



GOVERNMENT OF TAMIL NADU

HIGHER SECONDARY SECOND YEAR
VOCATIONAL EDUCATION
NURSING
(THEORY & PRACTICAL)

A publication under Free Textbook Programme of Government of Tamil Nadu

Department of School Education

Untouchability is Inhuman and a Crime

Government of Tamil Nadu

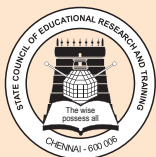
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PREFACE

Welcome to Nursing Vocational Standard XII Book, designed specially for Nursing students. It is indeed a great sense of pleasure and privilege to bring out this Text book on 'Nursing' which is the result of combined effort of many talented professionals committed to excellence.

It is done by the constant encouragement and support by the Director and Joint Director of SCERT, Chennai.

Nurses today must be able to grow and evolve in order to meet the demands of a dramatically changing health care system. This will enhance the student nurses' knowledge and skills in various aspects to meet the challenges and deliver the quality nursing care.

The book has a flavour of its own both in scope and content. The major thrust has been emphasized to make this book more students friendly catering to their requirement of this course.








In this text book, new chapters like Communication skills, Guidance and Counselling are included. Apart from the new chapters, each chapter has been framed with learning objectives, more pictorial representations, relevant examples, Do you know facts student's activity, illustration, case histories, self evaluation questions, QR Code and ICT corner for in depth learning?

This textbook will also be a foundation course for the Diploma in Nursing (DGNM) followed by Degree in Nursing B.Sc., (N) and can go up to Doctorate in Nursing (Ph.D.)

Utmost care has been taken to ensure that this book continues to be valuable and serves the nursing community. The subject content has been developed, refined and reconstructed at several points as per the current perspectives.



How to use the book?

Introduction		Student should 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 in depth 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.
Conclusion		An outline map of the entire information given in gist.
Glossary		Detailed meaning in English and Tamil for new terms.
Evaluation		To analyse the understanding of the topics.
References/ Weblinks		Basic raw materials used for the birth and development of the text.



CAREER GUIDANCE

UG DEGREE COURSES

- B.Sc., Computer Science
- B.Sc., Clinical Nutrition and Dietetics
- B.Sc., Home Science
- B.Sc., Human Development
- B.Sc., Botany
- B.Sc., Zoology
- B.Sc., Speech Therapists and Audiologists
- B.Sc., Physician Assistant
- B.Sc., Radiology and Imaging Technology
- B.Sc., Nuclear Medicine Technology
- B.Sc., Cardiac Technology
- B.Sc., Radiotherapy Technology
- B.Sc., Dialysis Technology
- B.Sc., Respiratory Therapy
- B.Sc., Cardio Pulmonary Perfusion Technology
- B.Sc., Operation Theatre & Anaesthesia Technology
- B.Sc., Accident and Emergency care Technology
- B.Sc., Degree in Medical Laboratory Technology

PROFESSIONAL COURSE

- Auxiliary Nurse Midwife (ANM)
- Diploma in Nursing (GNM)
- Post Basic B.Sc., Nursing
- M.Sc., Nursing
- M.phil / Ph.D Nursing

PG DIPLOMA COURSES (One Year)

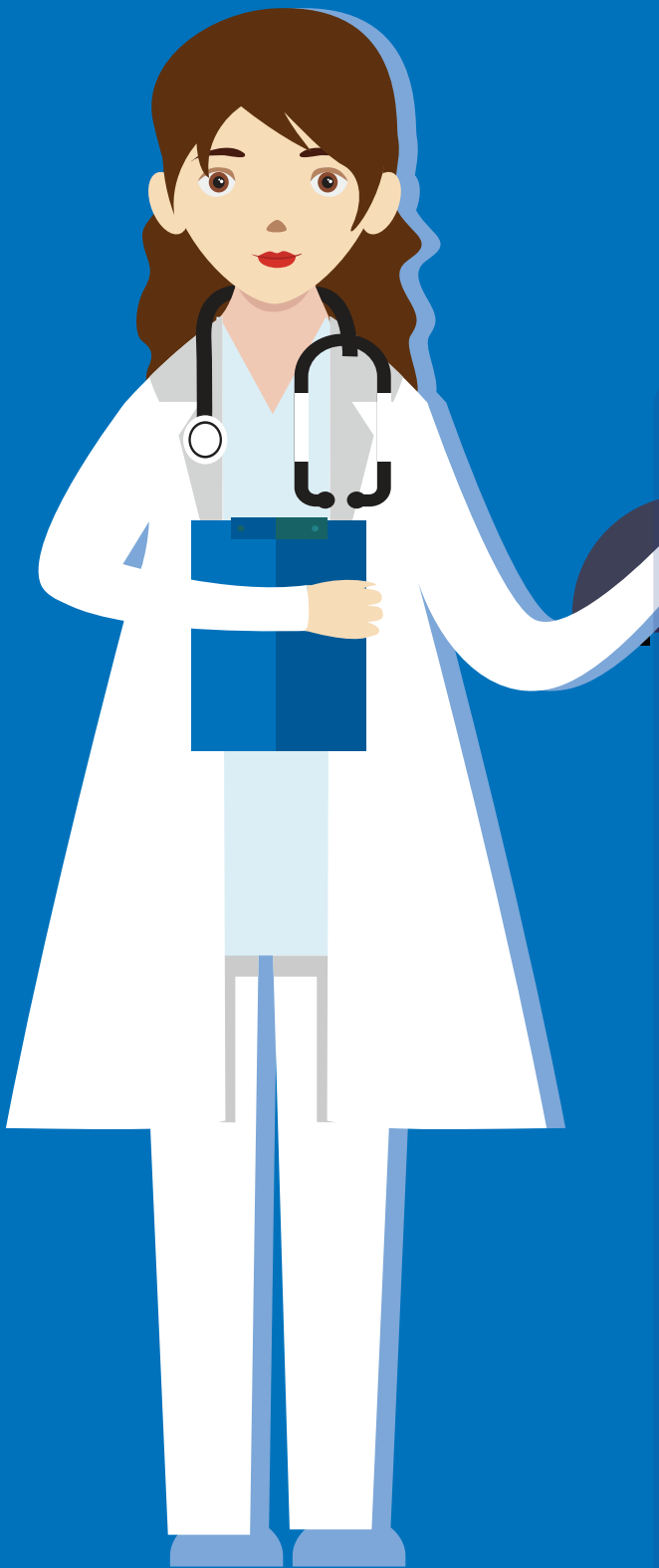
- Cardio-Thoracic Nursing
- Critical Care Nursing
- Neonatal Nursing
- Neuro Science Nursing

M.Phil & Ph.D

- Above mentioned all the courses with master degree

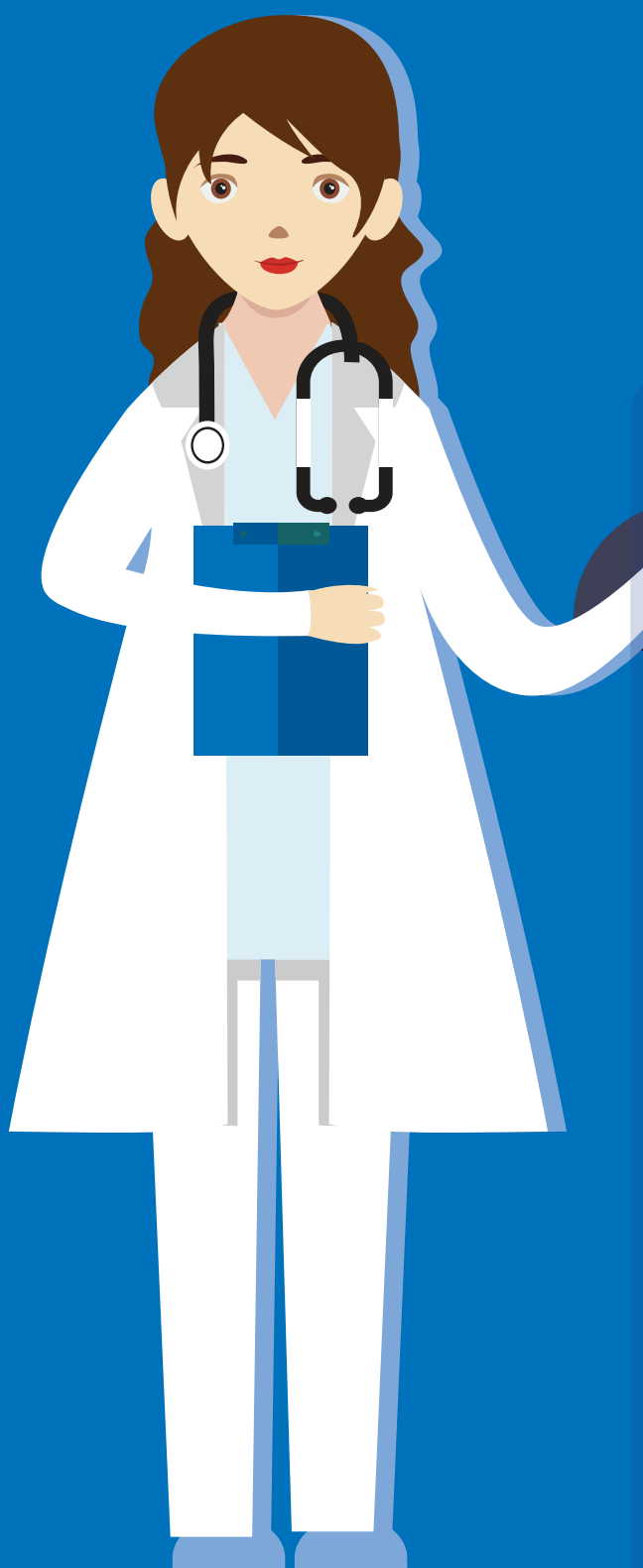
PG Degree Courses

- All the PG courses available for the UG Disciplines



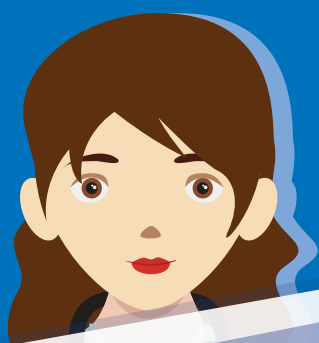
CERTIFICATE COURSE (One Year)

- Medical Transcription
- Dark Room Assistant
- Dental Assistant
- ECG Technician
- Lab Technician
- OT Technician
- X – Ray Technician
- Dental Hygienist
- Dental Surgery Assistant
- I.C.U Technician
- Nursing Care Assistant
- Radiology Assistant
- Operation Theatre Technology
- Ophthalmic Assistant
- Wellness Management Assistant
- Geriatrics Assistant
- Blood Transfusion Assistant
- New Born and Infant Care Assistant
- Multipurpose Health Worker
- Yoga & Naturopathy
- Medical Representative Training
- ECG Assistant



DIPLOMA COURSE (Two Years)

- Diploma in Radiography
- Diploma in Optometrists
- Diploma in Health Care and Hospital Management
- Diploma in Occupational Therapy
- Diploma in Orthotic and Prosthetic
- Diploma in Medical Lab Technician
- Diploma in ECG Technician
- Diploma in Cardiology Technician
- Diploma in Cathlab Technician
- Diploma in Perfusion Technician
- Diploma in Anaesthesia Technician
- Diploma in Dialysis Technician
- Diploma in Medical Imaging Technician
- Diploma in Respiratory Therapy Technician
- Diploma in Medical Sterilization Management and OT Technician



Where to Study? DGNM

(Diploma in General Nursing and Midwifery)

1. Madras Medical College, Chennai
2. Stanley Medical College, Chennai
3. Kilpauk Medical College, Chennai
4. Madurai Medical College, Madurai
5. Thanjavur Medical College, Thanjavur
6. Tirunelveli Medical College, Tirunelveli
7. K.A.P.V. Viswanatham Medical College, Trichy
8. Govt. Mohan Kumaramangalam Medical College, Salem
9. Coimbatore Medical College, Coimbatore
10. Kasthurba Gandhi Hospital for Women & Children, Chennai
11. Vellore Medical College, Vellore
12. Thoothukudi Medical College, Thoothukudi
13. Kanyakumari Medical College, Kanyakumari
14. Chengalpattu Medical College, Chengalpattu
15. Theni Medical College, Theni
16. District Head Quarters Hospital, Kancheepuram
17. Cuddalore District Head Quarters Hospital, Cuddalore
18. Ramanathapuram District Head Quarters Hospital, Ramanathapuram
19. Dindigul District Head Quarters Hospital, Dindigul
20. Uthagamandalam District Head Quarters Hospital, Uthagamandalam
21. Tirupur District Head Quarters Hospital, Tirupur
22. Nagapattinam District Head Quarters Hospital, Nagapattinam
23. Virudhunagar District Head Quarters Hospital, Virudhunagar

CONTENTS

NURSING VOCATIONAL - THEORY

Unit No.	Title	Page No.	Month
1	HOME NURSING	01-22	June
2	COMMUNICABLE DISEASES	23-53	June
3	NON COMMUNICABLE DISEASES	54-102	July
4	NUTRITION	103-140	August
5	MATERNAL HEALTH NURSING	141-179	August
6	CHILD HEALTH NURSING	180-207	September
7	GERIATRIC CARE	208-227	October
8	DISASTER MANAGEMENT	228-239	October
9	ADMINISTRATION OF MEDICINE	241-261	November
10	COMMUNICATION SKILLS	262-276	November
11	GUIDANCE AND COUNSELLING	277-291	December
	CASE STUDY	292	
	MODEL QUESTION PAPER	293-295	
	NURSING (VOCATIONAL) – PRACTICAL	296-331	



E-book



Assessment



DIGI links



Lets use the QR code in the text books ! How ?

- Download the QR code scanner from the Google PlayStore/ Apple App Store into your smartphone
- Open the QR code scanner application
- Once the scanner button in the application is clicked, camera opens and then bring it closer to the QR code in the text book.
- Once the camera detects the QR code, a url appears in the screen. Click the url and goto the content page.



NURSING

THEORY



Unit 1



HOME NURSING



LEARNING OBJECTIVES

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

- ❖ define home nursing
- ❖ explain the concept, purposes and principles of home health care
- ❖ explain the care for the challenged person
- ❖ mention the outreach and rehabilitative services
- ❖ list the home management
- ❖ explain the extended role of home nurse
- ❖ describe AYUSH



திருக்குறள்:

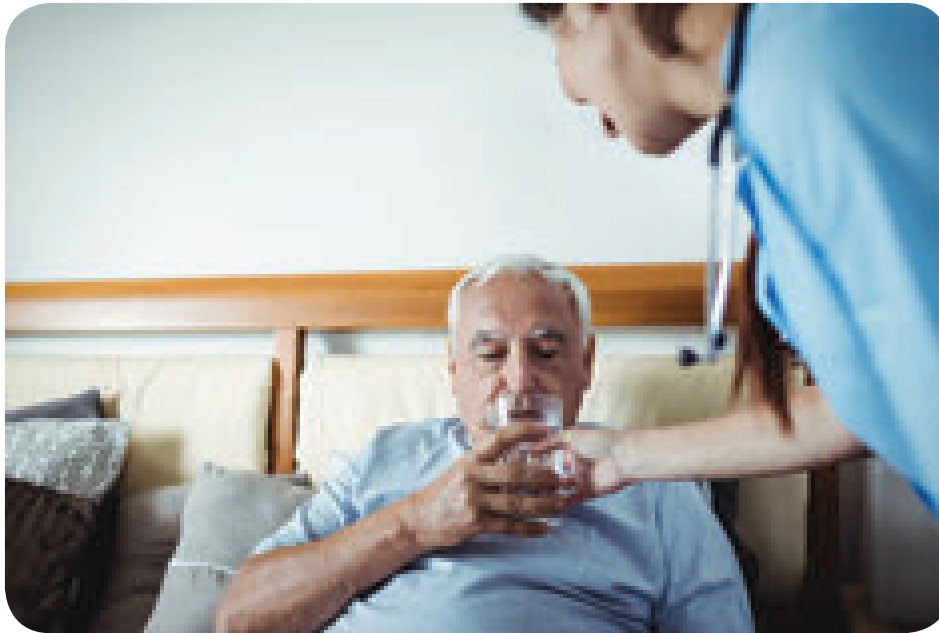
உற்றான் அளவும் பிணியளவும் காலமும்
கற்றான் கருதிச் செயல்.

விளக்கம்:

மருத்துவ நூலைக் கற்றவன் நோயுற்றவனுடைய வயது முதலியவற்றையும் நோயின் அளவையும் காலத்தையும் ஆராய்ந்து செய்ய வேண்டும்.

Explanation:

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).



“We can all make a difference in the lives of others in need, because it is the most simple of gestures that make the most significant of differences.”

– Miya Yamanouchi

1.1 INTRODUCTION

Home health nursing competencies are integrated knowledge, skills, judgement and attributes required of a nurse working in home health to practice safely and ethically. Home health nurse encompasses disease prevention, rehabilitation, restoration of health, health protection and health promotion with a goal of managing existing problems and preventing potential problems.

Home health activities includes teaching, curative interventions, end of life care, rehabilitation, support and maintenance, social adaptation and integration for the family care giver(Canadian home care association) and involving, initiating coordinating, managing and evaluating the resources needed to promote the patients maximum level of health and function

1.2 DEFINITION OF HOME NURSING

Home health nursing is a nursing speciality in which nurse provides multidimensional home care to patients of all ages.

1.3 CONCEPT OF HOME HEALTH CARE

- The concept of home health care is to mean any type of care given to a person in their home
- Home care providers render services in the patients' own home. These services may include some combination of professional health care services and life assistance services
- People wanted to be in home and to direct their care even when their health is compromised



- With the increase in aging population, concomitant chronic disease or cost of health system and the demand for high quality, places a greater demand for home care
- Home care is truly centred to a client centred approach, which puts patient at a centre of care and supports them through the care continuum
- Home health nurses are highly skilled, and got strong interpersonal skills that support a patient centred approach and have proven a positive outcome, especially in older adult, wound care and end of life care
- The current strong demand for home health nursing will only increase, and the profession is solidly positioned to evolve by means of enhanced education and support

1.4 PURPOSES OF HOME HEALTH CARE

- ❖ In response to a need felt by an individual in the family as in case of sickness, delivery, surgery
- ❖ As a part of a planned visiting programme e.g., routine prenatal visits
- ❖ To investigate the source of an infectious disease in which case you may be rejected instead of being wanted
- ❖ To follow through on some problem identified in the health centre, school, industry or hospital
- ❖ To assess nutritional and immunization status, environmental hazards and give health education
- ❖ To follow treatment and care given by family members
- ❖ To supervise and guide other health workers

1.5 PRINCIPLES OF HOME HEALTH CARE

- ❖ Plan the work so that visits are made on the basis of need; divide your intensive area into units of 800 – 1,000 population each, and plan for regular visits to the homes in selected units at a time
- ❖ Be sensitive to the person's feelings and need at the time of the visit
- ❖ Understand the other person's point of view
- ❖ Be sure of the scientific soundness of the subjects you discuss
- ❖ Use safe technical skills. Including hand washing, inspection, etc.
- ❖ Have a full understanding of your agency's policies
- ❖ Attain a working knowledge of the community resources and use them wisely
- ❖ Collect facts about the home, the patient and the environment and make an objective analysis of the facts as an initial step in visiting the home
- ❖ Work with the person and family – plan jointly
- ❖ Evaluate your own work – quality is more important than greater value than 8 or 10 casual visits
- ❖ Make a note of important facts in your diary
- ❖ On return, record facts in the family folder and/or individual health cards

1.6 HOME HEALTH CARE SERVICES

It includes various services such that

- ❖ Family health services
- ❖ Information education and communication

- ❖ Management of informative system
- ❖ Maternal and child health services
- ❖ Treatment of minor ailments
- ❖ Organising of clinics and camps
- ❖ Waste management

1.7 CARE FOR THE CHALLENGED PERSON



Challenged person is one who deviated from normal health status either physically, mentally or socially. Children who are affected that way require special care, treatment and education.

The Challenged Children can be classified as follows

- ❖ Physically challenged children: e.g., blindness, deaf, mute, harelip, cleft palate, crippled – polio, cerebral palsy, heart diseases, road accidents, burns and injuries.
- ❖ Psychological challenged: orphans, maternal deprivation, emotional deprivation, and maladjustment
- ❖ Mentally challenged children: feeble minded, mental defect and mental retardation

All these problems may be genetic or due to certain specific diseases, injuries, social factors or nutritional factors.

From the community point of view it is essential that such children in need of help should be taken care. Parents of such children should also play a major part in planning the care.

The objective of the care in such situation is to improve the physical condition, prevent further damage and then to help, secure a suitable occupation.

Major Causes

- ❖ Malnutrition – is another major disability causing factor
- ❖ Accidents on the roads and play at home can be another cause
- ❖ Genetic disorders and birth defects
- ❖ Effects of drugs

The aim of home health nursing is to assist the individual who has a disability and/or chronic illness in restoring, maintaining and promoting his or her maximum health. This includes preventing chronic illness, and disability. The home health nurse is skilled at treating alternations in functional ability, and lifestyle that result from physical disability and chronic illness.

Responsibilities of The Home Health Nurse

- ❖ To guide the parent in getting early treatment to prevent further damage and improve the physical condition, e.g., physiotherapy, through which the deformities could be corrected. This knowledge has to be imparted to parents, e.g., as in case of polio
- ❖ To provide occupational therapy. A child who is challenged can be trained to choose any craft according to his ability such as carpentry, painting, cloth weaving or mat weaving



- ❖ Prosthetics: to provide guidance in obtaining artificial limbs or a device like an artificial hearing aid
- ❖ Vocational guidance: the parent must be educated and convoked that the child can be restored to function as a useful member. Such vocational guidance, as it is called, is given in several schools in India.
 - Occupational and Physical Therapy school at Mumbai
 - Occupational Therapy School at Nagpur
 - All – India Institute of Physical Medicine and Rehabilitation, Mumbai
 - Institute of Physical Medicine and Rehabilitation, Christian Medical College and Hospital, Vellore

Besides these, there are schools specifically for the deaf and dumb, and for the blind, which are run by private organizations and by government.

- ❖ Preventive activities: Preventive steps can be adopted to limit the extent of disability. Some disabilities, e.g., due to polio or accidents can be prevented. Adequate nutrition can be maintained, so that mental retardation due to malnutrition can be prevented
- ❖ Education: Nurse can arrange for community education on the above aspects to enlighten the people. Specially, in India people associate the mishaps to ‘fate’ or curse from God. So guiding them in the right way is essential

Interdisciplinary approach in providing care to the disabled by the home health nurse

- ❖ Families are often the primary care givers of family members who are disabled. It is

important to identify strategies that promote family functioning, stability, growth, and coping

- ❖ Nursing interventions should include assessing the entire family as a unit of care
- ❖ Nurses need to assess their personal feelings, which can inhibit or enhance their ability to function effectively with persons who are disabled
- ❖ Nurses focus on preventive strategies for people who already have potentially disabling conditions to limit the occurrences, impairment and functional limitation
- ❖ Nurses promote self care, self management and self advocacy
- ❖ Nurses provide health education interventions which include teaching clients about their conditions, community resources, self management, self care and self advocacy
- ❖ Nurses assist clients in learning how to find and utilize community resources

Mental Retardation

Mental retardation is a condition of both clinical and social importance. It is characterized by limitations in performance that result from significant impairments in measured intelligence and adaptive behaviour.

Mental retardation is defined as:

- Significantly sub average general intellectual functioning (IQ below 70)
- Significantly deficit or impairment in adaptive functioning
- Which manifests during the period of development (before 18 years of age)

Types

- Mild mental retardation (IQ 50 - 70) 85% of the total mental retardation
- Moderate MR –(IQ 35 - 49) 12% of the total MR. Most of them can talk and learn
- Severe MR(IQ 20 - 34) 7% of the total MR. Only few of them learn to care for themselves completely

Responsibilities of home health nurse in care of the mentally retarded

Primary prevention

- Good antenatal check – up
- Improving socio – economic status
- Education
- Facilitating research to identify the genetic counselling cause

Secondary level

- Early detection of defects and correction
- Prevention of child abuse and sexual abuse

Tertiary prevention

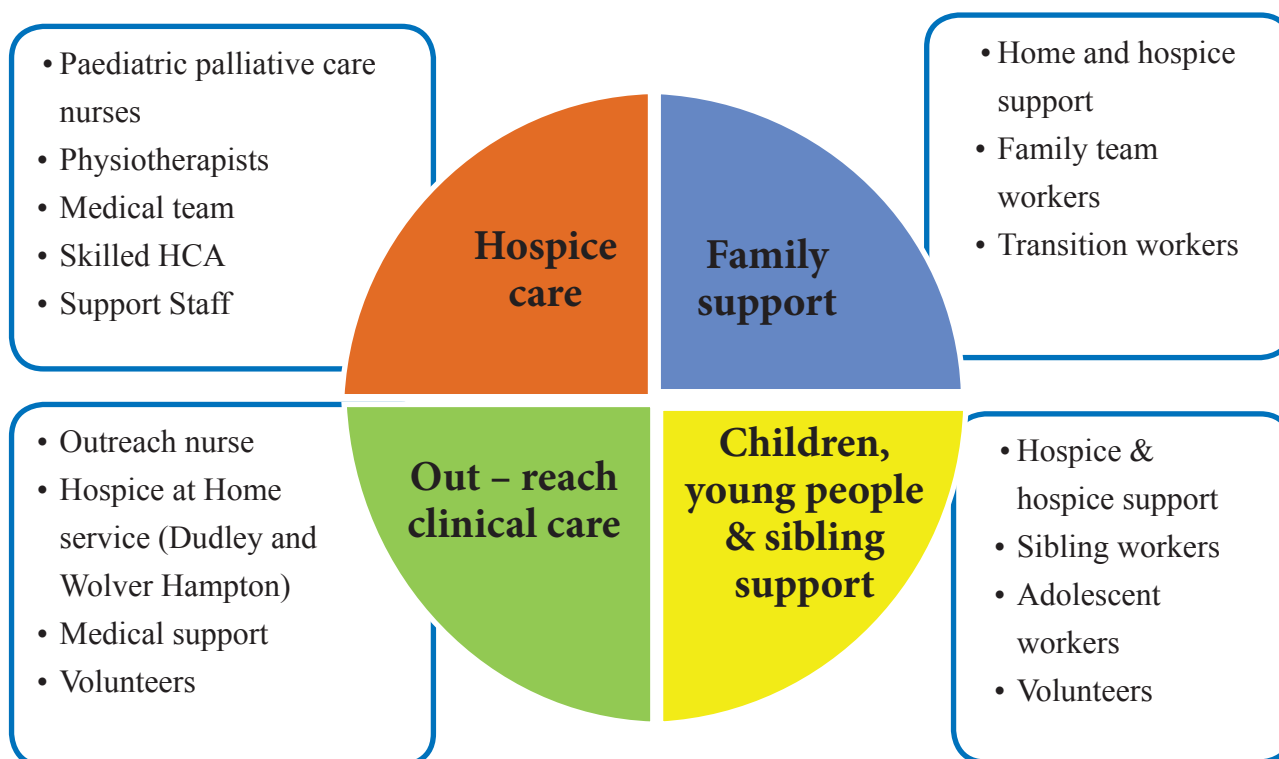
- Treatment of physical and psychological problems
- Behaviour modification
- Physiotherapy to treat the rehabilitation disability

Effects of MR on the family

- Distress
- Depression, guilty feeling
- Over indulgence
- Social problems
- Marital disharmony
- Dissatisfaction about medical and social services

1.8 OUTREACH SERVICES

Nursing outreach involves nurses providing health care away from the practice, typically in a patient's home. This can overcome a number of access barriers and provide valuable information about a patient's true health needs and social situation.



1.9 REHABILITATION SERVICES

Rehabilitation focuses on the quality of life for people with disabilities and their families, in meeting their basic needs and ensuring for participation.

Rehabilitation Services

■ Exceptional Rehabilitation Services

Physical, occupational, and speech therapists provide a full range of rehabilitation services including Low Vision rehabilitation training.

■ Comprehensive Nursing Services

All aspects of home nursing care available 24/7 including registered nurses (RN), and licensed practical nurses (LPN).

■ Specialized Programs

Post-surgery orthopedic recovery program for gold-standard care after joint replacement procedures, and adaptive programs, including low-vision program, for safety and independence at home.



It is implemented through the combined efforts of people with disabilities, their families, organizations and communities, relevant government and non government agencies for providing other services the person requiring rehabilitation are:

- Hearing impaired children
- Visually impaired children
- Physically impaired children and adult
- Adults with chronic disabilities

■ Role of the Home Health Nurse in Training Disabled People

- ❖ Involve the community in the training programmes of the disabled
- ❖ Go from house to house to locate and identify all the disabled members in the community
- ❖ Find out which disabled members need training

- ❖ Select training material from the manual for each disabled member who needs training
- ❖ Improvised tool/equipment is needed for the disabled, e.g., Walker, Crutch, Shoes
- ❖ For each disabled member who needs training, find and teach a family or community member to use the training packages and be the trainer.
- ❖ Guide and supervise and motivate the trainers to continue the training of disabled members
- ❖ Assess the progress made by each disabled member
- ❖ Keep records
- ❖ Get the co operation of teachers for the training programmes of the disabled members
- ❖ Select and refer disabled members who need other available services

1.10 HOME MANAGEMENT

Home management of common minor ailments are

Eye wash procedure

- Eye wash should be done as there is discharge or when eyes are sticky.
- Eye wash is done to clean eyes and remove discharge of infective material.

Purpose

- To clean eyes of excess discharge
- To remove foreign bodies which may be soiled or any chemical
- To reduce inflammation and congestion
- To provide soothing effect to the eyes

Equipment and Articles

- Bowl
- Cotton swabs
- Spoon or forceps
- Towel, mackintosh
- Kidney tray
- Eye pad
- Hand washing articles
- Facilities to boil the articles

Procedure

- Explain in detail the procedure
- Wash hands with soap and running water. Let your hands drip from elbow and allow hands to dry in air
- Boil articles and keep ready near bedside
- Protect the patient clothing with mackintosh and towel
- Clean the infected eye first from inner aspect of the eye to outer of the eye.
- Use one swab for one stroke only
- Instill any medicine prescribed
- Wash hands
- Replace the articles
- Record the procedure done and followup if required

Health teaching for prevention of conjunctivitis

Conjunctivitis is easily spread from one person to another, it is very important that others do not use the infected person towel or handkerchief.


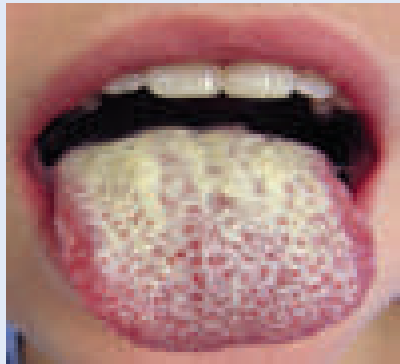
- Wash hands after touching eyes
- Avoid bathing in canal or pond water
- Avoid meeting in crowded places
- Try to use dark glasses, if possible

Common Problems	Management
Eye infection: It is the most common condition. Due to infection patient complains of burning, pain, watering of eyes and pain gets worse with light. There may be sticky discharge and eyelids stick together during sleep	Management of such ailment giving an eye wash and application of medicine depending upon severity of conditions. Maintain eye hygiene, wash eyes two or three times a day and prevent dust or strong chemicals close to eye.




Common problems	Management
<p>Conditions affecting respiratory tract</p> <p>1. Acute respiratory infection These are most common problem in home care setting especially among children.</p> <p>2. Common emergencies Some of the common emergencies are asphyxia, nasal bleeding and foreign body in nose or throat are some of the condition which require first aid management. If not relieved refer to hospital.</p>	<p>First aid care given to these conditions is to clear airways by removing foreign body or by giving artificial respiration.</p>
<p>3. Sore throat It is most often a symptom of common cold and can be managed at home.</p> <p>4. Sinusitis: It is a common complication of cold. The patient complains of pain and tenderness in the bones just above or below the eyes and headache. The pain may worse when you press over these bones. There may be fever, stuffy nose, and thick mucus discharge.</p>	<p>Teach patients to take saline gargles mild analgesics can be given to relieve pain.</p> <ul style="list-style-type: none">• Give steam inhalation• Hot wet compress• Nasal drops can be given• If no improvement after three days refer to hospital
<p>5. Cold and flu: Are common viral infections that may cause running nose, cough, sore throat and sometimes fever or pain in joints</p>	<p>Simple ways to take care of person with flu or cold are:</p> <ul style="list-style-type: none">• Give plenty of water• Give simple aspirin which relieves body ache and headache• Give steam inhalation• Helps to take saline gargles with warm water.• If continues for longer period it may turn into bronchitis, or pneumonia and special treatment is needed.
<p>6. Ear ache: The only way young child can tell you about ear ache is by rubbing or pulling ears, problem may be with external or internal ear.</p>	<ul style="list-style-type: none">• Take complete history and examine the patient for any swelling or cold• Examine other organs which are likely to be involved like throat, eyes, nose etc.• Find if any fever is associated with earache.• Clean the ears gently and instill ear drops.• Do not plug the ear if problem continues, refer to hospital.



Common problems	Management
<p>7. Cough:</p> <p>Coughing is not a sickness by itself but a sign of different sickness that affects the throat, lungs and bronchi.</p> <p>Cough which started within a few days is acute cough. Acute cough may be associated with measles whooping cough, tonsillitis, pneumonia or cold.</p> <p>Chronic cough is the one that develops slowly and is frequent. This is most commonly due to TB, chronic bronchitis or other chest infections.</p>	<p>Treatment for dry cough:</p> <ul style="list-style-type: none"> • Give steam inhalation • Give warm liquids to drink • Cough syrup as advised by the Doctor • If cough is due to any infection refer for treatment • Steam inhalation <p>It is the commonest procedure to relieve nasal congestion and pain or liquefy the secretions in the throat.</p>
<p>Condition affecting digestive system</p> <p>Tooth ache:</p> <p>Is a common problem. It may be due to cavity, bleeding gum, abscess or swelling. It may be associated with fever.</p>	<p>Look for tooth which is giving trouble. If there is cavity or gum is swollen, it could be with an abscess. Give analgesic and ask the patient to take mouth wash and refer for Dentist.</p>
<p>Soreness of mouth:</p> <p>Sore and cracks at corner of mouth and lips are often a sign of malnutrition. It is most common in children.</p>	<p>They should be given food rich in vitamins such as whole grains, vegetables, milk, eggs etc., and advise for mouth hygiene.</p> 
<p>Thrush:</p> <p>White patches inside mouth and tongue are mostly due to fungus infection. It is most common in new born babies and adults who are getting antibiotics.</p>	<p>Advise them to take vitamin rich diet.</p> <p>Give G.V.paint. or boroglycerine to apply locally.</p> 




Common problems	Management
Dehydration Dehydration results when there is more loss of fluid in the body than the intake. This happens in severe diarrhoea and vomiting, which is more serious in children. Signs of dehydration: <ul style="list-style-type: none">• Little or no urine• Sudden weight loss• Dry mouth• Sunken, tearless eyes• Loss of elasticity or stretching of the skin• Very severe dehydration may cause rapid, weak fast pulse, deep breathing, fever, or fits	Prevention and treatment of dehydration: <ul style="list-style-type: none">• The person should drink large amount of liquids, water, tea, soup etc.,• The person should be given plenty of liquids or rehydration to drink first• A mother can prepare rehydration drink• A 4-finger scoop of sugar or jaggery and 3 pinch of salt and add it to one litre of boiled and cooled water• Give the person sips of drink every five minutes, day and night, until he begins to urinate normally. A small child needs atleast one litre a day
Contents of rehydration packet Marketed as ORS under different trade names Glucose-20.0gm <ul style="list-style-type: none">• Sodium chloride - 3.5 gm• Sodium bicarbonate - 2.5 gm• Potassium chloride - 1.5 gm 	To prepare oral rehydration salt solution: <ul style="list-style-type: none">• Wash hands• Pour one litre of clean water into clean container• Open the sealed packet and pour the ingredients and mix well• Fresh ORS should be prepared each day. Container should be kept covered
Contents of sugar salt solution; Sugar - 40gm or honey/glucose 20 gm Common salt - 5 gm (one pinch) One litre of water - after mixing well in cool drinking water, the solution should have the taste of tears.	<ul style="list-style-type: none">• Keep giving rehydration drink often in small sips, even if the person vomits• If the person vomits all the drinks shift the person to the health centre to give fluids through veins.



Common problems	Management
Vomiting <ul style="list-style-type: none">Many person, especially children have an occasional stomach upset with vomiting. Often no cause can be foundThere may be mild stomach or guts, such as infection, poisoning from spoiled foodAny sickness with acute fever or severe pain may cause vomiting, especially malaria, hepatitis, tonsillitis, earache, meningitis, urinary infection, gallbladder pain or migraine headache	To help control simple vomiting: <ul style="list-style-type: none">Sip some tea with sugar but without any milk. Adding ginger or lime juice may also helpFor dehydration give small frequent sips of cool tea, or rehydration drinkIf vomiting does not stop soon, use vomit control medicines like promethazine, diphenylramine or phenobarbitol
Diarrhoea and dysentery <ul style="list-style-type: none">When a person passes loose or watery stools more than two or three times it is called diarrhoea. If mucus and blood can be seen in the stool it is dysenteryDiarrhoea can be mild or serious. It can be acute or chronicDiarrhoea is more common and more dangerous in young children Causes of diarrhoea: <ul style="list-style-type: none">It has many causesPoor nutritionVirus infection or intestinal fluAn infection of the gut caused by bacteria, amoeba, urinary infectionsMalariaFood poisoningAllergic to certain foodsSide effects produced by certain medicines, such as ampicillin or tetracycline	Prevention of diarrhoea: <p>The prevention of diarrhoea depends on good nutrition and cleanliness.</p> <ul style="list-style-type: none">Exclusive Breast feeding rather than bottle feeding for the first six monthsWhen you begin to give the baby new or solid foodsKeep the baby and the surrounding clean Treatment of diarrhoea: <p>For most of the cases of diarrhoea no medicine is needed. If the diarrhoea lasts along times, the bigger danger is malnutrition. so the most important part of treatment has to do with giving enough liquids and good food, no matter.</p> Prevent or control dehydration: <p>A person with watery diarrhoea must drink large amount of liquids.</p> <ul style="list-style-type: none">Give him rehydration drink<i>Meet nutritional need</i> <p>A person with diarrhoea needs food. This is especially important in small children or persons who are poorly nourished.</p>



Common problems	Management
	<ul style="list-style-type: none"> • <i>Diarrhoea and milk</i> Breast milk is the best food for babies. Keep giving breast milk when the baby has diarrhoea. • <i>Medicines for diarrhoea</i> Anti-diarrheal medicines with kaolin and pectin make stools thicker and less frequent, but they do not correct dehydration or control infection. some anti-diarrhoeal medicines like diphynoxylate may even make infections last longer
<p>Condition affecting circulatory system: Conditions which you commonly need to deal are high blood pressure, haemorrhage, shock, chest pain, swollen legs, and anaemia.</p> <p>High blood pressure: Person having high blood pressure may complain of frequent headache, shortness of breath with mild exercise, fatigue, dizziness and palpitation which may interfere with sleep</p> <p>High blood pressure is a symptom found in a person having disease of kidney, hypertensive heart disease or pregnant women with eclampsia and preeclampsia.</p>	<p>Watch on vital signs, take blood pressure and observe for complications.</p> <p>See that the patient is on regular treatment and give health teaching like:</p> <ul style="list-style-type: none"> • Avoid over weight • Use of little salt for cooking • Avoid smoking and alcohol
<p>Swollen legs: Swelling of legs with pitting of skin on pressure(edema) may be due to kidney diseases, heart diseases, pregnancy and anaemia</p>	<ul style="list-style-type: none"> • If swelling is without other signs and is occasional, advise rest • If it is due to anaemia give iron supplementation as prescribed • If swelling is with fever, backache, severe anaemia refer the patient for treatment and investigations



Common problems	Management
Anaemia: It is very common deficiency condition in all age groups and more common among child bearing women. The patient with anaemia look pale, tired and weak, feels giddy and shortness of breath, swelling of legs may be seen in severe cases.	<ul style="list-style-type: none">• Treat those who have worms for antihelminthic treatment and give iron supplement• Refer cases which are with severe anaemia to hospital
Chest pain: Mostly chest pain indicates some diseases of heart like myocardial infarction, rheumatic heart disease and cardiac failure.	Observe for vital signs and refer to hospital as soon as possible
Conditions affecting the neuromuscular system: Common minor ailments which require to be attended are headache, back pain, muscle or joint injuries.	<ul style="list-style-type: none">• Simple headache is mostly relieved by analgesics• Analgesics, proper personal health habits and counselling can help in relieving headaches when headache is due to pathological reason, refer for proper diagnosis and treatment• Treat back pain by giving complete rest, local application of heat by hot water bottle and analgesics
Conditions affecting the reproductive system: Sore on genitals: a small hard swelling or sore that is painless on genitals is likely due to sexually transmitted diseases.	Advise personal hygiene and refer for proper treatment
Menstruation problem: Dysmenorrhoea (painful menstruation) is common problem and can be managed at home if it is not due to any pathological reason.	<ul style="list-style-type: none">• Women should be advised to have moderate exercise, avoid constipation and empty bladder frequently• If necessary analgesics and hot water bottle on lower abdomen can be used• If no relief, refer to Doctor for proper investigation and treatment



1.11 Extended Role of Home Nurse

1. Health care provider

The home health nurse provides nursing procedures like

- Performs wound dressing
- Carry out Steam inhalation
- Performs eye irrigation
- Provides Oral rehydration therapy
- Treat minor illness
- Provides geriatric care
- Provides antenatal care
- Provides neonatal care
- Gives bed bath to disabled
- Provides range of motion and formal exercises to the bed ridden
- Provides first aid

2. Health educator

Educates individual, family and community for the principles and techniques of prevention and management of diseases

3. Collaborator

Works with the collaboration of other health team members

4. Counsellor

Conducts the counselling of individuals in some social and mental health problems.

5. Advocate

In suitable and required places, the home health nurse assumes the role of advocate.

Outreach Services Of Home Health Nurse

Maternal Health Services

- Help the expected mother in early pregnancy and help her to seek adequate Care

- Observe antenatal visits schedule strictly
- Identify the high risk pregnancy cases like hypertension, diabetes by doing thorough check up at home, she should educate pregnant women regarding diet, antenatal exercises, importance of rest and sleep, care of the newborn, breastfeeding techniques
- she prepares the mother physically and psychologically for deliveries

School health Services

- School health services refers to the initiation, maintenance, improvement of the health of school children
- Educates school children in personal hygiene dental hygiene, healthy school environment, importance of well balanced diet etc
- She tries to guide and counsel the children who has problem with school environment or children with the behavioural problems like drug addiction , non obedience, long absenteeism , juvenile delinquency

Immunization Services

- She organises immunization session
- She teaches the care which the mother has to take during immunization

Industrial Nursing Services

- She plays a major role in periodical examination of the employees
- Provides care to the sick and injured
- Gives health education to change the behaviour

Organization of Clinics and Camps

The various types of camps are

- Service camps
- Education and training camps
- Family welfare camps
- Orientation and training camp

1.12 AYUSH

The Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy, abbreviated as AYUSH, is a governmental body in our country was purposed with developing, education and research in India and the traditional Tibetan medicine. It started in March 1995 as the Department of Indian Systems of Medicine and Homoeopathy (ISM&H). The Ministry of AYUSH was formed with effect from 9 November 2014 by elevation of the Department of AYUSH.

Objectives

The Department of AYUSH has the following objectives:-

- ❖ Delivery of AYUSH Services
- ❖ Human Resource Development in AYUSH
- ❖ Promotion and Propagation of AYUSH Systems
- ❖ Research in AYUSH
- ❖ Conservation and cultivation of medicinal plants
- ❖ Effective AYUSH Drugs Administration

Ayurveda

Ayur' means age and 'Veda' denotes knowledge. Ayurveda defines knowledge about age or the knowledge which describe age. The knowledge of Ayurveda is claimed to have passed down to humans through a chain of supreme beings. Oldest references of Ayurveda are found in Atharvaveda that is last of four principals text of Hindu philosophy.

Major Principals of Ayurveda are

- Tridosha
 - Triguna
 - Saptdhatu
 - Panchmahabhoot
 - Biofire (Agni)
- The objectives of Ayurveda is maintenance and promotion of health, prevention of disease and cure of sickness
- Health is considered as a state of balance of tridosh and triguna in body matrix
- The Diagnosis of disease is achieved by taking care of various internal and external factors altogether, by means of treating body as a whole
- The treatment of disease can be achieved by: 1. Nidan Parivarjan (Avoidance of factor, causing disease) 2. Shodhana therapy (Purification Treatment) 3. Shamana therapy (Palliative Treatment) 4. Pathya Vyavastha (Prescription of diet and activity)



Yoga

The literal meaning of the Sanskrit word Yoga is 'Yoke'. According to Maharishi Patanjali (The Father of Yoga), Yoga is the suppression of five modifications of the mind.



Types of Yoga

Japa Yoga- To concentrate one's mind on divine name or holy syllable, mantra etc.

Karma Yoga- Teaches us to perform all actions without having any desire for their fruit.

Gyana Yoga- Teaches to discriminate between self and non- self and to acquire the knowledge of one's spiritual entity.

Bhakti Yoga- A system of intense devotion with emphasis on complete surrender to divine will.

Raja Yoga- Raja Yoga is popularly known as Ashtanga Yoga .

Swara Yoga- It involves the systematic study of the breath flowing through the nostril.

Kundalini Yoga- It is a part of Tantric Tradition and it involves awakening of potential force residing in Muladhara chakra.

Nadi- Nadi is flow of energy which we can visualize at the psychic level as high voltage channels conducting the energy to the chakras of yoga.

Naturopathy : Naturopathy is an art and science of healthy living and a drugless system of healing. The morbid matter theory, concept of vital force and other concepts upon which Naturopathy is based are already available in old texts. The revival of Naturopathy started in India by translation of Germany's Louis Kuhne's book "New Science of Healing". Naturopathy is a system of man building harmony with the constructive principles and forces of Nature.

It has great health promotive, disease preventive and curative as well as restorative potential and effect.

Types of Naturopathy

1. Diet Therapy
2. Fasting Therapy
3. Mud Therapy

Unani System of Medicine

Unani : Unani system originated in Greece. The foundation of Unani system was laid by Hippocrates. In India, Unani System of Medicine was introduced by Arabs and Persians sometime around the eleventh century. Four humors balance theory.(Dam (blood), Balgham (phlegm), Safra (yellow bile) and Sauda (black bile).

Seven components makes human body. Mizaj (Temperament), Akhlat (Humors), Aaza (Organs), Arwah (Spirits), Quwa (Faculties), Afaal (Functions), Arkan (Elements). The Diagnostic process in Unani system is dependent on observation and physical examination. Any illness of a person is to be regarded as a product of: 1.The kind of temperament, and strength of faculties he has; 2.The type of factors operating on him from outside.

Unani medicine has the following main types of treatment.

- 1.Regimental therapy
2. Diet therapy
- 3.Pharmacotherapy
- 4.Surgery

Siddha System of Medicine

Siddha: Siddha system is one of the oldest systems of medicine in India. The term Siddha means achievements and Siddhars were saintly



persons who achieved results in medicine. The Siddha System is largely therapeutic in nature. According to its tradition it was Lord Shiva who unfolded the knowledge of Siddha system of medicine to his consort Parvati who handed it down to Nandi Deva and he then to Siddhas. This principles and doctrines of this system, have a close similarity to Ayurveda, with specialization in Iatro- chemistry. According to this system the human body is the replica of the universe and so are the food and drugs irrespective of their origin.

This system considers the human body as a conglomeration of three humors, seven basic tissues, waste products of the body (feces, urine and sweat). The Siddha system is capable to treating all types of disease other than emergency cases specially skin and venereal diseases.

Homoeopathy

Homoeopathy is the youngest of all these medicinal system, yet rapidly growing and is being practiced almost all over the world. The word 'Homoeopathy' is derived from two Greek words, Homois meaning similar and pathos meaning suffering. It is based on the natural law of healing- "Similia Similibus Curantur" which means "likes are cured by likes". It was given a scientific basis by Dr. Samuel Hahnemann (1755-1843) in the early 19th century.

During illness the whole person is in a state of imbalance. Homoeopathic remedies are potentized substances carrying information/ energy force that acts on vital force. Once that vital force is balanced, the person heals himself. Homoeopathic medicines are bio-energetic substances with similar resonance or vibration, matched to the person's state of imbalance.

Homoeopathic remedies are diluted beyond Avogadro's number so there are no chemical side-effects. Potentization= Highly diluting a substance in alcohol or distilled water, stirring it in fixed number of times in precise directions and striking a pestle against a mortar certain times. Two type of treatments 1. Acute, 2. Chronic

CONCLUSION

The term "Community Health" has replaced the term "Public Health" in many countries. It is because of the changing nature of Public Health that focuses on individual responsibility and community participation. Environment consists of two main components viz., internal and external environment. Purification of water: Impure water may be purified by two main methods, viz., natural methods and artificial methods. Air pollution in a community may be due to industrial process, Combustion, Motor vehicles & Miscellaneous.

Ventilation is the modern concept implies not only the removal of vitiated air and replacement of fresh air but also control of the quality of incoming air in relation to its temperature, humidity and purity with a view to provide a thermal environment that is comfortable. The common and very vital problems due to improper disposal of excreta are Soil pollution, Water pollution, Contamination of foods, Rapid fly breeding.

Housing is defined as 'physical structure that man uses for shelter and the environs of that structure including all necessary services, facilities equipment and devices needed or desired for the physical and mental health and the social well-being of the family and the

individual. Insecticides are defined as chemical substances, which are used to destroy the arthropods in the form of powder, liquid, gas, spray and painting with residual action.

Home health nursing is a nursing speciality in which nurse provides multidimensional home care to patients of all ages. The concept of home health care is to mean any type of care given to a person in their home. Home health care services includes various services such that. Family Health Services, Information Education and Communication, Management of Informative System, Maternal and Child Health Services. Treatment of Minor Ailments, Organising of Clinics, Camps and Waste Management.

Home Health nurses are in a unique position to assist clients who are disabled in obtaining services that will enhance adaptation

and promote growth. Home Health nurse performs Home Management of Common Minor Ailments. The home health nurse Implements the follow up order of physician. She provides nursing procedures like cold sponging if fever is observed in the family members. She performs wound dressing, carry out Steam inhalation, performs eye irrigation, provides Oral rehydration therapy, Treat minor illness, provides geriatric care, provides antenatal care, provides neonatal care, gives bed bath to disabled, provides range of motion and formal exercises to the bedridden and provides first aid. Department of Indian Systems of Medicine and Homoeopathy was created in March, 1995 and renamed as Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH). All these have been discussed elaborately in this chapter.

A-Z GLOSSARY

Whooping Cough (கக்குவான் இருமல்)	-	A contagious bacterial disease chiefly affecting children, characterised by convulsive coughs followed by a whoop.
Meningitis (மூளைக்காய்ச்சல்)	-	Inflammation of the meningeal covering of the brain.
Hepatitis (கல்லீரல் அழற்சி)	-	Disease characterised by inflammation of the liver.
Migraine (ஒற்றை தலைவலி)	-	A recurrent throbbing headache that typically affects one side of the head.
Eclampsia (எக்லம்ப்ஸியா)	-	A condition in which one or more convulsions occur in a pregnant woman suffering from high blood pressure.
Myocardial Infarction (மாரடைப்பு)	-	Commonly known as heart attack is life threatening condition that occurs when blood flow to the heart muscle is abruptly cut-off, causing tissue damage.
Rheumatic Heart Disease (கீல்வாத இதய நோய்)	-	Heart damage caused by rheumati fever.



Immunization (நோய் தடுப்பு)	-	The process of inducing immunity to an infectious organism or agent in an individual or animal through vaccination.
Female Foeticide (பெண் சிசுக்கொலை)	-	Is the abortion of a female foetus outside of legal methods.
Abuse (தவறாக)	-	Cruel or violent treatment of a person.
Trauma (அதிர்ச்சி)	-	Trauma is a very severe shock or very upsetting experience, which may cause psychological damage.
Mentally Challenged (மனநலம் குன்றியவர்கள்)	-	Mental retardation (MR), is a generalized neuro development disorder characterized by significantly impaired intellectual and adaptive functioning.
Cessation (நிறுத்துதல்)	-	The fact or process of ending or being brought to an end.
Delirium (சித்த பிரமை)	-	An acutely disturbed state of mind characterised by restlessness, illusions, fever and other disorder.
Dementia (டிமென்சியா)	-	A mental condition that affects especially old people causing the memory and other mental abilities to gradually become worse and leading to confused behaviour.
Alzheimer Disease (அல்சைமர்)	-	A disease that results in the gradual loss of memory, speech, movement and the ability to think. That is common in older people
Depression (மனஅழுத்தம்)	-	The state of feeling very unhappy and without hope for the future and that is common among older people.
Degenerative Disorder (சீரழிவு நோய்)	-	It is the result of a continuous process based on degenerative cell changes, affecting tissues or organs.
Occupational Therapy (தொழில் சிகிச்சை)	-	Therapy based on engagement in meaningful activities of daily life.
Asphyxia (மூச்சுத்திணறல்)	-	A condition arising when the body is deprived of oxygen, causing suffocation or death.
Pneumonia (நுரையீரல் அழற்சி)	-	Lung inflammation caused by bacterial or viral infection.



EVALUATION



I. Choose the correct answer:

- Emotional deprivation children are classified as
 - Physically handicapped
 - Psychologically handicapped
 - Mentally handicapped
 - Socially handicapped
- The inability to carry out certain activity is termed as -----.
 - Impairment
 - Disability
 - Handicap
 - Disease
- IQ between 50-70 is classified as which type of mental retardation
 - Mild
 - Moderate
 - Severe
 - Profound
- Which is a sign of dehydration?
 - excess urination
 - sunken tearless eyes
 - weight gain
 - moist mouth
- Breast milk only is given to the babies for how many months?
 - First eight months
 - First six months
 - First three months
 - First six months
- Life in Ayurveda is conceived as the union of body, sense, mind and -----.
 - Emotion
 - Spirit
 - Love
 - Soul
- Cough is a sign of different sickness that affects the following except
 - Throat
 - Lungs
 - Bronchi
 - Bones

II. Write short answer for the following questions:

- Define Home Nursing.
- Enlist the home health care services.
- What is meant by mental reatardation.
- Write the expansion for Ayush
- Write the types of Naturopathy.

III. Write short notes for the following questions:

- Write the concept of home health care.
- List down the purposes of home health care
- List down the principles of home health care.
- Explain the responsibilities of home health nurse in the care of challenged person.
- List down the contents of ORS and explain the preparation of ORS.
- Explain the outreach services of home health nurse.

IV. Answer the following questions in detail:

- Explain in detail about home care management of common respiratory problems.
- Discuss in detail the home care management of common digestive problems.
- Discuss in detail about AYUSH.

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Unit 2



COMMUNICABLE DISEASES

LEARNING OBJECTIVES

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

- ❖ describe what is communicable disease are
- ❖ explain control and prevention of communicable diseases
- ❖ describe the surveillance concepts
- ❖ explain the approaches used in responding to epidemic



திருக்குறள்:

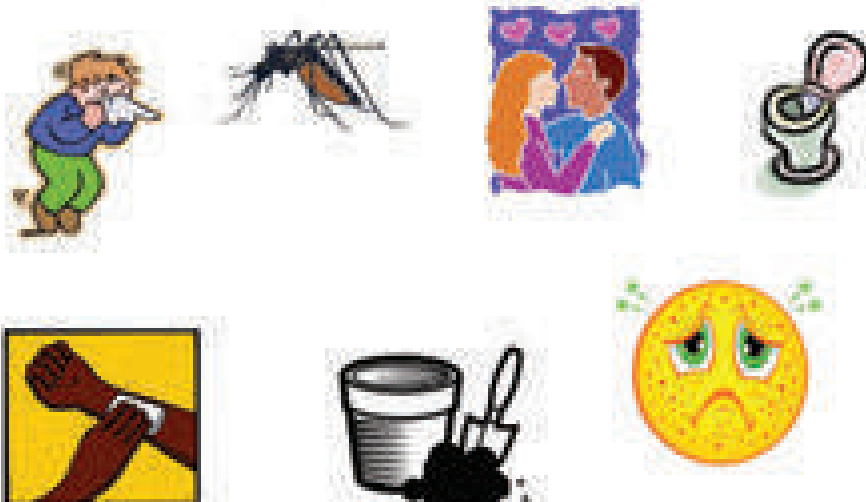
எதிரதாக் காக்கும் அறிவினார்க் கில்லை
அதிர வருவதோர் நோய்.

விளக்கம்:

வரப்போவதை முன்னே அறிந்து காத்துக் கொள்ளவல்ல அறிவுடையவர்க்கு, அவர் நடுங்கும் படியாக வரக்கூடிய துன்பம் ஒன்றும் இல்லை.

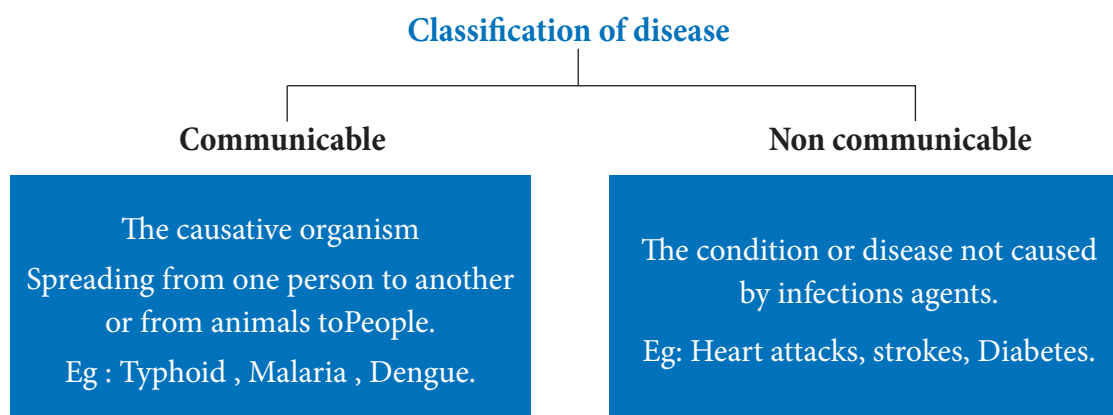
Explanation:

No terrifying calamity will happen to the wise, Who (foresee) and guard against coming evils.



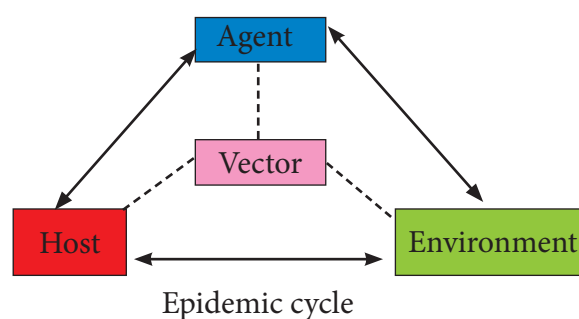
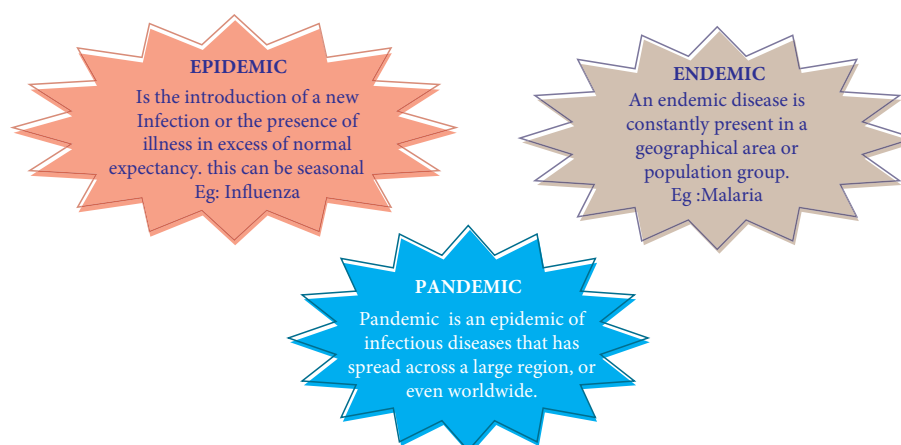
2.1 INTRODUCTION

Which affects the structure or functions of human being with specific symptom is called disease or disorder.



Communicable Diseases

A communicable disease is an illness that is transmitted from a person , animal , or inanimate source of another person either directly , with the assistance of an intermediate host or by a vector . communicable disease present in an epidemic, endemic and pandemic .



STUDENT'S ACTIVITY

Construct epidemiologic cycle for any three communicable disease.

2.1.1 Terminologies

1. Incubation period

The time taken to show the first clinical symptoms to appear after infection.

2. Vector

Any living carrier that carries and transfers an infectious agent into another living organism is known as vector. E.g: Flies, Mosquito.

3. Isolation

Separation of an infected organism, after the development of infection, from other organism, for a period of communicability.

4. Host

A person or an animal harbours the infectious agent.

Definitive Host

Host in which the parasite achieves the sexual maturity

Intermediate Host

The host develops the parasite. But does not attains sexual maturity

5. Infectious

A communicable disease which is caused by an infection.

6. Infection

Is the invasion and multiplication of disease-causing agents, which leads the tissue damage.

7. Infectious agent

All infection causing agents are known as infectious agents. E.g : Virus, Bacteria, Nematodes, Arthropods etc.

8. Transmission

It is the process of spreading the infection from one medium to another medium. E.g: Touch, inhalation, sexual contact, infected discharges.

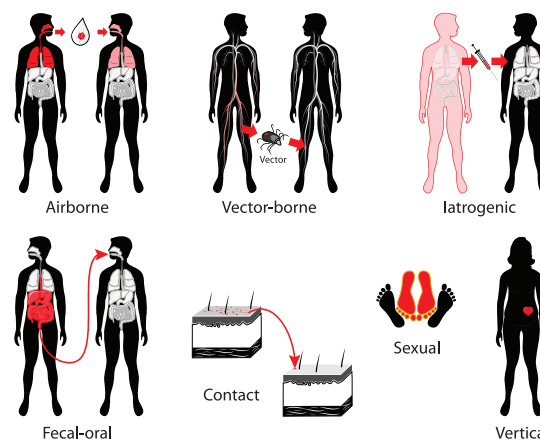
9. Contagious disease

It means capable of being transmitted from one human to another human via direct or indirect contact. E.g : Measles

10. Epidemiology

It is the study of distribution and determination of disease conditions among the populations.

DISEASES TRANSMISSION



You can call disease as illness, sickness, ill health alignment, disability, defect and infinity.

2.1.2 Communicable disease is classified based on the agents

- ❖ Water borne diseases
- ❖ Air borne diseases
- ❖ Disease Transmitted through Parasites
- ❖ Disease Transmitted through Arthropods
- ❖ Disease Transmitted through Animals
- ❖ Disease Transmitted through Contact.

2.2 WATER BORNE DISEASES

The disease that can be spread through contaminated water is called water borne diseases, it can be involve bacterial, viral or protozoan organisms.

Some example

Disease	Organisms
Cholera	Bacteria
Hepatitis	Virus
Giardia	Protozoan



The world leading killer disease is water related diseases

There are some most dangerous water born disease in India are Cholera, Typhoid, Diarrhoea, Hepatitis A.



2.2.1 Cholera

Definition

Cholera is the most common disease caused due to consumption of contaminated water, which leads to the intestine infection results in extreme loss of body fluids. This disease is caused by the bacterium vibrio cholera.



Causative organism

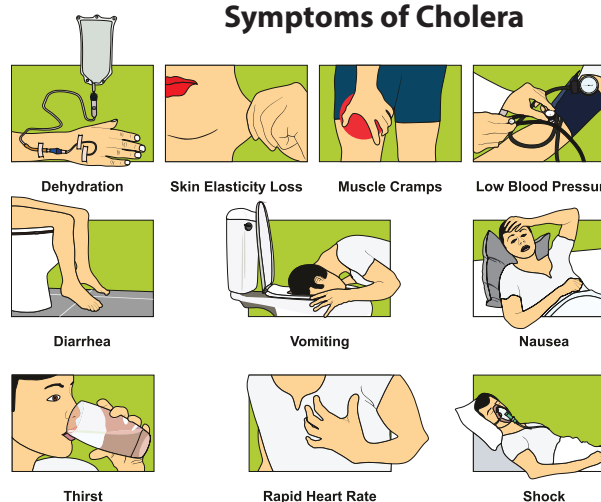
vibrio cholera



Incubation period: Few hours to 3 days

Symptoms of cholera

Symptoms of Cholera



- ❖ Rice water stools
- ❖ Nausea
- ❖ Diarrhoea
- ❖ Low blood pressure
- ❖ Muscle cramp

- ❖ Dry skin
- ❖ Sunken eyes
- ❖ Dehydration

Management of cholera

- ❖ Replacing fluids that are lost from body through diarrhoea.
- ❖ Oral rehydration solution
- ❖ Replacement of fluids through intravenously
- ❖ Antibiotics[tetracycline,ciprofloxin] and zinc supplements are important to treating the cholera.

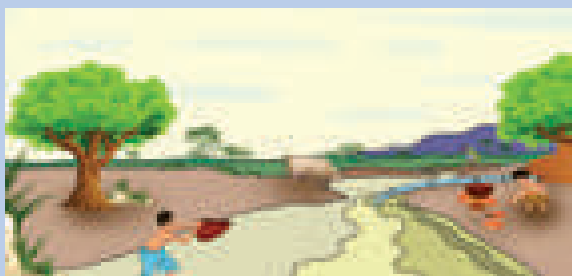
Preventive measures of cholera

- ❖ Always drink pure and safe water
- ❖ Wash hand before preparing food
- ❖ Wash hand with soap and water
- ❖ Avoid raw and undercooked food intake
- ❖ Always prefer boiled filtered water.



STUDENT'S ACTIVITY

Make flash cards to educate the community people to avoid these unhygienic practice.



2.2.2 Diarrhoea:

Diarrhoea is passing of watery stools that happens more often than expected, resulting in

poor absorption of water, nutritive elements. It usually occurs by consuming contaminated water and food. Diarrhoea last for more than 3-4 weeks its known as chronic diarrhoea.

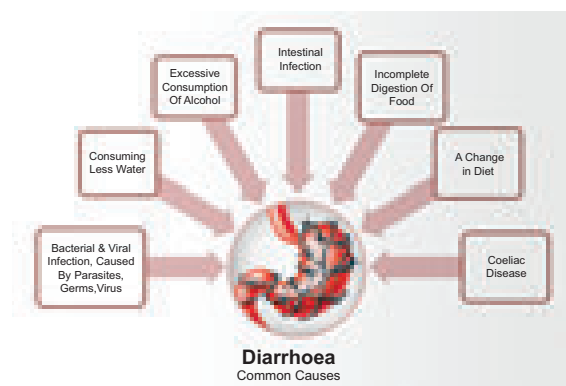
Causative organism

- ❖ Rotavirus
- ❖ Norovirus

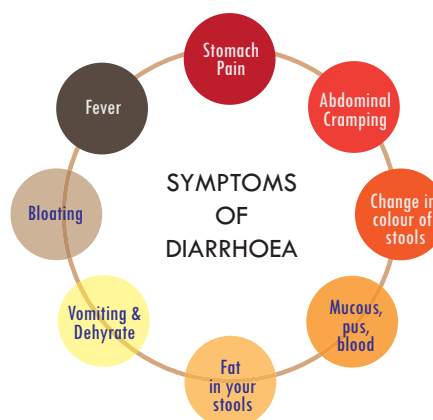
Incubation period

- ❖ Few hours

Common cause



Symptoms



Management

1. Acute diarrhoea can be treated with home remedies
2. Dairy products to be avoided for a week
3. Children rehydrate their body by taking ORS

4. In severe diarrhoea Antibiotics [**Cefixime**, **ceftriaxone**, and **cefotaxime**] resolve the symptoms of diarrhoea

Preventive measures



2.2.3 Typhoid



It is an acute illness, associated with constant high fever, which is caused by bacteria *Salmonella typhi*. This is transmitted through water and food and found in the feces of the infected person. Other name of typhoid fever is enteric fever.

Causative organism

- ❖ *Salmonella typhi*

Incubation period

- ❖ 8 to 14 days

Symptoms of Typhoid

- ❖ Loss of appetite
- ❖ Weakness
- ❖ Abdominal pain
- ❖ Vomiting

- ❖ Diarrhoea or constipation
- ❖ High fever
- ❖ Head ache

Management

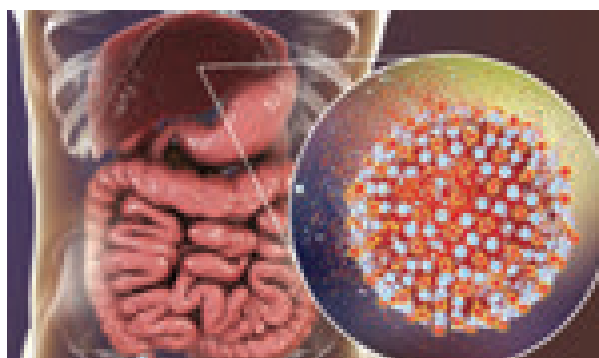
Antibiotics [Trimethoprim-sulfamethoxazole, Ampicillin and Ciprofloxacin]. are the most important to treat the infection, for the complete removal of the bacteria.

Typhoid vaccines are recommended for where there is a risk of typhoid is very high.

Preventive Measures

- ❖ Drink pure and safe water
- ❖ Avoid raw fruits and vegetables
- ❖ Street food to be avoided
- ❖ Wash hand before and after using toilets.

2.2.4 Hepatitis A



It's the most highly contagious liver infection, which is caused by hepatitis A virus. This virus cause inflammation of liver and affects the ability of liver function.

Causative organism

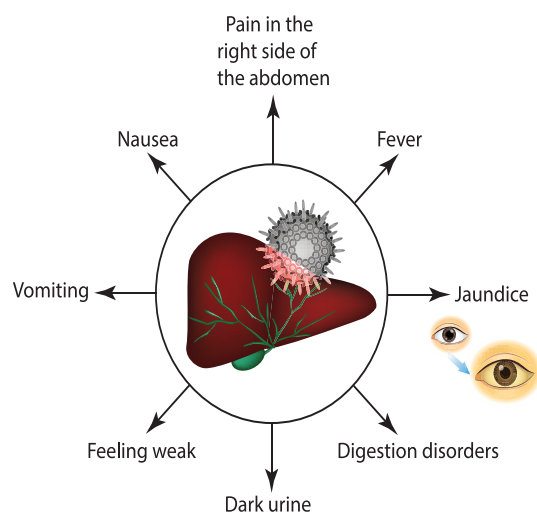
- ❖ Hepatitis A virus[HAV]
- ❖ Hepatovirus

Incubation period

- ❖ 14 to 28 days

Symptoms of Hepatitis A

- ❖ Fatigue
- ❖ Nausea and vomiting
- ❖ Abdominal pain
- ❖ Clay – Coloured bowel movement
- ❖ Loss of appetite
- ❖ Joint pain
- ❖ Yellow skin
- ❖ Intense itching



Management

- ❖ Replacement of nutrition and fluids
- ❖ Pain relievers
- ❖ Complete rest
- ❖ Avoid alcohol
- ❖ Complete 3 month medical attention is needed.

Preventive measures

- ❖ Hepatitis A vaccine is must to prevent
- ❖ Two doses are needed

- ❖ Protect yourself in working and in travelling places.

2.3 DISEASES TRANSMITTED THROUGH AIR

Air borne disease are spread, when droplets of pathogens are expelled into the air, while coughing , sneezing or talking. The pathogen can remain in air for several hours.

Types of Airborne Diseases

Viral Diseases	Bacterial Diseases	Fungal Diseases
Common cold	Tuberculosis	Sick building syndrome
Flu	Pneumonia	
Measles	Whooping cough	
Mumps	Diphtheria	
Rubella	Meningitis	
Chicken pox	Anthrax	

2.3.1 Influenza

It is an seasonal disease, caused by an virus which leads to respiratory illness flu is highly contagious and is normally spread by the cough and sneeze of an infected person.



Causative organism

Influenza A Influenza B	→ Cause seasonal Epidemics
Influenza C	→ Cause mild respiratory illness

Incubation period

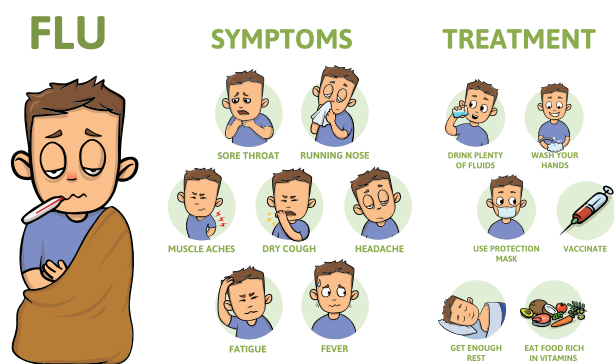
- ❖ 1 to 4 days



Viruses are more abundant and organisms on earth they exist in almost every environment.

Symptoms

Flu and cold symptoms may look same with runny and blocked nose, sore throat and cough but some symptoms of flu are different from a heavy cold.



- ❖ Cough
- ❖ High Temperature
- ❖ Sore throat
- ❖ Head ache
- ❖ Cold sweats and shivers
- ❖ Body aches
- ❖ Fatigue, Feeling exhausted
- ❖ In some cases nausea, vomiting & diarrhea also common

Management

- ❖ Antibiotics
- ❖ Antivirals

- ❖ Painkillers
- ❖ Avoid crowded place
- ❖ Stay at home
- ❖ Consume plenty of liquids

Risk factors

The risk and complications are higher in certain people

- ❖ Pregnant women
- ❖ Babies and young children
- ❖ The individuals with cardiovascular disease
- ❖ The people with asthma or bronchitis
- ❖ The low immune system function

Preventive measures

- ❖ Nasal – spray flu vaccine
- ❖ Seasonal flu shot
 - Influenza ($H_3 N_2$) Virus
 - Influenza ($H_1 N_2$) Virus
- ❖ One B virus – The protection begins about 2 weeks after receiving the vaccination.



Globally 250,000–500,000 people die each year due to flu.

2.3.2 Chicken Pox

Chicken pox is also known as varicella is a highly contagious infection caused by varicella zoster virus, The blister like rash appears.



Causative organism

- ❖ Varicella zoster
- ❖ **Incubation period:** 10–21 days

Symptoms

Before the appearance of rash, the fever will be the sign

- ❖ Aching muscles
- ❖ Loss of Appetite
- ❖ Rash – covers whole body
- ❖ Blisters – on the top of the spots
- ❖ Mouth soreness

Complications

- ❖ Chicken pox – develop pneumonia
- ❖ Encephalitis – Inflammation of the brain
- ❖ Rey's syndrome – liver and brain swelling

Management

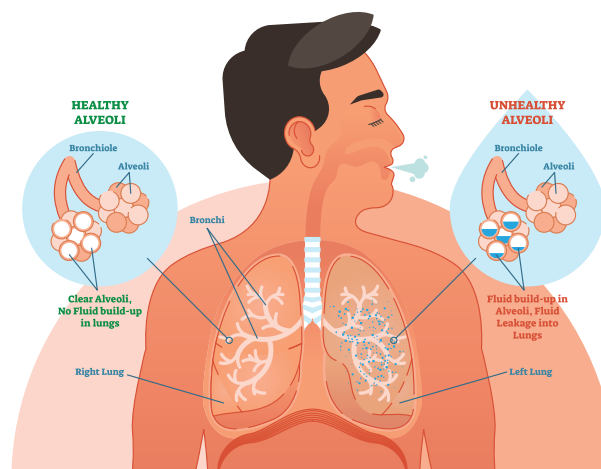
- ❖ Pain or fever – [Acetaminophen]
- ❖ Itching – Calamine lotion
- ❖ Dehydration – Sugar – Freepopsicles
- ❖ Antiviral
- ❖ Acyclovir

Preventive measures

- ❖ Two doses of varicella vaccine
- ❖ At 12 to 15 months
- ❖ At 4 to 6 years

2.3.3 Pneumonia

Pneumonia is swelling [inflammation] of the lung tissue, caused by a bacterial infection.



Causative organism

- ❖ Streptococcus pneumoniae
- ❖ Hemophilus influenzae
- ❖ Staphylococcus aureus

Incubation period

- ❖ 1 day to 1 week

Types of pneumonia

- ❖ Derived by cause, location, Acquired.

Types of Cause	Types of Location	Types of Acquire
Bacterial pneumonia (Streptococcus pneumonia)	Hospital – acquired pneumonia (HAP)	Aspiration pneumonia
Viral pneumonia	Community – acquired pneumonia (CAP)	Ventilator – Associated pneumonia
Mycoplasma pneumonia		
Fungal pneumonia		

Signs and symptoms

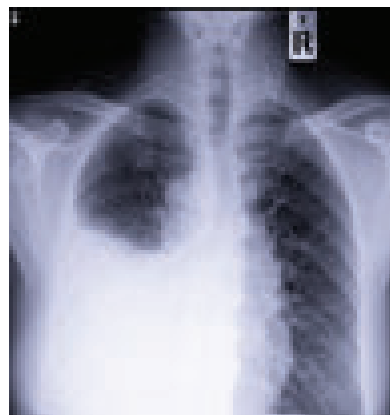
- ❖ Chest pain while breathe or cough
- ❖ Shortness of breathe
- ❖ Fatigue
- ❖ Confusion
- ❖ Fever
- ❖ Sweating and shivering chills
- ❖ Nausea, vomiting or diarrhea
- ❖ Coughing up blood (Haemoptysis)
- ❖ Wheezing
- ❖ Rapid heart beat
- ❖ Loss of Appetite

Complications

- ❖ Bacteremia – The infection spread to the blood stream which leads the septic shock and low blood pressure.
- ❖ Lung Abscesses
- ❖ Impaired breathing
- ❖ Acute respiratory distress syndrome
- ❖ Pleural effusion and death

Diagnosis

- ❖ Blood test
- ❖ Sputum test
- ❖ Urine test
- ❖ CT scan
- ❖ Fluid sample [pleural fluid]
- ❖ Bronchoscopy
- ❖ Chest x- ray



Risk factors

- ❖ Being hospitalized
- ❖ Chronic disease
- ❖ Smoking
- ❖ Weakened or suppressed immune system

Management

- ❖ Intravenous Antibiotics (Tetracycline, Levofloxacin)
- ❖ Respiratory Therapy (Spirometry, Breathing exercise)
- ❖ Fatal Oxygen



Preventive Measures

Pneumonia Vaccine

- ❖ Pevnar 13
- ❖ Pevnar 23
- ❖ Cigarette smoking to be quit

- ❖ Cover while cough and sneezes
- ❖ Dispose of used tissues promptly
- ❖ Practice good hygiene

2.3.4 Tuberculosis

Tuberculosis (TB) is a potentially fatal contagious disease. That can affect almost any part of the body. It's mainly an infection of lung.

Causative organism

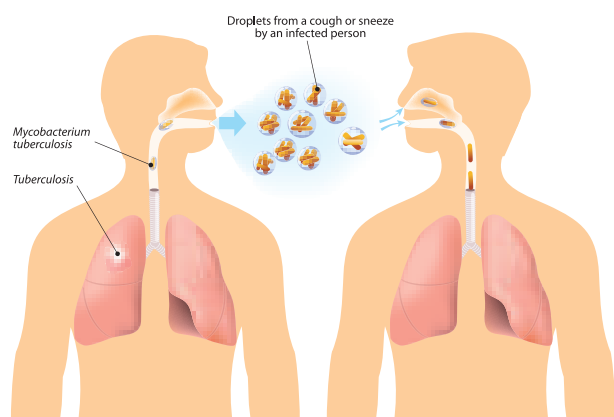
- ❖ *Mycobacterium tuberculi*

Incubation period

- ❖ 2 to 12 weeks

Classification of TB

Pulmonary TB	Extra pulmonary
<ul style="list-style-type: none"> • Primary disease • Secondary disease 	<ul style="list-style-type: none"> • Lymph node TB • Pleural TB • TB of upper airways • Skeletal TB • Genitourinary TB • Miliary TB • Pericardial • Gastrointestinal TB • Tuberculous Meningitis • Less common forms



Transmission of TB

- ❖ Cough droplet
- ❖ Crowded places with poor ventilation
- ❖ Splitting of saliva

Symptoms

- ❖ Chest pain
- ❖ Coughing with bloody sputum
- ❖ Shortness of breath
- ❖ Cloudy and Reddish urine
- ❖ Evening raise in temperature
- ❖ Fatigue

Diagnosis

- ❖ Bacteriological Test (Zeihl – Neelsen stain)
- ❖ Sputum culture test
- ❖ Chest x-ray
- ❖ Nucleic acid amplification
- ❖ Mantoux test (PPD)

Management

- ❖ **First line drugs:** Eg: Isoniazid, Rifampin, Ethambutal
- ❖ **Second line drugs:** Eg: Cycloserine, Ethionamide, Levofloxacin

Dosage Regimen

- ❖ Intensive phase + Continuation phase
- ❖ HREZ (2months) + HRE (4months)

DOTS- Directly Observed Treatment Short courses is the internationally recommended strategy for TB

Preventive Measures

- ❖ Mask
- ❖ BCG Vaccine
- ❖ Regular medical follow up
- ❖ Isolation of patient
- ❖ Ventilation
- ❖ Natural sunlight
- ❖ UV germicidal radiation

2.4 DISEASE TRANSMITTED THROUGH PARASITES

Parasites are organisms that live of another organism, they host to survive. They grow, reproduce, or invade organ system, so that the host becomes sick, due to parasitic infection.

Causative organism

Parasitic infection caused by three types of organism:

Ectoparasites	Helminthes	Protozoan
Mollusc	Ascariasis	Malaria
Pediculosis	Filariasis	Amoebiasis
Scabies	Hookworm disease	Coccidiosis

2.4.1 Protozoa infection

Malaria

Malaria is a life - threatening disease it is transmitted through the bite of an infected anopheles mosquito. The mosquitoes carry the plasmodium parasite that parasite is released into bloodstream.



Causative organism of Malaria

- ❖ Plasmodium vivax
- ❖ plasmodium Ovale
- ❖ plasmodium malariae
- ❖ plasmodium falciparum

Incubation period

- ❖ 9 to 14days

Mode of transmission

- ❖ Organ transplant
- ❖ Blood transfusion

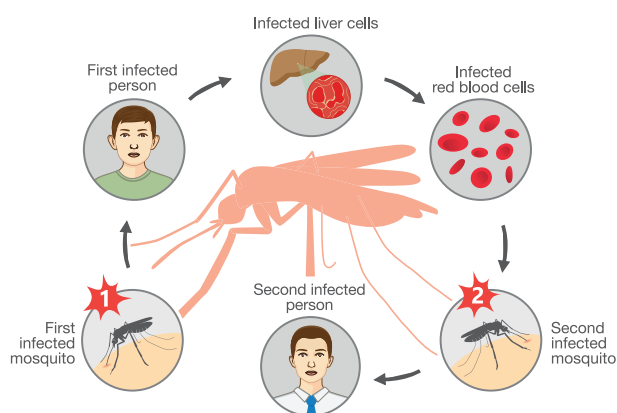
Symptoms

- ❖ Fever with chills
- ❖ Headache
- ❖ Vomiting
- ❖ Tiredness
- ❖ Sweats



Mosquitoes love CO₂ -they have special organ called a maxillary palp to follow the smell of CO₂ released from our breath.

