NURSING

HIGHER SECONDARY
SECOND YEAR

VOLUME - 1

Untouchability is a sin
Untouchability is a crime
Untouchability is inhuman

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PREFACE

Nurses play a key role in the health care delivery system. Nursing is considered to be an important profession for which a strong preparation is needed. Now the government of Tamilnadu has introduced nursing as one of the optional subjects for eleventh and twelfth standard.

This textbook is written for twelfth standard. This syllabus is framed considering the syllabus of eleventh standard and the additional requirement for education and training.

This book is written and reviewed by the experts in the field of nursing and also by teachers who are in higher secondary schools. Much emphasis is given to practical approaches as the students are expected to demonstrate skill in their practice in actual situations.

Our sincere thanks to the Managing Director - Tamilnadu Textbook Corporation, Director - Directorate of School Education, Director – Directorate of Teacher Education and Research Training (DTERT), Director – Directorate of Matriculation Schools (DMS), Joint Director – Personnel, Directorate of School Education and all the other staff members of the Directorate, from whom the continuous encouragement and support received throughout.

The acceptance, the appreciation and comments from various sources – acceptance by the students, appreciation by our colleagues and friends and comments from our well-wishers are all the inspiration for us to bring out the better in the future.

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1. MEDICAL AND SURGICAL ASEPSIS - NURSING PRINCIPLES AND PRACTICES

1.1 Introduction:

Much ill-health and the majority deaths in India are due to:

i. Lack of cleanliness, leading to spread of infection.
ii. Poor nutrition, leading to poor resistance to disease.

Personal cleanliness and public cleanliness are necessary for health of the community. At the same time good nutrition helps to prevent sickness and helps the sick persons to fight against the diseases. But many people in India do not have money to buy good food. They struggle to obtain food for themselves and their families.

More over, there are many other living organisms big and small, competing with each other and live with people for food. These living organisms include germs and parasites, which attack our bodies. Some take nutrients from us and others live on our blood. These microorganisms cause serious disease that leads to death.

1.2 Infections:

When the living microorganisms enter and attack our bodies causing sickness, it is called infection. Most organisms can live only inside man or animal, and they go from one to another, spreading disease. Many are so small that they may be seen only by means of microscope.

1.2.1 Micro-organisms:

Classifications of microorganisms:

(i) Pathogenic organisms : Pathogenic organisms are those, which produce disease.

(ii) Nonpathogenic organisms: Non-pathogenic organisms are those, which break down the refusal and sewage, and

those, which help in making curds, cheese, bread and alcohol.

There are four main groups of microorganisms.

1. **Bacteria** include cocci, bacilli, spirella and spirochaetes
2. **Fungi** are plant like organisms and include yeast. Yeast are useful for making bread and wine. Penicillin also is produced from the yeast. Some fungi are pathogenic and cause diseases such as ringworm and oral thrush.
3. **Protozoa** are animal type of organisms,. They are much bigger than bacteria. Examples: malaria parasite causes the malaria fever and the entamoeba hystelytica causes dysentery.
4. **Viruses** are smaller than bacteria. It can pass through the finest filters. They cannot be seen through an ordinary microscope, but only through an electron microscope. Common viral infections are common cold, measles, chickenpox, smallpox, rabies and poliomyelitis.

1.2.2 Entry of infection into human body:

1.Organisms may enter the body in one of the three ways:

i. Digestive tract- swallowed in food or water.
ii. Respiratory tract – breathed in with air.
iii. Skin and mucus membranes – through a wound, weakened surface or injection.

Organisms leave the body of an infected person in the following ways.

i. Excreta – faeces and urine.
ii. Coughing, sneezing and sputum.
iii. Pus and wound discharges.
iv. Blood, eg mosquito bites and injection needle.

Each type of organisms has its own special path for leaving an infected person and going into a healthy person. Examples are as follows.

1. Faecal to oral route:

Faeces may contain:

i. Intestinal parasites or ova of worms.
ii. Amoeba causing dysentery.
iii. Bacteria causing cholera, typhoid fever or dysentery.
iv. Viruses of polio or hepatitis.

From the faeces, the organisms may get into drinking water. Flies and dirty hands act as carriers and spread infection by oral route. Children may suck the dirty fingers and organisms enter the body.

Faecal to oral route infection can be prevented by means of:

i. Hand washing before preparing or eating food.
ii. Eating only clean food, kept free from flies.
iii. Getting rid of flies and breeding places.
iv. Protecting the water supply and drinking boiled water.
v. Use of latrines, or covering the faeces with earth.
vi. Proper hand washing with soap after defecation.

2. Faeces to skin:

Hookworm ova passed in faeces, hatch into larvae on the ground. Then the larvae can bite through the skin, usually through bare feet and grow into adult worms in the intestines. Hookworm disease can be prevented if people use latrines and wear slippers.

The tetanus bacillus lives in the intestines of man and animals and is present in cowdung and soil. It enters into the body through a wound or a new born baby' s umbilical cord. The best way to prevent tetanus is by immunization with tetanus toxoid.

1.2.3 Droplet infection (air borne)

When a person with infection such as a common cold or tuberculosis, coughs, sneezes or even talks, with his breath organisms are thrown into the air in very small drops of sputum. The droplets may dry up, leaving an infectious dust on clothes,

floors and furniture. When another person breathes in or inhales the infection affects the later.

The diseases, which are spread by droplet infections, are diphtheria, mumps, measles, chickenpox, smallpox, whooping cough, pneumonia and upper respiratory tract infections. Droplet infection is difficult to prevent.

Prevention of droplet infections are:

i. Breathe fresh air and avoid crowded places.
ii. Have sufficient nutritious food.
iii. Cover the nose and mouth when coughing.
iv. Persons with tuberculosis should take proper treatment.
v. Those with measles, chicken pox, diphtheria etc should be isolated.
vi. Immunizations especially to protect children.

1.2.4 Upper respiratory infections:

The upper respiratory system is the part above the trachea, Common respiratory infections (U.R.I) include, the common cold, influenza**,** or FLU, pharyngitis and tonsillitis. They tend to spread rapidly within 1 to 6 days of incubation period.

Viruses cause common cold and FLU. Getting cold or wet do not cause these sickness but they may be made worse by getting wet.

Signs and symptoms:

1. Dry, sore throat
2. Sneezing
3. Running or blocked nose.
4. Headache, fever and cough.
5. Pains in the joints (in the flu)

The symptoms may last for few days. In babies and young children if not treated properly they may lead to complications such as pneumonia, bronchitis etc.

Treatment and nursing care:

1. Bed rest and warmth.
2. Plenty of liquids to drink. Orange juice or lemonade are helpful.
3. Aspirin tablets may be given. Antibiotics do not help in virus infections.
4. Steam inhalation helps to clear a blocked nose. Decongestant nasal drops may be prescribed.
5. The nose should be cleaned frequently. Warn people not to sniff or blow the nose vigorously.

1. Tonsillitis:

This may be a symptom of cold or flu, or it may be a bacterial infection of the tonsils.

Signs and symptoms:

1. red swollen tonsils
2. draining pus from the tonsils .
3. Fever,
4. Pain in the throat
5. Difficulty in swallowing.
6. Cough with some sputum and vomiting.
7. Enlarged lymph glands under the jaw

Treatment and nursing care:

1. Aspirin tablets may be prescribed to relieve the pain.
2. Tablets penicillin or penicillin injections if there is bacterial infection.
3. Warm saline gargles (one teaspoon salt added to a tumbler of warm water)
4. If there is no improvement in 3 days, or if a gray membrane is seen on the tonsils (sign of diphtheria), the patient must be referred to a doctor.

2. Pneumonia:

This is an acute infection of the lungs caused by bacteria or viruses. When the infection affects both the bronchi and lungs, it is

known as bronchopneumonia. Pneumonia is often a complication of measles, whooping cough, asthma or upper respiratory tract infection (U.R.I) and is especially dangerous in children.

Signs and symptoms:

1. Rapid, shallow breathing, sometimes with wheezing.
2. Nasal flaring
3. Cough with sputum, which might be blood stained or with yellowish mucus.
4. Fever.
5. There may be cyanosis.

Treatment and nursing care:

1. Tablet Penicillin or injection Ampicillin for 5 days.
2. Plenty of liquids including water.
3. Aspirin will help to reduce fever.
4. Support the head and shoulders with pillows, and turn position every hour.
5. Steam inhalations may be given to relieve cough and loosen bronchial secretions.

Preventive and control measures:

1. Never neglect a common cold.
2. Avoid over crowding
3. Sleep in a well ventilated room
4. Educate mothers to burp babies after giving feeds
5. When a child has measles, whooping cough etc, try to prevent pneumonia by proper treatment and care.
6. If pneumonia develops start treatment as quickly a possible.
7. The sputum of the patients should be carefully discarded after proper disinfection.

3. Mumps

This is a virus infection of the parotid glands (parotitis). The source of infection is the saliva and it is spread by droplet infection or fomite.

Signs and symptoms:

1. Symptoms usually begin 2 or 3 weeks after contact with an infected person
2. Mild fever
3. Pain on opening the mouth or eating.
4. Difficulty in swallowing (dysphagia)
5. A soft swelling appears below the ears at the angle of the jaw. It may affect unilaterally or bilaterally.
6. The swelling usually resolves in about 10 days with out any treatment.

Treatment and nursing care:

1. Bed rest
2. Tablet Aspirin can be given for pain and fever.
3. Give plenty of water etc to drink
4. Soft food for easy digestion
5. Ice packs or cold wet clothes may be applied to help reduce pain and swelling.
6. If signs of meningitis appear (high fever, confusion, irritation convulsion) get medical help immediately.

Prevention and control:

Isolate the infected person from others

Complications:

1. Sterility
2. Meningitis

4. Tuberculosis (TB):

This is a chronic infectious disease caused by the tubercle bacillus. When the infected person coughs, droplets of his sputum go into the air and are breathed in by healthy persons. If a person has immunity against the disease, he may get only a primary lesion in the lung, which may heal without treatment.

In others, especially children and those who are weak and poorly nourished and people with low immunity, the disease affects and manifest the signs and symptoms of tuberculosis.

Tuberculosis usually affect the lungs (pulmonary tuberculosis). Sometimes it may attack other parts of the body such as the lymph glands in the neck, intestines, uterus, bones brain etc.

Signs and symptoms of pulmonary tuberculosis:

1. Loss of weight.
2. Cough with sputum
3. Mild fever in the evening, and sweating at night.
4. Fatigue
5. chest pain
6. dyspnoea (difficulty in breathing)
7. haemoptysis (spitting of blood in sputum

Diagnosis

1. Sputum smear for acidfast bacilli (AFB)
2. X ray chest.

Treatment and nursing care:

The drugs used in the treatment of Tuberculosis are:

1. Injection Streptomycin
2. Tablet Isoniazid (1. N. H)
3. Tablet Rifamycin
4. Tablet Thiacetazone.

T.B germs do not die easily. They will be killed only with continued specific treatment for a prescribed time. Besides the anti tuberculosis treatment (ATT) as above, it is also important to:

1. Advice to eat a balanced diet rich in proteins and vitamins as well as energy foods.
2. Advice to have enough rest and sleep. It is best to avoid heavy work and doing things that cause fatigue.

Preventive and Control measures:

1. Early diagnosis and immediate treatment to prevent the spread of infection.
2. Screen the whole family for identifying infection.
3. Vaccinate the children with B.C.G.

4. The infected person should be isolated from others
5. The infected person should cover his mouth when coughing and use a covered cup to receive the sputum.
6. He should burn the sputum or dispose it in a safe way.
7. Educate the community as to how the infection can be prevented
8. Inform that the facilities are available for diagnosis and treatment at free of cost in government hospitals.

1.2.5 Waterborne and food borne disease

1. Typhoid fever.

This is a serious disease caused by the **typhoid bacillus**. The bacteria are swallowed with contaminated food and water. The bacteria flourish in the Payers patches (Lymphoid tissue) of small intestine where ulceration develops. The incubation period is 1 to 3 weeks.

