the nurse's specific emotional response to the qualities of the patient and providing privileges.

Boundary Violation: The nurse goes beyond the boundaries and establishes a social, personal, and economic relationship.

Intervention to overcome Therapeutic Impasses

- Nurse must have the knowledge of the impasses
- Nurse must reflect on feelings
- Nurse must examine their strength and weaknesses
- Maintain open communication

10.12 Mental Health Services

The attitude towards mental illness and the treatment of mentally ill have undergone considerable changes through the years. Mentally ill were often beaten, starved, burned and tortured in order to make the body unsuitable place for demons. Gradually man began the quest for scientific knowledge and truth.

The methods of treating mental illness have changed dramatically in the past century. The organization of mental health services demands a wide variety of interventions, regarding from public awareness, early identification, treatment for illness, family education, long term care, rehabilitation, and ensure human rights of the ill persons. Mental health services are delivered through mental hospitals at central, state and district levels.

Community

Community is a group of people with common value, belief, attitude, characteristics, location and interest.

Importance of Community Mental Health

- It will promote mental health of families
- It will help the family members to know the social, cultural and situational aspect of care
- It will educate the family members regarding identification of stressor and coping mechanisms to deal problems.
- To remove stigma from community people
- To remove the misconception about mental illness

Mental Health Services available in the Community

Partial Hospitalization

Partial hospitalization is an innovative alternative to hospitalizations. Individuals can attend structured programmes throughout the day and return to home in the evenings. The advantage or partial hospitalization is of lesser separation from families.

Group Homes

These homes may belong to a hospital or rented by 15 to 20 mentally ill recovering patients.

Foster Homes

It is a home in which a patient recovering from a mental disorder is placed in a voluntary family by a social agency for family care is paid by the agency. Patient gets home like environment.

Sheltered Workshop

It is a work oriented rehabilitation facilities with a controlled working environment to fulfill individuals vocational goals.

Quarter Way Homes

This is the place usually located within the hospital campus itself, but not having

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regular services of a hospital. There may not be a routine rounds, nurses, and most of the activities carried out by patients themselves.

Half Way Home:

A half way home is a transitory residential centre for mentally ill patient who no longer need the full services of a hospital.

Objective: to ensure a smooth transition from hospital to the family

- YWCA half way home for mentally ill in Chennai
- Dr. BOAZ'S rehabilitation centre in Chennai
- Delhi psychosocial rehabilitation society

Day Care Services:

Patients discharged from the hospital and who are residents, services in the form of day care program in the occupational therapy and rehabilitation centre. It helps them to undergo different vocational training programs and thus helps them in their future job-placement.

The following arethe variousvocational training provided

- printing and book binding
- tailoring and readymade garments ,
- handloom carpentry
- Candle unit, bamboo baskets sericulture,
- pottery, bakers craft work
- gardening , mat-weaving
- Leather work etc.

Day Care Services In India

- NIMHANS in Bengaluru
- SCARF in Chennai
- SANJIVINI in new Delhi

Self Help Groups

Self-help groups or mutual help are voluntary associations of people who share a common desire to overcome mental illness composed of people who are trying to cope with a specific problem. The group helps the members to become socialize. Ex. AA (Alcohol Anonymous)

Suicide Prevention Centers

The incidence of committed suicide are increasing day by day. These suicide prevention centres help in decreasing the incidence of suicide. Some of them are:

- SNEHA in Chennai
- SAHARA IN Mumbai
- SANJIVINI AND SUMAITRI IN New Delhi

Mental Health Services at Various Levels in India

Central level	National levels hospitals. Example, NIMHANS, Bengaluru
State level Hospitals	State level Hospitals. example
	Institute of Mental Health, Dharwad, Karnataka, Tamil Nadu
	National Mental Health Programme
District level	General Hospitals psychiatric units
	District Mental Health programme
Local level	Primary Health centres
	Community mental Health centres
	Sub-centres

National Mental Health Programme

To create more awareness on mental health among rural people, National mental health programme was started in 1982.

Slogan of National Mental Health Programme: Reaching The Unreached

Aims of National Mental Health Programme

- Prevention and treatment of mental and Neurological disorders and associated disabilities

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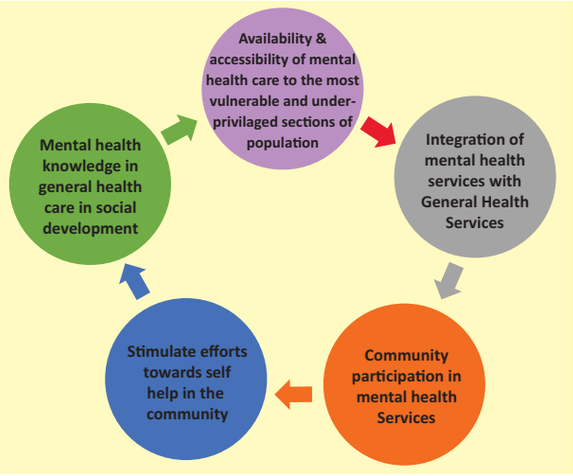
- Use of Mental Health technologies to improve general health services
- Application of mental health principles in total national development to improve quality of life

Objectives of National Mental Health Programme



Funtions of NMHP

Mental Hospitals

- Very chronic and disturbed patient who cannot be looked after in the community, to be certified and admitted in mental hospitals.

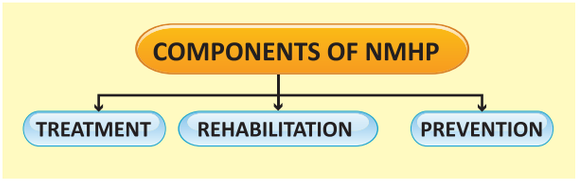
Medical Colleges

- Will take the responsibility of training of general practioners and the medical offices in the primary health centres. They will function as research centres.

District and Taluk Hospitals

- Will have the department of psychiatry and psychiatrist.
- They will supervise the medical officers and general practioners in the PHC
- Community health workers attached to PHC will identify the patients who suffer from psychiatric disorders and refereeing the patient to the PHC for treatment

Components of NMHP



District Mental Health Program (DMHP)

The District Mental Health Program (DMHP) was launched under National Mental Health Program in the year 1996. Presently the District Mental Health Program (DMHP) is being implemented in 123 districts.

THE MAIN OBJECTIVE IS: To provide community mental health services and mental health services with general health services through decentralization of treatment based on primary health care services.

Components of District Mental Health Program (DMHP)

- Training programs for all health workers in mental health team
- Public education to increase awareness
- Outpatient services and indoor services for early identification and treatment
- Providing valuable data to state for planning, implementing and research.

Prevention of Mental Illness

The concept of mental health has got great response in dealing with clients of mental disorders. Community health movement has been considered as revolution in the field of psychiatry. Caplan discussed 3 levels of prevention in "public health model" in includes:

- Primary prevention
- Secondary prevention and
- Tertiary prevention

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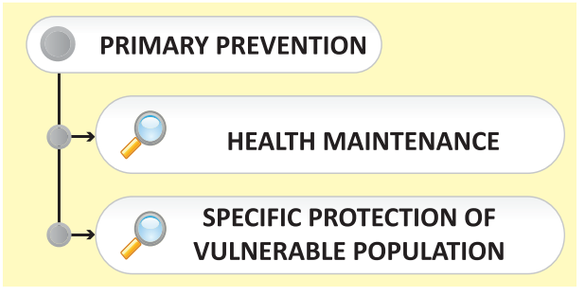
Primary Prevention



Secondary Prevention

Secondary prevention aims at lowering the intensity and severity of the illness, early diagnosis and early prompt treatment

Tertiary Prevention

Tertiary prevention aims at lowering the disability and relapse, increasing self-esteem and rehabilitation

Specific Problems in Mental Hospitals

- Escape from mental hospital
- Death
- Pregnancy
- Unknown patient
- Mentally ill offender (mentally ill criminals)

Human Rights of Mentally Ill

Psychiatry patients currently have the following rights;

- Right to communicate with people outside the hospital through, telephone, and personal visits.
- Right to keep clothing and personal effects with them in the hospitals.
- Right to religious freedom
- Right to be employed if possible.
- Right to manage and dispose of property
- Right to execute wills.
- Right to make purchases
- Right to education.
- Right to independent psychiatric examination.
- Right to privacy
- Right to informed consent/Right to treatment.
- Right to refuse treatment.

Some important milestones in Psychiatry

- 1773 – First mental hospital in Williamsburg, Virginia, US.
- 1783 – Benjamin Rush wrote first textbook on psychiatry
- 1793 – Philippe Pinel removed the chains from mentally ill was the first revolution in Psychiatry
- 1882 – First psychiatric nurse MS Linda Richards from U.S
- 1908 – Clifford Beers an ex patient of a mental hospital wrote the book. "A mind that found itself "based on his bitter experiences in the hospital,
- 1912 – Eugen Bleuler, a Swiss psychiatrist coined the term "schizophrenia".
- 1912 – Indian Lunacy Act was passed
- 1920 – The term Lunatic Asylum was changed to "Mental Hospital "
- 1927 – Insulin shock treatment was introduced for schizophrenia
- 1938 – Electro Convulsive therapy was introduced for treatment of psychosis
- 1947 – Indian psychiatric society was formed
- 1949 – Lithium therapy was introduced for treatment of mania
- 1952 – Chlorpromazine was introduced – revolution in psychopharmacology
- 1963 – Community health centres act was passed
- 1987 – The Indian Mental Health act was passed.

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DO YOU KNOW?

Institute of Mental Health, Chennai is involved in mental health care for the past 206 years. Founded in 1794 as an asylum to manage 20 patients. Now it has grown into an institute with bed strength of 1800 patients. It is the second largest institute in India offering mental health services.

DO YOU KNOW?

Theme of Mental Health Day 10th October 2018 – young people and mental health in a changing world

SUMMARY

Most people with mental illnesses are treated in the community rather than in hospitals, but nurses are needed in both settings. Demand for mental health services has increased significantly in recent years. Around 20% of the world's children and adolescents have mental disorders. Mental and substance use disorder disorders are the leading cause of disability worldwide. War and disasters have a large impact on mental health and psychosocial wellbeing. Mental disorders are important risk factor for other diseases as well as intentional and unintentional injury. Stigma and discrimination against patients and families prevent people from seeking mental health care. Financial resources to increase services are relatively modest. About 800000 people commit suicide every year. Generally there is huge inequity in the distribution of skilled human resource for mental health

GLOSSARY

A-Z

Optimism	All is going to turn out well	நம்பிக்கை
Pessimism	The feeling that things will turnout badly	அவநம்பிக்கை
Process	The series of action	செயல்முறை / செயலாக்கம்
Assessment	Act of judging a person or situation	மதிப்பீடு
Adoption	The act of legally taking a child to care as your own.	தத்தெடுத்துக் கொள்ளப்பட்ட
Disharmony	Lack of harmony or agreement	ஒற்றுமைக்கேடு / ஒவ்வாததன்மை
Personality	Combination of qualities	ஆளுமை / தனித்தன்மை
Confused	Unable to think clearly	குழப்பமான
Mood	A temporary state of mind or feeling	மனநிலை
Depression	The state of feeling very unhappy and without hope for the future	மனஅழுத்தம்
Chronic	For a long time	நாள்பட்ட
Compulsion	State of forcing being forced to do	வழுக்கட்டாயம் / நிர்பந்தம்
Neurosis	Mild mental illness that is not caused by organic disease, involving symptoms of stress.	நரம்பு சிக்கலால் ஏற்படும் மூளை அமைதிக் கோளாறு
Schizophrenia		மனச்சிதைவு / பிளவுப்பட்டமனநோய்
Isolation	A state of complete lack of contact between an individual and society	தனிமை

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Mutism	Unable to speak	ஓசையற்ற/ஒலிநிறுத்தம்
Cognitive	Connected with thinking or conscious mental processes	அறிவாற்றல்
Relationship	State of being connected	உறவு
Intimate	Very close	நெருக்கமான
Therapeutic	Relating to the healing of disease	நோய்நீக்கநலம்சார்ந்த / குணப்படுத்தும் இயல்புடைய
Termination	Action of terminating something	முடிவிடம் / கடைமுடிவு
Media	The collective communication outlets	தகவல்தொடர்புசாதனம்
Anemia	A decrease in the total amount of red blood cells.	இரத்தசோகை
Retarded	Less advanced in physical, mental, or social development than usual age.	சரியில்லாத
Hinder	Make it difficult to do something	தடங்கல்செய் / இடையூறாக
Abuse	Treat with cruelty/violence. Use for a bad purpose	தவறானவகையில் பயன்படுத்துதல்
Disability	A physical or mental condition that limits a person's Activities	குறைப்பாடு / பலவீனம்
Head injury	Any trauma to the scalp, skull or brain	தலைக்காயம்
Illegible	Not clear enough to read	தெளிவில்லாத / விளங்காத / படிக்கமுடியாத
Genetic	Relating to genes or heredity	மரபணு
ADHD		அவதானக்குறை மிகையியக்க குறைபாடு.
Prevention	The action ofstopping something from happening	தடுத்தல் / நடைபெறாமல்செய்தல்
Rehabilitation	The action of restoring someone to health or normal life that has Been damaged.	மறுசீரமைப்பு / புனர்வாழ்வு

CLINICAL EXAMPLE

The Client with Severe Mental Retardation

Mr. X 18 years old, was born by a normal spontaneous vaginal delivery without any complications. Two months after birth, Mr. X developed a temperature of 105Â°F and had a grand mal seizure. He was admitted to the neonatal intensive care unit with the diagnosis of fever of undetermined origin (FUO). Diagnostic tests revealed the presence of encephalitis. MR. X recovered, but his parents were cautioned about the possibility of central nervous system damage because of the severity of his illness. During early childhood, ages 1 to 5, Mr. X was able to communicate with his parents to some extent but exhibited poor motor-skill development. He was unable to learn basic skills such as reading, writing, and arithmetic, and it became evident that he needed supervision in a controlled environment. Testing revealed Mr. X's IQ to be that of a person with severe retardation or mental impairment. At age 18, he continues to live at home with very supportive parents who have been able to teach him some self-care activities. He relates well to a pet cat, helps his mother with simple household chores, and helps his father with gardening and lawn care.

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Evaluation

I. Choose the correct answer

1. The term schizophrenia was coined by
   a) Eugene Bleuler b) Aristotle
   b) Pythagoras D) Plato
2. Electro convulsive therapy was started in
   a) 1936 b) 1938
   c) 1948 d) 1942
3. Who wrote the book "the mind that found itself"?
   a) Clifford Beers b) Linda Richards
   c) Maxwell jones d) Philippe Pinel
4. The father of psychiatry is
   a) Asciepiades b) Hippocrates
   c) Aristotle d) Benjamin Rush
5. Expansion of ICD - 10 is an
   a) International Classification of Diseases
   b) Indian Classification of Diseases
   c) Indian Medical Association
   d) World Health Organization
6. Mental retardation is otherwise known as
   a) Intellectual disability
   b) Hyperkinetic disorder
   c) learning disability
   d) autism
7. ADHD is otherwise known as
   a) Mood disorder
   b) Mental Retardation
   c) Hyperkinetic disorder
   d) learning disability
8. Claustrophobia
   a) fear of crowd b) fear of animals
   c) fear of Blood d) Fear of closed space
9. Somnambulism is
   a) Sleep walking b) Day time walking
   c) Sleep talking d) Night tremors
10. Pedophilia is an act of sexual activity involving
    a) Adult b) Adolescent
    c) Geriatric d) Children

II. 2 Marks

1. Mental health
2. Mental illness
3. Psychiatric nursing
4. Nursing process
5. Phobia

III. 3 Marks

1. Characteristics of mentally healthy person
2. Difference between psychosis and neurosis
3. Mention the types of mental retardation
4. Types of ADHD
5. Mental health services available at various levels

IV. 5 Marks

1. Explain the general principal if mental health nursing
2. Define schizophrenia, explain the causes and management of schizophrenia.
3. Define therapeutic nurse – patient relationship. Explain the phases and task of therapeutic relationship.
4. Define alcoholism, list out the etiology, process of development and treatment of alcoholism.
5. Explain about causes and symptoms of Paranoid.

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1. BT Basavanthappa, (2007), "Psychiatric Mental Health Nursing", First edition, New Delhi, Jaypee Brothers Medical Publishers,
2. KP Neeraja, (2008), "Essentials of Mental Health and Psychiatric Nursing", First edition, New Delhi, Jaypee Brothers Medical Publishers
3. R. Sreevani, (2016), "A guide to Mental Health and Psychiatric nursing", 4th edition, Jaypee Brothers Medical Publishers (pvt) Ltd, New Delhi.
4. Ram Kumar Gupta, (2016), "Mental Health and Psychiatric Nursing", 1st edition, S. Vikas and Company Medical publishers, Jalandhar city, India

INTERNET RESOURCES

1. www.mentalhealth.com / www.healthonline.com
2. www.wikipedia.org / www.ncbi.nim.nih.gov
3. American Psychiatric Association: www.psych.org
4. www.mhsource.com / www.ldaamerica.org>types –of-learning
5. www.wikipedia.org>wiki>learning disability

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CHAPTER 11

Communicable Diseases

உற்றான் அளவும் பிணியளவும் காலமும்
கற்றான் கருதிச் செயல்.

The learned (physician) should ascertain the condition of his patient; the nature of his disease, and the season (of the year) and (then) proceed (with his treatment).

LEARNING OBJECTIVES

At the end of the lesson students will be able to

- define technical jargons related to communicable disease
- list out the classification of communicable disease
- identify the clinical manifestation of communicable disease
- understands the complications and control measures of communicable disease

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Introduction

Infections due to living organisms are called communicable diseases. They spread from person to person, or sometimes from animals to people. They occur at all ages but are most serious in childhood and they are preventable to a great extent. In developed countries, communicable diseases have been prevented. But in India it is going through a period of transition, both epidemiological and demographically. Infectious diseases are still persisting as major health problems in spite of having National programmes for the control of many diseases.

11.1 Terminology

1. **Infection:** The entry and development or multiplication of an infectious agent in the body of human being or animals.
2. **Contamination:** The presence of infectious agent on a body surface or in clothes, beddings, toys, surgical instruments or dressings or other inanimate articles or substances including water, milk and food.
3. **Infestation:** For persons or animals the lodgment, development and reproduction of arthropods on the surface of the body or in the clothing (e.g) lice, itch mite.

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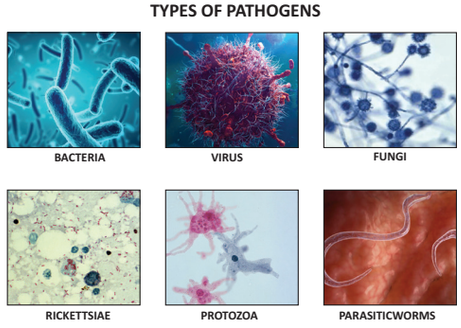
4. **Host:** A person or animal including birds and arthropods that affords subsistence or lodgment to an infectious agent under natural condition.
5. **Communicable diseases:** An illness due to specific infectious agent or its toxic products capable of being directly or indirectly transmitted from man to man, animal to animal or from the environment to man or animal.
6. **Epidemic:** The unusual occurrence or sudden outbreak of disease in a community or region.
7. **Endemic:** It refers to the constant presence of a disease or infections agent within a given geographic area or population group.
8. **Sporadic:** The word sporadic means scattered about. The diseases are so few and separated widely in space.
9. **Pandemic:** An epidemic usually affecting a large proportion of the population, occurring over a wide geographic area such as a section of a nation, the entire nation, a continent or world (eg.) influenza pandemic
10. **Zoonosis:** An infection transmissible under natural conditions from vertebrate animals to man. Eg. Rabies, plague
11. **Eradication:** Termination of all transmission of infection through surveillance.

Carriers

A carrier is defined as "an infected person or animal that harbours a specific infectious agent in the absence of clinical manifestation and serves as a potential source of infection to others.



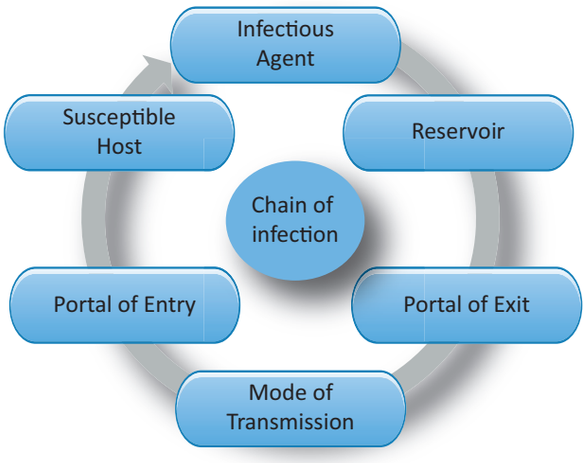
DO YOU KNOW?

National Centre for Disease Control (NCDC) (previously known as National Institute of Communicable Diseases) is an institute under the Indian Directorate General of Health Services, Ministry of Health and Family Welfare. which was established in July 1963 .

Definition

Communicable Disease - "An illness due to a specific infectious agent or its toxic products capable of being directly or indirectly transmitted from man to man, animal to animal, or from the environment (through air, dust, soil, water, food, etc.) to man or animal.

Chain of Infection



11.2 Source of Reservoir

Definition

Infectious agent: An organism that is capable of producing infection or infectious disease.

A **reservoir** is defined as " living or nonliving material in or on which an infectious agent multiplies or develops and is dependent for its survival in nature.

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1. **Human Reservoir**

   a. Cases - There are a number of important pathogens that are specifically adapted to man, such as: measles, smallpox, typhoid, meningococcal meningitis, gonorrhea and syphilis. The cycle of transmission is from human to human.

   b. Carriers - is a person who has become infected with a pathogen, but does not show any signs or symptoms.

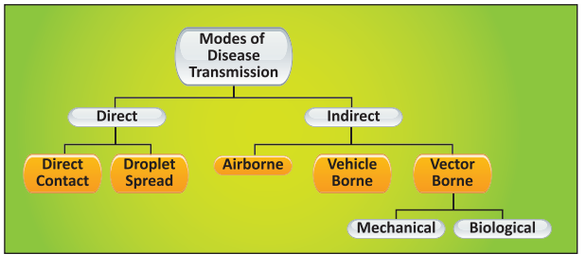
2. **Animal Reservoir** - the source of infection may sometimes be animals and birds.

3. **Nonliving things** - soil and inanimate matter can also act as reservoir of infection. eg. Tetanus in soil.

11.3 Mode of Transmission

Infectious diseases are transmitted from person to person by direct or indirect contact. Certain types of viruses, bacteria, parasites, and fungi can cause infectious disease. Malaria, measles, and respiratory illnesses are examples of infectious diseases.

Susceptible Host - A person who lacks resistance to a particular pathogenic agent to prevent disease if or when exposed.



I. Direct Transmission

1. Direct Contact - Infection may be transmitted directly from skin to skin, mucosa to mucosa, mucosa to skin of others or same person. Example: skin-to-skin contact as by touching, kissing or sexual intercourse. Diseases transmitted - STD and AIDS, leprosy, leptospirosis, skin and eye infections.

2. Droplet infection -This is direct projection of a spray of droplets of salaiva and nasopharyngeal secretions (airborne droplets of saliva or sputum) containing infectious organisms. The spray of droplets during coughing and sneezing can spread an infectious disease.

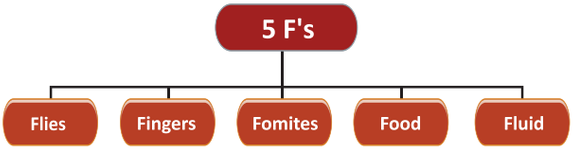
3. Contact with soil - The disease agent may be acquired by direct exposure of susceptible tissue to the disease agent in soil, compost or decaying vegetable matter. Examples: hookworm larvae, tetanus, mycosis etc.