Mosquito transmission cycle



Complications

- ❖ Cerebral Malaria
- ❖ Organ failure
- ❖ Anemia
- ❖ Low blood Sugar

Preventive measures

Mosquito control methods



Spraying clothing and skin



Sleeping in Mosquito net

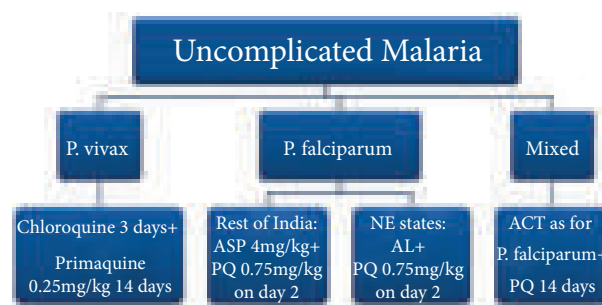


Covering the skin



Spraying in home

Management



2.4.2 Filariasis



Filariasis is a tropical disease is caused by mosquitoes, and it infect the body through tiny filarial worms.

Causative organism

- ❖ Wuchereria bancrofti
- ❖ Brugia malayi
- ❖ Brugia Himori

Incubation period

- ❖ 10-14 days

Symptoms

- ❖ Swelling of the genitals and extremities
- ❖ Severe inflammation of the skin
- ❖ Inflammation of the lymphatic vessels
- ❖ Elephantiasis / Lymphatic Filariasis

Diagnosis

- ❖ Quantitative blood count (QBC)
- ❖ Immuno chromatographic test (ICI)
- ❖ Serological test
 - IgG₄
 - IgG₂

Management

- ❖ Ivermectin
- ❖ Antihistamines or corticosteroids can reduce allergic reactions
- ❖ DEC (Diethylcrazartamazine)

Preventive Measure

- ❖ Control of mosquito
- ❖ Refrain from going outdoors
- ❖ Sleep inside the insecticide – treated mosquitoes net
- ❖ Cover yourself with full sleeves
- ❖ Avoid using strong perfume or cologne which draw the Mosquitoes.



Over 120 million people are already infected with filariasis, about 40 million incapacitated by the disease.

2.5 DISEASE TRANSMITTED THROUGH ARTHROPOD

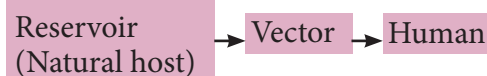
Arthropod – borne disease are transmitted by arthropods, which includes insects , spider and crustaceans



Arthropod vector

- ❖ Flies
- ❖ Fleas
- ❖ Ticks
- ❖ Lice

Mode of Transmission



Arthropod are largest single animal phylum , consisting of organisms with segmented bodies, Jointed legs or wings and exoskeletons.

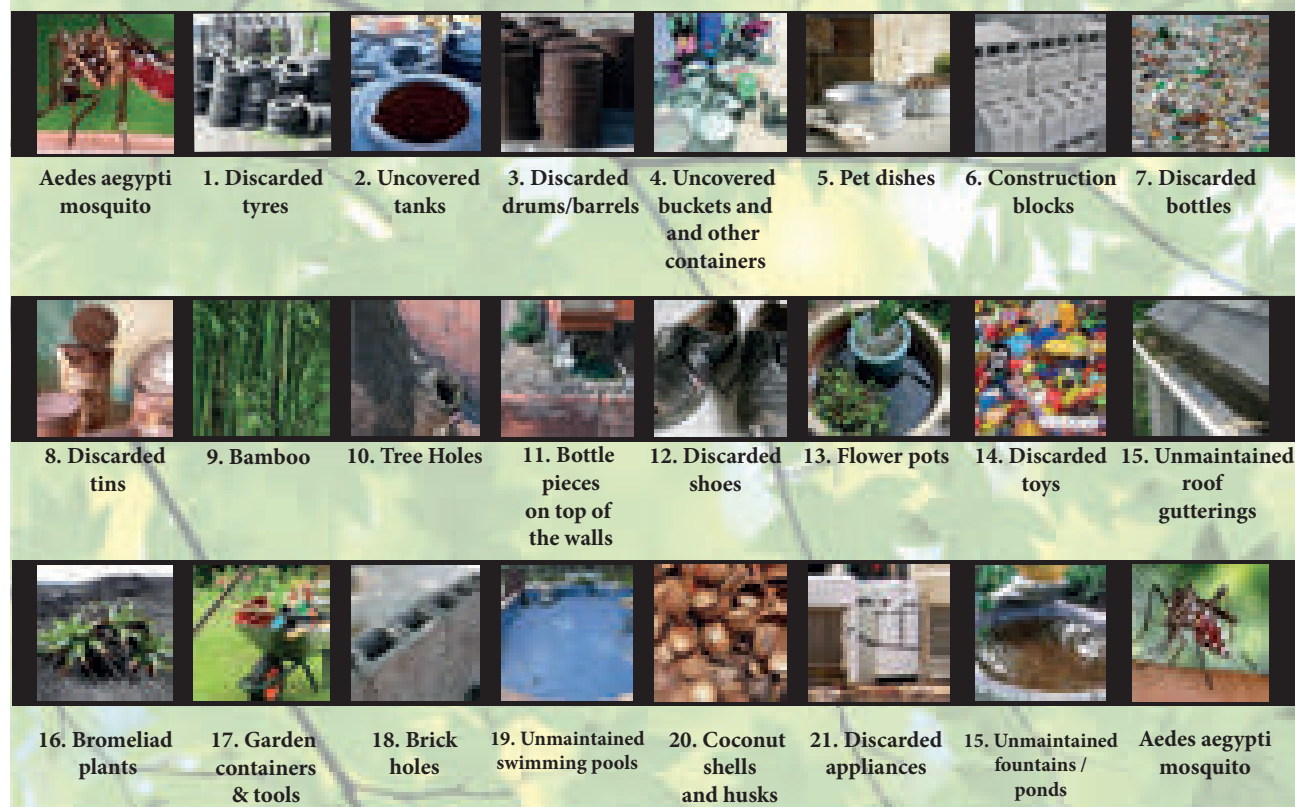
Arthropod – Borne Diseases

- ❖ Malaria – Anopheles mosquito
- ❖ Yellow fever – Aedes mosquito
- ❖ Dengue fever – Aedes mosquito
- ❖ Encephalitis – Aedes / Culex/ fleas
- ❖ Epidemic typhus – Body louse
- ❖ Bubonic plague – flea

2.5.1 Dengue

Dengue is a viral disease, it is transmitted by the infective bite of female *Aedes Aegypti* mosquito, it occurs in two forms.

Breeding sites of the *aedes aegypti* mosquito which causes Dengue Fever, Chikunguniya, Zika and Yellow Fever



- ❖ Dengue fever
- ❖ Dengue Haemorrhagic

Causative organism

- ❖ *Aedes Aegypti* Mosquito

Incubation period

- ❖ 2 to 7 days

Signs & Symptoms

- ❖ Abrupt onset of high fever
- ❖ Severe frontal headache
- ❖ Pain behind the eyes which worsens with eye movement
- ❖ Muscle and joint pains
- ❖ Loss of sense of taste and appetite
- ❖ Measles like rash over chest and upper limbs
- ❖ Nausea and vomiting

Preventive measures			
Biological	Chemical	Personal	Environmental
Target larval stage of <i>Aedes</i> in large water storage containers	Thermal fogging – malathion, pyrethrum	Clothing to reduce exposed skin	Reduced vector breeding sites
Larvivorous fish (<i>Gambusia</i>), endotoxin producing bacteria (<i>Bacillus</i>), copepod crustaceans (<i>mesocyclops</i>)	Insecticide treatment of water containers	Insect repellent especially in early morning, late afternoon. Bed netting important	Solid waste management
	Space spraying (thermal fogs)	Mosquito repellants (pyrethroid based)	Public education
	Indoor space spraying (2% pyrethrum), organo-phosphorus compounds	Coils, sanitation measures	Empty water containers and cut weed/tall grass

Diagnosis

- ❖ Haemagglutination inhibition (HI) test
- ❖ Compliment Fixation Test (CFT)
- ❖ Neutralization test (NT)
- ❖ IGM – capture Enzyme – Assay (MAC – ELISA)
- ❖ IGM – ELISA
- ❖ Rapid Diagnostic tests (NS 1)



STUDENT'S ACTIVITY

Check for the Aedes Mosquito breeding in your home.

When not in use

- Empty all water storage containers.
- Cover rarely used water source.
- Cover all containers that are being used to store water.

Every other day

- Change water in Flower Vases.
- Remove water from Flower pot plants.

Once a week

- Remove stagnant water collected on leaves.
- Clean fallen leaves on drains and gardens.

Once a month

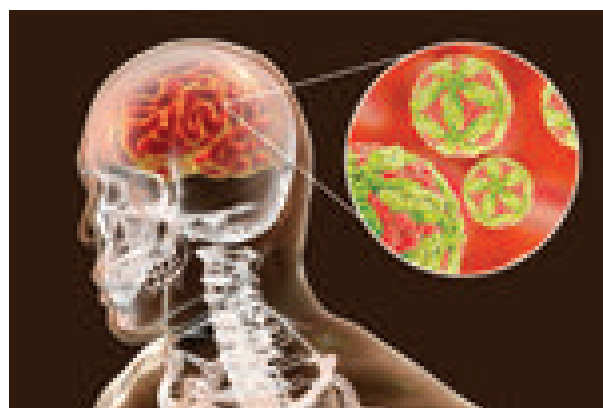
- Clear blockages and put insecticide in roof gutters.

Management

Management of Dengue fever is symptomatic and supportive management.

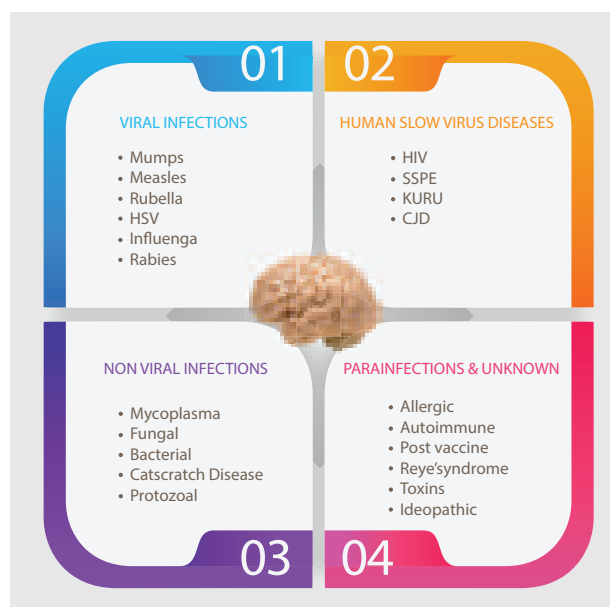
- ❖ Bed rest during the acute phase.
- ❖ Use cold sponging to keep temperature below 39° C.
- ❖ Antipyretics may be used to lower the body temperature. Aspirin/ NSAID should be avoided since it may cause gastritis, vomiting, acidosis and platelet dysfunction.
- ❖ oral fluid and electrolyte therapy are recommended for patients with excessive sweating or vomiting.

2.4.1 Encephalitis



Encephalitis is an acute inflammation (Swelling) of the brain usually resulting from

either a viral infection or due to the body's immune system mistakenly attacking brain tissue.

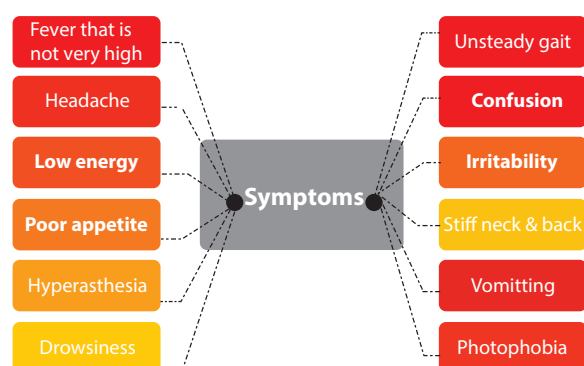


Mode of transmission

- ❖ Respiratory droplets of infected person
- ❖ Contaminated food and drink
- ❖ Mosquito, tick and insect bites
- ❖ Skin contact

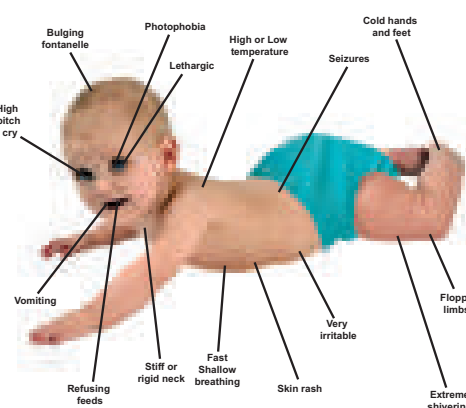
Symptoms

ENCEPHALITIS SYMPTOMS



Symptoms of New born and Infants

- ❖ Body stiffness
- ❖ Irritability and crying more often
- ❖ Poor feeding
- ❖ Bulging of fontanel
- ❖ Vomiting



Diagnosis

- ❖ CSF Analysis
- ❖ EEG: Diffuse slow –wave activity
- ❖ CT/MRI: Swelling of the brain parenchyma

Complications



Management Supportive

- ❖ Rest
- ❖ Reduction in room light, visitors, & noise
- ❖ Maintain airway, breathing and circulation
- ❖ Control of seizures
- ❖ Treatment of raised ICT.
- ❖ Manage fever (never give aspirin)
- ❖ Maintain fluid & electrolyte balance

- ❖ Maintain blood-sugar level.
- ❖ Feeding: NPO initially then NG Tube Feeding.
- ❖ Physiotherapy
- ❖ Methyl-prednisolone or Dexamethasone must be given to children with suspected ADEM.

Preventive Measure

- ❖ Effective viral vaccines
- ❖ Control of insect vector
- ❖ Eradication of insect breeding sites
- ❖ Insect repellents-DEET

2.6 DISEASE TRANSMITTED THROUGH ANIMALS



A disease that is naturally transmitted from animals to human is known as a zoonosis

Modes of transmission

- ❖ Contact with pets
- ❖ Contact with soil and water which is contaminated by animals
- ❖ Consuming of unpasteurized dairy products

Zoonotic Diseases

- ❖ Anthrax
- ❖ Cat scratch diseases
- ❖ Leptospirosis
- ❖ Q fever
- ❖ Ringworm
- ❖ Rabies
- ❖ Tetanus

Animal behaviorists have concluded that cats don't meow as a way to communicate with each other. It's a method they use for seeking attention from humans.

2.6.1 Anthrax

Anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*. Primarily a disease of herbivorous animals, but it can infect all mammals including humans. The *B. Anthracis* spores can be found in animal products such as wool, hair, hides, skins, bones, meal and the carcasses of infected animals. The spores can survive in the soil for many years.

Causative organism

Bacillus anthracis

Incubation period

1 to 7 days

Up to 60 days post exposure

Modes of transmission

There are three main modes of transmission:

- ❖ Direct contact

- ❖ Airborne
- ❖ Gastrointestinal infection

Signs and symptoms

- ❖ Cutaneous infection
- ❖ Malaise
- ❖ Fever
- ❖ Headache
- ❖ Respiratory infection
- ❖ Cyanosis
- ❖ Shock
- ❖ Death
- ❖ Nausea
- ❖ Loss of Appetite
- ❖ Vomiting
- ❖ Abdominal pain
- ❖ Toxemia

Risk factors

- ❖ Workers who come into contact with animal hides
- ❖ Workers involved in the handling of dead animals

Diagnosis

- ❖ Identification of the typical Gram positive bacilli of *Bacillus anthracis* from skin lesions
- ❖ Respiratory secretions

Management

- ❖ Treatment should be initiated as soon as possible.
- ❖ Mild cases of cutaneous anthrax may be effectively treated with oral Penicillin or tetracycline
- ❖ Treatment of inhalation or gastrointestinal

anthrax requires high dose intravenous Penicillin

Preventive Measures

- ❖ Controlling anthrax in livestock
- ❖ Preventing gastrointestinal anthrax by forbidding the sale of meat from sick animals or animals that have died of the disease
- ❖ Regular cleaning and disinfection of the workplace
- ❖ Disinfecting animal products
- ❖ Processing hides, wool, and bone by tanning, dyeing, carbonizing or using acid treatment
- ❖ Administering vaccines

Good hygiene practice (hand washing avoiding hand to eye/mouth contact) and need to cover cuts and abrasions.

2.6.2 Tetanus

Tetanus is caused by the infection of wounds by bacterium *Clostridium tetani*, which produces toxin that damages the nervous system and muscles



Causative organism:

Bacterium *Clostridium Tetani*

Incubation period

3–21 days

Signs and symptoms

- ❖ Muscle rigidity

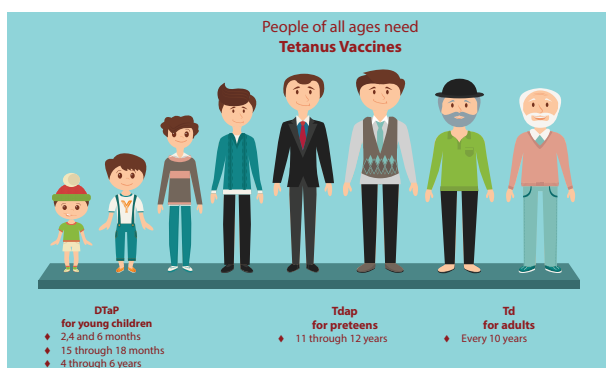
- ❖ Lockjaw an inability to open the mouth wide
- ❖ Firmness of the Abdominal muscles
- ❖ Painful muscle spasm
- ❖ Cardiac arrhythmia
- ❖ High blood pressure

Diagnosis

- ❖ Diagnosis is entirely clinical
- ❖ Clostridium tetani is recovered from the wound in only 30% of patients

Management

- ❖ Careful wound cleaning is essential when treating any wound.
- ❖ Protection against tetanus with vaccine
- ❖ Analgesic should be administered to prevent pain.
- ❖ Antibiotic therapy (Metronidazole or Penicillin)
- ❖ Patients with mild muscular spasms may be treated with infusions of diazepam



Opisthotonos

Bridge or Arch like position, spasm of the muscles causing backward arching of the head, neck and spine in severe tetanus.

2.7 DISEASE TRANSMITTED THROUGH CONTACT

Disease which are transmitted from person to person through intimate contact is called sexually transmitted disease (STD). STD'S are dangers because they are easily spread.



Mode of Transmission

STD's are disease and infections which are capable of being spread from person to person via.

- ❖ Sexual Intercourse
- ❖ Oral-genital contact or in non-sexual ways
- ❖ IV Drugs
- ❖ Congenitally transmitted

Common STD'S

- ❖ HIV and AIDS
- ❖ Gonorrhea
- ❖ Genital Herpes (hsv-2)
- ❖ Genital warts (HPV)
- ❖ Hepatitis B
- ❖ Pubic Lice
- ❖ Syphilis
- ❖ Trichomoniasis

It's hard to tell just by looking who has an STD



- ♦ 92.4% Wanted to know if they were infected
- ♦ 90.8% Wanted to know if their partners were infected
- ♦ 65% Expected the test as part of STD Screening



2.7.1 HIV and AIDS

HIV is a virus that damages the immune systems, which helps the body to off infection.

Causative organism

- ❖ Human immunodeficiency virus

Incubation period

- ❖ Between 2 weeks to months, or longer
- ❖ Through Body

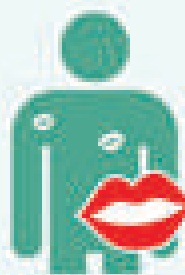
HIV IS **NOT** TRANSMITTED BY...



Insect Bites



Toilet Seats



Kissing



Sharing Cutlery

Transmission of HIV

- ❖ Body Fluids
- ❖ Blood
- ❖ Breast milk
- ❖ Semen
- ❖ Vaginal and rectal fluids
- ❖ Sharing needles or Syringes.
- ❖ Sharing tattoo equipment
- ❖ During pregnancy from mother to baby
- ❖ Through (pre –mastication) chewing baby's food before feeding to them.

HIV not spread through skin-to skin contact, hugging, shaking hands, kissing, sharing food, dung, sharing toilets or bedding, clothing and not through insects.



- ♦ The red ribbon is the global symbol for solidarity with HIV-positive people and those living with AIDS.
- ♦ 1st December is world AIDS Day.

Symptoms

- ❖ Dry, flaky skin (xeroderma)
- ❖ Chronic fatigue
- ❖ Fever that comes and goes (pyrexia)
- ❖ Heavy night sweats
- ❖ Rapid weight loss
- ❖ Swollen lymph nodes
- ❖ White spots on tongue, mouth, throat
- ❖ Recurrent or chronic diarrhoea
- ❖ Anxiety and depression

Diagnosis

- ❖ Antibody /Antigen test (After 18-45 days after exposure of HIV)
- ❖ Antibody Test (23 and 90 days after transmission)
- ❖ Nucleic acid test

HIV screening



HIV window period

The time between exposure to HIV and it becomes detectable in blood is called HIV window period, during window period the test shows negative result.

Management

- ❖ Antiretroviral therapy, its grouped into six classes
- ❖ NRTIs (nucleoside reverse trans criptase inhibitors)

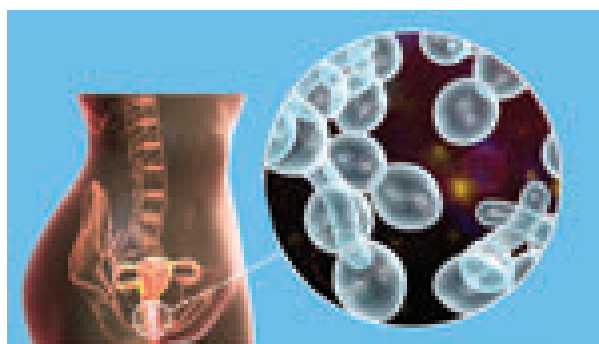
- ❖ NNRTIs (non-nucleoside reverse trans criptase inhibitors)
- ❖ Protease inhibitors
- ❖ Fusion inhibitions
- ❖ CCR5 Antagonists
- ❖ Integrase stand transfer inhibitions

HIV-Prevention

- ❖ Get tested for HIV
- ❖ Limit sexual partners
- ❖ Avoid sharing needles
- ❖ Stay away from drugs
- ❖ Avoid blood contact
- ❖ Practice safe sex
- ❖ Take action if you have exposed to HIV

2.7.2 Gonorrhoea

Gonorrhoea is a sexually transmitted disease (STD). Its caused by infection with the bacterium neisseria gonorrhoea, it tends to infect warm, moist area of the body.



Causative organism

Nesseria Gonorrhoea

Incubation period

2-5 days after exposure

Symptoms

In men

- White, yellow or green urethral discharge (pus-like)
- Pain in the testicles or scrotum
- Painful or frequent urination
- Anal discharge, itching pain, bleeding
- Itching, difficulty in swallowing swollen neck lymph nodes
- Eye pain, light sensitivity
- Eye discharge (pus-like)
- Red, swollen warm, painful joints

In women

- Painful sexual intercourse
- Fever
- Yellow or green vaginal discharge
- Vulval swelling
- Bleeding in between periods
- Heavier periods
- Bleeding after intercourse
- Vomiting, abdominal or pelvic pain
- Painful or frequent urination

Diagnosis

- ❖ Nucleic acid amplification test (NAAT)
- ❖ Culture
- ❖ Gram stain of urine sediment

Complications

In women

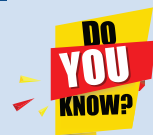
- ❖ Pelvic inflammatory disease
- ❖ Ectopic pregnancy
- ❖ Chronic pelvic pain
- ❖ Infertility

In men

- ❖ Epididymitis (in men)
- ❖ Arthritis
- ❖ Tenosynovitis
- ❖ Dermatitis

Management

- ❖ Antibiotics (Ceftriaxone, azithromycin)
- ❖ Abstaining from sexual intercourse
- ❖ Eye ointment for eye infection






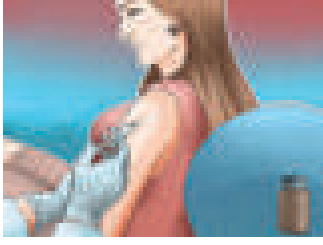


Gonorrhea passed to infant causes joint infection, blindness and also still birth, premature labour.





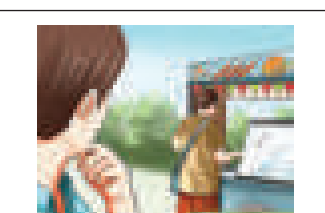


Preventive measures

- ❖ Safe sex practice
- ❖ Having sex with mutually monogamous, unaffected partner



Common Control measures of communicable disease	
	<p>Wash your hands before and after contact with an infected person.</p> <p>All bodily fluids from the infected person are considered contagious.</p> <p>Hand washing is one of the most standard ways to avoid infection.</p> <p>Wash your hands thoroughly.</p>
	<p>Wash for the appropriate amount of time, or use hand sanitizer.</p> <p>Use an alcohol-based hand sanitizer.</p> <p>Alcohol-based hand sanitizer can kill microorganism.</p>
	<p>Take precautions against diseases that are transmitted through direct contact. Gloves create a barrier between your hands and any infected surface. Wear Goggles, Wear Gown.</p>
	<p>Take precautions against diseases that are spread through droplets.</p> <p>Wear a face mask in case the person sneezes or coughs.</p> <p>When a person sneezes or coughs, microorganisms can be projected into the air. Face masks can still help to protect.</p>
	<p>Protect yourself from airborne diseases.</p> <p>N95 face mask that can protect you against these tiny airborne diseases.</p> <p>Keep the person special room at the hospital.</p>
	<p>Get vaccinated against communicable diseases when possible.</p> <p>Vaccination process involves exposing you to a controlled amount of the virus Immune system gains the ability to fight the virus.</p> <p>Talk to your doctor about what vaccines may be available for the diseases in your specific area. Vaccine yourself, if you are planning on traveling to areas that have communicable disease.</p>



	<p>Clean your house thoroughly.</p> <p>Mops and buckets are considered one of the dirtiest tools at home. Use two buckets when mopping. One for the detergent and one for rinsing.</p>
	<p>Ensure proper waste management.</p> <p>Spoiled foods must be properly disposed of and trash cans should be kept sealed at all times to avoid attracting pests like rodents and cockroaches. Garbage also can be a place for microorganisms to thrive in.</p>
	<p>Remove any stagnant water from around your home.</p> <p>Stagnant water can be a place for mosquitoes and other intermediate carriers of communicable diseases.</p>
	<p>Avoid drinking contaminated water.</p> <p>Water should be brought to a boiling point for at least 15 minutes before removing it from the fire.</p> <p>This ensures that microorganisms in the water are killed.</p>
	<p>Avoid eating street foods. It is hard to know how street foods have been prepared, so try to avoid them as much as possible. If food is undercooked, or prepared in dirty environments, there is a good chance that it could cause you to get sick.</p>
	<p>Practice safe sex.</p> <p>There are communicable diseases that can be transmitted through unprotected sexual intercourse.</p> <p>If you are sexually active, use a condom because it can serve as a physical barrier between your genitals and bodily fluids.</p>
	<p>Avoid sharing personal items.</p> <p>This includes eating utensils, toothbrush, razor, handkerchiefs and nail clippers.</p> <p>These items are potential sources of harmful microorganisms.</p>



	<p>Increase your self-awareness.</p> <p>Watch the news and keep track of any outbreaks of communicable diseases in your area. Maintain a good understanding of how those diseases are transmitted.</p>
	<p>Understand that there must be a causative agent .</p> <p>Know that there must be a reservoir of infection.</p>
	<p>Be aware that there must be a portal of exit</p>
	<p>Recognize the different modes of transmission.</p> <p>Direct contact – the infection is transferred from person to person.</p> <p>Indirect contact – the infection is transferred when a person comes in contact with a contaminated object. Droplet spread – the infection is transferred through respiratory secretions.</p>
	<p>Understand that there must be a portal of entry</p>
	<p>Be aware that the microorganism must have a susceptible host</p>
	<p>Know that avoiding communicable diseases is best done by breaking the chain of infection</p>



STUDENT'S ACTIVITY

Demonstrate an understanding of how non-curable infections, including HIV and Hepatitis C infections, are transmitted and how these infections influence the health and identities of self, family, and community.

Role of Nurse in the Communicable Disease Management

Health promotion using the TALK approach

- ❖ **T - TELL** about healthy life style to practice all the hygienic practices.
- ❖ **A -ADVICE** to individuals and families what to do to reduce risk and adopt healthy life styles.
- ❖ **L - LEAD** collective community action to reduce the risk factor by working with community based organisation.
- ❖ **K - KNOW** more about health promotion and healthy life style to reduce risk. Hands of health staff and visitors should be washed after contact with the patient.
- ❖ Precautions should be put in place immediately.
- ❖ Put the patient in a single room.
- ❖ Place a sign board on the entrance to alert all staff and visitors.
- ❖ Hands of health staff and visitors should be washed after contact with the patient.
- ❖ Clinical waste should be disposed carefully.
- ❖ Minimal equipment and supplies should be taken.
- ❖ Appropriate treatment of the patient is essential.

- ❖ Close and regular observation of vital signs of patient.
- ❖ Watch for any complications.
- ❖ Health education must be given according to the infection.

CONCLUSION

Communicable diseases are transmittable from one person to another person, with the help of the agent like water, air, parasites, Animals and through human. These are the carriers of disease and spread in epidemically, endemically and pandemically communicable disease are preventable with proper management and by acquiring knowledge on the disease condition, what is the disease, and what are symptoms, causes and preventive measures and treatment regimen. In order to control the communicable disease, all should know the common control measures and how to practice the measure in day today life.

A-Z GLOSSARY

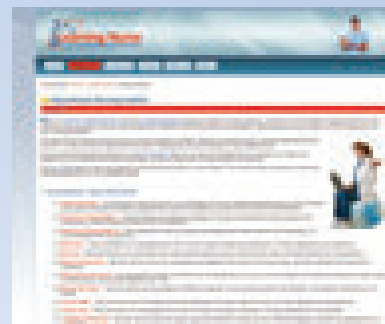
Antibiotic (ஆண்டிபயாடிக்)	-	The substances or chemicals that can kill or inhibit the growth of bacteria.
Antimicrobial (நுண்ணுயிர்)	-	The substances that can destroy or inhibit the growth of pathogenic groups of Microorganism [Bacteria, Viruses, parasites and fungi]
Bronchoscopy (பிரோன்சோஸ்கோபி)	-	Bronchoscopy is a technique of visualizing the inside of the airways for diagnostic and therapeutic purpose.
Diphtheria (தொண்டை அழற்சி)	-	Diphtheria is a serious bacterial infection that affects the mucous membrane of the throat and nose .
Epididymitis (விரைமேல் நாள அழற்சி)	-	Epididymitis is an inflammation of the coiled tube (epididymis) at the back of the testicle that stores and carries sperm.
Hyperesthesia (தூண்டிய உணர்வு)	-	Hyperesthesia is an increase in the sensitivity of any of your senses, such as sight, sound, touch and smell.
Malaise (உடல்சோர்வு)	-	A general sense of being unwell, often accompanied by Fatigue, diffuse pain or lack of interest in activities.
Meningitis (மூளையழற்சி)	-	Inflammation of brain and spinal cord membranes, typically caused by an infection.
Reye's syndrome (ரெய்ஸ் நோய்க்குறி)	-	Reye's syndrome is a rare but serious condition that causes swelling in the liver and brain.
Toxemia (இரத்தத்தில் நச்சு)	-	Blood poisoning by toxins from a local bacterial infection.
Vaccine (தடுப்பூசி)	-	Vaccine is a biological preparation that provides active acquired immunity to a particular disease.



ICT Corner

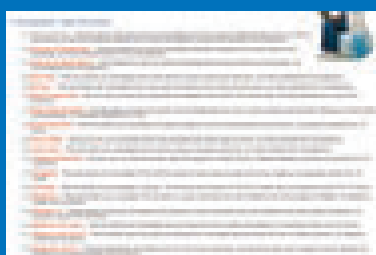
Check Your Knowledge

This activity enables the students to have a thorough knowledge and understanding on the required field in nursing as it's based on quiz in interesting way

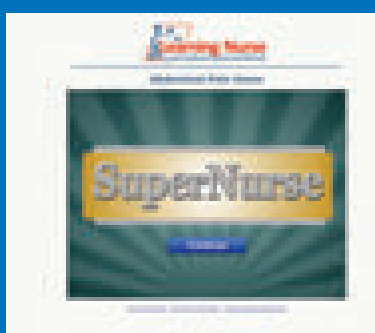


- Step 1:** Type the URL link given below in the browser or scan the QR code. It opens into a page with title “Super Nurse Series” with many side headings.
- Step 2:** In that click your required topic. It opens into another page. You can view the “the super nurse”.
- Step 3:** Click the start button. It opens as “super Nurse”. Type your name at the bottom. Now click the start button.
- Step 4:** Now the quiz will be displayed on the screen. You can play and check your learning

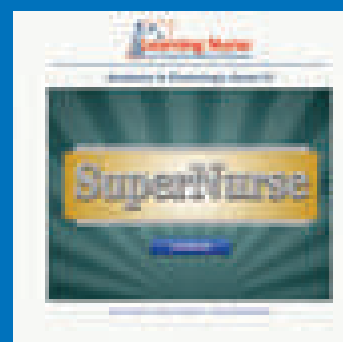
Step 1



Step 2



Step 3



*Pictures are indicative



B290_12_Nur_Voc_EM



EVALUATION



I. Choose the correct answer:

1. Spreading of causative organism from one person to is known as
 - a) Non communicable diseases
 - b) Communicable disease
 - c) Infectious disease
 - d) All the above
2. Sunken eyes is the symptom of
 - a) Typhoid
 - b) Influenza
 - c) Cholera
 - d) Malaria
3. Rubella is caused by
 - a) Bacteria
 - b) Viral
 - c) Fungal
 - d) Protozoa
4. The infection spread to the blood stream will lead
 - a) Lung Abscesses
 - b) Pleural effusion
 - c) Septic shock
 - d) All the above
5. Which Mosquitoes cause dengue fever
 - a) Culex Mosquito
 - b) Aedes Aegypti mosquitos
 - c) Anopheles mosquito
 - d) None of the above
6. Incubation period of Filariasis is
 - a) 10 – 14 days
 - b) Few hours
 - c) 2-7 days
 - d) 60 days
7. Chewing baby's food before feeding is
 - a) Pre – mastication
 - b) Mastication
 - c) Biting
 - d) All the above
8. Hepatitis A shows the symptom to the person is
 - a) Fatigue
 - b) Dry skin
 - c) Yellowish coluration of eye and skin
 - d) Dehydration
9. Causative organism of Typhoid
 - a) Typhi
 - b) Vibrio bacterium
 - c) Salmonella typhi
 - d) Tetany
10. Which is the following damages the immune systems
 - a) Cholera
 - b) Dengue
 - c) HIV
 - d) Encephalitis

II. Write short answer for the following questions:

1. Draw epidemic cycle.
2. Define infection.
3. Define encephalitis.
4. Write the incubation period of malaria and its causative organism.
5. Define influenza.
6. Write any three complication of pneumonia.



7. Name the first line drugs of tuberculosis.
8. Define HIV.
9. Name the pneumonia vaccines.
10. List any three Helminthic infection.

III. Write short notes for the following questions:

1. Write the preventive measures of malaria.
2. Write about the causes of encephalitis.
3. Write down the symptoms of Gonorrhoea
4. Write about the water born disease management.
5. Diffrenciate endemic, epidemic and pandemic.
6. Write about HIV prevention.
7. Explain the complication of Gonorrhoea.

IV. Answer the following questions in detail:

1. Draw the various modes of Transmission of disease and write the types of Airborne disease.
2. Explain about chicken pox.
3. Write about the common control measures of communicable disease.
4. Explain influenza.
5. Write down the definition, causes, symptoms, management and the preventive measures of Hepatitis A.

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Unit 3



NON COMMUNICABLE DISEASES



LEARNING OBJECTIVES

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

- ❖ define the term NCD.
- ❖ gain basic knowledge about types of NCD.
- ❖ gain knowledge about the disorders of Gastro intestinal, Cardiovascular, Respiratory, Excretory, Musculoskeletal, occupational and behaviour.
- ❖ discuss the causes signs & symptoms medical management and complication.
- ❖ identify the nursing role for NCD.



திருக்குறள்:

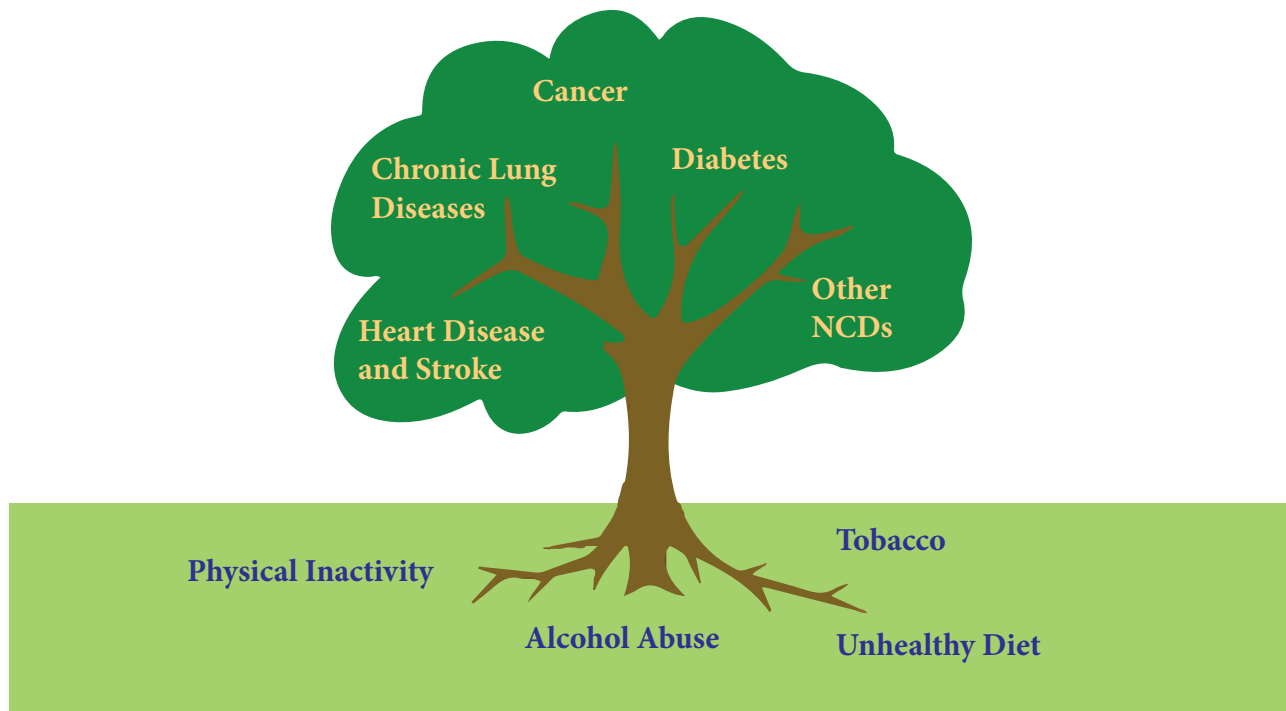
மிகினும் குறையினும் நோய்செய்யும் நூலோர்
வளிமுதலா எண்ணிய மூன்று.

விளக்கம்:

மருத்துவ நூலோர் வாதம் பித்தம் சிலேத்துவம் என எண்ணிய மூன்று அளவுக்கு மிகுந்தாலும் குறைந்தாலும் நோய் உண்டாகும்.

Explanation:

If food and work are (either) excessive or deficient the three things enumerated by (medical) writers flatulence, biliousness and phlegm will cause (one) disease.



3.1 INTRODUCTION

Non communicable disease (NCD) is a medical condition or disease that is not caused by infectious agents. Non communicable diseases are usually caused by genetic or lifestyle factors.

Four types of NCDs

- ❖ Cardio vascular diseases
- ❖ Cancer
- ❖ Diabetes and
- ❖ Chronic respiratory diseases.

Physical activity, low fruit and vegetable intake, high fast food consumption and cholesterol, smoking and alcohol are predominant causes of non communicable disease.

NCDs NON COMMUNICABLE DISEASES

Metabolic and behavioural risk factors are most

common causes of non communicable diseases. NCDs can refer to chronic diseases which last for long periods of time and progress slowly. The life styles and behaviour patterns of people are changing rapidly these are being favourable to the onset of chronic disease.

3.2 GASTRO INTESTINAL DISORDERS

Hernia

Cholecystitis

Appendicitis

3.2.1 Hernia

A hernia is a protrusion of an organ, tissue or structure through the wall of the cavity in which it is normally contained.

Causes

1. Congenital weakness of the abdominal wall.
2. Acquired causes (traumatic injury, aging).
3. Increased intra-abdominal pressure due to heavy lifting, obesity, pregnancy, straining and chronic coughing.

Types of hernia

1. **Reducible:** The protruding mass can be placed back into the abdominal cavity.
2. **Irreducible:** the protruding mass cannot be moved back into the abdomen.
3. **Incarcerated:** An irreducible hernia in which the intestinal flow is completely obstructed.
4. **Strangulated:** An irreducible hernia in which the blood and intestinal flow are completely obstructed. Develops when the loop of intestine in the sac becomes twisted or swollen and a constriction is produced at the neck of the sac.

Classification of hernia by site

1. Inguinal hernia

Hernia into the inguinal canal (more common in males.)

Indirect inguinal hernia: Due to weakness of the abdominal wall at the point through

which the spermatic cord emerges in the male and the round ligament of uterus in the female. Through this opening the hernia extends down, the inguinal canal and often into the scrotum or the labia.

- ❖ Direct inguinal hernia: Passes through the posterior inguinal wall.

2. Femoral hernia

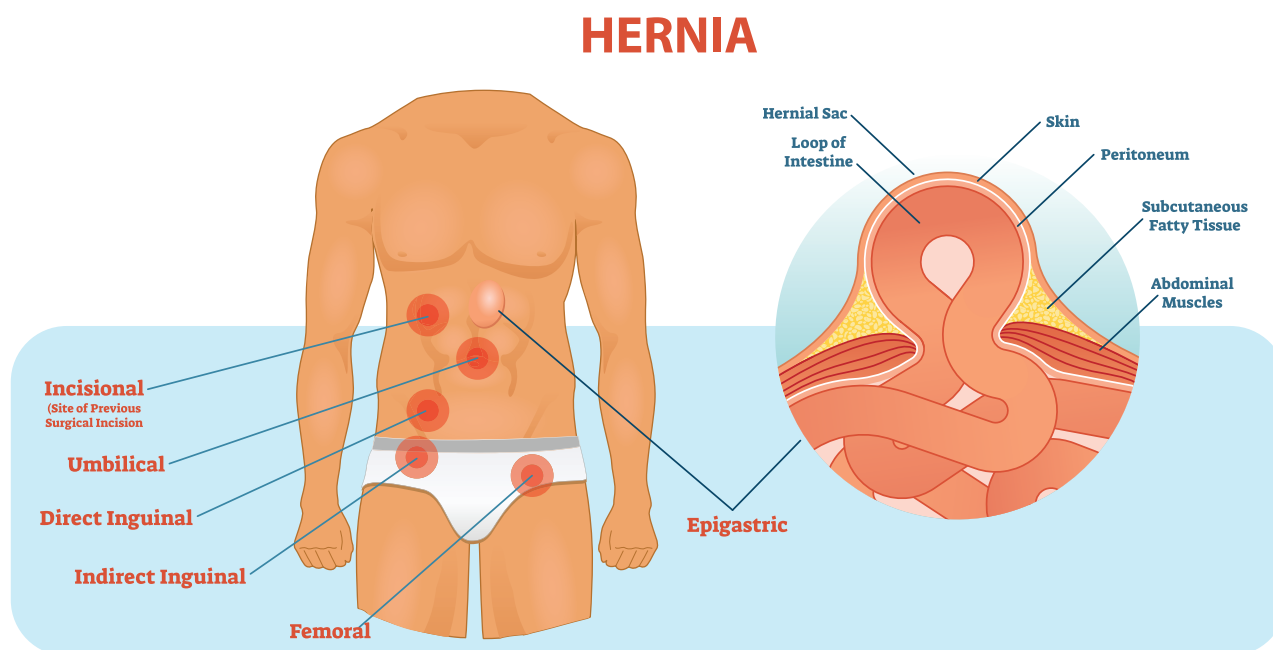
Hernia into two femoral canals appearing below the inguinal ligament that is below the groin.

3. Umbilical hernia

Protrusion of part of the intestine at the umbilicus due to failure of umbilical orifice will close. It occurs most often in obese women, in children and in patients with increased intra abdominal pressure from cirrhosis and ascites.

4. Ventral (or) incisional hernia

Hernia through the weak abdominal wall



may occur after impaired healing of incision due to infection.

5. Diaphragmatic (or) hiatus hernia (or) oesophageal hernia

It is the protrusion of a part of the stomach that slides or follows the normal path of the esophagus and enters into the thoracic cavity through an enlarged hiatal opening.

Signs and Symptoms

1. Bulging over herniated area when patient stands or strains, and disappears when supine.
2. Hernia tends to increase in size and recurs with intra abdominal pressure.
3. Strangulated hernia presents with pain, vomiting, swelling of hernia sac, peritoneal irritation and fever.
4. In hiatus hernia the patient complains of heart burn after large meals and during the night, food may be regurgitated.

Diagnosis

1. Based on signs and symptoms.
2. Abdominal X-rays: Reveals abnormally high level of gas.
3. Laboratory studies: Complete blood count and electrolytes may show haeconcentration (increased hematocrit), dehydration (increased or decreased sodium) and leucocytosis.

Management

Mechanical

A truss is an appliance with a pad and belt that is holding snugly over a hernia to prevent abdominal contents entering the hernial sac.

Surgical management

1. Recommended to correct hernia before strangulation.
2. Strangulation of hernia is an emergency condition that necessitates emergency laparotomy.

❖ Herniorrhaphy

- Removal of hernial sac, contents replaced into the abdomen, layers of muscle and fascia sutured.
- Laparoscopic herniorrhaphy is a possibility is often performed on outpatient basis.

❖ Hernioplasty

Involves reinforcement of surturing (often with mesh) for extensive hernia repair.

❖ Strangulated

Strangulated hernia requires resection of ischemic bowel in addition to repair of hernia.

Nursing management

1. Achieving comfort of the patient:

- ❖ Fit patient with truss or belt when hernia is reduced, if ordered
- ❖ Trendelenburg's position may reduce pressure on hernia, when appropriate
- ❖ Emphasize patient to wear truss under clothing and to apply before getting out of the bed when hernia is reduced

2. Post operative care

- ❖ Encourage the patient to splint the incision site with hand or pillow when coughing to lessen pain and protect the site from increased intra-abdominal pressure and wound dehiscence
- ❖ Administer analgesics as ordered
- ❖ Encourage ambulation as soon as permitted
- ❖ Advise patient that difficulty in urinating is common after surgery; promote elimination to avoid discomfort, and catheterise if necessary

3. Prevention of infection

- ❖ Monitor the vital signs
- ❖ Check dressings for drainage and incision for redness and swelling
- ❖ Monitor for other signs and symptoms of infections; fever, chills, malaise, diaphoresis
- ❖ Administer prescribed antibiotics

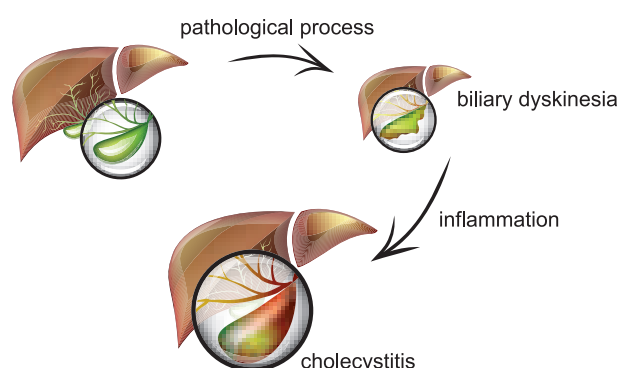
4. Patient education on discharge

- ❖ Advise that pain and scrotal swelling may be present for 24 to 48 hours after repair of an inguinal hernia
- ❖ Apply ice intermittently
- ❖ Elevate scrotum by using scrotal support
- ❖ Take prescribed medication to relieve discomfort
- ❖ Inform that heavy lifting should be avoided for 4-6 weeks
- ❖ Athletics and extremes of extension are to be avoided for 8 to 12 weeks postoperatively

Complications

- ❖ Bowel obstruction
- ❖ Gangrene formation
- ❖ Wound dehiscence

3.2.2 Cholecystitis



Inflammation of the gall bladder

Causes

- ❖ Exact causes is not known
- ❖ Gall stones and kinking or twisting of bile duct

Risk factor

- ❖ Sedentary life style
- ❖ Obesity

Signs & Symptoms

- ❖ Pain on right upper quadrant/epigastric or both
- ❖ Nausea
- ❖ Vomiting
- ❖ Increased temperature
- ❖ Mild jaundice

Investigations

- ❖ Ultrasonography
- ❖ Abdominal X-ray
- ❖ Blood cell count Test (TC, DC)

Management

Medical Management

- ❖ Hospitalization
- ❖ Administration of antibiotics
- ❖ Administration of parenteral analgesic
- ❖ Insertion of nasogastric tube if patient has vomiting
- ❖ Maintain of fluid and electrolyte balance with IV fluids

Surgical Management

- ❖ Cholecystectomy (Removal of Gall bladder by surgery)

Nursing management

- ❖ History collection
- ❖ Client symptoms should be carefully monitored
- ❖ Check vital signs
- ❖ Administer pain medication
- ❖ Administer IV fluids
- ❖ Monitor intake output chart
- ❖ Watch for signs for dehydration



Complications of Gallstones

- ❖ Biliary Colic
- ❖ Acute Cholecystitis
 - Gallbladder Empyema
 - Gallbladder Gangrene
 - Gallbladder Perforation
- ❖ Obstructive Jaundice
- ❖ Ascending Cholangitis
- ❖ Pancreatitis
- ❖ Gallstone ileus (rare)

3.2.3 Appendicitis

Appendicitis is an inflammation of the vermiform appendix caused by obstruction of the intestinal lumen from infection, stricture, fecal mass, foreign body or tumour.

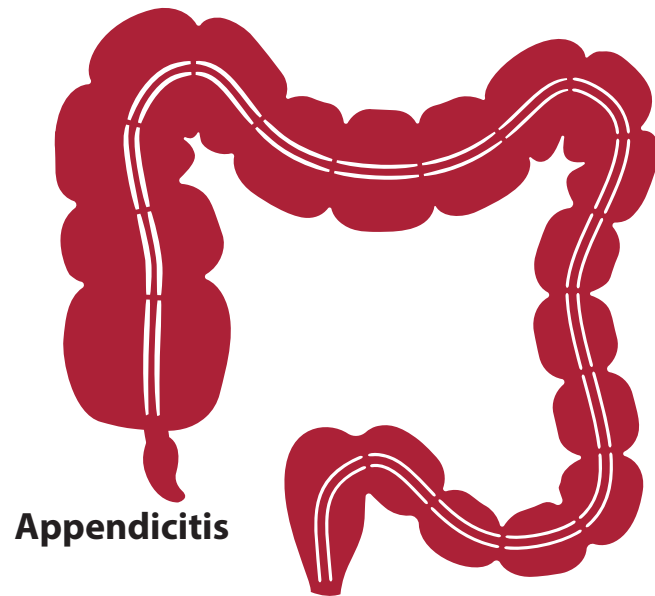
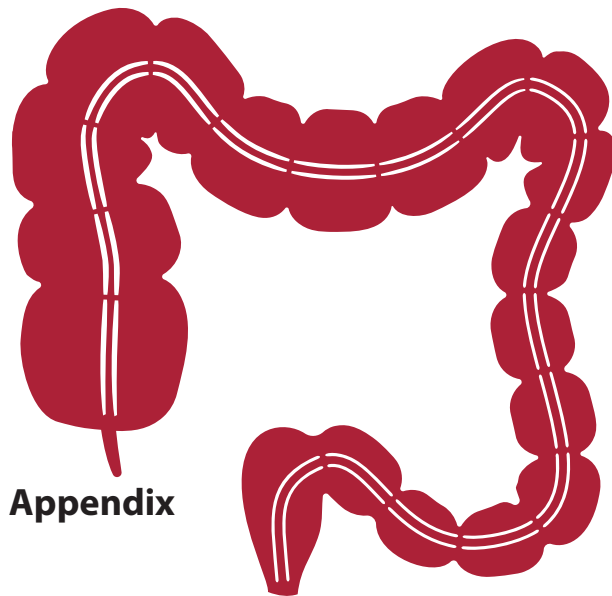
Causes

1. Obstruction of the appendix causes accumulation of mucus and swelling leading to appendicitis.
2. Obstruction occurs due to the accumulation of faecal matter, enlargement of lymphoid follicles, intestinal worms, and tumours.

The appendix is a finger – like pouch present at the end of the colon on the lower side of the right abdomen.

Pathophysiology

Obstruction of the intestinal lumen is followed by edema, infection and ischemia of



the appendix. As intraluminal tension develops, necrosis and perforation usually occur.

Signs and Symptoms

The typical symptoms of acute appendicitis are

1. Severe pain in the right side of the lower abdomen.
2. Rebound tenderness at McBurney's point.
3. Anoxia.
4. Low-grade fever.
5. Nausea and vomiting.
6. Constipation or diarrhoea occurs.

Diagnosis

1. Physical examination. Rebound tenderness at Mc Burney's point.
2. Laboratory test: complete blood count will show
 - ❖ Leucocytosis
 - ❖ Urinalysis
3. Abdominal X-ray to visualize shadow consistent with fecalith in appendix.
4. U.S.G. Abdomen

Management

Surgery: The standard Management for appendicitis is surgery that involves removal of the appendix. The procedure is called appendectomy that can be done in two methods:

- ❖ Laparotomy – a single incision is made to remove the appendix
- ❖ Laparoscopic appendectomy – several small incisions are made using special surgical tools to remove the appendix. The advantage of this surgery is fast recovery

Complication

- ❖ Peritonitis
- ❖ Perforation
- ❖ Abscess formation

3.3 CARDIO VASCULAR DISORDERS

Hypertension

Acute Myocardial Infarction

Anaemia

3.3.1 Hypertension



A normal blood pressure reads as 120/80 where 120 denotes the systolic pressure and 80 denotes the diastolic pressure. When the value of blood pressure is 140/90 and above, then it is called as high blood pressure or hypertension.

Blood pressure is the force of blood pressing against the walls of the blood vessels (arteries) that deliver oxygen-rich blood from the heart to all parts of the body.

Causes

- ❖ Smoking
- ❖ High blood cholesterol
- ❖ Over weight
- ❖ High salt intake
- ❖ Alcohol intake
- ❖ Renal disorder
- ❖ Endocrine disorder
- ❖ Vascular disorder
- ❖ Neurological disorder
- ❖ Problems with pregnancy
- ❖ Acute stress

Risk factors

• Non modifiable

Family history

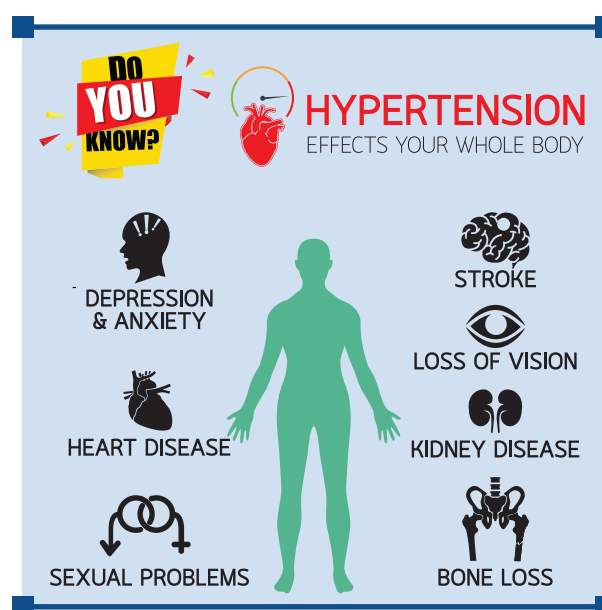
Gender, age

• Modifiable

Stress

Obesity

Substance abuse



Signs & Symptoms

- ❖ Fatigue
- ❖ Head ache
- ❖ Shortness of Breath
- ❖ Giddiness
- ❖ Palpitation
- ❖ Ringing in the ears
- ❖ Epistaxis
- ❖ Heart failure
- ❖ Cardiac pain

❖ Coronary thrombosis

❖ Stroke

❖ Renal failure

Investigations

❖ History collection

❖ Physical examination

❖ ECG

❖ Renogram, renal arteriogram

❖ Laboratory study of blood and urine

❖ Fundoscopic examination

Management

Medical Management

❖ Diuretics

❖ Beta blockers

❖ Calcium antagonist

Dietary management

❖ Reduction of weight

❖ Restrict fat intake

❖ Restrict sodium intake

❖ Avoid consumption of alcohol, caffeine

❖ Avoid smoking

❖ Encourage the patients to take food contain potassium

Relaxation technique:

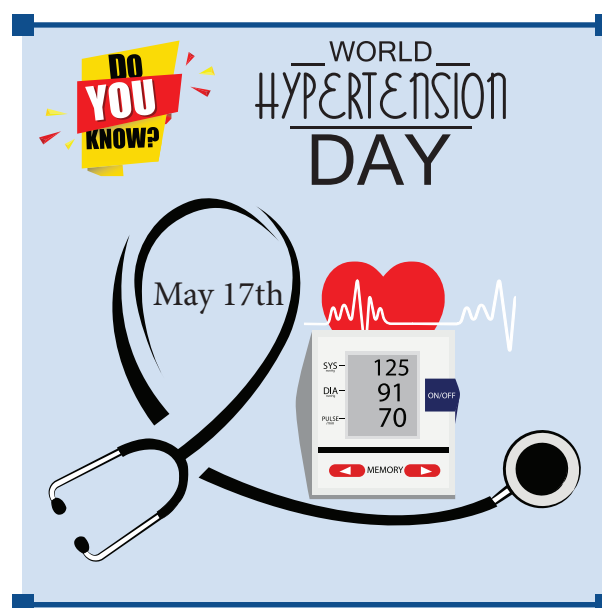
❖ Transcendental meditation

Transcendental describes anything that has to do with the spiritual, or non physical world.

❖ Yoga

❖ Progressive muscle relaxation

Psychotherapy



3.3.2 Acute Myocardial Infarction

Myocardial infarction refers to a dynamic process by which one or more regions of myocardium experience prolonged decrease in oxygen supply because of insufficient coronary blood flow causing necrosis of tissue.

Causes

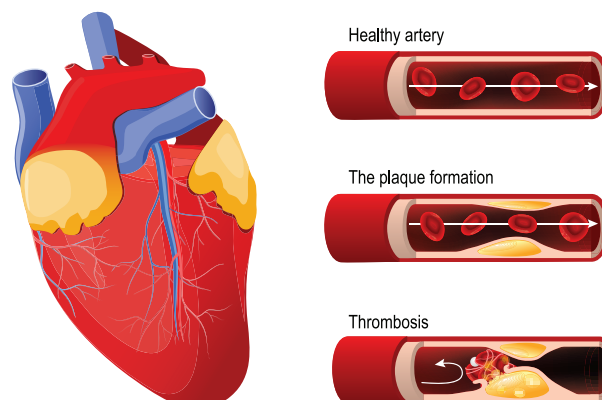
❖ Occlusion of a coronary artery

❖ Strenuous physical activity

❖ Emotional stress such as anger

❖ Exposure to cold

❖ Thrombus formation



Signs & Symptoms

- ❖ Chest pain radiating to one or both arms, neck and back
- ❖ Dyspnea or orthopnea
- ❖ Shortness of breath
- ❖ Anxiety
- ❖ Systolic blood pressure less than 80 mm of Hg
- ❖ Tachycardia or bradycardia
- ❖ Weakness, cold, sweat, pallor
- ❖ Palpitation
- ❖ Peripheral cyanosis
- ❖ Nausea or vomiting

Investigations

- ❖ 12 lead ECG
- ❖ Echocardiography
- ❖ Trop-I
- ❖ serum CPK-MP and (CPK)
- ❖ Lipid Profile
- ❖ ESR



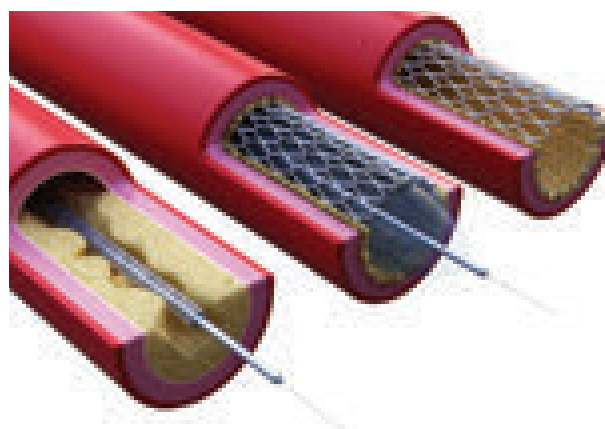
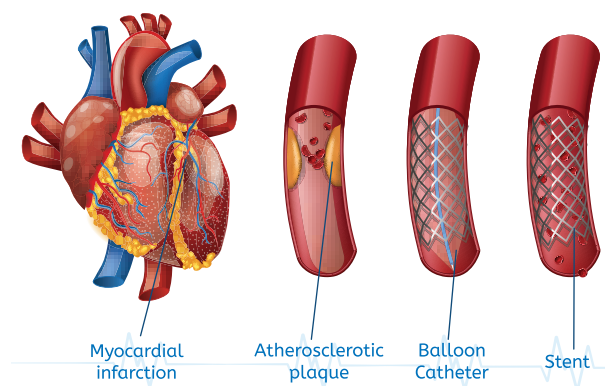
Management

Medical Management

- ❖ Nitrates – help to relieve pain
- ❖ Calcium channel blockers – prevents vasodilation
- ❖ Beta-blockers
- ❖ Morphine-act as analgesics and sedatives
- ❖ Oxygen supply
- ❖ Heparin therapy
- ❖ Antiplatelet therapy

Surgical Management

- ❖ Angioplasty
- ❖ CABG



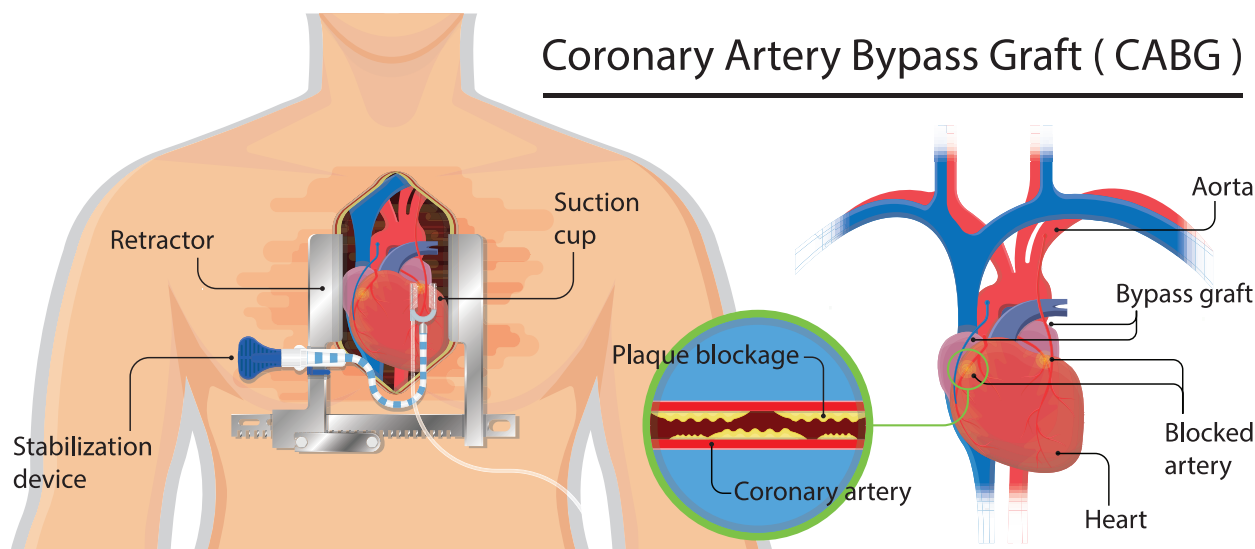
Nursing Management

- ❖ Provide proper rest
- ❖ Assess for previous health history regarding allergic medications, trauma etc
- ❖ Reassure the patient
- ❖ Monitor the vital signs
- ❖ Administer thrombolytic therapy
- ❖ Administer oxygen as required
- ❖ Assess the characteristic of chest pain including location, duration, and quality.
- ❖ Maintain intake output chart
- ❖ Instruct to avoid alcohol, smoking and physical activity
- ❖ Educate the patient to change life style and rehabilitation

Complication

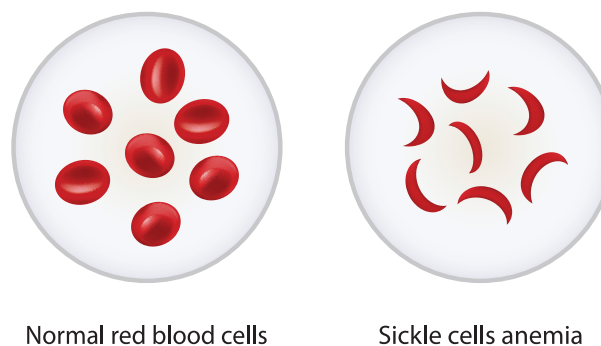
- ❖ Pulmonary embolism
- ❖ Pericarditis
- ❖ Shock
- ❖ Mitral incompetence

Coronary Artery Bypass Graft (CABG)



- ❖ Heart failure
- ❖ Rupture of the heart
- ❖ Phlebothrombosis
- ❖ Angina pectoris

3.3.3 Anaemia



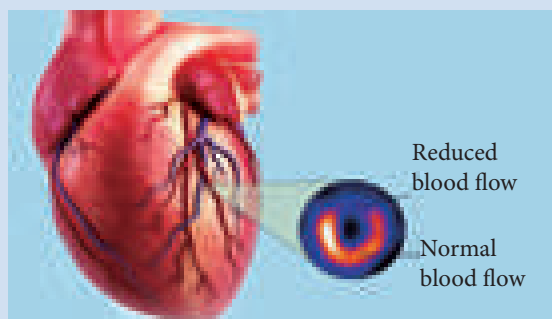
Anaemia is a condition in which there is a reduction in the number of red blood cells and a deficiency of haemoglobin resulting in decreased oxygen-carrying capacity.

Causes

1. Blood loss related to trauma
2. Decreased production of platelets.
3. Increased destruction of platelets
4. Decreased number of clotting factor.
5. Impairment of RBC production due to nutritional deficiency, (e.g Iron deficiency, folic deficiency, Vitamin B12 deficiency, Vitamin B6 deficiency).
6. Decreased erythrocyte production, bone marrow depression.
7. Increased erythrocyte destruction due to



A **thallium stress test** is a nuclear imaging test that shows how well blood flows into your heart while you're exercising or at rest. This test is also called cardiac or nuclear stress test.



During the procedure, a liquid with a small amount of radioactivity called a radioisotope is administered into one of your veins. The radioisotope will flow through your bloodstream and end up in your heart. Once the radiation is in your heart, a special camera called gamma camera can detect the radiation and reveal any issues your heart muscles is having.

i. Extrinsic factors

- Drugs and chemicals
- Infection
- Antibody reaction

ii. Intrinsic factors

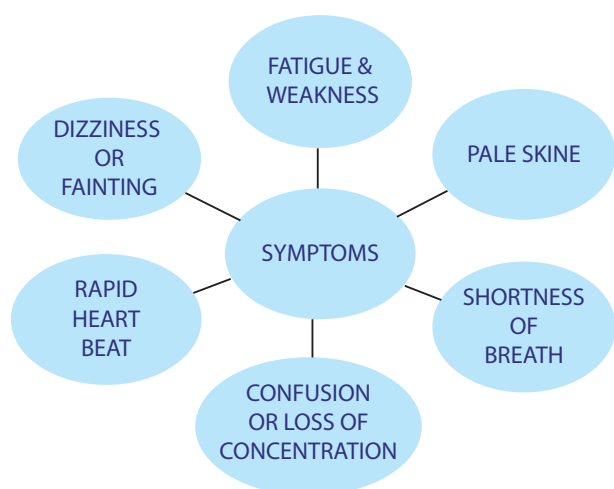
- Abnormalities of RBC membrane
- Abnormal haemoglobin synthesis
sickle cell, disease, thalasemia syndrome

Pathophysiology

RBCs and haemoglobin are normally formed at the same rate at which they are destroyed.

Whenever formation of RBCs or haemoglobin is decreased or their destruction is increased, anaemia results.

Signs and Symptoms



Diagnosis

1. Complete blood count
2. Haemoglobin electrophoresis

Types of Anaemia

1. **Anaemia from blood loss:** Haemorrhage or continued slow bleeding will cause anaemia.
2. **Iron deficiency Anaemia:** It may result

from faulty eating habits (Poor diets or hurrying meals).

3. **Pernicious Anaemia:** A patient with pernicious Anaemia lacks substances in the gastric juice called intrinsic factor, which is necessary to enable the body to absorb vitamin B₁₂ from food.
4. **Sickle cell anaemia:** It is genetic disease in which the red blood cells become sickle in shape due to the presence of abnormal haemoglobin.
5. **Aplastic anaemia:** It results from disease of the bone marrow (where most blood cells are produced.) whereby the marrow is destroyed.
6. **Megaloblastic anaemia:** It is caused by deficiency of the vitamin B₁₂ and folic acid. This shows identical bone marrow and peripheral blood changes, because both vitamins are essential for normal DNA synthesis.
7. **Haemolytic anaemia:** The erythrocyte has a shortened life span.

Management

1. **Anaemia from blood loss:** Replace the blood cells by transfusion and at times administering iron supplements.
2. **Iron-Deficiency Anaemia:** Take extra iron containing food.
3. **Pernicious Anaemia:** Take vitamin B₁₂ containing foods and injection every 2 or 3 weeks will allow the person to live normally.
4. **Sickle cell Anaemia:** Citadels citrate, pentoxifylline, vanillin oil as anti sickly

effects evaluated as adjunctive therapy for sickle cell anaemia. Blood transfusion and folic acid therapy is administered.

5. **Aplastic anaemia:** Two methods of managements are currently employed. Bone marrow transplantation and Administration of immunosuppressive therapy with entity.
6. **Megaloblastic anaemia:** Injection B₁₂ is administered, provide nutritious diet and folic acid 1 mg per day.

Nursing Management

- ❖ Offer small amount of foods at frequent intervals
- ❖ Provide iron-rich foods and vitamins.
- ❖ Teach and assist with good hygienic practices
- ❖ Good dietary habits



STUDENT'S ACTIVITY

- List the food products which you have taken whole 1 week and identify the iron nutrient in it
- Participate in WIFS (Weekly Iron and Folic acid Scheme) programme

Complication

- ❖ Mental sluggishness
- ❖ Growth retardation
- ❖ Delayed puberty related to growth retardation
- ❖ Cardiac failure related to collapse and shock resulting in death

IRON - DAILY REQUIREMENT

- Children (ages 1-10): 7 to 10 mg per day
- Women (ages 19-50): 18 mg per day
- Pregnant Women: 27 mg per day
- Lactating Women: 9 to 10 mg per day
- Men (ages 19 and older): 8 mg per day



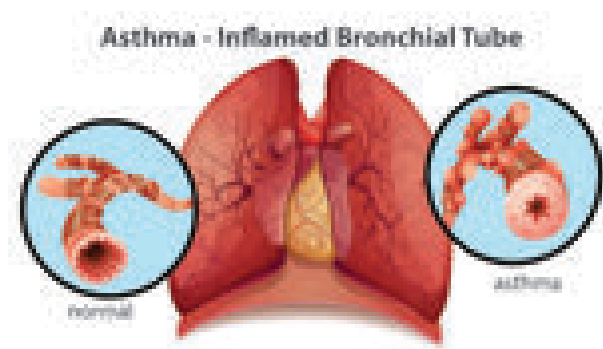
Food rich in Iron: Spinach, Beetroot, Apple, Pomegranate, Soy Beans, Nuts, Honey, Dates, Egg, Sesame Seeds, Seafood and all kind of Meats.



3.4 RESPIRATORY DISORDERS

Asthma

COPD (Chronic Obstructive Pulmonary Disease)



3.4.1 Asthma

Asthma is an inflammatory disease of the airway causing mucosal oedema and increased mucous production.

Causes

- ❖ Exposure to indoor and outdoor allergens
- ❖ Airway irritant

Risk factors

- ❖ Family history of bronchial asthma
- ❖ Exposure to airway irritants (weed, pollens, dust, strong odours, smoke)
- ❖ Signs and Symptoms:
- ❖ Non-Productive cough
- ❖ Dyspnea
- ❖ Diaphoresis
- ❖ Tachycardia
- ❖ Tachypnea
- ❖ Wheezing
- ❖ Cyanosis

Investigations

- ❖ Family and occupational history
- ❖ Increased eosinophil counts

- ❖ ABG-Analysis
- ❖ Sputum for Culture
- ❖ Pulmonary function test

Medical management

- ❖ Corticosteroids
- ❖ Bronchodilators
- ❖ Oxygen therapy
- ❖ Nebulization

Nursing Management

- ❖ Ineffective air way clearance related to inflammation and increased secretion.
 - Increased fluid intake
 - Coughing and breathing exercise
 - Change of position frequently
 - Administer broncho dilator
 - Chest physiotherapy
 - Suctioning
 - Artificial airway if required
- ❖ Ineffective breathing pattern related to tachycardia
 - Comfort position to facilitate breathing
 - Administer prescribed cough suppressants and analgesics
 - Monitor ABG
 - Observe signs of hypoxia
- ❖ Activity intolerance related to decreased energy
 - Schedule the activity after management
 - Use oxygen as needed
 - Avoid smoking, weight gain and stress which increases the oxygen demand
 - Provide psychological support
 - Calm and quiet environment to reduce anxiety

3.4.2 COPD (Chronic Obstructive Pulmonary Disease)

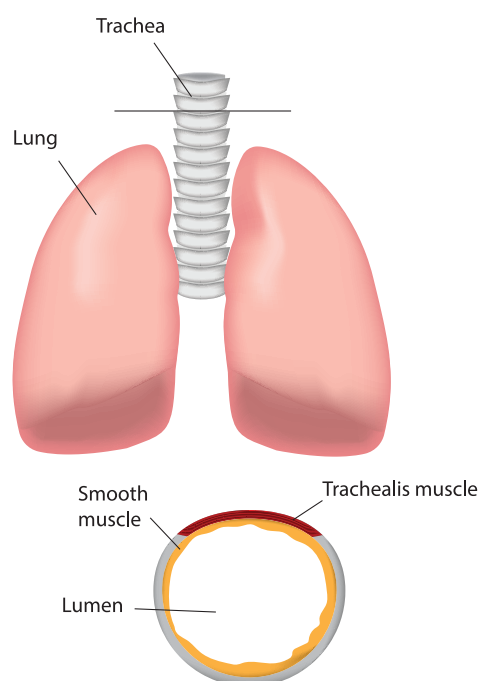
This is characterized by progressive airflow limitation that is not fully reversible. It includes chronic bronchitis, pulmonary emphysema and bronchial asthma.

Chronic bronchitis, is a chronic inflammation of the lower respiratory tract characterized by excessive mucous secretion, cough, and dyspnea associated with recurring infections of lower respiratory tract.

Pulmonary emphysema, is a complex lung disease characterized by destruction of the alveoli enlargement of distal air space, and break down of alveolar walls.

Causes

1. Cigarette smoking
2. Air pollution
3. Occupational exposure
4. Allergy
5. Autoimmunity
6. Infection
7. Genetic predisposition
8. Aging



Signs & Symptoms

Chronic bronchitis

- ❖ Productive cough
- ❖ Production of thick gelatinous sputum
- ❖ Wheezing and dyspnea

Emphysema

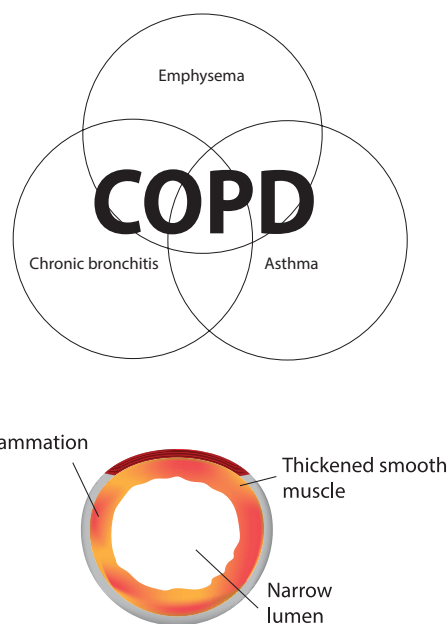
- ❖ Dyspnea
- ❖ Decreased exercise tolerance
- ❖ Minimal cough with mild expectoration
- ❖ Barrel chest

Investigations

- ❖ PFT – Pulmonary function Test
- ❖ ABG levels
- ❖ Chest X ray

Management

- ❖ Cessation of smoking
- ❖ Inhaled bronchodilators
- ❖ Inhaled and or oral corticosteroids
- ❖ Chest physiotherapy



- ❖ Oxygen administration
- ❖ Pulmonary rehabilitation
- ❖ Antimicrobial agents
- ❖ Lung volume reduction surgery

Nursing Management

Improving airway clearance

- ❖ Eliminate pulmonary irritants
- ❖ Smoking cessation
- ❖ Administer bronchodilators
- ❖ Assess for adverse effect of medications
- ❖ Auscultate chest before and after aerosol therapy
- ❖ Postural drainage
- ❖ Encourage increased fluid intake
- ❖ Avoid dairy product.

Improving breathing pattern

- ❖ Teach and supervise breathing exercise
- ❖ Teach diaphragmatic, lower costal, abdominal breathing using relaxed breathing pattern
- ❖ Use pursed – lip breathing at intervals and during dyspnea
- ❖ Comfortable position
- ❖ Relief from anxiety

Controlling infection

- ❖ Recognize early sign of infection
- ❖ Sputum for culture and sensitivity

Improving gas exchange

- ❖ Observe the patient for any disturbance
- ❖ Monitor ABG, and oxygen saturation
- ❖ Assist mechanical ventilation

Improving nutrition

- ❖ Collect nutritional history
- ❖ Encourage small and frequent feeds

- ❖ Liquid nutritional supplement
- ❖ Avoid gas producing food
- ❖ Encourage oral hygiene
- ❖ Encourage pursed lip breathing in between the meals
- ❖ Monitor body weight

3.5 RENAL DISORDERS

Renal Calculi

Acute renal failure

3.5.1 Renal Calculi

Classification

Urolithiasis and nephrolithiasis

Causes

- ❖ Urinary stasis
- ❖ Super saturation of urine

Risk factors

- ❖ Immobility
- ❖ Sedentary life style
- ❖ Dehydration
- ❖ Metabolic disturbances
- ❖ Increases calcium
- ❖ A diet high in purine oxalates calcium and animal proteins

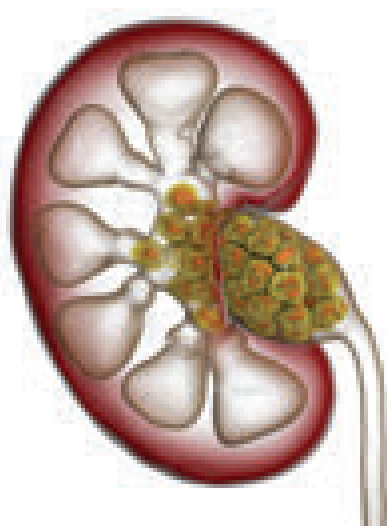
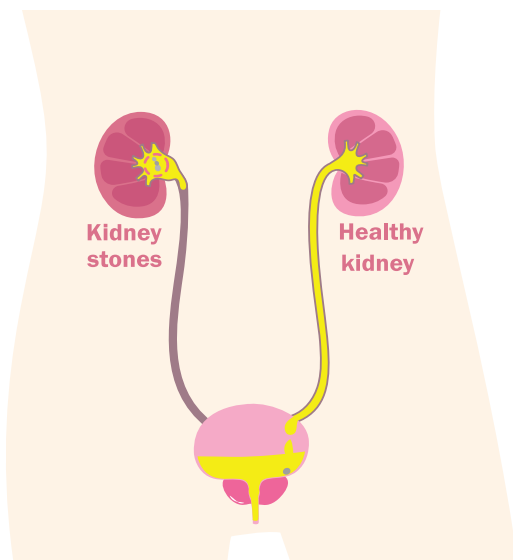
Signs & Symptoms

- ❖ Renal colic or ureteric colic
- ❖ Sharp severe pain originates deep in the lumbar region and radiate around the sides and down towards the genital or thigh
- ❖ Nausea
- ❖ Vomiting
- ❖ Pallor
- ❖ Increased blood pressure and pulse

- ❖ Urgency and frequency of urine
- ❖ Hematuria
- ❖ Fever and chills

Investigations

- ❖ USG - Abdomen
- ❖ Intravenous pyelogram
- ❖ X- ray KUB (Kidney, Urethra, Bladder) or CT KUB
- ❖ Blood test may shows increased WBC, uric acid, serum Calcium and Phosphorous
- ❖ Cystoscopy



Management

Medical management

- ❖ Pain management
- ❖ Analgesics and anti spasmodic drugs
- ❖ Hydration with oral fluids and IV fluids
- ❖ Minimize the calculus formation by dietary changes (less calcium diet)

Surgical Management

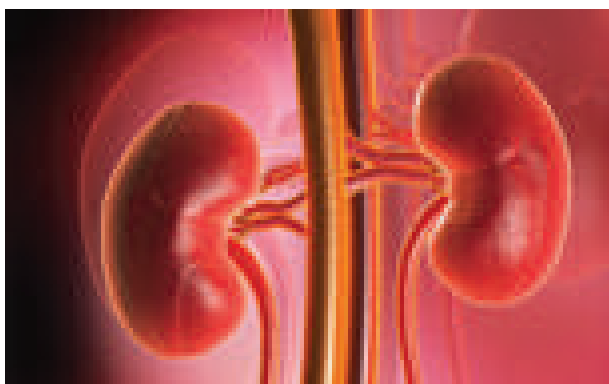
- ❖ URSL (Ureteroscopic Lithotripsy)
- ❖ Intra corporeal Lithotripsy (crushing the stones)
- ❖ Laser lithotripsy
- ❖ ESWL (extracorporeal shock wave lithotripsy)
- ❖ PCNL (Percutaneous Nephrolithotomy)
- ❖ Ureterolithotomy
- ❖ Cystolithotomy
- ❖ Nephrolithotomy
- ❖ Nephrectomy



Nursing Management

- ❖ Pain control
- ❖ Minimize the vomiting by antiemetics
- ❖ Increased fluid intake and relaxation technique
- ❖ Provide comfortable position
- ❖ Maintain fluid intake chart (intake output)
- ❖ Advice dietary modification

3.5.2 Acute Renal Failure



Acute renal failure is a syndrome of varying causation that results in a sudden decline in renal function.