Signs and Symptoms:

1. High fever, which continues for more than a week.
2. Coated tongue
3. Headache and malaise
4. A comparatively slow pulse (bradycardia) (Pulse rate is usually faster with other types of fever)
5. constipation or diarrhea .
6. The abdomen may become swollen and tender,
7. Rashes in the abdomen

Diagnosis:

1. Widal test
2. Blood culture
3. Presence of typhoid bacilli in the stools.

Treatment and nursing care:

1. Bed rest
2. Capsule Chloromphenical will be given as per prescription.
3. Soft nutritious food (non-residual diet)
4. Plenty of fluids.

5. Careful observation of vital signs,
6. Watch for complications such as internal hemorrhage or intestinal perforation.
7. Before discharge, the stool test must be negative; otherwise the patient will be a carrier of the disease.

Preventive and control measures:

1. Early identification and proper treatment
2. Isolate the patient,
3. Disinfect stools, urine and soiled articles.
4. Immunise the contact persons with typhoid vaccine.
5. Make sure about safe drinking water, safe food especially milk and milk products and control of flies

2. Cholera:

This is an acute communicable disease, caused by Vibrio Cholera.

The incubation period is from a few hours to 2 days. The organisms are swallowed with contaminated food and water. In the small intestine they quickly multiply and produce a toxin which causes the intestinal wall to secrete a great deal of water and salts.

Signs and symptoms:

1. Severe diarrhea and vomiting (the stools looks like rice water)
2. Severe dehydration
3. The pulse is very weak and rapid and blood pressure is low (hypotension).
4. The infected person complains of severe thirst
5. Painful cramps in legs and abdomen.
6. Sunken eyes
7. Urine output is low (oliguria) ,
8. In severe conditions the infected patient may collapse

Diagnosis:

A patient with rice-water stools should be suspected of having cholera. A stool specimen should be collected and sent immediately to the laboratory for confirmation of diagnosis.

Treatment and nursing care:

1. Isolate the infected person from others immediately
2. Rehydrate the patient with adequate intravenous fluids
3. Administer antibiotics as per doctors prescription
4. Monitor vital signs (pulse respiration, temperature and blood pressure) every hour
5. Watch for the urine output
6. The patient should be encouraged to take rice congee, buttermilk and plenty of oral fluids to replace fluid loss.
7. If a child is breast fed, feeds should be continued

Preventive and control measures:

1. Surveillance- investigation of all cases of diarrhoea.
2. Immediate notification of suspected cases.
3. Isolation of the patient, with special care to disinfect stools, and vomit
4. If a person dies, the body should be wrapped in a sheet soaked in 2% Lysol and disposed off by burning.
5. Sanitation measures-
    a. Chlorination of all water sources,
    b. Advice to drink boiled water and
    c. Safe food practice (food hygiene) - protected from flies and proper hand washing.
6. Immunise the community with cholera vaccine during an outbreak of cholera.
7. Educate the community on ways of preventing cholera.

3. Infectious hepatitis:

This is a viral that affects the liver. It often comes on epidemic. The virus enters the body through contaminated water and food. The incubation period is 15 to 20 days.

Signs and symptoms:

1. Loss of appetite,
2. Nausea and vomiting
3. Fever and fatigue
4. Mild abdominal pain
5. Hepatomegaly (enlarged liver)
6. Yellowish discoloration of conjunctiva
7. Urine turns to dark yellow

Treatment and nursing care:

1. Complete bed rest
2. Advise to drink a lot of liquids rich in glucose, vitamins and minerals (Orange, sugarcane, lemon juice, glucose water etc)
3. Antibiotics and other drugs are not advised in treatment of infectious hepatitis as they may cause more damage to the liver.
4. Easily digestible - fat and protein free diet should be given

Preventive and Control Measures:

1. The sick person' s stools must be carefully disposed of to avoid spread of disease.
2. The person attending the patient must wash hands well after each contact to prevent cross infection.
3. Safe drinking water and better sanitation will help to get rid of infectious hepatitis from the community.

4. Acute gastroenteritis

It is an acute diarrheal disease caused by bacterial infection, or sometimes due to a viral infection.

The incubation period is 1-7 days. It may be as short as 6 hours.

Signs and symptoms:

1. Sudden onset of diarrhoea (watery stools)
2. Abdominal cramps.

3. Nausea and vomiting
4. Mild fever.
5. Dehydration may be severe.

Treatment and nursing care:

1. If there is a delay in getting medical aid, the nurse should try to prepare oral rehydration fluid as follows.
    a. Boiled water, 1 liter (4 cups)
    b. Glucose powder 20gms or 8 level teaspoons.
    c. Common salt (Sodium chloride) 2 gm or ½ level teaspoon.
    d. Baking soda (Sodium bi-carbonate) 2 gm or ½level teaspoon.
    e. Potassium chloride, 1½ gm or ½level teaspoons.
2. The amount of fluid loss must be replaced, either by mouth or by intravenous fluids immediately. Adults and older children should have plenty of clear fluids such as coconut water, sweetened tea without milk etc. As the patient recovers, a bland diet with well-boiled rice, biscuits, etc may be given.
3. Babies may have rice water or oral rehydration fluid in small sips and every 5 to 10 minutes and should continue feeding.
4. Antibiotics such as ampicillin or tetracycline may be given as per doctor' s prescription.

Preventive and Control Measures:

1. Isolation and strict rules to prevent cross- infection in hospitals.
2. Maintain cleanliness of food, water and milk.
3. Fly control, and protection of food.
4. Breastfeeding for babies. If the baby is fed with formula feeds, fluids and all utensils used must be boiled.
5. Sanitary disposal of faces.

5. Dysentery:

It is an infectious disease in which the patient passes stools with mucus and blood. The infectious microorganisms enter the body through the contaminated food and water and causes inflammation of the bowels. It may be bacillary dysentery or amoebic dysentery.

A. Bacillary Dysentery

It is caused by bacteria which are swallowed in food, water or milk contaminated through flies or by direct contact with faeces of infected persons. It may occur in epidemics. It is dangerous in infants and in very old people.

The incubation period is 1-7 days.

Signs and symptoms:

1. Fever, vomiting and abdominal pains.
2. The patient always wants to have a motion
3. Blood stained and mucous stool is passed.
4. There may be dehydration.
5. There is an urge to pass stools always

Diagnosis:

1. A stool specimen for microscopic study to identify the causative organisms.

Treatment and nursing care:

1. Replace fluid loss by oral rehydration fluid.
2. Infants should continue breast feeding.
3. The doctor may order Antibiotics.

Preventive and control Measures:

1. Isolation of patient, and disinfections of faces and soiled articles.
2. Sanitary disposal of faeces.
3. Safe drinking water.
4. Fly control and protection of food.
5. Food hygienic especially in preparing and handling food

B. Amoebic dysentery:

It is caused by a parasite called Entamoeba Hystalytica**.** It enters the body through contaminated food and water.

The incubation period is 3 to 4 weeks.

Signs and symptoms:

1. Blood and mucus passed in large stools alternating with constipation.
2. Dull pain on the right side of the abdomen.
3. The persons will become anaemic
4. Sometimes there is an acute attack of diarrhea.
5. The infected person may develop liver abscess.

Diagnosis:

It is by the presence of E.H amoebae or cysts in a fresh (warm) specimen of faces examined with a microscope.

Treatment and nursing cure:

1. Tablet Metroniadazole as per prescription.

Preventive and control measures:

1. Same as given for bacillary dysentery,
2. Carriers should be identified and treated

C. Poliomyelitis:

This is also called infantile paralysis because it more often affects children and causes paralysis. It is caused by a virus, which enters the body through contaminated food and water and attacks the nerves.

The incubation period 4-7 days,

Most children are infected with poliovirus at sometime, but most of them have no symptoms. Some children have a few days of fever and painful muscles and then recover. Some get a meningeal type of which lasts a few days and they recover in most cases.

Signs and Symptoms:

1. Polio is usually recognized only when the child stops walking and one of the legs are weak.

2. Before this manifestation the child may have had a cold and fever, neck stiffness and mild diarrhoea for a few days.
3. Paralysis may affect one or both legs, arms and in severe cases also the diaphragm causing difficulty with breathing.
4. The paralysis stops getting worse when the fever stops.
5. Some patients' recover completely in about 6 weeks, but many are left with permanent paralysis and perhaps deformity.

Treatment and nursing care:

1. There is no specific treatment for poliomyelitis.
2. If the child has pain, give him aspirin, or paracetemol.
3. **NO injections are allowed.**
4. The infected person should be kept at bed rest with the affected limb supported, and splinted if necessary.
5. After 10 days the mother should be taught to do passive exercise for five minutes for 5 times a day.
6. If paralysis continues, arrange for physiotherapy.

Preventive and control measures:

1. Oral polio vaccine (O.P.V) for all infants and children according to the **National Immunisation Schedule:**
3. Sanitary latrines and safe drinking water for all.
4. Isolation of cases and disinfection.
5. Search for polio cases especially among children.
6. During an epidemic, avoid surgery of children' s nose and throat, and avoid D.P.T vaccine (Diptheria polio and tetanus) immunization.

1. 3 Medical and surgical Asepsis:

Asepsis means absence of disease producing organisms. The microorganisms of different types are present everywhere in our environment and in the human body. The purpose of medical asepsis is to prevent by all means of cross-infections from one patient to another, including communicable disease infections.

The purpose of surgical asepsis is to prevent by all means of infections of the wounds of surgical patients, infection of the uterus during and after delivery, and infection that could be introduced by invasive procedures such as catheterisation, injections and infusions.

1.3.1 Medical Asepsis:

This includes:

1. General cleanliness
2. Isolation of infected persons.
3. Disinfection of all articles that may be contaminated, or used for more than one patient.
4. Correct and frequent hand-washing by all those caring for patients.

Hand-washing technique:

1. Wet the hands under running water.
2. Apply soap thoroughly, and use a brush for the nails if possible.
3. Rinse well.
4. Dry with a clean towel. It is important to keep the nails short.

1.3.2 Use of Gowns, Gloves and Masks, in Medical Asepsis:

Any patient who is a source of infection needs to be isolated. The type of isolation depends on the method by which the organisms may spread from person to person.

1. **Gown:** Gown protection is needed for persons in close contact with a patient who may spread infection by urine, faeces, vomit, or wound drainage. (e.g) typhoid fever, dysentery, cholera, gas gangrene.
2. **Gloves:** This is needed to protect persons coming in close contact with a patient having a communicable disease, which is air-borne. (e.g) diphtheria, sore throat, meningitis, chickenpox, whooping cough etc. In most of these cases a gown is also needed.

3. **Gown technique:** At the entrance to the patients unit a stand should be provided on which to hang the isolation gown. If the stand is inside the unit, the gown is hung with the contaminated side out.
   (i) If outside the unit, it is hung clean side out.
   (ii) To put on the gown, insert your hands into the sleeves of the gown without touching the contaminated side.
   (iii) Then fasten the neck-band, which is considered clean. Fasten the belt and then carry out the work in the unit.
   (iv) After finishing, untie the belt, wash your hands and untie the neckband.
   (v) Remove the first sleeve, remove the second sleeve by grasping it with the gown-covered hand.
   (vi) Place the gown carefully on the hook, then wash your hands again thoroughly.
4. **Use of gloves:** Clean gloves are usually adequate in medical asepsis, but when handling a wound after surgery or the vagina during delivery or in the puerperium, sterile gloves are needed.

   After using the gloves, they are removed and placed into a disinfectant solution. The gloved hands may be washed under the running water before taking them off and then placed in the disinfectant solution.
5. **Use of Masks:** Clean masks should be kept in a clean area near the hand-washing facilities at the entrance of the isolation unit. Take a mask and tie it on before you enter. When leaving, wash hands, remove the mask holding the strings only, and drop it into a second container for used masks. Masks must be disinfected before being used again. Now disposable masks are available for use and throw.

1.3.3 Principles of isolation technique:

1. The degree of isolation will depend on the type of disease.
2. The patient should be isolated as long as he/she is a source of infection. The time depends on the particular disease.