4. Inoculation into skin or mucosa - Rabies virus by dog bite, Hep. B virus through contaminated needles and syringes etc.

5. Transplacental (or vertical) transmission - TORCH agents - (Toxoplasma Gondii, Rubella virus, Cytomegalo virus, and Herpes virus). Varicella virus, Syphilis, Hepatitis B, Coxsackie B and AIDS. Some of the non-living agents (e.g., thalidomide, diethylstilbestrol) can also be transmitted vertically (mother to child) which will affect the embryo and causes malformations in the foetus.

11.4 Indirect Transmission

This embraces a variety of mechanisms including the traditional 5 F's, such as



1. Vehicle-borne - An indirect transmission of an infectious agent that occurs when a vehicle. (or formites) touches a persons body or is ingested

2. Vector - borne - Vector is defined as an arthropod or any living carrier that transports an infectious agent to a susceptible individual. Infectious agents are transmitted

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by insects, especially those that suck blood. These include mosquitoes, fleas, and ticks. The insects become infected when they feed on infected hosts, such as birds, animals, and humans. The disease is transmitted when the insect bites a new host. Eg. Malaria, West Nile virus, and Lyme disease are all spread this way.

3. Airborne - An airborne disease is any disease that is caused by pathogens that can be transmitted through air. Some infectious agents can travel long distances and remain suspended in the air for an extended period of time. Diseases spread by droplet include tuberculosis, measles, Q fever, and Respiratory infections.

4. Fomite - borne - Fomites are inanimate articles or substances other than water or food contaminated by the infectious discharges from a patient and capable of harbouring and transferring infectious agent to a healthy person. Fomites includes soiled clothes, toys, towels, linen, cups, spoons, pencils, books, surgical dressing, etc., Diseases transmitted by fomites are typhoid, diphtheria, and skin infections.

5. Unclean hands and fingers - Hands are the most common medium by which pathogenic agents are transferred to food from the skin, nose, bowel, etc., as well as from other food.

Chain of Disease Transmission

The six factors involved in the chain of disease transmission are

11.5 Classification Of Communicable Disease

Epidemiologic classification of communicable diseases based on the mode of transmission of the infectious agent, communicable diseases can be classified as:

- **Waterborne diseases**: transmitted by ingestion of contaminated water.
- **Food borne diseases**: transmitted by the ingestion of contaminated food.
- **Airborne diseases**: transmitted through the air.
- **Vector-borne diseases**: transmitted by vectors, such as mosquitoes and flies.

Vehicle borne

An indirect transmission of an infectious agent that occurs when a vehicle (or fomite) touches a person's body or is ingested.

WATER BORNE	AIR BORNE	VECTOR BORNE
1. Tyhoid Fever	1. Chickenpox	1. Dengue
2. Cholero	2. Measles	2. Malaria
3. Hepatitis-A	3. Mumps	3. Lymphatic Filariasis
4. Acute Diarrheal Disease	4. Influenza	4. Chikungunya
5. Poliomyelitis	5. Diptheria	
6. Food Poisoning	6. Whooping cough	
	7. Meningococcal Meningitis	
	8. Acute Respiratory Infection	
	9. Severe Acute Respiratory Syndrome	
	10. Tuberculosis	
	11. Swine Flu	

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11.6 Water Borne Disease (Diseases Transmitted Through Water)

Typhoid fever

Definition

Typhoid fever is an acute bacterial infection mainly caused by Salmonella Typhi

Causative Organism - Salmonella Typhi.

Mode of transmission - By water and food contaminated by faeces and urine of patients and carriers. Flies may infect Food which will turn in to source of infection.

Incubation period -10 days to 14 days

Clinical manifestations

1. Fever (High grade 103 - 104F)
2. Cough and sore throat
3. Severe mental confusion
4. Fatigue
5. Weakness
6. Vomiting
7. Weight Loss
8. Headache
9. Abdominal pain
10. Severe Diarrhea
11. Severe Constipation
12. Skin rash (pink spots)

If the typhoid fever continues untreated for more than two or three weeks, the affected individual may be delirious or unable to stand or move and which will lead to fatal complication.

Diagnosis

Widal Test

Control measures

1. Control of reservoir
2. Sanitation and hygiene.
3. Immunization

1. Control of reservoir - The usual methods of control are their identification

a. Early Diagnosis : Culture of blood and stools are the important investigation for the confirmation of the diagnosis of cases.

b. Notification : Notification to the health authority to prevent the spread and control the infection.

c. Isolation : Infected cases should be isolated till three bacteriologically negative stools and urine.

d. Treatment - Appropriate treatment to control the infection and prevent complications.

e. Disinfection :

1. Stools and urine should be received in closed containers and disinfected with 5% cresol for at least 2 hours.
2. All soiled clothes and linen should be soaked in 2% chlorine solution and steam sterilized.
3. All health care providers should disinfect their hand(hand washing)
4. Follow-up examination of stools and urine should be done for typhoid 3 to 4 months.
5. Carriers should be identified by cultured and serological examination.
6. The carriers should be kept under surveillance. They should be prevented from handling food, milk or water for others.
7. Health education regarding washing of hands with soap, after defaecation or urination and before preparing food is an essential.

2. Sanitation and Hygiene

1. Protection and purification of drinking water supply.
2. Improvement of basic sanitation and promotion of food hygiene.

3. Immunization - There are two vaccines to prevent *typhoid*.

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1. One is an inactivated (killed) Typhoid *vaccine* given in injection form.
2. The other is a live, attenuated (weakened) *vaccine* which is taken orally (by mouth).

Treatment

Appropriate Antibiotics

Nursing care

1. Maintain body temperature to normal.
2. Provide comfort measures.
3. Follow side effects of drugs.
4. Monitor vital signs.
5. Follow strict precautions such as hands washing, wearing gloves and health education to all persons about personal hygiene
6. Observe the patient closely for sign and symptoms of complications such as bowel perforation.
7. Accurately record intake and output.
8. Provide proper skin and mouth care.

Complications

1. Intestinal bleeding
2. Fresh blood in the motion
3. Intestinal perforation (occur in the third week).

1. Antonius Musa, a Roman physician who achieved fame by treating the Emperor Augustus 2,000 year ago, with cold baths when he fell ill with typhoid.
2. Thomas Willis who is credited with the first description of typhoid fever in 1659.
3. French physician Pierre Charles Alexander Louis first proposed the name “typhoid"

Cholera

Cholera is an acute diarrhoeal disease caused by V . Cholera (Classical El. Tor)

Causative organism - Vibrio Cholera

Mode of transmission

Transmission occurs from man to man via

a. Faecal contaminated water

b. Contaminated food and water

c. Direct contact

Incubation period - Few hours to 5 days

Clinical manifestations

Onset is abrupt with profuse, painless, watery diarrhea known as rice water stool.

- Muscular cramps
- In Children – Fever, convulsions or coma, loss of muscular tone.
- Vomiting
- Sunken Eyes
- Hallow checks
- Skin pale
- Husky voice
- Extremities are cold.
- Pulse rapid and feable.
- Blood pressure is low
- Shallow and quick respiration

Diagnosis

Stool test

Complications

1. Shock,
2. Severe dehydration,
3. Low blood sugar in children which can cause seizures, unconsciousness, and even death
4. hypokalemia(low potassium level)

Control measure

1. **Verification of the diagnosis** : All cases of diarrhea should be investigated .
2. **Notification** : Cholera is a notifiable disease locally, nationally and

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internationally. Health workers at all levels should be trained to identify and notify cases immediately to the local health authority.

3. **Early case finding** : An aggressive search for case (mild, moderate, severe) should be made in the community to be able to initiate prompt treatment.
4. **Establishment of treatment centers** : In the control of cholera, no time should be lost in providing treatment for the patients.
   1. Easily accessible treatment facilities in the community
   2. Treatment for dehydration
   - For Mild dehydration - treatment at home with oral rehydration fluid.
   - For Severely dehydrated patients requires intravenous fluids in a nearest treatment centre or hospital.
   - When it is endemic or threatening - mobile teams should be established.
3. Epidemiological investigations to study the extent of the outbreak and identify the modes of transmission.
4. Sanitation measures
   a. Water Sanitation
   b. Excreta Disposal - Health education messages should stress the proper use of such facilities.
   c. Food sanitation - Sale of foods under hygienic conditions. Health education regarding eating cooked hot food, and proper food handling techniques.
   d. Disinfection: Most effective disinfectant is bleaching powder. Clothes and personal items to be disinfected with disinfectant (dettol).
5. Health Education regarding Oral Rehydration therapy, Early diagnosis and adequate treatment and Food sanitation

Treatment

1. Replacement of fluids and Electrolytes.
2. Antibiotics
3. Anti diarrheal drugs
4. Rehydration therapy : The oral rehydration therapy and intra venous fluids (IVF).
5. Vaccination to protect the people from Cholera.

Hepatitis A

Definition - Hepatitis A is a systematic disorder that primarily affects the liver.

Causative organism

Heptatitis A virus (Entero virus)

Mode of transmission - Faeco oral route and direct contact

Incubation period- 14 -28 days

Clinical manifestations

1. Fever
2. Malaise
3. Severe anorexia, nausea and vomiting,
4. Pain in right hypochondriac region
5. Passing dark color urine and pale stool.

Complications

Acute liver failure

Control measures

a) Control of reservoir

Complete bed rest and disinfection of faeces and fomites by using 0.5 % sodium hypochlorite is recommended to prevent the spread of infection to others.

b) Control of transmission :

1. Hand washing before eating and after defaecation.
2. Sanitary disposal of excreta.

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3. Purification of community water supplies by flocculation, Filtration and adequate chlorination.

c) Control of susceptible population :

Vaccines: Several inactivated or live attenuated vaccines against Hepatitis A is available to protect against the infection.

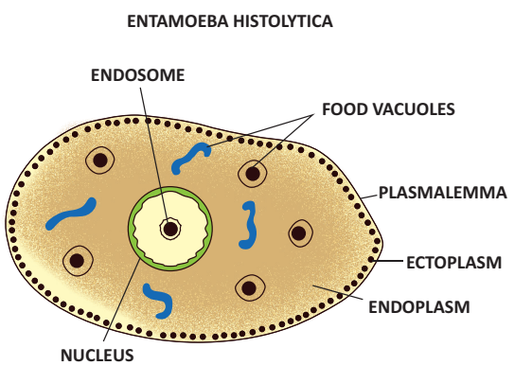
Treatment

1. The patient has to be provided with adequate rest.
2. Bland diet should be provided
3. Avoid Alcohol

Acute Diarrheal Diseases

Definition

According to WHO Acute diarrhea is defined as an abnormally frequent discharge of semisolid or fluid faecal matter from the bowel, lasting less than the 14 days by WHO.



Causative Organism

Bacteria: Escherichia coli, Shigella, salmonella etc.,

Virus: Rota virus, adenovirus etc.

Parasites: Endamoeba hystelytica, Giardia lamblin etc.

Mode Of Transmission - Direct transmission - Faeco – oral route

Incubation Period - Few Hour to one day.

Clinical Manifestation

1. Sunken eyes
2. Tachycardia
3. Hypotension
4. Irritable and restlessness
5. Pallor
6. Rapid respiration
7. Sudden collapse if not treated properly
8. Stools loose and fluid in consistency, greenish or yellow green in colour, may contain mucus or blood.
9. Vomiting
10. Fever
11. Poor skin turgor, dry skin and dry mouth
12. Sunken fontanels in children

Diagnosis – Stool test

Complications

1. Persistent diarrhea
2. Malnutrition
3. Vitamins and mineral deficiencies
4. Hypoglycemia resulting in convulsions and brain damage
5. Electrolyte loss
6. Hypovolemic shock
7. Acute renal failure

Control Measures

1. Promote exclusive breastfeeding
2. Immunization
3. Using sanitary latrines
4. Keep food and water clean and closed.
5. Wash hands before eating and after defaecation.

Treatment

Oral Rehydration Therapy: Give some available liquids like rice water, oral rehydration solution (ORS) packet to be dissolved in one litre of drinking water and stir with clean spoon, till it dissolves. Give ¼ to ½ cup after every loose motion to a child

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less than 2 years of age and 100-200 ml if the child is above 2 years. The solution should be consumed within 24 hours and should not be heated or boiled.

Appropriate feeding

a) Coconut water
b) Rice water
c) Dhal water
d) Smashed banana
e) Watery tea
f) Breakfast feeding to be continued.

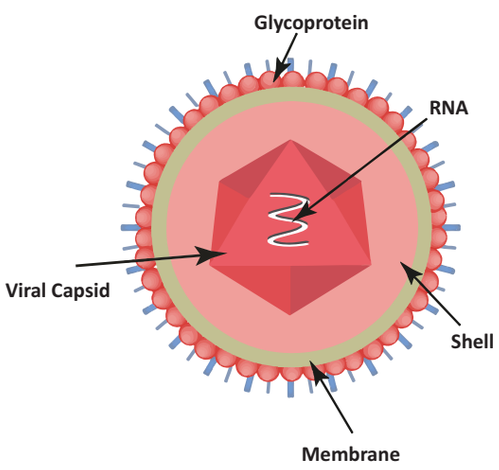
Appropriate drugs:

a) Antibiotics for Bacterial infection
b) Symptomatic treatment for fever, vomiting etc.
c) Anti – Motility agents.
d) Intravenous infusion to severely dehydrated clients.

Poliomyelitis

Poliomyelitis is an acute viral infection caused by polio viruses. It is a crippling disease.

STRUCTURE OF POLIO



Causative organism

Three types of polioviruses (Type I, II, III)

Mode of transmission - Faeco – oral route: Through contaminated water, food, fingers etc.

Droplet infection : Coughing and sneezing an important route of transmission during the acute stage.

Incubation period - 7 to 21 days. It may vary from 3 to 35 days.

Clinical manifestation

a) Respiratory – Coryza, soar throat or cough.
b) Gastro Intestinal Tract – Vomiting, diarrhea or constipation.
c) Continuous – Fever, headache, drowsiness, restlessness, irritability and sweating.
d) Pain – Spontaneous by the movement of back, neck, limbs.
e) Hyperparesthesia
f) Nuchal and spinal rigidity
g) Tachycardia
h) Excessive perspiration
i) Paralysis

Complications

1. Myocarditis
2. Hypertension
3. Pulmonary edema
4. Pneumonia
5. Depression

Control measures

i) Sanitation : Measures to reduce transmission such as improved water supply, proper excreta disposal and improved domestic and food hygiene. Simple hygienic measures like hand washing with soap before preparing food, before eating,before feeding a child, after defecation, after cleaning a child who has defecated and after disposing off a child's stool should be promoted.

ii) **Health education** : important part of health workers job is, to prevent diarrhea by educating and helping community members to adopt and maintain preventive measures such as breast-feeding, weaning, clean drinking water,

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use of plenty of water, use of sanitary latrine, proper disposal of stools of young children and patients with infection, etc.

iii) Immunization : Immunization against measles is a potential intervention for diarrhea

Control Measures Two types of vaccines are used

a. Inactivated (Salk) vaccine (Injection)
b. oral (Sabin) polio vaccine (OPV).

iv) Fly control : Flies breeding in association with human or animal faeces should be controlled.

Treatment

1. Mild analgesics and sedatives to relieve pain and induce sleep.
2. For constipation – Mild laxatives
3. Antibiotics to prevent respiratory complication.
4. If respiratory failure occurs, treat with artificial respirators.
5. Rehabilitation

11.7 Diseases Transmitted Through Air

Chickenpox (Varicella)

Definition - Chickenpox or varicella is an acute highly infectious disease caused by varicella zooster

Causative organism

Varicella zoster

Mode of transmission - Droplet nuclei

Incubation period - About 10 -21 days

Complications (Children and Adults)

- Haemorrhages
- Pneumonia
- Encephalitis
- Acute cerebellar ataxia

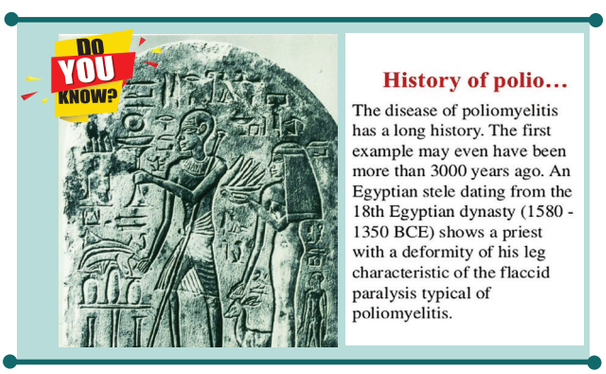
The control measures are notifications isolation of cases for about 6 days after onset of rashes and disinfection of articles soiled by nose and throat discharges.

Clinical manifestations

Pre-eruptive stage:	Eruptive stage:
1. Fever	1. Rash, Clusters, itchy blisters
2. Pain in back	2. First appears on the trunk, then face, arms, axilla and in legs.
3. Shivering	3. Rashes in buccal surface.
4. Malaise	

Preventive measures

1. **Varicella zooster immunoglobulin** : Varicella zooster immunoglobulin given within 72 hours of exposure has been recommended for prevention of chicken pox.
2. **Vaccines** : The live attenuated varicella virus vaccine is safe and currently recommended for children between 12-18 months of age who have not had chicken pox.



Medication

- Anti – pyretic
- Anti viral drugs

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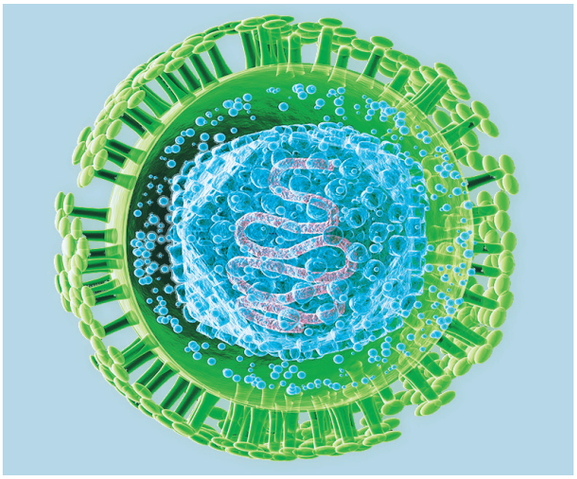

Measles

Definition

Measles is an acute highly infectious disease of childhood caused by a specific virus of the group Myxo viruses.

Causative organism

RNA Para Myxo viruses

Mode of transmission - Droplet infection

Incubation period - 10 days from exposure to onset of fever and 14 days to appearance of rash. Average 7 days.

Clinical manifestations

There are three stages

1. Prodromal stage:

1. Fever
2. Coryza
3. Sneezing
4. Nasal discharge
5. Cough
6. Redness of Eyes
7. Lacrimation
8. Photophobia
9. Vomiting
10. Diarrhea
11. Koplik"S Spots on A Red Base

2. Eruptive phase:

1. Duskyred
2. Macular
3. Maculo-papular rash
4. Rashes become confluent,blotchy

3. Post-measles stage:

1. Weight loss
2. Weakness
3. Growth retardation
4. Reactivation of Pulmonary tuberculosis
5. Nutritional and metabolic effects

Complications

1. Measles – associated diarrhea,
2. Pneumonia
3. Otitis media.
4. Febrile convulsions,
5. Encephalitis
6. Pan-encephalitis.

Control measures

a) Isolation for 7 days after the onset of rash.

b) Immunization of contacts within 2 days of exposure. (if vaccine is contra indicated immunoglobulin should be given within 3 – 4 days of exposure)

c) Prompt immunization at the beginning of an endemic is essential to limit the spread.

Treatment

There is no specific treatment for measles, but the condition usually improves within 7 to 10 days. Following measures are important to control infection.

1. Controlling fever and relieving pain
2. Plenty of fluids to prevent dehydration
3. Treating cold like symptoms
4. Care of the sore eyes - cleaning the crusts with wet cotton swabs.

Measles vaccine: Measles is best prevented by active immunization. The

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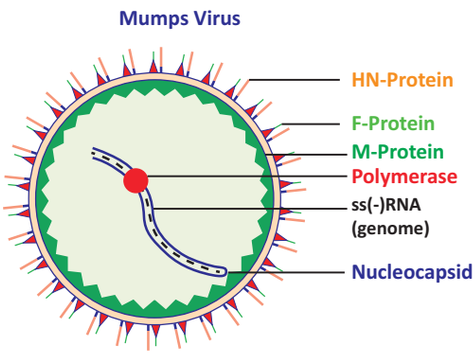
vaccine is presented as a freeze dried product. It is most important to store the vaccine at 2 – 8 degree celsius.

The most effective month of immunization by World Health Organization is at 9 months of age.

Mumps

Definition

Mumps is an acute infections disease caused by virus infections. It is common in winter.



Causative organism

RNA virus classified as Genus Rubella virus of the family paramyxoviridae.

Mode of transmission

1. droplet nuclei
2. direct contact with an infected person.

Incubation period - Varies from 2-3 weeks usually 18 days

Clinical Manifestation

1. Pain,swelling in one or both the parotid glands.
2. Ear ache
3. Pain and stiffness on opening the mouth
4. Fever
5. Headache

Complications

1. Orchitis
2. Ovaritis
3. Pancreatitis
4. Meningo-encephalitis
5. Myocarditis
6. Nerve deafness, poly arthritis and hydrocephalous are rare

Control measures

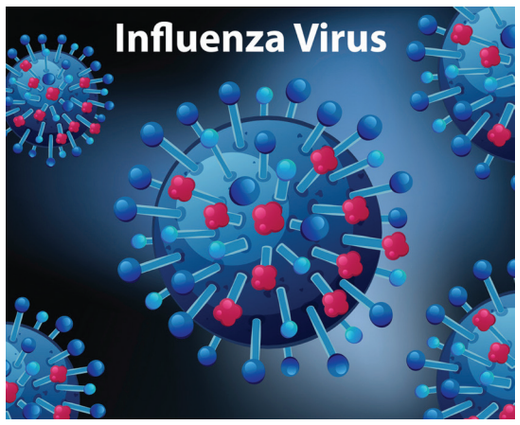
1. Early Diagnosis - The cases should be identified to take appropriate measures by health authorities to control the disease
2. **Isolation**- The case should be isolated till the clinical manifestations are cleared or subsided.
3. **Disinfection** - As virus is present in saliva, blood, urine. Articles used by patient, which come in contact with these should be disinfected.
4. **Surveillance** - By surveillance source of infection,route of transmission and identification of cases and susceptible contacts is possible to prevent the further spread of disease.

Preventive measures

a. **Vaccination:** A single dose (0-5 ml) highly effective, live attenuated vaccine is now available for the prevention of mumps.

b. **Immunoglobulin** : A specific immunoglobulin is available, but its protective effect has not been established.

Influenza



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Definition

Influenza (commonly known as Flu) is an acute infection of the respiratory tract. It is caused by the influenza viruses. Influenza tends to spread very rapidly.

Causative organism

Influenza virus are 3 types. Namely A, B, C

Mode of transmission - Influenza spreads mainly from person by droplet infection created by sneezing, Coughing or talking. The portal of entry of the virus is the respiratory tract.

Incubation period - 18 – 72 hours

Clinical manifestations

1. Fever
2. Chills
3. Aches
4. Pains
5. Cough
6. Generalized weakness

Complications - Pneumonia

Treatment

Antiviral drugs: These drugs may also modify the severity of influenza. If started with in 24-48 hours of onset of illness

Control Measures

- Avoidance of crowded places
- Good ventilation of public buildings
- Covering the face when coughing and sneezing with handkerchief or cloth
- Isolation of cases of influenza

Diphtheria

Definition

Diphtheria is an acute infections, caused by the exotoxin of diphtheria bacilli. The disease attacks mainly the throat, tonsils, larynx or nose. Where the baccilli produces a grayish-white membrane which spread in to the air passages.

Causative organism

Corynebacterium diphtheria caused by exotoxin of diphtheria bacilli.

Mode of transmission

1. Droplet infection.
2. Infected cutaneous lesions.
3. Infective object or dust, contaminated with nasopharyngeal secretions.