Kidneys are a pair of organs located toward lower back. One kidney is on each side of spine. They filter blood and remove toxins from body. Kidneys send toxins to your bladder. Later body removes toxins during urination. Kidney failure occurs when kidneys abruptly lose their function of filtering waste products from the blood.

Causes

- ❖ Pre-renal causes: It results from the condition that decreases renal blood flow (e.g. Hypovolemia, shock, hemorrhage, burns, diuretic therapy)
- ❖ Post-renal causes: It comes from obstruction or disruption of urine flow anywhere along the urinary tract
- ❖ Intra-renal causes: It results from injury in the renal tissue and is usually associated with intra renal ischemia, toxins immunologic process, systematic and vascular disorders

Signs and Symptoms

- ❖ Decreased tissue turgor, dryness of mucous membrane, weight loss, hypotension, oliguria
- ❖ Difficulty in voiding and changes in urine flow
- ❖ Fever and skin rashes, edema
- ❖ Changes in urine volume, increases blood urea, creatinine, uric acid, potassium levels etc

Investigations

- ❖ Urine analysis: Reveals proteinuria, haematuria
- ❖ Raise of Serum creatinine in blood
- ❖ Urine culture
- ❖ Renal ultrasonography
- ❖ Renal biopsy

Management

- ❖ Correct any reversible cause of acute renal failure E.g: Improve renal perfusion maximize cardiac output, surgical release of obstruction
- ❖ Be alert for fluid excess or deficit
- ❖ Monitor the signs of hypovolemia or hypervolemia
- ❖ Monitor Intake and output chart
- ❖ Weigh the patient daily



- ❖ Monitor vital signs
- ❖ Correct and control biochemical imbalances
- ❖ Restore and maintain B/P
- ❖ Maintain nutrition
- ❖ Initiate haemodialysis
- ❖ Renal replacement therapy

Prevention

- ❖ Maintaining healthy lifestyle – performing regular physical activity, limiting alcohol intake, and refraining from smoke can keep you away from illness
- ❖ Be attentive while taking over the counter (OTC) medications, especially NSAIDs as they can be nephrotoxic
- ❖ Undergo urine test and blood test at least once in 6 months to monitor kidney disease
- ❖ Consult a doctor immediately if you find any changes in your urine output

Complication

- ❖ Infection
- ❖ Arrhythmias due to hyperkalemia
- ❖ Electrolyte abnormalities
- ❖ Gastrointestinal bleeding
- ❖ Multiple organ system failure

3.6 NEUROLOGICAL DISORDERS

Epilepsy

Uncouncious Status

3.6.1 Epilepsy

Epilepsy is a tendency to have recurrent seizures, which results from disturbances in the normal electrical activity of the brain.

The human brain is a unique computer, which works for all 24 hours. It is built up of billions of nerve cells called neuron. The neuron has electrical activity and this is transmitted through the axons and dendrites. These electrical impulses are transmitted from one neuron to another through the chemical messengers called neurotransmitters, which are present in the synapse. If a group of nerve cells start sending these impulses excessively, it results into epileptic attacks.

Causes

Epilepsy is a symptom of many diseases. Just as headache, it is a symptom, which has a number of causes. Epilepsy can be caused by a number of illness in the brain.

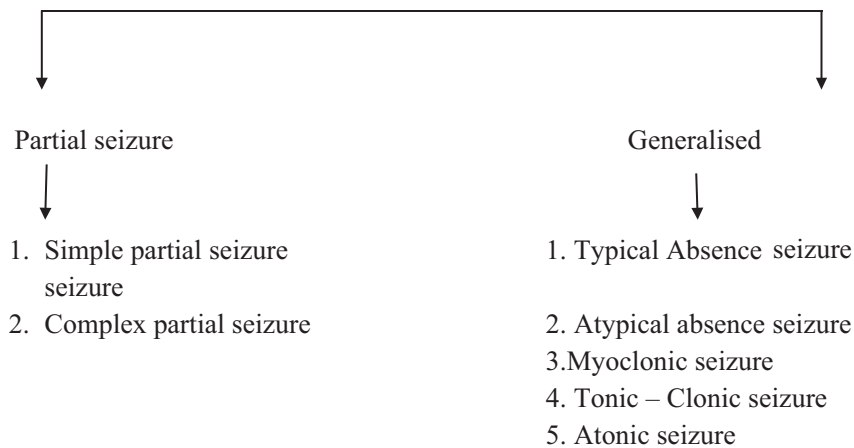
- ❖ Idiopathic
 - No demonstrable cause
- ❖ Symptomatic
 - Prenatal injuries
 - Low sugar, sodium or calcium
 - Developmental defect of the brain
 - Cerebral infections like meningitis, encephalitis
 - Cerebral injuries
 - Cerebral tumors
 - Cerebro vascular attack
 - Cysticercus and tuberculomas

Signs & Symptoms

- ❖ Unconsciousness
- ❖ Rigid body
- ❖ Jerking movements of arms and legs
- ❖ Clenching of teeth



Classification of epilepsy



- ❖ Grunting noises
- ❖ Confusion (one or two minutes)

Partial seizures

In partial seizures the abnormal electrical discharges occur in a localized area in the brain. Hence the symptoms depend upon the area of brain involved, motor or sensory.

Simple partial seizures

Simple partial seizures do not affect consciousness. Symptoms may include rhythmic movements of the contralateral face, arm or leg and possibly hallucinations involving smell, sight or hearing or feelings of fear and panic or euphoria.

Complex partial seizures

Complex partial seizures are the most common type of seizure in adults, commonly lasting less than three minutes and associated with impairment in the consciousness they become complex partial seizures.

Generalised seizures

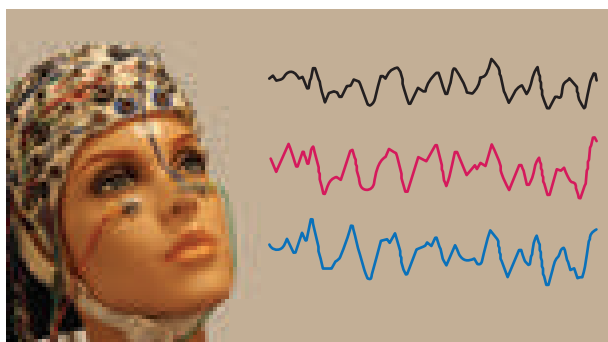
Generalized seizures affect the whole cortex with the patient's level of consciousness usually being impaired; there is often no aura or warning. Generalized seizures have varying characteristics.

- ❖ Typical absence seizures are distinguished by a transient loss of consciousness and awareness of the environment with a vacant appearance, which lasts just a few seconds
- ❖ Atypical absence seizures resemble typical absence seizures but last longer and are often associated with minor automatism
- ❖ Myoclonic seizures are classified by sudden muscle contractions of specific muscle groups with no loss of consciousness
- ❖ Tonic-clonic seizures involve bilateral extension of limbs followed by synchronous jerking movements. There is often a cry before the seizure, a fall to the ground followed by incontinence, tongue biting, foaming at the mouth and loss of consciousness. There is a post-ictal phase and when patients wake they have muscle tenderness, transient confusion and exhaustion
- ❖ Atonic seizures cause loss of muscle tone and a fall to the ground, often resulting in injury; it may be so brief that the patient is unaware of the loss of consciousness

Signs & Symptoms

- ❖ Headache, fainting attack
- ❖ Muscle spasms

- ❖ Black out or fall jerky movement
- ❖ Incontinence of bladder or bowel
- ❖ Tongue bite, breathing difficulty



Investigations

- ❖ EEG
- ❖ CT-Brain
- ❖ MRI-Brain

Management

Medical Management

Drugs

- Carbamazepine
- Phenytoin
- Valporic acid

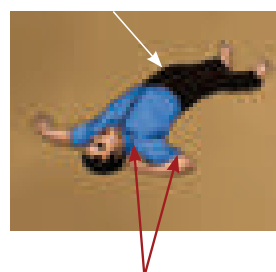
Surgical Management

- ❖ Reserve and palliative operations (temporal lobotomy, extra temporal resection, corpus colostomy, hemispherectomy)

Nursing Management

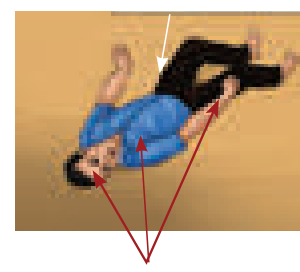
- ❖ Maintain a patient airway until patient is fully awake after a seizure
- ❖ Provide oxygen during the seizure if color change occurs
- ❖ Stress the importance of taking medication regularly
- ❖ Provide a safe environment by padding side rails and removing clutter

Tonic Phase



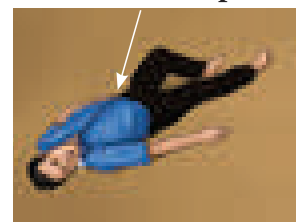
Straightening of
body & limbs

Clonic Phase



Clonic jerks of
body, limbs & head

Postictal Stupor



- ❖ Place a bed in a low position and place a patient on side during a seizure to prevent aspiration
- ❖ Do not restrain the patient during a seizure
- ❖ Do not put anything in the patient mouth during a seizure
- ❖ Protect the patient's head during a seizure.
- ❖ Stay with a patient who is ambulating or who is in a confused state during seizure
- ❖ Provide a helmet to the patient who falls during seizure
- ❖ Consult with social worker for community resources for vocational rehabilitation, counsellors and support groups
- ❖ Teach stress reduction techniques that will fit into a patient lifestyle
- ❖ Answer questions related to use of computerized video EEG monitoring and surgery for epilepsy management

Complication

- ❖ Status epileptics
- ❖ Injuries due to falls



- ♦ National Epilepsy day November 17
- ♦ International Epilepsy day February 11

3.6.2 Unconscious Status

Unconsciousness is a condition in which there is depression of cerebral function ranging from stupor to coma.

Coma may be defined as no eye opening on stimulation, absence of comprehensible speech, a failure to obey commands.

Unconsciousness is a lack of awareness of one's environment and the inability to respond to external stimuli.

Therefore, observe the patient's condition and prevent any complications.



Causes

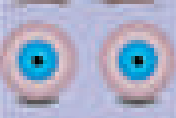
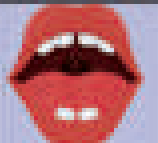

- ❖ Head injuries
- ❖ Meningitis, encephalitis
- ❖ Diabetes mellitus
- ❖ Renal failure
- ❖ Poisonous drugs (stomach wash, refer practicals)

- ❖ Asphaxia
- ❖ Epilepsy

Diagnosis

- ❖ Assess the patient's level of consciousness by Glasgow coma scale.
 - Responses to command
 - Eye opening
 - Verbal responses
 - Motor responses

Glasgow Coma Scale Assessment

Behaviour	Response
 Eye Opening Response	4. Eye Opening Response 3. To speech 2. To pain 1. No response
 Verbal Response	5. Oriented to time, person and place 4. Confused 3. Inappropriate words 2. Incomprehensible sounds 1. No response
 Motor Response	6. Obeys command 5. Moves to localised pain 4. Flex to withdraw from pain 3. Abnormal flexion 2. Abnormal extension 1. No response

Interpretation

- Best score
- Worst Score
- 7 or less generally indicates coma (Changes from baseline are most important)

Nursing Management

- ❖ Maintenance of effective airway:
 - An adequate airway must be maintained at all times.
 - It must be necessary to hold the patients jaw forward or place the patient in the lateral position to prevent the tongue obstructing airway by falling back.



- Loosen the garments to allow free movements of the chest and abdomen.
 - Frequent suction is required to prevent the pooling of secretion in the patients pharynx.
 - If necessary insert oral airway for easy breathing.
- ❖ Maintenance of fluid & electrolyte balance and nutrition:
- The diet must contain an adequate supply of all nutrients required for life. Nutrition may be supplied by intravenous fluids or gastric tube feeding. (refer practicals)
 - Administer prescribed intravenous fluids with electrolytes and vitamins (refer practicals).
 - Maintain Intake and output chart accurately.
 - Monitor vital signs and record.
- ❖ Maintenance of personal hygiene and care of pressure areas including prevention of foot drop:
- Sponging is performed as frequently as necessary
 - Keep the skin dry, clean and free of moisture to prevent bed sore.
 - Apply back care every 4th hourly and 2nd hourly position changing to relieve pressure on pressure areas.
 - Clip the nails
 - Range of motion exercises atleast 4 times a day.
- Cleanse the mouth with the prescribed solution every two hours and apply emollients to prevent parotitis.
 - Irrigate the eye with sterile prescribed solution to remove discharge and debris.
 - Clean the ear with swab and dry carefully, especially behind the ears.
 - The bed linen must be kept wrinkle free and dry.
 - Side railing on both sides are helpful to protect the patient.
 - The feet should be kept at right angles to the legs with help of pillow or sand bags to prevent foot drop.
- ❖ Promoting elimination:
- If the patient is observed for any sign of urinary incontinency, retention and constipation, report to the physician.
 - If the patient has incontinence of urine – provide bedpan or catheterization can be done according to Doctor's order to record the accurate output. (refer practicals).
 - If the patient has retention of urine, apply gentle pressure over the bladder region. It will help in partially emptying the bladder.
 - If the patient is constipated, a glycerine suppository or enema is advised according to Doctor's prescription.
 - Perineal care, vaginal douch, catheter care to be provided (refer practicals).
 - Palpate the abdomen for distension.

- Auscultate bowel sounds.

❖ Family education:

- Develop an interpersonal relationship with the family.
- Provide frequent update information on patient condition.
- Involve the relatives in routine care.
- Provide comfortable physical environment.
- Teach family to report any unusual symptoms.

3.7 MUSCULO SKELETAL

Osteoarthritis

Osteoporosis

3.7.1 Osteoarthritis

Osteoarthritis is a very common chronic disorder involving the joints. It is a degenerative change in the joints. The degenerative changes take place because the rubbing of the joint surfaces causes a wearing away and disintegration of the tissues.

Causes and Risk factors

Age: people above the age of 45 have the risk for developing osteoarthritis. It is, however, most commonly found in people over age of 65.

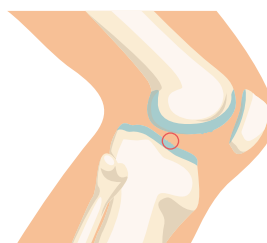
Gender: This disease of osteoarthritis is more common in women, particularly after the age of 55

Obesity: This can be one of the causes for osteoarthritis as every kilogram puts three extra kilogram of pressure on knees

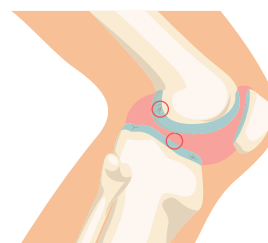
Injury : Joint injuries are an increased risk of developing osteoarthritis

Weakness of muscles: Weak thigh muscles lead to osteoarthritis knee joint pain.

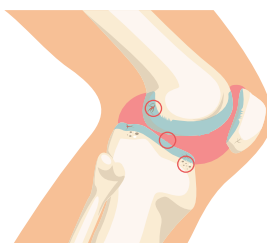
Stages of knee Osteoarthritis



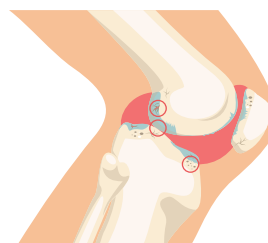
Stage I
Doubtful



Stage II
Mild



Stage III
Moderate



Stage IV
Severe

Signs & Symptoms

- ❖ Knee pain
- ❖ Swelling
- ❖ Joint stiffness
- ❖ Loss of movement

Investigation

- ❖ X-ray of affected joints
- ❖ Serum CRP
- ❖ Serum ESR, RA factor

Management

Medical management:

- ❖ Analgesics
- ❖ Exercise to strengthen muscles

Surgical management:

- ❖ Arthrodesis (practised earlier)

❖ TKR (Total Knee Replacement)

Arthiodesis, an operation to fuse the joint in one position can be done to prevent further pain (practiced earlier)



- ❖ Use knee cap supports
- ❖ Use hot water formentation to relieve pain
- ❖ Wear comfortable, fitting shoes to reduce stress on joints
- ❖ Walk regularly to keep yourself active, it helps to avoid stiffness

- ❖ Maintain a healthy weight to reduce strain and pain in your knee



- ❖ Don't lift heavy weights, it puts stress on the knees
- ❖ Don't sit cross- legged
- ❖ Avoid prolonged activities that put strain on the knee like gardening
- ❖ Avoid jerky movements
- ❖ Don't smoke. Research shows that smoking leads to joint pain along with other damaging effects

R	I	C	E
Rest	Ice	Compression	Elevate
Rest your knee. Avoid any movement that requires the affected knee to be moved.	Put Ice padding on the affected knee to reduce pain and swelling.	Apply a Compression bandage to reduce the swelling.	Elevate the affected knee using a pillow, to help reduce the swelling.

3.7.2 Osteoporosis

Osteoporosis is a disease characterised by low bone mass and deterioration of bone tissue, which can lead to increased risk of fracture.



Risk factors

- ❖ Genetics
- ❖ Lack of exercise
- ❖ Lack of calcium and vitamin D₃
- ❖ Diet calcium / vitamin D deficiency
- ❖ Osteoporosis means “porous bones”

Signs and Symptoms

- ❖ Pain
- ❖ Height loss or dull pain in the bones or muscles
- ❖ Swelling
- ❖ Redness
- ❖ Limited movement

Pathophysiology

Osteoporosis is a reduction in skeletal mass caused by an imbalance between bone reabsorption and bone formation. A change in either that is increased bone reabsorption or decreased bone formation may result is osteoporosis.

Investigation

- ❖ Blood: Test Calcium & Phosphorus
- ❖ BMD
- ❖ X-ray

Causes of Osteoporosis

- ❖ Low calcium diet
- ❖ Lack of physical activity
- ❖ Family history
- ❖ Women are more likely to develop osteoporosis
- ❖ Hypercalciuria
- ❖ Anticonvulsant medications
- ❖ Hyperthyroidism
- ❖ Hyper parathyroidism
- ❖ Neoplastic disease – cancer

Management

- ❖ Medication – vitamins and calcium
- ❖ Dietary supplements
- ❖ Weight bearing exercises

3.8 ENDOCRINE DISORDERS

Diabetes Mellitus (DM)

Poly cystic ovarian syndrome (PCOD)

Hyperthyroidism

Hypothyroidism

3.8.1 Diabetes Mellitus (DM)

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia (raised blood sugar level) and results from the defective insulin production, secretion, or utilization.

Types of DM

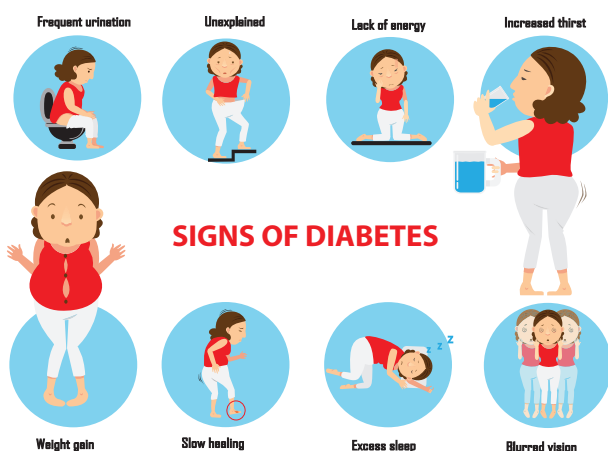
- ❖ IDDM: Insulin dependent diabetes mellitus
- ❖ NIDDM: Non-Insulin dependent diabetes mellitus



Causes

- ❖ Lack of insulin produced by the beta cell resulting in hyperglycemia
- ❖ Defects of the cell receptor site, impaired secretory response of insulin (glyconeogenesis)
- ❖ Viral, Autoimmuno, and environmental theories are under review (IDDM)
- ❖ Heredity/genetics and obesity plays a major role (NIDDM)

Signs and Symptoms



Diagnosis

- ❖ Fasting Blood sugar (FBS)
- ❖ Post Prandial Blood sugar (PPBS)
- ❖ HbA1c

Management

- ❖ Diet
- ❖ Exercise
- ❖ Medication.
- ❖ Health education.

Diet:

- Dietary control with calorie restriction of carbohydrates and saturated fats are to maintain ideal body weight
- Advise patient about the importance of an individualized meals plan in meeting weight loss goals
- Explain the importance of exercise in maintaining / reducing body weight. Calorie expenditure for energy in exercise
- Strategise with the patient to address the potential social pitfalls of weight reduction

Exercise:

Weight reduction is the primary management for NIDDM regular scheduled exercise to promote the utilization of carbohydrate, assist with weight control, enhance the action of insulin, and improve cardio vascular fitness.

Medication:

- Oral hypoglycaemic agents for patient where NIDDM do not achieve glucose control with diet and exercise only
- Insulin therapy for patients with IDDM who require replacement. (May also be used for NIDDM when unresponsive to diet, exercise and oral hypoglycaemic agent therapy. Hypoglycemic may result, as well as rebound hyperglycaemic effect
- Demonstrate and explain thoroughly the procedure for insulin self-injection
- Help [patient to master technique by taking a step-by-step approach
- Allow patient time-to-time handle insulin and syringe to become familiar with the equipment
- Teach self-injection first to alleviate fear from injection
- Instruct patient in filling the syringe when he or she expresses confidence in self-injection procedure
- Review dosage and time injections in relation to meals activity, and bedtime based on patient's individualized insulin regimen

Health Education:

- ❖ Preventing injury secondary to Hypoglycemia:
 - Closely monitor blood glucose levels to detect hypoglycaemia.

- Asses patient for the signs and symptoms of hypoglycaemia.
- Sweating, cardiac palpitation and nervousness.
- Head ache, light-headedness,. Confusion, irritability, slurred speech, lack of co-ordination staggering gait from depression of central nervous system as glucose level progressively falls.
- Treat hypoglycaemia promptly with 10-15 gms of fast acting carbohydrates.
- Half-cup juice, 3 glucose tablets, 4 sugar cubes, 5-6 pieces of sugar candy may be taken orally.
- Encourage patient to carry a portable management for hypoglycaemia at all times.
- Encourage patients to wear an identification bracelet opr card that may assist in prompt management in a hypoglycaemia emergency.
- Identification bracelet may be obtained from Medic Alert Foundation.
- Identification card may be requested from the Indian Diabetes Association.
- Between meal snacks as well as extra food taken before exercise should be encouraged to prevent hypoglycaemia.

❖ Improving activity tolerance:

- Advice patient to asses blood glucose level before strenuous exercise.
- Advice patient that prolonged strenuous exercise may require



increased food at bedtime to avoid nocturnal hypoglycaemia.

- Instruct patient to avoid exercise whenever blood glucose levels exceeds 250 mgs per day.
- ❖ Providing information about oral hypoglycaemic agents:
 - Identify any barriers to learning, such as visual, hearing, low literacy, distractive environment.
 - Teach the action, use and side effects of oral hypoglycemic agents.
- ❖ Maintain skin integrity:
 - Maintain skin integrity.
 - Use-heal protection, special mattress, foot cradles, for patients on bed rest.
 - Avoid drying agents to skin.(e.g. Alcohol)
 - Apply skin moisturizes to maintain supplement and prevent cracking, fissures.
- ❖ Improving coping strategies:
 - Encourage patient and family participation is diabetes self care regimen to foster confidence.

Complication

- ❖ Hypoglycemia
- ❖ Diabetic ketoacidosis
- ❖ Hyperglycemic syndrome.
- ❖ Micro vascular complication e.g. Retinopathy, Nephropathy, Neuropathy.

- ❖ Micro vascular complications in Cardiovascular disease occurring both in NIDDM and IDDM.

3.8.2. Poly Cystic Ovarian Syndrome/Disease (PCOD)

Polycystic ovary syndrome (PCOS) is a disorder that includes ovulatory dysfunction, polycystic ovaries, and hyper and rogenism. It most commonly occurs in women under 30 years old and is a cause of infertility.

Causes

- ❖ The causes are unknown.

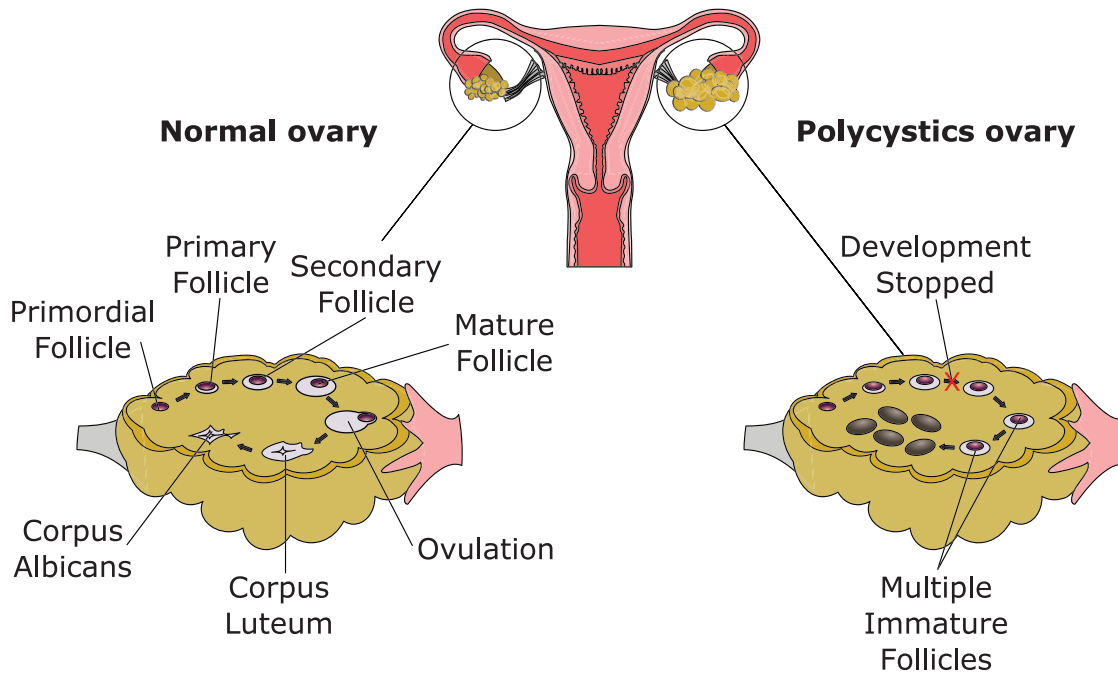
Signs and Symptoms

- ❖ Hormonal imbalance
- ❖ Ovulation fails and multiple fluids filled cysts
- ❖ Irregular menstrual periods
- ❖ Amenorrhea
- ❖ Hirsutism and obesity. (80% of women)
- ❖ Oligomenorrhea and infertility
- ❖ Insulin resistance

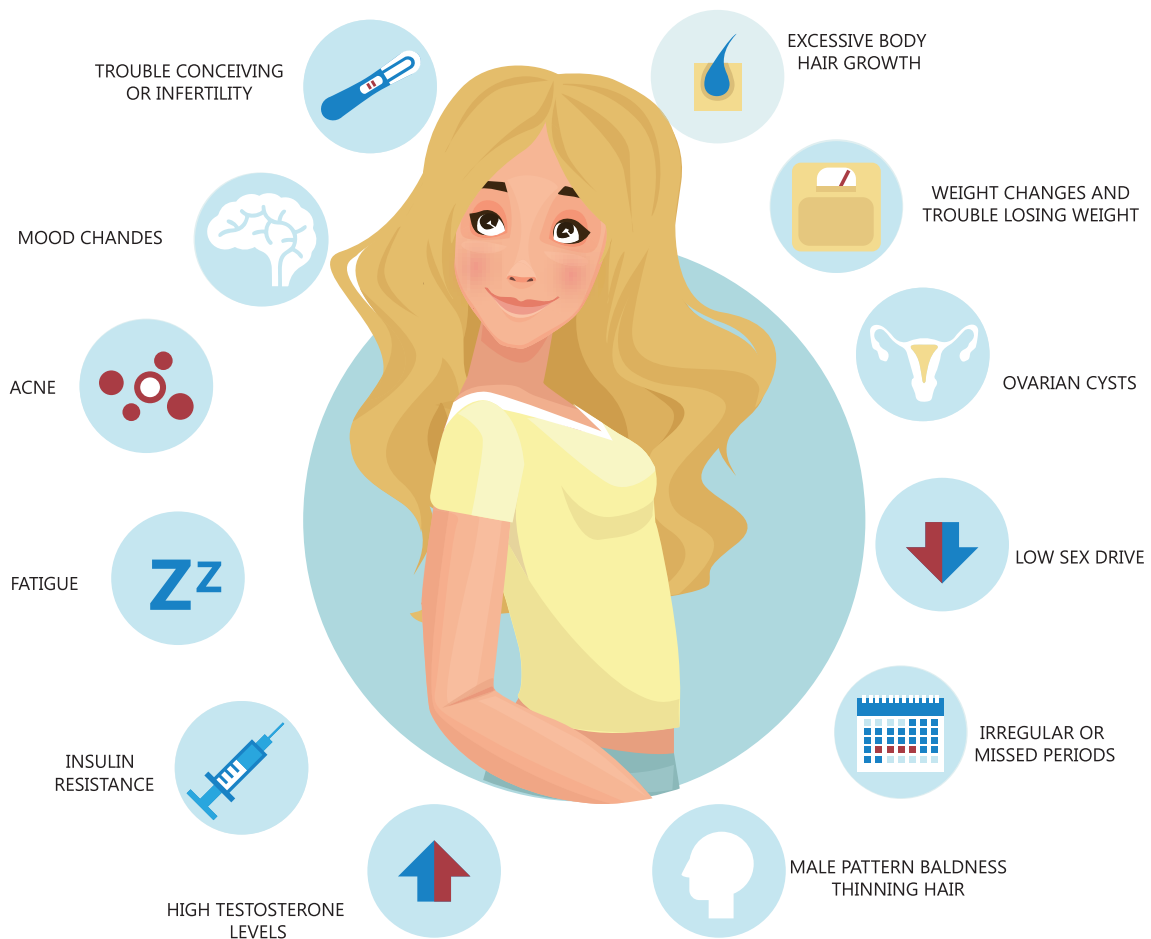
Management

- ❖ Early diagnosis (pelvic ultrasound)
- ❖ To improve quality of life and decrease the risk of complications
- ❖ OCPs are useful in regulating menstrual cycles
- ❖ Hirsutism may be treated with spironolactone
- ❖ Hyper and rogenism can be treated with flutamide and a GnRH agonist such as leuprolide

POLYCYSTIC OVARY SYNDROME



PCOS SYMPTOMS



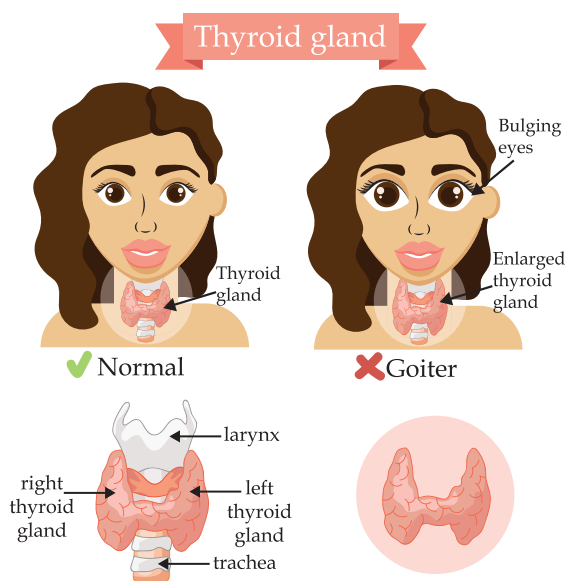
- ❖ Metformin (glucophage) reduces hyperinsulinemia
- ❖ Improves hyperandrogenism
- ❖ Restores ovulation
- ❖ Fertility drugs may be used to induce ovulation.

Nursing Management

- ❖ A woman with PCOD includes teaching about the importance of weight management
- ❖ Exercises to decrease insulin resistance
- ❖ Obesity exacerbates the problems related to PCOD
- ❖ Monitor lipid profile and fasting glucose levels
- ❖ Support the patient as she explores measures to remove unwanted hair
- ❖ Stress the importance of regular follow up care to monitor the effectiveness of therapy and to detect any complications.

3.8.3.HYPERTHYROIDISM:

It is defined as sustained increased in synthesis and release of thyroid hormone by the thyroid glands.



It is highly prevented endocrine disorders.

Causes

- ❖ Graves' disease
- ❖ Toxic, diffuse goiter
- ❖ Toxic adenoma
- ❖ Thyroid carcinoma

Signs and Symptoms

- ❖ Heat intolerance
- ❖ Exophthalmos
- ❖ Loose bowel movements
- ❖ Profuse diaphoresis
- ❖ Tachycardia
- ❖ Hypertrophy of thyroid cells

Investigation

- ❖ History and physical examination
- ❖ Ophthalmologic examination
- ❖ Laboratory tests such as serum T3, T4, TSH, FT3, FT4, FTSH levels.
- ❖ Thyroid scan

Management

Medical management:

- ❖ Antithyroid drugs which inhibit synthesis of thyroid hormone, e.g. propylthiouracil and methimazole
- ❖ Iodine e.g. Radioactive iodine
- ❖ Beta adrenergic blockers

Surgical management:

- ❖ Subtotal thyroidectomy : Removal of one lobe of the thyroid gland.
- ❖ Total thyroidectomy : Removal of thyroid gland.

Complication of thyroidectomy:

- ❖ Hemorrhage or infection
- ❖ Risk of thyroidectomy tetany
- ❖ Respiratory obstruction
- ❖ Laryngeal edema
- ❖ Vocal cord edema

Complications:

The Major complications of graves' disease are

- ❖ Exophthalmos
- ❖ Thyroid storm
- ❖ Thyroid crisis
- ❖ Thyroid toxicosis

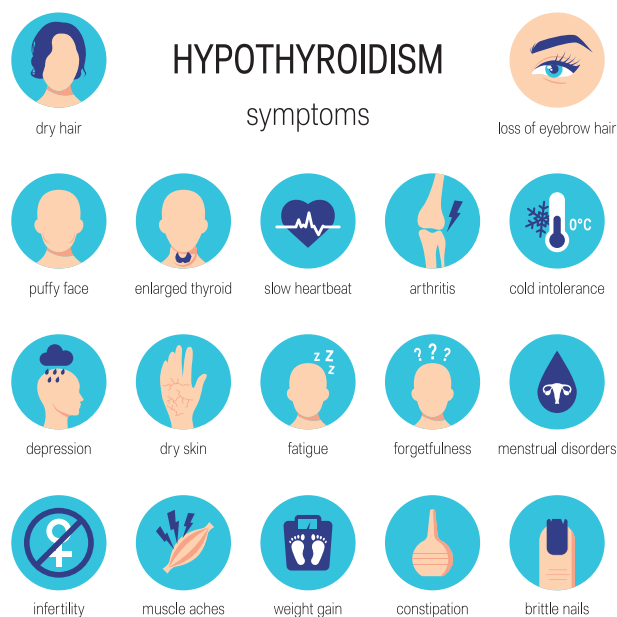
3.8.3 Hypothyroidism

It is a metabolic state resulting from a deficiency of thyroid hormone that may occur at any age. Congenital hypothyroidism results in a condition called cretinism.

Causes

- ❖ Congenital defects of the thyroid gland
- ❖ Defective hormone synthesis
- ❖ Iodine deficiency (prenatal and post natal)
- ❖ Anti thyroid drugs
- ❖ Surgery of management with radioactive agents for hyperthyroidism
- ❖ Chronic inflammatory (acute immune) disease such as hashimoto's disease, amyloidois sarcoidosis

Signs and Symptoms



The manifestation of the hypothyroidism depend on whether it is mild, severe (Myxedema) or complicated (Myxedema coma)

Myxedema:

- ❖ Respiratory failure
- ❖ Heart failure
- ❖ Cerebral vascular accident
- ❖ Trauma (injury)
- ❖ M e t a b o l i c disturbances

Myxedema coma:

- ❖ Drastic increase in metabolic rate
- ❖ Hypoventilation leading to respiratory acidosis
- ❖ Hypothermia
- ❖ Hypotension
- ❖ Hyponatremia



❖ Hypocalcaemia

❖ Hypoglycemia

Diagnostic evaluation:

❖ History and physical examination

❖ Serum TSH and free T4

❖ TRH stimulation test

Management

Medical management:

❖ Antithyroid drugs such as Propylthiouracil (PTU) which inhibits thyroid hormone synthesis

❖ Radioactive iodine offers a more permanent option because it destroys thyroid tissue

❖ Client with hypothyroidism must receive lifelong thyroid hormone replacement therapy

3.9 CANCER

3.9.1 Oral cancer

3.9.2 Breast Cancer

The goals of cancer management are cure, control and palliative care.

Cancer is a disease in which certain body cells multiply without apparent control, destroying healthy tissue and organs and endangering life.

There are three main classifications of cancer- 1. Carcinoma 2. Sarcoma 3. Lymphoma.

Carcinoma: which is cancer of the epithelial tissue that forms the skin and the linings of the internal organs.

Sarcoma: which is cancer of connective tissue such as cartilage, muscle or bone.

Lymphoma: which affects the blood stream and the lymph system.

3.9.1 Oral Cancer

There are two types of oral cancer, oral cavity cancer which starts in the mouth and the oropharyngeal cancer which develops in the part of the throat just behind the mouth of the oropharynx.

Investigation:

❖ History and physical examination

❖ Biopsy

❖ Oral exfoliative cytology

❖ Toluidine blue test

❖ CT scan

❖ MRI scan

❖ PET scan

Types of oral cancer

❖ Lip cancer

❖ Tongue cancer

❖ Oral cavity cancer



C- Change of bowel /bladder habit

A – A sore does not heal

U – Unusual bleeding

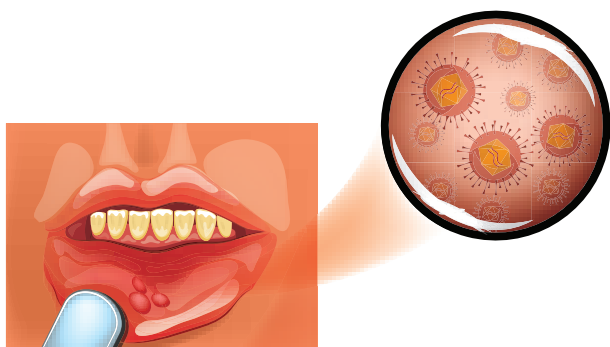
T – Thickening of lump

I – Indigestion

O- Obvious change in the size of mole

N – Nagging cough

Lip cancer



Predisposing Factors

Constant over exposure to sun radiation and fair complexion, recurrent herpetic lesions, irritation from pipe stem, syphilis and immune suppression.

Clinical Manifestations

- ❖ Indurated painless ulcer

Management

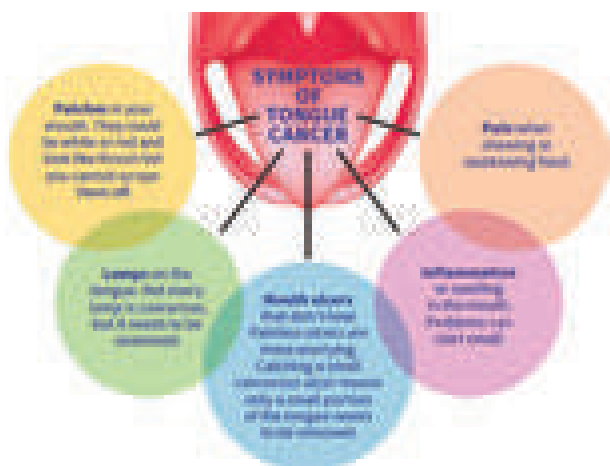
- ❖ Surgical excision and radiation

Tongue cancer

Predisposing Factors

- ❖ Tobacco, alcohol, chronic irritation, syphilis

Clinical Manifestations



Management

- ❖ Surgery (hemiglossectomy or glossectomy, radiation)

ORAL CAVITY CANCER



Predisposing Factors

- ❖ Poor oral hygiene, tobacco usage (pipe and cigar smoking, snuff, chewing tobacco) chronic alcohol intake, chronic irritation (jagged tooth, ill-fitting prosthesis, chemical or mechanical irritants) human papillomavirus (HPV)

Clinical Manifestations

- ❖ Leukoplakia, erythro plakia ulceration, sore spot, rough area, pain, dysphagia, lump or thickening in the cheek. A sore throat or a feeling that something is stuck difficulty in chewing and speaking (lateral signs)

Management

- ❖ Surgery mandibulectomy radical neck dissection resection of buccal muscosa internal and external radiation.

3.9.2 Breast Cancer

Definition:- cancer is a disease process whereby cells proliferate abnormally, ignoring growth regulating signals in the environment surrounding the cell.

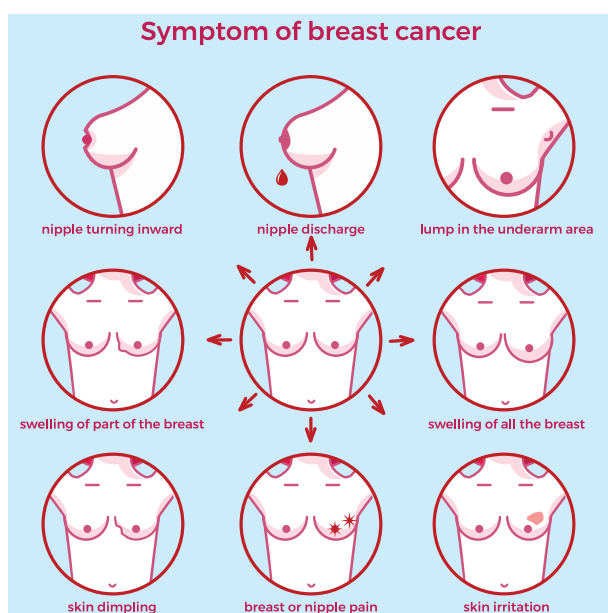
Causes

- ❖ No definite cause
- ❖ Hormones and genetics play some role in causing breast cancer

Risk Factors

- ❖ Breast cancer may be seen after the age of 50
- ❖ Personal or family history of breast cancer may lead to a main cause
- ❖ Persons with early menarche may have more chances of getting breast cancer
- ❖ Females who are not having children are more prone to breast cancer
- ❖ Late maternal age at first birth
- ❖ Late menopause also one of the cause
- ❖ Exposure to ionizing radiation
- ❖ Obesity also rarely cause breast cancer

Signs and Symptoms



- ❖ Non tender, fixed, hard mass with irregular border in the breast

- ❖ Peau d' orange (orange peel) appearance of the skin seen on the breast
- ❖ Nipple retraction in advanced cancer
- ❖ Ulcerating and fungating lesions

Investigation

- ❖ Self breast examination
- ❖ Fine needle biopsy
- ❖ Open biopsy
- ❖ Incisional biopsy
- ❖ Core biopsy
- ❖ Histologic examination

Management

Surgical Management:

- ❖ Mastectomy – removal of the affected breast
- ❖ Modified radical mastectomy
- ❖ Breast conservation surgery
- ❖ Lumpectomy
- ❖ Partial mastectomy
- ❖ Segmental mastectomy
- ❖ Quadrantectomy. (Axillary lymph node dissection)
- ❖ Radiotherapy
- ❖ Chemotherapy
- ❖ Hormonal therapy
- ❖ Bone marrow transplantation

Nursing Management

- ❖ Family support



- ❖ Exercise
- ❖ Psychological exercise or emotional support to patient and family members
- ❖ Dressing
- ❖ Relieving pain and comfort
- ❖ Maintain skin integrity
- ❖ Educate post operative exercise

Family Support:

Family and members should be supported with proper counselling. Explain them about the management modalities available now. Family members are advised to support the patient who is suffering with cancer.

Post Operative Exercises:

- ❖ Wall climbing exercise: Advise to stand near the wall and face the wall, advise to put the affected side on the wall, and slowly move the hand on the wall with finger walk.
- ❖ Rope pulling exercise: Advise to hang the rope on a rod and hold the two ends of the rope with two hand and lift the hand one by one in opposite direction.
- ❖ Rope turning exercise: Tie a rope on the door and the turn the rope with hand of affected side.

Dressing:

- ❖ Breast binder may be applied if necessary

3.10 BEHAVIOURAL DISORDERS

Dyslexia

Alcoholism

3.10.1 Dyslexia



Dyslexia means difficulty in reading or learning to read accompanied by difficulty in writing and spelling correctly.

‘Dys’ means difficulty

‘lexia’ means words

Causes

- ❖ Congenital
- ❖ Acquired brain damage

(Birth trauma use of medication like phenobarbitone)

Signs and Symptoms

- ❖ Difficulties with –
 - Concentration
 - Perception
 - Memory
 - Verbal skills
 - Abstract Reasoning
 - Hand eye co ordination
- ❖ Lazy
- ❖ Rebellious
- ❖ Isolation
- ❖ Discouragement
- ❖ Low – self esteem



Dealing with dyslexia

- ❖ Professional testing is necessary for the accurate diagnosis of dyslexia
- ❖ A different examination criteria has to be checked out
- ❖ The uses of computers and calculators are very beneficial to these children
- ❖ There are children who need to be identified early and taught in way they can understand and learn which is not of the normal teaching style
- ❖ Since language is a problem, these children are to be exempted
- ❖ A dyslexia must have to one training to first develop basic skills. This allows the student to stay focused

Parent and teacher handling of dyslexia child

Parent:

- ❖ Manage his or her time
- ❖ To put things in its place
- ❖ Help him with his or her homework
- ❖ Help him with his or her reading
- ❖ To focus his or her attention
- ❖ To take right book to school
- ❖ By giving precise clear instruction
- ❖ By not punishing him or her for his or her childishness delay in completing his work
- ❖ By giving him or her constant positive inputs
- ❖ By instructing him or her with more do's than don'ts

- ❖ By imparting social skills, like interaction communication giving respect to elders etc

Teachers:

- ❖ The teachers can try to meet the special needs of the children by identifying the areas of special interest and talents and help the child to build on strengths. They can be helped.
- ❖ Giving less written class work and home work
- ❖ Testing them orally
- ❖ Giving marks for content without reducing marks for grammatical and spelling errors
- ❖ Marking less red lines in the note book
- ❖ Introducing abstract ideas through pictures and objects
- ❖ Giving precise, clear and short instructions
- ❖ Giving extended time to finish tests
- ❖ Reading the question paper during the class
- ❖ Maintaining eye contact during the class
- ❖ Not punishing the child for messy work and poor handwriting
- ❖ Emphasising on quality work rather than quantity
- ❖ Avoiding punishments for minor misbehaviours in the class

Management

- ❖ Remedial education
- ❖ Medical approach
- ❖ Psychological approach

Remedial education:

Remedial education is the most effective therapy. Various types of cognitive perceptual skills training, For example, sensory integration training, perceptual motor training, occupational therapy, auditory memory training, vestibular stimulation, hemispheric stimulation and optometric training.

Medical approach:

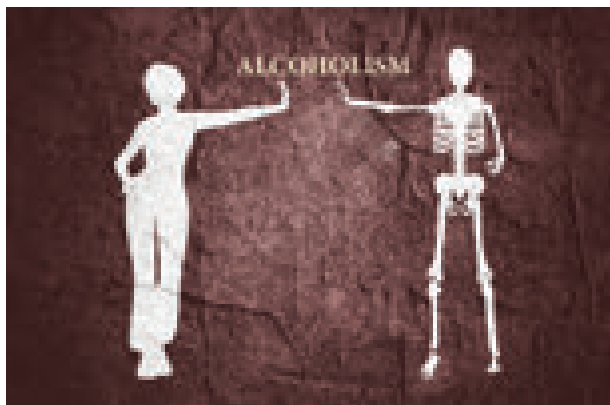
Medical approaches to treating dyslexia include stimulant medication, anti – anxiety medication, motion sickness medication, vitamins and special diets.

Psychological approach:

Psychological approaches to dyslexia include supportive psychotherapy, parent guidance and training, social skill training, relaxation training and behaviour modification approaches.

3.10.2 Alcoholism

Alcoholism is a disease characterised by the habitual intake of alcohol and it interferes with physical or mental health or with normal social or work behaviour.



Signs & Symptoms

- ❖ Confusion

- ❖ Memory loss
- ❖ Slow or irregular breathing
- ❖ Cold or clammy hand due to hypothermia
- ❖ Falling unconscious and not waking up
- ❖ Cyanosis
- ❖ Seizures

Causes

- ❖ Environmental factors

Pathophysiology

Alcohol affects almost all cells of the body. It changes levels of neurotransmitters in the central nervous system (CNS), affecting all areas and functions of the CNS. These include centers that control our impulses, mood and behaviour, coordinate motor activity and promote respiratory and cardiac function. The immediate effects of alcohol depend on a person's susceptibility to alcohol and their BAC (Blood Alcohol concentration).

Management

- ❖ Complete abstinence from alcohol
- ❖ Punishment such as heavy fine, imprisonment
- ❖ Using medicines
- ❖ Destroying craving for use of stimulating alcohol
- ❖ Meeting of alcoholic anonym
- ❖ Psychotherapy include
 - Advice and Suggestion
 - Moral encouragement
 - Hypnotism

Complications of alcoholism

- Hepatitis
- Cirrhosis of liver
- Pancreatitis
- Stroke
- Osteoporosis
- Hypertension
- Myocardial Infarctions
- Angina
- Vitamin deficiency
- Accidents and injuries
- Increased risk of cancer

3.11 OCCUPATIONAL DISORDERS

Silicosis

Computer Vision Syndrome

3.11.1 Silicosis

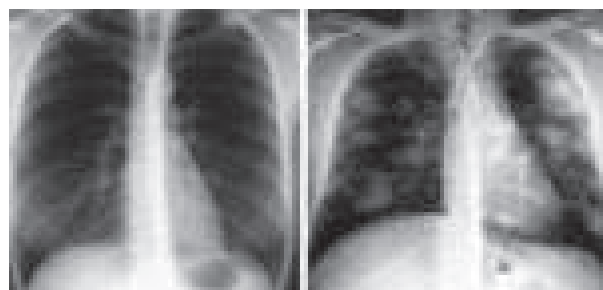
Silicosis, also known as Pott's rot is a form of occupational lung disease caused by inhalation of crystalline silica dust and is marked by inflammation and scarring in forms of nodular lesions in the upper lobes of the lungs.



Causes

Silicosis is caused by exposure to crystalline silica and breathing in tiny bits of silica, which comes from chipping, cutting, drilling, or grinding soil, sand, granite, or other minerals.

Signs and Symptoms



Normal Lung

Silicosis Lung

- ❖ Dyspnea exacerbated by exertion
- ❖ Cough, often persistent and sometime severe
- ❖ Fatigue
- ❖ Tachypnea
- ❖ Loss of appetite and weight loss
- ❖ Chest
- ❖ Fever
- ❖ Gradual dark shallow rifts in nails eventually leading to crack as protein fibre within nails beds are destroyed

In advance cases:

- Cyanosis
- Cor pulmonale
- Respiratory insufficiency

Investigation

- History collection



- Physical examination
- Chest X-ray reveals findings consistent with silicosis
- Pulmonary function testing: may reveal airflow limitation, restrictive defects, reduced diffusion capacity, mixed defects or may be normal (in uncomplicated)

Management

Silicosis is an irreversible condition with no cure. Management options currently focus on alleviating the symptoms and preventing complications. These include:

- ❖ Stopping further exposure to silica and other lung irritants, including tobacco.
- ❖ Cough suppressants
- ❖ Antibiotics for bacterial lung infection
- ❖ TB prophylaxis for those with positive tuberculosis skin test
- ❖ Chest physiotherapy to help the bronchial drainage of mucus
- ❖ Oxygen administration to treat hypoxemia, if present
- ❖ Bronchodilators to facilitate breathing
- ❖ Lung Transplantation

Nursing Management

- ❖ Providing nursing care in the acute and chronic stages
- ❖ Health education regarding the prevention of the disease

Prevention

- ❖ Rigorous dust control measures like wearing mask improving the ventilation of work place
- ❖ Water spray is often used where dust is present
- ❖ Dust can also be controlled by dry air filtering

3.11.2 Computer Vision Syndrome

About two hundred years before, the word “computer” started to appear in the dictionary. Some people even didn’t know what is a computer? However, most of the people today not just knowing what is a computer, but understand how to use a computer. Therefore, computer becomes more and more popular and important to our society. We can use computer everywhere and they are very useful and helpful to our life. But still we are facing a problems like computer vision syndrome. Let us learn in detail.

Computer vision syndrome (CVS) is strain on the eyes that happens when you use a computer or digital device (Smart phone, Tablets, Laptop) for prolonged periods of time.



Causes

- ❖ Lighting in the room
- ❖ Distance from the screen
- ❖ Glare on the screen
- ❖ Seating posture
- ❖ Angle of your head

Signs & Symptoms

- ❖ Eyestrain
- ❖ Dry eyes
- ❖ Headache
- ❖ Neck and shoulder pain
- ❖ Blurred vision

Management

With these simple practices, you can reduce the effects of computer vision syndrome:

- ❖ Make sure the lighting in the room is comfortable on the eyes, and prevents you from starting into glare on the computer screen
- ❖ Position the digital display so that your head is in a naturally comfortable position while using take breaks
- ❖ A few minutes away from the computer can go a long way when it comes to your eyes. Think of it similarly to the way you take stretch breaks for your arms and back
- ❖ Make sure your seat is comfortable. A comfortable chair with support for your neck and back will help you avoid neck and shoulder strain commonly associated with computer vision syndrome

Computer eye strain steps for relief

- ❖ Get comprehensive eye exam
- ❖ Use proper lighting
- ❖ Minimize glare
- ❖ Upgrade your display
- ❖ Adjust your computer display setting
- ❖ Blink more often
- ❖ Exercise your eyes
- ❖ Take frequent breaks
- ❖ Modify your work stations
- ❖ Consider computer eyewear

The Role of the NCD Nurse

1. To identify patients at high risk of developing an NCD through risk assessment procedures for chronic diseases like diabetes and hypertension.
2. To provide advice, and help those with an already diagnosed condition to manage their disease which ranged from health advice to social issues that concerned participants.
3. To provide direct services to their clients who included facilitation of support groups, health education, distribution of medication as well as rehabilitation exercises.
4. As facilitators of support groups consisting of clients with diabetes and/or hypertension.
5. To provide education pertaining to nutrition in the management of NCDs as well as explaining about risk factors, symptoms and preventive measures for diabetes and hypertension.

6. To distribute medications for selected clients assigned in their households and at the designated support groups.
7. For rehabilitation services in assisting clients with rehabilitation exercises including other support groups enabling them to better manage their conditions.
8. To link clients with the health system where the high risk cases are identified and then referred the clients to the nearest health facilities. Referred clients were given a referral letter by the nurse to present to the health facility.
9. Capacity building through peer educator where NCD nurses learn skills required to fulfil daily tasks 'on-the-job'.
10. Administrative role includes completing forms with information relating to the clients on a daily basis. In addition, completing daily statistic sheets of clients and submitting to the coordinators on the next day. NCD nurses are also responsible for collecting the signatures of clients when they receive medication, so as to keep a record of the clients who have collected their medication.



Prevention is better than cure.

When it comes to our health, prevention is much better than cure. Several diseases and injuries are preventable and can be managed much better if identified earlier on. A regular check up with your doctor helps them to identify your risk factors for disease.

Healthy choices to reduce your risk for diseases

- Be a non smoker and avoid second hand smoke. If you smoke, get help to quit.
- Be physically active every day.
- Eat healthy food.
- Achieve a healthy weight
- Control your blood pressure.
- Limit your intake alcohol
- Reduce your stress
- Be screened and tested regularly.



SKIN BANK

What is skin banking?

Skin banking is a facility where the skin is collected from eligible deceased donor and processed as per international protocols. Skin can be stored in the skin bank at 4-8° Celsius up to 5 years. The stored skin can be used for Burns patient who have Deep Burns, Chemical Burns, Electrical Burns, and Radiation Burns. Right hospital started this facility in 2014 – first of its kind in Tamilnadu.

In a patient with major burns the dead skin from their body should be removed as early as possible to avoid life threatening infection and death. The only way to save the burn victims life is to remove the dead skin and replace it with skin graft. There is paucity of skin available and due to this many victims are severely affected. Skin banking will help these victims to recover fast.

Why skin banking?

The estimated annual burn incidence in India is approximately 6-7 million per year. Nearly to 1.5 lacs people get crippled and require multiple surgeries and prolonged rehabilitation. 70% of the burn victims are in most productive age group of 15 to 40 years. Most of the patients belongs to poor socioeconomic strata.

What are the criteria for donating skin?

- ❖ Above 18 years
- ❖ Free of AIDS, hepatitis and STDs
- ❖ Free of skin cancer and other skin ailments
- ❖ Suffering from diabetes, hypertension and cardiac ailments can also donate

What are the points to remember while donating skin?

- ❖ Call within 6 hours of death

- ❖ Skin can be harvested from brain dead patients.
- ❖ A skin donation procedure takes about 45 mins.
- ❖ Patient need not to be brought to hospitals premises.
- ❖ Skin can be harvested from deceased person's home similar to eye donation.

What is the procedure adopted for skin harvesting?

Once call is made for skin donation. A team from the hospital skin bank will visit the donor's home and the following procedure will be carried out.

- ❖ Consent from the next of kin will be obtained
- ❖ Blood sample will be collected to check for HIV & Hepatitis
- ❖ Skin will be harvested from both lower limbs using battery operated dermatome
- ❖ After skin harvest both the lower limb will be covered with dressing

The entire procedure will take 45 minutes. The harvested skin will be brought to the skin bank for processing and storage. This stored skin is used to save major burn victims.

How to maintain healthy skin?

1. Hydrate your skin by drinking adequate water
2. Avoid using skin drying agents like neem, turmeric, and high irritant soap
3. Apply moisturiser regularly after bath to prevent the dryness of skin, specially for kids and elderly persons e. g. Alovera, milk cream, coconut oil
4. During sun exposure time, use SPF (Sun Productive Foundation)
5. Nourish your skin with Beta Carotene rich food (colourfull vegetables and fruits) orange, carrot, banana, beans, broccoli etc.

CONCLUSION

Non communicable disease is a medical condition or disease that is not caused by infectious agent. Non communicable diseases are usually caused by genetic or life style factors. Four types of NCDs are – Cardiovascular diseases, Cancers, Diabetes and Chronic respiratory diseases.

Hernia, Hypertension, Asthma, Diabetes mellitus, Acute myocardial infarction,

Acute & chronic renal failure, Renal calculi, COPD, Cancer, PCOD, Alcoholism, and Occupational disorders like Computer vision syndrome and Silicosis are the examples of non communicable diseases.

Management of NCDs are medical or surgical management based on signs & symptoms. NCDs can be prevented by proper food, exercise and good life activities.

A-Z GLOSSARY

Hypoglycaemia (இரத்தத்தில் சர்க்கரை குறைதல்)	-	Low blood sugar, the body's main source of energy
Retinopathy (விழித்திரை நோய்)	-	Retinopathy is any damage to the retina of the eyes.
Nephropathy (சிறுநீரகக் கோளாறு)	-	The kidneys start to incur damage.
Neuropathy (நரம்புக் கோளாறு)	-	Weakness, Numbness and pain from nerve damage.
Cyanosis (நீலம் பாரித்தல்)	-	The skin surface having low oxygen saturation (Bluish skin)
Cystoscopy (சிஸ்டோஸ்கோபி)	-	cystoscopy is endoscopy of the urinary bladder via the urethra.
Lithotripsy (வித்தோட்ரிப்சி)	-	Shock waves are used to break the kidney stones into smaller pieces that can now easily pass through the urinary track.
Arrhythmia (அரித்மியா)	-	Heart arrhythmia whether irregular too fast or too slow.
Hyperkalemia (ஹைபர்கலிமியா)	-	A high level of the electrolyte potassium in the blood.
Causes (காரணிகள்)	-	The science of the cause of disease.
Pathophysiology (நோயாக்கம்)	-	Any ailment of the body that disturbs its normal physiological processes is the study of pathophysiology.
Peritonitis (பெரிடோனைடிஸ்)	-	Inflammation of the peritoneum.
ECG (எ.சி.ஜி.)	-	Electro Cardio Gram (Electrical activity of the heart recorded the graph paper).
Symptoms (அடையாளம்)	-	Any indication of disease perceived by the patient.
Signs (அறிகுறிகள்)	-	Any Objective evidence of disease or dysfunction.



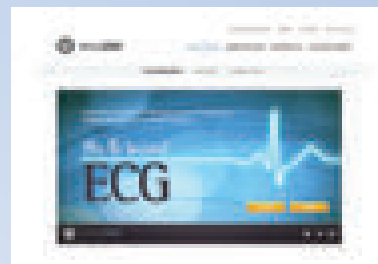
Diagnosis (நோய்க் கண்டறிதல்)	-	Determination of the nature of a disease.
Perforation (துளை விழுதல்)	-	The creation of a hole in an organ tissue or tube. This may occur in the course of a disease, such as duodenal ulcer, colonic diverticulitis or stomach cancer.
Appendicectomy (அப்பென்டிசெக்டமி)	-	Removal of the vermiform appendix.
MRI (எம்.ஆர்.ஐ.)	-	Magnetic resonance imaging (An imaging technique based on the nuclear magnetic resonance properties of the hydrogen nuclei cross-sectional images in any plane of the body for examination may be obtained. MRI is without horizontal to the patient.
Infarction (திசு அழிவு)	-	An area of tissue necrosis caused by impairment of arterial or venous blood supply due to mechanical factors or to blood pressure alterations.
Angina pectoris (ஆன்ஜைனாபெக்டோரியல்)	-	Cardiac pain that occurs on exertion owing to insufficient blood supply to the heart muscles.
Diabetic ketoacidosis (டையபடிக் கீடோஅசிட் டோசிஸ்)	-	Diabetic ketoacidosis (DKA) is a build up of acids in your blood. It can happen when your blood sugar is too high for too long.
Syndrome (சின்ட்ரோம்)	-	A syndrome is a set of medical signs and symptoms that are correlated with each other and often with a particular disease or disorder.
Graves' disease (கிரேவ்ஸ் நோய்)	-	Although a number of disorders may result in hyperthyroidism. Graves' disease is a common cause.
Exophthalmos (எக்ஸ் ஆப்தல்மஸ்)	-	Also known as proptosis is a medical term for a bulging of eye balls. It's most often caused by thyroid eye disease.



ICT Corner

ECG

This activity enables the students to understand the ECG by playing this game practically

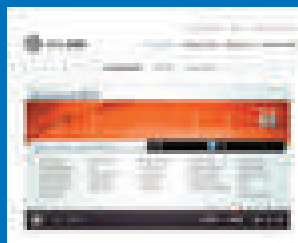


- Step 1:** Type the URL link given below in the browser or scan the QR code. You can view the “ECG SIMULATOR”.
- Step 2:** Click the “PLAY” button. Now the ECG simulator generates 27 types of common cardiac rhythms. Names will display at the bottom. You have to select the name .
- Step 3:** If the name is correct the timer will stop. Select the “ next rhythmem “ to explore
- Step 4:** If you want to stop the game you can select “restart”.

Step 1



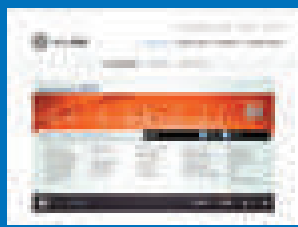
Step 2



Step 3



Step 4



*Pictures are indicative



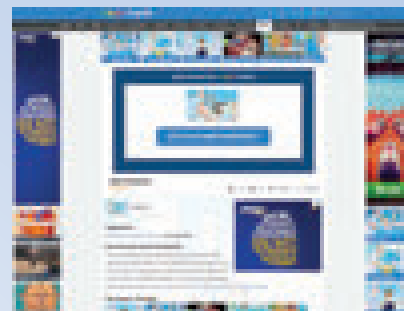
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ICT Corner

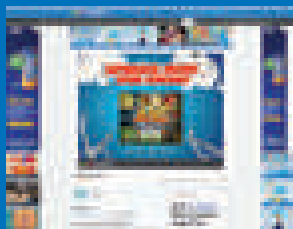
Surgery

This activity enables the students to have a practical knowledge on surgery of knee, heart, skin etc

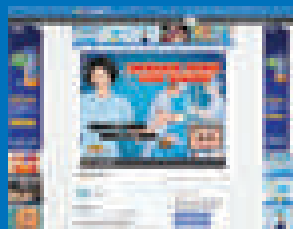


- Step 1:** Type the URL link given below in the browser or scan the QR code. You can view the “lets play knee operation”.
- Step 2:** Click the image .It opens into knee surgery . click the button “play”
- Step 3:** It opens into a page “operate and more games “
- Step 4:** Click “operate” it takes you to the hospital. As per the instruction you play the game. On it's side more game will display . You can select and play different surgeries to gain more knowledge.

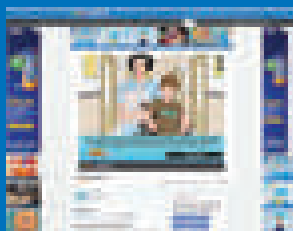
Step 1



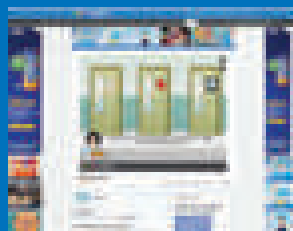
Step 2



Step 3



Step 4



*Pictures are indicative



B290_12_Nur_Voc_EM



EVALUATION



I Choose the correct answer

- Protrusion of an organ tissue or structure through the wall of the cavity is called
 - Congenital
 - Hernia
 - Cholecystitis
 - Renal calculi
- Complication of Hernia is
 - Bowel obstruction
 - Obesity
 - Appendicitis
 - Hypertension
- Rebound tenderness at McBurney's point is found in the following disease.
 - Hernia
 - Appendicitis
 - Hypertension
 - Renal calculi
- Mr. Raju is BP is 180/100 mm Hg his condition can be termed as
 - Hypotension
 - Hypertension
 - Myocardial Infarction
 - Angina pectoris
- The following conditions are the complications of Acute myocardial infarction, except
 - Pulmonary embolism
 - Heart failure
 - Angina pectoris
 - Hernia
- The following condition is caused by vitamin B₁₂ and folic acid
 - Aplastic anaemia
 - Pernicious anaemia
 - Megaloblastic anaemia
 - Anaemia
- Signs and symptoms of diabetes mellitus
 - (i) Polyuria (ii) Polydipsia
 - (iii) Polyphagia (iv) Hypoglycaemia
 - (i) (ii) (iii) (iv)
 - (i) (iii) (iv) (ii) (iii) (iv)
- The following conditions are the signs and symptoms of asthma except
 - Dyspnoea
 - Wheezing
 - Cyanosis
 - Knee joint pain
- Thyroid storm is the complication of
 - Hyperthyroidism
 - Hypothyroidism
 - Hypotension
 - Hypertension
- Silicosis is otherwise called as
 - Angina pectoris
 - Cholecystitis
 - Pott's rot
 - Myocardial infarction

II. Write short answer for the following questions

- Mention the types of Hernia?
- Write the complications of Hernia.
- Write the diagnostic investigation of cholecystitis.
- Mention the complications of appendicitis.
- Explain the medical management of Acute myocardial infarction.
- What is Diabetes mellitus?



7. Write the nursing management of Renal calculi.
8. What is meant by epilepsy?

III Write short notes for the following questions:

1. Write the preventive measures of silicosis.
2. Write the causes of computer vision syndrome.
3. When you are working in the computer section, write any five steps to reduce eyestrain?
4. Write the signs and symptoms of dyslexia.
5. Explain the classification of Hernia.
6. Explain the nursing management of Hernia.
7. Mention the types of Anaemia and explain.
8. Explain the nursing management of Asthma.

IV Answer the following questions in detail:

1. Write an essay about cholecystitis.
2. Explain the following:
 - a. What is myocardial infarction?
 - b. Write the causes of M.I.
 - c. Mention the clinical features of M.I.
 - d. Write the nursing and medical management.

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Unit 4



NUTRITION



LEARNING OBJECTIVES

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

- ❖ recognizes the value of nutrition in maintaining health.
- ❖ make the nutrition as an integral part of their daily practice
- ❖ understand the value of balanced diet
- ❖ identify the various nutrients and their sources
- ❖ knows the deficiency disorders caused by various nutrients
- ❖ understands the difference in balanced diet and therapeutic diet.
- ❖ understand the various methods of cooking and preservation of food.



திருக்குறள்:

தீயள வன்றித் தெரியான் பெரிதுண்ணின்
நோயள வின்றிப் படும்

விளக்கம்:

பசித்தீயின் அளவின் படி அல்லாமல், அதை ஆராயாமல் மிகுதியாக உண்டால் , அதனால் நோய்கள் அளவில்லாமல் ஏற்பட்டு விடும்

Explanation:

A person who eats beyond body's capacity to burn the energy (food consumed),
Will develop all kinds of diseases.

4.1 INTRODUCTION

Food is the prime necessary of life and mankind eats to satisfy the feeling of hunger. From the earlier times man remained busy in finding out the ways of consumption of food. The science of nutrition is mainly concerned with defining the nutritional requirements for the promotion, protection and maintenance of health in all groups of the population. The knowledge of nutrition has a direct bearing on the maintenance of sound health of an individual. The concern of today's health is the maintenance and restoration of health. Nurses as an important member of health care team has a key role in maintaining the nutritional needs of their client.



Antoine Lavoisier (18th century) is considered as the Father of nutrition.

4.2 THE RELATIONSHIP BETWEEN NUTRITION AND HEALTH

Food is a basic and foundational part of our lives. Food plays a vital role for human existence just as the air we breathe and the water we drink. The food we eat is utilized in the body and assimilated substances are used for growth and maintenance of the tissue. People who eat right foods rich in nutrients enjoy their lives more, live longer, and are at a reduced risk of disease. Good nutrition is critical in preventing not only deficiency diseases, but also chronic diseases. Nutrition is vital to our bodies as water is to plants. An unhealthy diet increases the risk of many diet related diseases.



Human beings require more than 45 different nutrients for their well being.

Nutrition as a promoter of good Health

Health is much more than the absence of disease. It is a positive quality, emphasizing physical, social, intellectual, emotional, and spiritual well being. Optimum nutrition, providing all nutrients in both kind and amount, is the cornerstone of good health. The foods we eat, and the nutrients they provide, are the most important continuing factors influencing our growth, development, functional abilities, and health. A proper diet helps in preventing and recovery from certain illnesses.



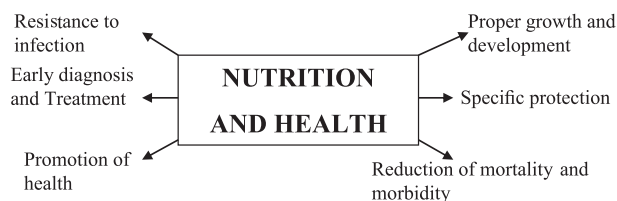
Hippocrates (Greek physician) - Father of medicine said 'Let thy food be thy medicine and thy medicine be thy food'

Role of nurses



Patients nutritional status is closely related to the overall level of health. Nutrition is considered as one of the important factors affecting the human health. Nurses should give more attention

to the nutrition of their patients. A modification in the diet can cure certain diseases. Numerous factors and conditions have the potential to impair patients' nutritional status.



Relationship of nutrition to health

Good nutrition leads to healthy living

4.3 DIFFERENCE BETWEEN BALANCED DIET AND MALNUTRITION

Balanced Diet

The term “Balanced Diet” refers to a diet that provides all of the nutrients body needs, without too much of any one component. A Balanced diet contains all types of food in a right proportion. It means a balanced diet contains the right amount of carbohydrate, protein, fat or oil, vitamins, mineral salts and water depending on the desired needs of the body.

A Balanced diet offers the full range of nutrients body needs to function at its peak performance level while an unbalanced diet is generally lacking in nutrients and too full of harmful ingredients.

Malnutrition

Malnutrition is the eventual result of an imbalanced diet. Consuming too much or too little of any one nutrient, can cause malnutrition. Malnutrition can be so mild that a person suffers no ill effects. It can also be so severe that it causes serious illness or death. Malnutrition

symptoms vary depending on the specific nutrient imbalance. Some possible symptoms include edema, chronic diarrhoea, anemia, goiter, weight loss and decreased muscle mass.



“The State of Food Security and Nutrition in the World, 2017” report suggested that 14.5% of the population is undernourished in India.

4.4 CLASSIFICATION OF FOOD

Classification of Foods

By chemical nature	• Carbohydrates, Protein, Fats, vitamins, Minerals, Dietary fiber, Water
By functions in the body	• Energy Giving • Body Building • Protective
By chemical properties	• Organic • Inorganic
By mass	Macro Nutrients Micro Nutrients
By Origin	Plant Foods Animal Foods
By nutritive value	12 Categories

Food can be classified in accordance to their chemical property, to their function, to their essentiality, to their concentration and to their nutritive value.

a) According to the chemical nature

- carbohydrates
- proteins
- fats
- minerals
- vitamins
- dietary fiber
- water

b) According to their function in the body

Energy giving foods

The carbohydrates, fats and the protein are considered as calorie nutrients, so that the body can perform the necessary functions. Rice, chapatti, bread, potato, sugar, oil, butter and ghee are examples of energy giving foods.



The oldest evidence for soup is from 6,000 BC (BCE) and it was made from hippopotamus and sparrow meat.

Body building foods

Foods such as proteins, fats and carbohydrates are also called as body-building food. They are the nutrients that form body tissues. Fish, meat, chicken, eggs, pulses, nuts and milk are some body building foods.

Protective foods

Vitamins and minerals are the nutrients that function to regulate body processes. They protect us from various diseases. Fruits and vegetables are some examples. Therefore we must eat these regularly.



Eating bananas can help to fight depression.



c) According to chemical properties

Organic: Nutrients that contain the element of carbon are called as organic nutrients.

Inorganic: Nutrients that do not contain carbon element are called as inorganic nutrients.

The organic nutrients include carbohydrates, lipids, proteins and vitamins. Water and minerals are inorganic.

d) According to its mass depending on the quantity necessary for cells and organisms are classified as

Macronutrients: Macronutrients are required in large quantities daily. Proteins, carbohydrates and fats are macronutrients. They are the basis of any diet.



Macronutrients (carbohydrates, proteins and fats) are needed in large amounts whereas micronutrients (Vitamins and minerals) are only required in small amounts

Micronutrients: Micronutrients are needed in small quantities (usually in amounts less than milligrams). These nutrients are involved in regulating metabolism and energy processes. They are vitamins and minerals.

e) According to its origin

Depending upon the origin of food it has been classified as animal food sources and plant food sources.



f) According to its nutritive value

1. Cereals and millets
2. Pulses
3. Nuts and oil seeds
4. Vegetables

5. Green leafy vegetables
6. Non-leafy vegetables
7. Roots and tubers
8. Fruits
9. Milk and milk products
10. Animal foods—meat, fish, liver, egg etc
11. Carbohydrate foods
12. Condiments and spices

4.5 FUNCTIONS OF FOOD

Food has three main functions in the body



- Physiological
- Social
- Psychological

a) Physiological Functions

Food has three main physiological functions in the body

- Growth and Development
- Provision of Energy
- Repair and Maintenance of Cells

Growth and development



Food helps babies, young children and adolescents grow at a rapid rate. While in adults and the elderly people most growth has stopped and nutrients are required in maintaining healthy state.

Provision of Energy

As a car needs fuel for work, our body needs food to carry out daily tasks and regulate body's physiologic processes. When the body runs low on energy, humans feel fatigued and tired. In severe circumstances, a lack of energy may even lead to certain body processes shutting down. On the other hand, excess energy causes fat build up and can lead to obesity!

Repair and Maintenance of Cells

Good food is essential to maintain adequate health.

E.g, Skin is often cut or grazed, hair falls out constantly and body's red and white blood cells die on a regular basis.

By consuming the right nutrients, body will repair itself and stay healthy.

A healthy individual who eats well and exercise regularly is less likely to suffer from a cold or flu than a person who eats poorly and does not exercise.



b) Social Functions

Food is a symbol of hospitality and friendship throughout the world.

Food creates a relaxed atmosphere

Food is used as an expression of love, friendship and social acceptance.

c) Psychological Functions

Consumption of food not only satisfies hunger, also gives happiness. Food is an outlet of emotion. People often eat more when they are tensed or happy.



Food is a source of security- people feel reasonably secure when they have enough food stored up.



Nutrients performing physiological functions

Protein is the building block for every body tissue cell Carbohydrates and Lipids help to fuel the body



STUDENT'S ACTIVITY

Below mentioned are some of the food items. Mark the food items according to the functions they perform (Energy giving/ body building/ protective):

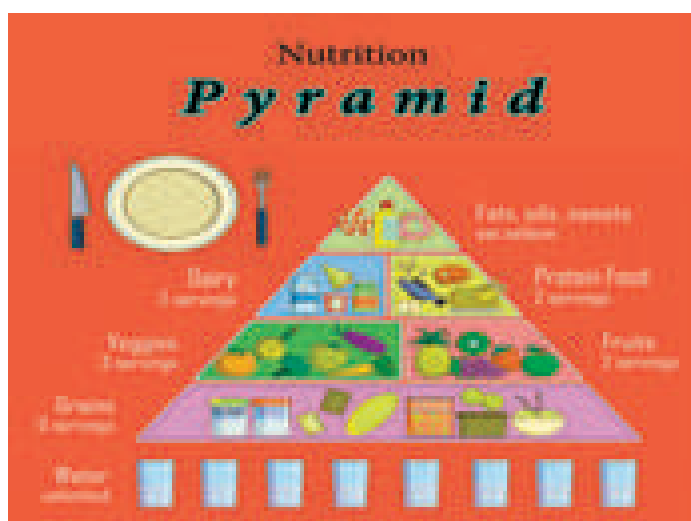
- Rice
- Banana
- Papaya
- Apple
- Chapatti
- Bread
- Butter
- Fish
- Eggs
- Oil

The Food Pyramid

The Food Pyramid is designed to make healthy eating easier. Healthy eating is about getting the correct amount of nutrients – protein, fat, carbohydrates, vitamins and minerals needed to maintain good health.



Foods that contain the same type of nutrients are grouped together on each of the shelves of the Food Pyramid. This gives a choice of different foods from which to choose a healthy diet. Following the Food Pyramid



as a guide will help to get the right balance of nutritious foods within the calorie range.

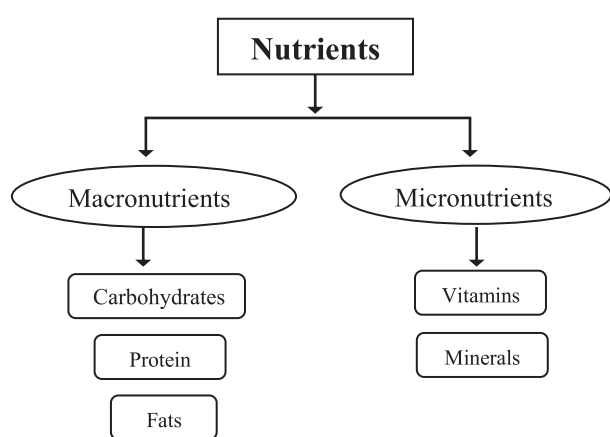


A food pyramid or diet pyramid is a triangular diagram representing the optimal number of servings to be eaten each day from each of the basic food groups.

The first pyramid was published in Sweden in 1974.

4.6 NUTRIENTS

The substances which are present in the food and consumed in our body for its vital functions are called nutrients. According to the World Health Organization (WHO), these nutrients must come from food, and they are vital for disease prevention, growth, and good health. There are several constituents such as:



Classification of nutrients

I. Carbohydrates

Carbohydrates are the chief sources of energy (Providing 4 Kcal/gm). Carbohydrates are cheap and readily available from food. There are three different kinds of carbohydrates. They

include starch, sugar, and fibre. We do not get calories from fibre because our bodies do not break down fibre during digestion.



The chemical composition of carbohydrates includes carbon, hydrogen and oxygen (CH_2O).

Classification of Carbohydrates

1. Monosaccharides: These are the simplest form of carbohydrates containing simple sugar molecule. **Example:** Glucose, Fructose and Galactose.
2. Disaccharides: These carbohydrates composed of two units of Monosaccharides. **Example:** Sucrose, Lactose and Maltose.
3. Polysaccharides: These are the complex sugars containing numerous units of monosaccharide molecules. **Example:** Glycogen, Cellulose and Pectins.

Daily requirements

Carbohydrate intake should be in the range of 300-500gm (50%- 70%) out of the total energy intake for adults and 40-60% for children.

Sources: All sugars, jaggery, honey, pulses, whole grains, cereals, grains, rice, fruits, milk, yogurt, beans, roots and tubers such as potatoes, beet root etc.

Functions of Carbohydrates

1. Supplies energy
2. Protein sparing function
3. Oxidation of fats
4. Regulating blood glucose
5. Facilitates bowel movements



Carbohydrate provides more than half of the calories in the diet.



The brain cells contain little glycogen and depend on a continuous supply of glucose for their high metabolic activity.

Digestion and absorption of Carbohydrates

Salivary amylase aids digestion of starch in the mouth. Most of the digestion of carbohydrates takes place in the small intestine. Carbohydrates are absorbed into the blood stream as glucose, Galactose and fructose. By way of the capillaries of the villi, the simple sugars enter the portal circulation and transported to the liver.

Dietary Fibre

The carbohydrates (E.g, pectin, cellulose, hemicellulose) and some non carbohydrates

substances (e.g. lignin) are collectively called as dietary fibre. Fibre is found in vegetables, fruits and grains. It resists digestion.



The most practical ways of including sufficient fibre in diet are:

- ♦ Whole cereals should be preferred to refined cereals
- ♦ Whole pulses should be preferred to those from which the husk has been removed
- ♦ Fruits and vegetables can be eaten with the skin intact.

Significance of Fibre

High fibre diet plays an important role in prevention and management of constipation (Inability to pass motion/ lack of bowel movement)

Fibre also helps to reduce blood cholesterol

Helps to prevent blood glucose level after food (Post prandial blood glucose)

II. Proteins

Proteins are the indispensable constituents of the diet. Proteins are made up of amino acids. Amino acids are needed for replacement and growth of the body parts.

Amino acids are classified as essential and non essential amino acids. Essential amino acids cannot be synthesized by the body and must be taken through foods whereas non essential amino acids can be synthesized by the body.

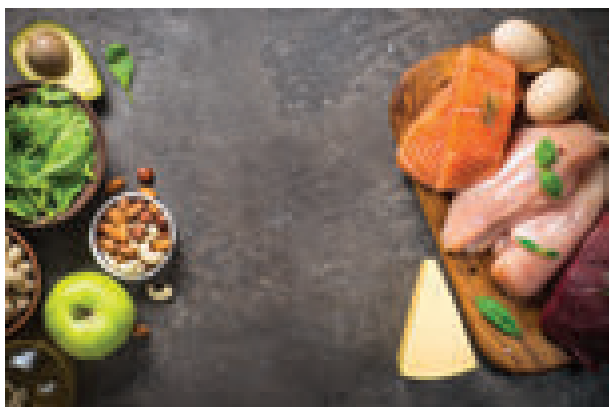


Amino acids contain carbon, hydrogen, oxygen and nitrogen in their chemical composition.

Daily requirements

The ICMR recommends 1gm of protein/ Kg of body weight for adults.

The amount of protein should be increased for children, pregnant and lactating mothers by 1.5- 2 g/kg body weight.



Sources of Protein

Animal sources: eggs, milk and milk products, fish, meat.

Plant sources: pulses, cereals, dry fruits, beans nuts etc.