3. Persons attending the patient should be limited to one or two and no visitors allowed.
4. The room should have only essential furniture and be easily cleaned (Damp dusting and floor cleaning).
5. Gown, apron and mask should be provided for any one entering the room. Used masks are to be dropped into disinfectant solution.
6. Hands should be washed with soap and water after touching the patient. All the articles used by him should be disinfected
7. Everything taken out of the room must be disinfected. Dust, excreta and discharges, waste food soiled linen and utensils, must be disposed off with care.
8. For terminal disinfection, the patient is given a bath and clean clothes, and taken away from the isolation room. Then the room and everything in it is thoroughly disinfected.

1.3.4 Barrier nursing:

In this type of isolation, the corner of a general medical ward is suitable for patient with infections other than air-borne. (e.g) Typhoid fever, dysentery and diarrhoea. It is best if the room is screened against flies. A gown or apron and hand washing facilities are kept at the bedside. Excreta must be carefully disposed of bedpans and bed linen is disinfected. All other precautions are taken to prevent the spread of the infections.

1.4. Surgical Asepsis:

This means keeping objects and areas ‘ sterile’ free from all organisms. Surgical asepsis (Sterile technique) is used in the operating room, delivery room, in doing surgical dressings and many other invasive procedures.

The nurse must thoroughly understand the principle of surgical asepsis. She must be reliable in always keeping to these principles. She must know about the use and care of the masks, gloves and gowns, the proper technique of hand washing for surgical procedures and the sterilizing and handling of sterile equipments.

1.4.1 Masks, gloves and gowns for surgical use:

1. **Masks:** A facemask is worn when doing any sterile surgical procedures. The purpose of the mask in surgical nursing is to prevent any germs from the person' s respiratory tract from being breathed up on the wound or sterile articles.
   (i) The mask should cover both nose and mouth of the wearer.
   (ii) It is made of two or more layers of material, either in rectangular or nosebag shape, with tapes to tie at the back of head.
   (iii) While being worn, the face piece should not be touched.
   (iv) If it becomes wet with sweat or by sneezing, it should be changed.
   (v) Do not speak more than necessary during surgery.
   (vi) A fresh mask should be worn for each procedure.
   (vii) The mask should neither be suspended around the neck nor put into the pocket.
   (viii) After use, remove the mask, hold it by the tapes, and place it straight into antiseptic solution.
   (ix) At the end of each day, the used masks should be washed, dried, then folded with tapes outside and sterilized ready for use again.
   (x) In some hospitals, disposable masks are worn.
2. **Gloves:** Surgical gloves in various sizes are made of special thin rubber so that the surgeon may not lose the sense of touch.
   (i) In clean operations they are worn to protect the patient, but in infected cases they protect the wearer also.
   (ii) After use, gloves should be washed in cold water and then with soap and water.
   (iii) By filling the glove with water holes can be detected.
   (iv) The gloves may be wiped dry or hung on a rack and turned to dry the inside as well.

(v) To prepare for sterilizing, dust the gloves well both inside and out with glove powder.

(vi) See that the roughened surface is on the outside (for better grip) then pair off the gloves.

(vii) Turn back the cuffs 5 cm and place a small pocket of glove powder just inside the right-hand glove.

(viii) Place the pair of gloves in a glove pocket marked with the correct size. Disposable gloves are now in use.

3. **Gowns:** Steam sterilized theatre gowns are worn by the scrubbed-up operating team, to prevent contamination of the sterile field by the contact with clothing or skin. Unsterile but clean gowns are often worn by those persons in the operating room who are not scrubbed up.

(i) For the surgeon and his assistant particularly, gowns should be made of close- woven material.

(ii) For all those scrubbed up, the gowns must have sleeves, which are long enough to fit under the gloves at the wrists.

(iii) All the gowns fasten at the back.

(iv) An unsterile helper ties the tapes without touching the outside of the sterile gown.

(v) After use, gowns are soaked in cold water if blood stained, then hung to dry and sent to the laundry, or well washed in hot soapy water and ironed.

(vi) Gowns to be sterilized must be folded and rolled up in such a way that only the inner surface is handled by the scrubbed up persons.

(vii) They are packed in drums or bundles ready for autoclaving.

4. **Caps, clothing and footwear:** In the operating theatre, there must be no risk of introducing dust and dirt, especially any soil that may contain tetanus organisms. Therefore every

person entering must wear clean clothing, and put on clean theatre slippers or canvas shoes.

(i) These must be removed on leaving the theatre.

(ii) The hair must be completely covered by means of a clean theatre cap.

5. **Surgical hand-scrub:** In all surgical work it is important to keep the hands and nails clean. Nails must be cut or filed very short.

   (i) The surgical hand scrub is necessary for the surgeons and those assisting at an operation, and for sterile procedures.

   (ii) It must be realized that hands can never be made sterile except by wearing sterile gloves.

Requirements:

1. Running water.
2. Antiseptic soap or soap solution.
3. Sterile nail brush
4. Sterile towel.

Method:

1. Wear a clean cap and then a clean mask.
2. Note the time, the procedure should take 10 minutes.
3. Wet the hands up to the elbows under the running water.
4. Apply soap to make a good lather, and look it into the hands and arms, adding small amounts of water but not enough to remove the lather.
5. After 30 seconds, rinse thoroughly.
6. Apply more soap and this time uses the brush. Pay special attention to the nails, fingertips and between fingers. Add more water in small amounts frequently but keep the lather, with more soap also. After the nails, fingers and hand, work up the arm, scrubbing gently with circular motions and following at the elbow. Repeat for the other arm.

7. Rinse the arms and other hands with forearms held up so that water does not run down from the elbows to the hands.
8. Dry on a sterile towel, starting with the hands and moving upwards.

1.4.2 Wearing sterile gowns and gloves:

1. Take hold of the gown at arms length with your scrubbed up hands, unroll, and slip arms into the smaller, asking a helper to the tapes at the back. Both you and the helper must be very careful not to touch the outside of the gown.
2. Dust your hands with sterile powder, and put on the gloves. Hold the first glove by the turned back cuff, and slip it on. Next insert the gloved fingers under the cuff of the second glove and slip it on. The cuff of each glove is then unfolded and pulled completely over the sleeve end of the gown. These must be no gap at the wrist, and the nurse must not touch the bare skin nor inside of glove or gown when scrubbed up.
3. The first scrubbed up person may help others by holding the sterile gloves for them to slip in their hands. When scrubbed up, the nurse must remember to touch only sterile things. The instrument table and whole field of operation is draped with large sterile clothes and towels. Helpers who are not scrubbed up may help to bring sterile suppliers to the tables, keeping to the outside and using ‘Cheatle forceps’.

1.4.3 Handling of Sterile articles:

1. Always wear a mask when handling sterile articles.
2. Sterilized articles must be kept in sterile containers or on sterile towels, and kept covered till used. Never allow contact of unsterile with sterile articles.
3. Make sure there is no dampness, as this could make the things unsterile.
4. Never allow any unsterile article including the arms and hands to pass a sterile field.

5. Never touch the inside of a package or container with your fingers. Use the cheatle forceps.
6. To pull a cork from a bottle of sterile fluid, take care not to contaminate the inner part neither of the cork nor inside the rim of the bottle. Replace it carefully.
7. When lifting a cover from a sterile container bring it down with the inner side up and then replace it without delay.
8. To carry a sterile bowl or other container, hold it with your hands underneath, and do not touch the rim.

Rules for use of cheatle forceps

1. The sterile jar holding the forceps must be cleaned, re-sterilized and filled with fresh antiseptic lotion daily. The cheatle forceps should be cleaned and autoclaved or boiled.
2. When in use, keep the forceps at elbow level and pointed downwards because if you lift it upwards the solution may run on to your hand and then back to the forceps, making it unsterile.
3. Put the forceps back into the jar immediately after use. Replace carefully without touching the rim of the jar. If the forceps becomes contaminated, it must be re-sterilized before being put back into the jar.

1.4.4 Cross infection:

Cross infection is the process of transmission of infection from one person to another person through the health care provider by using improper aseptic technique in the hospital and in the environment.

1.4.5. Disinfection and methods:

Disinfection is the process of killing the pathogenic or disease producing microorganism but not usually bacterial spores.

Disinfectant is germicide an agent which kills pathogenic or disease producing microorganisms but not usually bacterial spores. Eg . phenol and Lysol.

A deodorant is an agent, which suppresses bad odours. Eg. Lime , bleaching powder

Detergent is a surface cleansing agent, which acts by lowering surface tension. Eg soap.

Antiseptic is an agent which prevents the growth of microorganisms. Eg alcohol.

Sterilization is a destruction of microorganisms and their spores.

Types of Disinfection:

1. **Concurrent disinfection:** This is disinfection of infectious material (eg stools, urine contaminated linen) through out the course of an illness . This procedure checks or prevents the dissemination or further spread of the disease agent.
2. **Terminal disinfection:** This is disinfection that is undertaken at the termination of an illness. (eg. After recovery or death of the patient).
3. **Prohylactic disinfection:** Boiling of water, pasteurisation of milk, washing hands with soap and water are examples.

Sterilisation :

It is one of the methods of disinfections which is stated above.

Methods of disinfection:

1. **Natural:** Sunlight and air
2. **Physical:** Dry heat , moist heat and radiation
3. **Chemical:** Liquids, solids and gases.

Preparing articles for disinfection (sterilization):

A convenient method often used is to prepare sets of the instrument, swabs, sponges, dressings, towels and the surfaces needed for each type of operation or sterile procedures.

1. These sets are packed into drums, bundles or on trays, labeled and kept ready for sterilising.
2. The articles should be carefully arranged so that those needed first are on top.

3. They must be loosely packed for steam to penetrate.
4. Drums or bins must have the perforations opened.
5. Bundles should have a double wrapper of close-woven cloth, or of paper.

A. Dressings:

Swabs and sponges are usually made of several thickness of surgical gauze. Raw edges must be folded to the desired size to prepare gauze. Sponges used for abdominal surgery need to be large, stitched around the edge and a piece of tape sewed to one corner. When an artery forceps is clipped into the end of the tape, there is no risk of the sponge being left inside the abdomen.

B. Packing gauze:

It is made in various sizes. Use gauze four times the width of the desired packing. Fold the edges so that they meet in the middle and again fold down the center, and roll.

C. Cotton balls:

It is prepared in various ways. Cotton balls of various sizes are prepared by rolling between the palms. Some may be needed for intestinal surgery, and for this the cotton ball must be covered with gauze and tied. This type of ball is grasped with a long handed forceps.

D. Instruments:

After use, surgical instruments should be washed first in cold water then in warm water with a detergent. Use a brush to clean well especially between the teeth of artery forceps and clamps. To be properly sterilized, there should be no dried blood or discharge. Rinse in clean water, then boil for 5 minutes and dry well.

Sharp instruments, knives and needles should be dealt with separately, taking care to avoid cuts and puncture wounds.

E. Glass syringes and metal needles:

After use, draw up some water into the glass syringe and push enough through each metal needle to make sure they are not blocked. Infected glass syringes (used for withdrawing blood or pus) should be washed immediately in cold disinfectant solution.

Next wash the syringes and needles in warm soapy water, using a bottle brush for the barrel. Rinse in clean water. Take care not to get barrels and plungers mixed, but keep them always paired together.

Needles should be examined carefully for sharpness. Take care not to prick your finger as infection may be transmitted in this way.

F. Rubber tubing

After use tubes should be cleaned with cold water, then with hot soapy water and then rinsed. The inside must be thoroughly cleaned. Then it is boiled, and hung over. Rubber catheters should be cleaned by running cold water through from both ends. Wash and rinse in cold water, then dry, with a towel or by hanging up. Autoclave the catheters before use.