Incubation period - 2-6 days occasionally longer

Clinical manifestations

The onset of symptoms is typically gradual. Most common presenting symptoms are

- Sore throat
- Malaise
- Cervical lymphadenopathy
- Low grade fever.
- Pharyngo tonsillar diphtheria - sore throat and difficult in swallowing
- Mild erythema is the earliest pharyngeal finding
- Isolated spots of gray and white exudate.
- Membranous pharyngitis
- Massive swelling of the tonsils, Uvula, cervical lymph nodes, submandibular region, and anterior neck (the so-called "bull neck" of toxic diphtheria).
- Aspiration of the membrane can lead to suffocation.
- Laryngeal diphtheria causes obstructive croup stridor and eventually asphyxia.
- Respiratory stridor may ensue, leading to respiratory insufficiency and death.

Complications

Diphtheria toxin can lead to

- Damage of the heart (myocarditis)

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- Nervous system
- Kidneys.
- Neurological (Encephalitis encephalopathy)
- Prolonged convulsions
- Infantile spasm

Control measures

1. Cases and carriers

a) Early detection: Carriers can be detected only by culture method. Swabs can be taken from both the nose and throat and examined by culture methods for diphtheria bacilli.

b) Isolation: Suspected cases and carriers should be promptly isolated, preferably in a hospital for at least 14 days.

c) Treatment: For Cases when diphtheria is suspected diphtheria antitoxin should be given without delay. IM or IV in doses ranging from 20,000 to 1,00,000 units or more depending upon the severity of the case.

2. For Carriers : The carriers should be treated with 10 days course of oral erythromycin which is the most effective drug for the treatment carriers.

a. Contacts : Contacts need special attention. They should be throat swabbed and their immunity status determined. The bacteriological surveillance of close contact should be continued for several weeks.

b. Community : The only effective control is by active immunization with diphtheria toxoid. All children who are not previously immunized should be given a dose of 500 to 1000 IV diphtheria antitoxin.

Treatment

- The specific treatment is diphtheria antitoxin which must be given immediately in doses ranging from 10,000 to 80,000 units according to the severity of the case.
- Antibiotics (penicillin) help to eliminate the infection and prevent production of further toxin.
- Bed rest is essential to prevent heart failure.
- Tracheostomy may be needed if there is respiratory obstruction.

Preventive measures

- Diphtheria can be prevented by active immunization either by DPT or diphtheria vaccine.
- The current practice is to immunize all infants with DPT starting from the age of 6weeks.
- DPT vaccine protects not only against diphtheria but also against pertussis and tetanus.
- A booster dose (0.5 ml) of DPT is recommended at the age of 1½ to 2 years followed by another dose (DT only) at the age of 5 and 6 years.

Whooping Cough

Definition

A highly infectious disease of the respiratory tract, caused by the whooping cough bacilli. The disease occurs in epidemics every 3-4 years.

Causative organism

Whooping cough bacilli Bordetella pertussis.

Mode of transmission - Droplet method and by personal contact.

Incubation period - Usually 7 to 14 days but not more than 3 weeks

Clinical manifestations

a. Catarrhal Stage
b. Paroxysmal Stage
c. Convalescent Stage.

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1. Fever
2. Cold
3. Running nose
4. Irritating cough which gradually becomes paroxysmal within 1-2 weeks.

Complications

- Hernia
- Prolapsed rectum
- Sub conjunctiva hemorrhage
- Encephalopathy
- Pneumonia and bronchiectasis

Control measures

a. Early diagnosis
b. Isolation and treatment of cases
c. Disinfection of discharges from nose and throat are general principles of control
d. Early diagnosis is possible only by bacteriological examination of nose and throat Secretions.
e. Enthroning may help to shorten the duration of illness.

Treatment

Activation Immunization: It is a practice to administer pertussis vaccine in combination with diphtheria and tetanus toxoid as DPT vaccine.

It can be treated with antibiotics, usually erythromycin for 2 weeks.

Meaningococcal Meningitis

Definition

Meningococcal meningitis or cerebrospinal fever is an acute communicable disease caused by Neisseria. meningitis. It usually begins with intense headache,vomiting and stiff neck and progresses to coma within a few hours.

Causative organism

Neisseria meningitis

Mode of transmission - Droplet infection

Incubation period -2-10 days

Clinical manifestations

1. Headache
2. Fever
3. Nausea/vomiting
4. Photophobia
5. Neck stiffness and various neurological sign.

Complications

- Disseminated intravascular coagulation (DIC; blood clotting disorder)
- Encephalitis
- Persistent fever
- Seizures
- brain damage
- Behavioral and personality changes
- Vision loss (partial or total)
- Cerebral palsy
- Hearing loss (partial or total)
- Learning disabilities or mental retardation
- Paralysis (partial or total) Speech loss (partial or total)
- Severe bacterial meningitis also may cause the head and heels to bend backward and the body to bow forward (called opisthotonos),
- Coma, and death

Control Measures

a. Control of cases, carriers and contacts.
b. Cases: Treatment with antibiotics can save the lives of 95% of patients provided that, it is started during the first 2 days of illness. Penicillin is the drug of choice.
c. Contact: Close contact of persons with confirmed meningococcal disease patients

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are at an increased risk of developing meningococcal illness.

d. **Mass chemoprophylaxis:** Mass medication of the total population some of which arenot infected. Mass chemoprophylaxis be restricted and closely and medically supervised

e. **Communities :** Mass treatment causes an immediate drop in the maintenance rate of meningitis and in the proportion carriers.

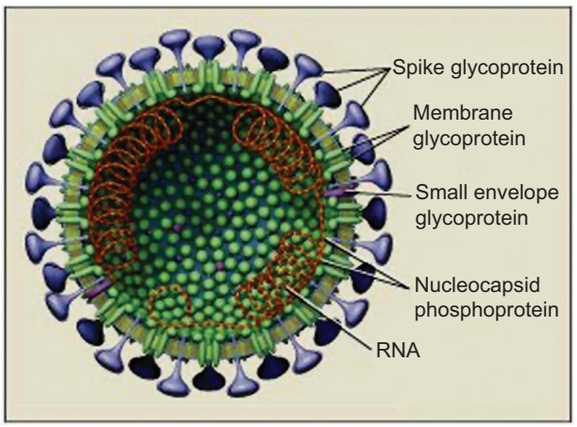
f. **Environmental measures :** Improved housing and prevention of over-crowding are longterm measures.

Acute Respiratory Infections

Definition

Acute respiratory infections may cause inflammation of the respiratory tract anywhere from nose to alveoli.

Schematic drawing of SARS coronavirus



Causative organism

- SARS Corona virus

Mode of transmission - air-born route.

Incubation period - 18-72 hours

Clinical manifestations

Running nose, cough, sore throat, breathing difficult and ear problems. Fever is common in acute respiratory problem, most children with these infections have only mild infection such as cold or cough.

Complication – Pneumonia

The high mortality and morbidity rate attribute to acute respiratory infections.

HIB vaccine

Hemophiles influenza type B, HIB is an important cause of pneumonia and meningitis among children in developing world.

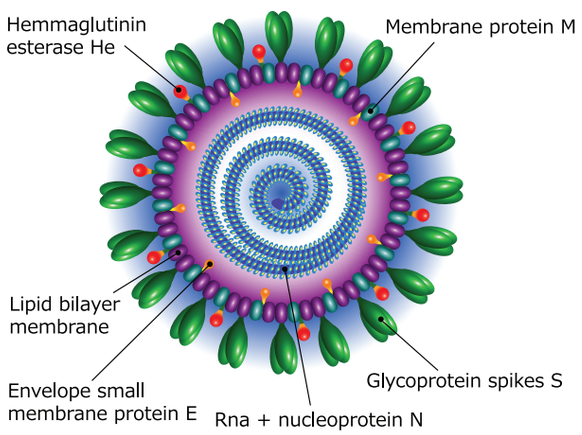
Treatment

- Antiboitic

Severe Acute Respiratory Syndrome

Corona Virus

Baltimore Group IV ((+)ssRNA)



Definition

Severe acute respiratory syndrome is a communicable viral disease

Causative organism

Corona virus

Mode of transmission

1. Close contact with infected person
2. Contaminated air and surfaces
3. If a person touches a contaminate surface and then touches their eye, mouth or nose

Incubation period - 2 to 7 days

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Clinical manifestations

1. Fever
2. Malaise chills
3. Headache
4. Myalgia
5. Dizziness
6. Cough sore throat
7. Running nose
8. Acute respiratory distress

Complications

1. Pneumonia
2. Breathing problems.
3. Orchitis

Control measures

- Good hand hygiene
- Pay attention to what surfaces you touch
- Infected person must cover their mouths when they cough or sneeze
- Use surgical mask
- Use gloves

Treatment

There is no specific treatment for SARS. No clinical improvement has been attributeable to the use of antibiotics

Tuberculosis

Definition - Tuberculosis is a chronic infection disease caused by tubercle bacilli. The disease primarily affects lungs and causes pulmonary tuberculosis. It can also affect intestine, meninges, bones and joints, lymph glands, skin and other tissues of the body. The disease also affects animals such as cattle which is known as bovine tuberculosis.

Causative organism

Mycobacterium tuberculosis

Mode of transmission

Droplet infection, Tuberculosis mainly spread by droplet infection.

Other ways : Pulmonary tuberculosis is also transmitted by inhalation of infected dust.

Incubation period - This may be weeks or months, depending upon the host-parasite relationship and the dose of infection,

Clinical manifestations

1. Chronic cough
2. Continuous low grade fever
3. Chest pain
4. Haemoptysis
5. Loss of weight

Complications

• Hemoptysis	• Asperigilloma
• Pleurisy	• Endobronchitis
• Pleural effusion'	• Bronchitis
• Empyema	• Laryngitis
• Pneumothorax	• B ronchiectasis

Control measures

a. Early case finding
b. Chemotherapy
c. BCG Vaccination
d. Health education

Early case finding

Case: The first step in tuberculosis control programme is early detection of all cases in the community. WHO defines a case of pulmonary tuberculosis as, "a person whose sputum is positive for tubercle bacilli".

Case finding tools: Sputum examination by direct microscopy is now considered for early detection of cases. The reliability, cheapness and case of direct sputum examination has made it number one case finding measure all over the world.

Health education.

The health education programme should motivate patients to undergo regular treatment and follow up, disposals of sputum and co-operation with agencies administering the programme.

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Treatment

Anti Tuberculosis Treatment Drugs

Swine flu

Definition - Swine flu which is called pig flu. Swine flu caused by swine influenza virus.

Causative Organism - influenza virus subtypes H1N1, H1N2, H3N1 and H3H2

Mode of Transmission

Influenza virus can be directly transmitted from pigs to people.

Incubation Period - Within 7 days.

Clinical features

• Fever	• Nausea
• Sore throat	• Chills
• Cough	• Headache
• Body ache	• Shortness of breath
• Fatigue	

Control Measures

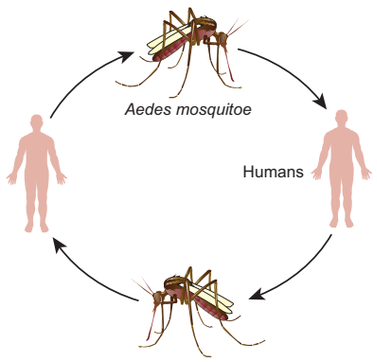
- Adequate amount of sleep and supply nutritious food.
- Consider taking multivitamins and vitamin C supplement.
- Wash your hands regularly with soap and water.
- Avoid close contact or stay away from sick people.
- Avoid sharing drinks or utensils.
- Avoid touching your face.
- Wear a face mask as directed by physcian.
- Stay updated and avoid travelling to affected areas.
- Meat to be inspected and certified
- Health education
- Adequate sewage treatment and disposal
- Early detection and early treatment
- Through cooking of beef and pork is the most effective method to prevent food borne infection.

Treatment

- Vaccination is the best protection against contracting the infection.
- Antiviral drugs can be used for prevention or treatment of flu viruses.

11.8 Diseases transmitted through arthropods

Dengue Fever



Definition

A viral disease transmitted by mosquitoes, and causing sudden fever and acute pains in the joints.

A severe form of dengue fever, also called dengue hemorrhagic fever, can cause severe bleeding, a sudden drop in blood pressure (shock) and death.

Causative organism

Causative agent of the disease is the Dengue virus,

Mode of transmission - Dengue fever is transmitted to humans through the bites of infective female Aedes aegypti mosquitoes.

Incubation period - 3 to 14 days usually 4 to 7 days.

Clinical manifestations

Dengue Haemorrhagic fever

- All symptoms of dengue viral fever.
- Maculopapular

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- Scarlatine form or petechial rash appears on third day of illness
- Head ache
- Nausea, vomiting
- Coffee colour vomiting
- Abdominal pain
- Pharyngitis
- Cough and dyspepsia

Dengue shock syndrome

- In addition to signs and symptoms of the above clinical feature client may go for shock.
- Sudden collapse
- Cold and clammy extremities
- Weak thread pulse
- Circumoral cyanosis along with haemorrhagic manifestation
- Occasionally epistaxsis, haematemesis, malena or subarachnoid haemorrhage.

Control measures

- Mosquito control

a. Cover all water containers.

b. Change water in flower vases every week.

c. Clean the surrounding area of the house.

d. Use insecticide spray in the house to kill adult mosquitoes.

- **Vaccines :** So far there is no satisfactory vaccine and no immediate prospect of preventing the disease by immunization

Other measures

- Isolation under bed rest
- Wear full sleeves shirts and full pants.
- Use of mosquito repellent creams, liquids, coils, mats etc.
- Use of bed nets for sleeping infants and young children during day time to prevent mosquito bite.

Treatment

a. Bed rest is advisable during the acute febrile phase.

b. Antipyretics or sponging are required to keep the body temperature at 98.6 degree F

c. Oral fluid and electrolyte therapy is recommended for patients with excessive sweating,vomiting or diarrhea.

d. Analgesics or a mild sedative may be required for those with severe pain.

e. Home available fluids to be given to prevent dehydration,

f. Fluid replacement should be minimum volume that is sufficient to maintain effective circulation during the period of leakage.

- **Management of shock :** Immediate replacement of plasma loss with isotonic salt solution.

Malaria:

Definition

Malaria is a protozoal disease caused by infection with parasites of the Genus plasmodium.

Causative organism

Female anopheles mosquitoes

Mode of Transmission - Malaria is transmitted by the bite of infected female anopheles mosquito.

Incubation Period - In some strains the incubation period may be delayed for as long as 6-9 months

Intermittent fever has 3 stages.

1. Cold stage (1/4 to ½ hours) - Head ache, Shivering fever rising rapidly
2. Hot stage (1/2 to 5 hours) - Very hot feeling, severe headache, skin flushed, fever starts falling

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3. Sweating stage - Profuse sweating, temperature normal, Enlargement of spleen and secondary anaemia.

Diagnosis

Blood smear test

Treatment

Antimalarial drugs

Lymphatic Filariasis

Definition

Lymphatic filariasis commonly known as elephantiasis, is a mosquito borne disease caused by the filarial parasites.

Causative organism - Wucheriria bronchofti, Brugia malayi

Mode of transmission - It is transmitted by the bite of culex mosquitoes.

Incubation period - 5 to 10 months

Clinical manifestations

- Fever
- Lymphangitis
- Elephantiasis evident in legs and arm

Control measures - Vector control

- Anti larval measures
- Chemical control – mosquito larvicidal
- Removing the pistia plant from all water collections and convert the ponds to fish or lotus culture.
- **Environmental measures :** Larvicidal operations are complemented by minor engineering operations such as filling up of ditches and pools, drainage of stagnant water,adequate maintenance of septic tanks and soakage pits etc.,

Diagnosis test

Blood smear by microscopic examinations

Treatment

Chemotheraphy – Mass drug administration (MDA) regimens.

Chikungunya Fever

A dengue like disease caused by a group A virus.

Causative organism

Aedes aegypt, Ades albopictus female mosquitoes

Mode of transmission –Transmitted from human to human by the bites of infected female mosquitoes.

Incubation period - 4 to 7 days

Clinical manifestations

- High fever with chills
- Severe articular pains in the limbs and spinal column.
- Arthralagia
- Anorexia
- Conjunctivitis
- Coffee-coloured vomiting
- Epistaxis
- Arthropathy : pain, swelling and stiffness, especially of the meta carpophalanges wrist Elbow, shoulder, knee, ankle and metatarsal joints.

Diagnosis

Serological tests: ELISA (Enzyme Linked Immuno Sorbent Assays)

Complications

1. Dementia
2. Cerebral problems
3. Kidney disorders
4. Paralysis

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Control measures

- The Aedes aegypti mosquito breeds in clean water.
- All water containers should be covered, to eliminate mosquito from the breeding places.
- Abate is increasingly used as a larvicide.
- Aerosol spray of ultra low volume (ULV) quantities of malathion or sumithion (250 ml / hectare) has been found to be effective in interrupting transmission and stopping
- Epidemics of dengue haemorrhagic fever.

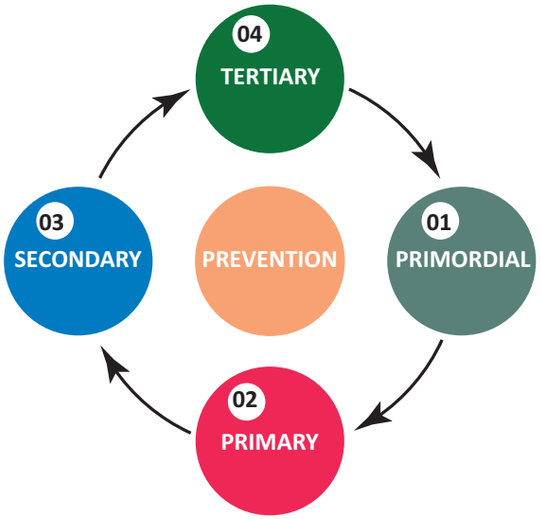
Treatment

- Analgesics
- Anti – pyretics
- Fluids

Prevention of communicable diseases

Communicable diseases can be prevented by appropriate preventive measures which include:

- Good site planning
- Provision of basic clinical services
- Provision of appropriate shelter
- Clean water supply
- Sanitation
- Mass vaccination against specific diseases
- Regular and sufficient food supply
- Control of vectors
- Health education specific protection. Eg. Immunization chemoprophylaxis



11.9 Prevention Of Communicable Diseases

PRIMORDIAL – PREVENTION : It is a new concept, receiving special attention in the prevention of chronic diseases. This is primary prevention in its purest sense, that is prevention of the emergence or development of risk factors in countries or population. An groups in which they have not yet appeared eg many adult health problems.

Primary Prevention

- Increasing the resistance of the host
- Inactivating the agent
- Interrupt the chain of infection
- Restricting spread of infection
- Health education
- Specific protection (eg) Immunization, Chemoprophylaxis.

Secondary Prevention

- Activities targeted at detecting disease at earliest possible. Examples case finding, health screening, health education

Tertiary Prevention

- Limits the progression of disability
- Treatment of symptoms and rehabilitation vary with each specific disease

Surveillance

- Surveillance is the ongoing systematic collection, analysis and interpretation of data in order to plan, implement and evaluate public health intervention.

Outbreak Control

- An outbreak is occurrence of a number of cases of a disease that is unusually large or unexpected for a given place and time. Early detection and control of the disease is advisable.

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Management of a communicable disease outbreak

- Preparation
- Detection
- Response
- Evaluation

Preparation for the outbreak

- Health coordination meetings
- Strong surveillance system
- Outbreak response plan for each disease
- Stocks of IV fluids, antibiotics and vaccines
- Plans for isolation wards
- Laboratory support

Detection of outbreak

- Surveillance system with early warning system for epidemic prone diseases.
- Inform ministry of health and WHO in case of outbreaks of specific diseases.
- Take appropriate specimens (stool, CSF or serum) for laboratory confirmation.
- Include cases in the weekly reports
- Assess appropriateness and effectiveness of containment measures.
- Assess timelines of outbreak detection and response.
- Change public health policy if indicated.
- Write and disseminate outbreak report
- Global Disease Eradication Efforts

Methods to accomplish the goal of eradication of diseases include:

- immunization and vaccination
- drug therapy
- community training
- health education
- national disease surveillance efforts

Nurses' Role

Community health nurses play an important role with regard to all population at risk for communicable disease

Nurses concerned with communicable disease control must

- Recognize vulnerable area.
- Locate the reservoirs and source of infectious disease agents
- Identify the environmental factors which promote the spread of communicable disease.
- Identify characteristic of vulnerability of community member and groups- particularly those subject to intervention
- Community health nurses must work collaboratively with other public health professional. Organize immunization and educational programs, to improve community infection control policies.

SUMMARY

1. The important water borne diseases are typhoid fever, cholera, hepatitis A and acute diarrhoeal disease. Typhoid fever is caused by salmonella typhi and the mode of transmission is by faeco oral route. Complication of typhoid fever is intestinal perforation.
2. **Cholera** is an acute infectious disease caused by cholera (vibrio cholera) and the mode of transmission is by oro -faecal route.
3. Cholera is a notifiable disease and it not identified and treated early can cause sudden death.
4. **Hepatitis** - is a systematic disorder that primarily affects the liver. The causative organism is hepatitis a virus. Mode of transmission is faeco oral route and direct contact and the incubation period is 15 to 50 days usually 28 days.

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5. **Acute diarrheal disease** - is an acute or chronic intestinal disturbance characterized bypassing more than three loose motions in a day with in 24 hours. Oral rehydration therapy is the most important thing in maintaining the hydration level.
6. **Poliomyelitis** - is an acute viral infection caused by polioviruses. It is a crippling disease. The causative organism is three types of polioviruses (Type I, II and III) Mode of transmission is by faeco oral route and droplet infection.
7. **Food poisoning** - is an acute gastro enteritis caused by the ingestion of food or drink contaminated with either living bacteria or other toxins or chemical substances.
8. Diseases transmitted through parasites are amoebiasis, ancylostomiasis, Taenia solium and Tarmia saginata and Ascariasis.
9. Amoebiasis - is a common infection of the human gastro intestinal tract and caused byEntamoeba histolytica.
10. Hook worm infestation - is a chronic infestation of small intestine. The causative organism is Ancylostoma duodenale, Necator americanus.
11. Ascariasis - is a common helmenthic infection in man caused by Ascaris lumbricoids.
12. Tape worm infestation or Taeniansis - is a group of cestode infections which are important zoonotic disease.
13. All the diseases transmitted through oro-faeco route and the diseases caused by parasites may be controlled and prevented by proper sanitation method, improved personal hygiene and vaccines.
14. Chickenpox or varicella - an acute highly infectious disease caused by varicella – zooster. Virusit is characterized by vesicular rash, that may be accompanied by fever and malaise.
15. Swelling of the parotid glands is the first indication of mumps.
16. Influenza spread mainly from person to person by droplet infection or droplet nuclei created by sneezing coughing or talking.
17. Diphtheria spreads mainly by droplet infection. Transmission occurs by objects like cup,thermometer, toys, pencils
18. Meningococcal meningitis or cerebro spinal fever is an acute communicable disease caused by N. meningitis.
19. Acute respiratory infections may cause inflammation of the respiratory tract anywhere from nose to alveoli.
20. The word rubeola means red spots.
21. There are three main test currently used in tuberculosis, mantoux intradermal test, the head and the tiny multiple puncture test. Tuberculosis which affects animals is known as “bovine tuberculosis.”
22. Swine flu which is called pig flu caused by influenza virus.
23. Malaria is a protozoal disease caused by infection with parasite of the Genus plasmodium and transmitted to man by infected anopheline mosquito.
24. Lymphatic filariasis is caused by Wuchereria bancrofit. The lymphoedema management is washing and drying the affected limb, elevating the limb and exercising.
25. Dengue fever is otherwise called as break-bone fever.
26. Chikungunya fever caused by group A virus, the chikungunya virus and transmitted byAedes, culex and mansonia mosquitoes. The incubation period of chikungunya fever is 4-7 days.
27. Japanese encephalitis is a mosquito borne encephalitis infecting mainly animals and incidently man.
28. Tetanus is an acute neuromuscular disorder caused by clostridium tetani.Tetanus is entirely preventable disease by active immunization with tetanus toxoid.