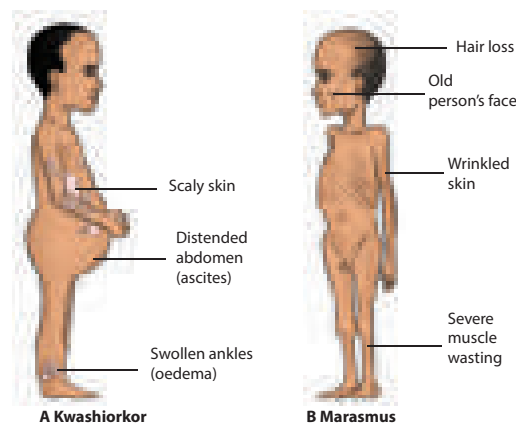
Functions of Proteins

- Protein helps in synthesis of enzymes, immunoglobulin, plasma proteins and hormones in the body
- Protein helps in growth and repair of body tissues
- Proteins are secondary sources of energy during deficiency of carbohydrates and fats. (Provides 4 Kcals/gm)
- Proteins help in forming haemoglobin
- Proteins help in antibody formation

Digestion and absorption: The hydrolysis of proteins in the gastro intestinal tract is accomplished by proteases secreted in gastric juice and pancreatic juice and also by proteases present in the intestinal mucosa.



Severe protein deficiency along with food energy causes Protein Calorie Malnutrition (PCM). The serious forms of PCM are Kwashiorkor and Marasmus.



III. Fats

Fat is deposited as adipose tissue in the body and perform essential functions in the body. Fats are composed of fatty acids and contain oxygen, carbon and hydrogen.

Classification: Fats are classified in to two types: saturated fat and unsaturated fat.

- Saturated Fat:** These have full number of hydrogen atoms. These are from animal sources. **Example:** butter, Ghee and vanaspati oil.
- Unsaturated Fat:** These contain one, two or more double bonds of fatty acids. These are extracted from vegetable sources. **Example:** Groundnut oil, soyabean oil, sunflower oil.



Saturated fats changes in to solid from at low temperature and melts at high temperature. Unsaturated fats never solidify at any temperature.

Daily Requirements

15-20% of total calorie requirements should be from fat

Sources

Animal sources: Fish, egg, meat, milk and milk products.

Plant sources: oil seeds (Groundnut, mustard, cotton seed and coconut oil), nuts.



Functions

- Supplies energy (9 kcals/ gm)
- Improve the palatability of food (flavor and taste)
- Supports body organs like liver and kidneys
- Provides insulation and thermoregulation against cold
- Provides essential fatty acids which helps in growth, promotion and maintenance of skin integrity
- Helps in formation of hormones in the body
- Helps in transportation of fat soluble vitamins

Digestion and absorption

There is no digestion of fats in mouth and very little in stomach. In the small intestine, presence of fat stimulates cholecystokinin and secretin which further stimulates pancreatic juice and bile. Food mixes with bile and emulsified. Pancreatic lipase hydrolyses and

yields fatty acids and monoglycerides. These pass to small intestine and combined with intestinal lumen and absorbed in to blood stream.



Excessive accumulation of fat causes obesity in all age groups.

Obesity increases the risk of following diseases:

- Diabetes mellitus
- High blood pressure
- Stroke
- Gall stones
- Coronary artery diseases
- Low back pain and osteoarthritis



STUDENT'S ACTIVITY

For the following nutrients, can you say why they are important and name one source?

Carbohydrates

Proteins

Fats and oils

IV. Vitamins

vitamins are complex chemical substances required by body in very small amounts. Vitamins in food are for the protection and regulation of body functions.

- **Vitamins** are divided in to two major groups
- Fat soluble vitamins- Vitamin-A, D, E and K
- Water soluble vitamins- Vitamins of B group and vitamin C

Fat Soluble Vitamins

Vitamin-A

The chemical name is Retinol. Found in foods of both plant and animal origin.

Daily requirements: 0.4-1 mg

Sources

Green leafy vegetables and yellow orange fruits and vegetables like mango, papaya, pumpkins and carrots are good sources of β -carotene.

Butter, whole milk, egg, liver and fish are richest sources.



Functions

- Necessary for the health of the eyes.
- Maintenance of the normal epithelial tissues of the body.
- Necessary for growth and proper utilization of protein

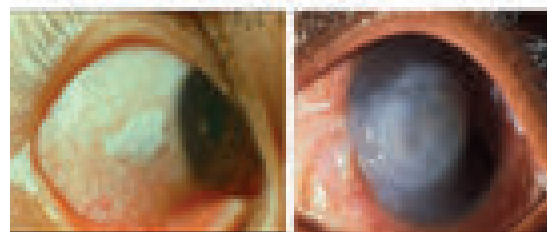


Vitamin A deficiency is one of the major causes of blindness in India.

Deficiency Syndrome

- Decreased resistance to infection
- Dry scaly skin

- Night blindness (Inability to see in dim light)
- Xerophthalmia- dry eye
- Bitot's spots- Greyish, rough and raised patches on conjunctiva
- Keratomalacia- Softening of the cornea.
- Stunted Growth



Bitot's spot

Keratomalacia



The states badly affected by Vitamin A deficiency are the southern and eastern states of INDIA are Andhra, Tamil Nadu, Karnataka, Bihar and West Bengal. These are predominantly rice eating states which is devoid of carotene.

Vitamin-D

Vitamin D is synthesized by sunlight. Vitamin D is essential for bone growth.



Vitamin D is otherwise known as 'sunshine vitamin' as it can be synthesized from sunlight by our body.

Daily requirements: 400 IU

Sources

Generated in the skin by action of ultra violet rays of sunlight

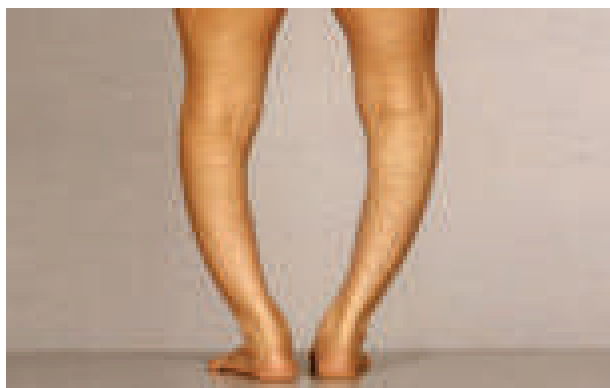
Food sources are milk, butter, cheese, egg, fish and fish liver oils, and foods which have been fortified by addition of vitamin D.



Functions

- Increases intestinal absorption of calcium and phosphates
- Mineralization of bones

Deficiency Syndrome



Rickets in children- Bony deformities in growing children due to defective mineralization of the growing bones. Bones become soft and bend under pressure.

Osteomalacia- Generalized bone pain in adults especially in women.

Vitamin E

Vitamin E is an antioxidant and formed up of chemical substance called tocopherols.



Vitamin E is called as anti sterility (Reproduction) vitamin.

Daily requirements: ICMR recommends 0.8 mg/ g of essential fatty acids.

Sources

Milk, oils, eggs, leafy vegetables, papaya, grains, nuts.



Plant foods are rich sources of Vitamin E than animal foods.

Functions

- Antioxidant (Prevents the formation of oxidative free radical)
- Co factor in electron transport
- Prevents or delays the ageing

Deficiency syndrome: Sterility, muscle wasting with weakness

Vitamin K

It is otherwise called as antihemorrhagic vitamin.

Daily requirements

WHO suggested RDA of 55 µg per day for adults.

Sources

Green leafy vegetables, cereals, fruits.
Synthesized by bacteria in gut.



Functions

- Important component in blood coagulation
- Helps in formation of blood clotting factors



Newborn babies have sterile intestinal flora and cannot produce Vitamin K, hence given artificially.

Deficiency Syndrome: Alteration in blood clotting mechanism

II. Water Soluble Vitamins

Vitamin B ₁ - Thiamine	Vitamin B ₂ - Riboflavin	Vitamin B ₃ - Niacin
Vitamin B ₅ - Pantothenic acid	Vitamin B ₆ - Pyridoxin	Vitamin B ₇ - Biotin
Vitamin B ₉ - Folic acid	Vitamin B ₁₂ - Cyanocobalamine	Vitamin C - Ascorbic acid

These vitamins are essential for many metabolic functions of the body. These are daily required in diet.

Vitamin B₁- Thiamine

Thiamine is essential for the normal metabolism of carbohydrates and fats. It is necessary for the transmission of nerve impulses.

Daily requirements: 0.5 to 2 mg

Sources

whole grain cereals, wheat, ragi, pulses (dhal), vegetables and potatoes, green leafy vegetables. Meat, fish, liver and eggs.



Polished milled rice and wheat flour of white variety are deficient of vitamin B₁.

Functions

- Helps in carbohydrate utilization.
- Maintenance of appetite and digestion.

Deficiency Disorder

Beriberi- condition in which there is a severe muscle wasting, growth retardation in children, neurological disturbances and frequent infection.





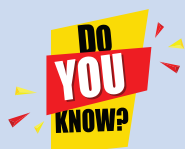
Horizontal nail ridges can indicate B1 deficiency

Take a look at the picture below, showing horizontal nail ridges. When nails look this way, it's usually the result of a vitamin B1 deficiency.



Vitamin B₂

Vitamin B₂, also known as riboflavin, is one of the eight B-complex vitamins. It is essential for the health of skin and for normal vision.

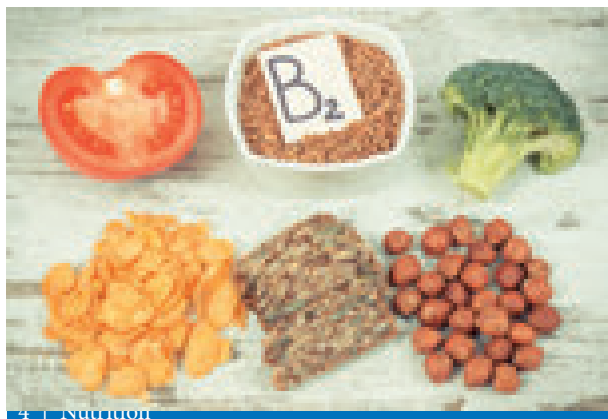


Those suffering from migraines may find that taking doses of Vit B₂ may help. A study by the department of neurology of Humboldt University of Berlin found that those taking high doses of riboflavin had significantly fewer migraines.

Daily requirements: 0.6 mg/ 1000 Kcal

Sources

Riboflavin is found in eggs, nuts, dairy products, meats, broccoli, sprouts, wheat germ, wild rice, mushrooms, soyabeans, green leafy vegetables and whole grain and enriched cereals and bread. Riboflavin also synthesized by bacteria in intestine.



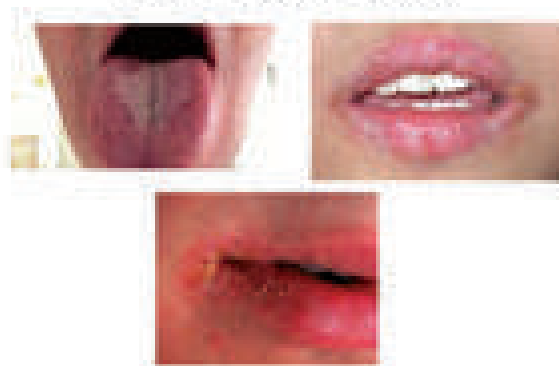
Functions

- It helps the body break down carbohydrates, proteins and fats to produce energy.
- It allows oxygen to be used by the body.

Deficiency Syndrome

- **Glossitis**- Ulceration of the tongue.
- **Angular stomatitis**- Cracks at the corner of the lips.
- **Corneal ulceration**

Vitamin B₂ Deficiency



Vitamin B₃

Niacin is one of the B-complex nutrients; it can be synthesized in body.

Daily requirements: 10-15 mg

Sources

Found in appreciable amounts in liver, yeast, meat, legumes, peanuts and whole cereals.

Foods that are good sources of tryptophan are animal protein and vegetable protein.



Functions

- Helps in normal functioning of skin, intestinal tract and nervous system

Deficiency Syndrome

1. Pellagra- Three conditions are

- a. Dermatitis -dark, dry and scaly skin
- b. Diarrhea- due to atrophy of intestinal wall
- c. Dementia-Memory Loss



4 D's of pellagra

Diarrhoea, Dermatitis,
Dementia and Death

2. Glossitis, mental disorders

Vitamin B₅- Pantothenic acid

Anti dermatitis factor

Daily requirements: 10mg

Sources

Eggs, liver, yeast, many fish and vegetables.



Functions

- Necessary for metabolic functions

Deficiency Syndrome

Dermatitis, hair loss

Vitamin B₆

This vitamin B₆ is otherwise known as pyridoxine. It is stored in muscle but found in tissues throughout the body.

Daily requirements: 1.5-2 mg for normal adults.



Source

Whole grains, legumes, bananas, potato, liver, kidney and other meats, fortified breads and cereals. Sunflower seeds, soya beans, walnuts and yeast are the richest sources of pyridoxine among plant foods.

Functions

- Production of red blood cells
- It is readily absorbed from intestines

- Improves immunity
- Improves nervous system function
- Reduces muscle spasms, cramps and numbness
- Maintains proper balance of sodium and phosphorous in the body



Deficiency Syndrome

Anaemia, nervousness, insomnia, oedema (Water retention), mental depression. Muscle weakness, tooth decay.

Arm and leg cramps, Skin lesions and skin disorder.



Pyridoxine has been used to prevent or treat a certain nerve disorder (**peripheral neuropathy**) caused by certain medications (such as Isoniazid).

Vitamin B₇

Otherwise known as Biotin. It is associated with carbohydrates metabolism.

Daily requirements: Traces

Sources

Egg yolk, liver, kidney, tomatoes, vegetables, legumes and cereals.

Functions

It is needed for protein and fatty acid synthesis

Deficiency syndrome: Dermatitis, hair fall.



Chronic exposure to alcohol inhibits the absorption of biotin. Plasma biotin concentrations are low in 15% of people with chronic alcoholism.

Folic acid

Vitamin B₉ includes both folate and folic acid and is important for several functions in the body.

Daily requirements: 0.4mg

Sources

Fish, mutton, liver, egg, chicken, green leafy vegetables, pulses, lentils, beans, sunflower seeds, beets, broccoli, spinach, orange juice, tofu, fish, meat, fortified cereals, milk, cheese, eggs, oysters, crab etc.,



Functions

- Folic acid helps the body to convert carbohydrates into glucose, which is used to provide energy.
- Folic acid helps in building of antibodies which prevent and heal infections.
- Regulates blood cells formation.

Deficiency Syndrome

- A recent study connected folic acid deficiency with autism
- Megaloblastic anemia

- Sterility
- Low birth weight babies
- Congenital defects in the child- cleft lip and cleft palate



Autism is a mental condition, present from early childhood, characterized by great difficulty in communicating and forming relationships with other people and in using language and abstract concepts

Vitamin B₁₂-Cyanocobalamine

This vitamin is destroyed by heat.

Daily requirements: 1-3 µg

Sources

Foods of animal origin, also synthesized by bacteria.



Functions

- DNA Synthesis
- Stimulates and promotes maturation of RBC's



Its absorption from the intestines requires a factor called 'intrinsic factor (IF)' secreted by the stomach. It is a specific protein secreted by the mucosal cells lining the stomach. IF binds and absorbs vitamin B₁₂.

Deficiency Syndrome

- Pernicious anemia
- Infertility
- Neurological and mental disturbances

Vitamin C

Vitamin C is also known as ascorbic acid. It is an antioxidant and water soluble vitamin.

Daily requirements: up to 40 mg

Sources: Citrus fruits (amla, guava, lemon, orange, tomato), green leafy vegetables.



Functions

- Helps in wound healing
- Prevents bleeding
- Antioxidant



Heat and cooking destroys the Vitamin C.

Deficiency Syndrome

Scurvy- Painful swelling of gums and joints. Multiple hemorrhages specially in gums, skin and mucus membrane delayed wound healing.





STUDENT'S ACTIVITY

A young boy has a wound which is not healing. You need to make sure that his diet includes enough of one particular vitamin. Which vitamin is this and what foods will provide it?



Very large doses of fat soluble vitamins if not eliminated from the body, become toxic. This is called as 'Hypervitaminosis'.

V. Minerals

These are the inorganic compounds in micro quantities which are essential for many vital functions of the body. The minerals constituent of the body amounts to 4.3 to 4.4 %, largely in the skeleton.

General Functions of Minerals

As constituents of hard tissue. (eg.) calcium and phosphorus in bone and teeth.

As constituents of soft tissue. (eg.) Sulphur and phosphorus.

As constituents of substances assisting in the regulatory function of the body (eg.) salts in solutions influence nerve and muscle action.

Some of the essential mineral salts are sodium, potassium, calcium, phosphorus, magnesium, iron and iodine.



The body contains some 50 minerals.

Calcium

Calcium is most important for children and pregnant women.

Calcium is important component in bones and enamel of teeth. 99% of body calcium is found the bones.

Sources: milk and its products, green leafy vegetables, bones of meat, fish, pumpkin, coconut, dry fruits, cereals.



Daily requirements: 400- 500mgm

Functions

- Formation and maintenance of bones and teeth
- Coagulation (Thickening) of blood
- Muscle contraction



• Milk is one of the best sources of calcium for the human body. Other sources are:

- Cereals and millets - Ragi
- Pulses and legumes - whole Bengal gram, whole horse gram, rajmah
- Nuts and oil seeds - mustard seeds, poppy seeds
- Green leafy vegetables - agathi, drumstick leaves
- Milk and milk products - cow's milk, buffalo's, milk, cheese, khoa
- Fish and sea food

Sodium

Sodium is essential for many body activities. It is taken in the diet as salt.

Sources: Common salt, sodium chloride is also found in certain foods like fish, meat, eggs and seasoned foods.



Daily requirements: 8-10 gms

Functions

- It helps in transmission of nerve impulses
- Maintenance of body fluids and electrolytes balance
- Smooth functioning of nerves, muscles and body cells

Potassium

Most of the potassium present inside the cells.

Sources: Fresh vegetables, citrus fruits, milk, guava and amla.



Functions

- Involved in various biochemical activities of the cells.
- Transmission of nerve impulses.
- Maintenance of electrolyte balance and contraction of muscles.

Daily requirements: 2-5 gms

Phosphorous

Most of the phosphorus present in the bones as inorganic form. Few amount present inside the cells.

Sources: Whole grain cereals and flours, legumes, oatmeal, cheese, nuts, fish



Functions

- Gives rigidity to bones and teeth
- Regulates pH of the blood and urine
- Important in energy metabolism
- Phosphorus compounds are necessary for carbohydrate metabolism and for the calcification of bones and teeth
- Needed for transport of fatty acids

Iron

The amount of iron present in the adult human body is very small, but it is very important substance and essential for the maintenance of life. 75% of total body iron present in the blood.

Sources: Liver, meat, fish, eggs, cereals, pulses,

green leafy vegetables, dry fruits, jaggery, certain beans.



Daily requirements: 25-40 mg

Functions

- Component of hemoglobin and myoglobin
- Helps in oxygen transport and cellular respiration



Iron is better absorbed with vitamin C and absorption delayed with tea or coffee.

Iodine

Iodine is considered as an important for maintaining metabolic rate.

Sources: Iodized salt, salt water fish, milk, meat cereals and green leafy vegetables.

Fortification of common salt with potassium iodate is a recommended method of making iodine easily available.



Daily requirements: 01.05 mg

Functions

- Iodine is an important constituent of thyroxine, the hormone secreted by the thyroid gland
- Iodine is responsible for the regulation of physical growth



A goiter is a swelling in the neck resulting from an enlarged thyroid gland. A goiter is associated with a thyroid that is not functioning properly. Worldwide, over 90% of goiter cases are caused by iodine deficiency.

Magnesium

Human body contains about 25gms of magnesium. Half of it is present in bones and in combination with phosphate and carbonate and about 1/5th in soft tissues.

Functions

Constituent of bones and teeth, coenzymes in general metabolism, smooth muscle action.

Sources of Magnesium: Dairy products (excluding butter) fresh green vegetables, meat, nuts, sea food and legumes are good sources of magnesium.



Other Inorganic Elements

Copper: Functions with iron in the formation of haemoglobin.

Manganese: Has a similar effect though less marked than copper.

Cobalt: It is present in vitamin B₁₂ which is also necessary for the formation of haemoglobin.

Zinc: Is found mainly in pancreatic tissue and may have an important part to play in the storage of insulin in the gland.

Clinical Significance of Minerals

- 1. Calcium:** Deficiency of calcium in the body precipitates rickets in the children and osteomalacia in adults.
- 2. Iron:** Reduced level or lack of iron causes anemia, certain hormonal changes in women.
- 3. Iodine:** Lack of iodine in the body leads to enlargement of thyroid gland called as goiter.



Tetany (intermittent muscular spasm) is a condition caused by deficiency of calcium in the body.



STUDENT'S ACTIVITY

Word scramble: Find the deficiency disorders caused by nutrients

P	E	L	L	A	G	R	A	S	C
A	C	G	B	I	T	O	T	S	E
N	G	J	W	E	R	D	C	V	R
E	S	B	E	R	I	B	E	R	I
M	S	F	E	Q	E	T	E	Q	C
I	Z	E	R	T	I	O	G	G	K
A	X	L	M	G	U	F	E	F	E
B	C	N	Q	R	G	U	F	S	T
S	T	O	M	A	T	I	T	I	S
K	S	C	U	R	V	E	Y	A	T



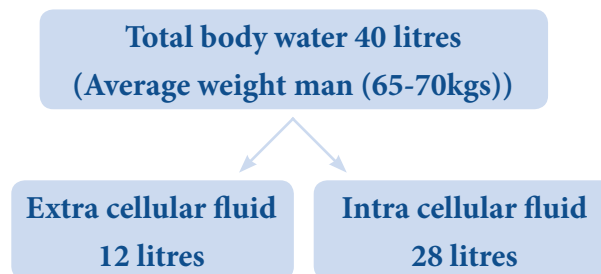
STUDENT'S ACTIVITY

Prepare chart on various sources of nutrients.

VI. Water

Water is an important component with diet as it performs many vital functions in the body and hence is a part of balanced diet. Water makes up to 70% of total body weight in human beings. Water should be taken in enough quantities to prevent dehydration.

Distribution of Body Water



♦ Extra cellular fluid: Fluid is contained in the spaces outside the cell.

♦ Intra cellular fluid: fluid contained within the body cells.

Functions of Water

- Water is a major constituent of blood and tissue fluid
- It helps in transport of many substances from one compartment to another
- Provision of the moist internal environment required by all living cells
- Participation in all the chemical reactions occurring extracellularly and intracellularly
- Regulation of the body temperature



Drink atleast 8 cups of fluid a day – water is best.

4.7 BALANCED DIET

Nutrients are the important constituents of diet which helps in regulation of various functions of the body. Protein, carbohydrates, fats, minerals, vitamins, etc. are important ingredients of food and lack of these in our diet has a negative effect on our body. “Balanced diet is the one which consists of all the required nutrients in adequate amount for proper maintenance and regulation of body functions.”

Principles of Constructing a Balanced Diet

- A sufficient number of calories
- The daily requirement of protein should be met and it amounts to 15-20% of the daily energy intake
- Fat requirement should be limited to 20-30% of daily energy intake
- Carbohydrates rich in natural fibers should constitute the remaining food energy

Elements of Balanced Diet

Every person needs (i) Energy giving food (ii) Body Building food (iii) Protective food from his daily diet. A balanced diet means a diet, which contains all the above constituents in needed quantity.

For different age groups, the composition and proportion of the nutrients varies. The proportion and percentage of the various constituents of diet depend upon the occupation, physical condition, sex, age and climate, generally a person requires about 3200 calories of heat energy in order to maintain the proper function of the body. These 3200 calories

should be given by a proper combination of food elements.

Children, heavy workers, tall and fat persons require more food. Similarly, people living in cold countries consume larger quantity of food than people living in warm countries. Diet of man and boys is more than the diet of woman and girls. Persons, who do a lot of mental work, should take less carbohydrate but more proteins. Ex: A rickshaw puller requires extra calories than a sedentary working man.



To know if the diet is balanced and to plan a balanced diet you have to think about two things: the mixture of foods and the amount of food a person eats.



STUDENT'S ACTIVITY

List the activities that require more energy and less energy

4.8 TYPES OF DIET

Modification of diet means changing the constituents of the diet as per the metabolic rate of the person. In disease condition, the body's metabolic rate keeps on changing hence the diet of a normal person cannot fulfill the basic needs of providing enough calories.

Diet can be classified

I. Based on the consistency

Liquid Diet

1. **Clear liquid diet:** clear liquid diet is free from any solid particles. Ex: Clear soups, tea or coffee without cream etc. This is given for the patient who cannot chew or swallow the food.



2. **Full liquid diet:** Full liquid diet is composed of solids which are easily digestible, mixed in liquid. This diet is prescribed for patients who are severely ill, not able to chew or swallow but need good calories. This diet is given in between a clear liquid diet and soft diet. Ex: eggs, vegetable soup, kheer, milk etc.

Soft Diet

Soft diet is easy for chewing and easily digestible. This diet contains all the required nutrients especially proteins and carbohydrates. It is soft in consistency, easy to chew, made up of simple, easily digested foods, containing limited fibre and does not contain rich or highly flavoured foods.



Bland Diet

Bland diet is free from all spices and condiments and is basically used to prevent peptic ulcers.



Normal Diet

A Normal diet is defined as one which consists of any and all foods eaten by a person in health. As there is no restriction of any kind of food, this diet is well balanced and nutritionally adequate.



On the basis of Consistency and Constituents

- Low fibre diet
- High fibre diet
- High calorie and low calorie diet
- High fat and low fat diet
- High protein and low protein diet
- Low sodium diet
- Modification in diet is done for various diseases in different pattern.

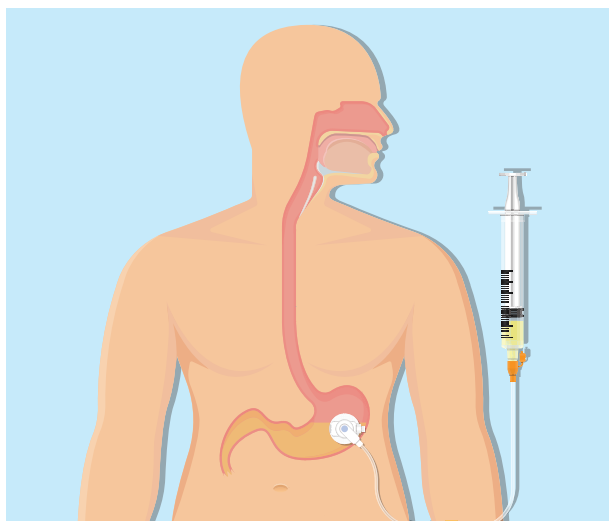
Special Feeding Techniques

Food consumption in the clients with different diseases is altered. Different techniques used in hospitals for such patients are:

- Tube feeding
- Total Parenteral Nutrition (TPN)

Tube Feeding

Tube feeding is commonly done by using nasogastric tubes of different sizes. Nasogastric tube is inserted from nose to stomach. The tube is inserted gently upto the marking roughly estimated. Then it is strapped at the forehead. Then placement of tube is assessed either using stethoscope or aspiration of gastric juice from stomach. Feed is given through the tube until the patient is able to eat by mouth. This method is easier, simple method for helpless patients who are not able to take the food orally. Full fluid diets or commercial formulas may be administered through this route.



The tube may be passed through the nose into the stomach (nasogastric), duodenum (nasoduodenal) or jejunum (nasojejunal).

When there is an obstruction in the esophagus, enteral feeding is done by passing a tube surgically through an incision in the abdominal wall into the stomach (gastrostomy), duodenum (duodenostomy) or jejunum (jejunostomy).

Total Parenteral Nutrition (TPN)

The delivery of nutrients directly into the circulation through the peripheral or central vein is termed as parenteral nutrition. This technique is used for long term purpose. In this method, a cannula is inserted in large veins to reach superior vena cava in the heart.



4.9 THERAPEUTIC DIETS

Diet in Fever

The nutritional requirements depend on the nature, severity and duration of the fever. During fever the caloric requirements increases. Frequent feeding must be and fats must be restricted. Fluid intake must be from 3000-5000 ml in various forms. Readily digestible foods must be given.

Foods to be given

- Plenty of fluids like juices, soups
- Milk, and milk based beverages
- Low fibre foods
- High protein foods such as eggs, milk, fish etc.
- Plain gelatin based desserts, sugars, honey and jams



Foods to be restricted

- High fibre foods like whole grain cereals, whole wheat flour and pulses
- All raw vegetables and fruits except papaya and banana
- Fried fatty foods such as samosa, pakodas, halwa etc
- Chemical irritants such as condiments, spices, pickles, chutneys etc should be avoided

Diet in Constipation

Constipation is decreased frequency of passing stools or complete retention of faeces. The diet should include foods rich in fibre content like whole cereals, legumes and vegetables. Other foods such as fruits rich in fibre e.g. banana, apple, guava etc. more of fluids should be consumed in any form.



STUDENT'S ACTIVITY

A man complains of constipation. What foods should you tell him to include in his diet?



Plenty of water

Drink more water and other liquids, such as natural fruit and vegetable juices and clear soups, to help the fibre work better. This makes your stools softer and easier to pass.

Drinking enough water and other liquids is also a good way to avoid dehydration. Staying hydrated is good for your overall health and can help you avoid getting constipated.

Diet in Diarrhoea

Diarrhoea is increased frequency of loose or watery stools. It occurs in infectious condition

of colon. Diet must include mainly fluids like oral boiled water containing electrolyte salts, i.e glucose and sodium chloride. Fluids should be given frequently. Gradually fruit juices, butter milk, diluted milk must be introduced. During treatment phase soft bland diet like milk pudding, rice dhal gruel etc. can be started. Oral rehydration solution must be given which fulfills the nutritional and electrolyte balance.

Oral Rehydration Solution

Home Made ORS recipe - The "simple solution" Preparing.

One (1) Litre Oral Rehydration Solution [ORS] using Salt, Sugar and Water at Home.

Ingredients

Half (1/2) level teaspoon of Salt.

Six (6) level teaspoons of Sugar.

One (1) Litre of clean drinking or boiled water and then cooled 5 cupfuls (each cup about 200 ml).

Preparation Method: Stir the mixture till the salt and sugar dissolve.

6 Level Tea Spoons of Sugar

Half Level Tea Spoon of Salt

1 Litre of Water - 5 Cups
(each cup about 200 ml)



A child with diarrhoea should receive oral rehydration salts (ORS) solution and a daily zinc supplement for 10–14 days. Diarrhoea medicines are generally ineffective and can be harmful.

Diet in Cardiovascular Diseases

Cardiovascular diseases are the diseases of the heart and blood vessels. They include hypertension, angina pectoris, ischemic heart diseases and myocardial infarction.



Foods to be included

- Foods low in cholesterol and saturated fat
- Skimmed milk, cereals, pulses
- Whole grains
- All vegetables and fruits
- High fibre diet
- Lean meat, egg white and fish
- Vegetable oils, sugar and jaggery

Foods to be avoided

- Fat rich foods
- Whole milk, butter, cream, cheese
- Indian sweet meals like puddings and bakery.
- Organ meats, egg yolk, fish
- Nuts, oil seeds, pickles
- Vanaspati, fried food, alcohol
- Salt intake should be restricted to 5gm/ day

Diet in Diabetes Mellitus

Diabetes mellitus is an endocrine condition in which there is an increase in amount of blood sugar due to abnormal synthesis and function of insulin. Diet must be restricted in calories and sugars to maintain the normal blood sugar levels. Protein, all vitamins and fibre rich diet

can be given. Fluid intake can be adequate. Carbohydrate (40%) and fats (20%) must be limited.

Foods to be included

Green leafy vegetables, fruits except banana, lemon, clear soups, onion, mint, spices, salads, plain coffee or tea, skimmed and butter milk.

Taken in Moderation

Fats, cereals, pulses, meat, egg, nuts, roots, fruits.

Foods to be avoided

Simple sugars (glucose, honey, syrup, sweets, dried fruits, cake, candy, fried foods, alcohol, nuts, jaggery, sweetened juices.



STUDENT'S ACTIVITY

A 40 years old male is diagnosed with type II diabetes mellitus, he is put on with oral tablets to control blood sugar. He is also advised to make life style changes to control blood sugar levels. His Fasting blood sugar was 130 mg/dl and post prandial blood sugar was 200 mg/dl. Discuss and plan a menu for him.



A common belief that diabetics should not eat rice and potatoes is wrong

Diet in Renal Failure

Renal failure is accumulation of urea in the blood and tissues. It may be acute or chronic. In this condition glomerular function is affected. The diet should be low in protein content, sodium, potassium and high in calories. Salt should be restricted.

Foods to be included

- Milk and its products in needed quantity.
- Ghee, oil, sugar, potatoes and other starchy foods can be used to increase the palatability of foods.
- Fruits without potassium can be taken.
- Spices and condiments in small amounts can be taken.

Foods to be avoided

- Meat, poultry and fish.
- Dry fruits like almonds, peanuts, Cashewnuts and walnuts.
- Extra pulses, cereals, legumes, peas and beans.
- Cakes, biscuits and bakery products.
- Fruits if potassium is restricted
- Green leafy vegetables if potassium is restricted



STUDENT'S ACTIVITY

Discuss the various foods that can be given to

- a) Diabetes mellitus
- b) Constipation
- c) Renal failure

4.10 METHODS OF COOKING

Cooking is an art. It is linked with the dietary and cultural pattern of people. Almost all foods consumed need some form of cooking and processing before they are fit for serving and

consumption. Fruits and some vegetables used in salad or chutneys are consumed uncooked.

Cooking has many Benefits

1. Cooking increases palatability of the food
2. It makes mastication easier and renders the food easy to digest
3. It sterilizes food by killing microorganism
4. Adds new flavor and stimulates digestive juices
5. Good cooking increases the acceptability of food
6. It improves the appearance of food

Methods of Cooking

- Boiling
- Simmering
- Steaming
- Stewing
- Roasting
- Frying
- Baking
- Grilling
- Solar cooking

Boiling: Cooking in water at its boiling point 100°C is known as boiling. Most of the vegetables are cooked by this method. Boiling in excess water may result in loss of vitamins and minerals. Specific time and minimum water must be kept for boiling these items.



To get good results from boiling

- Use the right amount of water
- Select correct size of pan
- Lid should be tightly closed
- Cook the food with skin to preserve nutrients
- Uncover the pan in case of green leafy vegetables



Methods to avoid loss of nutrients during cooking

- Cut the vegetable into bigger pieces
- Cut the vegetables and use it immediately
- Soaking or washing time should be reduced. Wash the vegetable with the skin and later should be peeled and cut
- Vegetables should be cooked in minimum amount of water. Any liquid remaining after cooking the vegetable should be used in a gravy or soup
- Cook the vegetables by steaming and pressure cooking

Simmering: This method includes cooking below the boiling point i.e 85°C. Meat and fish are best cooked by simmering because cooking at high temperature hardens the fibres of meat. It helps in preserving the essential vitamins and minerals.



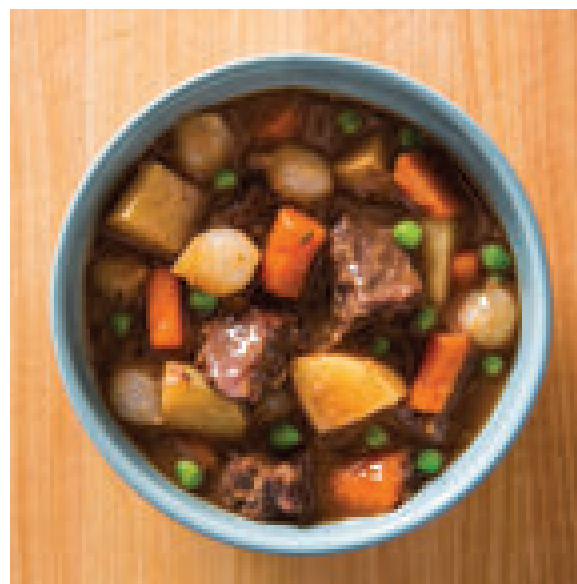
Steaming: Cooking in this method involves direct heat steaming. Temperature is high and pressure is maintained. Pressure cooker is used to cook things by steam under pressure. This method is effective as it preserves nutrients, fuel and time.



STUDENT'S ACTIVITY

List the foods that you eat by steaming

Stewing: This method included boiling in smaller amount of liquid for a prolonged, low degree of heat about 80°C. Here a pan is used which has well fitted lid to prevent evaporation.



Roasting: food is smeared with a little fat and exposed directly to heat or flame. This

makes the food tender. Chicken and tender mutton may cooked by this method.



Frying: Frying is cooking in oil. It may be of two types- deep fry and shallow fry. In deep frying foods are completely immersed in large amount of oil. E.g; puri, cutlets, samosa etc. Shallow frying includes using less quantity of cooking oil. This method is suitable for cooking dosa, omlet, etc.



Baking: Baking is cooking food by dry heat. It is done in a hot air oven. Temperature required for baking is 250-500°C. Baking is expensive form and slow process of cooking. Foods cooked by this method are bread, pastry, cakes etc.



Grilling: This is direct heat cooking method. Here direct heat flame, grill or pans are used to cook. It is quick method of cooking for tender foods like cheese, brinjals and tomatoes.



Solar Cooking: Here solar energy is used to cook foods. It takes a longer time for cooking by this method. It is simplest and traditional form of cooking. Solar cooker and closed containers are used which absorb maximum solar energy.



STUDENT'S ACTIVITY

Given below are different methods of cooking. Write the names of two things that can be cooked by each of these methods:

Method of cooking	Name of things
Roasting	
Frying	
Boiling	
Baking	
Steaming	

4.11 FOOD PRESERVATION

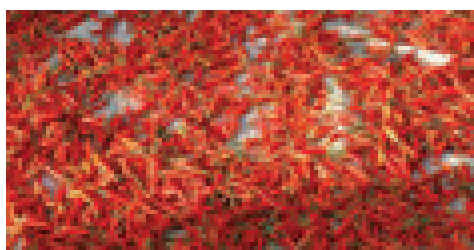
Foods after preparation should be stored at proper conditions to prevent spoilage and loss of nutritive value in it. There are various methods of storing numerous food items at suitable conditions.

Food preservation is known “as the science which deals with the process of prevention of decay or spoilage of food thus allowing it to be stored in a fit condition for future use”. Preservation ensures that the quality, edibility and the nutritive value of the food remains intact.

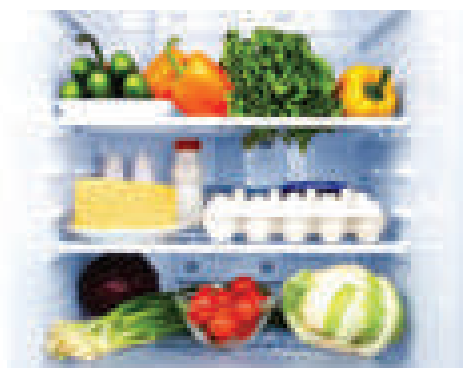
Techniques of Food Preservation

Different methods are used to preserve the foods. A single method or combination of methods can be used.

Drying is the oldest method of food preservation. This method reduces water content which prevents bacterial growth. Sun and wind are both used for drying.



Freezing is keeping prepared food stuffs in cold storages. Freezing at low temperature prevents microbial growth, slowing of oxidation reactions.



Smoking is the process that cooks, food exposing it to the smoke from burning wood. Various methods of smoking are used like hot smoking, cold smoking, smoke roasting and smoke baking.



Vacuum packing creates a vacuum by making bags and bottles airtight. Since there is no oxygen in the created vacuum bacteria die. Usually used for dry fruit.



Salting and Pickling Salting removes moisture from foods like meat. Pickling means preserving food either in salt solution or vinegar. Salt kills and inhibits growth of microorganisms at 20% of concentration.





Sugar is used in syrup form to preserve fruits in crystallized form. Example: Candied peel and ginger.



Canning and bottling means sealing cooked food in sterile bottle and canes. The container is boiled and this kills or weakens bacteria. Once the cane or bottle is opened the food is again at risk of spoilage.



Jellying is preserving food by cooking in a material that solidifies to form a gel. Fruits are generally preserved as jelly. Sugar is also added.

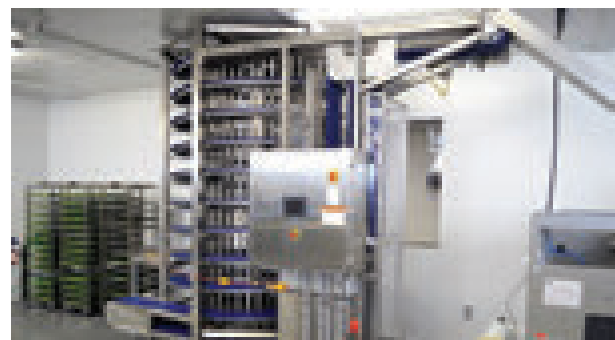


Pasteurization is a process that kills bacteria in liquid food. In this method moderately high (62°C to 100°C) temperatures are used (for about 15 to 30 minutes) to inactivate certain enzymes and kill certain other microorganisms especially in milk. Pasteurized products need refrigeration after exposure to air.



Pasteurization was invented by French scientist Louis Pasteur during the nineteenth century.

Pulsed Electric Field Processing is a new method of preservation that uses brief pulses as strong electric field to process cells.



High pressure food preservation is a method that presses foods inside a vessel by exerting 70,000 pounds per square inch or more of pressure.



CONCLUSION

In order to have a healthy life and good nutritional status, a person needs to eat a balanced diet.

Although most foods are mixtures of nutrients, many of them contain a lot of one nutrient and a little of the other nutrients. Foods

are often grouped according to the nutrient that they contain in abundance.

Nutrients are classified into macronutrients and micronutrients. Carbohydrates, proteins, fats and water are macronutrients, and vitamins and minerals are micronutrients.

Carbohydrates, proteins, fats, vitamins, minerals, water and fibre are the main food groups which together, but in variable amounts, make up a balanced diet.

Vitamins are substances present in small amounts in foods and are vital for the body to function normally. Vitamins are also called protective foods.

Minerals have a number of functions in the body including developing body tissues and supporting metabolic processes. The minerals that are of most importance are calcium, iron, iodine, zinc and fluorine.

A-Z GLOSSARY

Nutrition (ஊட்டச்சத்து)	-	The science of food and its relationship to health.
Nutrient (சத்துப்பொருள்)	-	A substance essential for the growth, maintenance, function and reproduction of a cell or an organism.
Nutritional status (ஊட்டச்சத்து நிலை)	-	Health of a person is influenced by the quality of food eaten and the ability to utilize these foods to meet its needs.
Malnutrition (poor nourishment) (ஊட்டச்சத்து குறைபாடு)	-	Impairment of health resulting from a deficiency, excess or imbalance of nutrients.
Health (ஆரோக்கியம்)	-	State of complete physical, mental and social well being and not merely the absence of disease or infirmity. (WHO)
Food (உணவு)	-	Food is the basic necessity of life and is required for physiological, functions of the body.
Infection (நோய்தொற்று)	-	Infection is the invasion of body tissues by disease-causing agents, their multiplication, and the reaction of host tissues to the infectious agents and the toxins they produce.
Mortality (இறப்பு விகிதம்)	-	Is a measure of the number of deaths (in general, or due to a specific cause) in a particular population, scaled to the size of that population, per unit of time.
Morbidity (நோயுற்ற நிலை)	-	Refers to having a disease or a symptom of disease, or to the amount of disease within a population.
WHO (உலக சுகாதார நிறுவனம்)	-	World Health Organization
Deficiency (குறைபாடு)	-	An inadequate supply of essential nutrients (as vitamins and minerals) in the diet resulting in malnutrition or disease
Diet (உணவு முறை)	-	A diet May be defined as the kinds of food on which a person or group lives.
Balanced diet (சரிவிகித உணவு)	-	A balanced diet as one which contains a variety of foods in such quantities and proportions that the need for nutrients is adequately met.
Lipid (கொழுப்பு)	-	A small water insoluble biomolecule generally containing fatty acids, sterols or isoprenoid compounds.



Fatty acids (கொழுப்பு அமிலங்கள்)	-	A long chain aliphatic carboxylic acid found in natural fats and oils; also a component of membrane phospholipids and glycolipids.
Recommended Dietary allowances (RDA) (பரிந்துரைக்கப்பட்ட உணவு)	-	Levels of intake of essential nutrients considered in the judgment of the committee on dietary allowances of the food and nutrition board.
Oxidation (ஆக்ஸிஜனேற்றம்)	-	It is the chemical process by which an atom or group of atoms loses electrons.
Calories (கலோரிகள்)	-	Measurement of the amount of energy that food provides or units used to measure the energy value of food
Amino acids (அமினோ அமிலங்கள்)	-	Alpha amino substituted carboxylic acids; the building blocks of protein.
ICMR (இந்திய மருத்துவ ஆராய்ச்சி கவுன்சில்)	-	Indian Council of Medical Research
Saturated (செறிவூட்டப்பட்ட)	-	A fatty acids containing a fully saturated alkyl chain.
Unsaturated (செறிவூட்டப்படாத)	-	A fatty acids containing one or more double bonds.
Diet therapy (உணவு சிகிச்சை)	-	Use of food as an agent in effecting from illness, prevention of disease and maintenance of health.



ICT Corner

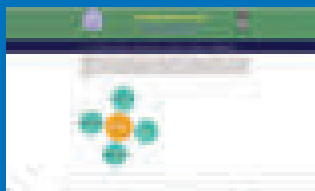
Vitamins & it's Deficiency Diseases

Let us know about vitamins in food and food suggestions

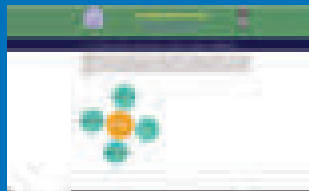


- Step 1:** Type the URL link given below in the browser or Scan the QR code with your mobile to access website.
- Step 2:** Click on “Nutri Guide” tab and you can find various nutrients like Vitamins, Minerals Proteins.
- Step 3:** Now Click on the Vitamins and you can find different types of Vitamins.
- Step 4:** Click on any Vitamins button and a new screen will open with Vitamin chart with Biochemical, RDA, Dietary Sources Signs & Symptoms.
- Step 5:** Explore Biochemical, RDA, Dietary Sources, Signs & Symptoms of all the Vitamins .

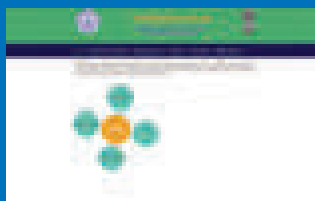
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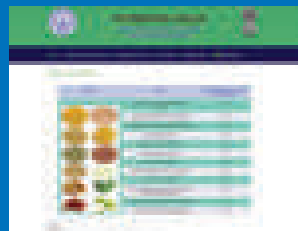
Step 2



Step 3



Step 4



*Pictures are indicative



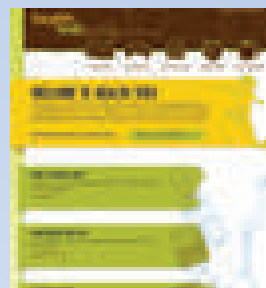
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ICT Corner

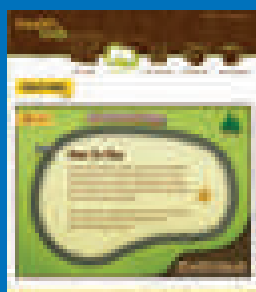
Health Track

Let us know about the keys to health

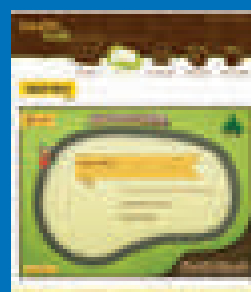


- Step 1:** Type the URL link given below in the browser or Scan the QR code with your mobile to access website.
- Step 2:** On the “Game Zone” tab Click Play Now. You can find three options.
- Step 3:** Now Click on the “Play Health Track”
- Step 4:** Start playing the game by clicking the arrow.
- Step 5:** Play the quiz to strengthen your knowledge on healthy food habits.

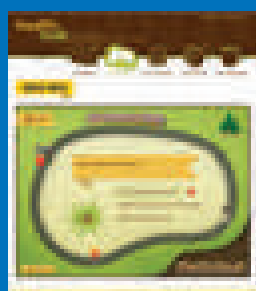
Step 1



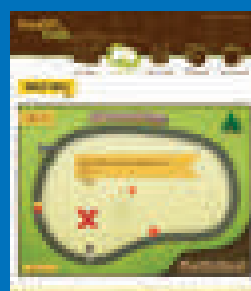
Step 2



Step 3



Step 4



*Pictures are indicative





EVALUATION



I Choose the correct answer:

- The nutrient required for growth and maintenance of our body
 - Carbohydrate
 - protein
 - Fats
 - vitamins
- Which of the following are sources of fat?
 - oil, ghee, butter
 - eggs
 - rice, wheat
 - cereals
- Which of the following group of vitamins are fat soluble
 - A, B, C, D
 - A, D, C, B
 - A, D, E, K
 - B, C, D, K
- The foods can be taken in obesity
 - Vitamin B
 - Vitamin A
 - Vitamin C
 - Vitamin D
- Which of the following foods provides 4Kcals of energy per gram
 - Fat
 - Protein
 - Carbohydrate
 - Both b and c
- Nutrition is defined as
 - Science of food
 - Relationship of food to health
 - Role of nutrients to growth, health and maintenance of body functions
 - all of the above
- Cooking below the boiling point is known as
 - Stewing
 - Simmering
 - Roasting
 - Baking

- Barbeque is a kind of
 - Roasting
 - Simmering
 - Pressure cooking
 - Boiling
- Deficiency of Calcium causes
 - Beriberi
 - Tetany
 - Dermatitis
 - Keratomalacia
- Absorption of Iron is facilitated by
 - Vitamin A
 - Vitamin B
 - Vitamin C
 - Vitamin D

II. Write short answer for the following questions:

- Define Nutrition?
- Define Malnutrition?
- Differentiate between balanced diet and malnutrition?
- Write the classification of foods based on the nutritive value?
- Write the functions of carbohydrates?
- State the reasons to cook the food
- List the deficiency diseases caused by minerals?
- What is boiling?
- List any three food preservation methods
- Name the types of modified diet?



III Write short notes for the following questions:

1. Write the relationship of nutrition and health?
2. Discuss the classification of foods based on its functions.
3. Write the functions of fat soluble vitamins?
4. How do you plan a balanced diet?
5. What kind of foods are advised to the patients with diabetes mellitus?
6. Write about special feeding techniques for a hospitalized patients who cannot eat on their own.

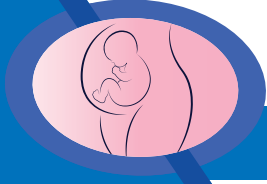
IV Answer the following questions in detail:

1. Discuss in detail about methods of cooking with suitable examples.
2. Detail about fat soluble vitamins in terms of sources, requirements, functions and deficiency disorders.
3. Write the sources, daily requirements, functions and sources of Vitamin B complex?
4. Techniques of food preservation.
5. Detail about diet therapy in different diseases.

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Unit 5



MATERNAL HEALTH NURSING



LEARNING OBJECTIVES

At the end of this chapter, the student will be able to

- ❖ discuss in detail menstrual cycle, fertilization
- ❖ describe the embryonic and foetal development
- ❖ implement antenatal and postnatal care
- ❖ educate the mother about antenatal care
- ❖ participate national family welfare programme and educate about the family planning methods



திருக்குறள்:

குழல்இனிது யாழ்இனிது என்பதம் மக்கள்
மழலைச்சொல் கேளா தவர்.

விளக்கம்:

பெற்ற பிள்ளைகள் பேசும் பொருளற்ற மழலைச் சொல்லைக் கேட்காதவர்தாம், குழலும் யாழும் கேட்க இனியவை என்பர்.

Explanation:

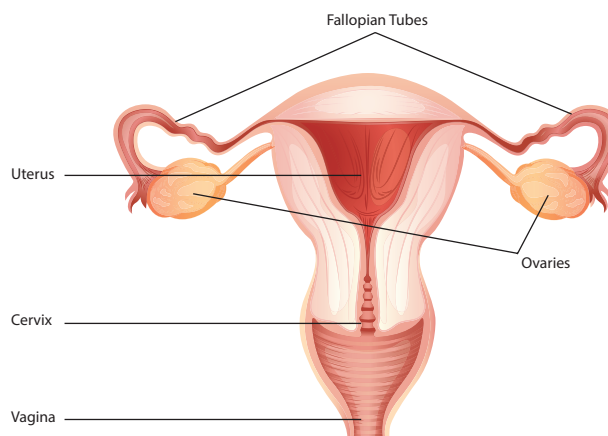
“The pipe is sweet, the lute is sweet,” say those who have not heard the prattle of their own children.

5.1 INTRODUCTION

Women are the eyes of country –told by Bharthiyar. Women are the God of giving life to new one in this word. If women are healthy, the life which comes from them will be healthy. If children are healthy the family, society, nation then the whole world will be healthy. When the child is born as a female the care starts from there to have a healthy child in future.

So the essential and preventable maternal care is needed for all the women. In this chapter we are going to see how the women are to be protected in terms of maternal health. It includes care of women during pregnancy, and the postpartum period. It also encompasses the health care dimensions of family planning, to ensure a positive and fulfilling experience to reduce maternal morbidity and mortality.

Before entering into this chapter look at the picture and reflect the Anatomy and physiology of female Reproductive system. (Refer Chapter 2 std XI vocational book)



Structure of Uterus

5.2 MENSTRUAL CYCLE

Definition: Menstruation is a visible manifestation of cyclic, physiologic uterine bleeding due to shedding of the endometrial wall following invisible interplay of hormones mainly through Hypothalamus-Pituitary-Ovarian axis.

Normal limits:

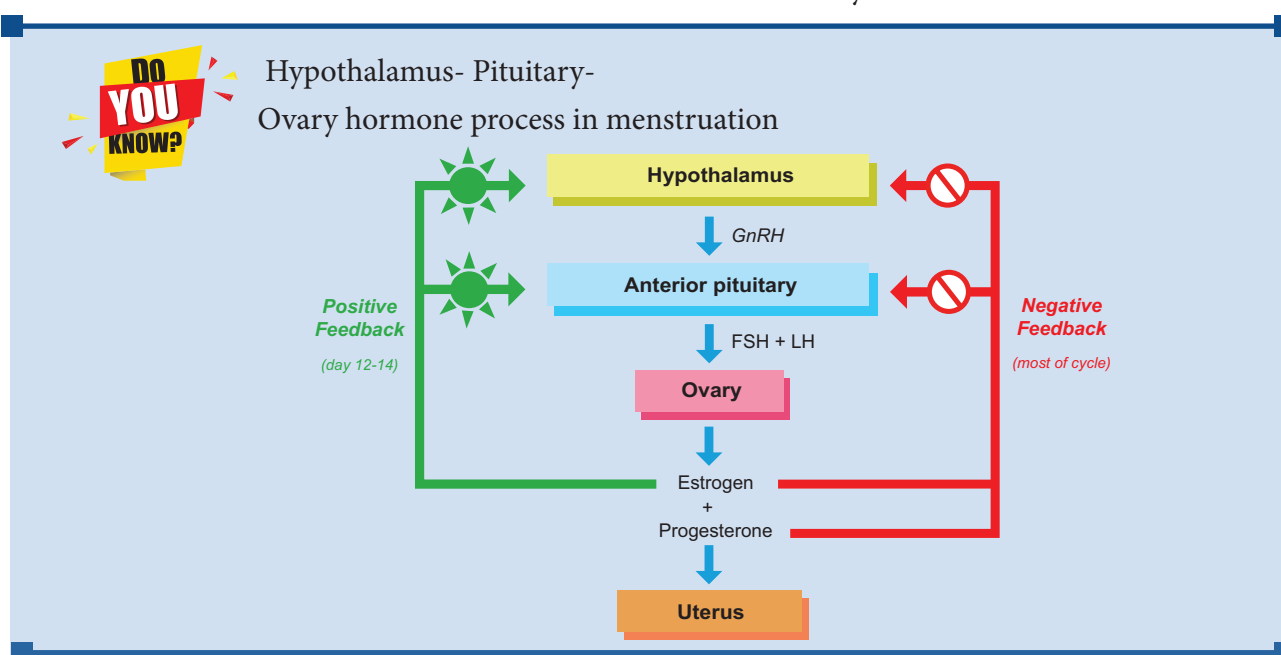
Frequency: 24-38 days

Regularity: +/- 2-20 days

Duration: 4-8 days

Volume: 5-80 ml

Physiology of Menstruation: The menstrual cycle is the scientific term for the



physiological changes that occur in fertile women for the purpose of sexual reproduction. The menstrual cycle is controlled by the endocrine system.

The hormones involved in the menstrual cycle

The mechanism is controlled by the hypothalamus.

1. Gonadotrophin releasing hormone.
2. FSH-Follicular Stimulating Hormone.
3. LH - Luteinizing Hormone.
4. Progesterone and
5. Estrogen.

Menstrual cycle can be explained in two cycles which occur concurrently

1. The ovarian cycle and
2. The uterine cycle



➤ Female literacy is only 54%, and women lack the empowerment to take decisions, including decision to use reproductive health services.

- The World Health Organization (WHO) estimates that, of 536,000 maternal deaths occurring globally each year, 136,000 take place in India, despite the safe motherhood policies and programmatic initiatives at the national level.
- In 2015, it is estimated that about 800 girls and women died every day as a result of pregnancy and child birth-related complications though there is a decline in worldwide mortality rates.

- The Ovarian Cycle consists of
 - a. The follicular phase, ovulation and
 - b. The luteal phase
- The Uterine Cycle consists of
 - a. menstrual phase
 - b. The proliferative phase and
 - c. The secretory phase

1. Ovarian cycle

- a. **Follicular phase:** The hypothalamus released gonadotrophin releasing hormone, which stimulates anterior pituitary gland and secretes follicle stimulating hormone (FSH). All the follicles degenerated except one to mature into a large graffian follicle. The follicle ruptures and releases an ovum into the peritoneal cavity.
- b. The **luteal phase:** Begins with ovulation. The body temperature drops of then rises by 0.5 to 1 around the time of ovulation. Corpus luteum is formed from follicle cells that remain in the ovary following ovulation. Corpus luteum secretes oestrogen and progesterone during the remaining 14 days of cycle. Corpus luteum degenerates, if the ovum is not fertilized.

2. Uterine or Menstrual cycle

- a. **Menstrual phase:** It is characterized by vaginal bleeding and lasts for 4-6 days. Physiologically this is the terminal phase of the menstrual cycle. The endometrium sheds up to the basal layer along with the blood from capillaries and the unfertilized ovum. Bleeding occurs when the coiled arteries return to a state of constriction.
- b. **Proliferative phase:** This phase follows menstruation and lasts until ovulation. The

first few days the endometrium is reforming and it is termed as “Regenerative phase.” Estrogen stimulates proliferation and growth of endometrium. Under the control of oestrogen re-growth and thickening of endometrium begins. Ovulation occurs between day 12 and day 16.

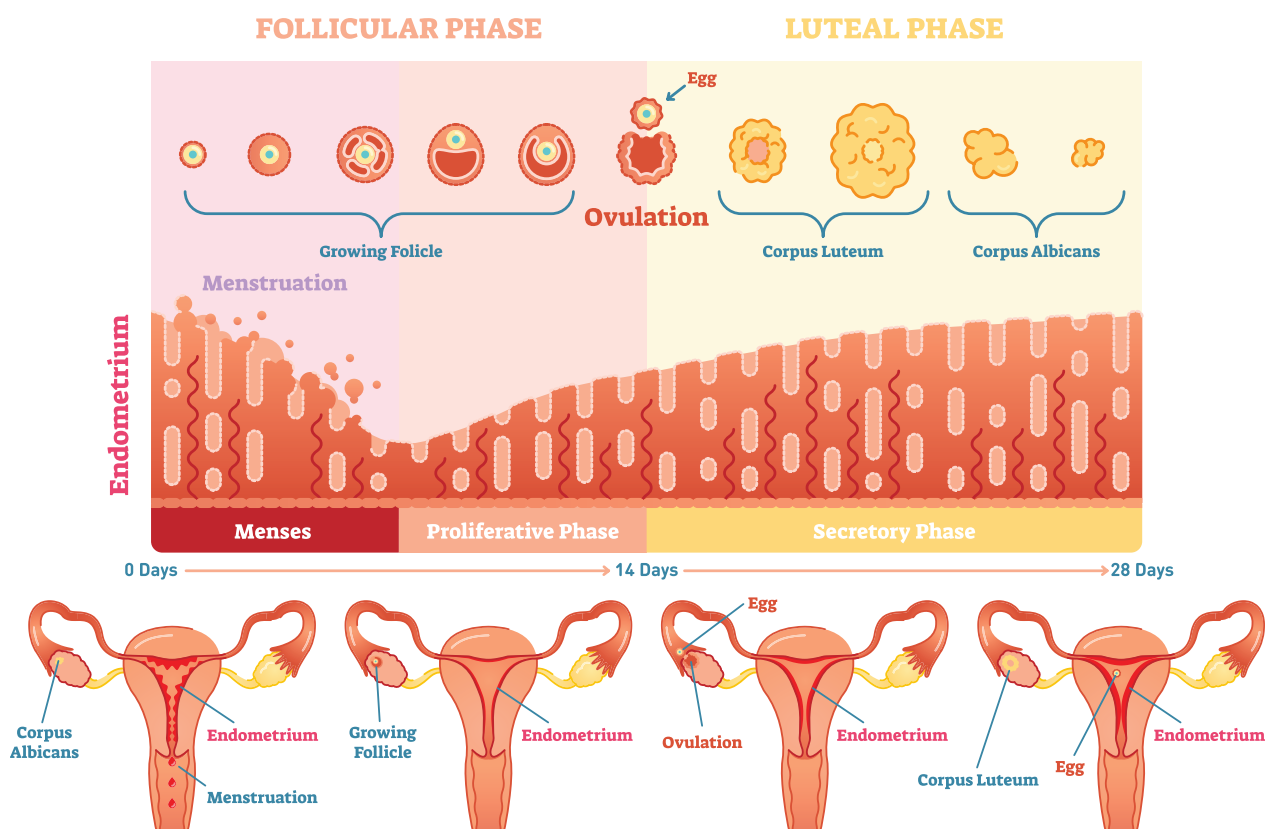
- c. **Secretory phase:** It lasts about 12 days. This phase is initiated response to increase in luteinizing hormone. Progesterone prepares the endometrium for pregnancy. The functional layer thickens to 3.5 mm and become spongy in appearance. The endometrium is vascular and rich in glycogen, spiral or coiled arteries develop. On day 27 and 28 oestrogen and progesterone levels fall because the corpus luteum is no longer producing them. Without these hormones,

the uterine lining becomes ischemic. The lining starts to slough, the women has come to full cycle and it is once again at day first of the menstrual cycle.

Abnormalities in Menstruation

- ❖ **Premenstrual Syndrome (PMS).**
- ❖ PMS is any unpleasant or uncomfortable symptom during menstrual cycle that may temporarily disturb normal functioning. These symptoms may last from a few hours to many days.
- ❖ **Premenstrual Dysphoric Disorder (PMDD)** is a much more severe form of PMS which affects approximately 3%-8% of women of reproductive age. PMDD requires treatment by a physician.

FEMALE REPRODUCTIVE CYCLE





- ❖ **Amenorrhea:** It is absence of menstruation.
- ❖ **Primary amenorrhea:** Menstruation does not begin at puberty.
- ❖ **Secondary amenorrhea:** Normal and regular menstrual periods which become increasingly abnormal and irregular or absent.
- ❖ **Dysmenorrhea:** It is characterized by severe and frequent menstrual cramps and pain associated with menstruation.
- ❖ **Primary Dysmenorrhea:** Women experience abnormal uterine contractions resulting from a chemical imbalance in the body. Mostly in adolescents
- ❖ **Secondary Dysmenorrhea:** It is caused by other medical conditions, most often endometriosis.
- ❖ **Menorrhagia:** It is the medical term for excessive menstrual bleeding. In a normal menstrual cycle, women on average lose about 30 ml of blood for about 7 days of menstruation. If bleeding exceeds 7 days or too heavy (over 80 ml), then it is called as menorrhagia. The main cause of menorrhagia is an imbalance of estrogen and progesterone in the body.
- ❖ **Abnormal Bleeding:** Abnormal vaginal bleeding (excluding menses)
 - Bleeding between menstrual periods
 - Bleeding after sex
 - Bleeding after menopause
- ❖ **Metrorrhagia:** It refers to menstrual bleeding that is normal in amount but occurs of irregular intervals, between the menstrual periods hemorrhage from the uterus, independent of menstruation.

- ❖ **Menopause:** It is the process through which a woman ceases to be fertile.

5.3 FERTILIZATION AND FETAL DEVELOPMENT

Definition: It is the process during which a haploid male gamete (sperm) unites with a haploid female gamete (oocyte) to form a single cell (ZYGOTE). Is called fertilization.

The development of fetus divided in to 3 periods.

1. Pre-embryonic period (0 to 2 weeks)
2. Embryonic period (3-8 weeks)
3. Fetal period (9th week to birth of the baby)

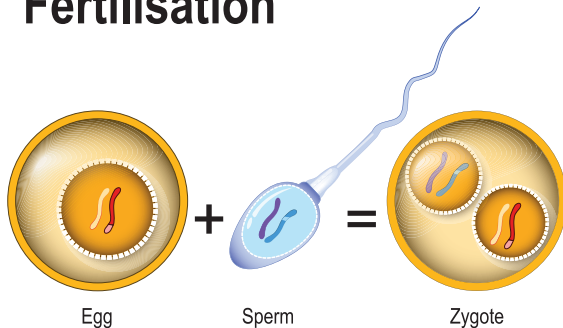
1. Pre- embryonic period (0-2 Weeks)

- During coitus, sperm is released by male partner into the vagina of the female partner is called as insemination.
- The motile sperms swim and pass the cervix to enter into the uterus and finally to reach the ovum released by the ovary in the ampullary isthmic junction.
- Fertilization takes place in the ampulla-isthmic junction. Chemical signals from oocyte attract the sperms.
- The sperm after reaching the ovary in the ampullary isthmic junction comes in contact with the zona-pellucida layer of the ovum and block the entry of the additional sperms thus only one sperm fertilizes the ovum.
- The secretions of acrosome help the sperm to enter into the ovum through zonapellucida and the plasma membrane and thus secondary oocyte completes meiosis II and results in the formation of a second polar body and haploid ovum.
- The haploid nucleus of the sperm and ovum fuse together to form a zygote which develops into new individual.

Proces of Fusion of Gametes

Definition: The process of union of sperm and ovum is called as fertilisation.

Fertilisation

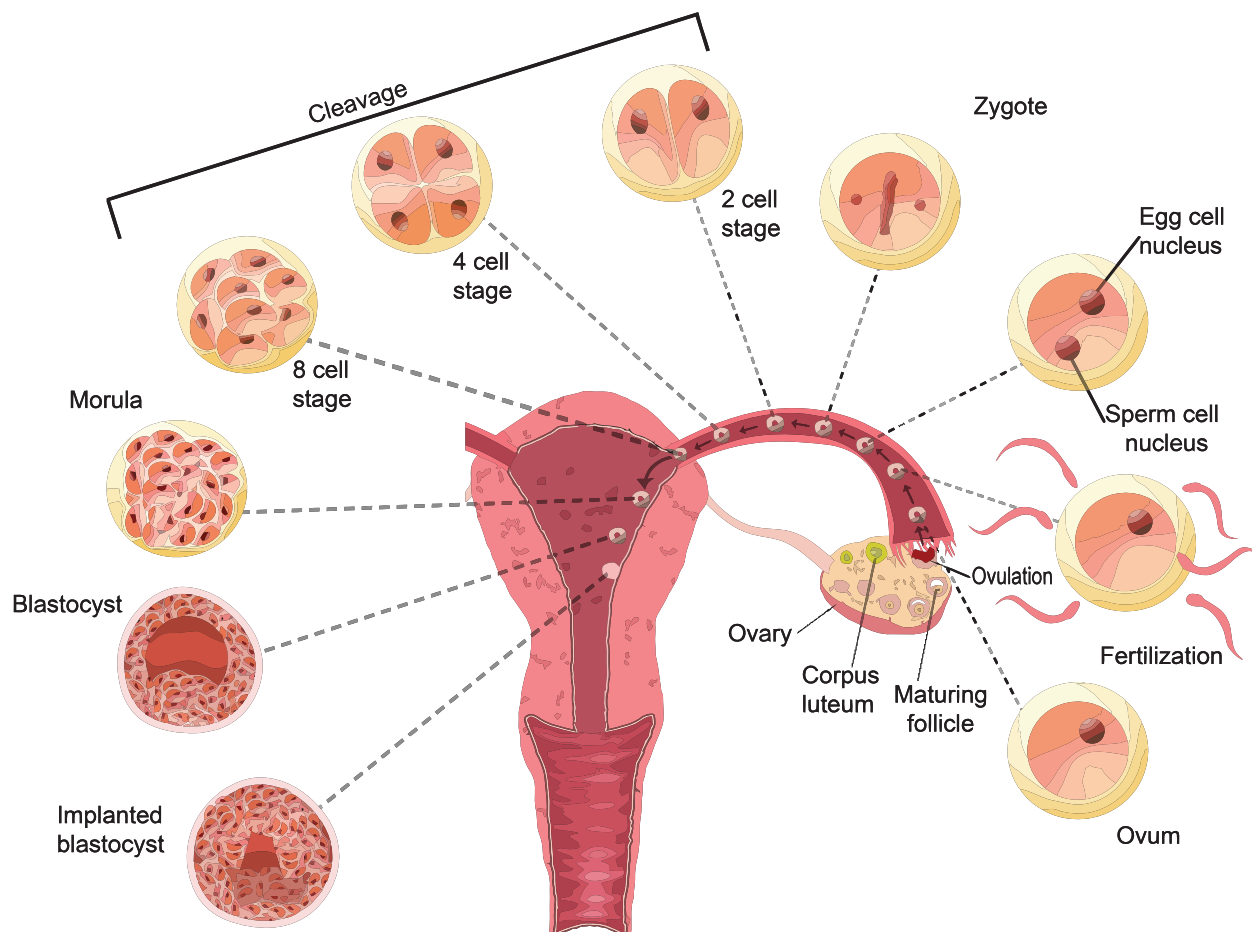


- Male has two sex chromosomes X and Y hence male produces 50% of sperms carrying X and 50% carrying Y, while female has two X chromosomes.
- After fusion of the male and female gametes the zygote would carry either XX or XY depending on whether the sperm carrying X or Y fertilized the ovum.
- The zygote carrying XX would develop into a female baby and XY would form a male.
- So, it is the father whose gamete decides the sex.

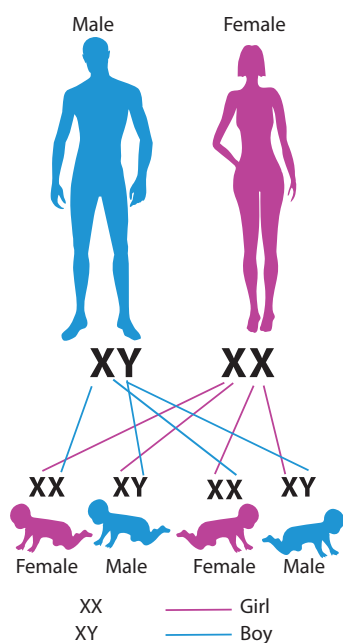
Process of Fertilization to Implantation

- Zygote is genetically unique, a diploid cell (46 chromosomes) resulting from the fusion of two haploid gametes; a fertilized ovum.

FETAL DEVELOPMENT FROM OVULATION TO IMPLANTATION



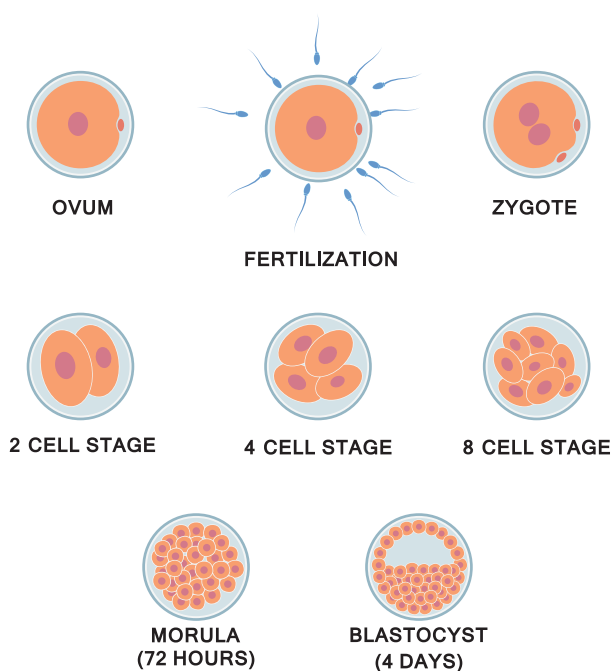
Sex determination



➤ The cells which have the potency to give rise to any types of cells in the body are called stem cells.

➤ Embryo cells act as stem cells upto the age of 6 days and have the ability to form any part of the body.

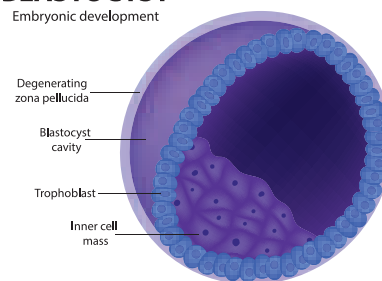
Stages of Clevation



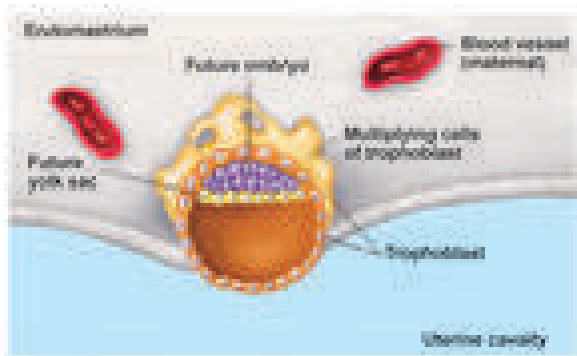
Structure of Blastocyst

BLASTOCYST

Embryonic development



- ❖ After fertilization cleavage of zygote takes place. It consists of repeated mitotic divisions of the zygote which results in rapid increase in the number of the cells. These smaller embryonic cells are called blastomeres. This normally occurs in the uterine tube.
- ❖ The embryo with 8 to 16 blastomeres is called a morula. The Morula reaches the uterine cavity at this stage. Spherical Morula is formed about 3 days after fertilization.
- ❖ The morula divides further as it moves further into the uterus and transforms into blastocyst.
- ❖ The blastomeres in the blastocyst are arranged into an outer layer called trophoblast and inner mass of cells attached to trophoblast is called as inner cell mass.
- ❖ By 7th day, Trophoblast is differentiated into 2 layers: Cytotrophoblast, inner layer, mononucleated mitotically active cells. Syncytiotrophoblast (outer multinucleated mass, with indistinct cell boundary).
- ❖ By 8th day the blastocyst is superficially embedded in the compact layer of the endometrium.
- ❖ By the 10th day the blastocyst is completely buried in the uterine lining, known as "Implantation" or "embedding" "some



Implantation of fertilized ovum in uterus

women have small amount of bleeding" during the time of implantation which is known as "Implantation Bleeding".

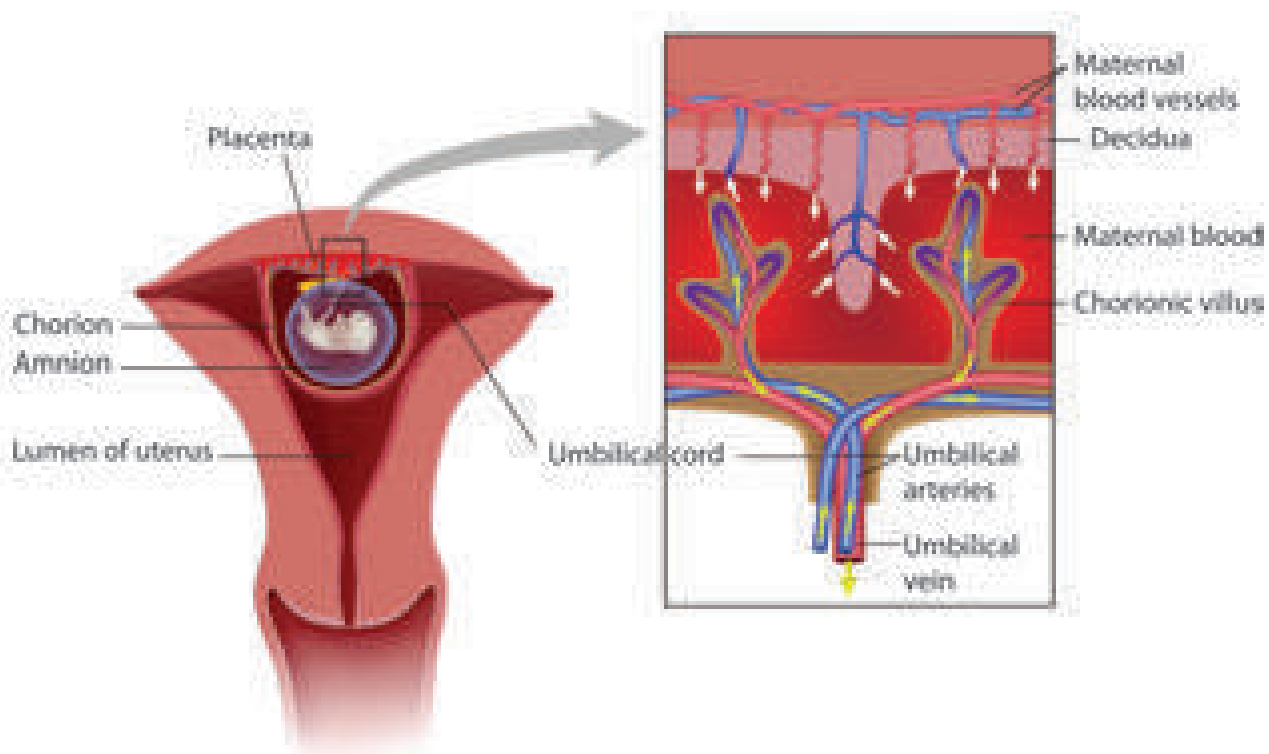
- ❖ The implantation of the fertilized ovum of embedding is known as "Nidation or Nesting".

- ❖ Uteroplacental circulation is established by 11th or 12th day. implantation is completed by the 11th or 12th day. Implantation it can be detected by:

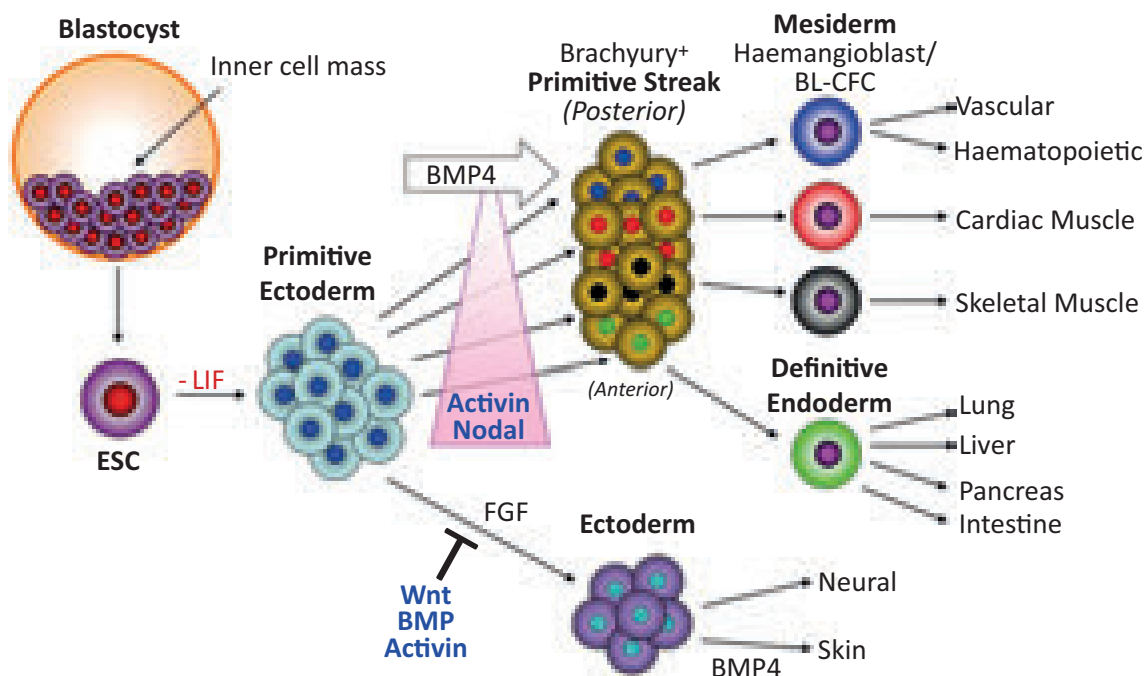
- Ultrasonography.
- HCG (human chorionic gonadotrophin which is secreted by the syncytiotrophoblast) at about the end of 2nd week

- ❖ By the 13th day Proliferation of Cytotrophoblast cells produce extension inside the Syncytiotrophoblast to form primary chorionic villi.
- ❖ The chorionic villi and uterine tissue together form a structural and functional organic structure between developing embryo and tissues of the mother called as placenta.

Placenta and Umbilical Cord



Formations of Chorionic Villi



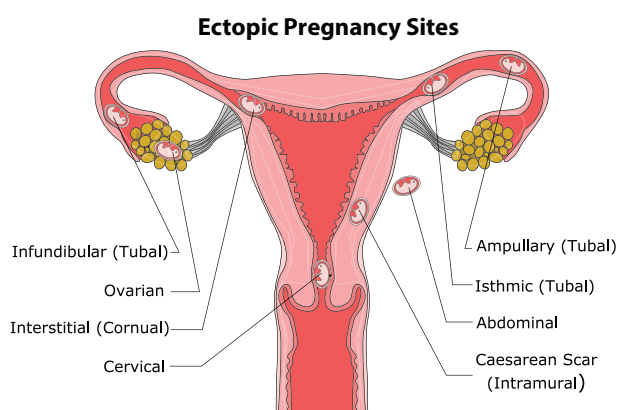
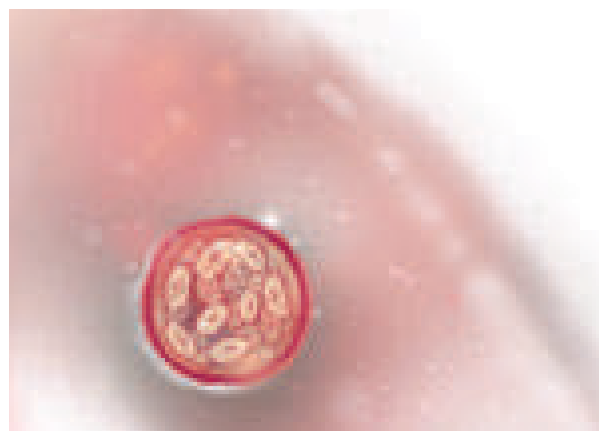
Embryonic development from 3 layers

- ❖ After implantation, the inner cell mass is differentiated into outer layer called ectoderm and an inner layer called endoderm with a middle layer is mesoderm
- ❖ Three layers give rise to all organs in adults. As shown in the picture above the cells are responsible for those organs.
- ❖ If the implantation occur outside it is called as Ectopic pregnancy. 95 to 97% of ectopic pregnancies occurs in the uterine tube. Most are in the ampulla & isthmus. (see the figure for types of ectopic pregnancy)

- ❖ Placenta previa: placenta attach to the lower uterine segment.