Disinfecting methods (sterilisation- physical):

1. **Dry heat:**
   (i) Sterilizing of glassware including syringes is often done in a hot air oven at 160^0c for one hour.
   (ii) Spores as well as organisms are killed. Rubber articles will not withstand this heat.
   (iii) This method is not efficient where heat has to penetrate as in dressings, towels and gowns.
2. **Moist heat : Autoclaving (Steam under pressure):**
   (i) This is a reliable method and may be used for most articles.
   (ii) The autoclave is a chamber with an outer jacket and a lid or door, which can be firmly clamped.
   (iii) Steam, is generated by heating water in a boiler or in the outer jacket.
   (iv) Air is evacuated from the chamber by displacement.
   (v) Then the steam is allowed to build up pressure, usually 15 to 20 lbs per square inches, and is kept at that pressure for 15 to 30 minutes.

(vi) Then the heat is turned off and the contents of the autoclave allowed to dry out.

(vii) They should be quite dry when removed from the autoclave.

Points to remember:

i. All articles should be clean and dry before packing. Any organic matter such as blood or pus prevents penetration of steam.

ii. The holder in the drums must be open when placing into the autoclave and closed immediately on taking them out.

iii. Bundles should be neither be too large nor be too tightly packed. Steam should be able to penetrate to the center.

iv. Rubber gloves cannot withstand high temperature and long sterilising. Autoclave them separately at 15 lbs pressure for 15 minutes.

v. To autoclave bottles of fluid, loosen the screw cops, evacuate the steam slowly.

Boiling:

(i) This method is suitable for enamel, metal, glass and rubber ware.

(ii) Bowl sterilizers are used for larger articles and instrument sterilizers for smaller articles.

Points to remember:

i. See that the articles are quiet clean and completely immersed in clean water.

ii. When the water boils, start timing. If more articles are added, the sterilizing time must begin again.

iii. Boil for 5 minutes.

iv. Boiling will not kill spores

v. Remove articles with sterile cheatle or other lifting forceps, and place them on a sterile surface.

3. Chemical disinfection:

This method is used for sterilising delicate instruments such as eye instruments.

Points to remember:

i) The articles must be clean and free from pus, blood or oil.
ii) They must be completely immersed in the disinfectant.
iii) The disinfectant should be of certain strength, and the articles must be in contact with it for a specific period.
iv) After sterilization, articles must be well rinsed in sterile water before use.

Summary:

Much of ill health in India is due to lack of cleanliness and poor nutrition. When the living organisms enter and attack our bodies, they cause sickness and it is called infection.

Microorganisms enter into the body through digestive and respiratory tract and through injured skin and mucous membranes.

There are water-borne and air-borne infections. Typhoid, dysentery, cholera, diarrhoea and poliomyelitis and common water-borne infections. Pneumonia , measles mumps are some of the common air-borne infections.

By adapting proper medical and surgical asepsis care, the nurse can prevent cross infections as well as hospital acquired infections.

QUESTIONS

I. Fill in the blanks.

1. _____ means absence of disease producing organisms.
2. ___ is used to prevent soiling from faeces, urine, vomiting.
3. The infected persons should be kept in _____ ward.
4. _____is the process of making materials needed for surgery.
5. ___ is done to prevent infections from one patient to another.

II. Match the following:

1. Protozoa	plant type of organisms.
2. Fungi	rod shaped organisms.
3. Bacilli	triple antigen
4. D.P.T	cholera.
5. B.C.G	animal type of organisms.
6. Epidemic	vaccine against tuberculosis
7. Mosquito	the germs live in a soil and cowdung.
8. Air-borne diseases	malaria
9. Tetanus	water borne infection
10. Typhoid	common cold, measles

III. Write short answers:

1. Define the following:
   - i) Infection
   - ii) Disinfection
   - iii) Asepsis
   - iv) Fungi
   - v) Protozoa
   - vi) Bacilli
   - vii) Virus
   - viii) Epidemic
   - ix) Chlorination

x) Incubation period

xi) Isolation

xii) Immunisation

xiii) Immunity

xiv) Sterilization

xv) Pathogens.

IV. Answer the following:

1. How will you prevent the infection from feacal to oral route?
2. How do the tetanus bacilli enter into the body?
3. What are the routes of infection into the human body?
4. What are the ways that the organisms will exit from an infected person?
5. How will you prevent the droplet infection?
6. How will you control the flies?
7. How will you control the mosquitoes?
8. What are the diseases caused by rodents and stray dogs?
9. How will you purify the water at home?
10. Write the names of diseases spread by viruses?
11. Name the communicable diseases, their signs and symptoms, treatment and prevention.
12. What is medical asepsis?
13. What is surgical asepsis?
14. How will you handle the sterile articles?

15. How will you sterilize the following the articles? Metal instruments, glass syringes and metal needles, dressing materials, gloves.
16. Describe autoclaving.
17. What are the points to remember before sending the articles for sterilisation?

V. Learning activities:

1. In the classroom, practice isolation technique including wearing a gown and mask, hand washing.
2. Observe and practise the surgical scrubbing, wearing mask, gown and gloves for surgery. Practise handling of sterile articles.
3. Learn the names and use of various instruments and equipments used in simple surgical procedures and the correct way to handle them.
4. Get experience first as helper, then as dresser in caring for simple surgical wounds and perineal sutures.
5. Get experience in preparing a patient for operation and in observing and giving care after the operation.

2. NUTRITION AND DIET THERAPY

In order to live a healthy life we need all kinds of nutrients in correct proportion. Plants need sunlight, water, soil and manure for their growth. Like that human beings need nutrients of different kinds for their optimum growth and development and maintenance of health.

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.

2.1 Nutrition and health

When a person does not eat the right nutrients in right quantity he or she is malnourished and we call this condition as malnutrition.

Malnutrition is very common among children in India. He or she is under-weight because of not having enough kind of food needed for their growth. In many parts of India 40% of children is under-weight for their ages.

When an under-weight child gets measles or diarrhea or some other infection, the malnutrition gets worsened and he may die. A well-nourished child is less likely to become sick and if at all he is infected, he is able to overcome the disease condition.

Malnutrition also affects the intelligence of a child. His or her trouble may start even before birth if his mother does not have the right foods when she is pregnant. The malnourished child is slow in learning and doing.

Adult people who are malnourished are not able to work optimum. Production and development of the country are slowed down because of malnutrition. Every one needs enough right kinds of food.

Here is comparison of the effects on the people of good nutrition and malnutrition.

Good nutrition	Malnutrition
1. Correct weight for height and age. 2. Strong muscles 3. Limbs straight 4. Smooth, clear skin and mucous membranes. 5. Healthy, bright eyes, clear sight. 6. Hearing well. 7. Breathing unobstructed. 8. Teeth well formed and free from dental caries 9. Tonsils are normal and free from infection 10. Erect posture in sitting, standing and walking. 11. Nerves steady, expression calm and cheerful, quick to learn. 12. They are energetic 13.Good resistance to infections.	1. Weight too much or too little for height and age. 2. Weak muscles. 3. Bowlegs or knock-knees. 4. Skin dry and rough mucous membrane. 5. Eyes dull, night blindness, poor sight. 6. Hearing poor. 7. Mouth breathing and adenoids will be present. 8. Malocclusion of teeth, dental caries, spongy gums. 9. Tonsils are enlarged, often infected. 10. Abnormal gaite, twisted spine, protruding abdomen. 11. Nervous, anxious, irritable, slow to learn. 12. They are tired and listless. 13. Poor resistance to infections.

2.2 Food and Nutrients:

Food means any substance, which can be used to the body for nourishment, that is, for its growth and maintenance. Food is necessary for life. Foods are obtained from plants of many kinds, and from birds, fish and animals.

Nutrients are materials present in food: They are,

1. Proteins.
2. Carbohydrates
3. Fats and oils.
4. Vitamins.
5. Minerals
6. Water.

Most food contains several of these nutrients. There is no one food in nature, which contains all nutrients. We need to know different kinds of foods, what nutrients they contain and why they are important.

2.2.1 Functions of Food:

1. For growth and development, and repairing of tissues- Protein food mainly.
2. To provide energy for doing work-stable foods and fats.
3. To help the body to function properly and to protect from diseases- vitamins and minerals.

When all these functions are fulfilled in the body, a person is in a state of good health.

Energy yielding food.

A continual need of the body is energy. Energy foodstuffs are fuel for the body to work, like diesel is the fuel for a bus to run. The harder you work, the more energy food you need. Even at rest, the body still uses energy for breathing and for the heart beating.

While burning fuel foods for energy, heat is also produced. In cold weather one can keep oneself warm by exercising and eating more energy foods.

Stable foods are cheap sources of energy. They are the basis of our diet. They contain mostly carbohydrates and also proteins in small amount. The kind of stable food we eat depends on our food habits and also what are available.

The stable food includes:

1. Cereals and grains: Wheat made into bread, chappati etc, rice, jowar, maize, ragi and millets.

2. Starchy vegetables: Potatoes, sweet potato and tapioca.
3. Starchy fruits: Banana, jackfruit, mango etc.
4. Sugar, honey and jaggery provide extra energy. They are rich in carbohydrates foods.

Fats and oils such as vanaspathi, butter, ghee, oilseeds and cooking oils are good sources of energy but they are not cheap. We should include them with each meal. Fatstores in the body are useful when more energy is needed.

Calories are the unit to measure energy. We use calories to measure how much of energy is there in certain foods. We also use calories to measure how much of energy a person needs (energy requirements).

- One gram of carbohydrate yields four calories.
- One gram of fat yields nine calories.
- One gram of protein yields four calories.

Proteins are not included in energy yielding food because they are mainly used for bodybuilding. Here are some foodstuffs and the calories provided per 100 grams.

Food stuff	Calories
1. Cow milk	65
2. Buffalo milk	117
3. Jaggery	383
4. Honey	320
5. Sesame seeds	564
6. Groundnuts	549
7. Banana	150
8. Tapioca	159
9. Sweet potato	132
10. Potato	99
11. Wheat bread	238
12. Wheat flour	348
13. Chappati	124

14. Rice	345
15. Ragi	331
16. Maize	342
17. Bajra	360

Calorie requirements (energy requirements):

1. A baby below 6 months needs 120 calories per kg of body weight per day.
2. A baby, 7 to 12 months age needs 100 calories/kg per day.
3. A child, 1-3 years old needs about 1200 calories per day.
4. A child, 4-6 years old needs about 1600 calories per day.
5. A child, 7-9 years old needs about 1800 calories per day.
6. A child, 10-12 years old needs about 2100 calories per day.
7. An adolescent girl 13-19 years old and boy 13-15 years old needs 2300 calorie per day.
8. An adolescent boy 16-19 years old needs 3000 calories per day.
9. A man with moderate work needs 2800 calories per day.
10. A woman with moderate work needs 2200 calories per day.
11. A woman who is pregnant needs extra 300 calories per day.
12. A woman who is lactating needs extra 500 calories per day.

Proteins or the body-builders:

Proteins are essential for growth, for building different kinds of cells, tissues and organs of the human body. From this we can understand why pregnant women, nursing mothers, babies and children all need to have a lot of proteins in their diet.

Those who are injured or diseased need extra protein for repair of tissue. Everyone needs protein because our bodies are made up of living cells, which wear out and need replacing. For example, the life of red blood cells is only about 120 days. New red blood cells need to be synthesized constantly.

Amino Acids:

There are different types of proteins and each one is made up of different type of amino acids. There are about 20 different kinds of amino acids. When we eat a protein food, first the protein gets separated and then the protein chain is broken into amino acids.

Inside the body new proteins are synthesized by joining up the amino acids in different order according to the needs of the body. These are called body proteins.

The body can make some amino acids out of others, and these are called ‘ nonessential amino acids’ . About 8 amino acids cannot be made by the body and must be taken in our food. They are called the ‘ essential amino acids’ .

The protein in milk and eggs provide all these essential amino acids and these are the best bodybuilding food. Other animal proteins (meat and fish) are also good body-builders.

Vegetarians and people who cannot afford to have animal proteins can get enough essential amino acids by mixing and including more variety of plant protein food.