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GLOSSARY

Portal of entry	நோய் நுழைவாயில்	The site through micro organisms enters in to host
Susceptible	எளிதில் பாதிக்கக்கூடிய	Can be easily affected
Contamination	மாசுபட்ட / தூய்மைக்கேடு	Presence of unwanted harmful substance
Notification	அறிவிப்பு	The act of notifying
Isolation	தனிமைப்படுத்தப்பட்ட	The process of being alone
Disinfection	விஷ கிருமிகளை நீக்குதல்	The process of cleaning by using chemicals
Causative agent	நோய் தோன்ற காரணமாகும்	acting as a cause / producing an effect /
Incubation period	நோய் அரும்பு / உருவாகும் காலம்	The period between exposure to an infection and appearance of first symtoms.
Sanitary	சுகாதாரமான	Hygienic and clean
Photo phobia	கண்கூச்சம்	Extreme sensitivity / to light
droplet	நீர்த்திவலை	A very small drop of a liquid/
Anthro pod	கணுக்காலிகள்	A type of animals with no spine, six or more joined legs/
Surviellance	நோய்– நிகழ்வு ஆய்தல் கண்காணிப்பு	Close observation
chemoprophylaxis	நோய்க்கட்டுபாடு	The use of drugs to prevent disease/
eradication	ஒழித்தல் முற்றிலும் அழித்தல்	The complete destruction of something/

Evaluation

I. Choose the best answer

1. Typhoid fever is caused by
   a) salmonella typhi
   b) wuchereria bancrofti
   c) Varicella zoster
   d) Mycobacterium tubercle
2. Typhoid fever is a
   a) vector borne disease
   b) water borne disease
   c) airborne disease
   d) zoonotic disease
3. Mode of transmission of cholera is
   a) Faeco oral route
   b) droplet
   c) contact with infected persons
   d) blood transfusion
4. Incubation period of cholera is
   a) few hours to 2 days
   b) few hours to 5 days
   c) few hours to 7 days
   d) more than 7 days

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5. Control measures for food poisoning
   a) food sanitation and personal hygiene
   b) good environmental sanitation
   c) antibiotics
   d) bland diet
6. Chickenpox is caused by
   a) Rubeola
   b) Varicella-zoster
   c) German measles
   d) Varicella virus
7. A typical dusky red mucular or muculo popular rash begins at which stage
   a) prodromal stage
   b) eruptive phase
   c) post measles stage
   d) pre-eruptive stage
8. The incubation period of mumps is
   a) 12 – 25 days
   b) 18-72 hours
   c) 2-6 days
   d) 7-14 days
9. The causative organism of tuberculosis is
   a) M.leprae
   b) Mycobacterium tuberculosis
   c) RNA virus
   d) Y.pestis
10. Dengue fever is caused by
   a) plasmodium vivax
   b) Aedes aegypti
   c) plasmodium falciparum
   d) Aedes albopictas
11. Filariasis is transmitted by the
   a) bite of infected vector mosquitoes
   b) bite of infected animals
   c) bite of infected brids
   d) bite of infected flies.
12. Incubation period of filaria is
   a) 1-6 months b) 6-8 months
   c) 8 to 12 months d) 16-18 months
13. Plague is caused by
   a) Y.Pestis
   b) T.Pallidum
   c) Vibrio cholera
   d) C.tetani
14. Genital herpes is caused by
   a) Herpes simplex virus
   b) Heptatis B Virus
   c) Human papilloma virus
   d) candida Albicam
15. An example for viral sexually transmitted disease
   a) Gonorrhoea
   b) syphilis
   c) chancroid
   d) Genital human papilloma
16. Primary prevention includes which of the following
   a) health promotion and specific protection
   b) early diagnosis and treatment
   c) disability limitation
   d) all of the above
17. The best method to prevent pulmonary tuberculosis is
   a) case isolation
   b) treatment of cases
   c) BCG vaccination
   d) chemoprophylaxis
18. Main aim of tuberculosis treatment is
   a) radiological cure
   b) contact tracing
   c) bacteriological cure
   d) to prevent complications

II. Fill in the blanks

1. Poliomyelitis is a _____disease.
2. Hepatitis affects _____ organ.
3. _____,_____,_____ causes acute diarrhoeal disease.
4. Incubation period of malaria is _____.

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5. Arthropathy is present in _____ fever.
6. Leptospirosis is transmitted from _____ to man
7. Chickenpox is transmitted from _____ to _____.
8. Koplik's spots appear on the _____ Mucosa.
9. Influenza is a acute _____ infection
10. Whooping cough otherwise known as _____
11. SARS caused by _____ virus.
12. BCG vaccine is given to prevent _____
13. Gonorrhoea is transmitted through _____
14. The incubation period of tetanus is _____
15. Japanese encephalitis is transmitted to man by _____

III. Write short notes (5 marks)

1. Poliomyelitis
2. Tuberculosis
3. Dengue fever
4. Leprosy
5. Malaria

IV. Write briefly

1. Disease transmitted through parasites.
2. Sexually transmitted diseases
3. Diseases transmitted through arthropod.
4. Disease transmitted through animals.

V. Write in detail

1. Disease transmitted through oro faecal route
2. Disease transmitted through air.
3. Diseases transmitted through contact.

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CHAPTER 12

Nursing Education And Managemnet

தாமின் புறுவது உலகின் புறக்கண்டு
காமுறுவர் கற்றறிந் தார்.

The learned will long (for more learning), when they see that while it gives pleasure to themselves, the world also derives pleasure from it.

Learning Objectives

At the end of this chapter, the students will be able to:

- define nursing education
- know about the philosophy of Nurisng Eduction
- explain about the curriculum planning in nursing education
- enumerate principles of ward management.
- describe the qualities of the nurse manager in ward management.

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Introduction

Education is the corner stone of Nursing profession. Education in Health care has both the patient education and Nursing staff student education. It is a topic of utmost interest to nurses in every setting in which they practice. Teaching is a major aspect of Professional role. Nursing has been called “the oldest of the art and youngest of the professions” (Donabue, 1985). Planning for nursing Education may form the Education for the other health and development professionals who also take into account the characteristics of society as a whole. Nursing Education is the “Production aspect” of Nursing manpower development. Nursing Education is also coordinated with the Education of the professionals in allied sectors of Health and Development. Education encompasses both the teaching and learning of knowledge, proper conduct and technical competency. It thus focuses on the cultivation of skills,trades or professions as well as mental, moral and aesthetic development.

It aims the harmonious development of the physical, intellectual, social, emotional, spiritual and aesthetic powers or abilities of the student in order to render professional nursing care to people of all ages, in all phases of health and illness, in a variety of settings, in the best or highest possible manner.

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Definitions

Education is the all-round drawing out of the best in child and man- body, mind and spirit"

– Mahatma Gandhi.

"Education is the natural, harmonious and progressive development of man's innate powers".

– Pestalozzi.

Nursing Education

Nursing education is a professional education which is consciously and systematically planned and implemented through instruction and discipline.

12.1 Principles of nursing education

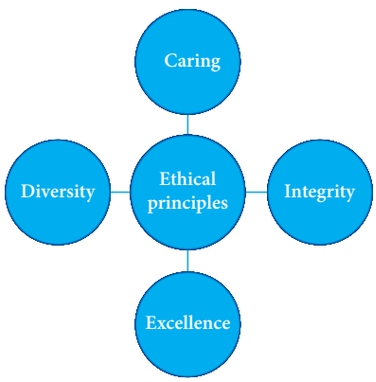
Ethical principles for nursing education.

Caring: In order to care for others, one must first care for self.

Integrity: Integrity encompasses the ability to communicate honestly and sincerely, and take responsibility for one's actions.

Diversity: Diversity does more than acknowledge and advocate for differences of backgrounds and experiences.

Excellence: Excellence is achieved through engagement in scholarship, professional growth, and continual improvement.



Other principles

1. Encourage contact between students and faculty.
2. Develop reciprocity and cooperation among students.
3. Encourage active learning.
4. Give prompt feedback
5. Emphasize time on task.
6. Communicate high expectations
7. Respect diverse talents and ways of learning

12.2 Philosophy of nursing education

- Beliefs and values with regard to man in general and specifically man as the learner, teacher, nurse and the client and the beliefs about health, illness, society, nursing, and learning etc.
- Seeks to study the process and discipline of education in order to understand how it works, improve its methods and perfect its applications in society.
- To improve education and its systems and methods for the betterment of humanity.

Ideally, it informs and raises the quality of curriculum, teaching methods and the overall educational experience.

Definitions

Philosophy

Philosophy is a search for a comprehensive view of nature, an attempt at a universal explanation of nature of things

– Henderson.

Philosophy is the science of knowledge.

– Fitche

Philosophy is the science of all sciences.

– Coleridge

Philosophy is the mother of all arts and the true medicine of the mind.

– Cicero.

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Definitions of Philosophy of Nursing Education.

"Philosophy of nursing education is the written statement of the believes, values, attitudes and ideas which the faculty as a group agreed upon in relation to the nursing educational program such as health, disease, nursing, nurse, nursing profession, education, learner, society, patient nursing education and preparation of nurses."

Relationship between Philosophy and Education

Philosophy	Education
It sets the ideas, principles, goals, standards, values thus it is in reality and truth.	Education works out those values
It is the theory and speculative	It explains how to achieve the goals through man's educational efforts.
It is the contemplative side	It is the practice
It deals with abstract ideas and ends the situations process	It is active side (Dynamic) It is applied philosophy It deals with concrete and means
It is an art.	It is the science.
Philosophy formulate the method	It deals with the process of method.

Types of Philosophy

Traditional philosophy	Modern contemporary philosophy
Naturalism	Existentialism
Idealism	Progressivism
Pragmatism	Behaviorism
Realism	Humanism
	Experimentalism
	Eclectism
	Reconstructionalism

Traditional Philosophy

Naturalism

- It is concerned with nature and believes that reality and nature are identical and beyond nature there is no reality.
- For naturalist, nature is everything and nothing exists superior than nature so they separates nature from God. Man is regarded as a child of nature.
- Naturalists also believe that all our activities, whether it may be biological, psychological or social are initiated by our instincts.
- Natualism stresses the need to return to the nature from artificiality.

Idealism

- Idealism is the oldest philosophy. It believes that man is the combination of spiritual and material aspects, the spiritual aspect is more real and important.
- Idealism regards spirit and intellect are of supreme value than physical matter. As per the idealism individual experience is valid than the material world and man lives in the world of ideas rather than facts.

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Pragmatism

- Pragmatism means thinking of or dealing with problems in a practical way rather than by using theory or abstract principles.
- Pragmatism is essentially a humanistic philosophy maintianing that man creates his won values in course of activity, that reality is still making and awaits its part of completion from the future.

Realism

- According to this, things we see and perceive are real and knowledge acquired through senses is true.

"Realism is the reinforcement of our common acceptance of this world as apears to us"

– Butter

Modern contemporary philosophy

Existentialism

It is the youngest philosophy, described as modern 20 th century philosophy.

Meaning: This philosophy stresses the important of human experience and says that everyone is responsible for the results of their own action.

Assumptions

- The center of existence is man rather than truth, laws, principles or essence.
- Man is not alone in the world. Man is a social being.
- Man cannot accept the ready-made concepts of existence forced upon him
- Man is free agent capable of shaping his own live and shaping his own destiny.
- Man is not complete: Man has to meet the challenges in the changing society.

Progressivism

It is an American philosophy.

Meaning

Progressivism is the theory of education that is concerned with learning by doing that children learn best when pursuing their own interest and satisfying their needs.

Behaviourism

Person's behavior is the result of environmental conditioning. Man is a passive recipient, who reacts to external stimuli, he has no will or decision of his own or the capacity to take spontaneous action.

Principles

- Individual's action are predetermined by his heredity or immediate surroundings.
- Man is not separate from his surrounding environment.
- Human behavior is controlled by creativity.

Educational applications

- Learning is governed by man's action and reaction to various media (oral, written,machine).
- Learning occurs as a personal achievement through interaction between the learner and environment.

Humanism

Man is an end, not a means.

Principles

The humanist emphasis is on literature. He has to overcome the conflicts of his own time.

The role of Education

- Children must be taught to respect language, a sense of language perfection.
- Children must be trained in modern literary standards of academics.

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Experimentalism

It believes that things are constantly changing. It is based on the view that reality is what works right now. Schools exist to discover and expand the society we live in. Students study social experiences and solve problems

Man is a social being and product of his environment. Learning depends on experiment.

Eclecticism

It is the process of pulling out and putting together of the useful and essential aspects of various philosophies of education.

Meaning

- The fusion or synthesis of different philosophies of education.
- The process of putting together the common views of different philosophies into comprehensive whole.

Aims of education

- The child should become efficient member of society.
- Promotion of good health
- Skillful training.
- Development of moral character.

12.3 Curriculum planning

The term curriculum is derived from the latin word "currere" which means 'run'. Thus, curriculum is a runway for attaining the goals of education. Curriculum may be considered as the blue print of an educational programme. It is the base of education on which the teaching-learning process is planned and implemented.

Meaning of curriculum

The systematic arrangement of certain courses designed with certain objectives for the pupil.

Curriculum refers to the totality of activity and experiences planned by the school with a view to achieve the objectives of education.

Definition

According to Cunningham,' Curriculum is a tool in the hands of an artist to mould his material, according to his ideals in his studio. In this definition, artist is the teacher, material is the student, ideals are the objectives and studio is the educational institute.

Nursing curriculum is the learning opportunities (subject matter) and the learning activities (clinical experiences and practices) that the faculty plans and implement in various settings for particular group of students, for a specified period of time in order to attain the objectives.

Three facets of curriculum are

- Goals and purposes of education
- Process of curriculum
- Evaluation of products

The four C' s of curriculum planning

Cooperative: A programme prepared jointly by group of persons.

Continuous: Preparation of programme and its revision should be continuous.

Comprehensive: All the components of the programme should be included.

Concrete: Concrete professional tasks must constitute the essential structure of a relevant programme.

Components of curriculum

- Philosophy
- Objectives
- Total duration
- Detailed course plan
- Programme evaluation.

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1. The statement of philosophy of the educational programme.
2. The statement of the objectives of educational programme.
3. Total duration of the educational programme. (theortical ,practical ,clinical components.)
4. Detailed course plan for each course. (placement, sequences and learning situations, instructional methods)
5. Programme evaluation (evaluation methods, plan and schedule of evaluation, results of evaluation).

Levels of curriculum planning

Goodland names curriculum in 3 levels.

- Societal
- Institutional
- Instructional

Societal curriculum

This curriculum which is planned for a large group or class of students, e.g BSc(N) It is planned by groups outside of an educational institution, e.g. National league for nursing. They are more immediately concerned with

General characteristics of curriculum content

Sequence

Implementation

There is significant relationship between curriculum and nature of society. According to the needs of the society curriculum will be changed.

The institutional curriculum

- It is planned by faculty or teacher for a clearly identified group of students who will spend a specified period in a particular institution.
- Cooperative planning through curriculum committee of the particular institution.
- More active participation of each teachers generally brings about change and improvement.

The instructional curriculum

It consists of the content (subject matter and learning activities) planned day by day and week by week by a particular teacher for a particular group of students.

Curriculum committee

The committee comprises the following members

State departments of education	Law makers
School boards	Publishers
Curriculum administrators	
Principals	Project directors
Educational researchers	Authors
Teacher educators	Testers
Communities	Accreditors
Parents	Polisters
Students	Lobbyists
Non school educators	philonthropists

Grading of curriculum content

E- Essential or must learn.

D- Desirble or useful to learn.

S- Supportive or nice to learn.

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Principles of curriculum development

The conservative principles: this means that the present, the past, and the future needs of the community should be taken into considerations.

The forward- looking principles: Children of today are the citizens of tomorrow.

The creative principle: Curriculum should enable the child to exercise his creative and constructive powers.

Principle of totality form: The curriculum should be total learning experience and total learning opportunity.

The activity principles: The curriculum should be developed in terms of activity and experience.

Principle of preparation of life: Enable the child to fulfil his responsibilities when he becomes an adult.

Principle of connecting to life: Curriculum should provide worthwhile life experiences.

Child centered curriculum: Consideration should be given to the student's age, their educational level, needs and individual differences.

Priniciple of integration and correlation: While developing curriculum, each year's course should be built on what has been done in previous years and at the same time should serve as basis for subsequent learning.

Priniciple of comprehensiveness and balance. The curriculum should be framed in such a way as every aspect of life, like economic relationships, social activities and occupations.

Principle of loyalties: Curriculum should be planned in such a manner that it teaches a true sense of loyalty to the family, the school, the country and the international community at large

Priniciple of variety and flexibility: Variety should be provided in terms of learning and teaching activities. Its not so rigid.

Priniciple of connecting to community needs: Curriculum should address the community needs.

Principle of connecting with social life: Curriculum has to maintain to relation with social life.

Training for leisure: The curriculum should have some provision for the co-curricular activities, relaxation, and library utilization according to choice.

Principle of core or common subjects: Broad areas of knowledge, skills and appreciation should be included. Co subjects, like maths, science etc.

Principle of all round development of body, mind and spirit: All kinds of experiences should be provided.

Prinicples of dignity of labour: Curriculum should help students to develop a positive attitude towards all kinds of jobs.

Principle of character building: Curriculum should promote human and social values.

Principle of democracy, secularism and socialism: Curriculum should train the child to imbibe ideals and values of a democratic, secular and socialist state. Principle of connecting with social life: curriculum has to maintain a relations with social life.

Types of curiculum

- Legitimate curriculum
- Illegitimate curriculum
- Hidden curriculum
- Null curriculum

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Principles related to the Development of Nursing curriculum

- Nursing curriculum should equip the students with the essential knowledge, skills and attitude.
- Curriculum should be clear to the students as well as to the teacher.
- Consider the community needs.
- Curriculum should inculcate right attitude to students.
- Frame adequate teaching – learning activities in the classroom, clinical area and community settings.
- Consider the guidelines laid down by the statutory bodies line INC, Universities, examination boards .
- **High-Tech-High-Touch** approach in the nursing care.
- Participatory approach in the teaching-learning process.
- The learning environment should resemble the life situation.

12.4 Management

Introduction:

Management is the scientific art of achieving the results or goals by effective utilization of the resources. Management generally lays emphasis on control. i.e., control of personnel, control of cost, time, salaries, overtime, inventory etc. Management is required to plan, organize, co-ordinate and control the affairs of the organization. It brings the human and material resources together and motivates people for achievement of the objectives of the organization. Management is an universal process in all organized social and economic activities.

Definitions

Management is an art of getting things done through and with people in formally organized groups.

– Harold Koontz.

Management is defined as a process by which co-operative group directs action towards common goals.

– Joseph Massie.

Definition of nursing management

Nursing management consists of the performance of the leadership functions of governance and decision-making within organizations employing nurses. It includes processes common to all management like planning, organizing, staffing, directing and controlling.

What is ward management

Ward management is the duty of the head nurse, who is the administrative officer of the hospital. The nursing care is needed during admissions and discharge of patients, doctors' rounds, and drug administration and also during operation theatre administration.

Golden rules for a good ward management

- Early arrival to duty.
- **Make a note**: Write down activities for the day.
- **Time plan:** Estimate how long it will take to accomplish a task.
- **Prioritize task:** There are list of tasks for the day, there is need to prioritize based on urgency.
- **Follow schedule:** Ignore tasks that are not on the list, to maximize best use of time.

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- **First thing first/Learn to say "No" with compassion:** Attend to life threatening situation first.
- **Take a break:** Need to relax during stressful situations.
- Be flexible
- **Encourage Yourself:** Appreciate yourself for the achievements made so far.

Elements of ward management

- Patient care
- Personnel management
- Ward sanitation and provision of therapeutic environment
- Supply the equipment
- Interpretation of policies and procedures.

Principles of ward management

Apply the principles of administration in ward management.

1. Henri Fayol's 14 Principles of management

- Division of work :
- Fayol has stressed on the specialization of jobs.
- Subdivision of work makes it simpler and results in efficiency.
- It also helps the individual in acquiring speed, accuracy in his performance.

2. Authority and Responsibility.

- Authority is the power to take decisions.
- Responsibility is the obligation to complete the job assigned.
- There should be balance between the two i.e. they must go hand in hand.

3. Unity of command.

- A sub-ordinate should receive orders and be accountable to one and only one boss at a time.
- In other words, a sub-ordinate should not receive instructions from more than one person.
- It creates harmonious relationship between superiors and sub-ordinates.

4. Unity of Direction

- One head one plan which means that there should be one plan for a group of activities having similar objectives.
- Related activities should be grouped together.
- According to this principle, efforts of all the members of the organization should be directed towards common goal.

5. Equity

- The employees should be treated with kindness and equity.
- Manager should be fair and impartial while dealing with the subordinates.
- Should give similar treatment to people of similar position.
- Should not discriminate with respect to age,caste,sex, religion,relation etc.

6. Principle of order

- It refers to the systematic arrangement of men and material in a fixed place for everything and everyone in the organization.
- The right materials and the right employees are necessary for each organizational function and activity.

7. Discipline

- Discipline means sincerity, obedience,respect of authority and observance of rules and regulations of the enterprise.
- This applies that subordinate should respect their superiors and obey their order.

8. Principle of initiative

- Workers should be encouraged to take initiative in the work assigned to them.

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9. Remuneration

- Remuneration to be paid to the workers should be fair, reasonable, satisfactory and rewarding of the efforts.
- Wages should be determined on the basis of cost of living, work assigned, financial position of the business.
- Employees must be paid adequately, or give them maximum satisfaction.

10. Stability of Tenure

- Employees should not be transferred frequently or terminated.
- Time is required for an employee to get used to a new work and succeed in doing it well.

11. Scalar chain

- The chain of superiors ranging from the ultimate authority to the lowest.
- Every order, instructions, messages, requests, explanation etc. has to pass through scalar chain.

12. Sub-Ordination of individual interest to general interest.

- Importance given to organization.
- Individual must sacrifice his own interests sometimes for bigger interests of organization.
- Organization is bigger than individual.
- Interest of the organization which supersedes the interest of the individuals.

13. Esprit De'Corps

- It means union is strength.
- Teamwork is fundamentally important to an organization.
- Team work inspires workers to work harder.

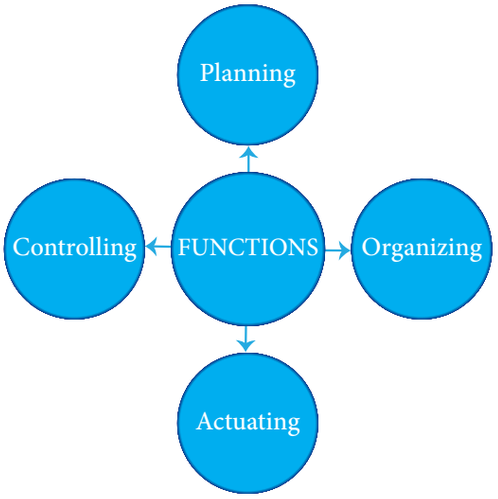
14. Centralization and De-centralization

- Centralization is a situation in which top management retains most of the decision making authority.
- Anything which increase role of subordinates is decentralization and anything which decreases it, is centralization.
- Sharing authority downwards is decentralization.

Basic functions/ Elements of Management

Management has been described as a social process involving responsibility for economical and effective planning and regulation of operation of an enterprise in the fulfillment of given purposes. It is a dynamic process consisting of various elements and activities.

According to George and Jerry. Four fundamental functions of management are



According Henry Fayol

To manage is to forecast and plan, to organize, to command and to control.