2 .Embryonic period (3-8 weeks)

3rd week



- ❖ Heart Tube fuses
- ❖ Cardiac muscle contraction begins
- ❖ Eye & ear cells are present
- ❖ Neural tube starts closing

4th week



- ❖ Optic vesicle appears, two pharyngeal arches appear.
- ❖ A primitive S-shaped tubal heart is beating and peristalsis.
- ❖ The rhythmic flow propelling fluids throughout the body begins at this stage,
- ❖ The neural tube determines the form of the embryo.

5th Week



- ❖ Valve & septa appear in the heart.
- ❖ The digestive epithelium layer begins to differentiate into the future locations of the liver, lung, stomach and pancreas.
- ❖ Liver cells form in the digestive system.
- ❖ Forebrain, midbrain and hindbrain forms.
- ❖ Lymphatic & thyroid start to develop.
- ❖ Limb buds.

- ❖ First thin layer of skin.
- ❖ The baby yawns.

6th Week



- ❖ Further development of nervous system, heart.
- ❖ Innervation, the distribution of nerves, begins in the lower limb buds.

7th Week



- ❖ A four chambered heart and a sense of smell.
- ❖ Primitive germ cells arrive at the genital area and will respond to genetic instructions to develop into either female or male genitals.

8th Week



- ❖ Spontaneous Involuntary Movement.
- ❖ Brain is connected to tiny muscles and nerves and enables the embryo to make spontaneous movements.
- ❖ Testes or ovaries are distinguishable.

3. Fetal Period (9th week to birth of the baby)

9-12 Weeks



- ❖ Brain continues to develop, liver enlarges, blood cell formation begins.
- ❖ Sex can be determined by genitals.
- ❖ 10th week.
- ❖ The fetus passes urine.
- ❖ The Fetal Heart Rate can be heard by Doppler.

13-16 Weeks (Month 4)

- ❖ Sucking starts
- ❖ Hard palate is fused
- ❖ Kidney structure developed
- ❖ Bones are distinct joint cavities are apparent
- ❖ Meconium is present in gut



The development of a child's brain depends on three factors. 60% of the development is determined by genes, 10% by the diet of the mother and 30% by the environment inside the uterus.

17-20 weeks (Month 5)



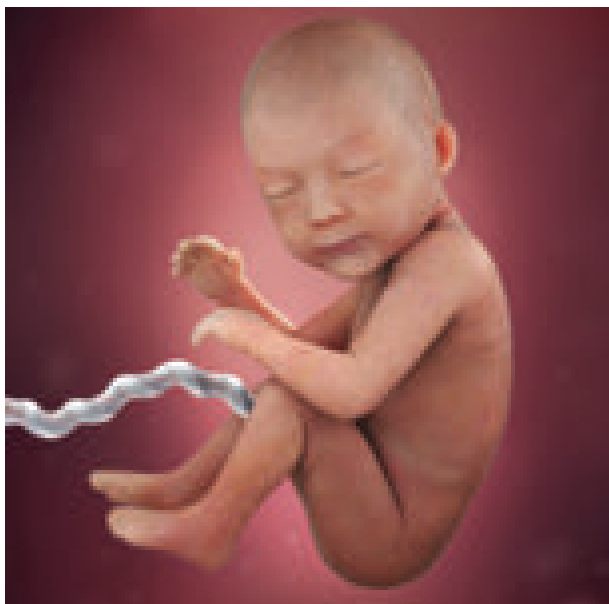
- ❖ Eyeballs and eyebrows present.
- ❖ Lanugo(Silk like hair)present.

- ❖ Quickening occurs (first fetal movement).
- ❖ Approximate crown rump length at the end of 20 weeks is 19 cm.



It is only during the fifth month that the baby can cover its ears with its hands in presence of a strong external sound stimuli.

21-30 weeks



- ❖ Eyes are opened.
- ❖ Finger and toe nails are complete.
- ❖ Skin is wrinkled and red. Fatty layer under the skin is formed.
- ❖ lanugo prominent.
- ❖ Testes descent in the scrotum for male babies.
- ❖ Approximate crown rump length at the end of 30 weeks is 28 cm.
- ❖ Vernix (white creamy substance) present.



By 6th month the unborn baby is a complete human being. By this time, the baby develops complete awareness, remembering, feeling and sensing. .Body size and weight increase.

Permanent teeth buds of the babies are formed during the 6th month of pregnancy. These buds are formed behind milk teeth and high in the gums.

30-38 weeks



- ❖ Constant weight gain.
- ❖ Lanugo disappears from face.
- ❖ Fat accumulates under the skin (hypodermis).
- ❖ Plantar creases visible.
- ❖ Ear cartilage soft.
- ❖ Approximate crown rump length at the end of 38 weeks is 36 cm.
- ❖ At birth, weight - 2.5-3.5 kg.

5.5 PLACENTA AND MEMBRANES

- ❖ This is a feto maternal organ. It has two components:
 - Fetal part – develops from the chorionic sac
 - Maternal part – derived from the endometrium

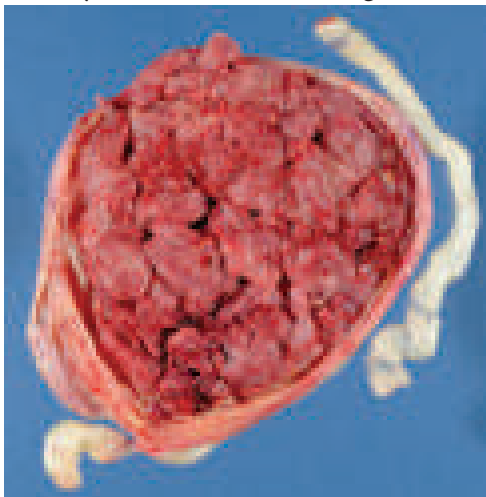
The placenta and the umbilical cord are a transport system for substances between the mother and the fetus.

Structure of placenta: It is a flat, round mass, about 15 to 20 cm in diameter, 2.5-3 cm thickness, 15-20 lobes, weighs 1/6th of baby's weight or 500 – 600gms at birth. It has two surfaces maternal surface and fetal Surface

Maternal surface

It is irregular, and divided into convex areas (cotyledons)

- Cotyledons –about 15 to 20 slightly bulging villous areas. Their surface is covered by shreds of decidua basalis from the uterine wall.
- After birth, the placenta is always carefully inspected for missing cotyledons. Cotyledons remaining attached to the uterine wall after birth may cause severe bleeding.



Maternal surface of placenta

Fetal surface:

- ❖ This side is smooth and shiny. It is covered by amnion.
- ❖ The umbilical cord is attached close to the center of the placenta.
- ❖ The umbilical vessels radiate from the umbilical cord.
- ❖ They branch on the fetal surface to form chorionic vessels.
- ❖ They enter the chorionic villi to form arteriocapillary-venous system.



Fetal surface of placenta

Placental Membranes

- ❖ The placental membrane separates maternal blood from fetal blood. The fetal part of the placenta is known as the chorion. The maternal component of the placenta is known as the decidua basalis.

Fetal membranes: It consists of two layers.

- **Chorion:** It is the outer layer of fetal membranes. it is thick friable and shaggy.
- **Amnion:** It is the inner layer of fetal membrane. It is smooth, shiny, and transparent
- ❖ Placental Circulation Fetal – from Umbilical Arteries to chorionic plate to branches to stem villi to capillaries in terminal villi and return via umbilical vein.
- ❖ Placental circulation Maternal – Free-flowing with Spiral arteries open into intervillous space and bath the villi with 150 ml of maternal



blood Exchanged - 3-4 times/minute Reduced blood pressure in intervillous space helps the Oxygenated blood to the chorionic plate, return back to the villi.

■ Functions of Placenta

1. **Respiratory:** Placenta act as lungs to the fetus taking in oxygen from the mother's haemoglobin and giving of CO₂ into the maternal blood.
2. **Nutritive:** The fetus selects from the mother blood protein for tissue building, glucose for energy and growth. Calcium and phosphorus for bones and teeth, vitamins, iron and other minerals for blood formation.
3. **Storage:** The liver is not sufficiently developed. Placenta stores glucose in the form of glycogen and reconverts it into glucose as required by the fetus.
4. **Excretory:** The waste products are given off and taken away by the ovarian and uterine veins.
5. **Protective:** To protect the fetus, the placenta prevents a number of organisms from passing through into the fetal blood.
6. **Endocrine:** The placenta also has an endocrine action producing hormones like follicular stimulating and leutinizing hormones of the gonadotrophic hormone and oestrogen and progesterone.

5.6 UMBILICAL CORD (FUNIS)

- ❖ **Usually it is attached near the center of the fetal surface of placenta.** The cord extends from the umbilicus of the fetus to the fetal surface of the placenta.
- ❖ **Length:** About 40- 50 cm and 20 cm wide.

- ❖ Contains two arteries and one vein, surrounded by clear gelatinous substances and gives support to the cord and prevent compression of the cord is called (Wharton jelly).
- ❖ Two arteries that bring waste products and deoxygenated blood from the fetus to the placenta and the vein carries oxygenated and nourished blood from the placenta to the fetus. The blood flow through the cord is around 400 ml/mt. At birth when the lungs start to work the function of the placenta ceases.
- ❖ The vessels are longer than the cord and may have loops (false knots).

5.7 AMNIOTIC FLUID

- ❖ It is a fluid in the uterus surrounding the fetus.
- ❖ It consists of fetus urine, maternal serum fetal cells, near birth – amniotic volume will be 500-1000 ml. If the fluid is excess (>2000 ml) it is called as Hydramnios. If less it is called as Oligohydramnios.

■ Functions of Amniotic Fluid

- ❖ It allows for growth and free movement of fetus.
- ❖ It protects the fetus, acting as shock absorber.
- ❖ It maintains an even temperature for fetus.
- ❖ It prevents pressure on the cord.
- ❖ It acts as cushion around the fetus, because it protects the fetus from injury, if mother is bumped or falls.
- ❖ It is a fluid source that the fetus drinks and then urinates.

5.8 FETAL CIRCULATION

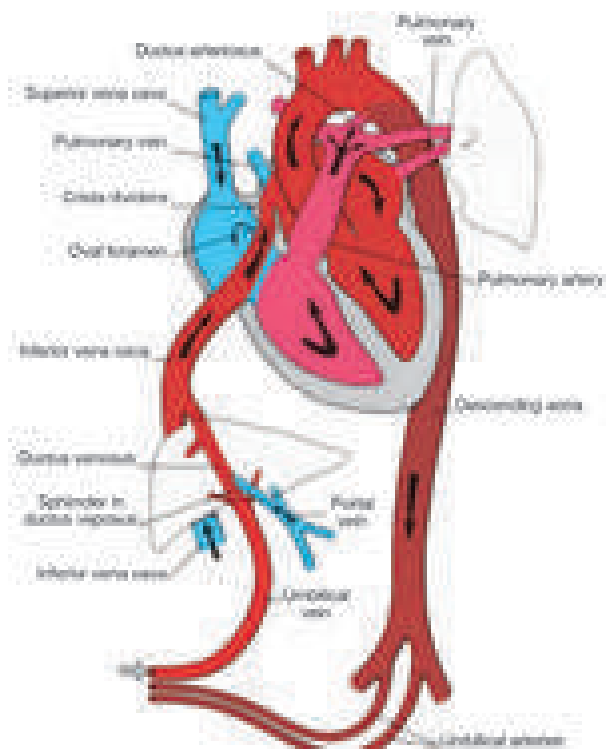
Definition: The circulation of oxygenated blood, de-oxygenated blood, nutritive material etc, in the foetus is termed as foetal circulation. The blood vessels responsible for foetal circulation are

1. **One Umbilical Vein:** It carries the oxygenated blood from the placenta to the growing fetus.
2. **Two Umbilical Arteries:** Both arteries carries all the de-oxygenated blood out of the fetus and carries de-oxygenated blood from the fetus to the placenta.

The shunts involved in foetal circulation

There are three shunts present in a fetus, they are:

1. **Ductus Venosus:** The Ductus Venosus shunts the portion of left umbilical vein blood flow directly to the inferior vena cava
2. **Ductus Arteriosus:** It allows most of the blood from the right-ventricle to bypass the



Foetal circulation

fetus' fluid-filled non-functioning lungs. Connects the pulmonary artery to the proximal descending aorta.

3. **Foramen Ovale:** It allows the blood to enter the left atrium from the right atrium. It is an opening in the intra-atrial septum.

Step 1: The placenta accepts the blood without oxygen from the fetus through blood vessels that leave the fetus through the Umbilical Cord (Umbilical Arteries).

Step 2: When blood goes through the placenta it picks up oxygen

Step 3: The oxygenated blood then returns to the fetus via the umbilical cord (umbilical vein).

Step 4: The oxygenated blood that enters the fetus passes through the fetal liver and enters the right atrium of the heart.

Step 5: Foramen Ovale allows the oxygenated blood to go from the right atrium to left atrium and then to the left ventricle and out the aorta. As a result the blood with the more oxygen gets in to the brain.

Step 6: Blood coming back from the fetus's body also enters the right atrium, but the fetus is able to send this deoxygenated blood from the right atrium to the right ventricle (the chamber that normally pumps blood to the lungs). Most of the blood that leaves the right ventricle in the fetus bypasses the lungs through the ductus arteriosus.

Step 7: The ductus arteriosus sends the deoxygenated blood to the organs in the lower half of the fetal body. This also allows for the deoxygenated blood to leave the fetus through the umbilical arteries and get back to the placenta to pick up oxygen.

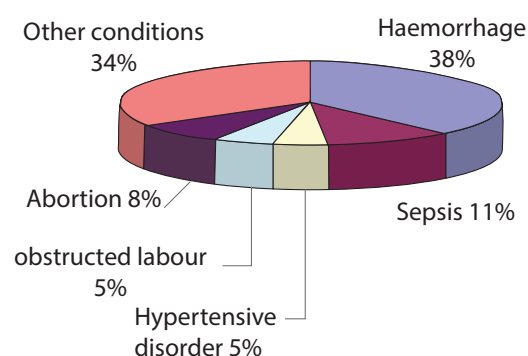
The Circulatory Changes After Birth:

- ❖ The Placenta is replaced by the Lungs as the organ of respiratory exchange.
- ❖ The lungs and pulmonary vessels expand thereby significantly lowering the resistance to blood flow. Subsequently the pressure in the pulmonary artery and the right side of the heart is decreased.
- ❖ The pressure of the left side of the heart increases.
- ❖ The increasing pressure of blood in the left side of the heart decreases the vascular resistance of the lungs, therefore, the blood now enters the lungs for a respiratory exchange.
- ❖ **Closure of the Ductus Venosus** – functional closure occurs within few minutes of birth and becomes as ligamentum venosum.
- ❖ **Closure of ductus arteriosus** – is by smooth muscle contraction and it is further replaced by fibrous tissue, called ligamentum arteriosum.

- ❖ **Closure of the Foramen Ovale** – closes at birth due to decreased flow from placenta and Inferior Vena Cava to hold open foramen. It become as fossa ovalis

5.9 ANTENATAL CARE

Every pregnancy needs special care. All pregnant women should be registered and encouraged for institutional delivery. Causes of maternal mortality are preventable by the good antenatal care



Causes of Maternal Mortality in India

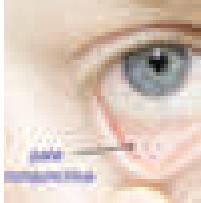
On first antenatal visit	
1- Confirm Pregnancy	Confirm pregnancy by pregnancy test or Ultra Sound.
2-History collection	<p>Ask Personal history which includes Name, Age, husband name, marital status, family income, Address etc</p> <p>Menstrual history includes ;</p> <ul style="list-style-type: none"> ➤ - 1-Last menstrual period (LMP). ➤ - 2-Regularity and frequency of menstrual cycle. ➤ - 3-Contraception method used . ➤ - 4-Calculate expected date of delivery (EDD) as = first day of LMP + 9 months +7 days
Student activity: Calculate EDD for following LMP 1.Oct 12th 2018 2.Nov 7th 2018 3.Dec 20th 2018	Example of calculation of EDD Mrs. Radha 22 yrs pregnant with 16 weeks (4 months). Her Last Menstrual Period (LMP) is may 5th 2018. Then The EDD will be Feb 12th 2019.



	<p>In Obstetric history ask for</p> <ul style="list-style-type: none">➤ Gravidity (no of times the women gets her pregnancy)➤ Parity (no of times given birth)➤ Abortion, (loss of fetus before its viability) and➤ Living children. <p>Calculate the obstetrical score (e.g if the mother is pregnant at first time she is primi gravidae. If she is pregnant for more than one time it is multigravida.the symbols used for obstetrical score is G- gravida P-Parity A - Abortion L - Living children D - Dead (the child dies after the birth SB - Still Birth (the mother deliver a dead child)</p> <p>Example of calculation of obstetrical score</p> <p>Mrs. Radha 22 yrs pregnant with 16 weeks (4 months). She has one baby with 3yr s old. She had one abortion last year. Her obstetrical score is =G₃ P₁ L₁A₁</p> <p>If multiple pregnancy ask following questions.</p> <ul style="list-style-type: none">➤ Weight of infant at birth & length of gestation.➤ Type of delivery, location of birth, and type of anaesthesia.➤ Maternal or infant complications <p>Medical and surgical history</p> <p>1-Chronic conditions : as diabetes mellitus, hypertension, and renal disease ,cardiac disease. 2-Prior operation: as caesarean section, genital repair, and cervical cerclage. 3-Allergies, and medications. 4-Accidents involving injury of the bony pelvis.</p> <p>History of present pregnancy</p> <ul style="list-style-type: none">➤ History suggesting e.g. Diabetes, hypertension and ante partum hemorrhage.➤ Ask about episodes of fever or chills.➤ Ask about pain or burning sensation on urination.➤ Abnormal vaginal discharge, itching at the vulva or if partner has a urinary problem.
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<p>3-Physical examination</p>	<ul style="list-style-type: none"> ➤ Maternal height and weight measurements to determine body mass index(BMI). ➤ Maternal weight should be measured at each antenatal visit <ol style="list-style-type: none"> 1. Look for palmar pallor. 2. Look for conjunctival pallor  <ol style="list-style-type: none"> 3. Count respiratory rate in one minute. 4. Blood pressure measurement <ul style="list-style-type: none"> ➤ Measure BP in sitting position. ➤ If diastolic BP is 90 mm Hg or higher repeat measurement after 6 hour rest. ➤ If diastolic BP is still 90 mm Hg or higher ask the woman if she has: <ul style="list-style-type: none"> ➤ Severe headache ➤ Blurred vision ➤ Epigastric pain ➤ Check urine for protein
<p>5.Investigations</p>	<ul style="list-style-type: none"> ➤ Haemoglobin, blood type ➤ Blood and urine sugar ➤ Urine analysis ➤ VDRL or RPR to screen for syphilis ➤ HBsAg testing ➤ HIV ➤ Ultra sound to confirm the pregnancy

AT EACH VISIT- Check the following and do Abdominal Examination



BLOOD PRESSURE



PEDAL EDEMA



FOETAL HEART SOUND



WEIGHT GAIN



URINE ANALYSIS

Definition of Antenatal Care

- ❖ Antenatal care refers to the care that is given to an expected mother from time of conception is confirmed until the beginning of labor
- ❖ Antenatal care is systemic supervision of a woman during pregnancy at regular intervals to monitor:
 - Maternal wellbeing
 - Fetal wellbeing
 - Progress of fetal growth

Goals of Antenatal Care

1. Ensure mother health
2. Ensure delivery of a healthy infant
3. Anticipate problem
4. Diagnose problem early

Objectives of Antenatal Care

1. Early detection and if possible, prevention of complications of pregnancy.
2. Educate women on danger and emergency signs & symptoms.
3. Prepare the woman and her family for childbirth.
4. Give education & counseling on family planning.

Schedule of Antenatal Care

- ❖ Medical checkup every four weeks up to 28 weeks gestation
- ❖ Every 2 weeks until 36 weeks of gestation.
- ❖ Every week until delivery
- ❖ An average 7-12 antenatal visits/pregnancy
- ❖ More frequent visits may be required if complications arise

Importance of Abdominal Examination

- ❖ Monitor progress of pregnancy and fetal growth

- ❖ Check for fetal lie and presentation
- ❖ Auscultate fetal heart sounds

What does it include?

- ❖ Measurement of fundal height
- ❖ Assessment of fetal lie and presentation
- ❖ Assessment of fetal movement
- ❖ Auscultation of fetal heart sounds
- ❖ Inspection for scars

Methods of Abdominal Examination

- ❖ Inspection
- ❖ Palpation
- ❖ Auscultation

Preparation for Abdominal Examination

- ❖ Ensure privacy
- ❖ Examination room should be well lighted and airy
- ❖ Woman is asked to empty her bladder
- ❖ Explain the women about the procedure/ process
- ❖ To make her comfortable, keep talking to her
- ❖ She lies supine with legs partially flexed
- ❖ Stand on her right side

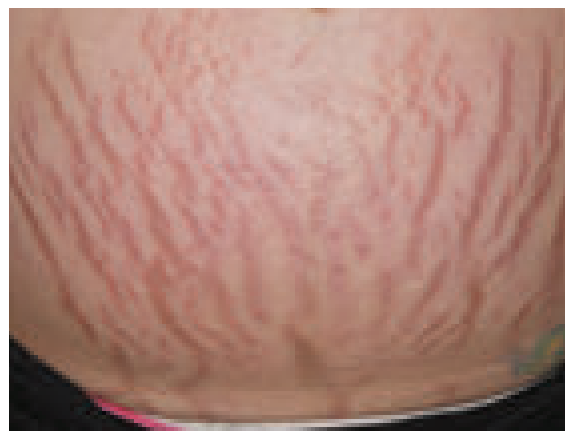
First start with Inspection

- ❖ **Shape** - Check whether the uterine shape is ovoid or longitudinal or transverse or oblique
- ❖ **Size** - Appropriate to the weeks of pregnancy or not?
- ❖ **Skin Changes** - look for

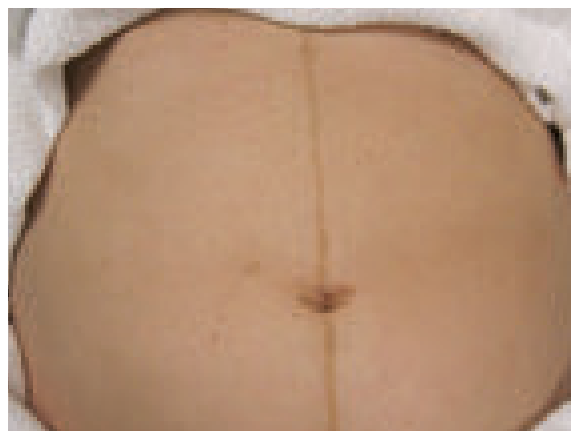
Striae Gravidarum - (The brown and silvery lines all over the abdomen and)

Linea Niagra - (the pigmented line from the symphysis pubis to umblicus)

- ❖ **Cullen's Sign** - Bruishing discoloration around the umblicus
- ❖ **Scars** - Any incision scars present or not
- ❖ **Contour of the abdomen-** The general contour of the entire abdominal wall is observed. The contour should be checked carefully for distention and note must be made as to whether any distention is generalized or localized to a portion of the abdomen. Similarly, the flanks should be checked for any bulging
- ❖ **Check for visible foetal** movements if not visible, confirm with the mother about the foetal movement



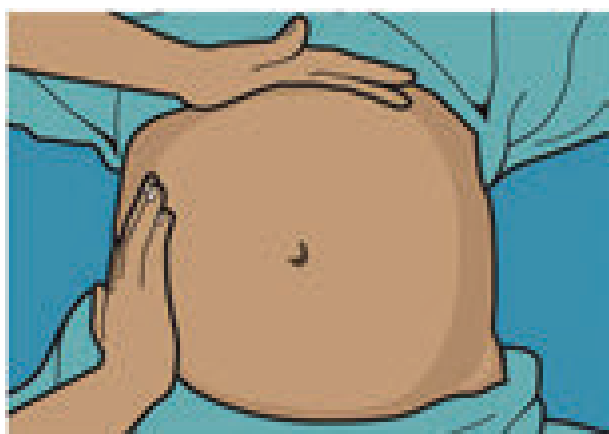
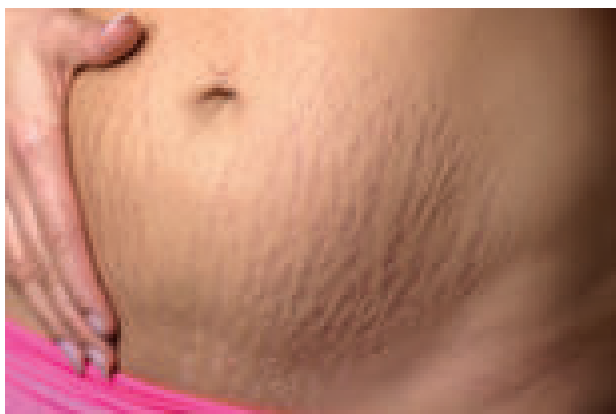
Striae Gravidarum



Linea Niagra

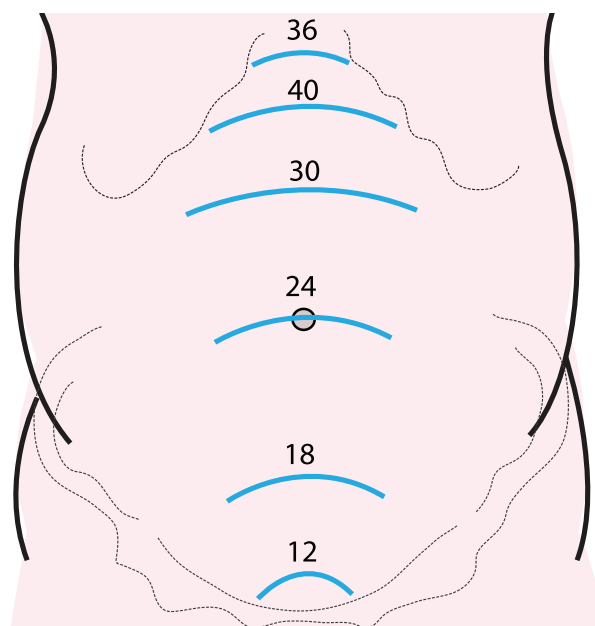
2. Palpation: Palpate the Uterus with warm hands

- ❖ **Step 1:** Measure the fundal height keep the ulnar border of curved left hand on woman's abdomen parallel to symphysis pubis
- ❖ Start from xiphisternum and gradually proceed towards symphysis pubis lifting the hand between each step till a bulge / resistance of uterine fundus is felt
- ❖ Mark the level of fundus



Measurement of fundal height

Measure the fundal height by finger or inch tape it is measured by the inch tape each cm is week. If it is 35 cms then it is considered as 35 weeks up to umbilicus it is 24 weeks. Then each finger is 1 cm measure from the umbilicus till the fundus of the uterus.



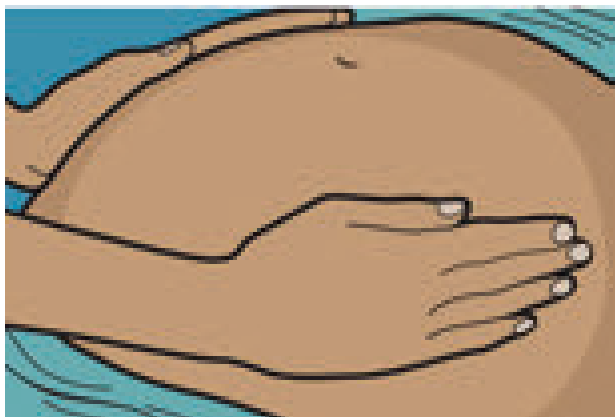
Step 2: Leopold's maneuvers -It includes four grips

- ❖ Fundal grip
- ❖ Lateral grip
- ❖ Pelvic Grip I /Superficial pelvic grip and
- ❖ Pelvic Grip II / Deep Pelvic Grip

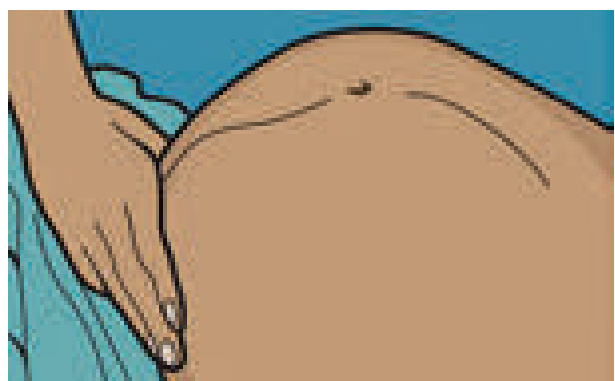
1. Fundal Palpation / Fundal Grip - Helps to determine lie and presentation of fetus



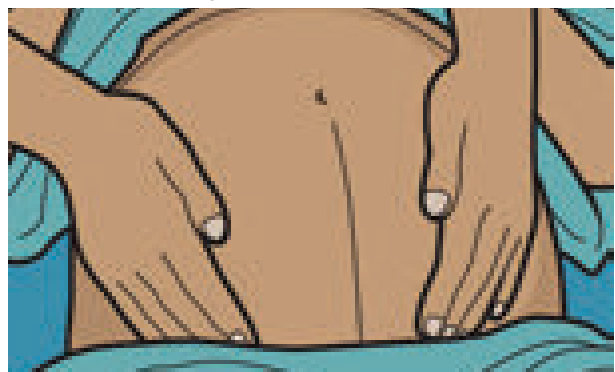
2. Lateral Palpation / Lateral Grip (both Right and left lateral) - Helps to locate fetal back and limbs



3. Pelvic Grip I / Superficial Pelvic Grip - Helps to determine whether head or breech is presenting at pelvic brim. Whether the presenting part is engaged / fixed / free.



4. Pelvic Grip II / Deep Pelvic Grip - Helps to know the degree of flexion of head.



Check or ask for Foetal Movements

- ❖ Fetal movement are reliable sign of foetal well - being.

- ❖ These are felt around 18-22 wks of pregnancy (felt earlier in multigravida than primigravida).
- ❖ Normally 10-12 foetal movements should be felt by the pregnant woman in a day.
- ❖ Decreased foetal movements may be an indication of foetal distress.
- ❖ Pattern of foetal movement may change prior to labour due to reduced space.
- ❖ If Foetal Movements are absent or not felt, consult ANM or doctor.

3. Auscultation

- ❖ Use a fetoscope or stethoscope.
- ❖ Best heard on the side of the back of the fetus.
- ❖ In vertex presentation FHS is best heard midway between the line joining the umbilicus and the anterior superior iliac spine on the side of the back.
- ❖ In breech presentation FHS is heard above the umbilicus (Fetal Heart Sound).
- ❖ Count the FHS for one full minute FHR (Fetal Heart Rate).



- ❖ FHS is heard over the abdomen by stethoscope / fetoscope after 24 weeks of pregnancy.
- ❖ Normal FHR is 120 – 160 beats per min.



- ❖ FHR < 120 beats per min or > 160 beats per minute, indicates fetal distress.
- ❖ Confirm that you are listening to the FHS and not maternal pulse.

DIET in Pregnancy

- ❖ Total caloric intake should be increased to 300 kcal /day due to 15% increase in BMR.
- ❖ Diet should contain 20% Protein (better from animal source), 30% fat, and 50% carbohydrates.
- ❖ Sufficient fluids should be taken. (10 glasses for a day).
- ❖ Absorption of iron is interfered if taken with tea, coffee or foods rich in fluoride.
- ❖ Enhanced if taken with lemon water or orange juice.
- ❖ Encourage mother to take plenty of fruits and vegetables like mango, guava, orange, amla etc containing vitamin C.
- ❖ Emphasize the importance of high protein diet like black gram, ground nuts, whole grains, milk, eggs etc.

Supplementation - Iron, folic acid and calcium as prescribed

WEIGHT gain in Pregnancy

- ❖ Total weight gain approximately 12 Kgs.
- ❖ Weight gain of 2 kgs in first trimester. 5 kgs in second and 5 kgs in third trimester.
- ❖ Monitoring of weight gain should be done in conjunction with close monitoring of BP.
- ❖ Overweight or sudden increase of weight is to be notified immediately.

Oral Care

- ❖ It is easy to have an increase in dental decay cavities due to pregnancy. Heartburn,

increased snacking, morning sickness can all increase chances of developing tooth decay or gum disease. Good oral care is an important during pregnancy as it is the most important time of life.

CARE OF BREAST

- ❖ Breast engorgement may cause discomfort during late pregnancy. A well-fitting brassiere can give relief.
- ❖ Travelling during pregnancy is not prohibited but some precautions must be taken.
- ❖ Avoid long trips if possible. Always check with care provider before travelling. Wear seatbelt, the shoulder belt should go between the breasts and the lap belt should go under the tummy. Plan for frequent stops. Get out and walk as much as possible. This will prevent swelling of the foot.
- ❖ When travelling by air, need to drink extra fluids. Walk around whenever possible. Do isometric exercises of legs and foot to help prevent swelling and blood clots. Do not plan to travel after 34 weeks of pregnancy.

5.10 ANTENATAL EXERCISES

Uses of Antenatal Exercise

1. Good muscle tone is maintained during labour and postnatal period.
2. Helps to reduce the backache.
3. Assist in effective pushing during labour.

Types of Antenatal Exercise

- Deep breathing exercise.



STUDENT'S ACTIVITY

Ask the students to demonstrate the Antenatal exercises to each other.

Breathing techniques is for pain relief during labour. Exhale before inhale is suggested.



- Abdominal breathing
- Lower coastal breathing
- Apical breathing

Back and Abdominal Exercise

Sit on a chair with your back against the seat back. Breathe normally, tightens the abdomen and then press the pelvis downwards to flattens your low back against the seat back. Hold for 5 seconds and relax.

This exercise helps mother by correcting the low back and pelvic posture. It strengthens your abdominal muscles and prevents back pain.

Pelvic floor exercises

Kegels exercise is a special exercise squeeze the pubococcygeal muscle or 3 seconds relax for 3 seconds and squeeze again. It can be done 100 times twice daily for keeping the vagina toned and increase the strength of perineum to avoid birth injuries.

Sit on chair with your back against seat back.

Tightens the vaginal, urethral and anal muscles as if trying to withhold urination or defecation. Should do this exercise in a standing position.

Pelvic floor exercise enhances the pelvic floor muscles. It helps in preparation for child birth and prevents uterine prolapsed, urinary incontinence and hemorrhoids.

Lower Limb Relaxation Exercises

- ❖ This exercise enhance the flexibility and strength of inner thighs and pelvic muscles. It helps to accustoms to the delivery position and prevent thigh spasm during delivery.
- ❖ Sit on table, low chair against a wall and spread your thighs sideways. Hold for 5 seconds and relax.

Lower limb relaxation exercise is suitable for pregnant women with tight thighs and not suitable for those with the pain over the pubic bones.

Foot and Ankle Exercises

- ❖ Sit on chair with your back against your seatback with one ankle and turn foot upwards and downwards. Each up and down is as one time, repeat 10 times.
- ❖ Repeat the ankle to draw inward and outward circle circular movement counted as one time.
- ❖ Repeat the same step at the other ankle.
- ❖ Ankle exercise helps to reduce leg swelling and varicose vein thus alleviating the problems of leg cramps.

Exercises and Activities to be avoided during Pregnancy

- ❖ Activities that require extensive jumping, hopping, skipping, bouncing.
- ❖ Double leg raises, deep knee bends.
- ❖ Trunk rotation while standing.
- ❖ Exercises in hot and humid weather.
- ❖ Bouncing while stretching.

Medications during Pregnancy

- ❖ Avoid over the counter medications
- ❖ Inj. T.T. (Tetanus Toxoid) For preventing maternal and neonatal tetanus
 - Dosage schedule: Two doses 0.5 ml I/M in upper arm
 - First dose - As soon as woman registers for ANC
 - Second dose - 4 weeks after the first dose even if it is after delivery
 - Inform that there may be slight swelling, stiffness or pain at the injection site
- ❖ Iron and folic acid supplementation
 - 1 tablet / of IFA (100 mg elemental iron+0.5 mg of folic acid)
 - Duration: At least 100 days during pregnancy
 - Continue for 3-6 months in postpartum period
 - Folic acid supplementation (400 µg) upto 12 weeks of pregnancy to prevent Neural tube defects
- ❖ Regular consumption of iodized salt
- ❖ Calcium supplementation (500mg-1g / day)



- Iron Tablets to be taken regularly preferably early morning on an empty stomach
- If nausea or pain abdomen, it may be taken after meals or at night
- Stools will be dark in colour while on tablets
- May have constipation, relieved by taking plenty of fluids and roughage

Hazards during Pregnancy

Hazards affect the normal functions of the mother and unborn baby's body.

They can cause birth defects in the unborn child. Hazards include physical factors, germs, tobacco, alcohol, health conditions of the mother, chemicals, and drugs.

Warning signs of Pregnancy

- ❖ Vaginal bleeding
- ❖ Persistent vomiting
- ❖ Chills and fever
- ❖ Sudden escape of clear fluid from vagina
- ❖ Abdominal or chest pain
- ❖ Increase or decrease in fetal movement

The nurse must educate the women that if above symptoms are present they must come to the hospital immediately.



STUDENT'S ACTIVITY

Prepare health education plan for Primi Antenatal mother

Minor disorders in pregnancy

- ❖ Morning sickness
- ❖ Heartburns
- ❖ Varicose veins
- ❖ Backache
- ❖ Breathlessness
- ❖ Palpitations
- ❖ Vaginal discharge
- ❖ Constipation



- Nearly 4 million newborns die {40% of under 5 deaths} within 28 days of birth
- Three quarters of neonatal deaths occur during first 7 days
- For every newborn death, 20% from birth injury, complications of preterm birth or other neonatal conditions
- A child born in a least developed country is 14 times more likely to die within first 28 days of life as compared to industrialized country



These symptoms are common during pregnancy. There is no need for any special treatment, it will subside. But any of the above symptoms interferes in normal routine life then they need to contact the care provider.

Advise the antenatal mother in the above components to follow up till the next visit to the hospital.

■ Preparation for Birth

During the last few months of pregnancy the mother will be taught about the following

- ❖ Recognizing signs of true versus false labor
- ❖ When to go to the hospital
- ❖ Approaches to pain control
- ❖ Things to bring for labor and after
- ❖ Planning for children at home
- ❖ Care of the newborn

5.11 POST NATAL CARE

■ Introduction

More than 60% of maternal deaths take place during postpartum period. The first 48 hours are most crucial because Most maternal and neonatal complications are occur during this period. The puerperium is the period beginning after delivery and ending when the woman's body has returned as closely as possible to its prepregnant state.

- ❖ The period lasts approximately 6 weeks. The postnatal care starts after the childbirth to 6 weeks

■ Aims of Postnatal Care

- ❖ Prevention of sepsis at placental site
- ❖ Newborn care
- ❖ Initiation of breast feeding

■ Nursing Assessment

Immediate Postpartum Assessment. The first 1 hour after delivery of the placenta (fourth stage of labor) is the critical period; post partum hemorrhage is most likely to occur at this time.

■ Components of Postnatal Care

1. Postnatal check up includes Pulse, BP, RR. Temp and Pallor. Monitor vital signs every 4 hours during the first 24 hours, then every 8 to 12 hours
2. BUBBLE-HE is a acronym used to denote the components of the postpartum maternal nursing assessment.
 - B: Breast
 - U: Uterus
 - B: Bladder
 - B: Bowels
 - L: Lochia
 - E: Episiotomy and perineum
 - H: Homan's
 - E: Emotional status

B- Breast: Assess for breast engorgement and condition of nipples if breast-feeding.

- Size, Shape, Firmness, Redness, Symmetry
- Check the Breasts for - nodules, lumps
- Check the Nipples - assess for eversion, flat, inverted, cracking, bleeding, pain, blisters

- Individualize teaching for breasts for breastfeeding
- Check the breasts for signs of engorgement (swollen, tender, tense, shiny breast tissue). If breasts are engorged and the woman is breast-feeding:
 - Allow warm to hot wet towel to cover the breasts and massage to improve comfort.
 - Express some milk manually or by breast pump to improve comfort and make nipple more available for infant feeding.
 - Feeding the infant.
 - A mild analgesic may be used to enhance comfort

U: Uterine Assessment

Abdomen : Monitoring of involution process

- ❖ Check firmness of the fundus at regular intervals.
- ❖ Palpating the uterine fundus Firm or “Boggy” – not palpable by 10 days.
- ❖ Ask for “afterpains” (the pain occurs due to uterine contraction towards involution after delivery).

B: Bladder

- ❖ Observe for the woman’s first void within 6 to 8 hours after delivery.
- ❖ Palpate the abdomen for bladder distention if the woman is unable to void or complains of fullness after voiding. a. Uterine displacement from the midline suggests bladder distention

- ❖ Instruct the woman to void every several hours and after meals to keep her bladder empty.

B: Bowels

Bowels in shock just moved into some strange positions. So plenty of fiber , fluids and Take a stool softener- to avoid harm to the episiotomy or trauma to the C-section incision

L: Lochia

Inspect the perineum regularly for frank bleeding.

- ❖ Note color, amount, and odor of the lochia.
- ❖ Count the number of perineal pads that are saturated in each 8 hour period.
- ❖ Calculate the amount of bleeding
- ❖ Check for lochia (vaginal discharge after delivery)

The Characteristics of Lochia

LOCHIA

TYPE	COLOR	DURATION	COMPOSITION
Lochia Rubra	Red	1-3 days	Blood, fragments of decidua mucus
Lochia Serosa	Pink	3-10 days	Blood, mucus and leukocytes
Lochia Alba	White	10-14 days	Largely mucus

E: Episiotomy and Perineum

Assess perineal incisions (episiotomy wound) for signs of infection and healing by REEDA Assessment

- R: Redness
- E: Edema
- E: Ecchymosis
- D: Discharge
- A: Approximation



- ❖ Assess for lacerations/edema/hemorrhoids
- ❖ Assess for complications/hematoma

Nursing Intervention Sitz Bath: A rotating fluid that moves the water, may fit over the commode or one can be performed with no special equipment using the bathtub other than a bathing ring. Turn tub on and allow drain to open and use a ring for circulating water. It's very shallow and only bathes the perineal area.

H: Homan's Sign

- ❖ Assess for Signs of DVT by the Homan's Sign (Deep Vein Thrombosis)
- ❖ Inspect legs for signs of thromboembolism, and assess Homan's sign A
- ❖ Positive Homan's sign is indicative of DVT, although it's not the most reliable indicator

Performing the Homan's Test

- ❖ Most commonly performed with the supine position while laying in bed
- ❖ The calf is flexed at a 90° angle
- ❖ The nurse manipulates the foot in a dorsiflexion movement
- ❖ If pain is felt in the calf, the Homan's Sign is said to be positive

E: Emotional Status

- ❖ Fluctuations in estrogen levels are blamed for the emotional roller-coaster that many moms experience after birth
- ❖ High levels of stress, increased responsibility, and sleep deprivation exacerbate the emotion
- ❖ Bonding refers to the interactions between the mother and baby

- ❖ Caregiving of self and baby is an indicator of emotional status.

Preventing Infection

- ❖ Observe for elevated temperature above 38°C.
- ❖ Evaluate episiotomy/perineum for redness, ecchymosis, edema, discharge (colour, amount, odour) and approximation of the skin.
- ❖ Assess for pain, burning sensation, and frequency of urination.
- ❖ Administer antibiotics as ordered.

Reducing Fatigue

1. Provide a quiet and minimally disturbed environment.
2. Organize nursing care to keep interruptions to a minimum.
3. Encourage the woman to minimize visitors and phone calls.
4. Encourage the woman sleep while the baby is sleeping. (8-10 hours sleep).
5. Early ambulation.
6. Avoid strenuous activities for 6 weeks.

Minimizing Pain

- ❖ Instruct the woman to apply ice packs to the perineal area for the first 24 hours for perineal trauma or edema.
- ❖ Initiate the Sitz bath for perineal discomfort after the first 24 hours. Educate to do three times a day for 15 to 20 minutes.
- ❖ Instruct the woman to contract her buttocks before sitting to reduce perineal discomfort.



- ❖ Assist the woman in the use of positioning cushions and pillows while sitting or lying.
- ❖ Administer pain medication as indicated.

Minor Ailments in Postnatal Period

- ❖ After pains
- ❖ Retention of urine
- ❖ Pain at site of perineum
- ❖ Engorgement of breast
- ❖ Treatment of Anaemia

Postnatal Exercise

- ❖ Pelvic floor exercise
- ❖ Abdominal tightening
- ❖ Pelvic tilting or rocking
- ❖ Hip hitching
- ❖ Foot and Leg Exercise

Immediate postpartum exercises can be performed in bed.

- ❖ Toe Stretch (tightens calf muscles)- While lying on your back, keep your legs straight and point your toes away from you, then pull your legs toward you and point your toes toward your chest. Repeat 10 times.
- ❖ Pelvic floor exercise (tightens perineal muscles)-Contract your buttocks for the count of 5 and relax. Contract your buttocks and press thighs together for the count of 7 and relax. Contract buttocks, press thighs together, and draw in anus for the count of 10 and relax.

Care of New Born

- ❖ Keeping baby warm

- ❖ Maintain Hygiene
- ❖ Cord care
- ❖ Breast feeding
- ❖ Immunization



- Average lifetime risk of maternal death for a woman in least developed country is >300 times than in industrialized country
- In developing world a woman has 1 in 76 lifetime risk of maternal death as compared to 1 in 8000 in industrialized countries
- Global MMR stood at 430/lakh live births in 1990, and at 400/lakh in 2005

Health Education

Postpartum Care and Hygiene

Advise the mother to wash perineum daily and after passing urine and stools. Change perineal pads every 4 - 6 hours. Wash hands frequently and take bath daily.

Nutritional Advice

Increase intake of fluid and food especially iron and protein rich foods like green leafy vegetables, jaggery, lentils, eggs and meat. Increase intake of milk and milk products like curd, cheese etc. Calorie need per day $2200+700=2900$ Kcal Advise adequate rest.

IFA Supplementation

Women with normal Hb are advised to take 1 IFA tablet daily for 3 months. If Hb below 11 gm/dl, advise her to take 2 IFA tabs daily and repeat Hb after 1 month.

Family planning advise

Counsel couple regarding contraception.

Breastfeeding

Advise the mother for exclusive breast feeding on demand, atleast 6 to 8 times during day & 2-3 times during night. Educate that breast feeding is best and Pre-Lacteal feeds must be avoided.

Breast feeding Problems

- ❖ Cracked /sore nipples -Advise the mother to apply hind milk for soothing effect, ensure correct positioning and attachment of baby.
- ❖ Engorged breasts - Advise the mother to continue breast feeding and to put warm compresses.

Registration of Birth

- ❖ Emphasize the importance of registration of birth with local panchayat.
- ❖ It is a legal document and it is required for many purposes.

Warning Signs of Puerperium

Advise the mother to report if following symptoms occur

- Fever, Convulsions
- Excessive bleeding
- Severe abdominal pain
- Difficulty in breathing
- Foul smelling lochia
- ❖ Educate about the Immunization for the child
- ❖ Advise about the importance of postnatal exercises

At 6 weeks following delivery - Ask the

mother for the following

- ❖ Has vaginal bleeding stopped?
- ❖ Has menstrual cycle returned?
- ❖ Is there any foul smelling vaginal discharge?
- ❖ Any problems regarding breast feeding?
- ❖ Any other complaints?

Give relevant advice & refer to doctor if needed.

5.12 FAMILY PLANNING METHODS

“DELAY THE FIRST, POSTPONE THE SECOND AND PREVENT THE THIRD”

Definition

An Expert committee (1971) of the WHO defined family planning as: “A way of thinking and living that is adopted voluntarily upon the basic of knowledge, attitudes and responsible decision by individuals and couples, in-order to promote the health and welfare of the family and thus contributes effectively to the social development of the country”.

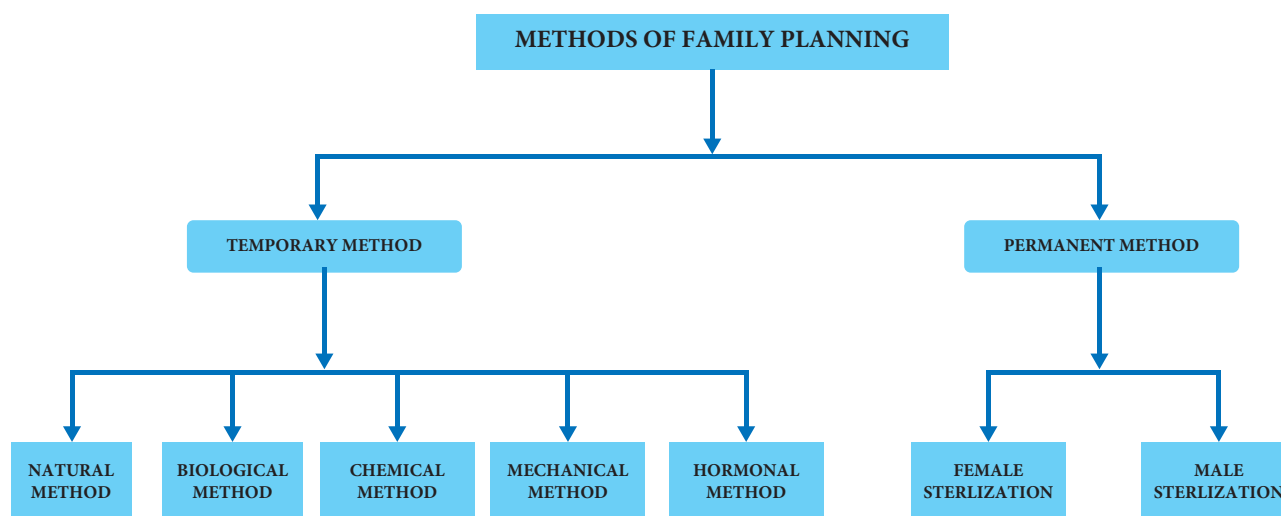
Natural Methods

- a. Abstinence
- b. Coitus interruptus or withdrawal method
- c. Lactational amenorrhea

Biological Methods

- a. Calender (rhythm) method
- b. Basal body temperature method
- c. Cervical mucus method (billings method)

Family Planning Methods



Chemical Method

- Foams
- Creams, jellies and pastes
- Soluble films

I. Mechanical Family Planning Method

- Male condoms
- Female condoms
- Diaphragms
- Cervical cap
- Intrauterine devices (IUD)
- Sponge

Hormonal Contraceptive Method

- Contraceptive skin patch
- Vaginal ring
- Pills (Combined and Minipill)
- Injection
- Implant
- Emergency Pill
- Intrauterine device

COPPER T:

Copper T is a small T-shaped, barium-sulphate incorporated, polythene device that is placed inside uterus to obtain birth control. The placement is done with a plastic syringe called the IUD inserter.

A fine copper wire weighing 120 mg, with a surface area of 208 mm², is wound round the upright limb of T. Two fine filaments are attached to the lower tip of the vertical limb. Copper T along with its inserter is supplied in a pre-sterilized packet. Copper T is inserted on the 6th day following the menstrual period. The ideal time for postpartum insertion of Copper T is immediately after delivery. Copper T is introduced 12 weeks after abortion, a doctor or a trained paramedical person carries out the insertion.



Use of copper-T may lead to irregular bleeding, more cramps and pain during menstrual cycle. It is a widely preferred method of contraception. Complication may lead to miscarriage, preterm or infection rarely.

Types of IUDS

There are two types of IUDs:

- Nonmedicated Intrauterine Devices
- Medicated intrauterine devices

Nonmedicated intrauterine devices or first generation IUDs

These are made out of polyethylene or other polymers they actually entered market in different shapes and sizes they are Loops, Spirals, Coils, Rings, Bows. The lippes loop is the popularly known and commonly used device in the developing countries.

Medicated IUDs

The copper IUDs are named as second generation IUDs there are several forms of copper devices available now

Newer Devices

Variants of the T device

- Cu-T-220C
- Cu-T-380 A or Ag
- Nova T
- Multiload devices ML-Cu-250, ML- Cu -375

Advantages of Intra Uterine Devices (IUDs)

- This is the most cost-effective method
- Easy to use
- There is no interruption of intercourse
- It can be removed immediately incase of any problems or not required
- Fertility returns with the first ovulation cycle following IUD removal

Disadvantages

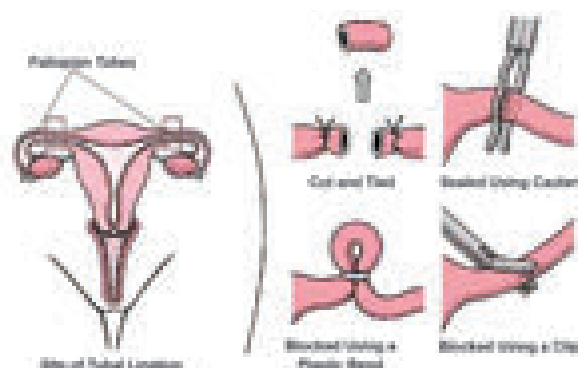
- IUDs do not protect against STDs
- Needs clinician for insertion and removal
- It may lead to side effect in some women

II Permanent Methods of Family Planning

a. Female Sterilization

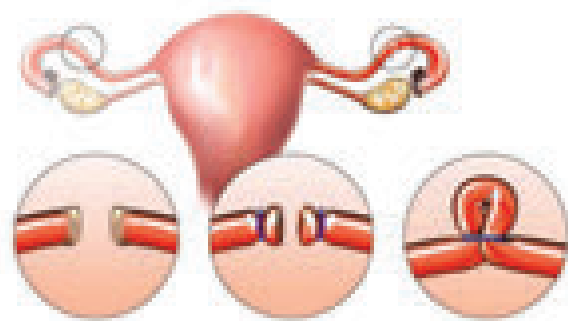
Laparoscopic Sterilization

Female sterilization is performed through abdomen using a laparoscope, the laparoscopic tubal ligation is a surgical sterilization method in which female's fallopian tubes are clamped or cut.



Mini-lap (Mini Laparotomy) Operation

A small abdominal incision measuring 2.5-3 cm is performed under local anaesthesia through the small incision, by following the fundus of the uterus fallopian tubes are reached and hooked up, knots are applied in two places this procedure is repeated for both the tubes.



Advantages

- It is a permanent method to prevent unintended pregnancies
- It is effective immediately
- Does not need any daily attention



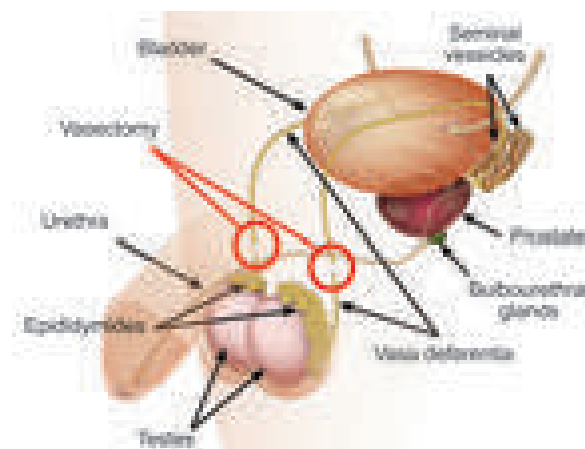
- Cost-effective in the long term
- Does not affect sexual pleasure

Disadvantages

- Need to face surgery and its consequences
- More complicated than male sterilization
- Does not protect against sexually-transmitted infections
- Lifting heavy weights not permitted for at least 6 months to avoid the occurrence of incisional hernia

b. Male Sterilization

Vasectomy is a surgical procedure for permanent male sterilization. During the procedure the male vas deference are cut and then tied or sealed in a way to prevent sperm from entering into the seminal stream and thereby prevent fertilization.



Advantages

- Permanent method of contraceptive
- Highly effective method
- Very safe surgical procedure



Disadvantages

- Usually irreversible
- It does not provide protection against sexually transmitted disease and infections including HIV
- Need skilled medical personnel to perform the procedure



National Family Welfare Services

The national family welfare services includes primary, secondary, and tertiary care. The care is provided at different levels including District, Taluk, PHC, and PHU level.

Family Welfare Schemes

1. National family welfare programme
2. National population policy
3. National Rural health mission
4. Urban family welfare schemes
5. sterilization schemes
6. Child survival and safe mother hood programmes
7. Reproductive and child health programmes
8. Implementation machinery
9. Social marketing of contraceptives
10. Medical termination of pregnancy
11. Prevention of prenatal sex determination

Benefits for the Pregnant Women

Maternity Benefit (Amendment) Act 2017

The maternity benefit amendment act has increased the duration paid maternity leave available for women employees from the existing 12 weeks to 36 weeks.

Modi Government Maternity Benefits

Pregnant women and lactating mothers will receive ₹6000, ₹5000 of which will be given in three instalments, provided that certain conditions related to completion of registration of pregnancy and birth, antenatal care and immunisation are met. The scheme is also restricted to the first live birth.

Janani Suraksha Yojana

The aim of JSY Scheme is to encourage poor pregnant women to give birth in registered health institutions. Mothers receive ₹1600 when they arrive and register at the health institution to give birth. The ASHA receives ₹600 when accompanying a women to a health institution for delivery.

Dr. Muthulakshmi Reddy Maternity Benefit

Dr. Muthulakshmi Reddy Maternity benefit scheme fund is enhanced with ₹12000. the cash assistance will be given in three instalment. ₹4000 who avails all required antenatal services during pregnancy in PHC, ₹4000 is given to the mothers who deliver in the government institution, ₹4000 at the completion of immunization for the child upto three doses.

Dikri Yojana

Financial assistance for those families without male child and those adopted permanent family planning measures with one or two female children.

Varumun Kappom Scheme

The aim of the scheme is to reduce maternal mortality and morbidity of the pregnant and expected mothers and utilising the vast resources of health care providers with the involvement of federation of obstetrics and gynaecological society of India.

BPL Desi Ghee Scheme

Below poverty line pregnant women in Rajasthan are entitled to receive five litres of desi ghee after their first institutional delivery. Three litres to be given after the first ANC test (between 4 to 6 month of pregnancy) and the other two litres at the time of discharge after the delivery.

Kalewa Yojna (KY)

Kalewayojna is funded by NHRM and implemented by DWCD where in free warm and

nutritious food is provided for two days to women who have delivered in health facility especially at Community health centre level. This food is cooked by self-help groups.

Janani Express Yojana

Providing benefit of transportation to expectant mothers for institutional deliveries to deal with emergency circumstances during the pre and post delivery period.

CONCLUSION

This chapter dealt with Maternal health which includes physiology of menstruation and its abnormalities. This chapter also has the process of fertilization, embryonic and fetal development discussed. It will help the students to do the antenatal and postnatal assessment to give proper care. This maternal health also discussed about family planning and insist upon the health education aspects during perinatal periods.



Population burden in Tamilnadu

POPULATION IN URBAN ACCLOMERATIONS IN TAMIL NADU		
	2001	2011
Chennai	6,560,242	8,696,010
Coimbatore	1,461,139	2,151,466
Madurai	1,203,095	1,462,420
Tiruchirapalli	866,354	1,021,717
Tirupur	550,826	962,982

So as Future Nurses, you have a major role in educating the importance of family planning methods to the community

A-Z GLOSSARY

Menstruation (மாதவிடாய்)	-	It is a visible manifestation of cyclic physiologic uterine bleeding due to shedding of the endometrial following invisible interplay of hormones mainly through Hypothalamus-Pitutary-Ovarian axis.
Premenstrual Syndrome (PMS) (மாதவிலக்குக்கு முந்தைய அறிகுறி)	-	PMS is any unpleasant or uncomfortable symptom during menstrual cycle that may temporarily disturb normal functioning.
Amenorrhea (மாதவிலக்கின்மை)	-	It is absence of menstruation.
Dysmenorrhea (வலிமிகுவிடாய்)	-	It is characterized by severe and frequent menstrual cramps and pain associated with menstruation.
Menorrhagia (மாதவிடாய் மிகைப்பு)	-	It is the medical term for excessive menstrual bleeding.



Metrorrhagia (ஒழுங்கற்ற மாதவிலக்கு)	-	Refers to menstrual bleeding that is normal in amount but occurs of irregular intervals.
Menopause (மாதவிடாய் முடிவு)	-	In human beings, menstrual cycles ceases around 50 years of age and known as menopause.
Fertilization (கருத்தரித்தல்)	-	It is the process during which a haploid male gamete (sperm) unites with a haploid female gamete (oocyte) to form a single cell (ZYGOTE). Is called fertilization.
Placenta Previa (நஞ்சுக்கொடி முந்தி அமைதல்)	-	Placenta attach to the lower uterine segment.
Ectopic Pregnancy (இடம்மாறிய கர்ப்பம்)	-	If the implantation occur outside the uterus it is called as Ectopic pregnancy.
Nidation or Nesting (பதிய)	-	The implantation of the fertilized ovum of embedding is known as "Nidation or Nesting.
Implantation (கருபதித்தல்)	-	Is the process by which the blastocyst penetrates the superficial (compact) layer of the endometrium of the uterus.
Zygote (கருமுட்டை)	-	Is genetically unique. a diploid cell (46 chromosomes) resulting from the fusion of two haploid gametes; a fertilized ovum.
Placenta (நஞ்சுக்கொடி)	-	The chorionic villi and uterine tissue together form a structural and functional organic structure between developing embryo and tissues of the mother called as placenta.
Blastomere (சிறுகருமுட்டை செல்)	-	The smaller embryonic cells are called blastomere.
Antenatal Care (கர்பகால கவனிப்பு)	-	It refers to the care that is given to an expected mother from time of conception is confirmed until the beginning of labor.
Aminiotic fluid (கருப்பையில் உள்ள திரவம்)	-	It is a fluid in the uterus surrounding the fetus.
Lochia (சுற்றின் இறுதி குருதி)	-	Vaginal discharge after delivery.
Gravidity (தாய்மை நிலை)	-	Number of times the women gets her pregnancy.
Parity (குழந்தை சுற்ற நிலை)	-	Number of times given birth.
Abortion (கருக்கலைப்பு)	-	Loss of fetus before its viability.
Abstinence (தவிர்ப்பு)	-	It means no sexual activity.



EVALUATION



I Choose the correct answer:

1. Which of the following statements about hormone regulation of the female reproductive cycle is false?
 - a. LH and FSH are produced in the pituitary, and estradiol and progesterone are produced in the ovaries.
 - b. Estradiol and progesterone secreted from the corpus luteum cause the endometrium to thicken.
 - c. Both progesterone and estradiol are produced by the follicles.
 - d. Secretion of GnRH by the hypothalamus is inhibited by low levels of estradiol but stimulated by high levels of estradiol.
2. Which of the following statements about the menstrual cycle is false?
 - a. Progesterone levels rise during the luteal phase of the ovarian cycle and the secretory phase of the uterine cycle.
 - b. Menstruation occurs just after LH and FSH levels peak.
 - c. Menstruation occurs after progesterone levels drop.
 - d. Estrogen levels rise before ovulation, while progesterone levels rise after.
3. The amniotic cavity develops:
 - a. on the tenth day
 - b. Within the outer cell mass
 - c. Within the inner cell mass near the cytotrophoblast
 - d. in extra embryonic mesoderm
4. The following organs are derived from mesoderm EXCEPT:
 - a. Skeletal musculature
 - b. Cardiac musculature
 - c. Suprarenal cortex
 - d. Suprarenal medulla
5. The part of the sperm containing proteolytic enzymes to digest the zona pellucida is the:
 - a. capacitor
 - b. head
 - c. corona
 - d. acrosome
6. During the second week of development, the trophoblast differentiates into:
 - a. syncytiotrophoblast
 - b. ectoderm
 - c. intraembryonic mesoderm
 - d. yolk sac (secondary)
7. What is the 'baby' called between 0-8 weeks pregnancy?
 - a. Peter
 - b. Embryo
 - c. Fetus
 - d. Alien



8. For an uncomplicated pregnancy, nulliparous women should have how many antenatal appointments?

- a.12 b. 7 c. 10 d. 5

9. G2P2 could mean...

- a) A woman has had 2 children and is expecting twins
- b) A woman has been pregnant 2 times and has 2 children
- c) A woman has already had one child and has just had an abortion
- d) A woman has been pregnant 2 times and miscarried once (before 24 weeks)

10. When is the routine anomaly scan usually carried out

- a) 22-24 weeks b) 12-14 weeks
c) 18-20 weeks d) 10-12 weeks

11. at 38 weeks, symphysis-fundal height should be about

- a) 40cm b) 36cm
c) 38cm d) 30cm

12. Which of the following factors does NOT put a woman at increased risk of obstetric complications?

- a) Both extremes of maternal age
- b) One previous caesarean section
- c) A history of subfertility, with use of fertility drugs or assisted conception.
- d) Family history of diabetes in a second-degree relative

13. The amniotic fluid of a client has a greenish tint. The nurse interprets this to be the result of which of the following?

- a) Lanugo b) Hydramnio
c) Meconium d) Vernix

II. Write short answer for the following questions:

- 1. Define fertilization
- 2. What is zygote?
- 3. Define pre-embryonic period
- 4. What is nesting?
- 5. What is meant by abortion?
- 6. Describe the antenatal period
- 7. What is morula?
- 8. Define Gravida
- 9. What is parity?
- 10. What is the postnatal period?

III. Write short notes for the following questions:

- 1. Explain the process of implantation
- 2. What are the placental functions?
- 3. List the investigations done at first antenatal visit?
- 4. Write the goals of antenatal care
- 5. List out the temporary family planning methods
- 6. How do you assess the episiotomy wound ?
- 7. How do you assess the Homan sign?



8. What are the vessels and shunts involved in fetal circulation?
9. What are the hormones involved in menstrual cycle?
10. Describe the ovarian cycle

IV. Answer the following questions in detail:

1. Explain the physiology of menstruation
2. Describe the fetal circulation.
3. Write the characteristics of lochia
4. Explain the foetal development between 0-8wks
5. Write about the permanent family planning method in female
6. Write about the permanent family planning method in Male
7. Describe BUBBLE-HE
8. What are the functions of amniotic fluid?
9. Describe about the umbilical cord
10. What are components of health education in antenatal period?
11. What are components of health education in antenatal period?

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Unit 6



CHILD HEALTH NURSING



LEARNING OBJECTIVES

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

- ❖ to learn about the growth and development of a child.
- ❖ to identify the major child hood problems.
- ❖ to orient about the health programs related to child health.
- ❖ to learn the normal characteristic of newborn
- ❖ to learn nursing care to a healthy neonate
- ❖ to understand the methods and importance of breast feeding
- ❖ to know about additional feeds.
- ❖ to orient the immunization schedule.



திருக்குறள்:

மக்கள் மெய்தீண்டல் உடற்கின்பம் மற்றுஅவர்
சொற்கேட்டல் இன்பம் செவிக்கு.

விளக்கம்:

மக்கள் உடம்பைத் தொடுதல் உடம்பிற்கு இன்பம் தருவதாகும்.
அம்மக்களின் மழலைச் சொற்களைக் கேட்டல் செவிக்கு இன்பம் தருவதாகும்.

EXPLANATION:

The touch of children gives pleasure to the body, and the hearing of their words, pleasure to the ear.

6.1 INTRODUCTION

Child Health Nursing is aimed to provide the highest possible state of health to each child. It includes preventing diseases or injuries, helping children to meet their health needs, to achieve and maintain adequate health and development. The role of the paediatric nurse depends on her education, experience, job structure and professional demands. The child care depends on the understanding of the parent about the growth and development of the child.

The goal of the paediatric nursing is to foster the growth and development of the children and promote an optimum state of health physically, mentally and socially, so that they may function at the peak of their capacity.

6.2 GROWTH AND DEVELOPMENT

Growth is an increase in the size of the whole body or any of its part. It can be measured in inches, centimetres, pounds or kilograms. Development is functional maturation. It is a progressive increase in skills and capacity of function. Each child has its own rate of physical, social, emotional and spiritual growth and development. All children grow through the normal sequence of development.

6.2.1 Factors influencing Growth and Development

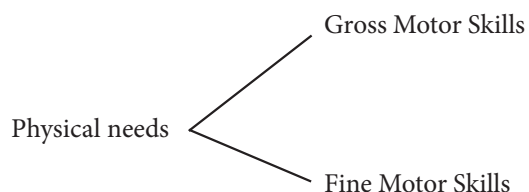
1. **Heredity:** The characteristics are transmitted through genes that are responsible for size, shape of the body and also the family illness.
2. **Race:** Similar physical characteristics are seen in people belonging to the same race.
3. **Sex:** A male baby is larger than female
4. **Intra uterine development:** Maternal and nutritional deficiencies, drugs and infections during pregnancy can have effect on the growing foetus.
5. **Illness and injury:** Illness may reduce the weight and minimise the child's process.
6. **Nutrition:** Quality and quantity of food consumed by the child have effect on his/her body building and resistance.
7. **Environment:** Sunshine, air, socio economic factors also affect children's development.
8. **Ordinal position in the family:** Younger children learn from older, which may be lacked by the first child.
9. **Emotions:** Lack of love, security, and parent child attachment can affect the personality. The disturbed children are always slow in development.
10. **Intelligence:** It influences motor development, Psycho social development and learning ability.
11. **Exercise:** Stimulates physical and muscular activity.
12. **Hormones:** Plays an important role in growth and development. E.g. deficiency of growth hormone causes dwarfism and over production leads to gigantism.

6.2.2 Growth Periods

1. New born – From birth to four weeks.
2. Infant – from birth to one year.
3. Toddler – from one year to three years.
4. Preschooler – from three years to six years.
5. Schoolage – from six to twelve years.

6. Adolescent – from thirteen to nineteen years.

Physical Growth



Gross Motor Skills:- Movement of the whole body. (E.g. Holding a spoon)

Fine Motor Skills:- Takes more learning to get the correct movement. (Eg. Head control)

6.2.3 Infant (1-12 months) : The infancy period is one of the rapid motor cognitive and social development period

Physical growth:- During infant period the birth weight doubles at 6 months and triples at 1 year. Total height increases by 50% at 1 year. Head and chest circumference are equal at 1 year.

Pulse rate is 130 – 140/mt.

Respiration is 36-40 /mt.

Blood pressure is 64/41 – 95/58 mmHg.



Famous premature babies include Albert Einstein, Isaac Newton, Mark Twain, Stevie wonder, Johannes kepler and Sir Winston Churchill.

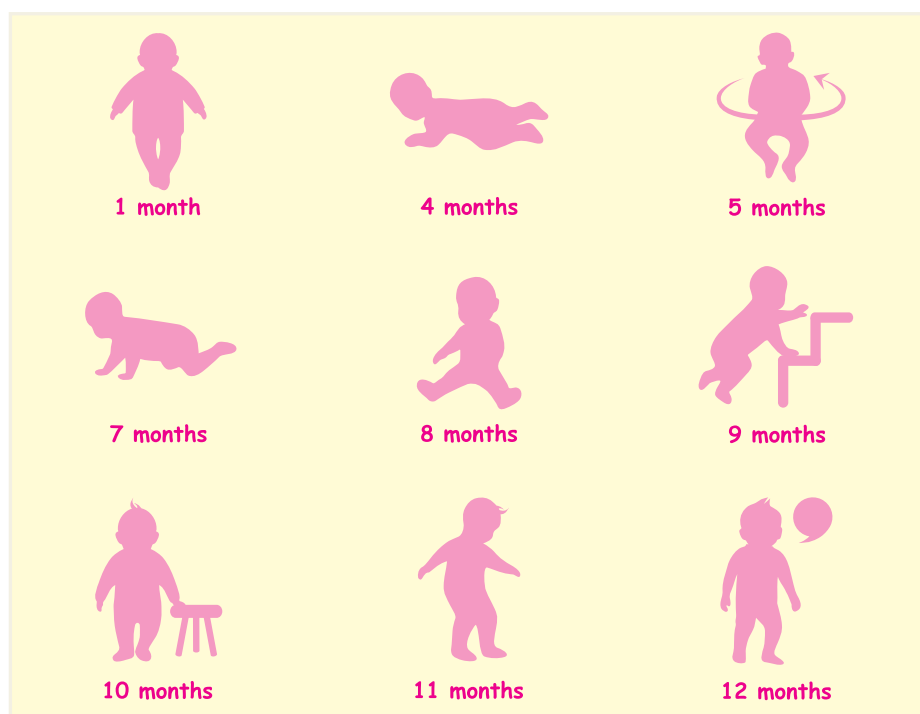
Dentition

Central incisors – 6-8 months.

Lateral incisors – 8-11 months

6.2.4 Mile stone development

- 1 month – Recognizes mother's voice
- 2 months – Social smile
- 3 months – Head control
- 4 months – Giggle and laugh
- 5 months – Turn backs to abdomen
- 6 months – Sitting with support
- 7 months – Sitting without support
- 8 months – Crawling
- 9 months – Standing with support
- 10 months – Stands without support
- 11 months – Walking with support
- 12 months – Walks without support



6.2.5 Toddler: (1-3 years)

Toddler period is characterised by intense activity and discovery. It is a time of marked physical and personality development.

Age	Physical	Development			
		Gross	Fine	language	Psycho social
1-3 yrs	Molar eruption. Temp 97.8 F – 98.4 F Pulse 110-130 /mts Res. 20-40 /mts BP – 91/56 mmHg Chest circumferences exceeds head circumference Average weight gain 2-2.7 kg/years Height increases about 10-12.5cm years.	Climbs up down stairs. Use both feet for jumping Pedals tricycle. Dresses and undresses self.	Drinks from cup. Holds crayons with fingers. Builds and balances to block tower.	Identifies parts when named. Enjoys stories. Asks “why” Repeats phrases and words aimlessly.	Begins to imitate parents. Possessive in nature. Knows own sex attains toilet training.

6.2.6 Preschooler: (3–6 years)

The children between 3 and 6 years of age are known as preschooler. Children in the preschool years grow relatively slow. They become taller and thinner without gaining much weight. They look more like an adult because of skeletal maturation.

Age	Physical growth	Development			
		Gross motor	Fine motor	language	Psycho social
3-6 yrs	Weight 12.5 – 20 kg Height 100 -115 cm Pulse 90-105/mt Respiration 22-30/mt Blood pressure 100/60 mm Hg	Walks in tiptoes. Climbs tree and ladders. Imitates dance steps. Catches a ball smoothly with one hand	Draw a simple face. Cuts around pictures with scissors. Copies letters. Uses 4 word sentences.	Names primary colours Understands directions (under, back, front) Counts 1 to 10 Vocabulary 1200 words	Egocentric fears the dark Dreams and nightmares Jealousy of siblings. Engages in co-operative play.

6.2.7 School aged child (6-12 years)

This is the time of gradual growth and development with more event progress in both physical and emotional aspects.

Age	Physical growth	Development			
		Gross motor	Fine motor	language	Psycho social
6-12 yrs	Weight 20-35 kgs	Performs tricks on bicycle.	Learns cursive writing	Begins to uses shorter and more compact sentences.	Easy to get along with others
	Height 110-140 cm	Throws a ball skill fully.	Draws person with 18-20 parts	Follows suggestion better than requests.	Gets short bursts of anger.
	Pulse 90/mt	Enjoys all physical activities.	Co- ordination continues to improve.	Oral vocabulary 7200 words	Hero worship continues.
	Respiration 20/mt			Use parts of speech correctly.	
	BP 100 /60 mmHg				

6.2.8 Adolescent: (13-19 years)

Adolescent is a period of transition from child hood to adulthood. It is time of rapid physical, cognitive, social and emotional maturing. This period is viewed as beginning with the gradual appearance of secondary sex characteristics (11-12 yrs) and ending with cessation of body growth at 18 – 20yrs.

Age	Physical growth		Development			
	Female	Male	Gross motor	Fine motor	language	Psycho social
13-19 yrs	Weight 40 -60 kgs	Weight 35-60 kgs	Comparable to adult level	Comparable to adult level	Comparable to adult level	Egocentrism diminishes
	Height 140-166 cms	Height 140-170 cms				Hetro sexual relationship
	Pulse 66/mt	Pulse 66 – 70 /mt				Few close friends
	Respiration 16-18/mt	Respiration 16-18/mt				Separation from parents.
	BP 112/66 mm Hg	Bp 114 /68/ mm Hg				

For girls

Beginning of puberty 8-13 years

- First pubertal change – breast development.
- Pubic hair development.
- Under arm hair development.
- Menstrual period 10 -16.5 years of age.

For boys

- Enlargement of scrotum and testes.
- Pubic hair development.
- Under arm hair development.
- Crack and breaky voice.



Among teens 44% girls are attempting to loose weight and 40% of boys regularly exercise with the goal of increasing muscle mass.

6.3 NEW BORN CHARACTERISTICS

Measurements



1. **Length :** The normal range of height ranges from 47.5 cms to 53.75cms.
2. **Weight:** The normal full term infant weighs between 2700 gms and 3850 gms.

3. **Head circumference :** Usually 33cms – 37cms

4. **Chest circumference :** The chest circumference is about 30-33cms

5. **Skin :** The skin is pink or red. In the black newborn reddish black.

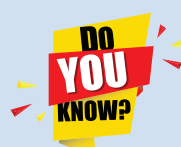
The skin may be covered with vernix caseosa, a cheese like greasy yellowish white substance.

Lanugos is a very thin, soft distribution of fine hair over the body. Most evident on the shoulders, extremities, forehead and temporal.

6. **Ear:** New born's ear cartilages are well formed.

7. **Female genitalia:** Labio majora are fully formed and the clitoris is not prominent.

Male genitalia: Scrotum is well developed pendulous and testes are well down in the scrotal sac.



Baby Valentine in California was the largest newborn baby in the world weighing more than 13 pounds (5.9 kg)

8. **Apgar Score:-** The APGAR score was formulated by Dr. VIRGINIA APGAR in the 1950 as a way of assessing the



baby's condition at birth and the need for resuscitation. Five inter related variables assessed at 1,5 and 10 minutes.



Sign	0	1	2
Appearance	Blue, pale	Body pink Limbs blue	All pink
Pulse (heart rate)	Absent	<100	>100
Grimace (response to stimuli)	None	Grimace	cry
Activity (muscle tone)	Limp	Some flexion of limbs	Active movements
Respiratory effort	None	Slow irregular	Good strong cry



Total score – 10

No depression – 7-10

Mild 4-7

Severe 1-4

The scores are added and the total score is documented. Babies scoring above seven rarely need resuscitation. The APGAR score which is undertaken to determine how well the baby is adjusting from intrauterine to extra uterine life.

9. Vital Signs:

Axillary temperature 36.5° C – 37.6° C

Heart rate 120 – 140/minute

Respiration 40-60 /minute

10. Grasp reflex :

Mature newborn's grasp is strong.



What reflexes should be present in an infant?

1. Rooting reflex – The reflex begins when the corner of the baby's mouth is touched.
2. Sucking reflex – Helps the baby become ready to suck.
3. Moro reflex – It is often called as startle reflex.
4. Tonic neck reflex – Also known as fencing reflex.
5. Grasp reflex – When an object is placed in an infant's hand and the palm of the child is stroked. The fingers will close reflexively.
6. Stepping reflex – when the soles of their feet touch a flat surface, they will attempt to walk by placing one foot in front of another.

6.4 NURSING CARE OF HEALTHY NEONATES

The first week of life is the most critical period in the life of an infant. The expert obstetric care is scarce and the home environment conditions in which baby is born are usually unsatisfactory.



Objectives

1. To establish and maintain cardiopulmonary functions.
2. To maintain body temperature.
3. To avoid infections.
4. For satisfactory feeding regime.
5. For early detection and treatment of congenital and acquired disorders.

6.4.1 Nursing care of healthy new born baby includes

I Immediate care

II Routine care

I. Immediate Care

Immediate basic care of neonates at birth includes maintenance of temperature, establishment of airway, initiation of breathing and maintenance of circulation.

1. Clearing the Airway

As majority babies cry at birth and take spontaneous respiration. No resuscitation is required at birth for about 95 to 98% neonates. Establishment and maintenance of cardio respiratory function (ex. breathing) is the most important thing. The chest movement of the baby is primary and everything else is secondary.

Airways should be cleaned of mucus and other secretions by gentle suction

Resuscitation may require more active measures such as suction, application of oxygen mask, integration and assisted respiration.

2. Apgar Score

It is an useful quantitative assessment of neonates condition at birth, especially for the respiratory, circulatory and neurological status.

II. Daily routine Care of Neonates

- ❖ Warmth
- ❖ Care of umbilical cord
- ❖ Care of the eyes
- ❖ Care of the skin
- ❖ Breast feeding
- ❖ Baby bath
- ❖ Clothing
- ❖ General care
- ❖ Weight Recording
- ❖ Immunization

The major goal of nursing care of the new born, infant is to establish and maintain homeostasis.

1. Warmth

Warmth is provided by keeping the body dry and wrapping with adequate clothing. It can be placed in skin to skin contact with mother to maintain temperature. (Auxillary temp $36.5^{\circ}\text{C} - 37.6^{\circ}\text{C}$)

2. Care of Umbilical Cord

The umbilical cord is cut about 2-3 inches from the naval with aseptic precautions during delivery and tied with sterile cotton thread or disposable plastic clip. The cord must be inspected for infection.

3. Care of the Eyes

- Eyes should be cleaned with sterile cotton swabs soaked in sterile water or normal saline.
- Observe the eyes for redness, sticky discharge or excessive tearing for early detection of problems and for prompt management.



4. Care of the Skin

- The baby must be cleaned off blood, mucous and meconium by gently wiping before he or she is presented to the mother.
- During hospital stay 'no bath' reduces the incidence of neonatal infections. No vigorous attempt should be made to remove the vernix caseosa.

5. Breast Feeding

- The baby should be put to the mother's breast within half an hour of birth or as soon as possible.
- No prelactal feeds to be given and colostrums feedings must be offered.
- Educate the mother about breast feeding techniques.
- Initially the feeding should be given in short interval of 1-2 hours and then every 2-3 hours. Most babies regularize their feeding pattern by the end of first week.

6. Baby Bath

- During hospital "No bath"
- Baby bath should be given with warm water in warm room
- Baby should be dried immediately from head to toe and wrapped in a dry warm towel.
- Use of olive oil or coconut oil can be allowed after 3-4 weeks of age.
- Exposure to sunlight is an important source of vitamin D and warmth.

7. Clothing

- The baby should be dressed with loose soft and cotton clothes.
- The clothes should not be too tight around the neck or abdomen.
- Clothes should be cleaned with light detergent and washed properly and sun dried.

8. General Care

- Baby should be handled with gentle approach after proper hand washing.
- No infected person should handle.
- Baby should be allowed to sleep in supine position.

9. Weight Recording

- Average daily weight gain in healthy, new born baby increases about 30g/day in the first month of life.
- It is about 20g/ day in second month and 10g/day afterwards during the first year of life.
- Most infants double their birth weight by 4-5 months.

10. Immunization

- All neonates should be immunized with BCG, 'O' dose OPV and 'hepatitis B' vaccine at birth.
- Mother should be informed about the recommended National Immunization Scheme.