Many amino acids in our food are not useful for bodybuilding and so are used as fuel for energy. Those who do not get enough of the essential amino acids in their diet become malnourished. However, it is often possible to get the amino acids we need by eating two kinds of plant proteins at one time.

For example, proteins in rice are short of two essential amino acids, but pulses are rich sources of these amino acids. Therefore mixing pulses with rice makes a more nutritious diet.

In a similar way, soy flour (from soyabeans) can be mixed with wheat flour to make nutritious roti or chappaties. A mixed cereal diet is better than just one kind of cereal.

A poor family at least can cook some dark green leafy vegetables to eat with the stable food and this will help in providing some proteins.

2.2.2 Functions, sources and daily requirements of proteins, carbohydrates and fats:

1. Proteins:

Functions:

1. For body growth (body-building)
2. Repair of worn out tissues and healing of wounds.
3. For the blood, to make hemoglobin and blood proteins.
4. For making enzymes and hormones.
5. For secretion of mother' s milk.
6. For the development of antibodies to protect against infections.
7. May be used for energy.

Sources:

Animal proteins (best for body-building)	**:**	Milk, curds, cheese, egg, fish and meat.
Vegetable proteins	**:**	Groundnuts and soya beans are the best sources of proteins. Cereals, pulses (dhal and grams) legumes (peas and beans) oil seeds.

Deficiency:

The effects of protein deficiency include the following:

1. In pregnant woman the baby may be stillborn or premature
2. In infants and early childhood: Stunted growth and mental retardation, kwashiorkor.
3. In adults, weakness, anemia, thin muscles, diarrhoea, recurrent infections, delay in wound healing, edema, ascites and liver cirrhosis.
4. **Kwashiorkor:** It is also called wet malnutrition. It is caused by not eating enough protein. A child with kwashiorkor may look fat, but he has edema. He has swollen feet, hands and face. When we press the swollen parts, your finger makes a depression or dimple because there is fluid accumulation under the skin. He may be over-weight because of the edema, but when the edema goes, his weight will fall down. Even with edema, the upper arms will be thin, and the arm

circumference is low. The child with kwashiorkor also has sores with peeling skin, his hair loses its natural colour, and he is likely to have diarrhoea. He is unhappy, and not active like other children of his age.

Kwashiorkor is the most common in children between 1 – 2 years. Often it first appears in a child following a diarrhoeal or measles infection.

Children with kwashiorkor need extra food, especially foods rich in protein. If possible give eggs, chicken meat and fish. Poor families who cannot afford these may prefer soya beans and groundnuts which are good and cheap sources of protein. Soya beans need to be soaked well before being cooked, or made into flour and mixed with other flour to make porridge.

If a child with kwashiorkor is not able to take feeds, he must be tube-fed, with high protein – calorie liquid foods, about 150 ml per kg per day.

2. Carbohydrates:

Functions:

1. Provide energy for work.
2. Produce heat.
3. Help in metabolism of fats and proteins.
4. Cellulose (fibre) a type of carbohydrate prevents, constipation

Sources:

Cereals	**:**	rice, wheat, jowar, maize, ragi.
Sugars	**:**	White sugar, jaggery, honey, glucose.
Root vegetables	**:**	Potato, sweet potato, tapioco.
Fruits	**:**	Banana, jackfruit, mango etc.

Recommended dietary allowance (RDA) is 1 gram of protein per kg of body weight.

Deficiency:

‘ Marasmus’ is a deficiency condition in which the child is small, very thin, with no fat under his skin and with muscles

wasting. His face is so thin that he looks like a little old man. He is only about half the weight that he should be for his age. His mid-arm circumference is much less than 14 cm. He may have chronic diarrhea.

The cause of marasmus may be

1. Loss of mother
2. Lack of breast milk.
3. Bottle feeds
4. Recurrent diarrhoea,

The child with marasmus needs sufficient food.

3. Fats:

Functions:

1. It acts as a concentrated energy source.
2. It helps in absorption of fat soluble vitamins (vitamins A, D, E and K).
3. It makes food tasty and satisfies the appetite.
4. Fat stored in the body protects one from cold and is a reserve source of energy.
5. It gives energy and heat to the body.

Sources:

- Sesame oil.
- Sunflower seed oil
- Cottonseed oil
- Soyabean oil.

Other sources:

- Groundnut oils, coconut oil, mustard oil.
- Vanaspati, butter, ghee, cheese, milk, curds, fish and fatty meat.

Deficiency:

Deficiency of fats leads to dry skin (toad skin).

2.3 Vitamins and minerals-protective foods

Vitamins and minerals are micronutrients, as very small amounts of vitamins and minerals are needed every day to keep the

body in good health. Many foods contain vitamins and minerals as well as proteins, carbohydrates and Fats. Vitamins and minerals regulate the body functions.

1. Vitamins:

'Vita' means life. Deficiency of vitamins results in ill-health and even death. There are two groups:

a. Fat- soluble vitamins: A, D, E, and K.
b. Water soluble Vitamins: B and C.

Vitamin A:

Vitamin A is needed in the body for

1. Healthy eyes.
2. Healthy skin and mucous membrane.

Recommended dietary allowance (RDA): A daily requirement of vitamin A is 800 micrograms. Too much is harmful.

Sources:

Fish liver oil, egg, butter, ghee and milk are rich sources of vitamin A. In plants there is a substance called carotene or pro-vitamin A, which can be made into Vitamin A in the body.

Sources of carotene are dark green leafy vegetables and yellow fruits and vegetables such as carrot, papaya, ripe mango, yellow pumpkin.

Deficiency:

If a person does not have enough Vitamin A, he gets night blindness, then dry eye, and may become blind.

Vitamin D:

Uses

It helps in absorption of calcium and phosphorus to build bones and teeth.

Sources:

1. Sunlight is the cheapest source. Vitamin D formed in the skin by the action of ultra-violet rays in sunlight.
2. Fish liver oil.
3. Butter, ghee, groundnut oil and egg yoke.

Recommended dietary allowance (RDA): 400 internal units.

Deficiency:

Deficiency leads to rickets

Vitamin E:

Vitamin E is essential for normal reproduction.

Plant sources	:	Vegetable oils, soyabeans, groundnuts, whole cereals.
Animal sources	:	Eggs, meat and fish.

Recommended dietary allowance (RDA): 11 international units.

Deficiency:

Deficiency may lead to infertility.

Vitamin K:

Vitamin K is the necessary for blood clotting. It is used in prevention and treatment of hemorrhage.

Sources:

- Dark green leaves of all kinds, pulses, cereals and fruits.
- It is also produced by bacteria in the small intestine.
- Sprouted grains.
- Dairy products.

Recommended dietary allowance (RDA): 60 micrograms per day.

Deficiency:

Deficiency leads to bleeding disorders.

2.3.1 Water soluble vitamins: Vitamin B and C

Vitamin B1 or Thiamine:

Vitamin B1 or Thiamine is necessary for carbohydrate metabolism and conduction of nerve impulses

Sources:

Dried fruits, yeasts, unpolished rice, whole wheat flour, whole cereals and pulses, nuts and oils seeds, liver and green leafy vegetables.

Recommended dietary allowance (RDA): 1.1 milligram per day

Deficiency:

This is common where people eat a lot of raw polished rice, as in parts of Andhra Pradesh. Early symptoms are

1. Loss of appetite
2. Tingling hands and feet, or numbness.
3. Restlessness and general weakness.
4. Breathlessness due to heart enlargements.
5. Leads to loss of memory and nervous disorder.

If thiamine deficiency continuous, it results in the disease called beri-beri. There are two forms of beri-beri. In the wet type, there is edema or swelling all over the body. In the dry type, there is paralysis.

Infantile beri-beri can result in early sudden death due to enlarged heart. In deficiency of thiamine, there is usually also deficiency of riboflavin and nicotinic acid. Therefore vitamin B Complex is needed in its treatment, as well as extra thiamine.

Riboflavin: Vitamin B2

Riboflavin is necessary for

1. Metabolism of carbohydrates, fats and amino acids.
2. Healthy eyes and mouth.

Sources:

Dried yeast, whole cereals, pulses and dark green leafy vegetables, milk and eggs, and liver.

Recommended dietary allowance (RDA): 1 – 2 milligram per day.

Deficiency:

Signs of this are

1. angular stomatitis-sore white patches at the corners of the mouth.
2. glossitis-swollen sore tongue.
3. redness and burning feeling in the eyes.
4. dermatitis –skin lesions.

Nicotinic acid:

Nicotinic acid (Niacin) is needed for

1. carbohydrate metabolism along with thiamine and riboflavin
2. healthy skin and mucous membrane
3. healthy nervous system.

Sources:

Dried yeast, whole cereals, groundnuts and pulses, liver, meat and fish.

Recommended dietary allowance (RDA): 15 milligram per day

Deficiency:

Deficiency leads to a disease called pellagra.

The signs are

1. Sore tongue, with teeth marks made by the teeth.
2. Dermatitis- dark patches on exposed parts of the skin.
3. Diarrhoea
4. Dementia- loss of memory.

Advanced stage of pellagra usually ends in death.

For both Riboflavin and Nicotinic acid deficiency, vitamin B complex is given.

Folic Acid:

Folic acid is needed for synthesis of red blood cells and in the formation of new tissues.

Sources:

Dried yeast, liver and egg, cereals, pulses, nuts and oil seeds, dark green leafy vegetables and other vegetables.

Recommended dietary allowance (RDA): 180 microgram per day. For pregnant and lactating women need 300 micrograms per day

Vitamin B12: (cobalamin)

Vitamin 12 is also needed for synthesis of red blood cells.

Sources:

Milk, eggs and meat especially liver.

Recommended dietary allowance (RDA) : 2 microgram per day.

Deficiency:

B12 deficiency leads to pernicious anemia.

Vitamin B6: (pyridoxine)

Vitamin B6 is necessary for carbohydrate and fat metabolism.

Sources:

Cereals, pulses, oil seeds, potatoes, fish, liver, wheat germ, yeast and nuts.

Recommended dietary allowance (RDA): 2 mg per day

Vitamin C (Ascorbic Acid)

Vitamin C is necessary to

1. Keep body tissues intact
2. Help in repair of tissues.
3. Protect the body against infections.
4. Absorb iron.

Sources:

Drumsticks and their leaves, amla (nellikai), bitter gourd guava, sprouted grain, citrus fruits such as oranges and lemons, papaya, tomato. The vitamin is very easily destroyed by heat, light and drying.

Recommended dietary allowance (RDA): 30-50 mg, and for lactating women 80 mg.

Deficiency:

This results in scurvy. It is found in infants who are given inadequate feeds and those who do not take enough fresh fruits and vegetables containing vitamin C.

Signs and Symptoms of scurvy are:

1. Spongy, bleeding gums and loose teeth.
2. Bleeding under the skin and into various tissues.
3. Pain and swelling in the joints.
4. Slow healing of wounds, or breakdown of old wound scars.

Treatment is with ascorbic acid (vitamin C) tablets or multivitamin tablets, and advice about diet. Infants who are not

breast fed need vitamin C, and given in the form of fruit juice or vegetable juice. Those recovering from illness such as diarrhoea, or from wounds, need more of this vitamin.

Minerals:

Plants absorb minerals in the soil and water. Animals and human beings eat plants. Therefore we get minerals from three sources: Water, plants and animals.

Calcium:

This mineral is present in large amounts in bones and teeth. Therefore extra calcium is needed for pregnant and nursing mothers and growing children.

Functions:

Calcium is necessary for

- formation of bones and teeth
- clotting of blood.
- strength of capillary walls.
- contraction of heart muscle and skeletal muscles.
- normal functioning of nerves.

Calcium needs to be in correct proportion with phosphorus. Vitamins D and C are also needed for calcium absorption and utilization.

Sources:

Milk is an important source. Other sources are ragi, bajra, sesame seeds, wheat, small dried fish and seafood.

Recommended dietary allowance (RDA): 1200 mg per day

Calcium deficiency:

This may result in

1. Stunted growth in children.
2. Rickets (Calcium and vitamin D deficiency)
3. Tetany-nervousness, muscles twitching and spasms.
4. Osteoporosis - brittle bones so that fractures occur with minor accidents.
5. Interference with blood clotting.