Luther Gullick : POSDCORB

P - planning

O - Organizing

S - Staffing

D - Directing

C - Controlling / Monitoring

O - Ordering and Recording

R - Recording and Reporting

B - Budgeting.

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12.5 Qualities of a Good administrator

Communication: Interpersonal Skills such as verbal communication, problem solving and listening skills are essential in any administrative role.

Customer service orientation: Having a customer focused approach is a desirable quality of an administrator.

Organization: Prioritizing tasks by the deadline will help to manage your time more effectively.

Time management: Fixing deadline are particularly important to improve your time management skill. Prioritizing duties that have deadlines will help you stay focused, and help you work more efficiently.

Management: Need management skills to direct others and review their performance.

Dependability and Reliability: Confidentiality

Staying objective: she makes decisions about an employee bases on job performance and not on whether she likes or dislikes someone. Treats all people with same respect and fairness and does not play favorites.

Providing motivation: an effective administrator is able to motivate his staff to perform beyond company standards.

Mentoring others: an effective administrator doesn't keep aloof from employees, but rather seeks a mentoring relationship to help them move up the corporate ladder.

It's also important to exhibit kindness toward employees and remember that they have lives outside the office.

Flexibility: administrator have to work well with a variety of personality types and be open to others.

Positive attitude: treating people well, respond in difficult interactions with grace and solve a range of sticky situations.

12.6 Skills of an effective administrator

Administration rests on three basic developable skills.

Technical: It implies understanding of, and proficiency in, a specific kind of activity, particularly one involving methods, process, procedures or techniques.

Technical skill involves specialized knowledge, analytical ability within that speciality, and facility in the use of the tools and techniques of the specific discipline.

Technical is primarily concerned with working with things (processes or physical objects).

Human: It is the executive's ability to work effectively as a group member and to build co-operative effort within the team he leads.

Human skill is primarily concerned with working with people.

Conceptual: It involves the ability to see the enterprise as a whole, it includes recognizing how the various functions of the organization depend on one another, and how changes in any one part affect all others.

The success of any decision depends on the conceptual skill of the people who make decision.

12.7 Extended Roles of The Nurse

Nurses in extended care facilities assist clients with their daily activities. Provide care when necessary and coordinate rehabilitation activities.

These nurses have increased responsibilities and autonomy and they are

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supposed to provide care in variety of settings such as hospital, community etc.,

- Care giver
- Manager
- Advocate
- Counselor
- Educator
- Consultant
- Researcher
- Collaborator
- School health nurse
- Occupational health nurse
- Private duty nurse.
- Parish nurse
- Public health nurse
- Home care nurse
- Hospice nurse
- Rehabilitation nurse
- Office nurse
- Nurse epidemiologist
- Military nurse
- Aerospace nurse
- Tele nurse
- Disaster nursing
- Prison nurse.
- Forensic nurse.
- Peace corps nurse.
- Communicator

1. **Care Giver:** Care giving role is a primary role of nurses. The provision of care to clients combines both arts and science of nursing which helps clients regain health through healing process. The caregiver helps the client and families set goals and meet those goals with a minimal cost of time and energy.
2. **Manager:** As a manager, the nurse coordinates the activities of other members of the health care team. (Nutritionists and Physical therapists).
3. **Protector and Advocate:** The nurse helps to maintain a safe environment for the client. The nurse takes steps to prevent injury and protect client from possible adverse effects of diagnostic or treatment measures. As a advocate, nurse protects the clients' human and legal rights and provides assistance in asserting those rights if the need arises.
4. **Counselor:** Help patient and family to cope with stressful problems. Provide emotional and psychological support. Motivate patient to adopt an alternative behavior.
5. **Consultant:** Nurse consultants are nurses who usually identify problems and develop solutions.
6. **Educator:** Manage patient care. Educate patient, family and community.
7. **Collaborator:** The nurse collaborates with other team members when providing care to a client. Quality care is given when nurse and team members work together in planning for the patients care management.
8. **School Health Nurse:** The role of the nurse is to support the educational process by helping students to keep healthy and by teaching students and teacher's regarding preventive practices.
9. **Occupational Health Services:** Occupational health nursing is providing health services to workers in industry and special community groups.
10. **Parish Nurse:** Parish nurse respond to health and wellness needs within the context of populations of faith communities. (people gathering in churches, temples or mosques)
11. **Public Health Nurse:** She is a registered nurse with special training in community health. Help the client and the family

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with health concerns and parenting and lifestyle issues.

12. **Private Duty Nurse:** Providing nursing care at home or any other setting and following physician orders.
13. **Home Care Nurse:** She is a nurse who provides care to patients with in their environment as ordered by the physician. She acts as a referral agent for clients who are discharged from acute care settings such as hospitals or mental health facilities.
14. **Hospice Nurse:** She is the one who provides a family centered care and allows clients to live and remain at home with comfort, independence and dignity, while alleviating the strains caused by terminal phase.
15. **Rehabilitation Nurse:** Rehabilitation nurse is a nurse who specialized in assisting persons with disabilities and chronic illness to attain optimal function.
16. **Office Nurse:** Nurse who cares for outpatients in doctor's offices, general and specialty clinics and emergency medical centers.
17. **Nurse Epidemiologist:** Perform epidemiologic investigations. Controls and prevents infectious diseases. Participating in surveillance.
18. **Military Nurse:** Care of military personnel.
19. **Aerospace Nurse:** Provide care to passengers during travel in flight.
20. **Tele Nurse:** Communicate with patients on telephone.
21. **Disaster Nursing:** Provide services during and after disaster.
22. **Prison Nurse:** Provide nursing care those who are in prison. Works for improvement in mental health .
23. **Forensic Nurse:** Handle and preserve the evidentiary materials.
24. **Peace corps Nurse:** Works in remote areas of the world.
25. **Communicator:** Communication is integral to all nursing roles. Nurses communicate with the client, support person, other health professionals and people in the community.

12.8 Expanded Role of Nurses

An expanded role of nursing is one in which a nurse assumes expanded or increased responsibilities in a practice area and in most cases practice with greater autonomy.

- Advanced Nurse practitioner
- Clinical Nurse specialist.
- Nursing administrator:
- Nurse anesthetist:
- Nurse researcher:
- Nurse educator
- Nurse entrepreneur.
- Acute care Nurse practitioner
- Operating home Nurse.
- Professional Nurse care manager.
- Rehabilitation Nurse.
- Nurse analyst
- Travel Nursing.
- Nurse Oncologist.
- Sports Nursing
- Nurse authors
- Nurse liaison
- Space Nursing
- Hospice Nurse
- School health Nurse
- Tele Nursing
- Cruise ship/ resort Nurse.
- Attorney
- Disaster/ Bio terrorism Nurse
- Epidemiology Nurse
- Ethicist

1. **Advanced Nurse Practitioner:** A Nurse who has an advanced education and is a

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graduate of a nurse practitioner program is employed in health care agencies or in the community settings and deals chronic illness and provide primary ambulatory care

2. **Clinical Nurse Specialist:** The clinical nurse specialist has a master's degree in nursing and expertise in a specialized area of practice. CNS may work in primary care, acute care, rehabilitative care and community based settings.
3. **Nursing Administrator:** Manage client care and the delivery of specific nursing services within a health care agency.
4. **Nurse anesthetist:** Provide care pre-operative, intra operative and post-operative period. Assist to anesthetist during surgery.
5. **Advanced Nurse Educator:** The nurse is more advanced and frequently an expert in a particular area of practice.
6. **Nurse Researcher:** Participate in scientific investigation. Complete the research process.
7. **Acute Care Nurse Practitioner:** An acute care nurse practitioner functions in the settings where critically ill patients reside, this type of nurses provide special expertise.
8. **Nurse Entrepreneur:** An entrepreneur is an individual who organize operates and assumes the risk of independent nursing practices, consultant services etc., the nurse may be involved in education consultation research etc.
9. **Operating Room Nurse:** The nurse monitor the progress of patients before and after surgery from the time of entry in the operating room until he/she is dismissed to the attending staff nurse.
10. **Professional Nurse Care Manager:** The nurse case manager assesses the patients and develops care according to expected outcomes in terms of cost and quality.
11. **Nurse Analyst:** The nurse analyst is involved in data analysis and interpretation with regards to effectiveness and efficiency of data collection, entry and use within the various areas of the hospital and health care facility.
12. **Travel Nursing:**
13. **Nurse Oncologist:** A specialized nurse who cares for cancer patients.
14. **Sports Nursing:** Sports medicine is a sub-specialty of orthopedic medicine, largely involving injuries or traumas suffered as a result of training or competing in an athletic event.
15. **Nurse Authors:** Nurse works in any area of writing, this written material may be used in research education, training and marketing
16. **Space Nursing:** Space nurses provides health services to astronauts.
17. **Nurse Liaison:** The nurse Liaison's role is multifaceted. They are the vital link between the potential patient and the rehabilitation facility.
18. **Hospice Nurse:** The focus of hospice care is a comprehensive physical, psychological, emotional and spiritual care to terminal ill persons and their families. Hospice care promotes quality of life.
19. **School Health Nurse:** Nurse support the educational process by helping students keep healthy and by teaching preventive practices for students and teacher's.
20. **Tele Nursing:** Providing nursing services by the use of telecommunication and information technology whenever a large physical distance between patient and nurse.
21. **Cruise Ship/ Resort Nurse:** These nurse work on ship or resorts to provide

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emergency and general care to passengers if required.

22. **Attorney:** Nurse attorneys engage in a range of legal activities by legal consultation.
23. **Disaster/Bio Terrorism Nurse:** These nurses works in disaster areas that are result of bio terrorist attack or in situation caused by natural or man-made disaster.
24. **Epidemiology Nurse:** The nurse epidemiologist investigates trends in disease occurrence in particular area. They identify the population at risk monitor the progress of disease, special areas of health care need, determine priorities

1. Tamil Nadu Nursing Council was established by the act in the year 1926 which South East Asia's first premier Council
2. In 1871, the first school of nursing was started in Government General Hospital, Madras with a six-month diploma midwives programme with four students..
3. The first four-year bachelor's degree programme was established in 1946 at the college of nursing in Delhi and the Christian Medical College and Hospital (CMCH) in Vellore.
4. Florence Nightingale was one of the pioneers in establishing the idea of nursing schools from her base at St Thomas' Hospital, London in 1860 when she opened the 'Nightingale Training School for Nurses', now part of King's College, London.
5. In 1908, the Trained nurses association of India was formed to uphold the dignity and honour of the nursing profession.
6. The Indian Nursing Council was passed by ordinance on December 31, 1947. The council was constituted in 1949.

SUMMARY

- Education is the corner stone of Nursing profession. Education in Health care today-both the patient education and Nursing staff student education. It is a topic of utmost interest to nurses in every setting in which they practice
- Nursing education is a professional education which is consciously and systematically planned and implemented.
- A philosophy of nursing education includes beliefs and values with regard to man in general and specifically man
- Curriculum is a runway for attaining the goals of education. Curriculum may be considered as the blue print of an educational programme
- Nursing management consists of the performance of the leadership functions of governance and decision-making within organizations employing nurse.
- Management has been described as a social process involving responsibility for economical and effective planning and regulation of operation of an enterprise.
- Nurses have various number of Expanded roles and Extended roles in health care

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GLOSSARY

Profession	தொழில்	Any type of work that needs special training or a particular skill
Competent	தகுதிவாய்ந்த	The ability to do something well
Harmonious	இசைவிணக்கத்துடன்	Friendly, peaceful and without any disagreement
Aesthetic	அழகான	Made in an artistic way
Diversity	பன்முகத்தன்மை	Many different things existing together in group
Integrity	ஒருமைப்பாடு	The State of being whole and not divided
Curriculum	பாடத்திட்டம்	The subjects that are included in a course of study
Committee	செயற்குழு	A Group of people who are chosen usually by a large group to make decisions or to deal with a particular subject

Evaluation

I. Choose the correct answer

1. The corner stone of Nursing is
   a) Education
   b) Practice
   c) Knowledge
   d) Economy.
2. Nursing is the oldest of art and youngest of the profession said by.
   a) Gandhi
   b) Abdul kalam
   c) Rajaji
   d) Donabue
3. The important aspect of Nursing in terms of man power is
   a) Development
   b) Production
   c) Skill
   d) none
4. Ability to communicate honestly and Sincerely is known as
   a) Wisdom
   b) Integrity
   c) Communication
   d) Diversity.
5. To study the process and discipline of Education is
   a) Knowledge
   b) Philosophy
   c) Learning
   d) Planning
6. Philosophy
   a) is an art
   b) is a science
   c) Both
   d) None
7. Education
   a) is an art
   b) is a science
   c) Both
   d) None
8. The youngest philosophy in 20th century
   a) Idealism
   b) Existentialism
   c) Pragmatism
   d) None.

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9. The American Philosophy centred around the present life.
   a) Existentialism
   b) Idealism
   c) Progressivism
   d) None.

10. The Philosophy that state the person's behaviour is the result of environmental condition.
   a) Idealism
   b) Progressivism
   c) Behaviourism
   d) None

II. Answer the following question in one or two lines

1. Define Education.
2. Define Nursing Education.
3. Define Philosophy
4. Define Philosophy of Nursing Education.
5. Name two types of philosophy
6. Define Humanism
7. Define Curriculum
8. Name three facets of curriculum.
9. List the 4'c s of Curriculum.
10. Define management.

III. Write in detail

1. Explain in detail about the Principles of Curriculum development
2. Describe elaborately about the traditional philosophy of Education
3. Write in detail about the modern contemporary philosophy of Education.
4. Explain in detail about the Henri Fayol's principles of management
5. Explain the Extended and Expanded roles of Nurses.

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CHAPTER 13

Introduction to Nursing Research

முடிவும் இடையூறும் முற்றியாங்கு எய்தும்
படுபயனும் பார்த்துச் செயல்.

Accomplishment the hindrances large profits won by effort; These compare, then let the work to be done.

Learning Objectives

At the end of this chapter, the students will be able to:

- define nursing research
- gain knowledge about importance of nursing research
- list out the steps in nursing research
- define the descriptive statistics
- define the inferential statistics
- explain about the current computer applications in nursing research

I8RHA

Introduction

The meaning of the word 'research' is to find correct answers to questions raised or to find solutions to problems identified.

In the past and for many years, people based their beliefs on presumptions or interpretations of things that they saw or observed in and around them and then came to various conclusions. These conclusions were not tested to find out whether they were correct (valid) or not.

For example, in ancient days, in Egypt, every year Nile river flooded and it left behind very rich soil along the riverbanks which helped people to grow crops for the year. But along with the rich soil, a large number of frogs also appeared. Therefore, the Egyptian concluded that frogs came from muddy soil. Here we can say that scientific research was not used because the people never gave a thought if there can be any other reason for the large number of frogs living in the floods. Later problems were scientifically analysed based on data this is called scientific enquiry.

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Every one will agree that if "Health is lost, everything is lost". Nursing is a profession and practice which serves as the foundation in providing care for the sick and needy. The challenges faced by the nursing fraternity is enormous. Thus research becomes the need and necessity in this noble profession.

Nursing is the profession and practice of providing care for the sick and needy. Nurses play significant role in taking care of people. Nursing plays an vital role in the research activity. A well developed and reliable body of knowledge is a foundation for any course of study. Research provides a solid foundation on which individual can develop and refine their basic knowledge and practice. Without knowledge we cannot improve in accustoming people to the latest techniques and therapies like infant care, pain management, grief counseling, health education, home care management, palliative care and related intervention.

Research on nursing practices began slowly, but since 1950, it has been accelerating rapidly. Nursing research continues to develop at a rapid phase and will undoubtedly flourish in the twenty-first century. Broadly speaking, the priority for nursing research in the future will be the promotion of excellence in nursing practices.

Nowadays Health professionals believe in development of knowledge from logical reasoning and problem solving. It helps in identification of problem and planning evidence based care.

Nurses must acquire knowledge in both unstructured and structured method. In unstructured method, own experience,trial and error are followed. The structured method includes logical reasoning, problem solving and the research is conducted in a disciplined format. In general, nurses try to understand a question / problem and search for possible solutions.

The quality of nursing practice and the future of health care depends on up-to-date organized body of nursing knowledge. Research is based on existing ideas and to improve the knowledge of the individuals. The purpose of the systematic inquiry is to find out the evidence based method of solving the problem identified.

The present era of complex health problems makes interdisciplinary research, an important one to find out the study of health and illness experiences of the society. Currently a lot of attention is being paid to research on nursing, which it seems will continue in the years to come, and will have its implications and impact on nurse administrators, nurse educators, as well as practitioners.

Hence, an expanded new knowledge is required for a growing profession. The health care professionals should realize that nursing is developing rapidly and they must be ready to take challenges of currently growing demand of new knowledge and to refine old outdated knowledge.

Meaning of Nursing Research

The word research is derived from the French term researcher, a compound word composed of a prefix ‘re’ and a verb ‘search’. Re means ‘once again’ ‘a new’, or ‘a fresh’ and search means ‘to look for something’.

It is an systematic inquiry of investigation to validate and refine existing knowledge and to generate and refine existing knowledge and generate new knowledge.

Research is a systematic inquiry that uses disciplined methods to answer questions to solve problems.

Ultimate goal of research is to develop, refine and explore a body of knowledge.

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Definition of Research

Research is a systematic and scientific process to solve problems or to answer to questions about facts. Nursing research focuses primarily on developing knowledge about nursing including the care of person in health and illness.

In general, Nursing research is defined as the systematic objective process of analysing phenomena of importance to nursing.

According to **Waltz** and **Bausell** (1981) Nursing research is a systematic formal rigorous process used to gain solutions to problem or to discover and interpret new facts in clinical practice, nursing education and nursing administration.

Wilson (1980) Differentiated nursing research and research in nursing. In that nursing research is concerned with clinical problem. Whereas research in nursing is the broader study of the nursing profession which includes historical, ethical and policy studies.

13.1 Importance of Research in Nursing

1. Research builds an advanced body of nursing knowledge.
2. Research provides a cost effective, and efficient health care.
3. Research moulds the attitude and improves technical skills.
4. Research fills the gap and helps in finding out new knowledge of practice.
5. Research makes individual health care responsiblity and decision making in health related problems.
6. Research modifies the old theories and discovers new theories.
7. Research adopts evidence based practice, while providing care or health education to those who are in need.
8. Research develops knowledge about the current issues happening in medical field.
9. Research provides scientific basis for the practice of the nursing profession on need based intervention.
10. Research prepares the individuals to be a nurse scientists.

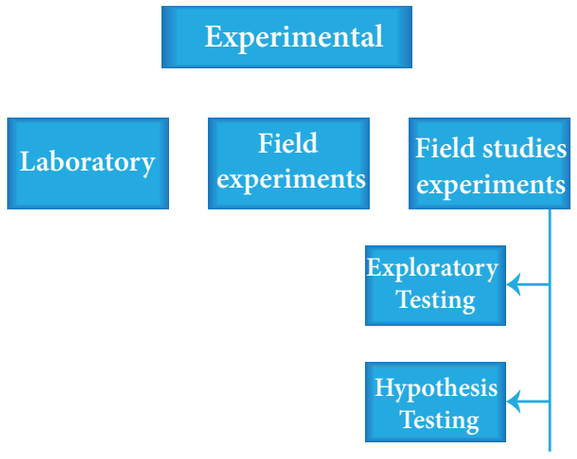
13.2 Types of Research

Research is classified according to their purposes and approaches.

- **Basic research or fundamental research** are carried out in laboratory situations
- **Applied research** helps to evaluate practices and identifies the needs of the person
- **Action research** tries to solve ongoing problems

Research Approaches

There are two types of Research Approaches. Namely Experimental and Non Experimental



13.3 Steps in Nursing Research

- Identification of the phenomenon/ problem of the study
- Review of literature
- Deriving conceptual frame work

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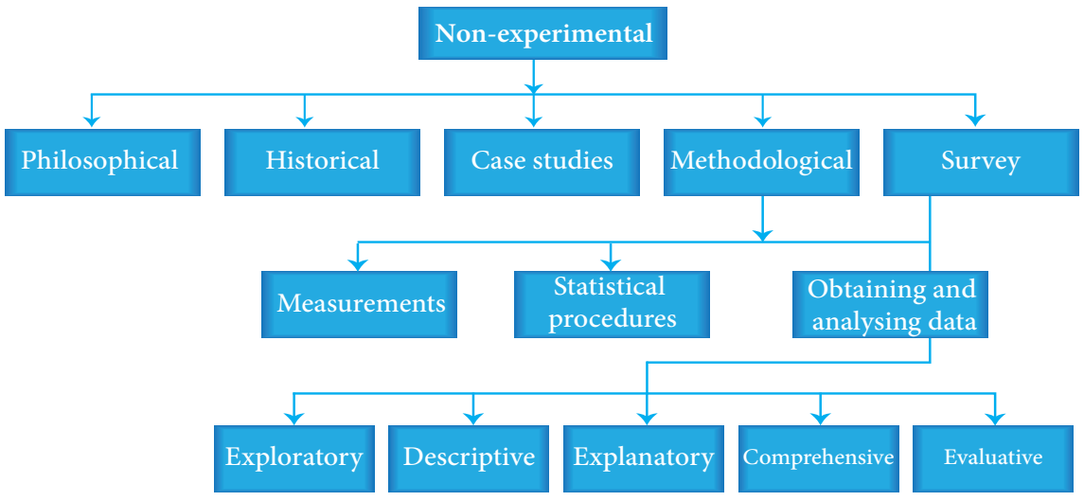


- Identifying the assumption and formulation of Hypothesis
- Selection of research design
- Entry in to the research site (Pilot Study)
- Protect the rights of the participants
- Planning tools for data collection
- Collection of data
- Analysis of the data
- Communicating the findings

Simple Steps In Research Process

1. **Identifying the problem**: It is a clear finding of the problem that should be studied. In general broad topic area is selected and then the topic is narrowed down to a specific one. It may be from personal experiences or literature sources.

The purpose of the study: During the formulation of the problem statement the commonly used mnemonic is "SMART"

S – Specific

M – Measurable

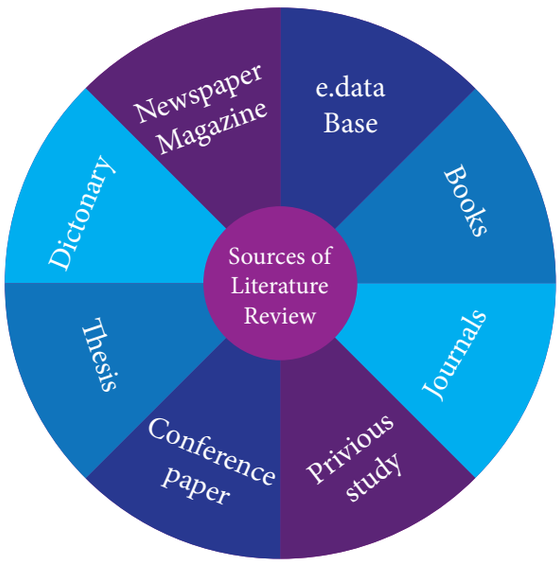
A – Achievable

R – Relevant

T – Time Bound

This will be easy while writing objectives for the study. Objectives may be single or several.

2. **Review of literature:** It is one of the most important step in the research process. A literature review is an account of what has been already established or published on a particular research topic by various researchers.(University of Toronto 2001)



Sources of literature review

3. **Developing the a theoretical/conceptual framework :** It is the valuable part of scientific research. Which helps in the selection of the study characters and in defining them. It also directs to the prediction and the interpretation of the study findings.
4. **Identifying the study Assumptions** : Assumptions are held to be true but have not necessarily seen proven. It influences

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the questions that are asked. It is based on the information collected and study interpretation.

There are three types of Assumptions.

i) Universal Assumptions – Beliefs that are assumed to be true by a large percentage of Society.

ii) Assumptions based on theory or research findings- Previous research studies which form the basis for assumptions in the present study.

iii) Assumptions that are necessary to carryout the study – Need to conduct a research study.