6.4.2 Harmful Traditional Practices

Harmful traditional practices are forms of actions in certain communities. A large number of customs and cultural practices are found for mother and child. Harmful practices should be avoided. The examples are

- Use of cow dung or mud on umbilical cord
- Discarding colostrums and delayed breast feeding. Prelactal feeds like gold rubbed in water, honey, sugar water, distilled water and donkey's milk
- Neglecting female new born emotionally and nutritionally
- Instillation of oil into eye and ears before bath
- Using grape water or bonnison
- Giving opium and brandy
- Using feeding bottles
- Application of kajal in the new born eyes



In Zambia people use the following in umbilical cord as:

Drying agents: charcoal & dust.

Lubricating agents: Vaseline, cooking oil and used motor oil.

Protective agents: breast milk, cow dung and chicken faeces

6.4.3 Identification of Risk Infants

It means that a new born has great chances of complication because of the mother during labour or birth.

The basic criteria for identifying these babies include

- Birth weight less than 2.5 kg – preterm or small for date. Weight below 70% expected weight
- failure to gain weight during 3 successive months
- Twins, Birth order 5 and more
- Artificial feeding, Children with diarrhoea
- Congenital disorders like down's syndrome
- Apnoea or asphyxia
- Dimorphism



Stem cell therapy:- Stem cell therapy is the use of stem cells to treat or prevent a disease or condition. Bone marrow transplant is the most widely used stem – cell therapy. But some therapies derived from umbilical cord blood are also in use. It is more applicable to treat neurodegenerative diseases and conditions such as diabetes and heart disease.

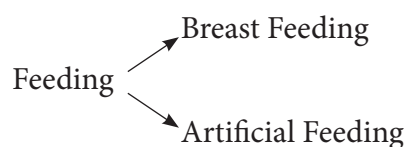
6.5 FEEDING

The growth of the infants during the first 6 months of the life is greater and faster than any other period of life. Feeding plays an important role in it.

Principles

1. To provide sufficient fluid
2. To get adequate food
3. To provide balanced composition
4. To provide easily digestible food

6.5.1 Types of Feeding



Breast feeding: The two important reasons for breast feeding is avoidance of infections and survival.



Advantages of Breast Feeding

1. Ideal composition for easy digestion with low osmotic load.
2. Protection against infection and deficiency disorders.
3. Breast milk are readily available in body temperature and sterile.
4. Requiring no preparation and costs nothing.
5. It has laxative action.
6. No danger of allergy.
7. Maintains healthy mother and child relationship.
8. Chance of conception is less during lactation.
9. Helps in the involution of the uterus.
10. Reduces the risk of breast and ovarian cancer of mother.
11. Breast feeding protects the infant from allergy and bronchial asthma. It also protects against tetany, neonatal hypoglycemia and vitamin deficiencies.
12. It is essential for the brain growth of an infant.

6.5.2 Common Problems in Breast Feeding

Even though breast milk is best to feed the baby as it offers a lot more than just nutrition. There are several challenges in breast feeding. They are

1. Due to mother
2. Due to infant

Due to Mother

1. Reluctance
2. over anxiety
3. Following operative surgery
4. Maternal illness
5. Inadequate secretion
6. Breast ailments

Due to Infant

1. Low birth weight babies
2. Preterm babies
3. Temporary illness
4. Over distension of the foetal stomach
5. Congenital malformation like cleft palate etc

6.5.3 Techniques of Breast Feeding

- Mother should be comfortable and relaxed physically and mentally before giving feed. She should wash her hand and can have a glass of milk or water. Mother should have no due work while feeding the baby.
- Baby should be cleaned and dried before feeding because, baby may feel discomfort or may not co-operate during feeding.

Positioning during Breast Feeding



- Sit or lie down comfortably with mother's back supported.
- Make sure the baby has one arm on either side of the breast as you pull the baby close.
- Use firm pillows or folded blankets under the baby to keep supported during the feeding.
- Support the baby's back and shoulder firmly.
- Once the baby's mouth is open wide, pull the baby quickly on your back.



Babies have a powerful sense of smell and can identify their mother's breast milk by scent.

Common positions used during breast feeding

- a. Football position
- b. Cradling position
- c. Lying down position
- d. Across the lap position
- e. Latching on position

6.5.4 Burping



All babies swallow air when they suck. They collect as a bubble in the babies stomach causing discomfort. So burping of the baby is essential to prevent aspiration of milk into trachea. Burping should be done each time after every feed. Put the baby over the mother's shoulder and give a gentle tap on the child's back, till the baby burps or for few seconds.

DO YOU KNOW? World breast feeding week is an annual celebration which is being held every year from 1-7 August in more than 120 countries.



SAVE THE EARTH !
Children of the Earth (icon)

6.5.5 Weaning

It is the process of gradually introducing an infant to what will be its adult diet and withdrawing the supply of its mother milk.

Begin the Weaning by 6 Months

Upto six months no other foods (including water) should be given except breast milk.



Problems during Weaning

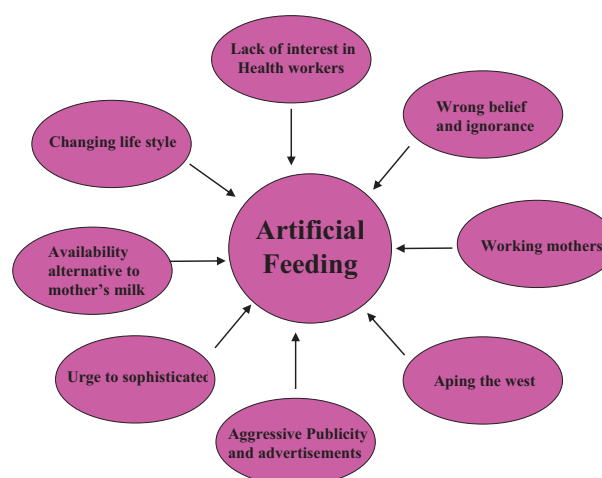
1. If breast feeding is stopped, suddenly, it can have psychological and nutritional effect on the young children.

2. Solid foods can cause diarrhoea if not digested properly.
3. If weaning foods are too poor to provide adequate nutrients, the children can develop malnutrition.

6.6. ARTIFICIAL FEEDING

When the infant is fed by any preparation other than breast milk is called artificial feeding.

Factors contributing to rising incidence of artificial feeding in India



Indication

- Contraindication of breast feeding either temporary or permanent reason.
- Mother reluctant in breast feeding.
- Inadequate of breast milk as evidenced by first feeding.
- Changing life style of women or pressurized under socio economic condition.

Foods used

There is no perfect substitute for breast milk. In general boiled liquid cow's milk various dried milk preparation and to a lesser

event unsweetened or sweetened condensed milk are commonly used as artificial feeds. In some countries goat's milk or buffalo milk are used.

Composition

	Sugar	Fat	Protein	Minerals	Water	Calories
Human	7	3.5	1.2	0.4	89	67
Cow	4.5	3.5	3.4	0.8	88	67

6.6.1 Cup feeding

Various types of utensils are used for artificial feeding of infant. In some communities metal cups or container with a spout are used for this purpose. But cup feeding is more advisable for newborn than bottle feeding.



Advantages of Cup Feeding

- ❖ Promotes tongue action
- ❖ Heat confusion
- ❖ Encourages the initial digestion of the milk in the mouth
- ❖ Easy to sterilize than bottle and heat

Disadvantages

- ❖ Addiction to the cup feed
- ❖ Aspiration may occur with an incorrect technique
- ❖ The length of the feed is longer

Indication

As an interim measure for full term babies when breast feeding is not yet established e.g. maternal infant separation.

For the preterm infant without sufficient suck / swallow coordination.

Procedure

- Ensure the baby is alert and interested.

Gather equipment.

- Expressed breast milk.
- Sterilized cup (small, open, slightly shaped and made from polyethylene or similar)
- Bib / napkin
- Baby's records
- Wash and dry hands
- Sit comfortably with the baby in an upright sitting position. Cuddled close to the parent's body. Consider swaddling the top half of the baby (to prevent hands knocking the cup) and using a suitably placed bib. Choose to feed in skin-to-skin contact.
- Place the cup (about half full, if possible) lightly on the baby's bottom lip, reaching the corners of his mouth, with the level of milk touching his lips. Begin slowly.
- Retain the cup in this position (throughout any pauses) allowing the baby to lap with tongue forwards. Avoid the temptation to pour the milk in.
- The baby will determine the pace and cease feeding when no longer hungry.
- Ensure that the feed time has been relaxed and pleasurable with lots of comfort and social interaction for the baby. Return the baby to a safe environment once finished.

- Wash and sterilize the cup, wash and dry hands.
- Complete documentation, note the volume of liquid ingested, the time taken and the effect for the baby.

When a baby is not being breast fed the midwife has an important role in facilitating safe and effective infant nutrition using formula milk.

Powdered infant formula milk is suitable for newborn babies are modified cow's milk and are either whey or casein dominant whichever milk is chosen, it must be an age suitable formula. Equally where the manufacturers suggest preparation at a lower water temperature; this advice should be disregarded.

6.6.2 Storage of prepared Feeds

- Preparing a powdered feed and then storing it is strongly discouraged.
- It should be prepared as near to the time to leave as possible.
- If the feed is not used within 2 hours it should be discarded.
- If reheating a feed, warm water can be used for upto 15 minute either by placing the bottle in the water or by holding it under a running tap.
- Microwaves should not be used due to the inconsistent action of reheating.

6.6.3 Complementary Feeding

It's a gradual addition of solid foods to the infant's diet according to individual infant's capacity and gradual withdrawal of breast / artificial feeding in frequency and quality.

Principles

- Start weaning when child is free from any Gastrointestinal trouble.
- One food item is introduced at interval of 4-7 days to allow for identification of food allergies and to allow the child to get used to it.
- New foods are fed in small amounts from one teaspoon to few tablespoons.
- Food should not be mixed in bottle and feed through nipple.

6.6.4 Methods of Complementary Feeding

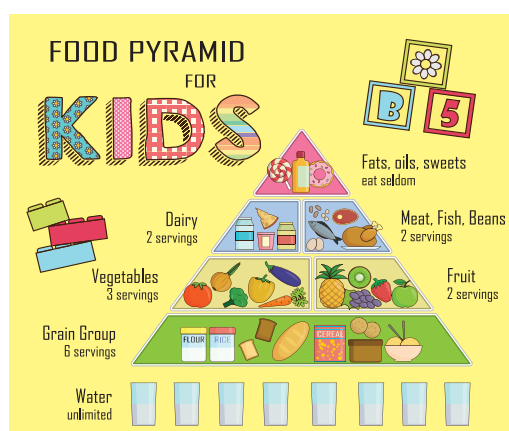
Sl. No.	Age	Food items to be given
1	6 months	<ul style="list-style-type: none"> • Dhal soup • Orange soup / fruit soup • Green leafy vegetable soup • Ragi porridge • Banana
2	7-9 months	<ul style="list-style-type: none"> • Idli • Mashed rice with dhal • Vegetable soup • Egg yolk / fish • Mashed carrot or potato • Biscuits, kitchadi, kesari
3	10-12 months	<ul style="list-style-type: none"> • Chicken, liver • Chappathi, idiyappam • Bread, rice, dhal, egg.

6.6.5 Dietary need

Growth requirements combined with physical activity play a role in determining a child's nutritional needs. Nutritional needs change with different life stages. It is important to take into account the extra demands placed on the body by these changes.

	Toddler	preschool	School age
Calories (kcal)	1200/day	1500-1600/day	2000-2500/day
Protein	1gm/wt/day	1gm/wt/day	1gm/wt/day
Fluid	1100ml/day	1500 ml/day	2100 ml for boys; 1900 ml for girls
Type	Small frequent chopped food	Food in various colours and shapes	All types of food increased quantity

Food pyramid



Foods to be avoided for children

1. Fast food and junk food like chips, popcorn etc
2. Processed meats
3. Canned fruits and drinks
4. Honey
5. Dipping sauces
6. Raw milk and eggs

6.7 IMMUNIZATION

Immunization against vaccine preventable diseases is essential to reduce the child mortality, morbidity and handicapped conditions. It is mass means of protecting large number of children from various diseases.

Definition

Immunization is the process of protecting



STUDENT'S ACTIVITY

Mrs. Ranjitha and her 3 months baby visited the paediatric clinic with the question of

- i. When should I introduce solid food to my baby?
- ii. Which solid food should I feed my baby first?
- iii. What can I do to minimise the risk of food allergies?
- iv. How do I introduce each new food to my baby?
- v. What are the signs of a food allergy?
- vi. Do I still need to give my baby breast milk or formula
- vii. How can I help my child to develop healthy eating habits?

Prepare answers for these questions.

an individual from diseases through introduction of live /killed/attenuated organisms in the individual system.

6.7.1 Vaccine preventable Diseases

a) Six killer vaccine preventable diseases

- Poliomyelitis
- Tuberculosis
- Diphtheria

- Pertussis
- Tetanus
- Measles

b) Other vaccine Preventable Diseases

- Hepatitis B
- Rubella
- Typhoid
- Influenza
- Chickenpox
- Yellow fever
- Plague
- Rabies

- Mumps
- Haemophilus influenza Type B
- Meningococcal meningitis
- Pneumococcal Pneumonia
- Rotta virus
- Diarrhoea
- Cholera
- Malaria

6.7.3 The Cold Chain

The cold chain system is necessary, because vaccine failure may occur due to store and transport under strict temperature controls.

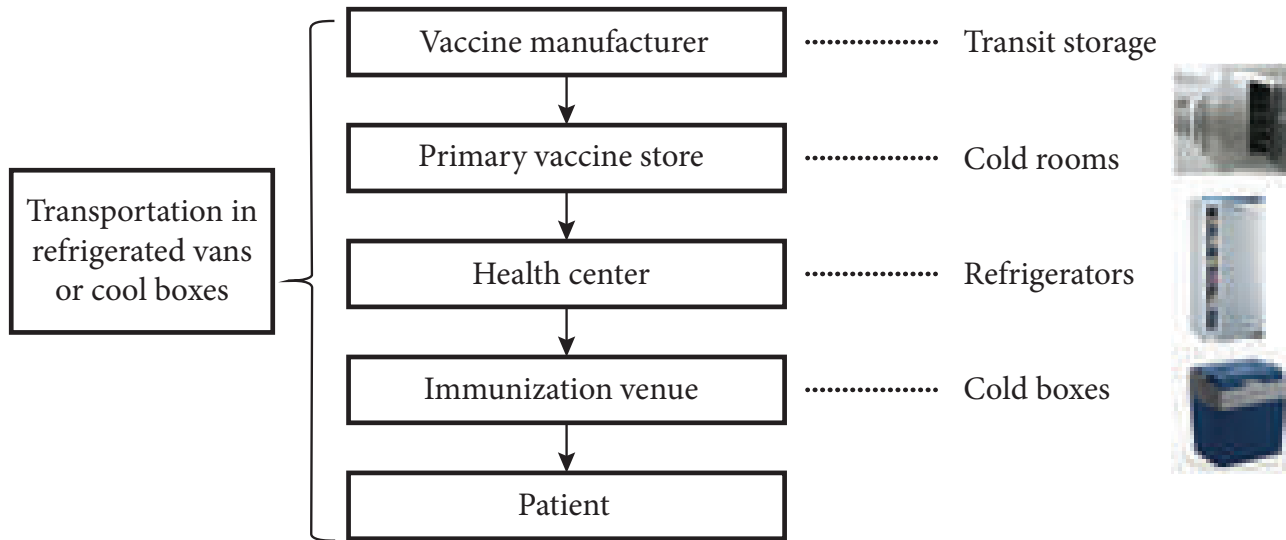
6.7.2 Immunization Schedule

National Immunization Schedule for infants, Children and pregnant Women				
Vaccine	When to give	Dose	Route	Site
For Pregnant Women				
TT – 1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT – 2	4 weeks after TT – 1	0.5 ml	Intra-muscular	Upper Arm
TT - Booster	If received 2 TT doses in a pregnancy within last 3 yrs	0.5 ml	Intra-muscular	Upper Arm
For Infants				
BCG	At birth or as early as possible till one year of age	0.1ml (0.05 ml till 1 month age)	Intradermal	Left Upper Arm
Hepatitis B	At birth or as early as possible within the first 24 days	0.5ml	Intra-muscular	Antero-lateral side of mid-thigh
OPV – O	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1,2&3	At 6 weeks 10 weeks & 14 weeks	2 drops	Oral	Oral
DPT 1,2&3	At 6 weeks 10 weeks & 14 weeks	0.5ml	Intra-muscular	Antero-lateral side of mid-thigh
Hep B 1,2&3	At 6 weeks 10 weeks & 14 weeks	0.5ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles	9 completed months – 12 months	0.5ml	Subcutaneous	Right Upper Arm
Vitamin – A (1st dose)	At 9 months with measles	1ml (1 lakh IU)	Oral	Oral
For Children				
DPT booster	16-24 months	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles 2 nd dose	16-24 months	0.5 ml	Subcutaneous	Right Upper Arm
OPV Booster	16-24 months	2 drops	Oral	Oral
Japanese Encephalitis	16-24 months	0.5 ml	Subcutaneous	Left Upper Arm
Vitamin – A (2 nd to 9 th dose)	16 months. Then, one dose every 6 months upto the age of 6 years	2ml (2 lakh IU)	Oral	Oral
DPT Booster	5-6 years	0.5 ml	Intra-muscular	Upper Arm
TT	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm

JE vaccine, in selected endemic districts after the campaign.

The 2nd and 9th dose of Vitamin A can be administered to children 1 to 5 years old during bi-annual rounds, in collaboration with ICDS.

STORAGE METHOD



Definition

The cold chain is a system of storage and transport of vaccines at low temperature from the manufacturer to the actual vaccination site.



The Cold Chain Equipment

The cold chain equipment consists of:

- Walk in cold rooms
- Deep freezers
- Ice lined refrigerator
- cold boxes
- Vaccine carriers
- Dry carriers
- Ice packs

For successful cold chain system, cold chain equipment, transportation system and motivation and training of the workers for maintenance of cold chain link are essential.

Vaccines stored

- Freezer – polio and measles.
- Cold compartment – DPT, DT, TT, diluents, typhoid and BCG.



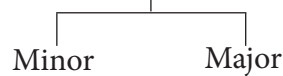
1998 study of 12 U.K. children revealed that there is no link between vaccination and autism.

6.8 DISORDERS OF NEWBORN

Neonatal disorders means disturbance of normal state of body organs and abnormal function of a new born.



Neonatal Disorders



6.8.1 Minor Disorders of the Newborn

- a. **Molding:** The head may appear asymmetric in the new born of a vertex birth caused by the over riding of the cranial bones during labour and birth. Diminishes within few days after birth.
- b. **Stuffy Nose:** Stuffy nose leads to mouth breathing and excessive air swallowing which leads to abdominal distension and vomiting. Cleaning the nostrils with cotton swabs soaked with normal saline will reduce the problem.
- c. **Thrush:** Thrush may be oral or in the napkin area including buttocks and inner thighs. Treatment is 1% G.V paint or Nystatin suspension applied with cotton swabs.
- d. **Phimosis:** Pinpoint prepuce which makes the baby cry during micturition. It requires dilatation by mosquito forceps.
- e. **Mangolian Spots:** Bluish black areas of pigmentation more commonly noted on the back and buttocks. They fade gradually all over months or years.
- f. **Nevi:** Telangiectatic nevi are pink and easily planched. They may appear on the upper eyelids, nose, upper lip and nap of the neck. They have no clinical significance and fade my second year of life.
- g. **Physiological Jaundice:** 40% of term neonates and 60% of preterm neonates develop physiological jaundice. Jaundice becomes visible on second and third day. Usually peaking between the second and

fourth day and decreasing between 5th and 7th days of life. It is believed to be the result of increased bilirubin production from the break down of foetal RBCs. Treatment is not necessary, but some children may need phototherapy.

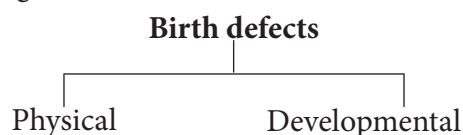
- h. **Pseudo Menstruation:** Pseudo menstruation or vaginal bleeding is caused by pregnancy hormones. It resolves when maternal hormones deplete from neonates body. Reassure the parents.
- i. **Vomiting:** Many newborns vomit, be alert indicate a bowel obstruction which needs attention. Vomi of blood vomit, vomiting green - bile can ting can be due to motion sickness or indigestion.
- j. **Dehydration:** The water content in the body reduces resulting in dehydration. When babies suffer from health problems like cold, cough or throat infection, the intake reduces and resulting in dehydration.
- k. **Diarrhoea:** The poop is normally much softer than an adult, if it suddenly gets much looser or more watery and happens more often and in large amounts it may be diarrhoea. An infection with a virus, bacteria or parasite. Babies can get dehydrated very quickly within a day or two after diarrhoea starts. Continue breast feeding or formula feeding. Small amounts of hydrating solutions should be given frequently.
- l. **Cord infection :** Infection of the umbilical cord stump is called as omphalitis. It can be caused by skin bacteria. Application of an antiseptic to umbilical cord is a best treatment.

6.8.2 Major New born Disorders

It can be divided into congenital anomalies and acquired problems.

6.8.2.1 Congenital Anomalies

It can be defined as structural or functional anomalies, for example metabolic disorders. That occur during intra uterine life and can be identified in prenatal period or birth, or some times may only be detected in infancy such as hearing defects.



Most Common Types

- a. Congenital Heart Disease: An abnormality in the heart that develops before birth ex. Ventricular septal defect.
- b. Down Syndrome: A genetic chromosome 21 disorder causing developmental symptoms.
- c. Cleft Lip and Palate: Opening or splits in the roof of the mouth and lip.
- d. Spina Bifida: Failure in the development of spinal cord.
- e. Club Foot: Foot is twisted out of shape or position.
- f. Phenyl Ketonuria: A birth defect that causes amino acid called phenylalanine to build up in the body.
- g. Edward's Syndrome : A condition that causes severe developmental delays due to chromosome disorder. It also called as trisomy 18.



1983 the average life expectancy of a person with down's syndrome was a mere 25 years old today its 60.

6.8.2.2 Acquired Disorders

These are not inherited or present at birth, but developing after birth. Some of the disorders are

1. Low birth weight
 2. Malnutrition
 3. Infections and parasites
1. **Low birth weight:** A (LBW) low birth weight infant is an infant with a birth weight of less than 2.5 kg regardless of gestational age.

a. **Preterm babies:** Babies born before 37 weeks of gestation. If given good neonatal care these babies can catch up growth by 2-3 years of age.

b. **Small for date:** (SFD) These babies may be born at term or preterm. They weigh less than 10% of the gestational age. SFD have a high risk of dying not only during the neonatal period, but during their infancy most of them become victims of protein energy malnutrition and infections.

Risk factors

1. Malnutrition
2. Infection

Treatment

1. Increase food intake
2. Control infections
3. Early detection and treatment of medical disorders.

2. **Malnutrition:** Scarcity of suitable food, lack of purchasing power of the family, traditional beliefs, taboos, leads to an insufficient balanced diet resulting in malnutrition.

Common deficiencies are

S. No.	Content	Deficiency
1.	Protein	Kwashiorkor
2.	Energy	Marasmus
3.	Vitamins A	Xerophthalmia, Bitots spots
4.	Vitamin D	Rickets
5.	Vitamin K	Coagulating disorder
6.	Vitamin C	Scurvy
7.	Vitamin B Complex	Beriberi, Pellagra, Stomatitis
8.	Calcium	Rickets
9.	Iron	Anaemia

3. Infections and parasitic diseases

Young children fall an easy prey to infectious diseases. They are diarrhoea, respiratory infections, measles, pertussis, polio, neonatal tetanus, tuberculosis and diptheria. Intestinal parasites such as ascariasis, hook worm, and giardiasis are common, because of poor environmental sanitation and paucity of portable drinking water.

6.9 MAJOR CHILDHOOD PROBLEMS

A child's development is usually continuous, but temporary pauses may occur. Common disorders of the children are.

6.9.1 Behavioural problems

Children abandoned by their families present severe social and health problems.

Definition

Behavioural problem is characterised by a significant deviation from the socially accepted normal behaviour.

Etiology

- Faulty parental attitude.
- Inadequate family environment
- Mentally and physically sick or handicapped children
- Influence of social relationship
- Influence of mass media

Common Behavioural Problems

a) Feeding problems:

Food refusal

Over eating

Pica

Anorexia nervosa

b) Habit disorders

Lack of physical activity

Thumb sucking

Nail biting

Enuresis

Encopresis

Internet addict

c) Sleep problems

Somnambulism

Night terrors

Nightmares

Insomnia

d) Adjustment problems

- Disobedience
- Misconduct
- Temper tantrum

e) Anti social problems

- Delinquency
- Kleptomania
- Drug abuse
- Alcohol abuse
- Sexual abuse
- Teen pregnancy
- Smoking

Management

- ❖ Warm and understanding family environment communication between family members should be direct.
- ❖ Deal with emotional disturbances at the earliest.
- ❖ Behavioural therapy.
- ❖ Positive reinforcement
- ❖ Relaxation therapy
- ❖ Referral to child guidance clinic
- ❖ Drug therapy.

6.9.2 Childhood Accidents

Despite the best child proofing and safety efforts childhood accidents sometimes happens.


The examples are

- ❖ Burns
- ❖ Poisoning
- ❖ Drowning
- ❖ Falls
- ❖ Choking, strangulation and suffocation.
- ❖ Common injuries
- ❖ Mishandling guns and cars

Management

Call an ambulance if the child shows the following after accidents.

- ❖ Unconscious
- ❖ Vomited and drowsy
- ❖ Poisoned
- ❖ Dyspnoea
- ❖ Unstopped bleeding from cut or ear
- ❖ Severe pain



One in five children and youth struggle with their behavioural problems. 70% of adult mental illness begins during childhood or adolescence.

6.10 HEALTH PROGRAMMES RELATED TO CHILDREN

- ❖ Maternal and child health programme (MCH)
- ❖ Weekly iron and folic acid supplementation (WIFS) Programme
- ❖ National Deworming day
- ❖ Universal Immunization Programme
- ❖ Rashtriya Bal Swasthya Karyakram (RBSK)
- ❖ Pulse Polio Immunization (PPI)
- ❖ Intensified efforts to reduce child deaths due to diarrhoea
- ❖ The Reproductive and Child health Programme (RCH)
- ❖ Integrated Child Development Services (ICDS)
- ❖ Balwadi Nutrition Programme
- ❖ Mid-day meal programme
- ❖ Pallisrar Kannoli Kappom Thittam

Since India became independent several measures have been undertaken by the Government to improve the health of the

people. A brief account of these programmes which are currently in operation and related to child health are discussed below.

6.10.1 Maternal and Child Health Programme (MCH)

The term maternal and child health refers to the promotive, preventive, curative and rehabilitative health care for mothers and children. The main objective is reduction of maternal, perinatal infant and childhood mortality and morbidity.

6.10.2 Weekly Iron and Folic acid Supplementation (WIFS) Programme

Iron and folic acid supplementation of 100mg iron and 500mg folic acid to reduce the prevalence and severity of anaemia in school going adolescent girls and boys in 6th-12th government / government aided / municipal schools.

6.10.3 National Deworming Day

National deworming day is a single fixed day approach to treating intestinal worm infection in all children aged 1-19 years and is held on 10th February and 10th August each year.



6.10.4 UIP

Universal Immunization Programme (UIP) is a Vaccination Program launched by the Government of India in 1985. It became a part of child survival and safe motherhood programme in 1992. The aim of this programme is to give vaccination for 12 diseases. The twelve diseases are Tuberculosis, Diphtheria, Pertussis, Tetanus, Poliomyelitis, Measles, Hepatitis B, Diarrhoea, Japanese Encephalitis, Rubella, Pneumonia and Pneumococcal diseases.

6.10.5 Rashtriya Bal Swasthya Karyakram (RBSK)

It is a new initiative aiming at early identification and early intervention for, children from birth to 18 years to cover '4D's

- Defects at birth
- Deficiencies
- Diseases
- Delayed developments / Disability

6.10.6 Pulse Polio Immunization: (PPI)

This programme was launched in India in 1995. Children in the age group of 0-5 years administered Polio drops during national and sub national immunization rounds.



World Immunization Day is celebrated every year on November 10.

This day is celebrated to make people aware about the importance of getting timely vaccination against vaccine preventable diseases.

6.10.7 Intensified efforts to reduce child deaths due to diarrhoea

The main aim is to reduce child deaths due

to diarrhoea. All the deaths due to diarrhoea can be prevented by treating dehydration, with the use of ORS (Oral Rehydration Solution) and administration of zinc tablets along with adequate nutritional intake by the child. ASHA worker would undertake the distribution of ORS packets to households with the supervision of safe drinking water, breast feeding, sanitation, nutrition and hand washing. (ASHA – Accredited Social Health Activist)

6.10.8 The Reproductive and Child health Programme (RCH)

This programme was launched in October 1997. The main aim of the programme is to reduce infant, child and maternal mortality rates and to reduce total fertility rate.

The package include

- Prevention and management of unwanted pregnancy.
- Provision of services to promote child survival.
- Prevention and treatment of reproductive tract infection and diseases.



WHO on 24th February 2012 removed India from the list of countries with active endemic wild polio virus transmission.

6.10.9 Integrated Child Development Services (ICDS)

It was initiated by the Government of India in the Ministry of social and women's welfare in 1975. Which provides food, preschool education and primary health care to children under 6 years of age and their mothers.

6.9.10 Balwadi Nutrition Programme

This programme was started in the year 1970 under the Ministry of Social Welfare. The aim is to provide primary education to 3-6 years children. The food supplement provides 300Kcal and 10gms of protein per children.

6.10.11 Mid-day meal programme

Mid-day meal programme is also known school lunch programme to noon meal programme.

This Programme has been in operation since 1961 throughout the country under Ministry of Education. The object is to attract more children for admission to schools and return them so that literacy improvements of children could be brought about.

Principles

- The meal should be a supplement and not a substitute to the home diet.
- The cost of the meal should be reasonably low.
- The menu should be frequently changed to avoid monotonous.

6.10.12 Pallisrar Kannoli Kappom Thittam:



Refractive errors (need for glasses) are the second main cause for avoidable blind and the rate of optometrists in reducing this condition

significantly. It involved many screening activities including cataract and diabetic retinopathy. School children vision screening occupies the major.

Group Activity: Screen the school children for refractive errors. Refer affected children to the Government Hospital and encourage them to wear spectacles.

CONCLUSION

Growth is an increase in the size of the whole body parts, and the development in the functional maturation. The difference stages of growth and development are explained with the measures.

First primary tooth is lost and permanent teeth begins to erupt at 6 – 7 years. Normal length of the newborn is 47.5cms to 53.75 cms and weight is 2.7 kgs to

3.8 kgs. APGAR score was formulated by Dr. Verginia Apgar in 1950. The baby should be put to the mother's breast with in half an hour of birth or as soon as possible.

All neonates should be immunized with BCG, 'O' dose of OPV, and 'hepatitis B' vaccine at birth. When the infant is feed by any preparation other than human milk is called artificial feeding. Immunization is the process of protecting an individual from a disease through introductions of live/killed/attenuated organisms in the individuals systems.

There are minor and major disorders in infants. Acquired disorders means they are not inherited or present at birth, but developing after birth. Several measures have been under takes by the central government to improve the health of the people. These are called national health programs.

A-Z GLOSSARY

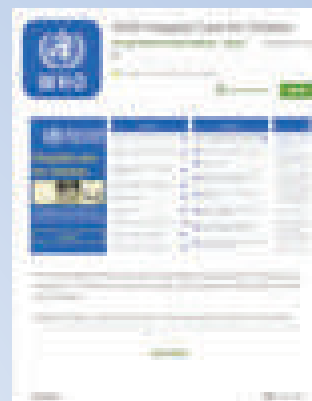
Burping (ஏப்பமிடுதல்)	-	Make a baby belch after feeding typically by patting its back.
Complementary feeding (கூடுதல் உணவு)	-	contributes extra feeding.
Encopresis (தன்னையறியாமல் மலம் கழித்தல்)	-	Untrained toilet habit or involuntary passage of faeces.
Enuresis (தன்னையறியாமல் சிறுநீர் கழித்தல்)	-	involuntary urination.
Grimace (முகபாவனை)	-	Twisted expression on a child's face.
Insomnia (தூக்கம் இல்லாமை)	-	Inability to fall asleep.
Immunisation (நோய்த் தடுப்பு)	-	Process of providing immunity against various diseases.
Kleptomania (திருடுவதற்கான கட்டுப்படுத்தமுடியாத ஆசை)	-	Uncontrollable desire to steal.
Refractory errors (ஒளிவிலகல் பிழை)	-	The lens fails to focus images on to the retina.
Somnambulism (தூக்கத்தில் நடத்தல்)	-	sleep walking.



ICT Corner

Hospital Care for Children

Let us know about How to
take care of children



Step 1: This is an Android app activity. Open the Browser and type the URL given (or) Scan the QR Code. (Or) search for “**WHO Hospital Care for Children**” in google play store.

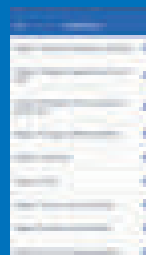
Step 2: (i) Install the app and open the app, (ii) click on the Menu “GUIDELINES”,

Step 3: In the opened page “Guidelines” click the menu “Browse by Chapter ” and then select any “Chapter”

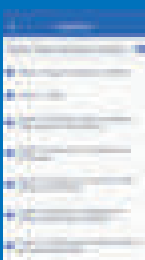
Step 1



Step 2



Step 3



Step 4



*Pictures are indicative





EVALUATION



I Choose the correct answer:

1. Six killer vaccine preventable diseases include everything of the following except
 - a. polio
 - b. Tuber culosis
 - c. Measles
 - d. Typhoid
2. Birth to 28 days of life in a child is called as
 - a. Neonate
 - b. Infant
 - c. Toddler
 - d. Adolescent
3. Mrs.X L.M.P was January 15th she delivered a male baby in September 16th the baby is a
 - a. Full term baby
 - b. Pre term baby
 - c. Post term baby
 - d. Normal baby
4. Up to how many months of age, exclusive breast feeding should be given
 - a. 1 month
 - b. 6 months
 - c. 8 months
 - d. 2 months
5. Midday meal programme was started since
 - a. 1961
 - b. 1986
 - c. 1950
 - d. 1956
6. Most of the infant double their birth weight by
 - a. 4 to 5 months
 - b. 3 to 4 months
 - c. 6 to 8 months
 - d. 8 to 10 months
7. The baby is said low birth weight neonate when the birth weight is
 - a. < 3.0 kgs
 - b. < 2.7 kgs
 - c. 2.5 kgs
 - d. < 2 kgs
8. Measles vaccine should be given at
 - a. 3 months
 - b. 5 months
 - c. at birth
 - d. 9 months
9. In Which month the infant crawls?
 - a. 4 months
 - b. 5 months
 - c. 11 months
 - d. 8 months
10. Maximum APGAR SCORE is
 - a. 8
 - b. 15
 - c. 11
 - d. 10
11. Bluish black areas of pigmentation more commonly noted on the back and buttocks of the newborn
 - a. Nevi
 - b. thrush
 - c. Mongolian spots
 - d. Skin rashes
12. pentavalent protects against
 - a. Diptheria, pertusis, tetanus, hepatitis B measles.
 - b. Diptheria, pertusis, tetanus, hepatitis B, polio.
 - c. Diptheria, pertusis, tetanus, hepatitis B haemophilus influenza type B.
 - d. Diptheria, pertusis, tetanus haemophilus influenza type B, polio.

II Write short answer for the following questions:

1. Midday meal programme
2. Write briefly on the stages of childhood.
3. Enumerate the physical changes in the toddler?
4. Write briefly about APGAR score
5. What are the objectives of neonatal care?
6. What is meant by growth and development?



7. In all Thursdays iron and folic acid tablets are distributed to all students from 6 – 12th standard. Write briefly about this programme.

III Write short notes for the following questions:

1. Discuss elaborately the characteristics of the normal newborn.
2. Write any five minor disorder of the newborn.
3. How do you identify risk infants?
4. Write the congenital anomalies of the newborn.

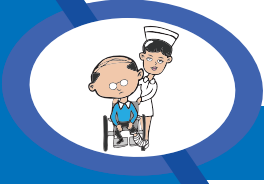
IV Answer the following questions in detail:

1. National Immunization schedule.
2. Discuss elaborately the care of newborn.
3. Write about behaviour problems of children.

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Unit 7



GERIATRIC CARE



LEARNING OBJECTIVES

At the end of this chapter, the student will be able to

- ♦ define old age
- ♦ explain the aging process
- ♦ enumerate the evolutionary basis of aging
- ♦ mention the mental health problem in old age
- ♦ describe the sensory system problem in old age
- ♦ explain the common diseased conditions in old age
- ♦ list the types of elderly care services
- ♦ enumerate the common disorders of old age



ஆத்திச்சூடி:

தாய் தந்தைப் பேண்

விளக்கம்:

உன் தந்தையையும் தாயையும் அவர்களுடைய முதுமைக் காலம் வரை அன்புடன் காப்பாற்று

Explanation:

Protect your parents



7.1 INTRODUCTION

The World Health Organisation(WHO) estimates that about 75% of deaths in people over the age of 65 in industrialized countries are from heart diseases, cancer and cerebrovascular disease. Millions of senior citizen across the globe are not getting proper healthcare they need because government and the society are not aware enough of the problem by 2026, there will be about 1200 million people aged 65 years according to un estimates. 7% of the 1.1 million Indian population is today over the age of 60.

The lifespan for both male (>65 years) and female (75 years) has raised significantly and it is estimated that by the turn of this century, numerically the highest number of old people will be in India.

Nurses and health professionals therefore have to be aware of the complexity of the care of elder people.

7.2 DEFINITION

Old age is a universal problem and is a community need. This is not a disease to be cured. It is a stage where people need to be protected from accidents, infections and disabilities. According to Sir Jamessterling.

Greek: genu = old age

Latera = treatment

Geriatrics : A branch of medicine that deals with the problems and disease of old age and aging peoples.

Gerontology: Comprehensive study of aging and the problems of the aged

Old age : Period of life when impairment of physical and mental functions becomes increasingly manifested in comparison to the previous years of life.

7.3 AGEING PROCESS

The ageing process is the gradual, decreased ability of the body to functions and to heal itself.

As our body age, they naturally deteriorate in the late years, many essential functions begin operating at a suboptimal level.

There are three main factors that influence the body's ageing process.

First as we grow older, the number of mistake incurred by daily Cellular reproduction increases. The body actually create non-functional cells, leading to more rapid deteriorate of the body's functions with advantage age. A large percentage of our cells even through they were present are useless. These non-functional cells sometime interfere with normal cellular process.

The second part of the ageing process related to Cellular damage that cause the shortening of DNA. As time passes increased damage to healthy DNA leads to accelerated cell death and our old bodies simply cannot generate cells fast enough to compensate for the loss. This process is most visible and obvious in

our skin the older we get the thinner our skin becomes

The third part of the ageing process involves the Cellular deconregulation of our national oxidative enzymes such as superoxide dismutase and catalase and glutathione peroxidase, making our antioxidant defence less efficient with age.

7.3.1 The Ageing Process Starts in Human Organ

From the moment of birth human beings experience continuous aging, however before the age of 25 the body can recover from

temporary consequence by itself, after 40 years old the body begins its real journey of ageing.

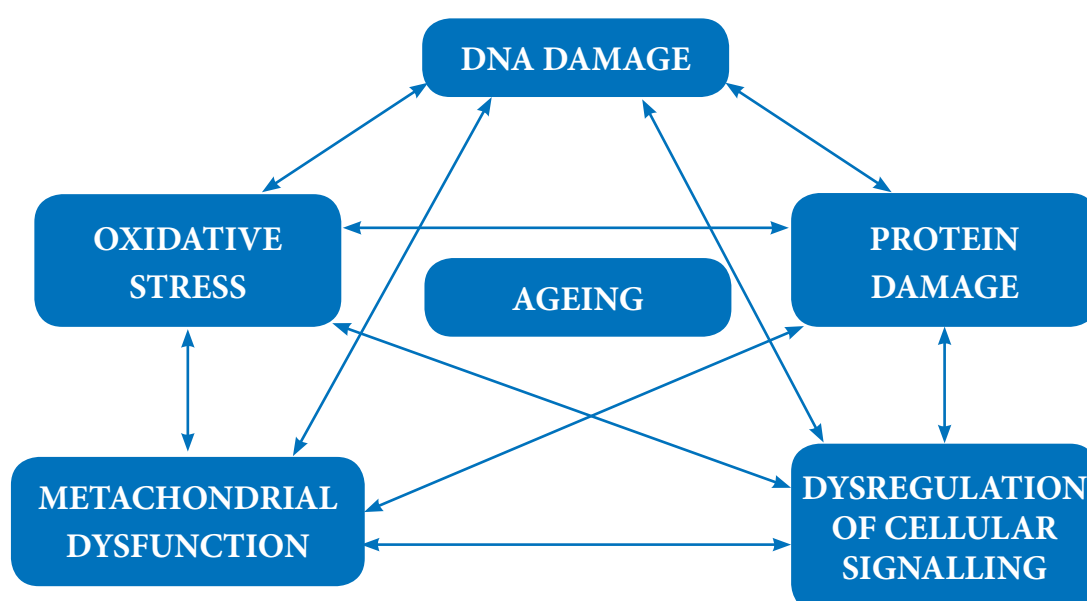
7.3.2 Common Signs and Symptoms of Ageing

- Increase susceptibility to infection.
- Greater risk of heat, stroke or hypothermia.
- Slight decrease in height as the bones of our spine get spinner and the lost some height.
- Bones break more easily.
- Joint changes ranging some minor stiffness to severe arthritis.
- Stooped posture.



Refer to the process of growing old, the British spell the word ageing, while the Americans and the Australians spell it aging. The two words are pronounced the same way both words ageing and aging are correct.

7.3.3 Mechanism of Ageing



7.3.4 Biological Process of Ageing

- The genes determine the lifespan, genes may have a role to play in the ageing process.
- Wear and Tear of important organs by continues functioning .
- Accumulation of toxic materials (E.g.. cholesterol) in the vital organ like heart, brain eye and thereby damaging them.
- Loss of important genetic material during DNA repair.
- Accumulate of stress over lifetime with its resultant effects.
- Exertion of production and deficiency of important hormones e.g. growth hormone and androgen, oestrogen and thyroid hormones.

Evaluation of ageing helps to explain why survival, reproductive success, and functioning of almost all living organism decline at old age.

7.4 EVOLUTIONARY BASIS OF AGEING

7.4.1 Ageing theories which mainly has been categorise into two main categories

Error Theory

Ageing is a result of internal or external assaults that damage cells or organs so they can no longer function properly.

Programmed Theory

Ageing has a biological time table or internal biological clock

Error Theory

- a) Waste accumulation theory
- b) Mitochondrial damage theory

a) Waste Accumulation Theory

The human lifespan simply reflects the level of free radical damage that accumulates in cells when enough damage accumulates, cells cannot survive properly any more and they just simply give up.

Genetic mutations occur and accumulate with increasing age, causing cells to deteriorate and malfunction RNA molecule is highly susceptible to oxidative stress

b) Mitochondrial Damage Theory

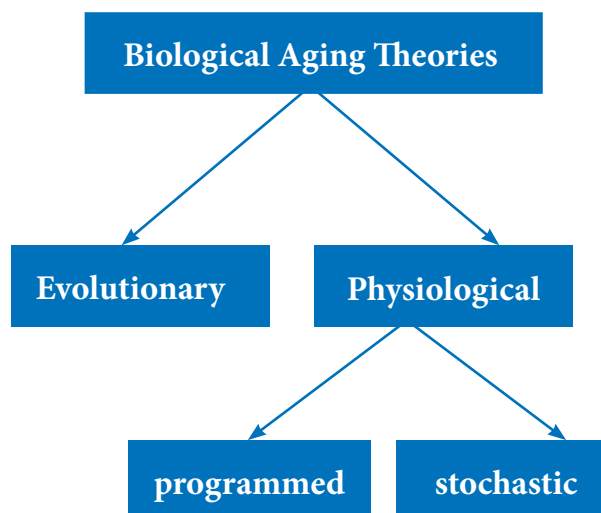
It is well known that mitochondrial DNA is much more oxidized with age than nuclear DNA reactive oxygen species are continuously generated in the mitochondrial electron transport chain.

2. Programmed Theory

a. Immunological Theory

The immune system is programmed to decline over time which leads to an increased vulnerability to infections, disease and thus aging and death. It is well documented that the effectiveness of the immune system peaks at puberty and gradually declines there after with advance in age. eg. as one grows older antibodies lose their effectiveness.

7.4.2 Biological Aging Theories



a) Evolutionary

- Once an organism has produced viable offspring its body is no longer needed. It then ages and dies.
- Certain genes may be useful in early life but detrimental in later life.
- Late acting genes have not been removed because they act after reproduction.

b) Physiological

- Programmed theories maintain that ageing occurs due to intrinsic timing mechanisms and signals. eg. Genetic timers.
- Stochastic theories maintain that ageing occurs as the result of chance or accidental events. eg. free radical damage.



Nodal Union Ministry For Senior Citizens

1. National policy on older persons.
2. The implementation strategy.
3. Inter – ministerial committee.
4. Training of manpower for care of Senior citizens.
5. Concession and facilities given to senior citizens.

7.5 MENTAL HEALTH

Changes in cognitive ability, excessive forgetfulness and moodswings are not a part of normal aging. Changes in mental status may be related to many factors such as alteration in diet and fluid and electrolyte balance. Therefore health professionals must recognize, assess, refer, collaborate, treat and support older adults exhibit noticeable changes in intellect or affect.

7.5.1 Some Of The Common Problems

- Depression
- Acute confusional state (Delirium)
- Anxiety disorders
- Cognitive impairment and dementia
- Late life delusional disorder
- Alcoholism
- Personality disorder
- Obsessive compulsive disorder
- Drug and substance abuse.
- Sleep and rest pattern
- Coping abilities

7.5.2 Dementia

Dementia and acute confusional state usually are the result of organic diseases characterised by impairment of intellectual functions. E.g., aphasia, aphaxia



Clinical Manifestations

- Language impairment
- Apraxia (difficulty in performing skilled tasks)
- Agnosia (inability to recognise objects)
- Impaired executive function (poor performance, poor judgement and planning)

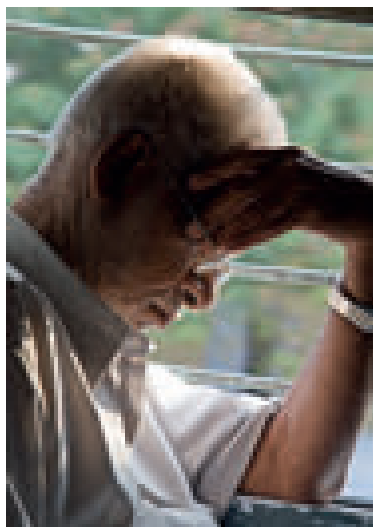
Diagnosis

- History collection
- Clinical examination including mental function
- CSF examination
- CT scan

Treatment

- Home health aid to assist in personal hygiene home cares to assist in house work transportation
- Support groups such as the alzheimers associations are often of value to the family
- Legal council should be recommended to help the patient and family

7.5.3 Depression



Depression occurs in 5 to 10% of community - dwelling elderly due to lack of social supports.

Clinical Manifestations

- Sleep disturbance
- Lack of interest
- Feeling of guilty
- Suicidal ideation

Treatment

- Medical and pharmacological Management Methylphenidate 5 to 10 mg at 8 a.m. and noon is often very effective.
- Treatment should be continued for up to a year because relapse rates are higher in the elderly.



STUDENT'S ACTIVITY

Identify the physical and psychological changes of your grandmother who is above 75 years. Based on the observation how will you provide a care

7.5.4 Acute Confusional State (Delirium)

- Delirium called acute confusional state and progressive to disorientation.
- Delirium due to hyponatraemia, hyperosmolality, hypercapria



Clinical Manifestations

- Disturbance in memory,
- Thought disorder
- Emotional changes
- Disturbance of perception.

TREATMENT

Supportive treatment ECT (Electroconvulsive Therapy)

Anopsychotics

7.6 SENSORY SYSTEM

7.6.1 Sensory Problems

- Decreased visual perception
- Decreased elasticity of the ear drum
- Decreased sense of smell
- Decreased taste perception
- Decreased touch sensation

People interact with the world through the sense, sensory losses associated with old age affect all sensory organs. Nearly half of older man and one third of older women report difficulty hearing without aHearing Aid 16% of old men and 19% of older women report difficulty seeing even with the corrective lenses.

7.6.2 Vision



- Decrease peripheral vision.
- Decrease night vision.

- Decrease capacity to distinguish colour.
- Reduced lubrication resulting in dry, itchy eyes.

Management

- Approach people directly not from the side.
- Proper lighting can make a big difference.
- Assist with choosing clothes if needed
- Use of natural tear products.

7.6.3 Hearing



- Auditory changes begin to be noticed at about 40 years of age.
- Environmental factors such as exposure to noise, medications and infections as well as genetics may contribute to hearing loss.
- Hearing loss may cause older people to respond inappropriately.
- Older people often cannot follow conversation because tones of high frequency consonants (F, S, TH, CH, SH, B, T, P) all sound alike.

Management

- Reduce extra noise when trying to have a conversation.

- Place yourself so the person can see you and fairly close – increased volume not always helpful.
- Make sure you have the persons attention before speaking.
- Have doctor check for and remove wax if needed.
- Arrange for hearing assessment and provide support to use a hearing aid if needed.

7.6.4 Taste and Sweet

- Four basic taste (Sweet, Sour, Salty and Bitter) are particularly dulled in older people.
- Changes in the sense of smell are related to cell loss in the nasal passage and in the olfactory bulb in the brain.
- Environmental factors such as long term exposure to toxins (Dust, Pollen and Smoke) contribute to the cellular damage.

Management

- May enjoy smaller attractive meals help to smell food preparation.
- Serve the food in attractive ways.

7.6.5 Skin

- Age related changes the thickness of epidermis decreases along with loss of moisture making the skin dry and rough.
- The melanocyte number decline which reduces protection against Sun rays and leads to appearance of small hypopigmented spots.
- In the dermis the fibroblast number and the production of extracellular matrix decreases causing wrinkling of the skin.

- Scalp are turns grey due to loss of melanin.
- Growth of nails slows down.



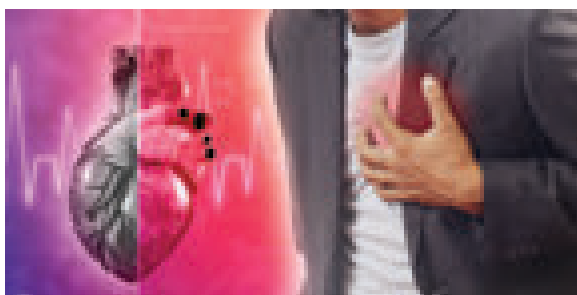
Management

- Use of moisturizers are bath oils can make bath tub slippery.
- As a care provider keep nails short
- Pat gently when helping to dry after bathing.
- Bottom of feet may be core pay attention to foot dear.
- May feel cooler than others but be more at risk of sun stroke.
- Use sun screen hats long sleeves.
- Be careful with such things as hot water bottles.

7.7 COMMON DISEASE CONDITIONS

7.7.1 The most common problems in the elderly are

1. Cardiovascular problem
e.g..coronary artery diseases (Angina, acute coronary syndrome, myocardial infarction) hypertension.



2. Respiratory problems
e.g..COPD, pneumonias, pulmonary tuberculosis and cancer.
3. Diseases of skin
e.g..Pruritus, skin cancer, bed sores.
4. Diseases of musculoskeletal system
e.g. Arthritis, osteoporosis, immobility, frequent Falls
5. Neurological
e.g. CVA (Stroke of cerebrovascular accidents) partinsonism, alzheimis disease
6. Genitourinary
e.g. Urinary incontinence, prostate enlargement
7. GI tract
e.g. constipation, cancer stomach
8. Eye and Ear problem
e.g Cataract, retinal detachment, deafness.
9. Hematological
e.g. Anaemia



MORTALITY IN ELDERLY

- ◆ 33% CVD
- ◆ 10% Respiratory diseases
- ◆ 10% Infections, TB
- ◆ 6% Neoplasm
- ◆ 4% Accidents, Poising and violence
- ◆ 17% Death by chronic disease by 2015

7.8 TYPES OF ELDERLY CARE OF SERVICES

- * Health promotion
- * Preventive services
- * Rehabilitative services
- * Home based care
- * Old age pension scheme

7.8.1 Health Promotion

Geriatric clinics are available in PHC, community health centres, and district level to provide care.

Objectives

- Health education related to healthy aging.
- Domiciliary visit to home bound / bed ridden elderly persons.
- Arrange for suitable calipers and supportive devices (walking sticks, callipers, infared lamp, shoulder wheel, pulley walkers)
- Linkage with other support groups and day Care Centre.
- 30 bedded geriatric ward for in patient care and dedicated beds for the elderly patients in the carious specialities
- Laboratory investigation required for elderly with a special sample collection centre in the OPD block.

Tertiary health care to the cases referred from medical colleges, district hospitals and below.



STUDENT'S ACTIVITY

Visit an old age home and find out the services that are provided for the elderly people

7.8.2 Preventive Services

- Primary prevention : refers to prevention of disease (e.g., immunization, chemoprophylaxis)
- Secondary prevention: is the early detection of disease before it becomes symptomatic (e.g. mammography to detect early breast cancer)
- Tertiary prevention: refers to activities to optimize health once disease is already detected.

Primary Prevention

Definition

Primary Prevention is concerned with preventing the onset of disease it aims to reduce the incidence of disease.

a. Counselling, life style modification

- Diet
- Physical activity
- Safety and injury prevention
- Smoking cessation
- Dental care

b. Immunizations

Secondary Prevention

Definition: Secondary prevention aims to reduce the impact of a disease or injury that has already occurred. Regular screening is required to detect diseases in its earliest stage.

- Hypertension : check blood pressure at least annually
- Obesity and malnutrition : measures weight and height at least annually

- Visual deficits: Routine screening with a snellen chart annually
- Hearing impairment: it is recommended to periodically questioning older adults about their hearing abilities annually.
- Dyslipidemia : Patients with prior MI or angina should be screened for lipid abnormalities annually.

Tertiary Prevention

Definition: Tertiary prevention refers to interventions designed to arrest the progress of an established disease and to control its complications.



7.8.3 Rehabilitative Services

Definition: Rehabilitation is a treatment designed to facilitate the process of recovery from injury, illness or disease to normal condition as possible.

1. Eating a healthy diet

- ♦ Especially rich in minerals and vitamins so as to provide necessary protection to the bones and from other host of illness too
- ♦ Includes also adequate water consumption

Four Simple Rules For Elderly Diet

- Divide the daily food intake into 3 – 4 small meals.

- Should eat foods like fruits, vegetables, which needs some chewing
- Advice them to take foods containing fibres like course cereals and vegetables
- Avoid fatty foods.

2. Regular yoga or Exercise Regime

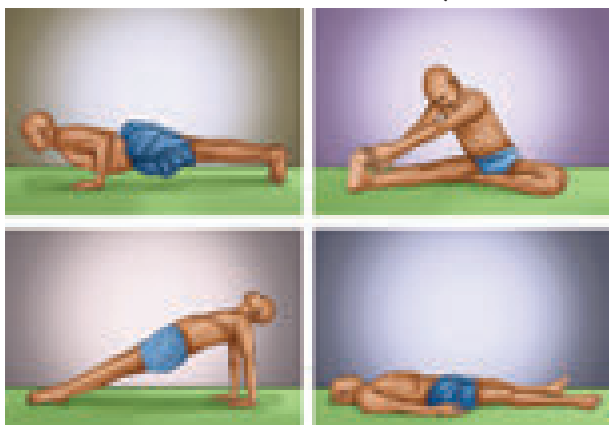
To follow a disciplined schedule of favourably yoga practices with or without mild exercises.

How senior citizen should do Yoga

- They should perform yoga under the guidance of yoga expert
- The instructor should be aware of the health concerns and ability level
- Reduce the length of time
- Encourage them and praise their effort
- Do not perform a lot of complicated poses

Best Yoga Asanas for Elderly

- | | |
|--------------------|----------------|
| • Shavasana | • Bhujanasana |
| • Uttanapadasana | • Makarasana |
| • Naukasana | • Anulom Vilom |
| • Pawanmuktasana | Pranayama |
| • Ardhashalbhasana | • Bhramri |
| • Shalbhasana | Pranayama |



Advantages of Yoga for Elderly

- * Yoga helps to reduce positive pressure and increase negative pressure

- * Yoga reduces urinary acidity and uropepsin
- * Reduction of high blood pressure, heart rate and coronary problems

3. Active Life Style

- It includes indulging in favourite part time of hobbies apart from the exercises.
- Prevents stagnation (Tamas) from accumulating causing further degeneration and depression.
- Should be motivated to do those activities. Which was always yearned to do while they were younger.

4. Take occasional alternative Therapies

- Massage
- Hydrotherapy
- Acupuncture
- Chromotherapy
- Diet therapy
- Ayurvedic rejuvenation therapies
- Physiotherapy
- Occupational therapy

5. Avoid harmful habits

- Smoking
- Strict dieting
- Alcohol
- High caffeine consumption

7.8.4 Home Based Care



- A home health nurse can assist in the care of the aged by helping the family to provide safe housing. Good diet, happy surrounding and some kind of recreation. This will help the old aged to overcome infection, mental stain and frustration, bed sore.

7.8.5 Old Age Pension for the General Public

- Indira Gandhi National Old Age Pension Scheme. (IGNOAPS)
- Started on 19th Nov 2007.
- All BPL (below poverty line) families
- All pension of 65 years or above
- Central assistance at the rate of Rs. 200 per month per beneficiary



Status have been urged to give matching accounts.



Major Government Initiatives

- National Policy On Older Person (NPOP) – 1999
- Recommendations by working group of planning commission – 2006 for nation programme
- Maintenance and welfare of parents and senior citizens Act – 2007
- Announcement of National Programme for health care of elderly during budget speech (2008 – 09)
- Approval of “National programme for health care of elderly by Ministry of Finance” – June 2010.

Annapurna

Free food grains (wheat or rice) upto 10 kg per month are provided to older persons 65 years or above who are other wise eligible for oldage pension under the national old age pension scheme.

Insurance Schemes

Rashtriyaswasthyabrmayojana

- It was from 1st April, 2008.
- Ministry of labour and employment, gross
- To provide health insurance coverage for BPL families.

Varistha Mediclaim Policy

- Covers hospitalization and domiciliary hospitalization expenses.
- Coronary artery surgery, cancer, renal failure, stroke, multiple sclerosis and major organ transplants. Paralysis and blindness are covered at extra premium.

Improving Quality Of Life

- Cultural programme
- Old age club
- Meals on wheel service
- Home help
- Old age home (Vruddhashrama)

7.9 COMMON DISORDER

- Immobility and rehabilitation
- Frequent falls
- Urinary incontinence
- Stroke rehabilitation
- Pressure / bed sores
- Laterogenic drug reactions

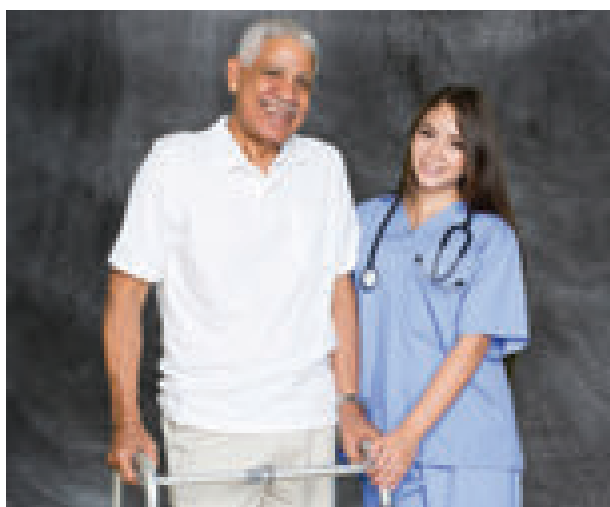
- Hypertension in the elderly
- Diabetes in older adults
- Arthritis and osteoporosis
- Prostate enlargement
- Eye diseases
- Cancer

7.9.1 Immobility and Rehabilitation

- Age changes in neurological and musculoskeletal system lead to high prevalence of disorders such as stroke, Parkinson disease, osteoarthritis and osteoporosis interact to make poor mobility.
- The goal of rehabilitation to reduce limitations of movement and to improve mobility.

Management

- Therapies to reduce pain and to increase in range of motion.
- Heat, cold, massage, electro therapy, hydrotherapy and ultraviolet radiation.
- Occupational therapy and braces, splints and prostheses, crutch may be used to enhance function.



7.9.2 Frequent Falls

Causes

- Several factors such as neurological, cardiovascular, musculoskeletal, otological and drugs (hypertension, bradycardia of sick sinus syndrome) causes falls.
- Poor vision
- Muscle weakness
- Insufficient lighting
- Uneven carpet or slippery floor

Management

- Careful history and physical examination.
- Assessment of standing balance and gait.
- CT of the brain, blood pressure monitoring.

7.9.3 Urinary Incontinence

Definition

The involuntary leakage of urine it means a person urinates when they do not want to

Causes

- Involuntary passage of urine due to loss of bladder control.
- Drugs, abdominal surgery, neurological diseases and physical disability either lead to precipitate inconvenience.
- Obesity
- Smoking
- Stress

Management

- Toilet training to anticipate and overcome episodes of incontinence
- Bladder relaxant
- Treatment of the cause
- Therapeutic devices(catheters)

7.9.4 Stroke

Definition: The sudden death of brain cells due to lack of oxygen caused by blockage of blood flow or rupture of an artery to the brain.

Causes

- ◆ Hypertension
- ◆ Smoking
- ◆ Alcohol
- ◆ Diabetes
- ◆ Cardiac diseases



Management

- Prevention and treatment of acute complications.
- Rehabilitation to minimise disability.
- Medical intervention to minimise impairment.
- Nursing Intervention (nutrition, skin care, positioning, bladder and bowel care)
- Drug therapy with anti platelet agents and hunting co-coagulants.

7.9.5 Arthritis and Osteoporosis



Definition of Arthritis

It is a painful inflammation and stiffness of the joints. Arthritis simply means inflammation of the joints. The symptoms include pain, swelling and stiffness with limitation of joint movements.

Causes

- ◆ Abnormal metabolism
- ◆ Genetic inheritance
- ◆ Infection
- ◆ Systemic lupus erythematosus

Definition of Osteoporosis

Osteoporosis means “porous bones” causing bones to become weak and brittle.

Causes

- ◆ Low bone mass
- ◆ Calcium and vitamin D deficiency
- ◆ Sedentary life style
- ◆ Thyroid problems
- ◆ Smoking



Management

- Taking diet rich in calcium and Vitamin D
- Avoiding tobacco, alcohol and excess of tea and coffee
- Brisk physical exercise
- Be active which really helps bone and prevents osteopenia.
- Reduce your chance of falling by making your bones safer.

7.9.6 Benign Prostatic Hypertrophy

Definition

- Enlargement of the periurethral position of the prostate lead to the obstruction of urinary outflow which begin with the fracture of prostatic hyperplasia and ends with urinary obstruction.

Causes

- ♦ Ageing
- ♦ High level of Dihydro testosterone
- ♦ Genetic

Management

- Transurethral resection of prostate was the mode of surgical treatment.
- Medical management with specific long activity adrenergic antagonists and a reductase inhibitors have been and with excellent results.

7.9.7 Diabetes in Older Adults

Definition: Diabetes mellitus is a chronic multisystem disease characterized by hyperglycemia related to abnormal insulin production and impaired insulin utilization.

Causes

- ♦ Auto immune
- ♦ Environmental factors

Management

- The lifestyle modifications, diet and nutrition, physical exercise.
- Overweight elderly should be advised to loss weight and abstain from alcohol and smoking.
- Oral hypoglycaemic drugs in NIDDM and insulin in IDDM.
- Insulin is indicated in NIDDM for proper control despite oral hypoglycaemic drugs in the presence of infections, ketosis, hyperosmolar state, surgery and diabetic neuropathy.

7.9.8 Hypertension in the Elder

Definition

Hypertension is defined as a persistent Systolic BP of 140mm Hg or more, Diastolic BP 90mm Hg or more.

Causes

- ♦ Over production of sodium retaining hormones.
- ♦ Increased sodium intake
- ♦ Diabetes
- ♦ Tobacco use
- ♦ Excessive alcohol intake

Management

- Weight and salt reduction and change in Lifestyle.
- Initially low dose diuretics of beta blockers are recommended.

7.9.9 Pressure Ulcer/Bed Sores

Definition: Pressure ulcer is localized injury to the skin and underlying tissue as a result of pressure or pressure in combination with shear.

Causes

- ♦ Excessive moisture
- ♦ Obesity
- ♦ Diabetes mellitus
- ♦ Occur due to ischemia, necrosis and ultimate ulceration of the tissue due to constant pressure at sites with are pressure prove.
- ♦ Immobile following surgery or a spinal cord injury can lead to bed sore

Management

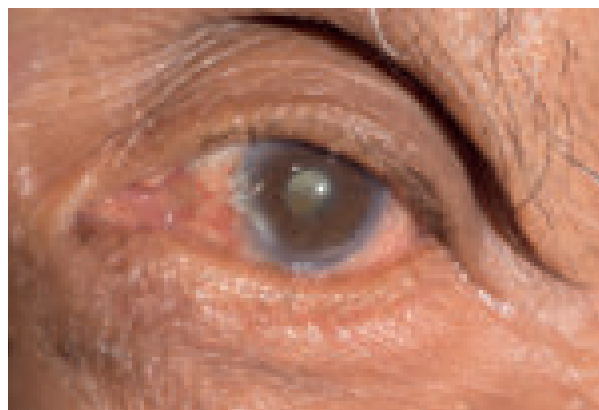
- Optimal nutrition can aid in the healing process –food rich in zinc and vitamin c (green, red and orange vegetables)
- keeping the wounds clean to prevent infection
- speed the healing process by keeping the wound moist and the surrounding skin dry
- pain management with more serious ulcer

7.9.10 Eye Diseases

Definition

A cataract is an opacity within the lens. Cataract is the commonest cause of Visual impairment in old age. Cataract is characterized by painless burning gradual loss of vision increased sensitivity to glare under general darkening of vision.

Cataract



Causes

- ♦ Maternal rubella
- ♦ Radiation or ultraviolet exposure
- ♦ Long term topical corticosteroids
- ♦ Diabetes mellitus

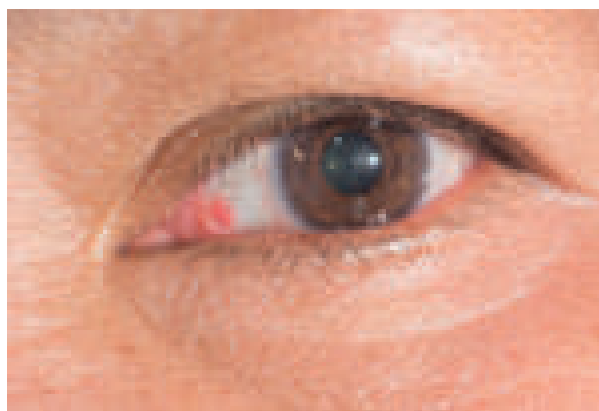
Management

- Surgery after the removal of the lens, which has now been replaced by the implantation of an inter ocular lens which restore near normal focusing ability.

7.9.11 Glaucoma

Definition

Glaucoma is a group of disorders characterized by increased IOP and the consequences of elevated pressure, optic nerve atrophy, and peripheral visual field loss.



Causes

- ◆ Lens bulging due to aging
- ◆ Damage to the optic nerve.
- ◆ Reduction in the outflow of aqueous humor

7.9.12 Cancer

Definition

Cancer is a group of diseases characterized by uncontrolled and unregulated growth of cells. Among elderly men concern of the prostate and colon are the most common while for women it is a breast cancer. Other concern found in geriatric patients are skin, lung and pancreas, bladder, rectum and stomach.

Causes

- ◆ Smoking and tobacco
- ◆ Diet and physical activity
- ◆ Sun and other type of radiation
- ◆ Viruses and other infection

Management

- Quit smoking
- Moderate your diet, diets high in fruits and vegetables may have a protective effect against many cancers.



Myths about Aged people

- Aged people are sick
- Aged people cannot learn new things
- Aged people are senile
- Aged people are poor
- Most Aged people live in nursing home
- It is too late for life style changes
- Aged people are unhappy

- Avoid excessive exposure to ionizing radiations.
- Regular physical activity and maintain a healthy body weight.

7.9.13 Drug Reactions

- Older patients are two or three times more vulnerable to drug reaction.
- Drug clearance is markedly reduced due to reaction in Renal blood flow and glomerular filtration rate.
- Distribution of the drug is also affected in old age due to reduction in total body weight content and their relative increases in body fat.
- Protein binding of the drug is decreased due to fall in serum albumin in old age.

CONCLUSION

The ageing process is a profound and life – changing experience. The body slowly begins to weaken, resistance to disease is decreased and recovery time is prolonged. Acute and chronic medical conditions become more common and life – disrupting condition such as incontinence and falls can severely affect independence and quality of life. Many people age 65 or older self – report some sort of disability. These may be minor or they may be significant requiring the older person to need skilled assistance. The ageing process is experienced differently by each of us. But age – related changes are inevitable. Apart from this the types of elderly care services and common disorders of elderly has been included.

A-Z GLOSSARY

Geriatrics (முதியோர்கள் பற்றிய மருத்துவத் துறை)	-	A branch of medicine that deals with the problem of diseases of old age and aging people.
Old age (முதுமை)	-	Period of life when impairment of physical and mental functions become increasingly manifested in comparison to the previous years of life.
Primary Prevention (முதன்மை தடுப்பு)	-	Refers to prevention of diseases.
Delirium (சித்தப்பிரமை)	-	Called acute confusional state and progresses to disorientation.
Dementia (ஞாபகமறதி)	-	Dementia and acute confusional state usually are the result of organic disease characterised by impairment of intellectual functions.
Arthritis (கீல்வாதம்)	-	Arthritis simply means inflammation of the joints.



EVALUATION



I Choose the correct answer:

- 1) Which information is obtained by the home health nurse when making a visit to an 88 years old with mild forgetfulness is of the most concern
 - a) The patients son uses a marked pillbox to set up the patients medications weekly
 - b) The patient has lost 10 pounds (4.5kg) during the last month
 - c) The patient is cared for by a daughter during the day and stays with a son at night
 - d) The patient tells the nurse that a close friend recently died
- 2) A 70 years old client asks the nurse to explain to her about hypertension an appropriate response by nurse as to why older clients often have hypertension is due to
 - a) Myocardial muscle damage
 - b) Reduction in physical activity
 - c) Ingestion of foods high in sodium
 - d) Accumulation of plaque on arterial walls
- 3) Which of the following interventions should be taken to help an older client to prevent osteoporosis
 - a) Decreased dietary calcium intake
 - b) Increase sedentary lifestyles
 - c) Increase dietary protein intake
 - d) Encourage regular exercise

- 4) The nurse is performing an assessment on an adult client which assessment data would indicate a potential complication associated with the skin
 - a) Crusting
 - b) Wrinkling
 - c) Deepening of expression lines
 - d) Thinning and loss of elasticity in the skin
- 5) An effective way to adequately provide nourishment to a patient with moderate dementia is
 - a) allowing the patient to choose foods from a varied menu
 - b) hand feeding the patients favourite foods
 - c) routinely reminding the patient about the need for adequate nutrition
 - d) serving soup in a mug and offering finger foods

II. Write short answer for the following questions:

- 1) Define ageing.
- 2) What is delirium.
- 3) Describe the primary prevention.
- 4) What is the four rules for elderly diet.
- 5) Define osteoporosis.
- 6) What are the services at sub-centre for elderly.
- 7) What are the common diseased conditions in elderly.



- 8) Define cataract.
- 9) What is macular degeneration.
- 10) Write down the sensory problems in old age.

III Write short notes for the following questions:

- 1) Explain the process of ageing.
- 2) What are the sensory problems in old age.
- 3) Write about the acute confusional state in ageing.
- 4) What are the characteristic changes take place in cardiovascular system.
- 5) What are the skin changes that occur in old age.
- 6) How do you assess the pulmonary changes in old age.
- 7) Explain the mechanism of ageing.
- 8) List out the old age pension schemes.
- 9) Write the evolutionary basis of ageing.
- 10) List out the common disorders in old age.

IV Answer the following questions in detail:

- 1) Explain in detail regarding stroke in old age and its management.
- 2) Describe the role of nurse in elderly care services.

- 3) Write in detail about home care management in old age.
- 4) What are all the preventive care services in old age.
- 5) Explain about the types of elderly care services.

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Unit 8

DISASTER MANAGEMENT



LEARNING OBJECTIVES

At the end of this chapter, the student should be able to

- ❖ define disaster
- ❖ list out the types of disaster
- ❖ explain the phases of disaster management
- ❖ enumerate the natural calamities.
- ❖ describe about disaster nursing
- ❖ analyse the epidemiologic surveillance and disease control
- ❖ discuss the role of nurses in disaster preparedness
- ❖ brief legal implication in disaster management.



திருக்குறள்:

வெள்ளத் தனைய இரும்பை அறிவுடையான்
உள்ளத்தின் உள்ளக் கெடும்.

விளக்கம்:

வெள்ளம் போல் அளவற்றதாய் வரும் துன்பமும், அறிவுடையவன் தன் உள்ளத்தினால் அத் துன்பத்தின் இயல்பை நினைத்த அளவில் கெடும்.

EXPLANATION:

A flood of troubles will be overcome by the (courageous) thought which the minds of the wise will entertain, even in sorrow.

8.1 INTRODUCTION

Disaster is any occurrence that causes ecology disruption, loss of human life, and deterioration of health services on a scale sufficient to warrant an extraordinary response from outside the community area.

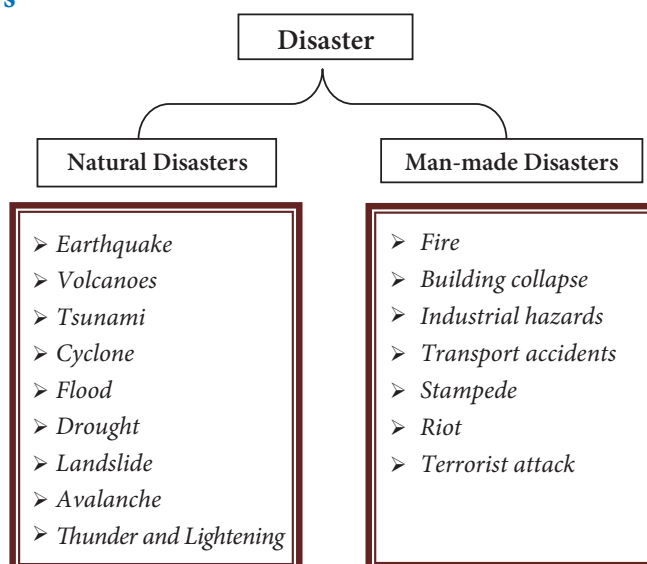
Disaster occurs suddenly and unexpectedly, disrupting the normal life and infrastructure of social services including health care system.

8.1.1 Definition

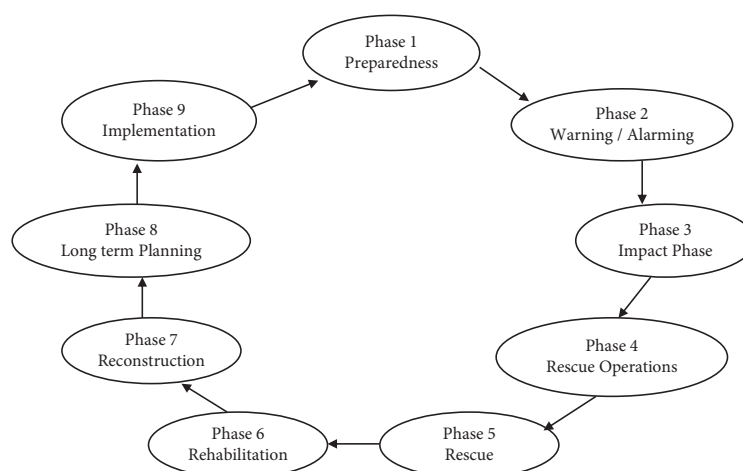
A disaster is a serious disruption of the function of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster Alphabetically means
D- destruction
I-incident
S-suffering
A-administrative and financial failure
S-sentiments
T-tragedies
E-eruption of communicable diseases
R-research programme and implementation.

8.1.2 Types of Disasters



8.2 PHASES OF DISASTER MANAGEMENT



8.2.1 Natural Calamities

Flood

When excess of water overflows, it submerges land and destroys everything that get in its way. This is called flood. Flood usually caused when the volume of water within a lake, river, or other body of water exceeds the total capacity of the body. Sometimes level rise and causes it overflow its channel.



Floods are the most common natural disaster in India

What to do before hand

While town planning it is the government's responsibility, individuals should find about risks in the area where they are living e.g. people who live in areas down stream from a dam should know the special signals when a dam threatens to break. Forecasting of floods or tidal waves is very difficult, but hurricanes and cyclones often occur at the same time of the year when particular vigilance must be exercised. They are often announced several hours or days before they arrive.

8.2.2 During Flood

- Turn off the electricity to reduce the risk of electrocution.
- Protect people and property (as soon as the flood begins, take the vulnerable group,

children, the old, sick and the disabled to an upper floor)

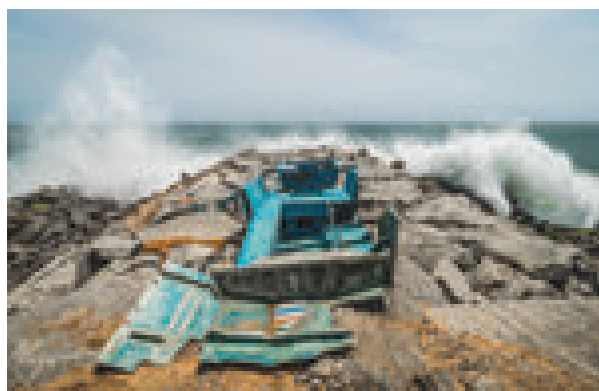
- Whenever possible, move personal belonging upstairs or go to raised shelters provided for use in floods.
- Beware of water contamination if the taste, colour or smell of the water is suspicious. It is vital to use some means of purification.
- Evacuate denser zones as ordered by the local authorities.

After a flood

When a flood is over, it is important, people do not return home until that told by local authorities, who will have ensured that buildings have not been undermined by water. From then on it is essential to;

- Wait until the water is declared safe before drinking.
- Clean and disinfect any room that has been flooded.
- Sterilize or wash with boiling water all dishes and kitchen utensils.
- Get rid of any food that has been in or near the water including canned foods and any food kept in refrigerators and freezers.
- Get rid of all consumables (drinks, medicines, cosmetics, etc.,)

8.2.3 Earthquakes





Earthquake is one of those type of natural disaster that strike without an early warning signal. An earthquake is the result of the sudden break within the uppercrust of the earth, which may also break the surface and lead to the vibration of the ground.



The world's largest earthquake with an instrumentally documented magnitude occurred on May 22nd 1960 near Valdivia in Southern Chile. It was assigned a magnitude of 9.5

What to do before hand

- Build in accordance with urban planning the regulations for risk areas.
- Ensure that all electrical and gas appliance in the house together with all pipes connected to them are firmly fixed.
- Avoid storing heavy objects and materials in high altitude.
- Hold family evacuation drills and ensure that the whole family knows what to do in case of an earthquake.
- Prepare a family emergency kit.

During an Earthquake

- Keep people calm – do not get panic.
- People who are indoors should stay there but move to the central part of the building.
- Keep away from the stairs, which might collapse suddenly.
- People who are outside should be away from buildings and collapsing walls and away from electric cables.
- Anyone in a vehicle should park it, away from bridges and buildings.

After an Earthquake

- Check if you or anyone else is hurt. Use first-aid for cuts and bruises.
- Keep the streets clear for emergency services.
- Switch off all appliances like the refrigerator, Television or Radio
- Turn off the gas (LPG).
- Wear shoes to protect your feet from debris.
- A battery-operated radio will help you to get important messages.
- Be prepared for more shocks.



Earthquakes occur most frequently in plate boundaries.

8.2.4 Fire Accident

A fire is defined as undesirable event which emits heat, smoke and or flame, which has the potential to cause damage either mechanical or manmade.

Some of the causes are:

1. Cooking equipment
2. Heating
3. Smoking in bedrooms
4. Candles
5. Curious Children
6. Faulty wiring
7. Flammable liquids
8. Ignorance, carelessness, faulty handling, indifference and recklessness of people



Effects of Fire Accidents

- Destroying houses, wildlife habitat and timber
- Polluting the air
- Permanently damages the human or animal's respiratory system and cause death

Precautions

- Keep all fires and heaters well guarded. Especially open fires.
- Keep open fires away from furniture's and curtains
- Do not smoke in the bedroom
- Never leave a pan unattended when deep frying because many fire starts in the kitchen
- If there are children around keep matches and lighters out of reach
- Fit approved smoke detectors and smoke alarm on each floor
- Plan an escape route
- If you suspect a gas leak, open the windows and turn off the supply

During

- React as soon as you hear the smoke alarm
- Safely exit through doors
- Protect yourself from smoke inhalation
- Stop, drop and roll if your clothes catch fire
- Call for help
- Use fire extinguishers to control the fire
- Don't stay and search for pets and belongings
- Never use an elevator to exit a building during the fire

After

- Cool off as soon as possible with water for first and second degree burns
- Don't break the blisters. Don't try to remove the adhere clothes from the burnt area
- Visit the nearby hospital

8.2.5 Clouds of Toxic Flames



What to do before hand

People in risk area should

- Find out the evacuation plans and facilities
- Familiarize themselves with the alarm signals used in case of an emergency
- Equip doors and windows with the tightest possible fastenings
- Prepare family emergency kit

During an Emergency

- Do not use the telephone, leave lines free for rescue services
- Listen to the messages given by radio and other media
- Carry out the instructions transmitted by radio or loudspeaker
- Close doors and windows
- Stop up air intakes
- Seal any cracks or gaps around windows and doors with adhesive tape
- Organize a reserve of water
- Turn off ventilators and air conditioners

After an Emergency

- Comply with the authorities' instructions and do not let go out until there is no longer any risk
- Carry out necessary decontamination



The Bhopal disaster also referred to as Bhopal gas tragedy was a gas leak incident on early morning of 2nd December 1984 at the Union Carbide India Limited (UCIL) pesticide plant in Bhopal, Madhya Pradesh, India. It was the world's worst industrial disaster.

Deaths – 3,787
Non fatal injuries – 5,58,125

8.3 DISASTER NURSING

It is the adaptation of professional nursing knowledge, skills and attitude in recognising and meeting the nursing and medical needs of disaster victims.

8.3.1 Basic Principles in Planning for Disaster Nursing

- N – Nursing plan should be integrated and coordinated
- U – Update physical and psychological preparedness
- R – Responsible for organising, teaching and supervision
- S – Stimulate community participation
- E – Exercise competence

8.3.2 START- Simple Triage Rabid treatment

- Those who are beyond help
- The injured who can be helped by

- The injured whose transport can be
- Those with injuries who need help less urgently

8.3.3 Epidemiologic Surveillance and disease control

- Implement as soon as possible all public health measures
- Organise a reliable disease reporting system
- To identify outbreaks and promptly initiate control measures
- Investigate all reports of disease outbreak rapidly

Vaccination - Health authorities are often under considerable public and political pressure to begin mass vaccination program usually against typhoid, cholera and tetanus.