Phosphorus:

Phosphorus is needed

1. With calcium to form bones and teeth.
2. For brain and nerves formation.
3. For carbohydrates and fat metabolism.
4. For development of all types of cells in the body.

Sources:

Most food contain phosphorus, especially milk, meat, fish, eggs, nuts grains and green leaves.

Recommended dietary allowance (RDA): 1200 mg per day.

Iron:

Iron is necessary for synthesis of hemoglobin in the blood. Pregnant women need extra iron for the development of fetal blood. Iron is lost in menstruation and whenever there is bleeding deficiency of iron causes anemia. Vitamin C helps in the absorption of iron.

Sources:

Ragi, bajra, sesame seeds, jaggery, dark green leafy vegetables, gram and dhal, liver, meat and eggs.

Recommended dietary allowance (RDA): 25 mg for men and 35 mg for women per day.

Deficiency:

Insufficiency of iron in the diet is a common cause of anemia. Those who lack iron look pale, have difficulties in breathing and get easily tired. Children who are anemia are often sick.

Normally the iron in our bodies is reused and hence we need little extra iron from our diet. In the following circumstances iron is lost and anemia develops.

1. Bleeding of any kind, excess bleeding during menstruation, bleeding piles and dysentery.
2. Disease such as malaria and hookworm, where blood is destroyed.
3. In pregnancy because the fetus takes iron from the mother.

Growing children need extra iron to synthesis blood, and anemia is common especially after the age of 3 or 4 months when the iron stored in the liver is depleted. There is very little iron in milk, and other iron rich foods must be given to these young children.

Iodine:

Iodine is needed for the normal functioning of the thyroid gland.

Sources:

- Sea fish, vegetables grown near the seawater.
- Iodized salt should be used.

Recommended dietary allowance (RDA): 150 mg per day.

Deficiency:

In places far from the sea there is deficiency of iodine in water and food (Himalayan belt). In many people, especially girls, the thyroid gland enlarges leading to a condition called goiter.

1. Goitre is an endemic disease.
2. During pregnancy iodine deficiency causes cretinism in the baby.
3. Goitre may be prevented and also cured by the regular use of iodized salt in the diet of people who live in areas of iodine deficiency.
4. Under the National Goitre Control Programme (NGCP), iodized salt is supplied freely in endemic goitre area, with the help of UNICEF.

Water:

Water is a basic requirement. More than 60% of the human body weight is due to water.

Distribution of water:

Water is distributed in three compartments

1. intercellular (50% of the body weight)
2. interstitial (15% of the body weight)
3. Blood (5 % of the body weight)

Sources:

Sources of water are drinking water, food and a small quantity is formed as a result of metabolism (800ml).

Functions:

1. Essential constituents of many vital body fluids (blood, lymph, CSF)
2. Assists in the regulation of the body temperature.
3. Helps in the transport of nutrition' s within the body
4. building and repair of the body tissues.
5. Utilised in body processes. Eg. Digestion, absorption, elimination
6. Besides body needs water for bathing, washing and other activities.

Water loss:

Water is lost through urine, sweat, expired air, in the faeces and lactating women through the milk Requirement for a normal healthy person needs 6 glasses of water. (1 ml per calorie of food) Pathologic effect of excessive water loss occurs in severe diarrhoea , resulting in dehydration . Water retention (kidney failure results in enema

2.4 Balanced diet:

The balanced diet is the basis of good nutrition, and necessary for every member of the family.

Balanced diet means is the diet, which contains all the nutrients in the right proportion necessary for our body to be healthy and strong. The amount will vary according to age and other factors.

Most people in India eat an ill-balanced diet of mainly rice or chappaties and very little of other foods. To be healthy everyone needs to eat a balanced diet comprising of different nutrients in correct proportion.

We should select foodstuff from each of the following groups:

1. **Stable foods:** Rice, wheat, millets, starchy vegetables or fruits like banana. These foods provide calories for energy and some proteins. Remember that eating a mixture of stable foods at each meal gives better protein value.
2. **Extra protein foods:**
   i) Pulses such as dhal and beans, nuts, and dark green leaves
   ii) Milk and milk products, eggs, meat and fish.

3. **Protective foods**, containing a lot of vitamins and minerals including: (i) vegetables, dark green leafy vegetables
   (ii) yellow fruits , citrus fruits and others.
4. **Fats and sugars for extra energy**
   i) A little fat or oil used in cooking or taken with each meal.
   ii) Jaggery, sugar and honey, for extra calories when needed.

Note that dark green leafy vegetables are in the group of protective foods and in the extra protein group. They are the most valuable cheap food containing a lot of nutrients. They may even be collected in the fields in some places, or grown in kitchen gardens.

2.5 Vulnerable Groups

Some groups in our communities are more likely to lack a balanced diet and to suffer from malnutrition. They are called the vulnerable groups. Vulnerable groups who need special attention with regard to nutrition are as follows.

1. Infants : Birth to one year.
2. Toddlers: 1-3 years
3. Pre school children : 4 or 5 years.
4. School children and adolescents.
5. Pregnant and lactating mothers.
6. Old people.
7. The sick, those need a modified diet.

2.5.1 Infants:

Breast milk is the best food for infants. It is not sufficient after six months. From fourth month onward a child can start having porridge (conjee) made with milk, dhal rice, mashed potatoes and green leaves etc.

Children 1-3 years need about 1200 calories per day.

Daily requirements	Remarks.
stable foods 150 gm (at least two kinds including ragi or bajra)	Serve three times per day.
milk 200 ml * egg, fish or meat 30 gm pulses. 40 gm dark green leafy vegetables 50gm	* Instead of this, vegetarians need extra 100 ml milk and 10 gm pulses.
other vegetables 30 gm fruits 50 gm	Preferably carrot, pumpkin or other sources of carotene.
sugar or jaggery 30 gm oil 20 gm	Jaggery provides extra iron and costs less.

Daily menu for children of 1 – 3 years:

6 a.m	100-150 ml milk with sugar or jaggery
8 a.m	Porridge 100 ml
10 a.m	Fresh fruit (100 gm) such as banana, guava, tomato, papaya or mango.
12 noon	75-100 gm well-cooked rice or other stable food. One boiled and mashed egg or fish or meat or 2 spoons well-cooked and mashed dhal. 3-4 spoons boiled dark green leafy vegetable 1 spoon ghee or oil, added and well mixed in the food while hot.
3 p.m	Pulse such as Bengal gram, 1 handful. Milk with sugar or jaggary.
7.30 p.m	Meal similar to 12-noon meal.

2.5.2 Children 4-6 years:

Children 4-6 years need about 1500 calories per day, with requirements as follows.

1. stable foods (two) 200 gm
2. milk 200 ml
3. Egg, fish and meat -for vegetarians give extra milk and pulses. 30 gm
4. Pulses. 50 gm
5. Dark green leafy vegetables - Give vegetable salad 3 times per week. 75 gm
6. Other vegetables 50 gm
7. Fruit 50 gm
8. Sugar and jaggery 40 gm
9. Oil. 25 gm

Daily menu:

6 a.m Milk with sugar or jaggery
8 a.m Ragi porridge or other stable, with milk and jaggery or pulses.
10 a.m Banana or other fruit.

12 noon	Stable food (two mixed), dark green leafy vegetables and other vegetables, one egg, dhal and curds, oil.
3 p.m	Pulse or nuts, and milk.
7.30 p.m	Stable food (with family), and vegetables, fish or beans.

2.5.3 School children:

School children need to have a good breakfast and to have balanced midday meal at school. In the evening they again need to have a well-balanced meal with the family.They need one or two snacks during the day. If a midday meal is not provided at school, the child should be given a packed meal to take to school. A child who is hungry will not be able to learn.

A balanced Midday school meal:		**Requirements per day for a child**
Cereal such as rice or wheat	:	75 gm
Pulses such as dhal, or beans	:	30 gm
Dark green leafy vegetables	:	30 gm
Other vegetables	:	30 gm
Oil	:	8 gm

A packed meal from home could include chappaties with thick dhal, boiled beans or groundnut, butter, and one fresh fruit.

2.5.4 Pregnant and lactating women need about as follows:

Foodstuffs	**Pregnant Woman**		**Lactating Woman**	
	Veg. gm/day	Non veg gm/day	Veg gm/day	Non veg gm/day

Stable Food Cereals in 3 months (include ragi or bajra)	400	400	500	475
Extra Proteins				
Pulses- 2 servings	80	50	100	50
Nuts	60	40	100	80
Meat, Fish or egg	--	85	--	100
milk and curds	600	450	800	650
Protective Foods				
Dark green leafy vegetables	100	100	100	100
Other vegetables	75	75	75	75
Fruits.	60	60	60	60
Extra Energy foods				
Fats and oils	35	35	45	45
sugar and jaggery	30	30	30	30

If a pregnant or lactating woman is pure vegetarian or cannot afford to have milk, she should be encouraged to

1. Increase the pulses in her diet.
2. Eat a handful of groundnuts daily.
3. Drink milk made from ragi, malt, groundnuts or soybeans.

2.5.5 Old people:

Old people need less calories than others, and eat only a small amount at a time. The diet should include some protein and protective foods every day.

Foodstuffs	Veg gm/day	Non veg gm/day
Cereals in 3 servings (including ragi or bajra)	300	300
Pulses	70	55
Groundnuts and sesame seeds	50	30
Milk	300	200
Meat, fish and eggs.	----	30
Dark green leafy vegetables	100	100
Other vegetables	50	50
Fats and oils	20	20
Sugar and jaggery	20	20

Educate the community about balanced diet especially for vulnerable groups (Mothers and children) as follows:

1. If children under 5 years do not have a balanced diet they easily get sick and may die or grow up weak in body and mind.
2. If a pregnant woman does not have a balanced diet (enough of the right kinds of foods every day) her baby when born is likely to be small and weak. Also she will not have sufficient breast milk.
3. Pregnant and nursing woman need to eat more than they eat normally, with extra protein and protective foods for health of themselves and the babies they are nourishing.
4. The nursing mother should continue to have extra nutritious foods, and include green and yellow vegetables daily. She also needs to drink more including milk or milk substitutes.
5. Breast milk is the ideal food for babies, and should be continued as long as possible. Other foods need to be given in addition from the 4^{th} month.
6. Make sure that all infants receive a balanced diet that with something from each of the food groups. At one year a child should be having all kinds of solid food plus breastfeeding or about four cups of milk.
7. Children need to have regular balanced meals, and should not be made to wait long or to skip meals. They need three good meals a day and extra snacks. For snacks give fruits, pulses and nuts.
8. Foods given to children should be
    i. Well prepared in clean conditions.
    ii. Not highly spiced, nor with a lot of sugar.
    iii. Well-cooked, and served fresh.
9. Rapidly growing school children need a good balanced diet with extra body-building and protective foods.
10. Adolescents need plenty of energy foods in addition to foods containing other nutrients. Adolescent girls need extra dark green leafy vegetables for iron to make hemoglobin.

2.6 Dietary needs of patients:

When a person has some health problem, diet is often more important than medicine. When a person is ill and if the correct diet is given, he or she will recover quickly. If sickness is prolonged (chronic illness), diet is important in keeping up the strength.

The nurse should know what to advise about modified diets for persons who are sick and those with special health problems. In the home, the family will need the nurse' s help in the selection and preparation of foods for persons with special dietary needs.

2.6.1 Types of diets:

1. Full diet:

For the patients who are well, a well-balanced full diet should be served, either vegetarian or non-vegetarian as desired. Patients with tuberculosis should be encouraged to take a full diet to gain weight.

2. Liquid diet:

This is needed for patients with high fever, and those who are unable to take solid food. When no solid food is taken, a total of at least 2000 ml per day of liquids will be needed for an adult patient. If the patient can swallow only a little at a time, liquids should be given every few minutes.