5. **Formulating the Hypothesis or Research Question**: Hypothesis predicts the relationship between two or more characters. According to the asked questions in the problem statement. The hypothesis furnishes the answer to it. It is testable or verifiable by the information gathered. The research is guided by research questions that are further elaboration of the problem statement.
6. **Selecting the research Design :** It is the plan for how the study will be conducted as well as concerned with the type of information that will be collected.
7. **Identifying the population/sample**: The population means the complete set of individuals or objects that posses some common characteristics of interest to the researcher. The subgroup of populations is called study sample.
8. **Conducting a pilot study** : A pilot study is a miniature trial version of the planned study. It reveals the feasibility of the study and helps to test the instruments. It also plays a role in gaining experience with the study process and it indicates that where the revision should be made.
9. **Collecting Data** : It is the process of collection or gathering of pieces of information's facts that are related to the study.
10. **Organizing the data for Analysis** : It is the grouping of information's for tabulation and evaluation purpose. A statistician should be consulted in the early and phase of the research process. The statistician can help to follow the appropriate analytical method.
11. **Interpreting the findings** : After the data are analyzed the finding of the result are compared with those of previous studies for further recommendation

13.4 Related Websites/Software Used In Nursing Research

S. NO	USES OF COMPUTER IN	RELATED WEBSITE AND SOFTWARE
1.	Identification and formulation of problem statement	PUBMED
2.	Review of literature	MEDLINE, Open Access Journals
3.	Framing of conceptual framework	Visual display
4.	Planning of research design	Word processing, data base
5.	Preparation of sampling process	Word processing
6.	Data collection procedure	Video recorded, flash based narrator, Led interview
7.	Analysis and statistical calculation	SPSS, ANOVA
8.	Presentation of research	Open source software
9.	Budget mobility	Microsoft office, EXCEL
10.	Reference sources	Vancouver, APA, style

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SUMMARY

- **Identifying a problem:** Any problem or question which we want to clarify, instead of assuming the answers or solutions
- **Searching professional literature for possible solutions:** Looking up literature so as to know what has been written or studied about the same problem earlier.
- **Prepare a research question in an answerable or testable format:** Writing the questions related to the study going to be conducted
- **Considering a solution to solve the problem:** In problem – solving methods, one should put down possible ways of solving the problem
- **Making a research hypothesis that can be tested:** Writing a statement making a relationship between various factors
- **Conducting the study or research (Pilot Study):** Conducting the study using the selected tool with minimum participants.
- **Analysing the result:** Making sense of all the data collected by grouping and analyzing during the research
- **Determining if the scientific hypothesis is correct:** Checking back to see if the hypothesis or factors have any relationship with each other or not
- **Applying the variant:** Making a final judgement based on the results and preparing recomadations

GLOSSARY A-Z

Conceptual	–	Strategy for expressing a framework of a study that diagrammatically shows the interrelationships of concepts and statements
Conclusion	–	Synthesis and clarifications of the meanings of study findings
Data	–	Informations that are collected during a study
Data analysis	–	Technique used to reduce, organize and give meaning to data
Data collection	–	Systematic gathering of Information
Descriptive statistics	–	Statistics that allow the researcher to organize the data in ways that give meaning and facilitate insight
Design	–	Blue print for conducting a study
Findings	–	The translated and interpreted results from a study
Hypothesis	–	Formal statement of expected relationship between two or more variables in a specified population
Variables	–	Characteristics of person to be measured
Population	–	The individuals or objects having some common characteristics.
Theory	–	Integrated set of defined concepts used to describe, explain and predict the relationship between study outcome and the view of the nursing theorist.
Intervention	–	Treatment or independent factor while conducting the study.

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Evaluation

I. Choose the correct answer

1. Nursing Research started since
   a) 1950
   b) 1960
   c) 1917
   d) 1920

8Z6AG

2. Nursing Research is based on
   a) Systemic enquiry
   b) Improved knowledge
   c) General knowledge
   d) Obtained Knowledge
3. Research means
   a) Careful examination
   b) Search again and again
   c) Simple enquiry
   d) General Enquiry
4. Nursing Research helps to
   a) Fulfill the gap
   b) Decrease the technical skills
   c) Decrease communication
   d) Increase workload
5. Steps in Research excludes
   a) Review of Literature
   b) Communication of results
   c) Programme planning
   d) Presentation of data
6. From the following table select the appropriate steps in the preparation of data analysis

A	B	C	D
Coding	Modifying	Entering	Transferring
Transferring	Coding	Coding	Editing
Editing	Transferring	Transferring	Entering
Modifying	Entering	Editing	Modifying
Entering	Editing	Modifying	Coding

7. Analytical procedure that allows researcher to describe and summarize data is known as
   a) Descriptive Statistics
   b) Inferential Statistics
   c) Health Analysis
   d) Health coding

II. Short answers

1. Define Nursing Research
2. State the steps in Research

III. Brief answers

1. List out the sources of Literature Review
2. State the steps in Problem Solving
3. Common statistical methods in nursing
4. Uses of statistics in Health sciences

IV. Detailed answers

1. Write in detail about the uses of computer in Nursing Research.
2. Discuss the importance of Research in Nursing.

REFERENCE BOOKS

1. Suresh K Sharma (2011) Nursing research and Statistics Mosby, Saunders, Elservier India (P) Ltd
2. Mercy john (2008), Introduction to research, Mid India board of Education of the nurses League Christian Medical Association of India. B. I. Publications Pvt. Ltd
3. Vanitha Vani . K (2010) Introduction to Research Florence Publishers, Hyderbad.

INTERNET LINKS

1. https://www.researchgate.net/figure/Sources-of-literature-review
2. https://www.google.com me country causes frustration.

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Practicals

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Practical 1

HEALTH ASSESSMENT

Learning Objectives

- On completion of this chapter the learner will be able to
- List out the purpose the health assessment
- Describe the technique followed during physical assessment

Introduction

Health is a state of well being. Assesment is based on signs and symptoms observed, examined. It helps in concluding the condition of the individual based on the findings.

Definition

Health assessment is the evaluation of the health status by performing a physical exam after taking a health history.

Objectives

- To collect data pertinent to patient's health status (Subjective and Objective)
- To identify deviations from normal
- To discover the patients strengths, limitations, and coping resources.
- To pinpoint actual problems
- To spot the factors that place the patient at risk of health problems
- To build rapport with the patient and family.

Client Interview

Oldcart

- Onset of health concern or complaint
- Location of pain or other symptoms related to the area of the body involved
- Duration of health concern or complaint
- Characteristics
- Aggravating factors or what makes the concern or complaint worse
- Relieving factors or what makes the concern or complaint better
- Treatments or what treatments were tried in the past or ongoing

Patient history and interview: should be based on.

- present complaint and nature of symptoms
- onset of symptoms
- severity of symptoms
- classifying symptoms as acute or chronic
- health history
- family history
- social history
- current medical surgical and/or nursing
- management
- understanding about medical and nursing plans
- perception of illness

Physical examination

- A complete physical examination includes: Head to toe assessment

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- Skin-
- Head and neck
- Thorax and lungs
- Breasts
- Cardiovascular system
- Rectum
- Genitalia
- Neurological system
- Musculoskeletal system

may be deferred depending on reason for admission

Preparation of patient and environment for Physical Examination:

- Physical examination is done after the collection of health history is obtained.
- wash your hands before and after the examination
- Provide a well lighted, and warm area.
- warm your stethoscope in your hand
- Have patient change into a gown.
- Respect the patient. Privacy at all times. Close doors, pull curtains, keep body parts covered.
- Explain what you are going to do, obtain individuals concern.
- Wear gloves when you may be exposed to blood and body fluids.

Articles required for physical examination

- Stethoscope
- Bp apparatus
- Flashlight
- Reflex hammer
- Pulse oximetry
- Tuning fork
- Gloves
- Neurological exam tray
- Inch tape
- Weighing Machine
- Height Scale
- Pain Scale

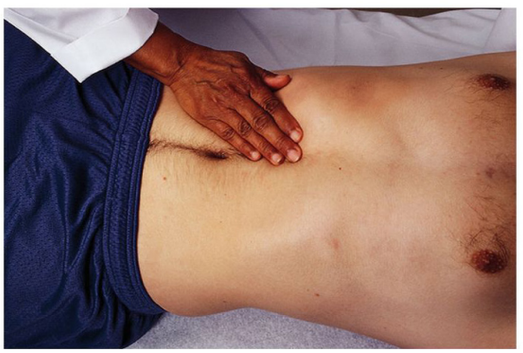
Approaches in Physical Assessment

I. **Inspection-** It is a systematic visual examination of the client made by the examiner.

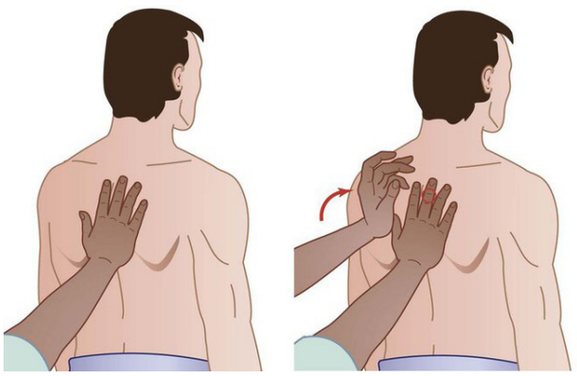
II. **Auscultation-** it is a process of listening to sounds that are generated within the body

III. Palpation- it is touching of the body or a body part with hands to note the size and position of the organs

Abdominal Palpation



IV. Percussion- It is the examination by tapping the fingers on the body to determine the condition of the internal organs



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Head-Toe-Assessment

Assessment conducted by _____

LOC

☐ Alert ☐ Drowsy ☐ Lethargic ☐ Stuporous ☐ Coma

Orientation

☐ Person _____

☐ Place _____

☐ Time _____

Situation _____

Vitals

☐ Temp _____ ☐ R _____

☐ BP _____ Pulse Ox _____

Head

☐ Hair

☐ PERLA_____mm

☐ Nose _____

☐ Ears _____

☐ Mouth _____

- Midline tongue _____
- Moist _____
- Lesions _____
- Dentition _____

Neck

☐ Carotid Pulse _____ ☐ JVD + ☐ Trachea midline

Chest

☐ Apical pulse _____ ☐ Muffled ☐ Arrhythmia

☐ Breath sounds. Anterior _____

Posterior _____ Lateral _____

☐ Chest symmetry _____

☐ Skin Turgor (Clavicle) _____

Abdomen

☐ Inspection

☐ Ausculation

- LUQ (active / hypter / absent)
- RUQ (active / hypter / absent)
- LLQ (active / hypter / absent)
- RLQ (active / hypter / absent)

☐ Palpation _____

Upper Extremities

☐ Radial pulses equal, +2

☐Other: _____

☐ Temp vs. trunk (warm/cool)

☐ Grip equal and strong _____

☐ Capillary refill <3 sec

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☐ Vein filling rapid

_____

_____

Date: _____

Time: _____

Lower Extremities

☐ Hair present

☐ Edema _____

☐ Foot strength

☐ Homain's (+/-) Claudication (+/-)

☐ Temp Vs. Trunk (warm / cool)

☐ Nails ☐ Yellowed ☐ Thickened ☐ Ingrown

_____

Pedal pulse R (palp /doppler) L (palp/doppler)

ROM

☐ Upper R _____

☐ Upper L _____

☐ Lower R _____

☐ Lower L _____

Strength

☐ Upper R _____

☐ Upper L _____

☐ Lower R _____

☐ Lower L _____

☐ Sensation _____

_____

General Assessment

☐ Weight/Height

☐ BM

Pain Assessment

☐ Acute/Chronic Intensity (0-10)

☐ Location _____

☐ Duration _____

☐ Characteristics _____

☐ Precipitation _____

☐ Frequency _____

☐ Non-verbals _____

☐ Relief factors _____

☐ Sleep _____

Skin Assessment

☐ Description: _____

_____

_____

_____

_____

SUMMARY

Health assessment is very important in any health care settings. It includes health history and complete physical examination. To get a clear picture of the client health status and health related problems.

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Practical 2

RYLE'S TUBE FEEDING

Meaning

Ryle's tube feeding is a very useful method of ensuring adequate intake of fluid and nutrients through a tube in to the intestinal tract, in patients who are unable to use the oral route for variety of reasons.

Purposes

- To provide adequate nutrition
- To give large amounts of fluid for therapeutic purpose
- To provide alternative manner to some clients who has potential or difficulties

Equipments Required

- Disposable gloves (1)
- Feeding solution as prescribed
- Feeding bag with tubing (1)
- Water in jug
- Large catheter tip syringe (30 ml or larger than it) 1
- Measuring cup (1)
- Clamp if available (1)
- Paper towel as required
- Doctor's Prescription
- Stethoscope

S No	Action	Rational
1	Assemble all equipments and supplies after checking the Dr.'s Prescription for tube feeding	Organization facilitates accurate skill Performance Checking the prescription confirms the type of feeding solution, route, and prescribed delivery time.
2	Prepare formula: In the type of can: Shake the can thoroughly. Check expiration date In the type of powder Mix according to the instructions on the package, prepare enough for 24 hours only and refrigerate unused formula. Label and date the container. Allow formula to reach room temperature before using. In the type of liquid which prepare by hospital or family at a time Make formula at a time and allow formula to reach room temperature before using.	Feeding solution may settle and requires mixing before administration. Out-dated formula may be contaminated or have lessened nutritional value. Formula loses its nutritional value and can harbour microorganisms if kept over 24 hours. Cold formula cause abdominal discomfort or sometimes diarrhea.
3	Explain the procedure to the diet	Providing explanation fosters client's cooperation and understanding

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4	Perform hand hygiene and put on disposable gloves if available	To prevent the spread of infection
5	Position the client with the head of the bed elevated at least 30 degree angle to 45 degree angle	This position helps avoiding aspiration of feeding solution into lungs
6	Determine placement of feeding tube by: Aspiration of stomach secretions Attach the syringe to the end of feeding tube Gently pull back on plunger Measure amount of residual fluid Return residual fluid to stomach via tube and proceed to feeding Nursing Alert If amount of the residual exceed hospital protocol or Dr.'s order, refer to these order	Aspiration of gastric fluid indicates that the tube is correctly placed in the stomach The amount of residual reflects gastric emptying time and indicates whether the feeding should continue. Residual contents are returned to the stomach because they contain valuable electrolytes and digestive enzymes. In the case of non present of residual, you should check placement carefully. Residual over 120 mL may be caused by feeding too fast or taking time more to digest. Hold feeding for 2 hours, and recheck residual.
	Injecting 10 – 20 ml of air into tube Attach syringe filled with air to tube Inject air while listening with stethoscope over left upper quadrant	Inject 3-5mLof air for children A whooshing or gurgling sound usually indicates that the tube is in the stomach
7	Taking an x-ray or ultrasound	It may be needed to determine the tube's Placement
	Intermittent or Bolus feeding Using a feeding bag: Feeding the following 1) Hang the feeding bag set-up 12 to 18 inches above the stomach. Clamp the tubing. 2) Fill the bag with prescribed formula and prepare the tubing by opening the clamp. Allow the feeding to flow through the tubing Re clamp the tube. 3) Attach the end of the set-up to the gastric tube. Open the clamp and adjust flow according to the Doctor's order. 4) Add 30-60 ml of water to the feeding bag as feeding is completed. Allow the flowing to basin. 5) Clamp the tube and disconnect the feeding set-up.	Rapid feeding may cause nausea and abdominal cramping. Water clears the tube, keeping it patent. Clamping when feeding is completed prevents air from entering the stomach

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	Using the syringe: Feeding the following 1) Clamp the tube. Insert the tip of the large syringe with plunger, or bulb removed into the gastric tube. 2) Pour feeding into the syringe	
	3) Raise the syringe 12 to 18 inches above the stomach. Open the clamp. 4) Allow feeding to flow slowly into the stomach. Raise and lower the syringe to control the rate of flow. 5)Add additional formula to the syringe as it empties until feeding is complete	Gravity promotes movement of feeding into the stomach Controlling administration and flow rate of feeding prevents air from entering the stomach and nausea and abdominal cramping from developing
8	Termination of feeding: 1) Terminate feeding when completed. 2) Instil prescribed amount of water 3) Keep the client's head elevated for 20-30minutes.	To maintain patency of the tube Elevated position discourages aspiration of feeding solution into the lung
9	Mouth care: 1) Provide mouth care by brushing teeth 2)Offer mouthwash 3)Keep the lips moist	Mouth care promotes oral hygiene and provide comfort
10	Clean and replace equipment to proper place	To prevent contamination of equipment and prepare for the next procedure
11	Remove gloves and perform hand hygiene	To prevent the spread of infection
12	Document date, time, amount of residual, amount of feeding, and client's reaction to feeding. Sign the chart	Documentation provides continuity of care Giving signature maintains professional accountability

CONTRAINDICATIONS

Absolute contraindications

- Severe mid face trauma
- Recent nasal surgery

Relative contraindications

- Coagulation abnormality
- Oesophageal varices or stricture
- Recent banding or cautery of oesophageal varices
- Alkaline ingestion

REFERENCE

SanjitaKhadka et al,(2008) Fundamental of Nursing Procedure Manual, 1st edn. Japan International CooperationAgency (JICA): Nepal, pg - 104

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Practical 3

INSTRUMENTS

INSTRUMENTS	Uses
TOOTHED DESECTING FORCEPS	• Easily grasp small objects and tissues to move and release it. • To hold the tissues
RETRACTOR	• To separate the edges of a surgical incision or wound
TOOTHED DESECTING FORCEPS	• To protect from contamination.
CHEATLE FORCEPS OR TRANSFERING FORCEPS	• Transfering of sterile articles and equipments from one to another and pick autoclave articles
ALLIS TISSUE FORCEPS	• To hold the skin • To pick up a fold of peritoneum during laparotomy • To hold linea alba while closing midline incision.

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ARTERY FORCEP 	• To grasp vessels and allow ligation of those vessels • May also used to grasp tissues, sutures and other prosthetic materials.
SPONGE HOLDING FORCEPS 	• Handle sponges, gauze and sensitive materials
THUMB FORCEPS 	• Used for grasping, compressing, cutting, pulling tissue.
SUTURE REMOVAL SCISSORS 	• To remove sutures on skin and mucous membrane
NEEDLE HOLDING FORCEPS OR NEEDLE HOLDER 	• To hold or grasp curved needle during various suturing procedures
BARD PARKER HANDLE OR BP HANDLE 	• To hold the scalpel. • To cut skin, tissue and vessels • For sharp dissections

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Practical 4

DIET FOR VARIOUS CONDITIONS

ANTENATAL DIET MENU

RECEIPIE NAME: AMARANTH KEERAI CURRY

Ingredienets	Quantity
Amaranth keerai	200 gms
Onion, big	50 gms
Green chillies	10 gm
Coconut scraping	20 gm
Oil	10 gm
Salt	1 tsp

Nutritive value / serving

Calories	300Kcal
Proteins	10 gms
Calcium	850 mgs
Iron	8 mgs
Carotene	11,000 µg
Vitamin C	210 mg

Method of preparation

Pick and wash amaranth keerai leaves. Chop the amaranth, onions and green chillies. Heat the oil in a kadai. Sauté the chopped onion, and green chillies. Add the chopped amaranth, salt and cook till soft. Sprinkle the coconut scrapings and serve it hot.

CARDIAC DIET MENU

RECEIPIE NAME: SALAD

Ingredienets	Quantity
Lettuce leaves	100 gms
Carrot	25 gms
Beans	25 gms
Green peas	25 gms
Salt	To taste
Lemon juice	1 no
White pepper	A little
Beet root	25 gms
Cucumber	25 gms

Nutritive value / serving

Calories	140 Kcal
Proteins	8.7 gms
Calcium	280 gms
Iron	20 gms
B.carotene	3500 µg

Method of preparation

Steam cook beet root slices, green peas and beans. Slice cucumber. Grate carrots. Place lettuce leaves as the outer ring. Arrange cucumber slices on the next circle. Next comes the beet root slices. Place carrot, beans and peas in the centre. Squeeze the lime juice over this. Sprinkle salt and pepper and serve.

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TYPHOID FEVER DIET MENU

RECEIPIE NAME: WHEAT PORRIDGE

Nutritive value / serving

Ingredienets	Quantity
Wheat	100 gms
Milk	100 ml
Honey	For taste

Calories	341 Kcal
Proteins	41.1 gms
Iron	11.5 mg

Method of preparation

Soak crushed or shredded wheat for ½ an hour. Cook on slow fire till water dries up. Add milk and honey.

HYPERTENSION DIET MENU

RECEIPIE NAME: GREEN GRAM IDLY

Ingredienets	Quantity
Green gram	150 gms
Boiled rice	50 gms

Nutritive value / serving

Calories	510 Kcal
Proteins	36 gms

Method of preparation

Soak green gram and rice for 1 hour. Then grind together for 15 – 20 minutes. Add salt as required. Keep this flour for ½ hour. Then make it as idly in idly pan. Can take with jaggery

PEPTIC ULCER DIET MENU

RECEIPIE NAME: CURD RICE

Nutritive value / serving

Ingredienets	Quantity
Maize noodles	10gm
Mustard	2 gm
Curry leaves	2 gm
Coriander leaves	2 gm
Curd	100ml
Oil	5 ml
Salt	To taste
Pepper	A little

Calories	92 Kcal
Proteins	4.24 gms
Iron	0.62 gms
B.carotene	251 µg

Method of preparation

Cook the noodles and keep it aside. Season with mustard, and curry leaves, mix with curd. Add the cooked noodles to the seasoned curd and mix well. Garnish with coriander leaves.

RENAL MENU

RECEIPIE NAME: BREAD SANDWHICH

Nutritive value / serving

Ingredienets	Quantity
Bread 5 slices	100 gms
Egg	1 (40 gms)
Butter	10 gms
Pepper	A little
Salt	A little

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Calories	413 Kcal
Proteins	13.7 gms
Iron	3.7 gms
Calcium	160 mg
B.carotene	46 µg

Method of preparation:

Half boil the egg. Remove the shell. Blend the half cooked, semi solid egg to get smooth mixture. Add salt and pepper to this and mix well. Spread the buttered side of one slice. Place the buttered side of the second bread slice. Cut diagonally (Remove the crust of the bread).

DIABETIC DIET MENU

RECEIPIE NAME: WHEAT UPPUMA

Nutritive value / serving

Ingredienets	Quantity
Wheat rawa	75 grms
Onion	2 no
Green chillies	2 no
Mustard	½ tsp
Salt	To taste
Oil	2 tsps
Green coriander	A little
Curry leaves	1 spring
Water	225 ml

Calories	377 Kcal
Proteins	8.5 gms
Iron	1.5 gms
Calcium	187 mg
B.carotene	385 µg

Method of Preparation

Heat oil. Add chopped onion, green chillies, green coriander and curry leaves and fry. Add water and salt. When the water comes to boil add rawa and stir continuously. When the water evaporates remove from fire and serve.

DIET FOR FEVER

RECEIPIE NAME: WHEAT PORRIDGE

Nutritive value / serving

Ingredienets	Quantity
Wheat rawa	150 grms
Water	900ml
Salt	To taste

Calories	525 Kcal
Proteins	18 gms
Iron	16 gms
Calcium	30 gm
B.carotene	45 µg

Method of preparation

Boil water. When it comes to a boil add wheat rawa. When the water is reduced to half its volume, if the wheat is cooked add salt and remove from fire.

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Practical 5

PERFORMING AN ANTENATAL ABDOMINAL EXAMINATION

Definition

Examination of a pregnant woman to determine the normalcy of fetal growth in relation to the gestational age, position of fetus in uterus and its relationship to the maternal pelvis.