Nutrition

- Assessing the food supplies after the disaster
- Assessing the nutritional needs of the affected population
- Calculating daily food rations and need for the larger population group
- Maintaining the nutritional status of the affected population

Protection Measures

- Water supply, priority of ensuring water availability in emergency situation, chlorination it is the best way of disinfecting water.
- Restrict access to people and animal if possible erect fence and appoint a guard
- Ensure adequate excreta disposal at a safer distance from water source
- Prohibit bathing, washing and animal



Priority	Colour of the tag	Condition
First (Immediate)	Red	Life threatened. have a high probability of survival
Second (Intermediate)	Yellow	Seriously injured Can delay treatment and transport for 2 hours
Third (waiting)	Green	Walking wounded Can delay transport 3 hours
Low priority	Black	Expectant, died victims, severely injured 100%

husbandry up-stream of intake points in rivers and streams

- Upgrade wells to ensure that they are protected from contamination
- Estimate the maximum yield of wells and if necessary ration the water supply
- All water tankers should be cleaned and disinfected before transporting water

Basic Sanitation and personnel hygiene

Many communicable diseases are spread through faecal contamination of drinking water and food. Hence every effort should be made to ensure the sanitary disposal of excreta. Emergency latrines should be made available to the displaced, where toilet facility have been destroyed, washing, cleaning and bathing facility should be provided to the displaced persons.

Vector Control

Vector borne diseases should be intensified in the emergency and rehabilitation period, especially in areas where such disease are known to be endemic. Special concerns are Dengue

fever and Malaria, Leptospirosis and rat bite fever, typhoid and plaque. Flood water provides chance for breeding opportunities for mosquitos.

8.3.4 Role in disaster preparedness

- Facilitate preparedness
- Initiate and update disaster plan
- Provide educational programme in specific area
- Organize disaster drills (mass drills)
- Provide updated record
- Educate the vulnerable population
- Nurse should seek safe environment
- Assess the environmental hazard
- Understand the community resources
- Physical readiness
- Professional readiness
- Community readiness.



8.4 CORE EMERGENCY PREPAREDNESS

The term emergency refers to any extraordinary event or situation that requires



an intense, rapid response and that can be addressed with existing community. Effective emergency response refers well-orchestrated team work in which each member knows what the lines of authority and communication are.

■ Required Elimination

1. Includes preparedness and response plans for relevant emergencies and threats (Natural, mechanical, biological and human)
2. Address the needs of visitors, structures and staff.
3. How to protect, evacuate and recover collection is the event of a disaster.
4. Assign individual responsibilities for implementation during the emergencies.
5. Include flood plan.

8.5 REHABILITATION

Rehabilitation, reconstruction and sustainable recovery refer to measures that help restore the livelihood assets and production levels of emergency-affected communities. These measures rebuild essential infrastructure, institutions, services and restore the means of production destroyed or made non-operational by a disaster.

Post disaster response has been typically at three (now four) levels.

Relief: Immediately after the calamity, lasting from the first 24 hours to about two to three months and catering to immediate shelter, food, water and medical assistance.

Reconstruction: Following relief and extending to a period of approximately two years, aimed at rebuilding the basic physical infrastructure and shelter to enable people to begin fresh start.

Rehabilitation: That looks at more long-term inputs of reinstating lost livelihoods, introducing new economic opportunities and improving land and water management processes so as to reduce people's vulnerability and enhance capacities to handle future calamities.

Readiness: A response which should ideally have been a proactive measure, it should enhance preparedness in identified vulnerable regions by introducing mechanisms and methods of construction that mitigate impacts of future disasters. Reconstruction and rehabilitation need to be in a seamless continuum with restoration efforts.

8.6 LEGAL IMPLICATION

Ethical and Legal Aspects of Disaster Response. Incorporation of ethical principles and legal standards into all phases of the disaster cycle is fundamental to effective and fair disaster response, but the complex information landscape makes meeting this goal challenging

8.6.1 Acts and Laws

The **Disaster Management Act, 2005**, was passed by the Rajya Sabha on 28 November, and by the Lok Sabha on 12 December 2005. It received the assent of The President of India on 9 January 2006. The Disaster Management Act, 2005 has 79 sections in set of 11 chapters. The Act extends to the whole of India. The Act provides for the effective management of disasters and for matters related with it.

The act provides formation of the following to combat disaster:

- National Disaster Management Authority



- State Disaster Management Authority
- District Disaster Management Authority

8.6.2 National Policy on Disaster Management (NPDM), 2009

Came into force October 22, 2009. The policy aims to have a safe and disaster resilient India. It provides for developing a proactive, holistic, multi-disaster facet and technology driven strategy through a culture of

- Preparedness
- Prevention
- Mitigation
- Response

As in National Policy on Disaster Management (NPDM), 2009, Central response follows two types of reliefs to Disaster Management. They are:

The primary relief functions of the Central Government are concerned with:

- Forecasting and operation of warning system
- Maintenance of uninterrupted communication
- wide publicity to warnings of impending calamity, disaster preparedness and measures through TV, AIR and Newspapers
- Transport with particular reference to evacuation and movement of essential commodities and petroleum products etc.

The secondary relief functions of the Central Government would relate to:

- flood inflow forecasts from the Central water Commission
- Relief, rehabilitation and restoration through military aid to civil authorities

- Contingency plans for crops, cattle preservation nutrition and health measures
- Technical and technological inputs for provision, drinking water etc.

8.6.3 Disaster Emergency Kit

When a natural disaster occurs, we can't always rely on police or government to provide help. The grocery stores might be so badly damaged that you can't go into it. The supplies in the store might be quickly depleted or you may not be able to get to the store.

The six basic supplies you need in a disaster kit are:

- Water, Food, First aid supplies
- Clothing, bedding and sanitation supplies, tools and special items

Water

- You should have a three-day supply of water on hand, or about one gallon per day per person
- If your water is not already treated with chlorine, add some household bleach to the bottles. It should be stored in a cool, dark place for no longer than six months

Food

- Put aside atleast three-days worth of food in your disaster kit that is non-perishable and don't need refrigeration
- Also, choose foods that don't need heating. Avoid foods with a high salt content as they will make you thirsty
- Foods that are recommended are Candy, chocolate, tea, coffee, Sugar, salt, pepper,

canned juice, milk, soup, canned fruits, meat, vegetables, Peanutbutter, jelly, food for babies and food for pets.



STUDENT'S ACTIVITY

Prepare the "Disaster management kit"



STUDENT'S ACTIVITY

Match the following:

A	B
1. Any extraordinary event or situation that requires an intense, rapid response	a) Manmade disasters
2. A proactive measure to enhance preparedness in vulnerable region	b) Forecasting and operation of warning signs
3. Building collapse and terrorist activity	c) Emergency
4. Primary relief function	d) Natural disasters
5. Earthquake and Tsunami	e) Readiness

CONCLUSION

Disaster is a serious disruption of the function of a community or a society involving widespread human, material and economical loss. There are various natural calamities like flood, earthquake, fire accident, cloud of toxic flames and Disaster Management can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters. Disaster

nursing is the professional knowledge, skill and attitude in meeting the nursing medical needs of disaster victims. Epidemiological surveillance comprised vaccination of disaster victim, nutrition supplies after disaster, provide basic sanitation and vector control. Rehabilitation measures included relief, reconstruction, readiness after the disaster devastation. Disaster management ensure disaster prevention, risk and vulnerability reduction, as a means of reducing the impact of disasters on society.

A-Z GLOSSARY

Earthquake (நிலநடுக்கம்)	-	An earthquake is the result of the sudden break within the upper crust of the earth, which may also break the surface and lead to the vibration of the ground.
Disaster Nursing (பேரிடர் செவிலியம்)	-	It is the adaptation of professional nursing knowledge, skills and attitude in recognizing and meeting the nursing and medical needs of disaster victims.
Relief (நிவாரணம்)	-	It is the measure taken immediately after the calamity, lasting from the first 24 hours to about two to three months and catering to immediate shelter, food, water and medical assistance.
Reconstruction (மறுசீரமைப்பு)	-	It is a period of approximately two years, aimed at rebuilding the basic physical infrastructure and shelter to enable people to begin afresh.
Rehabilitation (மறுவாழ்வு)	-	It is the long-term inputs of reinstating lost livelihoods, introducing new economic opportunities and improving land and water management processes.
Readiness (தயார்நிலை)	-	It is a proactive measure to enhance preparedness in identified vulnerable regions by introducing mechanisms and methods of construction that mitigate impacts of future disasters.



EVALUATION



I. Choose the correct answer:

- Which of the following is **not** the natural disaster?
 - Tsunami
 - Deforestation
 - Cyclone
 - Lightening
- The trembling of the earth's crust is known as
 - volcano
 - earthquake
 - Flood
 - cyclone
- Which of the following is a man-made disaster
 - Volcano
 - Land slide
 - Flood
 - Terrorist attack
- The first phase of disaster management is
 - Long term planning
 - Preparedness
 - Impact Phase
 - Warning Phase
- Which of the following activities is covered by Disaster Management before, during or after a disaster?
 - Reconstruction and Rehabilitation
 - Mitigation
 - Emergency response
 - All the above

- In the future, which of the following is expected to increase the risk of flooding?
 - population growth
 - urbanisation
 - climate change
 - all of the above.

II. Write short answer for the following questions:

- What is disaster?
- What is natural disaster?
- What is manmade disaster?
- What are the phases of disaster management?
- What is Flood?
- Define Disaster management.
- What is mean by earthquake?
- What are all the management to be taken for fire accident?
- What is expansion for START?
- Mention phases of rehabilitation in disaster management.

III. Write short notes for the following questions:

- Write brief note on disaster management kit.
- Legal implication in disaster management.



IV. Answer the following questions in detail:

1. Explain about the phases of disaster management.
2. Write the management for flood.

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Unit 9



ADMINISTRATION OF MEDICINE



LEARNING OBJECTIVES

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

- ❖ define the terminologies used in pharmacology
- ❖ gain basic knowledge regarding drugs, forms and prescription of medication
- ❖ understand the effects of drugs on body
- ❖ compare and contrast the routes of administration of drugs
- ❖ discuss how the medicines are stored and safety measures to be followed
- ❖ extrapolates the rights for administration of drugs
- ❖ identify the ethical and legal aspects involved in administration of medicines



திருக்குறள்:

உற்றவன் தீர்ப்பான் மருந்துழைச் செல்வானென்று
அப்பால் நாற்கூற்றே மருந்து.

விளக்கம்:

நோயுற்றவன், நோய் தீர்க்கும் மருத்துவன், மருந்து, மருந்தை அங்கிருந்து கொடுப்பவன் என்று
மருத்துவ முறை நான்குவகைப் பாகுபாடு உடையது.

Explanation:

For patient, leech, and remedies, and him who waits by patient's side, The art of medicine must fourfold
code of laws provide.

9.1 INTRODUCTION

The science of man is also changing and human physiology has changed a lot since the time, the branch of pharmacology began. Science in general changed completely as far back as 1925 with Werner Heisenberg's uncertainty principle. Drug administration is the major responsibility of the nurses. To handle the drugs, nurses should have the basic knowledge of action, adverse effects, indication and contraindication of commonly used drugs and nursing responsibilities while administering the drug.



9.2 DEFINITIONS

Pharmacology is the study of the interaction of chemicals with living systems. The term pharmacology is obtained from the Greek word “pharmakon” which means as drug and “logos” means the study of science.

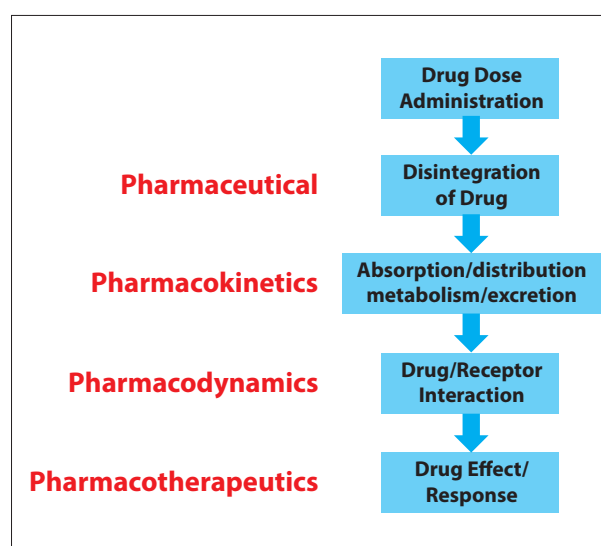
Drugs are chemicals that act on living systems at the chemical (molecular) level. The term drug is derived from the French word “drogue” which means “dry herb”.

Medical pharmacology is the study of drugs used for the diagnosis, prevention, and treatment of disease.

Toxicology is the study of the untoward effects of chemical agents on living systems. It is usually considered an area of pharmacology.

Pharmacodynamic properties of a drug describe the action of the drug on the body, including receptor interactions, dose-response phenomena, and mechanisms of therapeutic and toxic action.

Pharmacokinetic properties describe the action of the body on the drug, including absorption, distribution, metabolism, and excretion. Elimination of a drug may be achieved by metabolism or by excretion



9.3 BASIC KNOWLEDGE REGARDING DRUG

The Nature of a Drug

The drug molecule interacts as an agonist (activator) or antagonist (inhibitor) with a specific molecule in the biologic system that plays a regulatory role. This molecule is called a receptor. Drugs may be synthesized within the body like hormones or may be chemicals not synthesized in the body like xenobiotics.

Poisons are also drugs that have exclusively harmful effects. Toxins are usually defined as poisons of biologic origin, i.e., synthesized by plants or animals. A drug is



often administered at a location distant from its intended site of action. Therefore, a useful drug must have necessary properties to be transported from its site of administration to its site of action.

The Physical Nature of a Drug

Drugs may be solid at room temperature (e.g, aspirin, atropine), liquid (e.g, nicotine, ethanol), or gaseous (e.g, nitrous oxide). These factors often determine the best route of administration.

Drug Size

The molecular size of the drug varies from very small to larger one. If the molecular size of the drug is very small it easily diffuses the cellular compartments, in case of larger, the drug is administered directly into the vascular compartment by intravenous or intra-arterial infusion.

Drug reactivity and Drug-receptor bonds

Drugs interact with receptors by means of chemical forces or bonds. There are three major types like Covalent, Electrostatic, and Hydrophobic.

Drug Shape

The Shape of a drug molecule must be such as to permit binding to its receptor site via the bonds.

9.4 SOURCES OF DRUGS

Drugs are obtained from various sources like plants, animals, microbial, mineral, synthetic and semi synthetic after repeated extraction and purification.

Plant Sources

Most of the drugs are obtained from the plant sources.

E.g. Morphine extracted from the plant OPIUM through the principle of ALKALOID.

Opium Alkaloid Extraction



Animal Sources

Microbial Source: *Example: Penicillin*

Mineral Source: *Example: Aluminium Hydroxide.*

Synthetic Source: *Example: Analgesics*

Semi Synthetic Source: *Example: Atropine*

Animals			
Animal	Part	Drug	Use
Cow	Pancreas	Insulin	Antidiabetic hormone
Fish	Sperms	Protamine sulphate	Antidote of heparin
Pig	Intestine	Heparin	Anticoagulants
Ox	Lungs	Heparin	Anticoagulants

DO YOU KNOW?

Source of drugs

- Way back when, plants were the primary source of drugs used on the human body.
- Plants such as:
 - Bark
 - Berries
 - Leaves
 - Resin from trees
 - Roots
- These all act on the body and are still used today!
- Allopathy

9.5 PICTORIAL REPRESENTATIONS OF ABSORPTION OF DRUGS

1st Pass Hepatic Metabolism

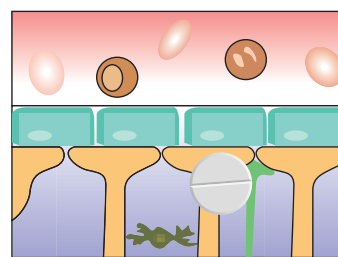
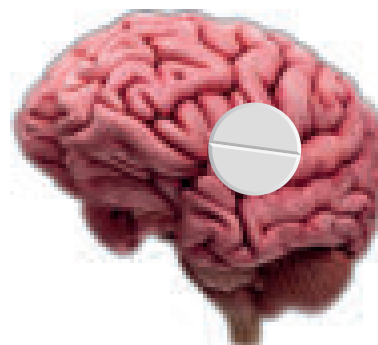
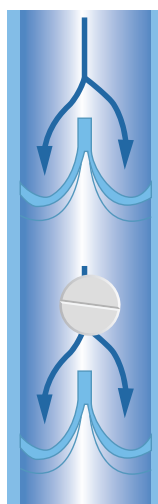
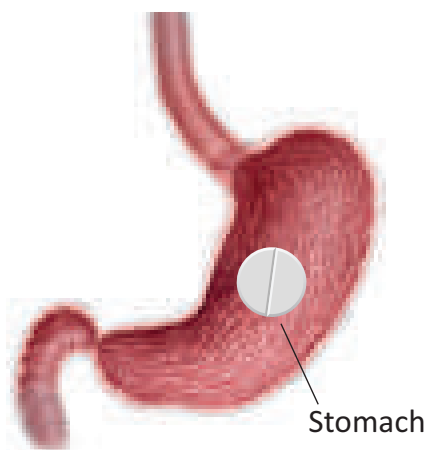
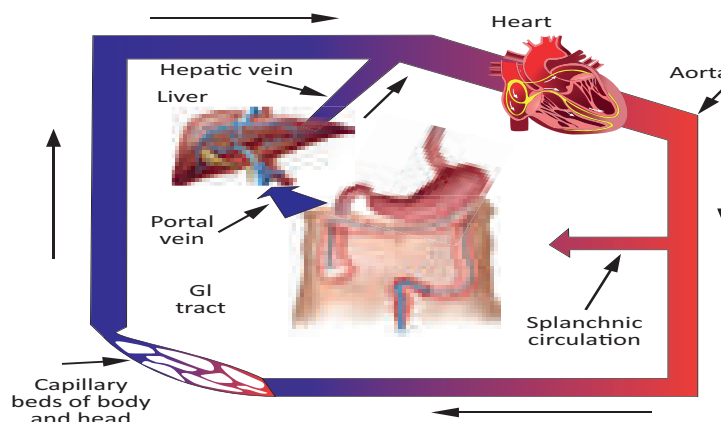
After oral administration

Absorption from GIT

↓
Portal Circulation

↓
Liver

↓
Systemic Circulation



Neuron



Most drugs are absorbed primarily in the small intestine. In general, it takes approximately 30 minutes for most medication to dissolve. Special coated medicine may take longer time for the therapeutic to reach the bloodstream.

9.6 DRUG FORMS

We take medications to diagnose, treat, or prevent illness. They come in lots of different forms and we take them in many different ways. You may take a drug yourself, or a healthcare provider may give it to you.

Drugs can be dangerous, though, even when they're meant to improve our health. Taking them correctly and understanding the right way to administer them can reduce the risks. A dosage form of a drug is a product designed for administration to the body in the diagnosis or treatment of disease. The most important dosage forms of drug are as follows:

DIFFERENT FORMS OF DRUGS



SL. NO.	FORMS	DESCRIPTION
1	Tablet	Tablets coated with gelatin that gets dissolved in stomach
2	Capsule	Powder or gel form of drug encased in a hard or soft outer casing that gets dissolved in a stomach
3	Liniments	Mixture of drugs with oil, soap, water , alcohol that is applied on the skin
4	Ointment	Semisolid preparation of a drug in petrolium form



5	Paste	Semisolid form of a drug , thick and stiff than the ointment, that is applied to and observed by the skin
6	Patch(transdermal)	Drugs encased in a manufactured material that allows continuous drug absorption through the skin at a steady manner
7	Plaster	Solid preparation used as a counter irritant or as an adhesive externally
8	Suppository	A several drugs mixed in a firm base such as glycerinated gelatin and shaped for insertion into the body cavity.
9	Syrup	Drugs dissolved in a solution containing water and sugar
10	Lotion	Drugs in liquid suspension intended for external use

9.7 PRESCRIPTION OF MEDICATION

The prescription is a written order by a physician to the pharmacist to prepare, dispense specific medication for a specific patient. A specific pattern should be followed in writing prescriptions in order to safe guard the patient. The following points should be remembered in writing a prescription.

1. The writing should be legible. The name of the drugs to be in capital letters
2. Indelible ink should be used for writing
3. Abbreviations should be avoided.
4. Generic names of the drug should be written below the brand names
5. In writing quantities, decimals should be avoided
6. Less than 1gm should be written as milligrams. Eg. 200mg and not 0.2g

7. Blank spaces should be avoided between direction and the signature of the doctor.

9.7.1 Parts of a Prescription

Date, address of the prescriber- preferably, the orders should be in the letter pad., name, age ,sex of the patient, IP or OP number, superscription(Rx) drug name and strength, directions to the patient and signature of the prescriber.

Model prescription

1. Name: Mr. A
2. Date: 13.10.2018
3. Age: 70 years
4. Sex: Male
5. Address: Chennai
6. IP No: xxx
7. Diagnosis: Idiopathic parkinsonism

8. Rx
9. Tab. Levodopa 100mg
Tab. Carbidopa 25mg
10. Take 2 tablets by mouth 3 times daily with breakfast, lunch and dinner. Take with food.
11. Dr. yy
12. Assistant prof. Neurology
13. MMC, Chennai.
14. Phone no: xxx
15. Reg.no: yy

9.8 CLASSIFICATION OF DRUGS BASED ON THEIR ACTION

Sl. No	Classification	Action
1	Analgesics	Drugs used to relieve pain. E.g. diclofenac
2	Anaesthetics	Drugs which cause loss of sensation. E.g. Nitrous oxide
3	Antipyretics	Drugs which reduce fever. E.g. dolo
4	Antidotes	Substances used to counteract the effect of poison. E.g. charcoal
5	Antacids	Substances which counteracts acidity or neutralizes acid. E.g. gelucil
6	Antiemetics	Drugs that prevent or relieve nausea and vomiting. E.g. emeset
7	Anti coagulant	Drugs used to prevent or inhibit coagulation. E.g. heparin
8	Anti histamine	Drugs used to treat allergies. E.g. avil
9	Diuretics	Drugs which increases the secretion of urine. E.g. lasix
10	Emetics	Drugs which produce vomiting. E.g. apomorphine
11	Hypnotics	Drugs which induce sleep. E.g. diazepam
12	Expectorants	Drugs which increases the expulsion of the bronchial mucus secretion. E.g. mucinex
13	Sedatives	Drugs which exerts a smoothening or tranquilizing effect. They may be general or local. E.g. benzodiazepine
14	Narcotics	Drugs which produce sleep and relieve pain. E.g. morphine
15	Antibiotics	Drugs that have the ability to destroy the growth of microorganisms. E.g. penicilin

16	Vasodilators	Drugs which dilate the blood vessels. E.g. nitroglycerine
17	Vasoconstrictors	Drugs that cause constriction of blood vessels. E.g. amphetamines
18	Hypoglycemic	Drugs that lower the blood glucose level. E.g. insulin
19	Mydriatics	Drugs that dilate the pupils of the eyes. E.g. cyclogyl
20	Myotics	Drugs that contract the pupils of the eye. E.g. pilocarpine



STUDENT'S ACTIVITY:

UNSCRAMBLE THE FOLLOWING LETTERS FOR A WORD

Drugs prescribed for allergy	-	tina histamnei
Drugs to treat hypertension	-	tina perhysivesten
Drugs to combact infections	-	tina ticsiob
Drugs as analgesics	-	sadins
Drugs to relieve constipation	-	xalaivest
Drugs for mentally ill clients	-	tina sypohctics
Drugs to dissolve the clot	-	ticslyromboth

9.9 EFFECTS OF DRUG ON BODY

Here we come across with Pharmacokinetics and Pharmacodynamics of the drug.

Pharmacokinetics – It describes the movement of the drug in our body, about its absorption, distribution, metabolism and excretion.

Pharmacodynamics – It describes about the mechanism of action of a drug at cellular, sub-cellular, and at molecular levels. The important principles of mechanism of action are stimulation, depression, replacement, irritation and cytotoxic action.

9.9.1 Adverse Drug Effects

Side effects: They are the unwanted but often unavoidable consequences of administered drug. E.g., aspirin produces gastric ulcer.

Toxic effects: They are due to over dosage or prolonged use. e.g., paracetamol causes hepatotoxicity..

Teratogenicity: It refers to the capacity of a drug to cause foetal abnormalities when administered to a pregnant mother. E.g., Tetracycline

Idiosyncrasy: It is a genetically determined abnormal reaction to a drug in an unusual manner. E.g., barbiturates.



TAB. PARACETAMOL is dangerous to take more than eight 500 mg or six 650 mg tablets in 24 hours as you may damage your liver, which may be irreversible and fatal.

Drug dependence: Drugs capable of altering mood and feelings on repeated use of such drugs. E.g., morphine

Iatrogenic disease: This a physician induced or drug induced disease. E.g., peptic ulcer by salicylates.

Drug allergy: It is an immunologically mediated unpredictable reactions which are not related to the therapeutic effects.

Carcinogenicity and Mutagenicity: It is the capacity of a drug to cause cancer. e.g., anabolic steroids.

9.10 STORING OF MEDICINE AND SAFETY MEASURES

1. Most medications should be stored in a dry place away from heat and humidity.
2. If the medication needs to be protected from light, it should be stored in a container that keeps out light.
3. If the medication needs to be refrigerated, and you do not have a fridge available, use a cooler with an ice pack.
4. Keep track of the expiry dates of the medications by asking the pharmacy team to put this information on your medication vial.
5. Don't store multiple medications in the same vial, as this makes it hard to keep tracing of which medications are which, which doses have been taken, and what are the expiry dates.

6. Put all medicine up and away, out of children's reach and sight.
7. Close your medicine caps tightly after every use.
8. Choose child-resistant caps for medicine bottles. If pill boxes or non-child resistant caps are the only option, it's even more important to store these containers up high and out of sight when caring for kids.

9.10.1 How to administer medicine Safely

1. Use the dosing device that comes with the medicine. Proper dosing is important, particularly for young children.
2. Kitchen spoons aren't all the same, and a teaspoon or tablespoon used for cooking won't measure the same amount as the dosing device.
3. Keep all medicine in their original packages and containers.
4. Take the time to read the label and follow the directions. Even if you have used the medicine before, sometimes the directions change about how much medicine to give.



The important life saving drug also has its own side effects.

Aspirin Side Effects

A Asthma
Salicyalism
S Peptic ulcer disease/
P Phosphorylation-oxidation
Uncoupling/ PPH/
Platelet disaggregation/
Premature closure of PDA
I Intestinal blood loss
R Reye's syndrome
I Idiosyncrasy
N Noise (tinnitus)





5. Even if your child seems really sick, don't give more medicine than the label says. It won't help your child feel better faster, and it may cause harm.
6. Read the label and know what's in the medicine. Check the active ingredients listed on the label.
7. Make sure you don't give your child more than one medicine with the same active ingredient, because it puts your child at risk for an overdose.

9.10.2 Get Rid of Medicine Safely

1. Clean out your medicine cabinet. Reduce the risk of kids getting into medicine by getting rid of unused or expired medicine.
2. Many communities have a medicine take-back program. This is an easy way to get rid of your unused or expired medicine.
3. To dispose of it yourself, pour the medicine into a sealable plastic bag. If the medicine is a pill, add water to dissolve it. Then add kitty litter, sawdust or coffee grounds to the plastic bag.

4. The Food and Drug Administration (FDA) says that the drugs which are so dangerous, should be flushed down the toilet.

9.11 ROUTES OF ADMINISTRATION

A route of administration is the path by which a drug, fluid, poison or other substance is brought into contact with the body. For instance,



some drugs are destroyed by stomach acid if they are taken by mouth. So, they may have to be given by injection. The principle method of giving drugs is by mouth, and the doses which are not otherwise specified are assumed to be oral doses.

The route used to give a drug depends on three main factors:

- The part of the body being treated
- The way the drug works within the body
- The formula of the drug

Guidelines for administering medication

Full name, address, license number, phone number of prescribing physician

Name of medication

Date of order

Strength and dosage of drug

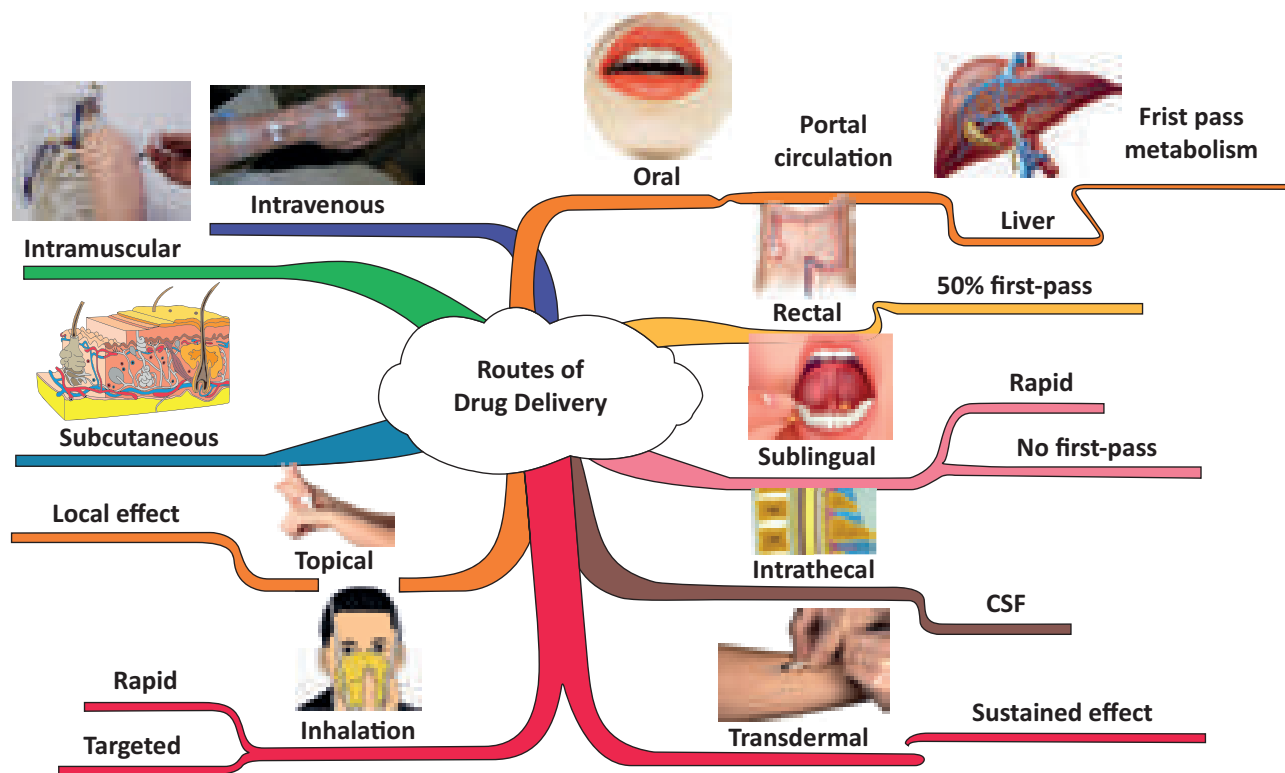
Frequency

Indication

Stop dates if applicable

Physician signature

Verbal orders should be written correctly in a separate Paper and signed.



Doctors, nurses, and other healthcare providers are trained, how to administer medication safely. Administration of medication requires thorough understanding of the drug including,

- ❖ how it moves through the body
- ❖ when it needs to be administered
- ❖ possible side effects and dangerous reactions
- ❖ proper storage, handling, and disposal

Sl. No.	Route	Explanation
1	Buccal	Held inside the cheek
2	Enteral	Delivered directly into the stomach or intestine
3	Inhalable	Breathed in through a tube or mask
4	Infused	Injected into a vein with an IV line and slowly dripped in over time
5	Intramuscular	Injected into muscle with a syringe
6	Intrathecal	Injected into your spine
7	Intravenous	Injected into a vein or into an IV line
8	Nasal	Given into the nose by spray or pump

9	Ophthalmic	Given into the eye by drops, gel, or ointment
10	Oral	Swallowed by mouth as a tablet, capsule, lozenge, or liquid
11	Otic	Given by drops into the ear
12	Rectal	Inserted into the rectum
13	Subcutaneous	Injected just under the skin
14	Sublingual	Held under the tongue
15	Topical	Applied to the skin
16	Transdermal	Given through a patch placed on the skin

9.11.1 Pros and Cons of different routes of Administration of Drugs

Sl. No.	Route	Advantage	Disadvantage
1	Oral	<ul style="list-style-type: none"> ➤ Easy ➤ Preferred by patients ➤ Slow-release preparations may be available to extend duration of action ➤ Drugs can be formulated in such a way as to protect them from digestive enzymes, acid, etc. 	<ul style="list-style-type: none"> ➤ Unsuitable in patients who are uncooperative, strictly “nil by mouth”, are vomiting profusely or have ileus ➤ Most orally administered drugs are absorbed slowly ➤ Unpredictable absorption due to degradation by stomach acid and enzymes
2	Rectal	<ul style="list-style-type: none"> ➤ Good absorption – the haemorrhoidal veins drain directly into the inferior vena cava, avoiding hepatic first pass metabolism 	<ul style="list-style-type: none"> ➤ May not be suitable after rectal or anal surgery ➤ Some patients dislike suppositories
3	Subcutaneous or Intramuscular	<ul style="list-style-type: none"> ➤ Good absorption, especially for drugs with a low oral bioavailability ➤ Onset is more rapid than the above routes ➤ Depending on formulation can have very long duration of action, e.g. depot antipsychotics and contraceptives 	<ul style="list-style-type: none"> ➤ Absorption may still be unpredictable if peripheries are poorly perfused ➤ Injections hurt, cause bruises and frighten children and needle phobics

4	Intravenous	<ul style="list-style-type: none"> ➤ Dependable and reproducible effects ➤ Entire administered dose reaches the systemic circulation immediately ➤ The dose can be accurately titrated against response 	<ul style="list-style-type: none"> ➤ Requires a functioning cannula ➤ More expensive and labour intensive than other routes. ➤ Cannulation is distressing to some patients, especially children ➤ Cannulae are prone to infection ➤ IV injection of drugs may cause local reactions
5	Topical	<ul style="list-style-type: none"> ➤ Easy ➤ Non-invasive ➤ High levels of patient satisfaction 	<ul style="list-style-type: none"> ➤ Most drugs have a high molecular weight and are poorly lipid soluble, so are not absorbed via skin or mucous membranes ➤ Very slow absorption
6	Inhaled	<ul style="list-style-type: none"> ➤ Very rapid absorption due to the huge surface area of the respiratory endothelium ➤ Bronchodilators and inhaled steroids can be targeted to lungs with low levels of systemic absorption 	<ul style="list-style-type: none"> ➤ Bioavailability depends on patient's inhaler technique and the size of drug particles generated by the delivery technique

9.12 RIGHTS OF DRUG ADMINISTRATION

It is the responsibility of the nurse to understand the basic concept of safe, therapeutic and rational use of drugs. Healthcare providers are trained in all of these issues. In fact, many healthcare providers keep in mind the “Eight rights” when they administer drugs. But the recent advancements says depending upon the institutional policies these may vary in number.

- ❖ Right drug
- ❖ Right patient
- ❖ Right route
- ❖ Right dose
- ❖ Right frequency/time
- ❖ Right response
- ❖ Right reason
- ❖ Right evaluation
- ❖ Right education
- ❖ Right documentation
- ❖ Right to refuse

- ❖ Right principle of care
- ❖ Right prescription
- ❖ Right nurse clinician



STUDENT'S ACTIVITY

Visit a pharmaceutical company and
Visit a medical shop and prepare a report.



COMMON CONVERSION FACTORS

1 kilogram (kg)	2.2 pounds (lb)
1 pound (lb)	454 grams (g or gm)
1 kilogram (kg)	1000 grams (g or gm)
1 gram (g or gm)	1000 milligrams (mg)
1 milligram (mg)	1000 micrograms (mcg)
1 cc (cubic centimetre)	1 ml millilitre (ml)
1 inch (in)	2.54 centimetres (cm)
1 grain (gr)	60 milligrams (mg)
1 cup	240 millilitre (ml)
8 ounces (oz)	1 cup
16 ounces (oz)	1 pint (pt)
1 ounce (oz)	30 millilitre (ml)
1 teaspoon (tsp)	5 millilitre (ml)
1 dram	4 millilitre (ml)
1 tablespoon (T or tbs)	15 millilitre (ml)
2 tablespoons (T or tbs)	1 Ounce
3 teaspoons (tsp)	1 tablespoon (T or tbs)
1 teaspoon (tsp)	75 gtt (drops)
1 millilitre (ml)	16 minims
1 millilitre (ml)	15 drops (gtt)
1 litre (L)	1000 millilitre (ml)
37.0 ° C (Centigrade degrees)	98.6° F (Fahrenheit degrees)



The Nursing Students and the Nurses should be familiar with commonly used conversion tables and commonly used abbreviations. Below are few important list.

COMMON ABBREVIATION

O.S.	LEFT EYE
O.U.	BOTH EYES
P.C.	AFTER MEALS
P.M.	EVENING; AFTER NOON
P.O.	BY MOUTH; ORALLY





<i>P.R.</i>	<i>RECTALLY</i>
<i>P.R.N.</i>	<i>AS NEEDED (FOR)</i>
<i>P.V.</i>	<i>VAGINALLY</i>
<i>Q</i>	<i>EVERY; PER</i>
<i>Q12; Q. 12 H.; Q12°</i>	<i>EVERY 12 HOURS</i>
<i>Q1-2; Q. 1-2 H.; Q1-2°</i>	<i>EVERY 1 TO 2 HOURS</i>
<i>Q.A.D.; Q.O.D.</i>	<i>EVERY OTHER DAY</i>
<i>Q.A.M.</i>	<i>EVERY MORNING; EVERY DAY BEFORE NOON</i>
<i>Q.D.</i>	<i>EVERY DAY</i>
<i>Q.H.S.</i>	<i>EVERY DAY AT BEDTIME</i>
<i>Q.I.D.</i>	<i>4 TIMES A DAY</i>
<i>RX</i>	<i>PRESCRIPTION</i>
<i>SL; S.L.</i>	<i>SUBLINGUALLY; UNDER THE TONGUE</i>
<i>T.I.D.</i>	<i>3 TIMES A DAY</i>
<i>BD</i>	<i>2 TIMES A DAY</i>
<i>OD</i>	<i>ONCE A DAY</i>

9.13 LEGAL AND ETHICAL ASPECTS

Indian pharmacopoeia: Drug complying with standards are prescribed in the Drugs and Cosmetics Act Standards include standards for identity, purity and potency. The government of most of the countries have established the drug standards which are published in the pharmacopoeia. In our country, the ministry of health and family welfare of Indian government, published third edition by the year 2000.

The drug and cosmetic act provides for the establishment of three control agencies to regulate, manufacture, sale, distribute, import and export of drugs.

1. Advisory agencies
2. Analytical agencies
3. Executive agencies

9.13.1 Drug Laws

1. The pharmacy act 1948
2. Dangerous drug act 1930
3. Drug and cosmetic act 1940
4. Medicinal and toilet preparation act 1956
5. Poisons act 1919

9.13.2 National Patient Safety Goals

These safety goals are based upon needs that are identified in the healthcare through research, patient reports, and clinician input.

1. To improve accuracy and identification of patient
2. Report critical lab tests that could affect medication administration
3. Improve the safety of using medication

PATIENT SAFETY GOALS



9.13.3 General Instruction for Legal Consideration

- Always check patient's identification tag
- Ask patient to state their name and birth date.
- Compare medication order to identification tag and patient's stated name and birth date.
- Verify patient's allergies with chart and with patient.
- Perform a triple check of the medication's label
 - When retrieving the medication.
 - When preparing the medication.
 - Before administering medication to patient.
- Always check the medication label with the physician's orders.
- Never administer medication prepared by another person
- Never administer medication that is not labeled
- Check label for medication concentration.
- Compare prepared dose with medication order.
- Triple all medication calculations.
- Check all medication calculations with another nurse.
- Verify that dosage is within appropriate dose range for patient and medication.
- Verify schedule of medication with order.
 - Date
 - Time
 - Specified period of time
- Check last dose of medication given to patient.
- Administer medication within 30 minutes of schedule.
- Verify medication route with medication order before administering.
- Medication may only be administered via route specified in order
- Inform patient of medication being administered.



- Inform patient of desired effects of medication.
- Inform patient of side effects of medication.
- Ask patient if they have any known allergies to medication
- The legally responsible party (patient, parent, family member, guardian, etc.) for patient's care has the right to refuse any medication.
- Inform responsible party of consequences of refusing medication.
- Verify that responsible party understands all of these consequences.
- Notify physician that ordered medication and document notification.
- Document refusal of medication and that responsible party understands consequences.
- Properly assess patient and tests to determine if medication is safe and appropriate.
- If deemed unsafe or inappropriate, notify ordering physician and document notification.
- Document that medication was not administered and the reason that dose was skipped.
- After medication has been administered
- Assess patient for any adverse side effects.
- Assess patient for effectiveness of medication.
- Compare patient's prior status with post medication status.
- Document patient's response to medication.
- Never document before administration of medicine.

■ Do's and Don'ts

- ❖ Do not give out dated or expired medication
- ❖ Do not give medication beyond stop date
- ❖ Do not administer medication that have changed colour or consistency
- ❖ Administer medication that are taken only from properly labeled or prescribed container

CONCLUSION

Considering the needs of the nursing students, the subject matter is prescribed very briefly to understand the essence of pharmacology and know their responsibilities while practicing as a nurse at all settings. Drugs may be prescribed to promote healing, cure disease control or slow progression of disease, prevent disease, decrease risk of complications, increase comfort level, reduce excessive activity in the body. Therefore it's the duty of the nurses to flourish with adequate knowledge, skill and attitude among the health care professionals to make our profession in flying colours.

A-Z GLOSSARY

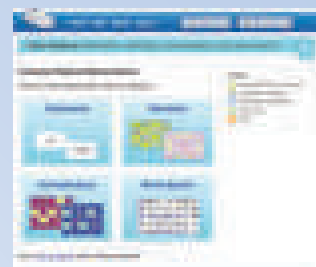
Pharmacology (மருந்தியல்)	-	The branch of medicine concerned with the uses, effects, and modes of action of drugs.
Principle (கொள்கை)	-	A fundamental truth that serves as the foundation for a system of belief or behaviour or for a chain of reasoning.
Contraindication (தேவைப்படாதவர்கள்)	-	A particular technique or drug should not be used in that case
Opioids (அபின்)	-	A compound resembling opium in addictive properties or physiological effects.
Toxicology (நச்சியல்)	-	The branch of science concerned with the nature, effects, and detection of poisons.
Sources (ஆதாரங்கள்)	-	A place, person, or thing from which something originates or can be obtained.
Antihistamines (ஒவ்வாமை முறி)	-	A drug or other compound that inhibits the physiological effects of histamine, used especially in the treatment of allergies.
Antipsychotic (மனநோய் எதிர்ப்பு)	-	A drug used to treat psychotic disorders.
Analgesics (வலி நிவாரணி)	-	Painkilling drug, pain reliever, palliative.
Pharmacopoeia (மருந்தின் குணங்கள்)	-	An official publication containing a list of medicinal drugs with their effects and directions for their use. A stock of medicinal drugs.



ICT Corner

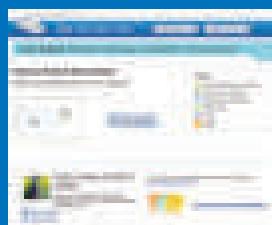
Learning Abbreviations

This activity enables the students
to enrich themselves
With abbreviations they have
learnt



- Step 1:** Type the URL link given below in the browser or scan the QR code. A page opens with “Flash Cards, Matching, Concentration and word search”
- Step 2:** Click the image to explore the functions. There are four types of games. Each have their own individual value
- Step 3:** When you click open the games you can play as per direction
- Step 4:** If you open the concentration game two upside down cards have to match ie one abbreviation another one expansion

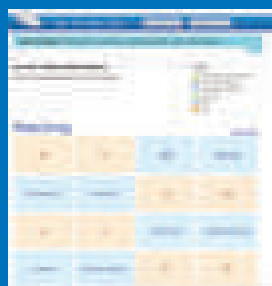
Step 1



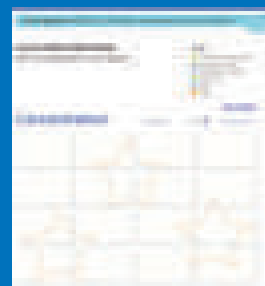
Step 2



Step 3



Step 4



*Pictures are indicative





EVALUATION



I. Choose the correct answer:

1. The study of dose, distribution, metabolism and excretion of drugs in the body is known as
 - a. Dose effective body
 - b. Pharmacodynamics
 - c. Pharmacotherapy
 - d. Pharmacokinetics
2. Morphine is extracted from the plant opium through the principle of
 - a. alkaloid
 - b. alkaline
 - c. crystalloid
 - d. acidic
3. The pharmacy act was formulated in the year
 - a. 1943
 - b. 1948
 - c. 1945
 - d. 1949
4. A type of iatrogenic disease
 - a. peptic ulcer
 - b. heart attack
 - c. cancer
 - d. head ache
5. T.I.D stands for
 - a. 2 times a day
 - b. one time a day
 - c. 3 times a day
 - d. all the above
6. Analgesics are used to
 - a. relieve pain
 - b. both a & b
 - c. relieve tension
 - d. none of the above
7. The following is the drug prepared from animals except
 - a. Tab. Para
 - b. Inj. Insulin
 - c. Tab. Taxim
 - d. all the above
8. To administer a drug 4 time a day, the abbreviation to be used
 - a. Q.I.D
 - b. TDS
 - c. OD
 - d. BD
9. One pint is equal to
 - a. 350 ml
 - b. 510ml
 - c. 500ml
 - d. 450ml
10. The abbreviation PO stands for
 - a. by rectal
 - b. by intrathecal
 - c. by vaginal
 - d. none of the above

II. Write short answer for the following questions:

1. List the sources of drugs
2. Name any four forms of drugs available
3. State the effects of drugs on body
4. Mention routes of administration of drugs pertaining to sense organs
5. Different forms of drugs are available. Each drug has its own nature. Explain the physical nature of a drug.

III. Write short notes for the following questions:

1. Write the advantages and disadvantages of oral route of drug administration.
2. Illustrate the absorption of drugs.
3. What do you mean by shape and size of a drug?
4. Describe the parts of a prescription of a drug.
5. State any five general instructions for administering medicines safely.

IV. Answer the following questions in detail:

1. Classification of drugs.
2. Explain the routes of administration of drugs.



3. Describe the rights of administration of drugs.
4. Discuss the ethical and legal aspects in administration of medicines.
5. Each drug has to be stored in a different manner. Now explain the storage of medication and the safety measures to be followed generally for the drugs.

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Unit 10



COMMUNICATION SKILLS



LEARNING OBJECTIVES

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

- ❖ define Communication
- ❖ process of Communication
- ❖ elements of Communication
- ❖ why Communication is important in nursing?
- ❖ types and Levels of Communication
- ❖ list out the Barriers of Communication
- ❖ effective communication



திருக்குறள்:

சொல்லுக சொல்லைப் பிறிதோர்சொல் அச்சொல்லை
வெல்லுஞ்சொல் இன்மை அறிந்து.

விளக்கம்:

வேறோரு சொல் அந்தச் சொல்லை வெல்லும் சொல்லாக இல்லாதிருந்தால் அறிந்த பிறகே சொல்லக்கருதியதைச் சொல்லவேண்டும்.

Explanation:

"The words used should be carefully selected so that no other words can effectively replace them."
Which means, there should not be any ambiguity in the words used.

10.1 INTRODUCTION

Communication is the exchange of information, thoughts and emotions among people using speech or other means. Therapeutic practice involves the oral communication of public health officials and nurses on the one hand and the patient or his relatives on the other. It is a two way process.

Communication is a vital element in Nursing in all areas of activity and in all its interventions such as prevention, treatment, therapy, rehabilitation, education and health promotion.



Communication leads to community, that is, to understanding, intimacy and mutual valuing.

- Rollo May

10.2 DEFINITION

Communication can be defined as a transaction and message creation. The entire process occurs in a context consisting of physical space, cultural and social values and psychological conditions

A process by which information is exchanged between individuals through a common system of symbols, signs, or behaviour also exchange of information

Communication is a skill that you can learn. It's like riding a bicycle or typing. If you're willing to work at it, you can rapidly improve the quality of every part of your life.

- Brian Tracy

Communication is the art of being understood.

- Peter Ustinov

10.3 COMMUNICATION PROCESS

Communication is a process of exchanging information, ideas, thoughts, and emotions through speech, signals, writing, and behaviour.

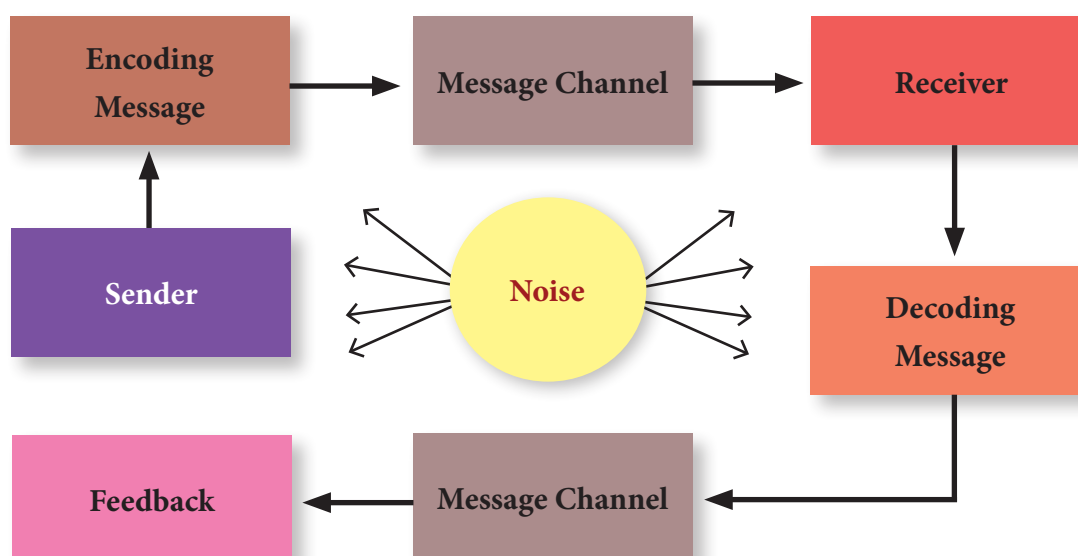
Let's put all these components together to build a model of the communication process:

1. A sender encodes information
2. The sender selects a channel of communication by which to send the message
3. The receiver receives the message
4. The receiver decodes the message
5. The receiver may provide feedback to the sender

10.3.1 Elements of Communication-

- ❖ Source of communication
- ❖ Receiver
- ❖ Sensory receptor
- ❖ Message carriers
- ❖ Messages
- ❖ Responses
- ❖ Feedback
- ❖ Situation or context

THE COMMUNICATION PROCESS



10.4 WHY COMMUNICATION IS IMPORTANT IN NURSING

Communication in nursing is essential in patient safety, health and well-being, because nurses are at the centre of patient care, it is their responsibility to facilitate dialog. As nurses assume more complex roles and care for all age group and different culture people, they will need to strengthen their communication skills.

1. Helps to understand and to exchange ideas to the patient, relatives, doctors and other health care team members.
2. Generate trust between nurse and patients.
3. Reduces the interpersonal tensions and improves interpersonal relationship.
4. Helps to modify the nurses behaviour

When you can present your own ideas dearly, specifically, visually, and most important, contextually – in the context of a deep understanding of another’s paradigms and concerns – you significantly increase the credibility of your ideas.

- Stephen R.Covey

5. Helps to influence others behaviour
6. Prevent disorder in the ward
7. Provides effective leadership

10.4.1 The following are Simple Guidelines Nurses can follow to improve their Communications Skills.

Be Flexible

Every person has a preferred method of communicating, whether in-person, by phone or via the internet.

Learn to Listen

Speaking and writing are only part of communicating — listening is equally essential. With improper listening properly, they will miss important information of the patient. Listening errors are often the results of multitasking.

Do not make Assumptions

Assuming a patient knows what you mean can result in costly errors. Nurses can ask patients to repeat instructions, which can reveal any misunderstandings or gaps in information.

Read Body Language

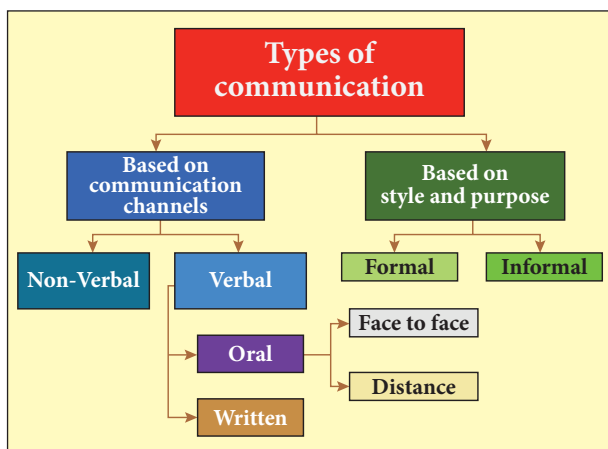
Your behaviour, attitude and posture can affect a patient's perception.

Strengthen Writing Skills

Communication includes writing as well as speaking. Depending on the role or speciality, you may be responsible for a lot of writing.

10.5 TYPES OF COMMUNICATION

People communicate with each other in a number of ways that depend upon the message and its context in which it is being sent. Choice of communication channel and your style of communicating also effects communication. So, there are variety of types of communication.



10.5.1 Verbal Communication

Verbal communication refers to the the form of communication in which message is transmitted verbally; communication is done by word of mouth and a piece of writing. Usually people bring their own attitude, perception, emotions and thoughts about the topic and hence creates barrier in delivering the right meaning.



A professional is expected to be clean, neat, well groomed, professionally dressed, and odour free. Professional behaviour reflects warmth, friendliness, confidence and competence. Professional speak in a clear, well modulated voice, listen to others, help and support colleagues, and communicate effectively. Being on time, well organized, well prepared, and equipped for the responsibilities of the nursing role also communicate professionals. Also the common elements of professional communication is “Courtesy, Use of names, Trustworthiness, Autonomy and responsibility, Assertiveness”.



Verbal Communication is further divided into

1. Oral Communication
2. Written Communication

1. Oral Communication

In oral communication, colloquial words are used. It includes face-to-face conversations, speech, telephonic conversation, video, radio, television, voice over internet. In oral communication, communication is influenced by pitch, volume, speed and clarity of speaking.





Advantages of Oral communication

It brings quick feedback. In a face-to-face conversation, by reading facial expression and body language one can know it is understood.

Disadvantage of oral communication

In face-to-face communication, user is unable to deeply think about the message delivered.

2. Written Communication

In written communication, written signs or symbols are used to communicate. A written message may be printed or hand written. In written communication message can be transmitted via email, letter, report, memo etc.

Written Communication



Advantages of written communication

Messages can be edited and revised many times before it is actually sent. A written message enables receiver to fully understand it and send appropriate feedback.

Disadvantages of written communication

Unlike oral communication, written communication doesn't bring instant feedback.

10.5.2 Non-Verbal Communication

Non-verbal communication is the sending or receiving of wordless messages. We can say that communication other than oral and written, such as appearance of the speaker, clothing, hairstyle, use of cosmetics Surrounding: gestures, body language, posture, tone of voice or facial expressions, is called nonverbal communication. Non-verbal communication is all about the body language of the speaker.



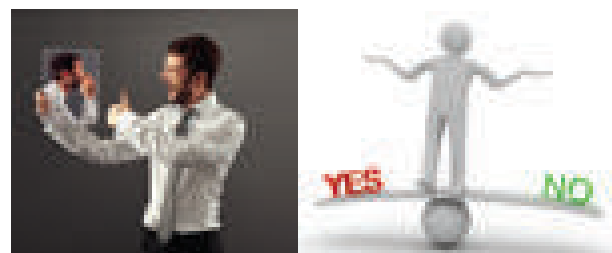
10.6 LEVELS OF COMMUNICATION

1. Intra-personal communication
2. Inter-personal communication
3. Public communication
4. Mass communication
5. Small Group communication

Now, let us learn about the types of communication in detail.

1. Intra-personal Communication

Intra-personal communication means communicating to myself, hearing myself talk, feeling about myself more and thinking are examples of intra-personal communication.



2. Inter-personal Communication

Inter-personal communication happens when you communicate directly with other people in a one to one or in a small group. The words 'inter' and personal suggest that 'Inter-personal' means communication between to different individuals.



3. Public Communication

Public communication takes place in a situation where many people receive messages largely from one source. For example, it can be a movie, television show, a speech, advertisement, political lecture, committee report etc.



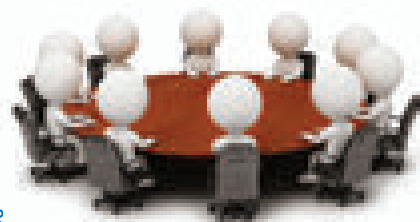
4. Mass Communication

Mass communication is public communication transmitted through electronically or mechanical means. Books, magazines are all examples of mass communication.



5. Small Group Communication

Communication is within formal or informal groups or teams. It is group interaction that results in decision making, problem solving and discussion within an organization.



STUDENT'S ACTIVITY

Do a role play in a group, discussing in handling person/patient of different language not known to the group.

10.7 BARRIERS OF COMMUNICATION

Barriers to effective communication can retard or distort the message or intention of the message being conveyed. This may result in failure of the communication process or cause an effect that is undesirable.



Types of Barriers

- ❖ **Physical Barriers:** Physical Barriers are often due to the nature of the environment like noise, invisibility, etc.
- ❖ **Organisational Barriers:** It refers to the problem with the structures or systems in

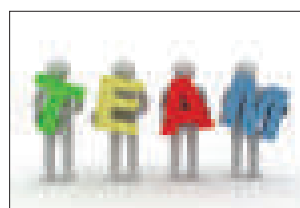


the place in an organization. E.g., a lack of supervision or training or policy.

- ❖ **Personal Barriers:** It is due to psychological problems of individuals. E.g., lack of motivation or dissatisfaction in work.
- ❖ **Ambiguity of words/Phrases:** Words sounding the same but having different meaning can convey a different meaning altogether. Hence the communicator must ensure that the receiver receives the same meaning.
- ❖ **Individual linguistic ability:** The use of jargon, difficult or inappropriate words in communication can prevent the recipients from understanding the message.
- ❖ **Physiological Barriers:** These may result from individual's personal discomfort, caused by ill health, poor eyesight or hearing difficulties.

- ❖ **Bypassing:** This happens when the communicators (sender and the receiver) do not attach the same symbolic meanings to their words.
- ❖ **Cultural Barriers:** Strong beliefs, customs, attitudes, religious, sentiments, illiteracy may influence communication.
- ❖ **Fear of being criticized:** This is a major factor that prevents good communication.
- ❖ **Gender Barriers:** Most communicators show a difference in thought, often have a set of agenda. This is noticeable among the different genders.

How to Overcome the Barriers of Communication



- ❖ **Clarify the idea** – The communicator must be clear about what he wants to communicate.
- ❖ **Completeness of the message:** The message should be relevant to the nature and purpose of communication.
- ❖ **Understand the receiver:** The communicator should be aware of the total physical and human setting.
- ❖ **Use appropriate channels:** The channels should be appropriate to the message.
- ❖ **Consistency in communication:** The message should be consistent with objective.
- ❖ **Feedback:** It involves effective participation and improves mutual understanding.
- ❖ **Simplified structure:** The communication can be strengthened by simple procedure and regulating the information flow.
- ❖ **Improve listening:** The sender and receiver must listen with attention, patience and empathy.
- ❖ **Mutual trust and confidence:** It improves the effectiveness of communication.



STUDENT'S ACTIVITY

Identify your communication barrier and what effort you are going to take to overcome from your communication barriers.

10.8 EFFECTIVE COMMUNICATION

When the nurse communicates well, patient/other people will understand what the nurse is trying to convey and will accept it. Let's begin with a clear understanding of what communication is, effective communication

- ❖ Achieves shared understanding
- ❖ Stimulates others to take actions to achieve goals/ideas.
- ❖ Directs the flow of information to help people overcome barriers to open up in discussion.
- ❖ Channels information to encourage people/patient to think in new ways and to act more effectively.

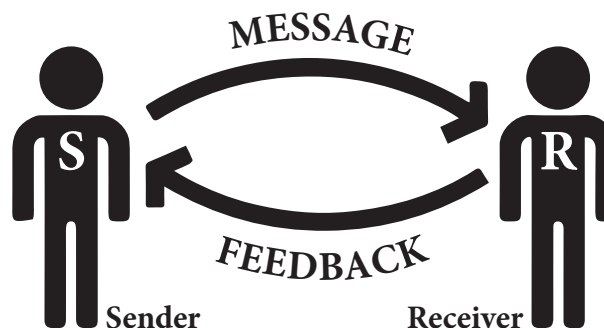


Skills for Effective Communication

- ❖ Express your feelings
- ❖ Present yourself well
- ❖ Give and receive compliments
- ❖ Learn to say “no” when it's necessary
- ❖ To solve problems effectively
- ❖ Effective communication is a key to getting along with others.

10.8.1 Methods of Effective Communication

The important strategies to enhance the communication are described in the following sections.



Attention Skills

The sender needs to pay attention to what he or she is trying to communicate, and choose the best words and body language to communicate with. The receiver needs to pay attention to what is being communicated by listening and watching. Attention is primarily governed by the type of attitude sender or receiver has towards each other during communication.



Effective communication helps us to:

Anticipate problems, decisions, co-ordinate, work flow, supervise others, develop relationship and promote products a services.

Rapport Building

Rapport building is important in both our professional and personal lives

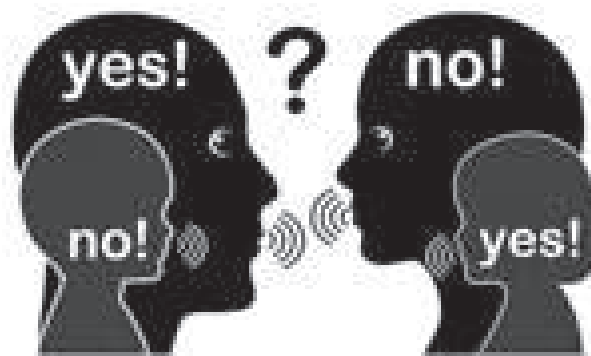
- ❖ Use nonthreatening and 'safe topics' for initial small talk.
- ❖ Listen to what the other person is saying and look for shared experiences or circumstances this will give you more to talk about in the initial stages of communication.
- ❖ Try to inject an element of humour.
- ❖ Be conscious of your body language and other nonverbal signals you are sending.
- ❖ Show some empathy.

Empathy Skills

Empathy skills are very important in good communication. Empathy is the ability to see

the world as another person, and to share and understand another person's feeling, need, concern, and/or emotional state.

10.8.2 Guidelines for Effective Communication



1. Clarity of purpose

- ❖ In the first place we must make a careful analysis of what exactly we wish to communicate.
- ❖ But any effort made in this direction proves to be fruitful.
- ❖ As George Bernard Shaw says, "The major mistake in communication is to believe that it happens."

2. Shared activity

- ❖ Let us forget that effective communication is the responsibility of all persons in the organisations.
- ❖ They may be at any level managerial or non-managerial. They are all working towards a common goal.

3. Common set of Symbols

- ❖ The encoding and decoding of the message should be done with symbols that are familiar to the sender and the receiver.



- ❖ It is an immutable condition of communication that the code or set of symbols be mutually understood.

4. Focus the needs of the receiver

- ❖ Whenever we communicate we must keep in mind the needs of the receivers and the message / information.
- ❖ It should be our endeavour to see that whatever we communicate should be of value to the receiver, both in the short run and in the distant future.
- ❖ Our awareness of the needs of the receiver will make him more receptive.

5. Use Feedback

- ❖ Use Feedback, exhorts Stephen Robbins, a renowned authority on organisational behaviour. As the model of the communication process given in the preceding chapter shows, communication is complete only when the message is understood by the receiver.
- ❖ We can never know whether communication / message is understood unless the sender gets feedback.
- ❖ Many communication problems arise because of misunderstandings and inaccuracies.

6. Active Listening

- ❖ Active or 'participative' listening is as important as any other element in the process of communication.
- ❖ It shows, again, that communication is a joint responsibility of both the sender and the receiver.

7. Controlling Emotions

- ❖ Emotions play an important role in interpersonal relationships between superiors, subordinates and colleagues in an organisation.
- ❖ It should therefore, be an important aim of communication to create an environment in which people are motivated to work toward the desired goals of the enterprise while they achieve their personal goals.

8. Politeness

- ❖ This leads us to the tone of voice aspect of communication.
- ❖ Everybody knows that politeness pays and it is reflected so very 'loudly' both in words and actions.

9. Eliminate noise

- ❖ Every possible effort must be made to eliminate the element of noise that distorts communication at the transmission stage.
- ❖ It becomes especially important in the wake of modern technological advancement.
- ❖ Anything going wrong with the equipment or any disturbance in the transmission line is bound to defeat the very purpose of communication.

10. Clarify Assumptions

- ❖ No effective communication can be based on assumptions.
- ❖ The sender of the message must first clarify his assumptions and then go ahead with proper encoding of the message.



11. Avoiding Connotations and Ambiguities

- ❖ Semantic problems can be solved by using simple language and avoiding connotations.
- ❖ Care must be taken to see that the receiver of the message does not have to go beyond the text of the message.
- ❖ A sender should, therefore use denotative words and expressions in preference to connotative ones.
- ❖ It is also necessary to avoid all ambiguity that means using words with double meaning.

12. Socio-psychological aspect

As communication is a two-way process involving both the sender and the receiver, both should make conscious efforts to understand each other's cultural and socio-psychological background.

- ❖ As a golden rule for effective communication one must remember, "First understand, then be understood."
- ❖ An effective communication is an informed communicator.

13. Completeness

- ❖ One must also endeavour to send a complete message, furnishing all necessary facts and figures.
- ❖ Incomplete communication annoys the receiver, as a result they do not get proper feedback.
- ❖ The message should be so organised that the receiver is not left in doubt about any aspect of the message.

14. Conciseness

- ❖ Completeness does not mean inclusion of unnecessary details or diversions.
- ❖ An effective communication is concise and crisp.

- ❖ The sender should be clear headed and properly focused in her/his vision.

15. Proper use of body language

- ❖ Proper use of body language is of paramount important, especially in oral communication.
- ❖ No oral communication can be successful or effective if we do not take care of our body language.
- ❖ In the first place there must be good eye contact with the person to whom we are communicating.
- ❖ The movement of our hands and feet must be graceful.
- ❖ Every listener observes carefully how we walk and how we talk.
- ❖ Our gait says a lot about us.
- ❖ A warm handshake can do wonders.
- ❖ Holding our head straight on our shoulders shows confidence.



When we use speech to communicate ideas and opinions as well as our emotions and innermost feelings, We communicate each of these by using a variety of elements, which includes:

- The tone of voice
- The emphasis used in speech
- The content of the speech
- The use of figurative language
- The use of humour in speech
- The pace of delivery
- The pronunciation used
- The pitch of our voice
- The use of inferred speech

10.8.3 Some tips for Effective Communication



1. Learn to express yourself

Help others to get to know you better, so they will know what to expect from you. They will also help you to get knowledge because they will give information about themselves.

2. Learn good listening skills

Careful listening avoids misunderstanding. Give your undivided attention to the patient/speaker. If you need more information ask questions. Be informative by trying to say something positive even if you don't like it.

3. Learn to be assertive

Express what you have to say with frankness without being aggressive. To be assertive means not to say 'Yes' when you want to say 'No'.

CONCLUSION

Communication is a powerful therapeutic tool and an essential nursing skill that influences others and achieves positive health outcomes. Communication is an exchange of facts, ideas, views, opinions, emotions, informations etc. The basic elements of communication are the referent the sender, the message, the channels, the receiver, the feedback and the environment. Nurses use interpersonal, intrapersonal, public and mass interaction to achieve positive change and health goals.

Effective communication helps us to anticipate problems, decisions, co-ordinate workflow, develop relationship and promote services. Barriers of communication may result in failure of the communication process or cause an effect that is undesirable. Communication refers to verbal and non verbal behaviour within a social context. It includes all symbols and clues to give and receive meaning.

A-Z GLOSSARY

Communication (தகவல் தொடர்பு)	-	It means of sending or receiving information.
Verbal Communication (வாய்மொழி தகவல் தொடர்பு)	-	Relating to (or) in the form of words.
Non-Verbal Communication (சொற்களற்ற சைகை வழி தகவல் தொடர்பு)	-	Communication in a form other than written or spoken words, such as gestures, facial expressions or body language.
Intra personal (தனிப்பட்ட)	-	A communicators internal use of language or thought.
Barriers (தடைகள்)	-	A fence or other obstacle that prevents movement or access.
Empathy Skills (பரிபூரண திறமைகள்)	-	It is understanding someones thoughts and emotions.
Body Language (உடல்மொழி தகவல் தொடர்பு)	-	The conscious and unconscious movements and postures by which attitudes and feelings are communicated.
Completeness (முழுமையான)	-	The state or condition of having all necessary or appropriate parts.
Conciseness (உணர்வு)	-	Effective words is concise, with no unnecessary words while communicating.
Feedback (பின்னூட்டம்)	-	Information about reactions to a product, a persons performance of a task.



EVALUATION



I. Choose the correct answer:

1. Communication refers to, behaviour within a social context.
 - a. verbal
 - b. non-verbal
 - c. verbal and non verbal
 - d. none of the above
2. Which is the process of exchanging information, ideas, feelings etc.
 - a. communication
 - b. information
 - c. conversation
 - d. all of the above
3. Interpersonal communication is:
 - a. interaction between two
 - b. internal thoughts
 - c. interaction with small group of people
 - d. all of above
4. Non-Verbal communication includes;
 - a. Smile b. Smell
 - c. Laugh d. Staring
5. This barrier may result from individual's personal discomfort caused by ill health.
 - a. physical b. Environment
 - c. Physiological d. Organisational
6. Which does involve effective participation and improves mutual understanding.
 - a. Feed back b. Sender
 - c. Receiver d. Noise
7. As a golden rule for effective communication one must remember. "First understand, then be understood".
 - a. Psychological
 - b. Social
 - c. Socio-psychological
 - d. Cultural
8. What can be defined as a transaction and message creation?
 - a. Communication
 - b. Verbal Communication
 - c. Mass communication
 - d. information
9. Which refers to the non verbal signals that you use to communicate your feelings and intention?
 - a. Communication
 - b. Body language`
 - c. Verbal communication
 - d. None of the above
10. Barriers of effective communication are
 - a. Being defensive
 - b. Summarising
 - c. Perceptions of individuals
 - d. All the above

II. Write short answer for the following questions:

1. Define communication
2. What are the elements of communication?
3. What is effective communication?

III. Write short notes for the following questions:

1. Why communication skill is important to nurses?
2. Explain communication process.
3. What are the simple guidelines Nurses can follow to improve their communication skills?
4. Write short notes about Verbal and non verbal communication.



IV. Answer the following questions in detail:

1. Explain levels of communication.
2. What are the barriers of communication and how to overcome from the barriers?
3. Write about any 10 guidelines for effective communication.

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Unit 11



GUIDANCE AND COUNSELLING

LEARNING OBJECTIVES

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

- ❖ define guidance.
- ❖ explain the purpose of guidance.
- ❖ enumerate the objectives of guidance.
- ❖ explain types of guidance.
- ❖ describe the importance and scope of guidance.
- ❖ enlist the functions of guidance.
- ❖ discuss the principles of guidance.
- ❖ list the roles of the advisor in guidance.
- ❖ difference between guidance and counselling.
- ❖ define counselling.
- ❖ enumerate the objectives of counselling.
- ❖ explain the need for counselling.
- ❖ explain the scope for counselling.
- ❖ list the principles for counselling.
- ❖ discuss the various types of counselling.
- ❖ explain the steps in the counselling process.
- ❖ enlist the counselling skills.
- ❖ enlist the roles of a counselor.
- ❖ enlist the attributes of a counselor.
- ❖ examples of issues in Counselling.
- ❖ method of Teaching: Lecture, power point presentation, demonstration, role play, field visit.



திருக்குறள்:

அகன்அமர்ந்து ஈதலின் நன்றே முகனமர்ந்து
இன்சொலன் ஆகப் பெறின்.

விளக்கம்:

முகம் மலர்ந்து இன்சொல் உடையவனாக இருக்கப்பெற்றால், மனம் மகிழ்ந்து
பொருள் கொடுக்கும் ஈகையைவிட நல்லதாகும்

EXPLANATION:

Sweet speech, with a cheerful countenance is better than a gift made with a joyous mind.

INTRODUCTION

In today's fast moving world, each and everyone needs help. From a small child to the elderly, the need for help is inevitable in every phase of life. For example, when children finish their schooling, they need help in choosing what course they have to study, after which they need help in choosing their career pathway, adults need help in choosing a good job, a suitable life partner, then in reaching the children, getting them a suitable life partner, then managing the difficulties of life and it goes on till the end of life. Every human being needs help from each other to go on in life as we are a social being.

GUIDANCE

"Be In Tune with Life."

-Anonymous

11.1 GUIDANCE

Guidance means to "direct", "to point out", and "to show the path".



Guidance is providing some help or assistance to an individual by another expert individual.

Guidance is designed to assist a person to decide where he wants to go, what he wants to do, or how he can best accomplish his purpose; it assists him to solve problems that arise in his life. It does not solve his problems, but empowers him to solve them.

The focus of guidance is the individual, not the problem; its purpose is to promote the growth of the individual in self-direction. This guidance can be given to groups or to individuals, but it is always designed to help each individual even though they may be in a group.

Examples	Guidance
<p>Ramesh completes his grade XII successfully with 92 %. He needs assistance in moving in the right direction. He needs somebody to tell him what course he can study to have a bright future.</p> <p>Ramesh needs help and assistance.</p>	

Define Guidance

“Guidance is the assistance provided to individuals to be able to choose, prepare and assume a position and making progress in his/her chosen position” (Frank Parson, 1951).

Guidance is concerned with the maximum development of the individuals to make his/her own decisions, recognizing his abilities and potentialities.

“Guidance is a process of helping young people to learn to adjust to self, to others and to circumstances.” (Skinner.)

Other statements related to guidance are:

- Guidance is a personal assistance.
- Guidance is a process by which individual solves his problems by his own efforts.
- Guidance focuses on the attention of the welfare of the individual.


Purpose of Guidance

- To bring confidence in selecting appropriate course of action for adjustment in various walks of life.
- Helping in a balanced development.
- To help to determine the courses most appropriate to their needs and abilities.
- To plan the future in the individual’s line of interest, abilities and social needs.

Objectives of Guidance

- Explore self
- Determine values
- Set individual goals/objectives
- Explore the world
- Improve the efficiency
- Build relationship
- Accept responsibility for the future

Types of Guidance

Types	Examples
1. Personal <ul style="list-style-type: none"> ❖ It is needed to develop all personal and social qualities that would enable the individuals in solving personal problems and seeking better adjustments. ❖ It is meant for deciding what habits, attitudes and values we should develop. ❖ It is concerned with the total person. ❖ This guidance points out the strengths and weaknesses of every individual or child. 	<p>Mr.Lucas, has 3 adolescent children who are all boys. They are Sam, Sham and Saul.</p>  <p>They are in the stage of attitude formation and are at a risk to go into any habits. Mr.Lucas monitors them closely to see that they develop a favorable attitude and abstain from uncompartable habits. He sometimes seeks guidance in growing up the three children.</p>



2. Vocational

- ❖ Relating to choosing and adjusting in an occupation or employment.
- ❖ Process of assisting the individual to choose an occupation, prepare for it, enter it and progress on it.

Sangeetha, a 22 yr old girl, has completed her B.Sc. Nursing course and has got 3 good jobs in reputed hospitals which are equally good.

She needs to choose among the 3 options. She has to decide what is best for her future.

Sangeetha needs help and assistance.



3. Educational

- ❖ Is a process of assisting the individual student to reach optimum educational development. It is a sort of guidance that is only rendered to the student community of any age.
- ❖ Helps the students to make right choices, as well as make adjustments in relation to schools, curriculum, courses and school life which contributes to the all-round development.



Describe the Scope of Guidance

Implies to the extent, length, breadth, range, comprehensiveness and variety of helping the individual to solve his problems, covering all the aspects of life.

Scope of Guidance service in schools.

- Helps to make a satisfactory transition from home to the school.
- In diagnosing the difficulties in the learning of basic skills.
- To help in avoiding potential dropouts in schools.

- To help in understanding the purpose and meaning of life.
- To plan for further education.

11.1.1 Enlist the Functions of Guidance

- Encouraging and supporting
- Informing
- Advising
- Assessing
- Liaising and representing
- Monitoring and coaching
- Providing feedback
- Counselling

11.1.2 Discuss the Principles of Guidance

Guidance is based on the following principles.
(Gordon *et al*, 2008)

1. *Guidance involves holistic development of the individual.*

It should be given in the context of total development of the personality.

2. *Guidance recognizes individual differences.*

Each individual is different with specific needs, interests, and values. Students come from diverse cultural background. Therefore, it is necessary for teachers to be sensitive to these differences.

3. *Dignity, respect and freedom should remain integral to the guidance process.*

Accept individuals with respect, dignity and freedom.

4. *The guidance should be a continuous process.*
Continued interactions are helpful.

5. *Guidance uses good communication skills.*

Communication is an important skill needed in guidance. It includes both verbal and nonverbal communication.

6. *Guidance is a team activity.*

Besides giving personal tutoring time, incorporating more people, expertise and multiple perspectives is highly effective.

7. *Every contact is a precious opportunity for meaningful interaction.*

Every individual is unique and have their own different style of interaction.

8. *The frequency and quality of interaction with the advisor is critical in helping students adjust to college life.*

9. *Students are expected to map out a path for success.*

10. *The core task is working with students to plot a course of action for their educational success.*

11.1.3 Roles of the Advisor in Guidance



“You just have to have the guidance to lead you in the direction until you can do it yourself.”

- Tina Yothers

11.2 COUNSELLING

Counselling is as old as society. In every-day life we find counselling goes on at many levels in a family set-up, parents counsel their children, in society doctors counsel patients, lawyers counsel clients and teachers counsel students.

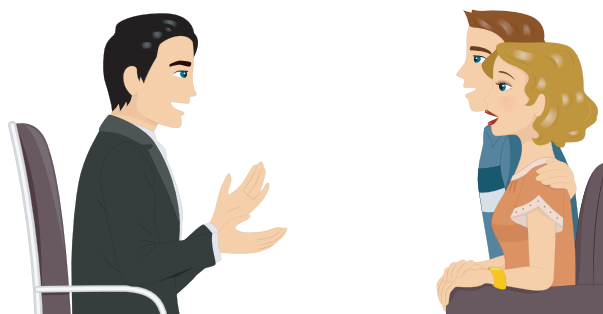


STUDENT'S ACTIVITY

- Can practice the types of guidance by doing a Role play.

Counselling is a process of assistance extended by an expert in an individual situation

to needy person. According to **Carl Rogers**, Counselling is a series of direct contact with the individual which aims to offer him assistance in changing the attitudes and behavior. Counselling involves two individuals one seeking help and other a professionally trained person helped solved problems to orient and direct him to words a goals.



Define Counselling

Counselling is a personal and dynamic relationship between two individuals-an older, more experienced and wiser (counselor) and a younger, less wise (counsee). The latter has a problem for which he seeks the help of the former. They two work together so that the problem may be more clearly defined and the counsee may be helped to a self-determined solution. (Wren)

Counselling is an accepting, trusting and safe relationship in which clients learn to discuss openly what worries and upsets they have, to define precise behaviour goals, to acquire the essential social skills and to develop the courage and self confidence to implement desired new behavior. (Merle M. Ohlsen)

Enumerate the Objectives of Counselling

1. Achievement of positive mental health.
2. Resolutions of problems.
3. Improving personal effectiveness.

4. Maximizing change of behavior.
5. Decision making as a goal of nursing.
6. Modification of behavior as a goal.

Explain the Need for Counselling

To help individuals become self-sufficient, self-dependent, and self-directed and to adjust themselves efficiently to the demands of a better meaningful life.

11.2.1 List the Principles for Counselling

Siddiqui (2013) has listed 10 principles of Counselling which are the following:

1. Communicate personal warmth and make the client feel welcome and valued as individuals.
2. Act with care and respect considering the individual and cultural differences and diversity of human experience.
3. Be honest and trustworthy in all of the individual's professional relationships, being open, friendly and not defensive.
4. Respect the confidence with which the individual is entrusted.
5. Be empathetic and sense the feelings and experience of another person.
6. Promote the safety and wellbeing of individuals, families, and communities.
7. Seek to increase the range of choices and opportunities for the clients.
8. Practice within the scope of the individual competence.
9. Treat colleagues and other professionals with respect.
10. Focus on finding solutions to the existing problems and future decisions of the individual.

Explain the Scope for Counselling

Counselling has a lot of scope in this complex world. The scope covers the various services: (Technical and Vocational Training Corporation, 2016.)

S.No.	Services	Explanation
1.	Religious counselling	<ul style="list-style-type: none"> It is done through religious activities such as retreats, lectures, or religious book studies.
2.	Preventive counselling	<ul style="list-style-type: none"> It is used to prevent occurrence of social, psychological, and health problems through awareness program.
3.	Educational counselling	<ul style="list-style-type: none"> It is done for assisting students in studies and development of their talents and capabilities.
4.	Vocational and educational counselling	<ul style="list-style-type: none"> Educating students about the various types of vocation and university education, types of jobs, and conditions of employment.
5.	Social and ethical counselling	<ul style="list-style-type: none"> Is helpful in identifying suitable environment for students to acquire skills and expertise to interact with others in accordance with the institution and spiritual or ethical values.
6.	Student counselling	<ul style="list-style-type: none"> It is one for helping students with personal and behavioral problems, and it also includes employment and career counselling.