Milk is the basis of a good liquid diet, and it may be enriched by adding egg, ragi, skimmed milk powder, or cream. Different flavours may be added to milk such as cocoa, coffee or fruit also sugar or glucose.

Well-cooked and strained cereal conjee may be allowed, and ghee or vegetable oil any be added for more calories. Strained dhal water, or soups made with meat or vegetables may be given. Fruit juices, coconut water and barley water are other liquids that may be given.

3. Soft, semi-solid and light diets:

These are between liquid and full diet. The reason may be that the patient is unable to masticate, or has difficulty in swallowing. A patient with moderate fever and one, who is recovering from an illness or surgery, should be given light diet. The diet should be equally nutritious and balanced as a full diet, but

more easily digested and with less roughage. Avoid oily, fried foods and greasy sweets. Cook well by a simple method using little or no spices and condiments.

Foods may be minced or mashed to make them soft. Make sure that highly nutritious foods are included, such as green leafy vegetables, dhal, curds, eggs, meat and fish for non-vegetarian light diet.

4. Bland diet:

This is a soft and easily digestible diet without spices, condiments, coffee or any other stimulant. It is often ordered in gastro intestinal disorders.

5. High protein diet:

This is ordered for patients with burns, protein deficiency disease, preeclampsia, anemia and in chronic kidney disease. About one litre of milk should be taken each day, and extra protein can be supplied by adding skimmed milk powder or egg to the milk. Mixed protein-rich foods like groundnuts, grams and dhal may be ground and cooked with the stable cereal. Non-vegetarians may have fish and meat.

6. Low protein diet:

This is ordered for patients with acute nephritis. It is continued as long as there is too much urea in the blood. Easily digested carbohydrate foods with a little ghee or butter may be allowed, and boiled sweets. At first the diet may be only fruit juice with glucose. A little milk may be allowed later.

7. Salt- free diet or low salt diet:

This is given to control edema, because sodium is closely connected with fluid retention in the body. Edema occurs in the following conditions.

Acute nephritis and subacute nephritis, anemia, congestive cardiac failure, preeclampsia (in pregnancy). For a salt-free diet no salt is allowed in the preparation of foods. Sugar or limejuice may be added for giving taste. Dried fish should be avoided as it contains more salt.

8. Low-fat diet:

Fats are digested with the help of bile. In diseases affecting the liver, bile is not produced in sufficient quantity. Also in gall bladder disease the bile may not reach the duodenum.

Therefore in liver and gall bladder diseases a low-fat or fat-free diet may be ordered.

Skimmed milk is allowed. Glucose, sugar or jaggery, rice, bread, dhal, greens and vegetables and fruits are allowed provided that no fat is used in cooking.

9. Low residual diet:

This is a diet without roughage or anything that stimulates the bowel. This is ordered in cases such as colitis, colostomy, and may be ordered for a few days after perineal suturing.

Arrowroot, milk and eggs, tea, toast, strained fruit juice is allowed. Vegetables and fruits are softened and filtered through a sieve. Avoid rough cereals, green vegetables, dhal, peas, beans etc.

10. Low calorie diet:

This is ordered for patients with obesity or heart conditions in which it is necessary to reduce the body weight. When calories are reduced in the diet, the body takes and uses the stored fat.

A low calorie diet may also be ordered for a patient with diabetes.

a. Sugar and jaggery are not allowed. A substitute sweetener can be used in coffee and tea etc.
b. Only a little fat or oil may be used in cooking.
c. Cereals are allowed only in very small quantities.
d. Potatoes and yams are not allowed, but other vegetables and greens may be eaten in greater quantities.
e. Fruits are allowed but not more than one 100 gm a day.
f. Protein foods including milk, curds, eggs, cheese, fish, chicken, meat (without fat), dhal etc may be given liberally.

2.6.2 Diet in special conditions (diet therapy):

A. Peptic ulcer:

This is a chronic ulcer in the inner lining of the stomach or duodenum. The gastric juice contains hydrochloric acid, which erodes the mucus lining and thus prevents healing of the ulcer. A person who has a peptic ulcer complains of pain in the upper abdomen, which gets worse two or three hours after eating. The pain is worse at night and if a meal is missed.

At first, there may be only indigestion and heartburn. Later, besides pain, there may be vomiting with blood. The motion may be black like tar, due to internal bleeding. The ulcer may get deeper and cause a hole in the wall of the stomach or duodenum, leading to perforation and peritonitis. Bleeding and peritonitis cause death if the condition is not treated immediately.

Peptic ulcer should be prevented by diet and healthy eating habits. For those with peptic ulcer, advise as follows:

1. Have meals at regular times. A bland diet is needed.
2. Avoid too much spicy, greasy and heavy meals.
3. Avoid smoking and alcoholic drinks.
4. Advise to avoid tension and anger.
5. Avoid coffee and tea.

Menu for peptic ulcer patients:

6 a.m	:	Milk two cups.
8 a.m	:	Bread two slices, and butter 2 teaspoon, boiled eggs, or cheese two slices, or ground nuts 2 tablespoons and milk two cups.
10 a.m	:	Milk with sugar two cups.
12 noon	:	Rice or bread, mashed dhal one cup-minced meat or fish, or cheese or groundnut as above. Boiled potato, and mashed leafy vegetables one cup. Milk pudding cup.
2 p.m	:	Milk one cup.
4.p.m	:	Milk with sugar one cup, and two biscuits.
6 p.m	:	Milk with sugar two cups.
8.p.m	:	Similar to 12 noon meal.
10 p.m	:	Milk one cup.

B. Renal Disease:

The special diet for kidney diseases nephritis has already been mentioned (see low protein diet). For urinary tract infections and renal stones, give plenty of fluids. If there is no fever, a bland, well-balanced diet may be given.

C. Diabetes mellitus:

In this disease, there is more glucose level in the blood than normal and some glucose is excreted in the urine. It is due to deficiency or absence of insulin, a hormone produced by the Islets of Langerhans of pancreas. It is common among rice-eaters and usually starts at about 40 years of age.

Diet in this disease must be strictly regulated according to the amount of glucose found in urine and the amount of insulin ordered by the doctor. When an injection of insulin has been given food also has to be given and the doctor's instructions must be strictly followed.

The patient must be helped to understand the causes of coma. The nurse must advise the patient to prevent forbidden foods such as sweets and sweetened coffee. A diet, outlined in low calorie diet is usually ordered.

D. 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 (see low calorie diet)
2. Low-fat, salt-free diet is needed.
3. Coffee and other stimulants should be avoided.
4. Get the person to relax and avoid tension.

A dietary menu for hypertensive patient is as follows:

Morning	Weak tea one cup
Breakfast	Bread or idli with sugar, or jam and butter, fruit one cup, skimmed milk one cup, nuts one tablespoon.
Mid-morning	Fruit juice 200 ml
Lunch	Rice or chappati one serving, dhal or meat or fish curry one cup, vegetable and potato one serving, curd one cup, fruits one serving, skimmed milk pudding one cup.
Evening.	Biscuits two and fruit juice one glass roasted nuts two table spoons.
Dinner	Similar to lunch.

E. Heart Disease:

Heart diseases are more common among older people, especially those who are fat, those who smoke, and those with hypertension.

Diet is important in the treatment and care of those with heart problems. The diet should be low in cholesterol and rich in essential fatty acids. Those who are over-weight should have less calories. They should have little or no salt.

A dietary menu for coronary heart disease patient is as follows:

Morning	Weak tea one cup
Breakfast	Bread or idli with sugar, or jam and butter, serving fruit, weak tea one cup. Roasted nuts one tablespoon.
Mid-morning	Fruit juice one glass
Lunch	Rice or chappati one serving dhal or, meat or fish curry one cup,

	vegetable and potato one serving, curd one cup, fruits one serving, skimmed milk pudding ½cup.
Evening.	Biscuits two, and fruit juice one glass roasted nuts 2 table spoons.
Dinner	Similar to lunch.

F. Jaundice:

Jaundice is the symptom of liver disorders. Liver is the important organ for fat digestion. Hence fat free and carbho hydrate rich diet should be prescribed for these patients.

2.6.3 Preparation of special diets:

1. Fruit juice:

Use a fruit squeezer to extract the juice of a lemon or lime. Strain the juice through a seive. Add an equal quantity of drinking water and sugar or glucose to sweeten.

2. Barley water:

Wash the barley. Add two tablespoons to a little of cold water. Bring to boil and simmer gently for one hour. Strain and add limejuice and sugar for taste.

3. Tea:

Boil some clean water. Pour a little boiling water into the teapot to warm it, and pour this away. Put tea-leaves into the teapot (about 1 teaspoonful per person) and pour on boiling water, cover the teapot and leave it to stand for about 2 minutes before serving. Add a little milk and sugar or limejuice.

4. Egg flip:

Beat up an egg and then add to it a tumbler full of warm milk slowly, beating all the time. Add a little sugar or glucose if desired.

5. Boiled egg:

A lightly boiled egg, cooked but still soft, is easily digested and suitable for the sick and for infants. The egg in its shell is

placed gently into a pan of boiling water and kept boiling for three to four minutes.

6. Poached egg:

This too is suitable for those on a light diet. Break the shell, taking care not to break the egg-yolk, and pour the egg into the shallow pan of boiling water. Cook gently until the white part is opaque. Take it out with a flat spoon. It is usually served on a slice of toast with or without butter, and a little salt.

7. Albumen water:

The white of egg is only used. Separate the white from the yolk. Cut with a knife to break up the membrane and then add it to about 150 ml of water, stirring well or it may be mixed by shaking gently in a screw-topped jar. Strain before serving, and add a little limejuice or glucose if desired.

8. Whey:

This is prepared from curds. It contains fats, sugars, salts and vitamins but no protein. Break up the curds with a fork and then drain off the whey by straining through gauze.

2.7 Feeding the sick:

The aim of feeding patients is to provide adequate nourishment to help and not to hinder restoration of health. In some cases artificial feeding (Feeding given other than through the mouth) may be necessary. Here we will deal with feeding the patients who are allowed to have food or fluids by mouth.

An important responsibility of the nurse who is caring for the sick is to see that patients get the right diet at the proper time, to see that they take the food and to give necessary help in feeding helpless patients.

2.7.1 Points to Remember:

1. Meals for special diets must be served regularly and on time, making sure that the patient gets enough in 24 hours. Foods should be served hot as hot and cold as cold.

2. Whenever possible, let patients have the foods they like best, but it should also be nutritious and suitable for their digestion.
3. Prepare the environment. The ward should be quiet, well ventilated and free from all unpleasant sights and smells.
4. Prepare the patient both mentally and physically to enjoy the food served. See that dressings or painful treatments are finished at least an hour before food is served. Help the patient to feel fresh and ready for the meal by washing face, hands and mouth.
5. Cleanliness of the food served and of all equipments is very important. The person serving the food must wear clean cloths and should have washed their hands well. Otherwise besides being distasteful to the patient, there is danger of introducing infection.

2.7.2 Procedure - Feeding the patient:

1. Prepare a covered tray containing the diet, drinking water, kidney tray, spoon, towel and a rubber sheet if needed.
2. Help the patient into a comfortable position and arrange the towel to protect the clothing and bed linen.
3. Talk with the patient, telling him what is being served.
4. Make sure liquids are not too hot and use a feeding cup if needed. Ask the patient to open the mouth and pour it little.
5. To give solids or soft diet, use a spoon and feed slowly, allowing the patient time to breathe and to masticate.
6. When finished, give the patient some water to drink and to wash the mouth, receiving into the kidney tray.
7. Wipe the lips with the towel, and leave the patient comfortable.
8. Remove the tray, clean, dry and replace the articles.
9. Record the time and amount of diet taken by the patient.

2.7.3 Procedure - Feeding the children:

1. Children may eat best when allowed to sit at a small table with other children. Attractive coloured dishes and tumblers may help.
2. Before the food is served, the hands and faces should be washed, and bibs tied on to protect clothing.
3. It is the best if the mother helps her small child to feed.
4. Serve little quantity at first and let the child have more if he will eat it.
5. Encourage the child to finish the diet, but never force a child to eat. Food should never be offered when a child is upset.
6. Record the diet and time of food taken when the child has taken.
7. Teach the child good eating habits when appropriate.