Purposes

- To measure the SFH (Symphysis fundel height) and fundal height.
- To assess fetel size and growth.
- To determine abdominal muscle tone.
- To determine the fetal position, presentation, volume of liquid.
- To observe the signs of pregnancy.
- To detect any deviation from normal.
- To assess the fetel well being/
- To measure the abdominal girth.

Articles

- Fetoscope/stethoscope
- Measuring tape
- Tray contains / Sheet, Towel

Procedure

S No	Nursing action	Rational/scientific principle
1.	Explain the procedure and obtain her consent.	Reduces anxiety and promotes relaxation Avoids discomfort during palpation.
2.	Instruct her to empty the bladder	
3.	Position the women	
4	Expose her abdomen from below the breast to the symphysis pubis.	Visualization of the whole abdomen.
5.	Inspect abdomen for scars, linea nigra, size straie gravidarum, contourof abdomen, shape, state of umbilicus and skin condition.	It provides whether fetal growth corresponds to gestational period.
6.	Determine the fundal height using the ulnar side of the palm. Measure fundal height using the inch tape.	The number of centimeter measured should be approximately equal to the weeks of gestation after 24 weeks.
7.	Measure the abdominal girth by encircling the woman's abdomen with a tape measure at the level of umblicus. Abdominal palpation: Hands are warm before palpation.	Normally the measurement is 2 cm less or more than the weeks of gestation (eg) 32 cm or 36 cm in 34 weeks gestation Cold hands may cause muscle contraction and discomfort.

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8	Fundal palpation Place the hands on the side of fundus and around the top of the uterus.	Round, hard regular mass – head . Irregular, less firm and not well defined – buttocks
9.	Lateral palpation: Place the hands on both sides of the uterus midway between symphysis pubis and the umbilicus.	A firm continues smooth curvature - it indicates back or spine of fetus. An irregular felt (nobby) parts – fetal extremities
10.	Pawlik's grip: Grasp the portion lower abdomen above the symphysis pubis between thumb and middle finger.	Fetal head above the brim – head is movable. Fetal head not movable – engaged head.
11.	Pelvic palpation:	To determine the level of engagement
12.	Auscultation: Place the fetoscope over the convex portion of the fetus close to the anterior uterine wall.	To hear the fetal heart sounds.
13.	Inform the mother about the findings and make her comfortable.	It promotes confidence.
14.	Replace the articles and wash hands.	Helps in further planning.
15.	Record the findings in the patient's chart (the time, findings and remarks.)	

MEASUREMENT OF UTERINE INVOLUTION

Definition: Involution

Assessing the state of the uterus in post-delivery period as it returns to pre-gravid state.

Purposes

- To identify abnormality
- To rule out infection.
- To estimate the rate of uterine involution take place.

Equipment Required

Screen, Inch tape, Clean gloves.

Procedure

Nursing action	Rational/ scientific principle
Explain the procedure to the patient.	Enhances cooperation Save time and energy.
Assemble necessary articles at bed side.	
Ensure the bladder is empty.	Full bladder may cause upward displacement of uterus
Drape the client exposing only lower abdomen.	provides comfort to the women
Locate fundus with palm of one hand.	Support and stabilize uterus.

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Firmly press abdomen towards the spine & then slightly downward towards the perineum.	
Measure the number of finger breaths at which the fundus is felt.	Finger breath measurement correspond to the number of days after delivery. Day 1 : 10 – 12 cm Day 5 : not palpable
With gloved hand check perineal pad for type, amount color of lochia	
Provide perineal care and provide clean pad.	Maintains hygiene & prevents infection. Prevents spread of microorganism.
Replaces the articles & wash hands.	Documentation helps in obtaining a clear picture about involution of uterus.
Mark the fundal height in patients record.	

Practical 6

CHILD HEALTH NURSING

Anthropometric Measurement of Children

Anthropometrics are a set of non-invasive, quantitative body measurements used to assess growth, development, and health parameters. The word "anthropometry" is derived from the Greek word "anthropo" meaning "human" and the Greek word "metron" meaning "measure" (Ulajaszek, 1994). Anthropometric measurements, including length or height, weight, and head circumference, it helps health care providers determine if a child is growing properly and can indicate when the children health and well-being are at risk. Additionally, anthropometric measurements assist in selecting appropriate treatment options for children and adolescents.

The following measurement which is commonly used for assessment of children is discussed in this unit.

- Weight
- Recumbent length or height
- Head circumference
- Chest Circumference
- Mid arm Circumference

Purposes of Anthropometric measurements

- To assess the general health status of the child
- To assess the general nutritional status

Measurement of Weight

Quantitative expression of body mass, which indicates state of growth and health, is

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measured in kilograms or pounds using adult or infant weighing scale.

Nursing Alert

Children less than 2 years of age – Weigh the child without clothes or a diaper using a digital infant scale. Position child in the center of the scale tray and read the measurement to the nearest 0.1 kg.

Children more than 2 years of age – Weigh the child on an electronic floor scale with increments less than or equal to 0.1 kg. Weigh young children without shoes and wearing underclothes only, unless privacy cannot be assured. For older children and young children when privacy is a concern, weigh the child wearing minimal inner clothing and without shoes. Request child or adolescent stand in the center platform of the scale and remain motionless until the measurement can be obtained. Measure the weight to the nearest 0.1 kg.

Purposes

- To check whether an infant/child has adequate weight for age
- To calculate nutritional requirements
- To calculate the quantity of intravenous fluids and medications
- To monitor the progress of weight gain or loss following treatment

Required articles

- Infant weighing scale-infantometer or Electronic floor scale
- Towel or disposable lining
- Duster
- Paper and pencil for calculation

Procedure

In case of a child less than 2 years of age including Infant

Keep the weighing scale on hard and firm surface.

1. Clean the weighing scale with duster
2. Spread a towel or disposable lining on the scale
3. Balance the scale to read zero
4. Place the weighing scale close to the wall to prevent the child from falling
5. Instruct the mother to stand beside the scale
6. Undress the child before weighing leaving diaper alone
7. Place the infant on the scale
8. Place the left hand over the infant without touching
9. Note the weight
10. Lift the infant from the scale and help the mother to dress the infant
11. Check and compare previous weight
12. Difference of more than 100 gms, needs to be clarified by rechecking the infants weight immediately. If the difference is still the same, it should be informed to the doctor concerned.
13. If the weight is in pounds and it must be converted to kilograms using conversion table.
14. Document the weight. **1 Kg = 2.2 lbs**

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In case of a child more than two years of age

1. Place the Electronic floor scale on the firm surface
2. Provide privacy
3. Undress the child allowing only minimal clothing (inner clothing).
4. Remove shoes/slippers
5. Adjust the scale to read zero
6. Request child or adolescent stand in the center platform of the scale
7. Ask the child remain motionless until the measurement can be obtained.
8. Measure the weight to the nearest 0.1 kg.
9. Check and compare previous weight
10. If the weight is in pounds and it must be converted to kilograms using conversion table.

Measurement of Length/Height

A child's length is measured in lying down position (recumbent). Height is measured in standing upright position.

Nursing Alert

If a child is less than 2 years old, measure recumbent length.

If the child is aged 2 years or older and able to stand, measure standing height.

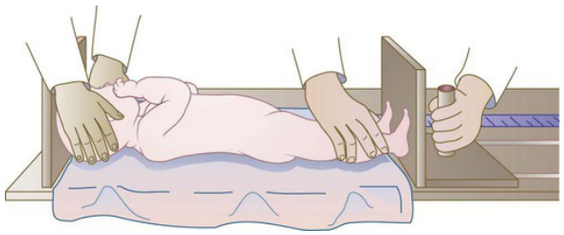
In general, standing height is about 0.7 cm less than recumbent length.

If a child less than 2 years old will not lie down for measurement of length, measure standing height and add 0.7 cm to convert it to length. If a child aged 2 years or older cannot stand, measure recumbent length and subtract 0.7 cm to convert it to height.

Equipments needed

- Length board or Infantometer
- Height scale or Stadiometer

Measurement of recumbent length



1. Place a length board on a flat, stable surface such as a table.
2. Cover the length board with a thin cloth or soft paper for hygiene and for the baby's comfort.
3. Lay the child on his back with his head against the fixed headboard, compressing the hair.
4. Quickly position the head so that the child's eyes should be looking straight up.
5. Ask the mother or helper to move behind the headboard and hold the head in this position.
6. Stand on the side of the length board where you can see the measuring tape
7. Check that the child lies straight along the board and does not change position.
8. Shoulders should touch the board, and the spine should not be arched.
9. Hold down the child's legs with one hand and move the footboard with the other.
10. Apply gentle pressure to the knees to straighten the legs as far as they can go without causing injury.
11. If a child is extremely agitated and both legs cannot be held in position, measure with one leg in position.

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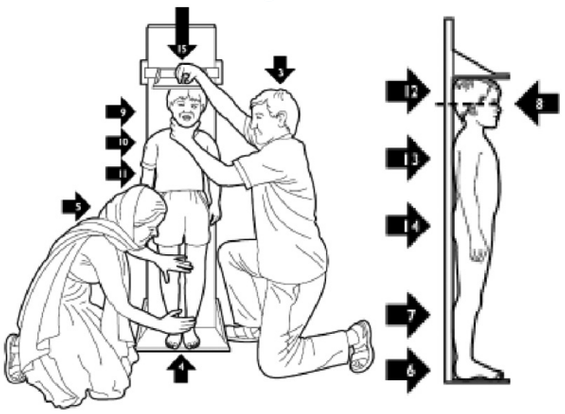
12. While holding the knees, pull the footboard against the child's feet. The soles of the feet should be flat against the footboard, toes pointing upwards.
13. Read the measurement and record the child's length in centimetres to the last completed 0.1 cm. This is the last line that you can actually see. (0.1 cm = 1 mm)
14. Remember: If the child whose length you measured is 2 years old or more, subtract 0.7 cm from the length and record the result as height.

Measurement of Height



1. Mount a stadiometer at a right angle between a level floor and against a straight, vertical surface such as a wall or pillar.
2. Ensure that the height board is on level ground.
3. Remove shoes, socks and hair ornaments from the child.
4. Help the child to stand on the baseboard with feet slightly apart. The back of the head, shoulder blades, buttocks, calves, and heels should touch the vertical board.
5. The trunk should be balanced over the waist, i.e., not leaning back or forward.
6. Ask the mother/helper to hold the child's knees and ankles to help keep the legs straight and feet flat, with heels and calves touching the vertical board.
7. Position the child's head by holding your thumb and forefinger over the child's chin.
8. If necessary, push gently on the tummy to help the child stand to full height.
9. Still keeping the head in position, use your other hand to pull down the headboard to rest firmly on top of the head and compress the hair.
10. Read the measurement and record the child's height in centimetres to the last completed 0.1 cm This is the last line that you can actually see. (0.1 cm = 1 mm)
11. Remember: If the child whose height you measured is less than 2 years old, add 0.7 cm to the height.

Articles required for measuring circumference

- Inch tape / measuring tape
- Marker pen
- Paper for recording.

Measurement of Head Circumference

1. Place light drape or paper on flat surface
2. Place infant/child in supine position or seated on paper drape if the child could sit.
3. Use a measuring tape that cannot be stretched
4. Place tape measure over the most prominent point of the occiput, around the head just above the eyebrows and pinna. This point should be taken as head circumference.
5. Take the measurement to the nearest 0.1 cm

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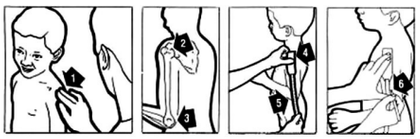
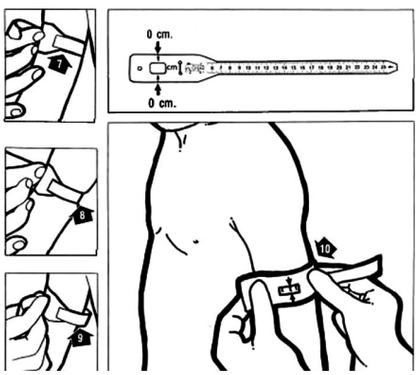
Measurement of Chest Circumference

Place tape measure underneath the back of baby/child and bring it to front measured at nipple line gives the chest circumference.

Measurement of Mid-Arm Circumference





1. Instruct the child to stand with their back to the measurer and their arms hanging by their sides.
2. Palpate for the acromion process and mark.
3. With the child's arm flexed at 90°, palpate for the olecranon (tip of the elbow) and mark
4. Using a tape measure, measure the distance between the mark at the acromion and the mark at the olecranon. Whilst still holding the tape in place, make a short horizontal line at the mid-point. This line marks the middle of the upper-arm (i.e. if the tape measure shows that the measured distance between the acromion and olecranon is 32.6cm then the mid-point mark should be drawn at16.3cm).
5. This marks the level at which the circumference will be measured.
6. Ask the child to relax and to keep their arm hanging by their side. This is important as a very different reading may be obtained if the arm is not fully relaxed.
7. Align the tape around the upper arm such that the mid-point mark is situated between the two parts of the tape. Ensure the tape is horizontal. Make sure the tape is not pulled too tight. It should rest on the skin but not indent it.
8. Make measurement of mid upper arm circumference and record it.

Success story of a baby born preterm

Baby Vinay (name changed) was born on October 23, 2014 at 4.24 pm by emergency c-section, weighing 1.8 kg and 36.5 cm long at 30 weeks of gestation. Since he was a preterm as well as a low birth weight baby, he was kept in Neonatal Intensive Care Unit for further management. He was connected to a ventilator to maintain his breathing and oxygenation. He had a very bad case of jaundice and was on phototherapy. He could not suck breast for milk. So he was put on Ryle's tube and he was fed with expressed breast milk. His mother pumped breast milk for Baby Vinay. It took two weeks to hold the baby, cuddle and gently caress the child. Meanwhile, he got treated for his infections. It was a hard and long journey for Vinay to come out of NICU. Now he has grown to be a 4 years old healthy baby without any complications. He is able to perform all the activities as expected from a 4 year old. He is making his mommy and daddy very proud!

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Practical 7

HOME NURSING

Home is always associated with comfort, security and positive feeling.

Learning Objectives

- On completion of this chapter the learner will be able to
- List out the purpose the health assessment
- Describe the technique followed during physical assessment

Introduction

A home is where you feel cared for and comfortable. Elderly persons choose to be at home than cared in the hospitals during acute and chronic illnesses. Home nursing services comprises a wide range of health care which can be handled easily at home. The services provided are based on the needs of the individual and family. Home care is planned, coordinated and made available by providers organized for the delivery of home care. Recently there has been a shift of community based care. The nurse is a valuable team member home health care service.

Definition

Home care (Domiciliary care)

1. Home care is the supportive health care provided in the home.
2. Home Care may be provided by licensed health care professionals who provide medical treatment or by professional caregivers who provide daily assistance to ensure the activities of daily living are met.

Purposes of Home health care

1. Promotion, maintenance and restoration of health
2. Minimizing the effects of illness and disability

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3. Prevention of disease
4. Treatment of illness
5. Relief of suffering and promoting the comfort of the client
6. Support and assurance to patient and family

Principles of Home care

1. Establish good interpersonal relationship with family and others.
2. Collect information regarding the family size, education, occupation, religion, customs, and traditions.
3. Identify the health problem and set Priorities to deal.
4. Proper Health Education
5. Help the family members to plan and carry out the needed action.
6. Help the family to meet their needs and to improve the health, nutrition and the welfare of the family.
7. Coordinate with Health Care team.

Types of Home Care

1. Home based Primary care
2. Transitional care
3. Population focused Home care
4. Hospice care

Persons Who Provide Home care

a) Registered Nurse
b) Physiotherapist
c) Occupational Therapist

Conditions which can be dealt in the home.

- Wound Care - Pressure sores or Surgical wound
- Care of the old age and handicapped persons
- Patient and caregiver education (Health Education)
- Intravenous Nutrition therapy
- Rehabilitation therapy
- Vaccination against infectious diseases such as H1N1, Typhoid and Hepatitis
- Post operative care - pain, feeding, respiratory and fluid management
- Urinary Catheterization Care
- Oxygen Administration
- Injections or IV infusion
- Physiotherapy

Advantages of home health care

1. Cheaper
2. Effective
3. Personalized nursing care at home setting
4. Convenient
5. Helps to recover faster
6. Gives an older adult a some of independence by offering an important measure of control over day to day events.
7. Home care improves quality of care provided and increased patient satisfaction.

Role of a Nurse in Home care

1. Monitor vital signs
2. Regular monitoring of the treatment course.
3. Pain management and relief from discomfort.
4. Provision of safety measures at home.
5. Educate the patient and family members regarding self care.
6. Coordinate and communicate with the doctor regarding the course of treatment.

1. Care of the sick in the Home

The health personal may be called to see the person who is sick in the home and realizes the individual needs of the family members and take care of them according to the needs.

Assess the Patient carefully in good light

- General appearance
- Colour of the skin, eyes or any other signs of illness

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- Assess the condition of ears, mouth, tongue, throat and tonsils
- Observe for any other gland enlargement and discomfort in abdomen
- Observe for any wound, swelling, scars, patches, sores, rashes or loss of sensation and behaviour
- If it is a child, observe road to health card and immunization status

Role of Nurse

- Give treatment depending upon the nursing diagnosis as per the standing order.
- Measures to relieve symptoms such cold compress, hot water bag, eye care, etc.,

Refer if any sign/symptom which cannot be managed at home. **BAG TECHNIQUE**

The Community health bag is designed to carry equipment and material needed during a visit to the home, school or factory. Equipment and material are needed to make tests and to demonstrate patient care such as eye irrigation, application of ointments and medications. (TNAI)

It contains basic medications and articles which are necessary for giving care.

Objective

The objective of using community health bag in a systematic method is "to be able to carry out nursing procedures in the family with improvised equipments articles available at home.

Purposes

1. To prevent carrying of infection from one patient to another and from one place to another by keeping bag and its contents as clean as possible.
2. To demonstrate the principles of cleanliness to patients and family members by using the bag in orderly way.
3. To carry out selected procedure, demonstrations, teaching and follow up services for patients and family members

Principles

1. The use of the bag technique should minimize prevent the spread of infection from individuals to families, hence, to the community
2. Bag technique should save time and effort
3. Bag technique should show the effectiveness of total care given to an individual or family.

The Bag

1. The bag should be made of canvas, leather or light metal.
2. It should be such that it can be carried by the hand or on the shoulder.
3. The bag should have outside pockets for keeping a not-book, tape measure, newspaper or plastic sheet, towel, soap in a soap dish and nail brush.

USES

1. Provide antenatal, intra natal and postnatal care to mother and child.
2. Perform certain diagnostic procedures such as Hb testing, urine testing for early detection of high risk cases and provide timely treatment.
3. Demonstrate certain Procedures to family members or community such as preparing oral dehydration solution (ORS),baby bath, application of benzyl benzoate in cases of scabies.
4. Provide emergency and first aid services (+) in case of accidents and minor ailments. Provide and demonstrate care in case of communicable diseases such as chickenpox.

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5. Provide follow up services in chronic illness such as diabetes, paraplegia or amputation. Access the need of individual and families and give health education in care of malnutrition, environmental hazards, home accidents and immunization etc.

Outer pocket: is used for keeping a dairy to maintain records, clean paper bags and a square piece of newspaper or plastic sheet to keep the bag on. The other one is used for keeping things for hand washing. Internal Compartments - These are used for keeping solutions and medicines for internal and external use, simple instruments for dressing, articles for certain procedures such as temperature taking, urine testing, antenatal examination and few additional things for health teaching

Procedure

1. Spread the news paper on a flat surface and place the bag in a clean area and place the bag on it
2. Wash the hands with soap and water
3. Take out only the needed things to carry out the procedure.
4. Record all relevant findings about the client and members of the family.
5. Take note of environmental factors which affect the clients/family health.
6. Assess effectiveness of nursing care provided.
7. Clean the bag daily, protect from excessive heat or rain to reserve it in a good condition.
8. Replace the drugs, dressing and linen daily in the bag. Empty all the contents, wash the bag with soap and water once in a week or more frequently depending on how much it has been used and dry it the sun.
9. Wash the articles such as instruments, linen and utensils with soap and water and boil them.
10. Replace cotton or plastic bags containing swabs and dressing with sterile one.
11. Check gloves, catheters, thermometer and glass articles, replace if spoilt or broken.
12. Repack the bag in an orderly way.
13. Keep the bag ready for next visit with all equipment.

Topics for Health Education

1. Cause of illness
2. Cleanliness and disinfection
3. Good ventilation
4. Rest and sleep
5. Proper Diet
6. Nursing Care such as change of positions to prevent bedsore.

Community health nurse is responsible to provide primary health care in the community

Treatment of minor ailments and emergencies is an important component of community health nursing. Nurse should be able to identify the signs and symptoms of a patient and treat them according to the standing orders.

Standing orders are the specific instructions which should be followed during the non availability of doctors, nurses only to supply and/or administer prescribed medcines and some controlled drugs It should be followed in temporary basics / or in emergency situation.

General standing orders. Eg – in case of diarrhea – ORS PACKET

General Minor Ailments

- Injuries and Falls
- Dog Bite
- Burns
- High Fever
- Heat Stroke
- Diarrhea
- Fainting Etc

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Assessment of Minor Ailments

1. Collect history
2. Perform quick physical examination
3. Find out the cause
4. Find out the diagnosis and planning for care
5. Provide treatment and nursing care
6. Evaluate the care and condition of the patient

- If the outcome is successful ,plan for follow up
- If condition does not improve or serious signs – refer to hospital

FEVER

S.No	Procedure Steps	Action
1.	Monitor vital signs	
2.	Collect all information about other symptoms accompanying the fever – head ache , nausea , vomiting, shivering cold running nose, allergy , skin infection, jaundice, fits, cough	
3.	Provide rest and light meal to the patient	
4.	Prepare blood slide to examine malaria parasite	
5.	Give paracetamol tablet as per order	
6.	Give lots of liquids to the patient	
7.	If the fever is more than 102 deg F – tepid sponge	
8.	Monitor the pattern of fever and wait for two days	
9.	If the fever is accompanying with rashes- isolate the patient	
10.	In case of delirium, convulsions, unconsciousness and hyperpyrexia accompanying the fever refer the patient to the hospital	

S.No		Action
1. DIARRHOEA		
	Monitor the symptoms of dehydration	
	If the dehydration is severe or the patient is in the state of shock – refer him to hospital	
	Provide ORS to the patient	
	Rice water, coconut water, lemon juice, light tea, banana should be given to the patient	
	If there is epidemic of diarrhea sample should be send for stool test	
	If cholera is prevalent immunization should be taken	
	Food and water should be protected	
	Notification should be done	
2. INJURIES AND FRACTURES–SKELETAL		
	Clean the wound with soap and water	
	Apply the spirit around the place of wound	
	Apply Betadine solution and bandage the wound with sterile solution	
	Monitor the condition of the patient	
	Treat the patient for shock	
	Immobilize the fractured area	
	Give analgesic and TT	
	In case the wound is large and need suture , or caused by bullet or weapon refer to hospital	

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Standing orders for MCH CARE		
	Give tablets to check vomiting and nausea in early stages of pregnancy	
	In case of toxemia of pregnancy , advice her restricted salt diet and complete rest	
	Send to hospital if there is edema/ APH / PPH	
	If the mother develop fever after delivery try to ascertain the cause	
	Keep newborn in proper warmth	
	Initiate breast feeding	
	Convulsions in children	
	Lie down the child safely on a bed	
	Loosen the clothes from the chest and let the fresh air pcome	
	Clean the secretions from his mouth and let the respiratory tract function properly	
	In case of fever give cold sponge	
	Evaluate the cause	
	Hemorrhage	
	Lie down the person on back	
	Take BP	
	Press a pad on the site of bleeding	
	Give him liquids	
	Try to find out the cause of bleeding	
	Monitor the state of shock and in case of bleeding or condition of shock getting out of control send the patient for further treatment	
	Unconsciousness	
	Lie down the person in a well ventilated area	
	Remove dentures	
	Clean the secretions from mouth	
	Loosen the clothes from neck, chest and waist	
	Provide artificial respiration in case of blocked breathing	
	Try to find out the reason	

Role Of Community Health Nursing

1. History collection / assessment
2. Finding out the actions/ complications and any specifications
3. Vitals monitoring
4. Identifying the needs and problems
5. Nursing services under standing orders
6. Implementing referral system
7. Informing authorities – outbreak of diseases
8. Keeping medicine kit ready
9. Representing nurses view point in meting
10. Being careful about limits
11. Ensure safe and healthy environment

Wound Care

Wound

A wound is any break in the skin or deep tissue. Normally the skin heals quickly on its own. Wounds that don't heal easily are called chronic wounds. They require special care to heal.