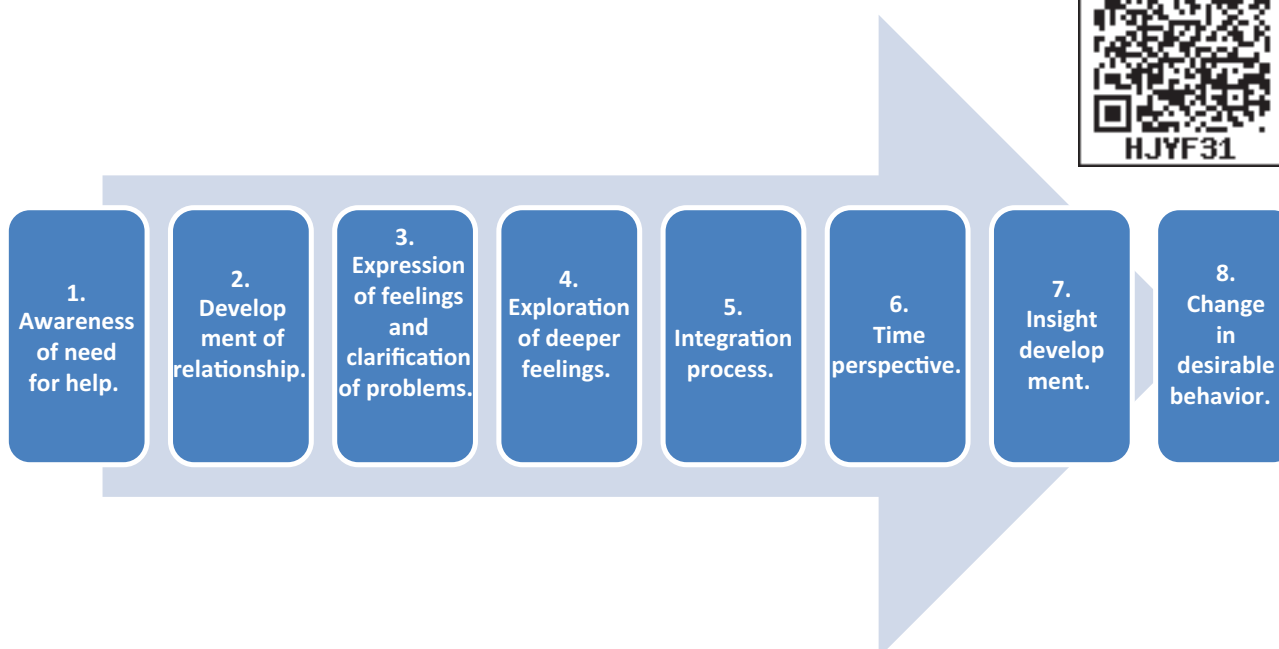
Discuss the various types of Counselling

Siddiqui (2013) has classified the types of Counselling

S.No.	Types of Counselling	Explanation and examples
1.	Individual counselling	It aims to explore and facilitate solving of personal problems and issues. It is a one to one basis. It helps in developing coping strategies.
2.	Group counselling	It provides members of the group to explore and develop personal goals and to promote positive changes in an atmosphere of honest sharing and listening.
3.	Career counselling	It explores individual capabilities and job opportunities .
4.	Marriage counselling	It is done to prepare individuals for marriage to enhance adjustment and acceptance between partners.

S.No.	Types of Counselling	Explanation and examples
5.	Student/Academic counselling	It is done among students to enable them to <i>solve academic and personal problems</i> . It also assists students to make career choices.
6.	Family counselling	This is used when there are critical situations and adjustment problems among the family members.
7.	Geriatric counselling	Is done <i>among the elderly</i> in times of behavioral problems. For example <i>depression</i> .
8.	Genetic counselling	It involves counselling of <i>parents about genetic problems</i> and treatment options in children.
9.	Online counselling	It is offered via <i>email</i> and online applications.

11.2.2 Explain the Steps in the Counselling Process



11.2.3 Enlist the Counselling Skills

1. Attending
2. Observing
3. Active listening
4. Reflecting
5. Questioning
6. Summarizing
7. Silence
8. Independence
9. Concreting
10. Empathy and acceptance
11. Cultural sensitivity

11.2.4 Enlist the Roles of a Counselor

1. Counselling

**2. Consulting
and preventing**

3. Assessing risk



Guidance Vs. Counselling






11.2.5 Differentiate between Guidance and Counselling

Basis for Comparison	Guidance	COUNSELLING
Meaning	Guidance refers to an advice or a relevant piece of information provided by a superior, to resolve a problem or overcome from difficulty.	Counselling refers to a professional advice given by a counselor to an individual to help him in overcoming from personal or psychological problems.
Nature	Preventive	Remedial and Curative
Approach	Comprehensive and Extroverted	In-depth and Introverted
What it does?	It assists the person in choosing the best alternative.	It tends to change the perspective, to help him get the solution by himself or herself.
Deals with	Education and career related issues.	Personal and socio-psychological issues.
Provided by	Any person superior or expert	A person who possesses high level of skill and professional training.
Privacy	Open and less private.	Confidential
Mode	One to one or one to many	One to one
Decision making	By guide.	By the client.

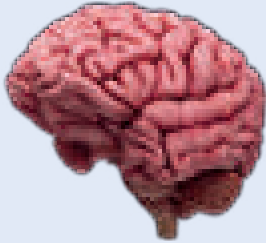

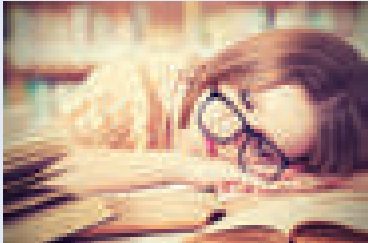


11.3 ENLIST THE ATTRIBUTES OF A COUNSELOR

1. Empathy
2. Understanding
3. Respect
4. Positive acceptance
5. Commitment to values
6. Personal skills
7. Personal knowledge
8. Personal development

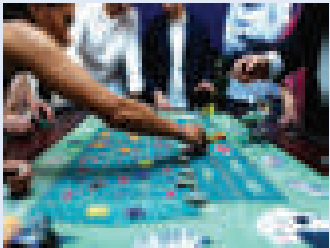
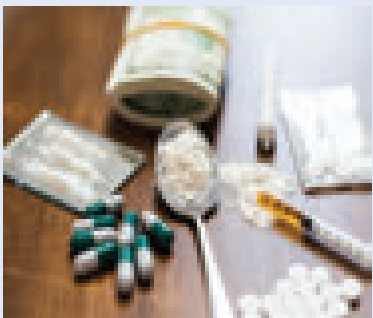

11.3.1 Examples of Issues for Counselling

S.No.	Issues	Explanation	Characters.
1.	Love affairs 	Attraction towards opposite sex that is a natural phenomenon.	Lack of interest in studies, bunking classes, running away from home or hostel, and chances of getting infected by sexually transmitted diseases.
2.	Stress management 	Stress is your body's way of responding to any kind of demand or threat.	Examination fear, inability to get admission in desired colleges, job stress, peer pressure, extreme anxiety, leading to suicide, hurting others, and psychiatric illnesses.
3.	Depression and self-harm 	Adolescent find it difficult to balance between independence and dependence, which can lead to depression.	Depression, suicide, physical and sexual abuse, drug abuse, alcoholism, loss of family members, single parent, poor parent child relationships.
4.	Anger management 	Anger or wrath is an intense negative emotion. Emotions have to be controlled and energies directed towards positive ways.	Anger towards family, friends and relatives.
5.	Child abuse/harassment 	Child abuse is when a parent or caregiver, whether through action or failing to act, causes injury, death, emotional harm or risk of serious harm to a child.	Forms of child maltreatment, including neglect, physical abuse, sexual abuse, exploitation and emotional abuse.



S.No.	Issues	Explanation	Characters.
6.	Memory and concentration 	Problems in academic due to lack of memory and concentration.	Watching TV, playing computer games, and unhealthy friendship.
7.	Adjustment with parents 	Children are unable to live up to the parents expectations and consider their advice as interference can lead to maladjustments.	Irresponsible, aggressive, less competitive, and uncooperative.
8.	Adjustment in school/ college 	Students have difficulties to make adjustments in relationship with friends, teachers, course of study and career.	Impulsive decisions, failures, disappointments, and coping problems.
9.	Career guidance 	Deals with enhancing the student's knowledge about the capabilities, interests, intelligence, job opportunities and competitive examinations.	Awareness of their weaknesses and strength.
10.	Domestic violence 	Domestic violence is one person against another in a domestic setting such as a home.	Family problems and behaviors problems among children.



S.No.	Issues	Explanation	Characters.
11.	Gambling 	Gambling is the betting of money or something of value on an event with an uncertain outcome with the primary intent of winning money or material goods.	Loneliness, stress, depression and other problems,
12.	Substance abuse 	Substance abuse, also known as drug abuse, is a patterned use of a drug in which the user consumes the substance in amounts or with methods which are harmful to themselves or others, and is a form of substance related disorder.	Habit formation, failure in examinations, accidents, violence, and unplanned unsafe sex.
13.	Truancy 	Truancy means running away from home, school or hostel.	Unhealthy friendship or relationships.

A recent official note tabled in Parliament by Union home ministry has confirmed that Tamilnadu continues to be one of the leading states in suicide rate, particularly the student community. (April 4, 2018, Deccan Chronicle.)



STUDENT'S ACTIVITY

- Can practice Counselling by doing a Role play.
- Visiting guidance and counselling centre.



Carl Rogers, (1902 – 1987), an American psychologist, emphasized on the person-to-person relationship between the therapist and the client.

CONCLUSION

Guidance is a psychological field that deals with assisting clients in their need to choose the right course of action, while Counselling is a psychological field that deals with research and applied work to provide training and supervision. While both are being used in

organizations and by individuals, Counselling has a broader reach, while guidance is usually being used in schools to guide students towards proper actions. Counselling encompasses several other fields of psychology, while guidance tends to be more specific.

A-Z GLOSSARY

Retreats (புத்துணர்ச்சி முகாம்)	-	Time spend away from one's normal life for the purpose of reconnecting usually in prayer with God.
Professional (தொழிலர் தொகுதி மனப்பான்மை)	-	Exhibiting a courteous, conscientious, and generally businesslike manner in the workplace.
Perspective (தோற்றம்)	-	The capacity to view things in their true relations or relative importance.
Introverted (உள் தோற்றம்)	-	Possessing a reserved or shy nature.
Extroverted (வெளித் தோற்றம்)	-	possessing or arising from an outgoing and social nature.face.
Socio-psychological (சமூக மனநிலை)	-	Relating to, or involving a combination of social and psychological factors.
Confidential (நம்பிக்கைக்குரிய)	-	Secret or private.
Ethical (ஒழுங்குநெறி)	-	Involving or expressing moral approval or disapproval.
Depression (மனச்சோர்வு)	-	A state of feeling sad.
Insight (உள்ளுணர்வு)	-	The power or act of seeing into a situation.
Concreting (திட நிலை)	-	Naming a real thing or class of things.
Attributes (பண்பு)	-	A quality, character, or characteristic ascribed to someone or something
Bunking (விடுபடுதல்)	-	A hurried departure or escape from class.
Habit formation (பழக்க நிலை)	-	The process by which new behaviors become automatic.



EVALUATION



I. Choose the correct answer:

1. The word guidance means:
 - a. To talk to.
 - b. To direct.
 - c. To observe.
 - d. To listen.
2. Guidance is a process of helping young people to:
 - a. Learn to complete their studies.
 - b. Communicate well with others.
 - c. To adjust to self, to others and to circumstances.
 - d. To walk away from situation.
3. The purpose of guidance is to:
 - a. Helping in a balanced development.
 - b. Talk to others.
 - c. Help to communicate to friends.
 - d. Separate from group.
4. Which one of the following is a objective of guidance?
 - a. Build relationship.
 - b. Enhance communication.
 - c. Develop patience.
 - d. Develop anger.
5. Taanika, a 22 yr old girl, has completed her Engineering studies and has got 3 good jobs in reputed companies which are equally good. Which guidance should be taken
 - a. Personal.
 - b. Vocational.
 - c. Educational.
 - d. None of the above.
6. Counselling for helping students with personal and behavioral problems, and it also includes employment and career counselling. Which scope of counselling is it classified under?
 - a. Preventive counselling.
 - b. Student counselling.
 - c. Religious counselling.
 - d. Genetic counselling.
7. Which type of counselling is offered via email, real time chat, and video conferencing?
 - a. Genetic counselling.
 - b. Student/Academic counselling.
 - c. Online counselling.
 - d. Preventive counselling.
8. Watching TV, playing computer games, and unhealthy friendship is classified under what issues which needs counselling?
 - a. Memory and concentration.
 - b. Adjustment in school/college.
 - c. Gambling.
 - d. All the above.



II. Write short answer for the following questions:

1. Define guidance.
2. Write any 3 purposes of guidance.
3. Write any 3 objectives of guidance.
4. Write any 3 roles of the advisor of guidance.
5. Define counselling.
6. List any 3 skills of the counselor.

III. Write short notes for the following questions:

1. Explain any 2 types of guidance.
2. Describe the scope of guidance service in schools.
3. Enlist the functions of guidance.
4. Explain the need for counselling.
5. Explain the steps in the counselling process.

IV. Answer the following questions in detail:

1. Discuss the principles of guidance.
2. Differentiate between guidance and counselling.
3. Explain the scope for counselling.
4. List the principles for counselling.
5. Discuss the various types of counselling.
6. Discuss any 5 issues which need counselling.

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3. Gordon, V. N., Habley, W. R. & Grites, T. J. (Eds) (2008) Academic Advising: A comprehensive hand book: (2nd edition). Jossey-Bass.



CASE STUDY

CASE STUDY: 1

1. Mrs. Kamala, 25 years female has 22 weeks of pregnancy admitted in Antenatal ward with Haemoglobin level of 7.2 gm and complaints of loss of appetite. She is taking prescribed iron tablets daily.
 - (a) As a nurse what type of health education you will give?
 - (b) Prepare a flash cards with iron containing food which is available in the market.

CASE STUDY: 2

1. Mrs. Usha 23 years primi mother who delivered a female baby with 2.7 kg through normal delivery. She is in the postnatal ward.
 - (a) What are the postnatal observations as a nurse you must do?
 - (b) List the nursing interventions for a primi mother in the immediate postnatal period.

CASE STUDY: 3

1. The mother delivered her first baby and getting discharged today.
 - (a) What are the family palnning advices you will give?
 - (b) What are the discharge instructions you will give?

CASE STUDY: 4

1. Mrs. Sita 48 years old female admitted in a hospital for angina pectoris. She has recovered slowly from the condition. She was adviced to get discharge home with mitroglycerine tablets and the nurse should give her the discharge advice.
 - a. What are the general instructions does the nurse include in the teaching?
 - b. What should he insisted for Mrs. Sita to resume her normal routine activities?
 - c. When to approach doctors?

CASE STUDY: 5

1. Mr. Lee and her 8 months old Lavanya visited the paediatric clinic with the

history of recurring attacks of diarrhoea. The baby is on bottle feed only.

1. What are the reasons for diarrhoea?
2. What are the foods can be given to him?
3. How do you advise on bottle feed?

CASE STUDY: 6

1. Mrs. Vasantha and her 12 months old baby Dhinesh came to the hospital at the first time for vaccination. The baby looks very thin. On examination his weight only 6.2 kgs., sitting without any support on enquiry his birth weight was 2.9 kgs. Not yet received a single vaccination.
 1. Is that baby's weight is upto the expectation?
 2. What are the expected milestones in 12 months?
 3. List down the immunization schedule for this baby.

CASE STUDY: 7

1. Meena is a 29 year old female approached to the Emergency Department with dyspnea, myalgia, and rhinorrhea. Her symptoms began approximately 1 day ago and are continuous, steadily getting worse. She is having significant nasal discharge but minimal cough. Her 4 year – old son has experienced rhinorrhea as well over the past 3 days, but is not as ill as she is. She has no significant past medical history, and takes no routine medications. She reports receiving the flu vaccine when her child first fell ill, 3 days ago. Meena was diagnosed with influenza via swab test, she was admitted to the hospital for respiratory problem and started on the antiviral tamiflu (oseltamivir). She was discharged after five days of hospitalization with good improvement in oxygenation.
 1. What health education you will give her to keep other family members safe from flu?



NURSING - THEORY (VOCATIONAL) MODEL QUESTION PAPER – XII STD

Part-III – VOCATIONAL SUBJECTS (Health Area)

Time: 2hrs-30 minutes

Maximum Marks : 90

Instructions:-

- i. Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall supervisor immediately.
- ii. Use Blue or Black Ink to write and underline and pencil to draw diagrams.

I - CHOOSE THE CORRECT ANSWER (15 x 1 = 15)

1. Paterson filter is an example of
 - a. Slow sand filter
 - b. Rapid sand filter
 - c. Household filter
 - d. Candy's filter
2. The infection spread to the blood stream will lead to
 - a. Lung Abscesses
 - b. Pleural Effusion
 - c. Septic Shock
 - d. All the above
3. Mr. Raju, his BP is 180/100 mmHg his condition can be termed as
 - a. Hypotension
 - b. Hypertension
 - c. Myocardial infarction
 - d. Angina Pectoris
4. Signs and symptoms of diabetes mellitus
 - i) Polyuria
 - ii) Polydipsia
 - iii) Polyphagia
 - iv) Hypoglycaemia
5. Which of the following group of vitamins are fat soluble
 - a. A, B, C, D
 - b. A, D, C, B
 - c. A, D, E, K
 - d. B, C, D, K
6. G₂P₂ could mean
 - a. A woman has had 2 children and is excepting twins.
 - b. A woman has been pregnant 2 times and has 2 children.
 - c. A woman has already had one child and has just had an abortion.
 - d. A woman has been pregnant 2 times and miscarried once (before 24 weeks).



7. Most of the infant double their birth weight by
 - a. 4 to 5 months
 - b. 3 to 4 months
 - c. 6 to 8 months
 - d. 8 to 10 months.
8. Which of the following interventions should be taken to help an older client to prevent osteoporosis
 - a. Decreased dietary calcium intake.
 - b. Increase sedentary lifestyles.
 - c. Increase dietary protein intake.
 - d. Encourage regular exercise.
9. The first phase of disaster management is
 - a. Long term planning
 - b. Preparedness
 - c. Impact phase
 - d. Warning phase
10. Analgesics are used to
 - a. Relieve pain
 - b. Relieve tension
 - c. Both a & b
 - d. None of the above.
11. Barriers of effective communication are
 - a. Being defensive
 - b. summarising
 - c. Perceptions
 - d. All the above
12. Which of the following is the objective of guidance?
 - a. Build relationship
 - b. Enhance communication
 - c. Develop Patience
 - d. Personal
13. Thyroid storm is the complication of
 - a. Hyperthyroidism
 - b. Hypothyroidism
 - c. Hypotension
 - d. Hypertension
14. The amniotic cavity develops
 - a. On the tenth day.
 - b. Within the outer cell mass.
 - c. Within the inner cell mass near the cytotrophoblast.
 - d. In extra embryonic mesoderm.
15. Non-Verbal communication includes;
 - a. Smile
 - b. Smell
 - c. Laugh
 - d. Sharing

II - ANSWER ANY 10 QUESTIONS IN BRIEF (10 x 3 = 30)

16. List down the precautions taken for safe water supply in tanks.
17. Write any 3 complications of Pneumonia.
18. Write the diagnostic investigation for cholecystitis.
19. Write the nursing management of Renal Calculi.
20. Differentiate between balanced diet and malnutrition.
21. What is meant by post natal period?
22. What is meant by Growth and development of a child?
23. What is macular degeneration?
24. Write an expansion for START – in disaster management.
25. Define Toxicology.

- 26. What is meant by epilepsy?
- 27. Write the elements of communication.
- 28. Write any three roles of the advisor of guidance.

III - WRITE SHORT NOTES ON ANY 5 QUESTIONS ONLY (5 x 5 = 25)

- 29. Discuss in detail the home care management of diarrhoea.
- 30. Differentiate endemic, epidemic and pandemic.
- 31. Write the causes of computer vision syndrome.
- 32. Write diet schedule for your grandmother 75 years old who is a case of Diabetes mellitus.
- 33. How do you assess the Homan's sign?
- 34. Write brief note on disaster management kit.
- 35. How do you plan a balanced diet?

IV - ANSWER IN DETAIL (10 x 2 = 20)

- 36. Write an essay about Myocardial Infarction.

or

Write in detail about the responsibilities of Home health nurse.

- 37. Weather forecast announce about heavy and continuous rain for 3 days. What is your role before during & after rain?

or

For an effective communication with your class teacher, what are all the guidelines you will follow?



NURSING

PRACTICAL



CONTENTS

NURSING VOCATIONAL - PRACTICAL

Unit No.	Title	Page No.	Month
1	OXYGEN ADMINISTRATION	299-301	June
2	STEAM INHALATION	302-303	July
3	HOT APPLICATION	304-306	August
4	COLD APPLICATION	307-308	September
5	MINOR WOUND DRESSING	309-311	October
6	NASOGASTRIC TUBE FEEDING	312-313	October
7	NUTRITION - THERAPEUTIC DIET	314-322	November
8	RESTRAINTS	323-327	November
9	HOME CARE MANAGEMENT	328-331	December



Unit 1



OXYGEN ADMINISTRATION

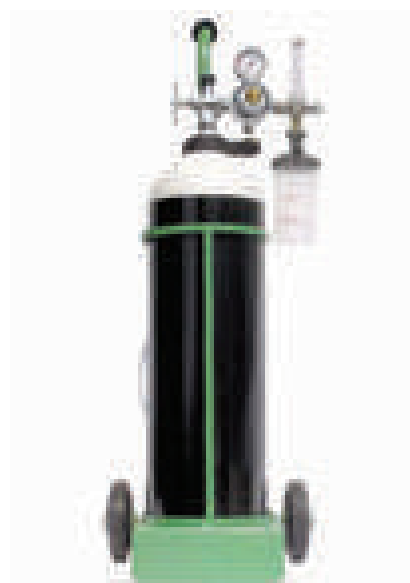
Definition:

Oxygen therapy is the administration of oxygen to patients those who are suffering with respiratory dysfunction and low level of O_2 in blood.

Oxygen cylinder:

1. Oxygen is a gas, which has no smell or colour and is heavier than air
2. It is stored at high pressure in black and white colour cylinders
3. With oxygen there is always a serious fire risk
4. Smoking is not allowed anywhere nearby oxygen cylinder
5. No open fire or any inflammable material should be kept near the oxygen cylinder
6. Oil, grease or alcohol should never be used on the connections of the cylinder
7. The cylinder is mounted on a stand for easy access and should be tested before taking it to the bedside
8. To test it, open the cylinder with the key and then open the valve very little and test the flow of oxygen from the cylinder into a bottle half filled with water. (humidifier)
9. The humidifier bottle is connected with flow meter to know the amount of O_2 being delivered.

10. Oxygen flows into the humidifier and then oxygen is given to the patient



Indications for oxygen Administration:

- ❖ Cyanosis (bluish colour of the skin, nail beds and mucus membranes)
- ❖ Breathlessness or labored breathing
- ❖ An environment low in oxygen content. e.g. High altitudes
- ❖ Anaemia
- ❖ Diseases or conditions in the oxygen across the capillary membrane
- ❖ Shock and circulatory failure
- ❖ Haemorrhage and asphyxia
- ❖ Critically ill patients

Methods of oxygen administration:

The manner in which oxygen is administered depends upon the condition of the patient.

Oxygen can be delivered

1. Nasal cannula



2. Oxygen by nasal catheter

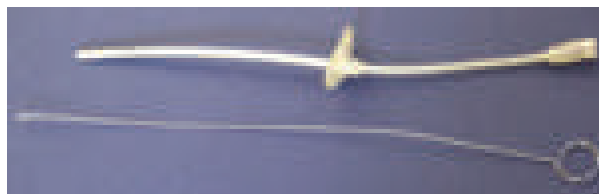
3. Oxygen by mask



4. Oxygen tent



5. Trans tracheal oxygen.



Hazards of oxygen inhalation:

- ❖ Infection
- ❖ Combustion (Fire)
- ❖ Dryness of the mucus membranes of the respiratory tract
- ❖ Oxygen toxicity
- ❖ Atelectasis
- ❖ Retro lental fibro plasia
- ❖ Asphyxia

Administration of oxygen by nasal catheter method:

Oxygen cylinder

- ❖ Stand and accessories. (the regulator, flow meter, humidifier, connecting tube etc)

Articles required:

- ❖ Nasal catheter of appropriate size, clean, sterile or disposable type
- ❖ Water soluble lubricating jelly
- ❖ Bowl of water
- ❖ Mackintosh and towel
- ❖ Flow light and tongue depressor
- ❖ Cotton applicators and normal saline in a container
- ❖ Gauze pieces in a container



- ❖ Kidney tray and paper bag
- ❖ Adhesive tapes

Procedure:

1. Wash hands.
2. Measure the length of the catheter from the tip of the nose to ear lobe. Mark the length with ink.
3. Check the cylinder for the working condition. Open the main valve in an anti clock wise direction. Look for the pressure reading on the gauge. Adjust the flow of oxygen to 2-4 Litres/min for adults.



4. When the wheel valve is opened the oxygen will start bubbling through the water in the humidifier.
5. Lubricate the tip of the catheter sparingly with water soluble jelly and check the flow by immersing it in water.
6. Introduce catheter slowly into one of the nostrils of the previously marked distance. Never use force.

7. Check the position of the catheter in the oropharynx at the level of the uvula.
8. It can be checked by asking the patient to open his mouth widely.
9. Depressing the tongue with tongue depressor and use the flash light to see the throat
10. Fix the catheter over the forehead or at the cheek of the patient with adhesive tapes
11. Save the connecting tube to the bed clothes or patient gown with safety pin

After care of the patient and articles:

- ❖ Stay with the patient till he is at ease
- ❖ Keep the patient warmth and comfortable
- ❖ Assess the vital signs frequently
- ❖ Record the procedure with date and time in the nurses record
- ❖ Check the cylinder for its good working condition
- ❖ Change the nasal catheter by every 8 hours
- ❖ When the oxygen is to be stopped, do it gradually
- ❖ Watch the patient for any deteriorating symptoms after the removal of oxygen



Unit 2



STEAM INHALATION

Definition:

Breathing warm and moist air produced by a vaporizer is called steam and moist inhalation.

Purpose:

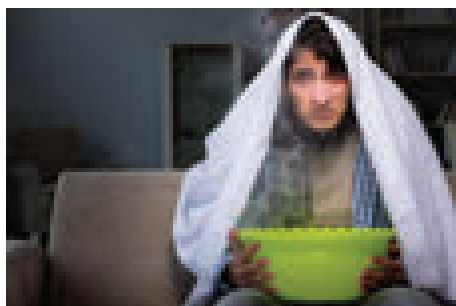
1. To relieve the symptoms of cold and sinusitis caused by inflammation and congestion of mucous membrane
2. To loosen mucus secretion and bring out from the respiratory tract
3. To provide heat and moisture to prevent dryness of mucous membranes of lung
4. To aid in absorption of oxygen.

Drugs used:

- ❖ Tincture benzoin 5ml per 500ml of boiling water
- ❖ Eucalyptus 2ml per 500ml of boiling water
- ❖ Camper few crystals per 500ml of boiling water

Methods of steam inhalation:

- ❖ Jug Method



Nelson's inhaler

- ❖ Electric steam inhaler



- ❖ Steam tent





Articles required:

- ❖ Nelson's inhaler with a mouth piece is placed in the neck of inhaler
- ❖ Bowl or basin large enough to hold the inhaler
- ❖ A flannel piece or towel
- ❖ Face towel
- ❖ Bath towel
- ❖ Tincture benzoin or any other inhalant ordered
- ❖ Teaspoon or a measurement glass
- ❖ Gauze piece in a container
- ❖ Cotton swabs
- ❖ Kidney tray and paper bag
- ❖ Back rest or cardiac table

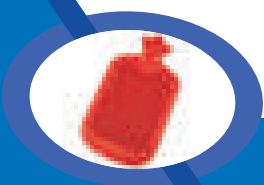
Procedure:

1. The inhaler has a glass mouth piece passing through the cork of the inhaler and an air inlet spout at the side
2. Prepare the patient and get his co-operation. Protect him from cold air. Make him comfortably seated on the bed and table in front
3. Warm the inhaler with a little hot water and pour the water out
4. Pour the boiled water below the air inlet
5. Add the drug ordered
6. Cork the inhaler
7. Turn the mouthpiece away from the air inlet.
8. Wrap the inhaler with flannel or a towel and place it in a small tray or basin.
9. Take it to the bedside together with a towel and gauze piece
10. Wrap the piece of gauze around the mouthpiece of the inhaler
11. Place the inhaler in front of the patient and ask him to keep his mouth in the mouth piece and breathe in to receive the steam and breathe out removing his lips from the mouthpiece
12. Continue the treatment for 15 to 20 minutes
13. Wipe the patient's face and keep him warm and in the same room for at least an hour
14. Wash the mouthpiece and boil it. Wash the inhaler and replace all the articles
15. Record the procedure and effect on the patient

After care of patient and articles:

- ❖ Continue treatment for 15 to 20 minutes
- ❖ Wipe off the perspiration from the face
- ❖ Remove the back rest and cardiac table
- ❖ Adjust position of patient in bed. Make him comfortable
- ❖ Instruct him to remain in bed for 1 to 2 hours to prevent draught
- ❖ Record the procedure on the nurse's record with date and time

Unit 3

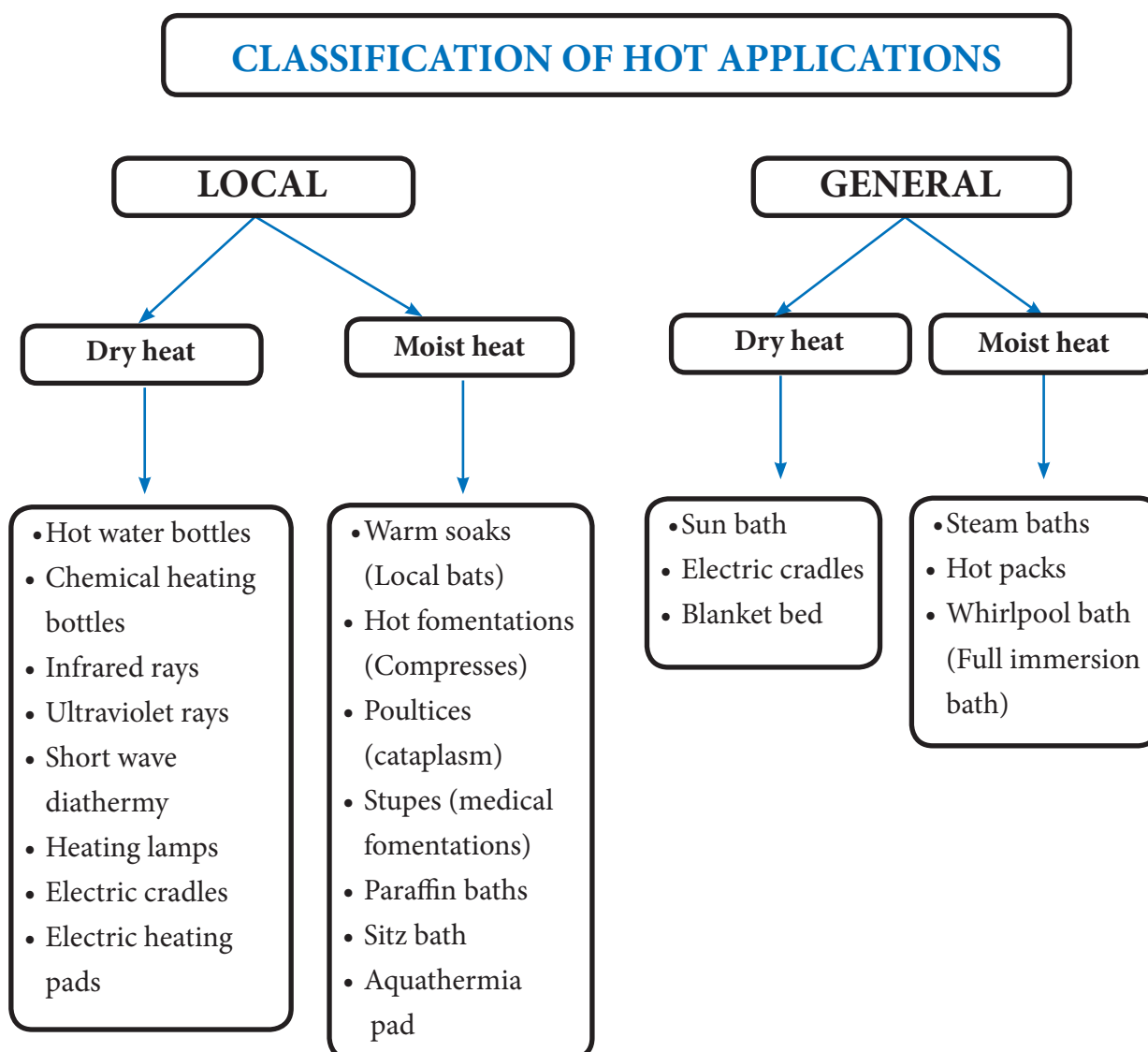


HOT APPLICATION

Definition:

Hot application defines as stimulation of the skin and underlying tissues with heat for the purpose of decreasing pain, muscle spasms, or inflammation.

Classification of Hot Application:





Purpose:

- ❖ To relieve pain and congestion
- ❖ To promote suppuration
- ❖ To provide warmth and comfort
- ❖ To promote healing
- ❖ To decrease muscle tone and to soften the exudates
- ❖ To relieve retention of urine



Articles required:

- ❖ Hot water bag with cover
- ❖ Boiled water in a jug and cold water in another jug
- ❖ Duster
- ❖ Lotion Thermometer
- ❖ Towel
- ❖ Vaseline (or) moisturizing lotion

Indications:

- ❖ Local congestion
- ❖ Muscle spasm
- ❖ Fatigue
- ❖ Pain

Contra Indications:

- ❖ Heat is not used in malignancies, because heat increases, the metabolism of both the normal and abnormal cells
- ❖ Heat is not used for client with impaired kidney, heart and lung functions
- ❖ Heat should not be applied to actually inflamed areas. E.g: Acute tooth abscess. the heat may cause them to rupture the surrounding tissues
- ❖ Heat should not be applied on the clients with paralysis, weakness and debilitated clients, because they have impaired perceptions and they may not be responding to hot application resulting in burns
- ❖ Heat should not be applied, when there is oedema, associated with venous or lymphatic disease
- ❖ Heat should not be applied on clients with metabolic disorders. It may increase the hazards of tissues damage
- ❖ Heat should not be applied on clients with high temperature
- ❖ Heat should not be applied to very young and very old people because of the risk of tissue burns



Procedure:

1. Wash hands to prevent cross infection
2. Fill the hot water bag with boiled water half or one - third. Place the hot water bag over a flat surface like table and expel all the air by forcing the water up to the neck of the bag
3. Cork it tightly, dry the outside of the bag and check it for leakage by turning the bag upside down
4. Put on the cover and take it to the bedside
5. Apply to the area as ordered with the towel or sheet
6. Keep the bag for 20-30 minutes intermittently

After care of the patient and articles:

- ❖ Remove the hot water bag after completion of the treatment
- ❖ Observe the area for any redness
- ❖ Provide comfortable position to the patient
- ❖ Take all equipments to utility room
- ❖ Empty the hot water bag and hang it upside down to dry it
- ❖ Clean all articles with soap and water and replace it in the usual place
- ❖ When the bag is dry, fill it with air, cork it and keep it in its proper place

Recording and Reporting:

- ❖ Record the procedure with date, time, effect of application and complication due to procedure etc in nurses record
- ❖ Report to the ward sister about the treatment

Examples of hot applications

Sun Bath



Heating pads



Short wave diathermy



Unit 4

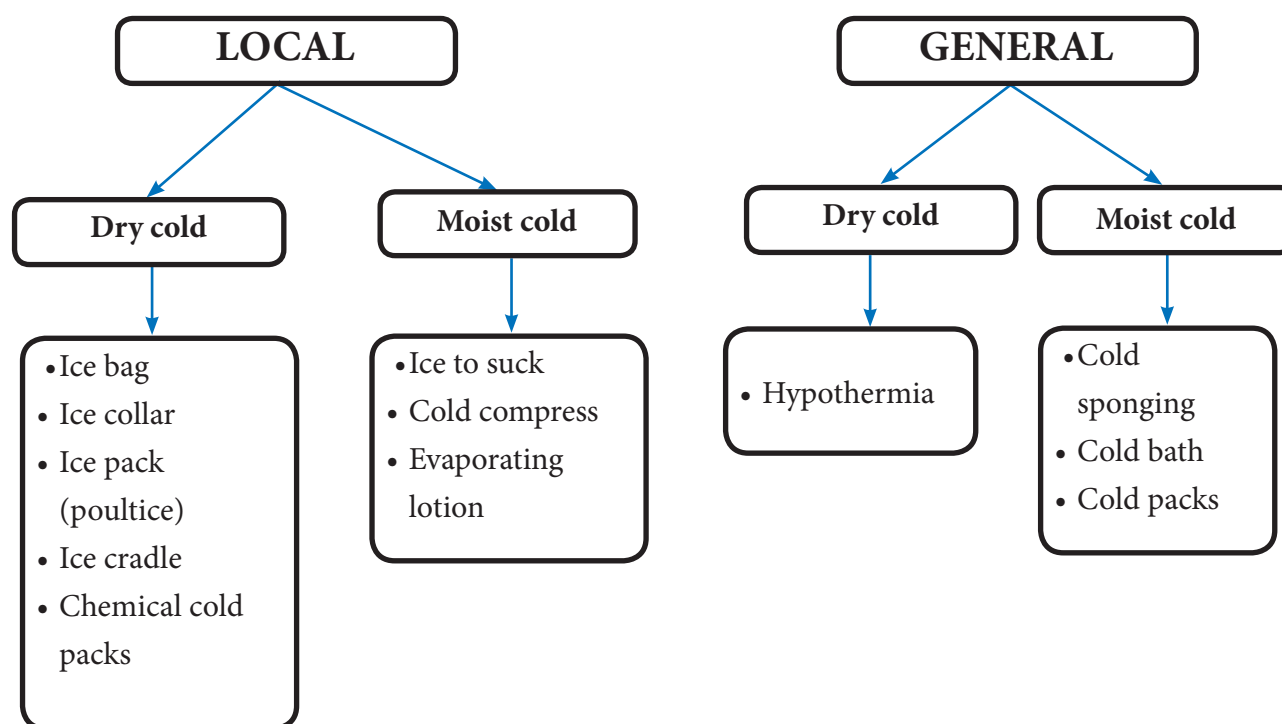
COLD APPLICATION

Definition:

Cold application is defined as stimulation of the skin and underlying tissues with cold for the purpose of decreasing pain, muscle spasms, or inflammation.

Classification of cold application:

CLASSIFICATION OF COLD APPLICATIONS



Purpose :

- ❖ To reduce pain and body temperature
- ❖ To anaesthetize an area
- ❖ To control hemorrhage
- ❖ To control the growth of bacteria
- ❖ To prevent gangrene
- ❖ To prevent edema
- ❖ To reduce inflammation

Local cold application

Ice cap (Dry cold)



Indications

- ❖ Fever
- ❖ Bleeding
- ❖ Allergy
- ❖ To reduce edema

Articles required:

- ❖ Ice cap with cover
- ❖ Ice in bowl
- ❖ Salt
- ❖ Teaspoon
- ❖ Duster to wipe ice cap
- ❖ Treatment mackintosh

Procedure:

1. Explain the procedure to the patient
2. Fill the ice bag with water, put in the stopper turn the bag, upside down to check for any leakage
3. Fill the bag half to two – third with crushed ice

4. Sprinkle salt (NaCl)
5. Keep the bag on a flat surface and squeeze out the air, presence of air will interfere with the thermal conductivity
6. Screw the cap tightly
7. Wipe outside of the bag and put on the cover



8. Apply the ice bag over the area.
9. Clean the area with a bath towel
10. Make client comfortable

After care of the patient and articles:

- ❖ Clean the equipment and replace it in the proper place
- ❖ Discard the crushed ice cubes
- ❖ Wash hands
- ❖ Document the care with date, time, site and duration of the application

Unit 5

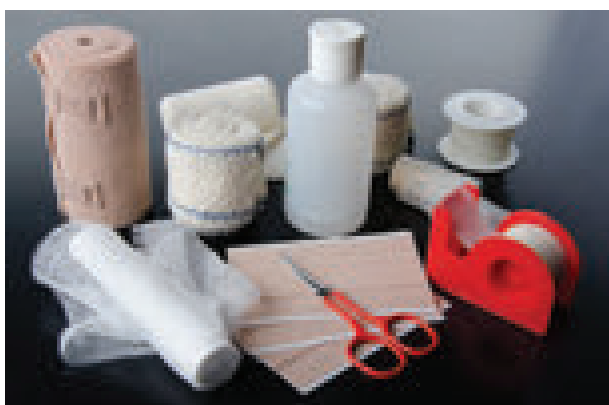


MINOR WOUND DRESSING

Definition:

Wound is a cut or break in the continuity of the skin. Cotton or gauze pieces are used to clean the wound. The dressing of the wound with dressing materials is called wound dressing.

Types of dressing:



Dressings may vary by type of material and mode of application. They should be easy to apply comfortably and made up of materials that promote wound healing.



- ❖ **Gauze dressing:** are the commonest. Gauze is available in different textures and shapes
e.g. square, rectangle and rolls of various lengths
- ❖ **Non antiseptic dressings:** are sterile unmedicated dressings applied to a fresh wound to protect it from infection
- ❖ **Antiseptic dressings:** are impregnated with some medication and is applied to wounds already infected to limit the septic process
- ❖ **Wet dressings:** are used in infected wounds to soften the discharge, promote drainage and also in wounds that require debridement. It is also used to supply heat to the tissues. Moist heat is more penetrating than dry heat. Therefore moist heat is more beneficial in localizing the infection in an area. For applying wet dressing the contact dressing layer is moistened to increase the gauze ability to collect exudates and wound debris and then apply a dry second layer





of absorbent dressing. This method of application will effectively clean the infected and necrotic wounds

- ❖ **Pressure dressings:** When there is danger of bleeding or when there is oozing from the wound, a pressure dressing may be applied. It is a thick sterile pad made up of gauze or gauze cellulose applied with a firm bandage, Elasto plasts or binder can be used
- ❖ **Non-adherent gauze dressing:** Such as TELFA are used to cover clean wounds. Telfa gauze has a shiny, non adherent surface that does not stick on incisions or wound opening but allows drainage to pass through the softened gauze above
- ❖ **Self adhesive transparent film:** It acts as a temporary second skin. It is ideal for small superficial wounds which do not require debridement

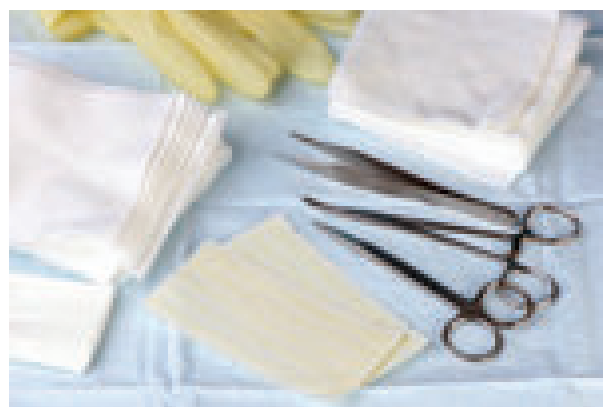
Purposes:

1. Protect the wounds from contamination with micro-organism
2. Promote healing by absorbing drainage and debriding a wound
3. Support the wound site as a splint
4. Prevents the client from visualizing the wound
5. Promotes thermal insulation to the wound surface
6. Maintenance of high humidity between the wound and dressing
7. Provides mental and physical comfort for the patient

Articles required:

A sterile tray containing

1. Artery forcep – 1
2. Dissecting forcep – 2
3. Scissors – 1
4. Sinus forcep – 1
5. Probe – 1
6. Small bowl – 1
7. Safety pin – 1
8. Gloves, masks and gowns
9. Cotton balls, gauze pieces, cotton pads etc as needed



10. Slit or dressing towels

Unsterile tray containing:

1. Cleaning solutions – if needed
2. Ointment and powders – as ordered
3. Vaseline gauze in sterile container
4. Ribbon gauze in sterile container
5. Swab sticks in sterile container
6. Transfer forceps in a sterile container
7. Bandages, binders, pins adhesive plaster and scissors

8. A large bowl with disinfect solution
9. Kidney tray and paper bag
10. Mackintosh and towel

Procedure:

1. Wear face mask
2. Wash hands thoroughly
3. Wear the gown and gloves
4. Open the sterile tray spread the sterile towel around the wound
5. Use a clean forcep and remove the dressing and discard it in the paper bag
6. Disinfect the forcep in the bowl of lotion
7. Note the type and the amount of drainage present
8. Ask the assistant to pour small amount of cleaning solution into the bowl
9. Clean the wound from the centre to the periphery and discard the used swabs after each stroke
10. Follow precautions, while drying the wound with dry cotton
11. Disinfect the used forceps in the bowl of lotion

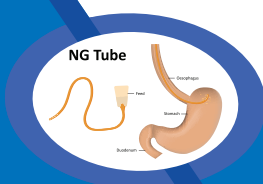


12. Apply medications if ordered
13. Apply sterile dressing, place the gauze pieces first then cotton on the dependent parts. Where the drainage may collect
14. Remove the gloves and put them into the bowl with lotion
15. Secure the dressing with bandages or adhesive tapes

After care of the patient:

1. Help the patient to dress up and to take a comfortable position in the bed. Change the bed garments if soiled with drainage
2. Replace the bed linens after dressing
3. Remove the mackintosh and towel
4. Take all articles to the utility room. Discard the soiled dressing into a closed bin and send it for incineration. Remove the instruments and other articles from the disinfectant solution and clean them thoroughly. Dry them, reset the tray and send for autoclaving. Replace all other articles in the proper place. Send the soiled linen to the laundry for washing
5. Wash hands
6. Record the procedure on the nurses record with date and time. Recording includes the condition of the wound and amount of drainage, condition of the sutures etc on the nurses record. Report to the surgeon any abnormalities found
7. Return to the bedside to assess the comfort of the patient and instruct the condition of the wound to the patient
8. Ensure the cleanliness of the patient and surrounding

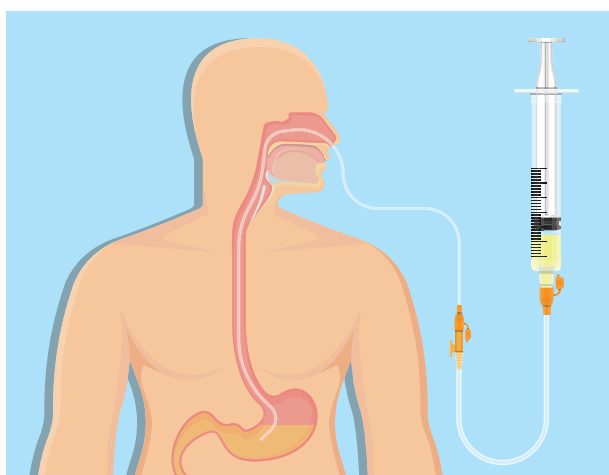
Unit 6



NASOGASTRIC TUBE FEEDING

Definition:

Naso-gastric tube or Ryle's Tube insertion of the plastic tube through the nose via the oesophagus into the stomach for administration of liquid foods is called Ryle's tube Feeding.



- ❖ Lubricating Jelly (or) paraffin
- ❖ Stethoscope
- ❖ Adhesive tape
- ❖ Kidney tray
- ❖ Tongue depressor
- ❖ Bowl of water
- ❖ Artery Forcep
- ❖ Towel
- ❖ Gauze pieces
- ❖ Flash light

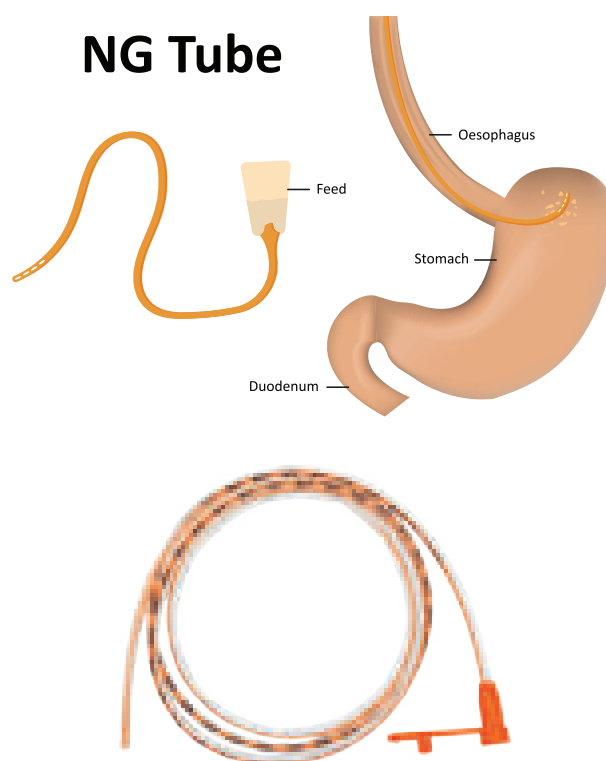
Purposes:

- ❖ Patient who refuses to eat incase of mental conditions like psychosis
- ❖ If patient has cleft palate, swelling in the throat and those who cannot swallow
- ❖ Oral infection or oral surgery
- ❖ Unconscious patient
- ❖ Pre-mature baby

Articles required:

- ❖ Naso-gastric Tube 14 to 16 fr
- ❖ Syringe – 10ml or 20 ml and 50 ml

NG Tube



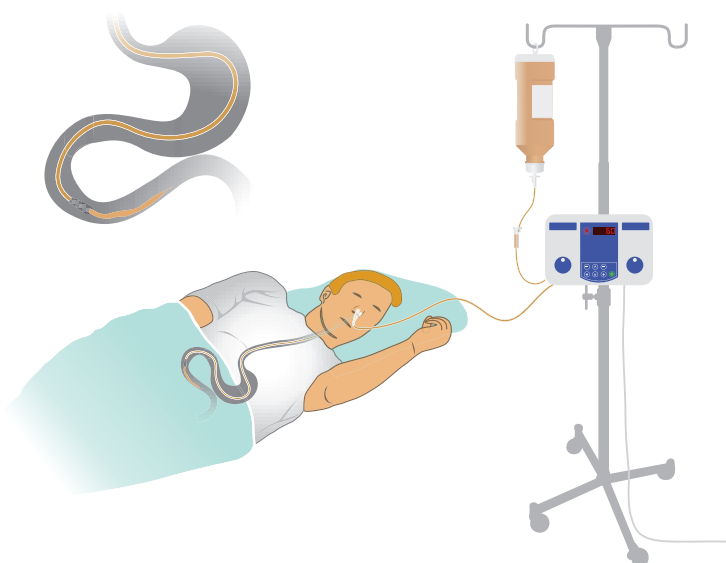
Procedure:

1. Wash hands
2. Explain the procedure to the patient, if patient is conscious
3. Provide privacy to the patient
4. Position the patient in cardiac position
5. Place the mackintosh and towel across the chest
6. Measure the length of the Ryle's tube from tip of the nose to ear lobe to xiphoid process (sternum) and mark with tape
7. Lubricate the Ryle's tube and insert through any nostril posteriorly to the throat
8. Encourage the patient to swallow by giving small sips of water if patient is conscious. For unconscious patient, nurse has to insert tube at the back of throat using tongue depressor
9. Keep the tip of the tube inside the bowl of water and watch for any air bubbles
10. Attach 10/20ml syringe to end of the tube and aspirate back on the syringe gently to obtain gastric juice
11. Push 5-10 ml of air while auscultating the stomach
12. Clean the Ryle's tube after confirming placement
13. Fix the tube with adhesive tape
14. Administer tube feeding, pinch the proximal end of the tube. Attach syringe to the end of the tube and elevate 45cms above head. Fill the syringe with liquid diet, allow to empty gradually
15. And pour water to wash off feed particles

After care of the patient and articles:

- ❖ Remove the mackintosh and towel and disinfect it with antiseptic solution
- ❖ Give comfortable position to the patient
- ❖ Replace the articles
- ❖ Wash hands
- ❖ Record the procedure with date and time
- ❖ Inform any reaction to the incharge sister

The feeding tube controlled by electronic pump passes through the nose, throat and oesophagus, continues through the stomach, and ends in the first section of the small intestine.



Unit 7



NUTRITION - THERAPEUTIC DIET

Introduction :

According to WHO, Health is a state of complete physical, mental, social well being and not merely an absence of disease or infirmity. To maintain good health ingesting a diet containing the essential nutrients in correct amount is very important.

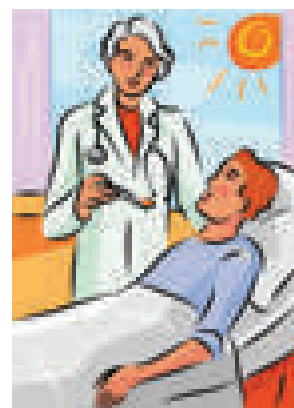
Balanced diet is one, which contains the different types of foods in such quantities and proportion so that the need for calories, proteins, minerals, vitamins and other nutrients are adequately met in small proportion is made for extra nutrients to withstand duration of illness.

Factors:

1. Age
2. Sex
3. Physical work
4. Physiological stress
5. Pregnancy
6. Lactation

Five groups:

- ❖ Cereals, grains & products
- ❖ Pulses and legumes
- ❖ Milk and milk products
- ❖ Fruits and vegetables
- ❖ Fats and sugar



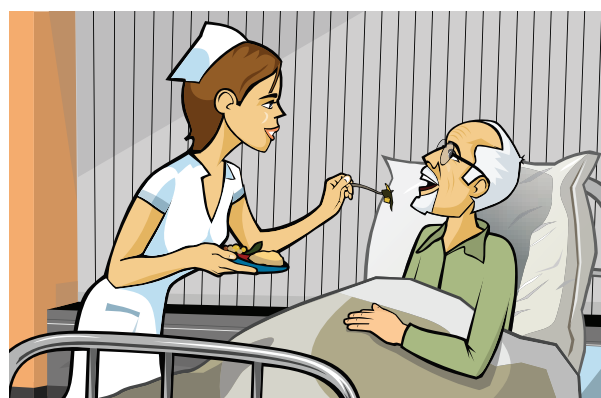
Points to keep in the mind while planning menu:

1. Energy derived from cereals should not be more than 75%
2. Whole grain cereals, parboiled grains or malted grains give higher nutritive value.
3. It is better to include 2 cereals like rice and wheat
4. Flour should not be sieved for chapatti as it will reduce bran content
5. One serving of cereal is 25g. A day's menu may require 2-4 servings
6. Minimum ratio of cereals, proteins should be 4% in terms of the grains it will be 8 parts of cereals and one part of pulses
7. One serving of pulse is 25g. 2 to 3 servings should be taken
8. One serving of vegetables is 75g Green leafy vegetables can be taken more than one serving, if fruit is not included in the diet

9. It is better to serve the fruit raw without much cooking or taking juice out of it. Everyday diet should contain at least one medium size fruit
10. There should be a minimum of milk 100ml/day, one to 2 glasses of milk or curd should be included in balanced diet
11. Energy derived from oils or fats is 15-20% of total calories and 5% from sugar and jaggery
12. One egg weighs around 40g of protein. This can be served along with cereal or pulses to improve the quality of protein. Instead of one serving of poultry/fish, one egg can also be included in the diet
13. Inclusion of salads not only help in meeting the vitamin requirements but the meals would be attractive and have high satiety value, due to the fiber content
14. Fried foods cannot be planned if oil allowance is less or in low caloric diets
15. One third of nutritional requirement atleast calories, protein should be met by lunch and dinner
16. If possible meals should be planned for seven days
17. Usually the number of meals would be four and for every young children and sick persons, the number of meals can be more
18. Ideally each meal should consist of all the 5 food groups
19. For quick calculations average value of calories and proteins from the same group can be taken

Principles of planning a meal:

- ❖ **Meeting nutritional requirement:** A good menu is one which will not only provide adequate calories, fat and protein but also minerals, vitamins essential for the physical wellbeing of each member of a family
- ❖ **Meal pattern must fulfill family needs:** A family meal should cater to the needs of the different members
- ❖ **Meal planning should save time and energy:** Planning of meals should be done in such a way, that the recipes should be simple nutrition. By using pressure cooker, time and energy can be saved
- ❖ **Economic consideration:** Any meals that do not satisfy the budget of the family, cannot be put into practice. The cost may be reduced by using the 1. Seasonal foods 2. Bulk purchasing 3. Substituting greens for fruits 4. Combinations of foods
- ❖ **Meal plan should give maximum nutrients:** Loss of nutrients delivering, procuring, cooking should be minimized. Sprouted grains, malted cereals, fermented foods enhanced nutritive value



- ❖ **Consideration for individual likes and dislikes:** Meal should be planned according to the individual preferences likes vegetarian



or non-vegetarian. If a person does not like particular greens, it can be tried in a different form or substituted by equally nourishing food

❖ **Planned meals should provide variety:**

If the meals are monotonous it is not consumed. Variety can be introduced in colour, texture and taste

❖ **Meals should give satiety:** Each meal should have some amount of fat, protein and fiber to get satiety. Meals should be planned in such a way that intervals between the meals is also considered

The word 'nutrition' comes from the word 'nourish' and it includes all the ways in which the foodstuffs we eat are absorbed by the body for the growth and development, energy and good health.

When a person does not eat the right nutrients in right quantity he or she is malnourished and we call this condition as malnutrititions.

Here is comparison of the effects on the people of good nutrition and malnutrition.

Good nutrition	Malnutrition
<ol style="list-style-type: none">1. Correct weight for height and age2. Strong muscles and straight limbs3. Smooth, clear skin and mucous membranes4. Healthy, bright eyes, clear sight5. Hearing well6. Breathing unobstructed7. Teeth well formed and free from dental caries8. Tonsils are normal and free from infection9. Erect posture in sitting, standing and walking10. Nerves steady, expression calm and cheerful, quick to learn11. They are energetic12. Good resistance to infections	<ol style="list-style-type: none">1. Increased /decreased weight and height not appropriate to age2. Weak muscles and bowlegs or knock-knees3. Dry skin4. Dull eyes, night blindness, poor sight5. Poor hearing capacity6. Mouth breathing and adenoids will be present7. Malocclusion of teeth, dental caries, spongy gums8. Tonsils are enlarged, often infected9. Abnormal gait, twisted spine, protruding abdomen10. Nervous, anxious, irritable, slow to learn11. Tired and restlessness12. Poor resistance to infections

Meal planning

- ❖ Meal planning can be defined as taking the time to plan nutritious meals for a specified time. To plan therapeutic meals, the groups and classes of foods must be put into consideration
- ❖ Meal planning is also the implementation of the principle of nutrition in one day diet in an appetizing manner



TIME	FOOD ITEMS	QUANTITY
6 am	Milk or coffee or tea without sugar	50 ml
8 am	Idli/idiyappam or Dosai/chappathi or Wheat Bread or Uppuma/pongal (with Sambar)	3 no 2 no 4 slices 1 cup
11 am	Butter milk/vegetable soup/lime juice (or) Fruit (small) (or) Veg salad	200 ml (1 cup) ½ plate
Lunch	Rice Chappathi Dhal Rasam with vegetable a group Butter milk	1 cup 2 1 cup 2 cups ½ cup
4 pm	Tea (or) coffee (or) milk Chundal Arraroot biscuit Bread Fruit	100 ml ¼ cup 2 No 2 slices (Small) -1
Dinner	Lunch menu or breakfast menu	
Before bed	Milk	100 ml
Oil for 1 day	Sunola/Suffola/Gingelly oil/refined oil	10-15 g (2 1/2 – 3 tsp)
Non vegetarian	Egg 1 or 2 (white) Chicken/fish/mutton	50 g (without fat)

Vegetable

❖ **Group A:** Vegetables – 3-4 cups/day

Except root all vegetables.

❖ **Group B:** Beet root, carrot, drumstick leaves, beans, turnip, mango ginger, onion (small) Raddish (red) beans lady's finger etc.

Fruits (1 day)

❖ Pooran banana – ½ small

❖ Orange / apple / guava – 1 small

❖ Grape – 10 -20 nos

❖ Lemon /sweet orange – 1-2 No

❖ Pappaya – 4.5 small pieces



Foods to be excluded from diet:

- ❖ Sugar, honey, jaggery, sweet syrup and fried foods
- ❖ All roots
- ❖ Cool drinks
- ❖ Horlicks, Bournvita etc
- ❖ Coconut, coconut oil, palm oil
- ❖ Ground nut and all nuts
- ❖ Tinned food
- ❖ Alcohol
- ❖ Butter, ghee, cheese

Snacks to be eaten in between meals:

- ❖ Butter milk
- ❖ Vegetable soup
- ❖ Vegetable salad
- ❖ Lime/tomato juice without sugar

Hypertension: (High blood pressure)

This is a common condition in middle age. Especially in obese people. It can lead to complications such as heart disease, kidney disease and stroke.

To prevent and treat hypertension:

1. Over – weight people should lose weight
2. Low – fat, salt – free diet is needed.
3. Coffee and other stimulants should be avoided.
4. Tell the person to relax and avoid tension.

A dietary menu for hypertensive patients is as follows:

Morning	Weak Tea one Cup
Break fast	Bread or idli with sugar, or jam fruit one cup, skimmed milk one cup. Nuts one table spoon.
Mid morning	Fruit juice 200 ml
Lunch	Rice or chappati / one serving dhal or meat or fish, one cup vegetable, one serving skimmed butter milk or pudding one cup
Evening	Biscuits two and fruit juice one glass and roasted nuts two table spoons
Dinner	Similar to lunch

Diet

Definition: Diet is an important as medicine in the treatment of diseases. A modification in the diet or in the nutrients can cure certain diseases. E.g a patient suffering from peptic ulcer needs a bland diet for this recovery. A salt free diet can reduce the blood pressure in a patient with hypertension.

Types of Diet:

- ❖ Full diet
- ❖ Liquid diet
- ❖ Soft diet
- ❖ Semi solid diet
- ❖ Bland diet
- ❖ High protein diet
- ❖ Low protein diet
- ❖ Salt free diet or salt low diet



- ❖ Low fat diet
- ❖ Low residual diet
- ❖ Low calorie diet

(i) **Full diet:** For the patients who are well, a well – balanced full diet should be served, either vegetarian or non vegetarian as desired (e.g for tuberculosis patients)

(ii) **Liquid diet:** When no solid food is taken, a total of atleast 2000 ml per day. Milk is the basis of a good liquid diet. (e.g Fever patients)

(iii) **Soft and semi – solid diets:** The diet should be equally nutritious and balanced as a full diet. Foods may be minced or mashed to make them soft. (e.g patients in post – operative period)

(iv) **Bland diet:** This is a soft and easily digestive diet without spices and condiments. (e.g. Patients with gastro intestinal disorders)

(v) **High protein diet:** Mixed protein – rich foods like ground nut, grams and dhal may be ground and cooked with the staple cereal. About one litre of milk should be taken each day. (e.g. Burns and protein deficiency diseases).

(vi) **Low protein diet:** Carbohydrate foods with a little ghee or butter may be allowed and boiled sweets. (e.g. Patients with acute nephritis)

(vii) **Salt free diet or low salt diet:** For a salt free diet no salt is allowed in the preparation of foods. Sugar, lime juice may be added for giving taste. (e.g patients with oedema)

(viii) **Low fat diet:** Carbohydrates, vegetables and fruits are allowed no fat is used in cooking. (e.g. Patients with liver and gall bladder diseases)

(ix) **Low residual diet:** This is a diet without roughage or anything that stimulates the bowel.

(e.g. Patients with colitis and colostomy)

(x) **Low calorie diet:** Carbohydrates and fat are minimised to reduce the body weight. (e.g. Patients with obesity or heart diseases).

■ Special food preparations:

1. Vegetable soup:

In this recipe variety of vegetables are used to make it more healthy and tasty.

Ingredients:

ITEMS	AMOUNT
Chopped onion	2 table spoon
Minced garlic	2 table spoon
Chopped carrots	1/3 cup
Chopped cabbage	1/3 cup
Chopped beans	1/3 cup
Ground black pepper	¼ tea spoon
White corn flour	2 table spoon
Butter or oil	½ table spoon
Water	2 ½ cups
Salt	to taste

Preparation:

1. Chop all the vegetables in to small pieces
2. Add 2 table spoons of corn flour in a small bowl
3. Add 2 table spoons water and mix well
4. Heat ½ table spoon oil or butter in a large, heavy bottomed stock pot over medium flame. Add chopped onion and garlic
5. Sauté for 1-2 minutes
6. Add all vegetables
7. Stir and cook for 3-4 minutes

8. Add 2 ½ cups water, stir well and bring the mixture to boil and add salt
9. Add black pepper powder
10. Add corn starch – water mixture and stir continuously for a minute to prevent lump formation
11. Stir and cook until mixture turns thick and no raw smell of cornstarch. It will take around 7-8 minutes
12. Turn off the flame. Transfer hot soup of vegetables into individual serving bowls and serve

Purpose:

Get plenty of nutrients (vitamins and minerals) with low calories

2. Lemon whey water:

Whey is the liquid remaining after milk has been curdled and strained.

Purpose:

1. It provides more vitamins, minerals and proteins
2. It is beneficial for weight loss and lower cholesterol

Ingredients:

ITEMS	AMOUNT
Milk	1 litre
Lemon juice	25 ml
sugar	2 table spoon

Preparation:

1. Pour the milk into a large pot
2. Heat the milk to boil

3. Stir in 25ml of lemon juice
4. Let the solution rest in heat for 20 minutes
5. Transfer the curds and whey into a bowl topped with a lined strainer
6. Add sugar
7. Cool and serve

3. Tomato juice:

Tomato juice is a juice made from tomatoes, usually used as a beverage.

Purposes:

1. It has an anti oxidant property
2. It helps to regularise digestion
3. It helps to prevent blood clotting
4. Lowers cholesterol

Ingredience:

ITEMS	AMOUNT
Tomatoes	900 grams
Sugar	3 table spoon
Salt	to taste
Pepper	to taste

Preparation:

1. Rinse the tomatoes under running water
2. Slice the tomatoes
3. Use a stainless steel or porcelain pot rather than an aluminium one, aluminium will likely react with the acid in the tomatoes. Causing discolouring and possibly loses flavour
4. Use a potato masher or a wooden spoon to press the tomatoes releasing some of the juice

- If the mixture seems too dry to boil, add a few cups of water until you have enough liquid in the pot to boil
- Keep cooking until the mixture is ready
- Add sugar and salt or other seasonings to flavour the tomato juice. The sweetness of the sugar helps cut back the acidity of the tomatoes
- Remove the tomatoes from the stove and allow them to cool for a few minutes
- Strain the solids from the juice using a strainer
- Cover and chill the juice

4. Ragi porridge:

Ragi is an absolutely perfect supplement for any other grain because of its nutritional value.

It has high dietary fibre content a perfect choice for diabetic patients.

Purposes:

- Provides high amount of dietary fibre
- Ragi flour reduce the blood sugar level by activating insulin
- Minimises appetite and induce weight loss

Ingredients:

ITEMS	AMOUNT
Ragi flour	1 cup
Finely chopped cashews	1 teaspoon
Milk	2 cups
Cardamom	2 (powdered)
Water	2 cups
Sugar	1 table spoon

Preparation:

- Take a medium sized bowl and mix the ragi flour with milk and water. Make sure that there are no lumps in the mixture
- Heat a pan over medium flame and pour the mixture in it. Keep stirring it continuously and cook until it gets a thick consistency
- After the mixture turns thick, lower the flame and add sugar in it. Mix once and turn off the stove. Garnish with chopped cashews and serve hot. If the porridge has turned too thick you can add some more milk and cook for 2-3 minutes

5. Dhal rice:

Dhal and rice together are a complete vegetarian protein. The ghee not only enhances the flavour but also helps us absorb the nutrients from the dhal, rice, turmeric and cumin

- Building muscle
- Anti inflammatory and healing
- Rich in antioxidants
- Boosts metabolisms
- Rich in nutrients & also helps absorb nutrients

Ingredients:

ITEMS	AMOUNT
Rice	1 cup
Toor dhal	¼ cup
Oil	1 tsp
Mustard	½ tsp
Cumin	½ tsp



Red chilli	5 nos
Curry leaves	Few
Asafoetida	1 pinch
Onion	1 no
Tomato	1 no
Water	2 ½ cups
Salt	to taste

Preparation:

Instructions:

1. Sock rice and dhal together for 30 min wash and keep it aside
2. Chop the onion, tomatoes and slit the red chillies

Cooking:

1. In a pressure cooker heat oil. When hot add mustard. When the mustard crackles add curry leaves, asafoetida, red chilli and chopped onion. Fry till onion turns golden brown
2. Add the tomato and cook till they are done
3. Add the rice, salt, water and allow it cook for 3 whistles

6. Vegetable sandwich:

Two slices of bread with a filling vegetable between them is called vegetable sandwich.

Purpose:

1. Rich in vitamins and minerals
2. A good energy yielding food
3. It is a nutritious and healthy food

Ingredients:

ITEMS	AMOUNT
Brown bread	10 slices
Tomato	1
Onion	1
Cucumber	1
Boiled beet root	1
Boiled potato	2
Butter	2 tsp
Chat masala	½ tsp
Salt	to taste

Preparation:

1. Peel and cut the vegetables into thin slices
2. Apply butter on the bread slices
3. Place 5 slices of all the veggies alternately
4. Sprinkle chat masala and salt on the veggies
5. Cover these with the remaining bread slices. Now toast the sandwiches
6. Remove when done and apply some butter on the top of the hot toast sandwiches

Unit 8



RESTRAINTS

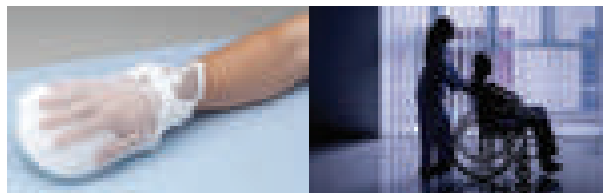
RESTRAINT:

Restraint is defined as 'the intentional restriction of a person's voluntary movement or behavior.

Restraints are physical, chemical or environmental measures used to control the physical or behavioral activity of a person or a portion of his/her body.



- ❖ Should be able to quickly release the device
- ❖ Should be attached to bed frame not to side rails
- ❖ Should be removed a minimum of every 2 hrs
- ❖ Frequent circulations checks should be performed when extremity is used



Indications:

- ❖ Displaying behavior that is putting themselves at risk of harm
 - ❖ Requiring treatment by a legal order, for example, under the Mental Health Act 2007
 - ❖ Requiring urgent life-saving treatment
 - ❖ Needs to be maintained in secure settings
 - ❖ All alternatives must be tried before restraining
 - ❖ Offer bedpan or bathroom every 2 hours
 - ❖ Offer fluids and nourishment frequently, keep water within reach
 - ❖ Provide directional activity
 - ❖ Decrease stimuli and noise
 - ❖ Provide change of position, up to chair, ambulation
- ❖ Should be selected to reduce clients movement only as much as necessary
 - ❖ Nurse should carefully explain type of restraint and reason for its use
 - ❖ Should not interfere with treatment
 - ❖ Bony prominences should be padded before applying it
 - ❖ Should be changed when they become soiled or damp
 - ❖ Should be secured away from a clients reach

- ❖ Have patient wear glasses and/or hearing aides
- ❖ Activate bed alarm



Alternatives :

- ❖ Increase observation

TYPES OF RESTRAINTS:

Definition: Physically that restrict a client's movement. E.g: table fixed to a chair or a bed rail that cannot be opened by the client.

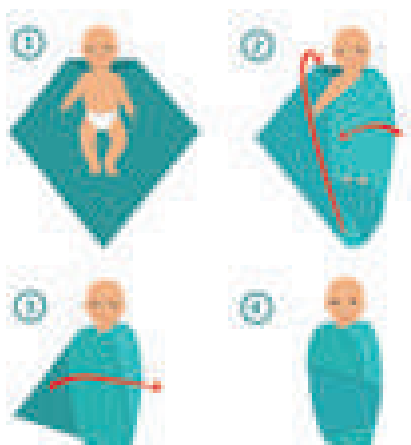


TYPES OF PHYSICAL RESTRAINTS

1. Mummy restraint
2. Elbow restraint
3. Extremity restraint
4. Abdominal restraint
5. Jacket restraint
6. Mitten or finger restraint

Mummy restraint

- ❖ It is a short-term type of restraint used on infants and small children during examinations and treatment of head and neck. It is used to immobilize the arms and legs of the child for a brief period of time



Elbow restraint

- ❖ This restraint is used to prevent flexion of the elbow and to hold the elbow in an extended position so that the infant cannot reach the face
- ❖ Plastic elbow restraint, elbow cuff and well padded wooden splint can also be used

Extremity restraint

- ❖ It is used to immobilize one or more extremities. One type of extremity restraint is clove-hitch restraint which is done with



gauze bandage strip (2 inches wide) making figure-of-eight and knot it

- ❖ The end of the gauze to be tied to the frame of the crib/bed
- ❖ This restraint should be used with padding of wrist or ankle
- ❖ Precautions to be taken to prevent tightening of the bandage



Abdominal restraint

- ❖ This restraint helps to hold the infant in a supine position on the Bed



Mitten or finger restraint

- ❖ Mitts are used for infants to prevent self-injury by hands in case of burns, facial injury or operations, eczema of the face or body
- ❖ Mitten can be made wrapping the child's hands in gauze or with a little bag putting over the baby's hand and tie it on at the wrist



Disadvantages;

Psychological/Emotional:

- ❖ Increased agitation & hostility
- ❖ Feelings of humiliation, loss of dignity
- ❖ Increased confusion
- ❖ Fear

Physical:

- ❖ Pressure ulcers, skin trauma
- ❖ Decreased muscle mass, tone, strength, endurance contractures, loss of balance, increased risk of falls
- ❖ Reduced heart and lung capacity
- ❖ Physical discomfort, increased pain
- ❖ Increased constipation, increased risk of fecal impaction
- ❖ Increased incontinence and urinary stasis
- ❖ Obstructed and restricted circulation

- ❖ Reduced appetite, Dehydration

- ❖ Death

Restraint guidelines:

- ❖ Doctors order
- ❖ Informed consent
- ❖ Follow proper technique
- ❖ Least restrictive



- ❖ Pad bony prominence
- ❖ Maintain Good body alignment

Restraint Orders

Situational

- ❖ Initiation of Restraints
(ALWAYS after alternatives tried)
- ❖ Renewing Order

Medical

- ❖ Obtain written or verbal order within 12 hours of initiation, physician assessment within 24 hours.
- ❖ Every 24 hours to be changed.

Behavioral

May apply in emergency, but get Doctor order within 1 hour.

Doctor must do face-to-face assessment within 1 hour of restraint initiation.

- ❖ 4 hrs for adults 18 yrs and above, 2 hrs for children 9-17 yrs of age, 1 hr for children below nine yrs

NURSES ROLE

Monitor a patient in restraint every 15 minutes for:

- ❖ Signs of injury
- ❖ Circulation and range of motion
- ❖ Comfort
- ❖ Readiness for discontinuation of restraint

Documentation in every 2 hours for:

- ❖ Release the patient, turn and position
- ❖ Institute a trial of restraint release
- ❖ Hydration and nutrition needs
- ❖ Elimination needs
- ❖ Comfort and repositioning needs

RESPONSIBILITIES OF THE NURSE

- ❖ Assess the patient's behaviour and the need for restraint & applies as a last resort
- ❖ Get written order and obtain consent as per hospital policy
- ❖ Must communicate with the client and family members
- ❖ Complies with institutional policies and guidelines for restraint

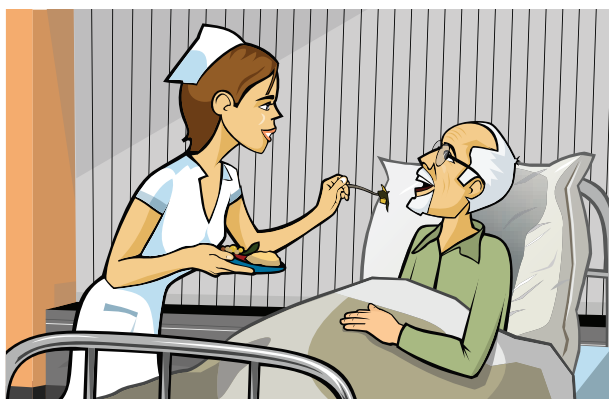
- ❖ Explain the client the reason for the restraint and cooperation
- ❖ Arrange adequate assistance from competent staff before carrying out the restraint procedure
- ❖ Apply the least restrictive, reasonable and appropriate devices
- ❖ Arrange the client under restraint in a place for easy, close and regular observation particular attention to his/her safety, comfort, dignity, privacy, physical and mental conditions
- ❖ Attend the client's biological and psychosocial needs during restraint at regular intervals
- ❖ Reviews the restraint regularly, or according to institutional policies
- ❖ Consider the earliest possible discontinuation of restraint
- ❖ Document the use of restraint for record and inspection purposes
- ❖ Explore interventions, practices and alternatives to minimize the use of restraint
- ❖ Nurse must maintain his/her competence in the appropriate and effective use of restraint through continuous education

Unit 9



HOME CARE MANAGEMENT

Home nursing is that component of continuum of comprehensive health care, where by health services are provided to individuals and familiar in their places of residence for the purpose of maintaining, promoting, restoring health to the maximum level of independence with minimal illness.



Concepts:

Client: is being a Rational, biological, emotional, social desiring to the use of home care services.

Family: The loved one and any other individuals present in the home, who is willing to participate in care providing to the client to maintain self **care at home**.

Professional nurse: Individual with license to practice professional nursing at state.

Quality of care: Care means standards for home health practice, certification, accreditative standards.

Self care capability: Ability to perform activities of daily living that permit the individual to live independent tautly at home.

Guidelines:

As much as possible you learn the culture of the patients with whom you work, so you will understand the cultural practices and values that influence their health care practices.

Provide culturally and linguistically competent assessment by understanding the meaning of language and non verbal behaviour of a patient's culture.

Be sensitive to the fact that the individual or family you are assessing has other priorities that are more important to them. These may include financial or legal problems. Do not provide financial or legal advice. But make sure to connect the patient to someone who will help them.

Purposes:

- ❖ To prevent disease
- ❖ To treat the patient
- ❖ To relief their suffering and make them comfort
- ❖ To support the patient, family
- ❖ To utilize and to adapt the home equipment
- ❖ To respect the families beliefs and ways of doing things as far as possible

Principles:

- ❖ Build a good rapport to family
- ❖ Collect information about the family size, occupation, education, religion, customs etc
- ❖ Identify the problems.
- ❖ Discuss the problems with the family members
- ❖ Guide them to carry out problems

1. Fever: When a person body temperature is too warm, he may have fever. Fever itself is not a sickness. However high fever can be dangerous, especially in a small child. The normal body temperature is 98.4° F or 37°C. More than 100°F is consider as fever.



Home management:

- ❖ Uncloth the patient, if it is an infant uncover the entire body
- ❖ Ventilate them with fresh air
- ❖ Apply cold compress wet sponge
- ❖ Provide lot of water or juices
- ❖ Administer tablet paracetamol according to the weight of the person

- ❖ Check temperature every half an hour
- ❖ If not reduced refer the child to health centre

2. Diarrhoea: When a person has loose or watery stools, it's known as diarrhoea. Lack of water in the body due to diarrhoea is called dehydration.

Signs of dehydration:

Thirst is often a first sign of dehydration

- ❖ Diminished urination
- ❖ Dark yellow urine
- ❖ Sudden weight loss
- ❖ Dry mouth
- ❖ Sunken eyes
- ❖ Loss of elasticity of the skin

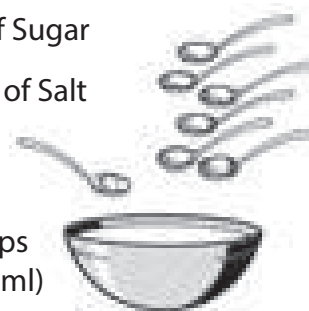
Home management:

- ❖ Give lots of liquids to drink and give rice porridge
- ❖ Food intake – as soon as the sick child or adult will accept food. Give frequent feeding of food what he/she likes and accepts
- ❖ For babies feed breast milk often

6 Level Tea Spoons of Sugar

Half Level Tea Spoon of Salt

1 Litre of Water- 5 Cups
(each cup about 200 ml)



- ❖ Give sips of ORS every 5 minutes
- ❖ Fluid requirements – For adults 3 litres of water per day, For child 1 litre per day



- ❖ Give boiled smashed potato and oatsmeal or well cooked food

3. Tooth ache:

- ❖ Remove the food particle and clean the teeth
- ❖ Rinse the mouth with warm salt water
- ❖ Garlic, clove oil, or Guava leaves can be used
- ❖ If the tooth infection (swelling, pus, large tender lymph nodes) is severe get dentist opinion

4. Constipation:

- ❖ A person who has hard stools and has not have a bowel movement for three or more days is said to be constipated causes

Causes:

- ❖ Poor fluid intake
- ❖ Poor fibre intake
- ❖ Less intake of fruits, green vegetables and green leaves.
- ❖ Lack of physical activity

Home Management:

- ❖ Drink more than 3 litres/day
- ❖ Eat more fruits and vegetables rich in natural fibre (whole grain, bread, carrots, raisin, nuts, pumpkin, wheat bran)
- ❖ Exercise
- ❖ Regularise bowel pattern

- 5. **Fits:-** A sudden violent jerking marked with loss consciousness is known as fits or convulsions

Causes:

- ❖ High fever
- ❖ Severe dehydration
- ❖ Meningitis
- ❖ Cerebral malaria

- ❖ Poisoning
- ❖ Epilepsy

Home Management:

- ❖ Try to keep the person from hurting himself
- ❖ Move away all hard or sharp objects
- ❖ Don't put any object in person's mouth while he is having fits (no food, drink, medicine or any object)
- ❖ After the fits the person may be dull or sleepy
- ❖ Loosen the garments around the neck
- ❖ Make sure he/she is well ventilated.

- 6. **Conjunctivitis:** Inflammation of the membrane covering the surface of the eye ball. It can be a result of infection or irritation of the eye. It also known as pink eye.

Home management:

- ❖ To relieve the discomfort give warm or cold compress. Apply moist wash cloth or hand towel on the closed eye lids three or four times a day
- ❖ Avoid contact lenses
- ❖ Rinse the eye with warm salt water
- ❖ Avoid rubbing the eye
- ❖ Avoid touching the uninfected eye

- 7. **Wheezing:** Breathe with a whistling or rattling sound in the chest as a result of obstruction is the air passages.

Causes:

- ❖ Allergies
- ❖ Infection
- ❖ Medications
- ❖ Asthma



- ❖ COPD
- ❖ Upper and lower respiratory diseases.

Home management:

- ❖ Drink enough fluids or coffee
- ❖ Get plenty of rest.
- ❖ Quit smoking
- ❖ Inhale moisture/steam inhalation
- ❖ Try pursed lip breathing
- ❖ Don't exercise in cold and dry weather
- ❖ Eat fruits and vegetable rich in vitamin A and vitamin C
- ❖ Keep them in fowlers' position (sitting forward supported by a table)
- ❖ Standing with supported bed
- ❖ Sleeping in a relaxed position
- ❖ Age 1 year and older use ½ -1 teaspoon honey as headed. Call the doctor if the patients is cyanosed or asphyxiated

8. Muscular cramps: A muscle cramp is an involuntarily and forcibly contracted muscle that does not relax

Causes:

- ❖ Injury
- ❖ Vigorous activity
- ❖ Rest cramps
- ❖ Dehydration
- ❖ Body fluid shift
- ❖ Low blood calcium or magnesium
- ❖ Low potassium

Home Management:

- ❖ Dry heat over the area - E.g. Hot water bottle, heated bran (or) application sand

- ❖ Food rich in minerals like calcium, potassium and magnesium
- ❖ Stop the activity and relax the muscle
- ❖ Massage the area gently
- ❖ Drink adequate fluid

Advantages of Home health care:

- ❖ Home health care offers many advantages to patients, particularly older adults.
- ❖ Patients recuperating from acute illness / accident recover faster in a home environment.
- ❖ Home can give an older adult a some of independence by offering an important measure of control over day to day events.
- ❖ Home care improves quality of care provided and increased patient satisfaction.
- ❖ Home care is of low cost.

Disadvantages of home health care:

- ❖ The person who is simply too ill or complex to be cared at hospitals.
- ❖ Home environment may be unsafe.
- ❖ There is shortage of home care providers (especially nurses).

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Nursing - Vocational - Class XII

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