Care of the Feet for Diabetic patients at Home

People who have Diabetes are vulnerable to nerve and vascular damage that leads to loss of sensation and poor circulation which results in poor wound healing mostly feet is

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affected. Foot care aims in reducing damage from occurring to the feet and regularly checking feet for any signs of damage.

Purposes

1. To maintain skin integrity
2. To provide sense of comfort and well being
3. To prevent foot ulcer
4. To identify callus, corns and circulation problem and treat them early
5. To promote self care
6. Inspect feet daily.

7. Bathe feet in lukewarm, never hot, water.

8. Be gentle when washing feet. ...
9. Moisturize your feet but not between your toes.
10. Cut nails carefully.
11. Never treat corns or calluses yourself.
12. Wear clean, dry socks.

Regularly examine the feet for signs of damage, especially one who is suffering from poor circulation and numbness.

Signs of foot damage:

- Cuts
- Bruising
- Swelling
- Grazes
- Sores
- Changes in colour
- Ulceration
- Hard skin
- Any cracking from dry skin.

Articles required

1. Mackintosh
2. wash cloth
3. Soft towel
4. Wash Basin
5. Warm water
6. Soap
7. Lotion
8. Disposable gloves
9. Nail clippers

S.No	Procedure	Action
1.	Wash hands	To prevent infection
2.	Provide a comfortable position to the patient	To promote comfort

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3.	Fill the 3/4th of the basin with warm water 100*F-104*F. Place the Rubber Mackintosh under the basin and soak the client's feet in the basin	Warm water softens nails and improves circulation. Make sure that the water is not too hot because diabetic clients will not have sensation in the feet.
4.	Allow to soak feet for 20 minitues	Softening allows easy removal of dead epithelial tissue and prevents the nails from crackling.
5.	Apply soap and wash thoroughly	Soap application and washing prevents dirt from the feet
6.	Dry the feet thoroughly with soft towel specially between the toes	Soft towel is good for easy absorption and drying in between the toes. It helps to prevent the bacterial growth.
7.	Apply water soluble lotion	To prevent skin break due to the dryness
8.	Replace the articles	
9.	Record the procedure	
10.	Educate and ask the patient to care the feet daily	To prevent complications
11.	Explain the dangers of bare foot	Patient may not be aware of the injury due to the Loss of sensation
12.	Educate the clients to follow dietary pattern To avoid smoking and drinking alcohol	To prevent further complications

Foot examinations

Regular check-up from a health professional at least once each year. Foot must be examined for the following

- Signs of neuropathy or development of neuropathy
- Blood circulation
- Any signs of damage

Management of Diabetes will help to prevent from foot complications

- An appropriate treatment regime
- Healthy and balanced diet
- Healthy life style, and regular exercise

What is a diabetic foot ulcer?

A diabetic foot ulcer is an open wound or sore, commonly located on the bottom of the foot, in a patient with diabetes. It may be due Nerve damage and Blood circulation problems.

Wound care

Definition

Wound care refers to specific types of treatment for pressure sores , skin ulcers and other wounds that break the skin. Proper wound care is important to prevent infection.

Dressing is used by a doctor, caregiver and/or patient to help a wound heal and prevent further issues like infection or complications. Dressings are designed to be in direct contact with the wound, which is different from a bandage that holds the dressing in place.

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Types of Dressing (7 types)

1. Hydrogel
2. Colloid
3. Hydrocolloid
4. Alginate
5. Foams
6. Clothe dressing
7. Transparent dressing

Purposes of wound dressing

1. Protect the wound from infectious microorganisms
2. Promote Healing by absorbing drainage
3. Promote homeostasis
4. Protect the wound site with dressing

Articles required for wound care

S.No	Articles	Purpsose
A sterile Tray containing (Dressing pack)		
1.	Artery forceps - 1	To clean the wound
2.	Dissecting forceps -2	
3.	Scissors - 1	For debridement of the wound
4.	A small bowl	To keep the solution for cleaning the wound
5.	Sterile cotton balls	To clean and dress the wound
6.	Sterile Gauze Pieces	
7.	Sterile Pads	
8.	Sterile Gloves	To protect and prevent infection
9.	Sterile Towel	To create a sterile area around the wound
10.	Sterile Bandages	
A unsterile Tray contains		
1.	Cleaning solutions (Betadine, Hydrogen peroxide, Normal saline)	To clean the wound
2.	Antiseptic ointment (Povidone)	To apply on the wound
3.	Bandages, Adhesive Plaster	To fix the dressing in its site.
4.	Transfer forceps	To transfer the sterile articles and dressing
5.	Vaseline gauze (in a sterile box)	To prevent the dressing sticking on the wound
5	Mask, Apron	To protect and prevent the transmission of infection
6.	Sterile swab sticks in a container	To apply medications if necessary
7.	Kidney tray	To discard the waste
9.	Mackintosh and towel	To protect the patient and bed

Procedure

S.No	Action	Rationale
1.	Tie the mask	To prevent infection
	Wash hands with soap and water or an alcohol-based hand rub	To prevent cross infection
2.	Use sterile gown, gloves, etc., as required	To protect from contamination.

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3.	Gently and slowly remove the tape or dressing.	
4	Lift the edges of the dressing toward the center of the wound, then gently lift it from the wound.	
5.	If the dressing sticks to the wound, soak it with saline solution	To help loosen it.
6.	Carefully discard the old dressing into a plastic Dust bin. (BMW).	
7.	Remove the gloves and wash your hands again	To prevent infection
8,	Open the sterile dressing pack and spread the sterile towel around the wound	To create a sterile area around the wound
9.	Note the type and amount of drainage present	
10.	Ask the second person to pour sterile solution in to the sterile bowl	To maintain sterilization
11.	Clean the wound from centre to the periphery and discard the gauze after each stroke. After thoroughly cleaning of the wound, dry the wound using the same technique	Cleaning should be done from the cleanest area to the less clean area To keep the wound as dry as possible
12	Apply the medication as ordered	To promote wound healing
13	Apply the sterile gauze pieces and cotton pads	Application of cotton on the wound may stick on it.
14	Secure the dressing with adhesive plaster	If it is not fixed properly it will fall down
15	Remove the gloves and discard it in to the waste bin	Proper disposal is important to prevent the spread of infection

After care

Help the patient to dress up and take a comfortable position in the bed. If the bed is soiled during dressing, change the bed.

1. Replace the linen.
2. Replace the articles in its place.
3. Remove the mackintosh and towel.
4. Wash hands and record the procedure
5. Ensure the cleanliness of the patient and his surroundings.

Preparation of ORS

Preparation of ORS treats dehydration caused by severe diarrhea through the replacement of fluids. Sugar, salt and water - this simple mixture saves the life. Easy to prepare and administer in the home. ORS empowers parents with the first line of treatment of children suffering from diarrhea. ORS pocket is readily available which can be prepared by mixing with clean water. Put the contents of the ORS pocket in a clean container. Check the pocket and add the correct amount of water. When the ORS pocket is not available, we should prepare ORS with available things at home.

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Diarrhea usually cures itself in 3 or 4 days with rehydration (Drinking a lot of fluids). Loss of fluid and nutrients from the body which can cause dehydration and malnutrition.

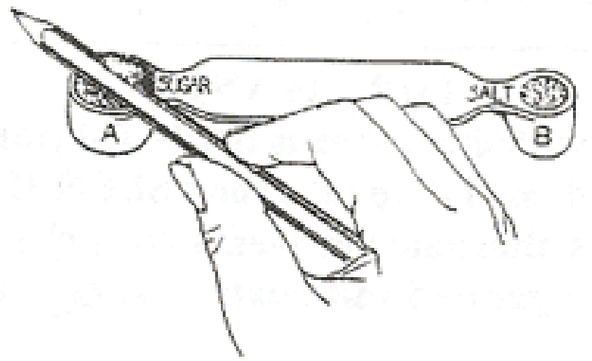
The best treatment for diarrhea is to

- Drink lots of liquids and Oral Rehydration solution. It is available in pockets.

Oral Rehydration Solution

The spoon is used for measuring sugar and-salt has a large end (A) is for sugar. The small end (B) is for salt.

Using the spoon



Spoon for ORS Preparation at Home

Preparation of ORS at HOme

1. Make the sugar and salt flat.
2. Put the sugar into the glass of water with the salt.
3. Mix the water (250ml), sugar and salt.
4. Taste before drinking. If it is very salty throw it away and start making the drink again. It should not be more salty than tears.
5. **Important** Too much salt is dangerous. Use only small spoon of salt in one glass of water.
6. Drink ORS slowly.
7. Take about 10 minutes to drink it.
8. Men and women must drink 2 glasses after every stool. Children must drink 1 glass after every diarrhea stool.

Fluid Replacement amount

Vomiting

After drinking, the child or adult may vomit the sugar, salt and water. Do not worry. Continue giving the drink. Give a little more to replace what has been vomited, and give it very slowly without forcing. Encourage the child to drink a diluted cereal as well as the sugar and salt mixture. Eating or drinking a cereal food (such as rice or maize) may reduce stool volume by half.

When to seek help when the person with diarrhea:

1. Very small baby;
2. Green colour vomit;
3. becomes more ill;
4. does not answer clearly when spoken to.
5. Continue using the salt, sugar and water until help comes.

Nursing care at Home for the follow up care

Home care is done by the health care provider for the following various disease conditions and surgeries.

They are

a) Pneumonia
b) Laryngectomy
c) Pulmonary tuberculosis
d) Cardiac surgery
e) Bronchial asthma
f) Mastectomy
g) Coronary artery disease
h) Client with casts
i) Diabetes mellitus
j) Ostomy such as gastrostomy
k) Hypertension
l) Ortho surgeries
m) Anemia
n) Arthritis
o) Blindness
p) Cancer
q) Cerebro vascular disease

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r) Mentally challenged conditions
s) Epilepsy / fits

The role of nurses at home in generally on the aspects of

a) Activity / rest
b) Circulation
c) Elimination
d) Food and fluids
e) Hygiene
f) Monitoring / surveillance
g) Safety
h) Ventilation

Activity and rest: In activity and rest the nurses role is on

- Active and passive range of motion exercises
- Body mechanics
- Low back pain exercises
- Post Mastectomy exercises

Active and passive range of motion exercises

They are those that take the body joints through their extent of movement. Their purpose is to maintain joint function and muscle tone. Ranges of motion exercise are categorized according to the independence of performance.

Active range of motion exercise:

Those performed independently by client.

Assisted Range of motion exercise:

Those the client can partially perform but requires some assistance for the whole performance.

Passive range of motion exercise:

Those exercise the client is unable to perform and that requires total assistance from another person.

The nurse role is to teach the client and family to

a) Perform each exercise accurately
b) Perform the exercise consistently
c) Integrate the exercise in other daily activities such as bathing. Watching television, or playing games.

Elimination:

The aspects of eliminative home nursing care are

a) Providing assistive devices
b) Bladder training program (incontinence)
c) Bowel training
d) Enema administration
e) Care of indwelling catheter
f) Ostomy care
g) Supra pubic catheter care

Providing assistive devices for elimination: The bedpan and urinals are devices used to collect faeces and urine. They are used in home primarily for clients who are unable to ambulate to toileting facilities. The placement of bed pan, urinal and evaluate the body alignment of the client should be observed. The sacral area, perineal area and rectal area should be taken care.Bladder training programme (incontinence). The term urinary incontinence refers to inability of external urethral. Sphincter to control the urinary flow from the bladder, A bladder training program consisting of exercise of sphincter to reduce the frequency of urinary incontinence. The program is lengthy one. Motivation, persistence and family support are essential to the success of the program.

e) Hygiene:

The home care aspects in hygiene are:

a) Baths
b) Douche
c) Eye care
d) Ear care
e) Foot care
f) Oral care

Bathe: Bathing is used to cleanse the body of dirt and debris that accumulates due to direct contact and elimination of waste through the skin. Complete bed bath is given when the client is completely bathed in the bed.

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Foot Care: The feet of ill bed ridden clients are easily susceptible to infection and other problems because the feet are far away from the heart than any other body part, they are most compromised by vascular conditions that interfere with normal circulation.

Conditions that generally affect bed ridden client include

1. Foot drop is a deformity in which the foot is extended abnormally at the ankle in the direction of the sole of the foot.
2. Intermittent claudications is a severe pain in the calf muscles caused by inadequate circulation. It usually occurs during walking, but subsides with rest.
3. Ulcers and gangrene are common side effects of diabetes. They occur because of inadequate circulation to the foot which retards natural healing process.

Oral Care: Cleansing of the mouth , teeth and gums is important to maintain the client's sense of well being as well as to prevent tooth decay and infection. Dental caries are the areas of localized destruction of tooth tissue by bacterial action. Caries are actually caused by acid production by bacteria which forms colony on the tooth surface.

f) Monitoring and surveillance:

The aspects of home health care which comes under monitoring and surveillance are

a) Neurological signs evaluation.
b) Urine glucose testing.
c) Vital signs.

Neurological Signs Evaluation: Neurological evaluation of the client can be obtained by objective and subjective data that are gathered through series of tests and evaluation techniques. The neurological status evaluation may be indicative of deteriorating condition or assessment of cognitive state. This is particularly important in home when traumatic injury is evaluated on when progressive neurological involvement may be side effect of medication therapy.

Urine glucose testing: Urine glucose testing is used to assess the status of person's diabetic condition. Diabetic results from body's inability to utilize food efficiently. When food is digested, it is broken into glucose, which is stored in liver and muscle tissue in the form of glycogen. Insulin facilitates the storage process. Diabetics do not produce sufficient insulin: therefore blood glucose levels rise to abnormally high levels. The normal fasting level of blood glucose is approximately 60 mg/dl to 115 mg/dl. Glucose does not appear in urine until the blood level reaches 180 mg/dl. Therefore, urine glucose level may be interpreted as reflection of actual blood glucose level.

Vital signs: Measurement of vital signs is done. To assess the physiological status of the client in relation to those vital canters of the body those are necessary to sustain life. The vital sign indicators are temperature, pulse, respiration and blood pressure. The temperature may be taken by oral, rectal or axillary route. The pulse may be measured by palpation, on auscultation of chest area; blood pressure is measured by means of sphygmomanometer.

Hot and cold applications: Hot and cold applications are applied to the clients in order to change the tissue temperature locally on systematically for a therapeutic purpose. Insulin injection: Since the major diabetes is thought to be the lack of inadequate use of insulin diabetic therapy often includes the use of insulin, in addition to dietary and exercise control. If the diabetic has little or no insulin production, capability in the pancreas, insulin is administered. The client family will be primarily responsible for performing the procedure on a daily basis. The injection should be performed with aseptic technique.

Intravenous therapy: Because of recent changes in health care industry encouraging early discharge from hospital, increasing

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number of clients requires (IV) therapy at home. Home IV therapy can provide additional fluids and electrolytes selected, nutritional supplements, on a route for medications. Insertion of IV cannula and initiation of the infusion will usually rest with the how health nurse.

Oral administration of medications: Oral administration of medications is the least expensive and the most convenient method for clients in the home physiologically oral route is safest one. Drugs are given sublingually. Usually are intended to be absorbed in to blood vessels of the underside of the tongue. Those given basically act locally on the mucous membrane or systematically in the saliva.

Traction: Traction is applied for the purposes of immobilization and the application of force to a body part usually an extremity. Traction is used to prevent movement of a body part to decrease muscular strain, to full fractured or displaced bone in to connect alignment or prevent skeletal deformities.

Wound care: A wound is a break in the integrity of body tissue. It may be internal or external.

Wounds may also be contaminated or infected. The goal of wound care is to prevent infection and hasten healing

Ventilation: The home care of the ventilation aspects are

a) Oxygen administration
b) Suctioning

Oxygen administration: Oxygen is commonly administered in the home who require supplemental oxygen for respiratory problem such as chronic obstructive pulmonary disease. The equipment should be maintained check nasal mucosa for irritation of using nasal prongs.

Suctioning: Surgical procedures, pain and chronic medical problems such as muscular dystrophy reduce the clients' ability to cough effectively. A laryngectomy on tracheostomy will facilitate suctioning the trachea but more potential for respiratory infection. Endo-tracheal suctioning may be requiring if the person cannot mobilize suctions and does not have artificial airway in place. The technique requires more skill and usually performed by home health nurse.

Counseling services in home health care

The counseling program provides intensive. Counseling services to families in the comfort of their own home. The families typically have children between the ages of 5 and 21 who are showing behavioral on emotional concerns. The services recognize each family individual strengths and work with partners to achieve goals. Commonly addressed Issues include

a) Anger management
b) Anxiety and depression
c) Alcohol and drug abuse
d) Child discipline techniques
e) Couples conflicts
f) Different behavior such as violence
g) Grief and loss
h) Parent / child conflicts

Counseling sessions may include whatever combination of members the family feels is important to achieve their goals. The length of the treatment depends on family's unique needs.

Rehabilitation services in home nursing

Community based rehabilitation is a strategy for enhancing the quality of life of the disabled people by improving the service delivery system by providing equitable opportunities and by promoting and protecting their human rights.

Definition: Community based rehabilitation is a strategy within community developmentfor the rehabilitation, equalization of opportunities, and social inclusion of all people with disabilities.

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Objectives of community based rehabilitation

- To identify all persons with disability in the community.
- To provide required rehabilitation service to disabled people.
- To create awareness about all issues related to disability.
- To priorities service for disabled person.

Characteristics of rehabilitation

a) Reduction of disability and handicap.
b) Empowerment: The individual becoming more in control of himself and his health and life through mobilization of appropriate resources to enable his needs to be met.
c) Independence Problem – solving: Rehabilitation should aim to facilitate and develop further such as individuals problem solving skills, providing new knowledge and training for life, to enable effective decision making.
d) Client centered rehabilitation: To the notion of client centered.
e) The holistic approach**:** The concept of holism suggests total well being.

Principles of community based rehabilitation

1. Utilization of available resources in the community.
2. Transfer of knowledge about disabilities and skills in rehabilitation of people withdisabilities, families and communities.
3. Community involvement in planning, decision making and evaluation.
4. Utilization and strengthening of referral services at the district and national levels.
5. Utilization of co-ordinate approach and education, health and social systems.

Advantage of community based rehabilitations

- Home based
- Less expensive
- Existing community response and resources.
- Focus on quality rather than quantity
- Multiple approaches based on community needs.

Planning for community participation in community based rehabilitation

1. Community participation requires an understanding of the attitude of people in the community, level of participation in the program and the expected level of participation to be achieved in the future.
2. Community based rehabilitation program needs to find ways to motivate the marginalized groups of disabled persons, their families and community to follow a participating mode of development in which the local community.
3. The community should support the basic necessities of life and help to families who carry out rehabilitation at home.
4. Disabled community members and their families should be involved in all discussions and decision regarding services and opportunities provided for them.

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Practical 8

MENTAL STATUS EXAMINATION

Introduction

The mental status examination is the part of the clinical assessment that describes the sum total of examiner's observation and impressing of the psychiatric patient at the time of interview, whereas the patient's history remains stable. The patient's mental status can change from day to day or hour to hour. Even when a patient is mute or refuses to answer questions, the clinician can obtain a wealth information through careful observation.

MSE is developed by philosopher and psychiatrist Karl Jaspers.

Definition

The mental status examination (MSE) is a cross-sectional, systemic documentation of the quality of mental functioning at the time of interview.

The mental status examination is the part of the clinical assessment that describes the sum total of the examiner's observations and impressions of the psychiatric patient at the time of the interview.

Purpose

1. To make an accurate diagnosis and formulation
2. To plan for the treatment
3. To obtain evidence of symptoms and signs of mental disorders, including danger to self and others that are present at the time of interview

Precautions

The MSE cannot be given to patient

1. Who cannot pay attention to the examiner for example coma or unconscious
2. Completely unable to speak (aphasic)
3. Not fluent in the language of the examiner

Description

General appearance and Behavior

The examiner notes the person's age, sex and overall appearance. These features are significant because poor personal hygiene or grooming may reflect a loss of interest in self care or physical inability to bathe or dress oneself.

Appearance	:	Apparent to age/ older than age
Grooming	:	Normally/abnormally dressed
Cleanliness	:	Adequate / inadequate
Mode of entry	:	Willingly came / brought by force
Rapport	:	Spontaneous / not established
Facial expression	:	Happy / Sad / Anger / Cannot be described
Posture	:	Relaxed / Changing posture

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Psychomotor Activity :

- Motor activity Increased or decreased
- Abnormal involuntary movements like tics, tremors, akathisia, and restlessness
- Compulsive acts, rituals or habits (e.g.; nail biting)
- Checking rituals: in which the patient may repeatedly check the front door is closed or electrical switches are in the 'off' position.
- Cleaning rituals
- Dressing rituals
- Trichotillomania; a compulsion to pull out ones hair

Speach

Initiation : Spontaneous/ speaks when spoken to

Rate and quantity : Normal / absent (mutism)/ Increased / Decreased

Flow and rhythm speech : Rapid / Slow / Monotonous / Loud /

Relevance : Relevant / Irrelevant

Mood and Affect

Mood

Mood is defined as a emotion that colors the person's underlying perception of the world.

Observe the patients' mood during the interview and also ask how they are Feeling?

Affect

Affect can be defined as the patient's present emotional outward responsiveness; inferred from the patient's facial expression, including the amount and the range of expressive behavior.

1) Subjective data : how the patient reports prevailing mood

2) Objective data : your impression

(Elevated / Euthymia / Anxious / Irritable)

Thought Content

Thought can be divided into stream, form and content.

Stream : Normal / Thought block / Flight of ideas

Form : Word salad / Circumstantiality / Neologism

Content

Delusion : present / Absent

Phobia : Present / Absent

Preoccupation : Present / Absent

Perception

Hallucinations : present / Absent

Illusions : Present / Absent

COGNITIVE FUNCTION

Consciousness : Conscious / Alert / Drowsy / Coma

Attention : Normally aroused / Aroused with difficulty

(Attention is assessed by calculations or by asking the patient to spell the word or others forward and backward)

Concentration : Normal / Distracted

(Names of months / Names of the week days in backward)

Orientation : Oriented / not oriented

(Time / Place / Person)

Memory : Intact / Impaired

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(Recent memory : Can be checked by asking patients about their appetite and then about what they had for breakfast or for dinner the previous evening.

Remote memory : Can be tested by asking patients for information about their childhood that can be verified later.

Immediate memory : Ability to repeat three words immediately and 3 to 5 minutes later)

Intelligence : Intact / Impaired

(General knowledge / Arithmetic ability / Similarities and dissimilarities between paired objects)

Judgment : Intact / impaired

(Judgment is the ability to assess a situation correctly and act appropriately within the situation Personal / Social)

Insight : Present/ partially present / Absent

(Insight is a patient's degree of awareness and understanding about being ill)

Conclusion

The mental status examination is the part of the clinical assessment that describes the sum total of the examiner's observations and impressions of the psychiatric patient at the time of the interview. Whereas the patient's history remains stable, the patient's mental status can change from day to day or hour to hour. The mental status examination is the description of the patient's appearance, speech, actions, and thoughts during the interview. Even when a patient is mute, is incoherent, or refuses to answer questions, the clinician can obtain a wealth of information through careful observation.

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