Ryle' s Tube-feeding. (Refer practicals)

Purpose:

To introduce liquid food through the nostril into the stomach, when the patient cannot or will not take food in the ordinary way. Some conditions are:

1. When the patient is unconscious.
2. Patients who are refusing food, e.g, in hysteria and mental illness.
3. When the pharynx is paralyzed for any cause.
4. After surgery of the mouth.
5. In Tetanus when there is difficulty in opening the mouth.
6. Premature babies who are too weak to suck.

Articles required:

1. A sterile Ryle' s tube or naso-gastric tube.
2. A 20 ml syringe.
3. Lubricant such as liquid paraffin
4. Litmus paper.
5. Container of sterile water.
6. Swab sticks
7. Kidney tray
8. Adhesive plaster
9. Clip or spigot to close the end of the tube.

10. Rubber or plastic sheet and treatment towel.
11. Mouth wash if the patient can use it. Required feed in a measuring glass, a bowl of warm water (any liquid food that is strained and will pass through the tube with out blocking can be given).

Method:

1. Explain to the patient and get his co-operation.
2. Position the patient usually sitting upright and supported.
3. Bring the tray to the bedside and screen the bed.'
4. Drape the plastic sheet and towel around the patient' s neck.
5. Clear the nostril.
6. Wash the hands then take the tube, lubricate it and make sure it is empty.
7. Insert the tube along the floor of the nostril and gently pass it into the naso-pharynx.
8. Ask the patient to swallow repeatedly while the nurse advance the tube quickly into the stomach.
9. Attach the syringe to the end of the tube and aspirate the stomach contents.
10. If there is doubt about the position of the tube, test the fluid aspirated with litmus paper. Blue litmus paper turns red when the tube is in the stomach, because of the acid in the gastric juice.
11. Secure the tube to the nose or forehead with adhesive tape.
12. If the patient can understand, talk to him about the food to be given as this may help his appetite and digestion.
13. Before and after the feed introduce a little water. Ordered medicines may also be given through the tube.
14. Give the food slowly. Instead of forcing it in through the syringe, the plunger may be removed and the food poured into the barrel.
15. Give a mouthwash and make the patient comfortable with the tube clamped.
16. Record the time, quantity and type of food given and the route.

Milk drip:

If a milk drip is ordered, for eg. a patient with peptic ulcer, connect the nasogastric tube to a container of milk (covered) hung on a stand and use a drip bulb and clip to regulate the flow. See that the milk is fresh.

Summary:

Nutrition is the ways in which the foods we eat are used in the body for growth and development, energy and good health. A person who does not eat the right foods or does not eat enough is malnourished.

Malnutrition inhibits the growth and development of children. Foods are obtained from plants, birds, fish and animals.

Proteins, carbohydrates, fats and oil, vitamins and minerals are important nutrients. Food helps in body building, repair of worn out tissues, provide energy for working and regulate the body functions and protect it from diseases.

QUESTIONS

I. Fill in the blanks:

1. A person who does not eat the right food or does not eat enough is malnourished and we call this as _____
2. Nutrition comes from the word_____.
3. _____are substances present in food.
4. _____ are necessary for growth and bodybuilding and for repair of tissues .
5. _____ is important to provide energy.
6. For the patient who is having high fever, _____ diet is given.
7. For the patients suffering from kidney disease, _____ diet is given.
8. _____ is given to control anemia.
9. In liver and gall bladder diseases, _____ diet may be ordered.
10. _____ is ordered for patients with obesity or heart diseases.

II. Match the following:

i.	Rickets	Vitamin B
ii.	Scurvy	Iron
iii.	Pellagra	Vitamin A
iv.	Night blindness	Vitamin D
v.	Anemia	Iodine
vi.	Goitre	Vitamin C
vii.	Vitamin K	Infertility
viii.	Vitamin E	Coagulation of blood

III. Write brief answers:

1. Write the fat-soluble vitamins, its sources, functions and deficiencies.
2. Write about the water-soluble vitamins, its sources, functions and deficiencies.

IV. Write in detail.

1. What is balanced diet?
2. What do you mean by kwashiorkor?
3. What do you mean by marasmus?
4. What do you mean by stable food?
5. What are the uses of iron?
6. What are the differences between good nutrition and malnutrition?
7. What do you mean by dietary food?
8. What do you mean by full diet?
9. What are the types of dietary food?
10. How will you feed the children?
11. How will you feed the patient?
12. What is the most important responsibility of the nurse who is caring for the patient?

3. MEDICAL SURGICAL NURSING - PRINCIPLES AND PRACTICES

3.1 Administration of medications:

Medication :

Medication is any substance administered to promote health, to prevent, diagnose, treat, or cure a disease. It is also known as medicine.

Medicine:

Medicine is a term also used to designate the science of preventing or treating diseases or injury.

Drug :

Drug is any substance, which helps to cure the disease

Pharmacology :

It is the study of drugs including their origin, chemical, structure, preparation, action, administration, metabolism and excretion.

Drug therapy:

Drug therapy is the application of the drug and other measures in the treatment of disease.

3.1.1 Administration of drug:

Drugs are given in many ways and as this is often the duty of nurses. The route used to administer drugs has a profound effect on drug absorption, distribution, metabolism and elimination.

Methods of administration [routes]

1. By Oral: (refer practicals)

The easier and very usual way to give drugs is by mouth and there are many formulations for this purpose.

(i) **Tablets:** They are prepared by mixing a drug with base, which binds it together. They are usually coated and may be coloured.

(ii) **Capsules:** Capsules are made of gelatin and contain a drug, which is liberated when the wall of the capsule is digested in the stomach or intestine.

(iii) **Mixtures:** These are liquids, which contain several ingredients dissolved or diffused in water or some other solvent.

(iv) **Emulsion:** Is a mixture of two liquids in which one is dispensed through the other in a finely divided state.

(v) **Linctus:** Is a liquid, which contains some sweet syrupy substances, used for its soothing effect or cough.

2. By injection: (refer practicals)

It defined as the forcing of a fluid into a cavity, a blood vessel or to body tissue through a hollow tube or needle. They are called as:

(i) intravenous,

(ii) intra muscular,

(iii) subcutaneous

(iv) intraspinal or intrathecal,

(v) intraperitoneal etc.

3. By inhalation :

Drugs may be inhaled either to produce a local action on the respiratory tract. As they are absorbed through the lungs, they produce a general effect.

For eg. Anaesthetic drug.

4. By rectum :

Administration of drug through the rectum. Certain drugs are absorbed by the mucus memebranes of the rectum eg. Rectal suppository.

5. **By sublingual :**

Certain drugs are placed under tongue for rapid absorption.

6. **By topical application** :

Drugs are applied to the skin, mucus membrane and wound surfaces to produce their action at the site of application.

7. **By transdermal application** :

The drug is applied to the skin as a medicated patch. It releases the medication at a constant rate and the medication is absorbed through the skin.

Eg. Glycerine trinitrate for treatment of angina pectoris,

3.1.2 Principles of administration of medication :

1. Drugs are administrated under the written medical prescription.
2. In emergencies drugs may be given under oral instruction but the written order must be obtained immediately
3. Before administering drug, the nurse must check whether the right drug is given, in the right dose, in the right form, in the right route and to the right patient in the right time
4. Norcotic drugs must be kept under lock. The balance must be verified daily and to be handed over to the next shift nurse.
5. Before administering medication obtain history of drug allergy. If the patient is having allergy to specific drugs, it must be noted in the patient record.
6. When administering drugs watch for any side effect, allergic reaction or adverse side effects.
7. When administering injections do not mix two drugs.

Sources of drugs:

The main sources of drugs are from herbs and chemicals.

3.1.3 Law regulating drugs:

Both central and state government have taken steps to regulate the process of manufacturing and issue of drugs. Drug controller is the officer who periodically will check the drugs formulation, process and date of manufacturing, expiry and permission for keeping of narcotic drugs.

3.1.4 Weights and measures :

There are several system of measuring medicines The apothecary, imperial, metric and household measures.

i. Combination of apthecary and imperial system :

Table of weights			Table of measures		
60 grains	=	1 dram	3 drams	=	1 ounce
8 dram	=	1 ounce	20 ounce	=	1 pint
16ounce	=	1 pound	2 pint	=	1 quart
			4 quart	=	1 gallon

ii. metric system : Table of weights : Table of measures

10 milligrams	=	1 centigram	10 millitre	=	1 centilitre
10 centigram	=	1 decigram	10 centilitre	=	1 decilitre
10 deci gram	=	1 gram	10 decilitre	=	1 litre
10 gram	=	1 decagram	10 litre	=	1 decalitre
10 hectogram	=	1 kilogram	10 hectolitre	=	1 kilolitre

iii. House hold measures:

60 drops = 1 teaspoon
2 teaspoon = 1dessertspoon
2 dessertspoon = 1 table spoon
12 tablespoon = 1 drinking glass

3.1.5 Instruction for administration of drugs :

1. Read the patient full name from the prescription sheet.
2. Read the prescription, checking the validity and time of last administration
3. Read the name of drug from the label when removing the container from the shelf.
4. Check the label of the container for the name, strength, and dose of the drug, the route of administration and the expiry date against the prescription.
5. Measure or count the correct dose
6. Re-check the label before returning the container to the shelf
7. Both nurses must verify the patient, identify by checking the details in the prescription sheet.
8. Ensure the patient is in a fit state to receive the drug.

9. Give the dose and see that it has been swallowed
10. Record the time of administration Also record if a drug is not given and the reason.

3.1.5 Form of drugs :

1. Liquid : a. Oils b. Mixtures
2. Solids a. Tablets b. Pills c. Capsules
3. Gases eg. Oxygen, anesthetic gases.

3.1.6 Drugs are classified according to their action:

1	Analgesic	:	Drugs which cause loss of sensation. Eg Aspirin
2	Anaesthetics	:	Drugs which cause loss of sensation or insensibility to patient eg. Ethen
3	Antipyretics	:	Drugs which reduce fever ef. Crocin.
4	Antihelmintics	:	Drugs which destroy and expell worms eg. Mebendazole.
5	Antidotes	:	Substances used to counteract the effect of poison. eg large quantity of diluted alkali is given to neutralize acid poisoning.
6	Antacids	:	A substance which counteracts acidity or neutralizes acid eg Gelusil.
7	Antiemetics	:	Drugs that prevent or relieve nausea and /or vomiting.
8	Antihistamines	:	Drugs used in the treatment of allergic conditions.
9	Anticoagulant	:	Drugs used to prevent or inhibit coagulation of blood
10	Coagulant	:	Drugs used to hasten blood coagulation (clotting).
11	Carminatives	:	Drugs which cause expulsion of gas.

12	Cathartics	:	Drugs which cause intestinal evacuation. They are subdivided as. 1a. laxatives b. purgatives
13	Diuretics	:	Drugs which increase the secretion of urine. Eg. lasix.
14	Emetics	:	Drugs which produce vomiting
15	Hypnotics	:	Drug which produce sleep
16	Mydriates	:	Drugs which dilate pupil of the eye eg. Atrophine
17	Myotics	:	Drugs which contract the pupils.
18	Expectorants	:	Drugs which increase the bronchial secretion and help in expulsion of mucus.
19	Sedatives	:	Drugs which exerts a smoothening or tranquilizing effect. They may be general or local. eg. Opium.
20	Stimulants	:	Drugs which increases the functional activity of an organ eg. Amphetamine stimulates central nervous system.
21	Narcotics	:	Drugs which produce sleep and relieve pain eg. Injection morphine.

3.1.7 Care of medicine cabinet and drugs :

To give proper care of drugs, each ward should be provided with a medicine cabinet.

1. It should be large enough to accommodate all drugs and should have separate compartments for mixtures tablets, powders and ointments.
2. As far as possible the medicine cabinet should be kept in a separate room near the nurses room with a sink, with running water and the cupboard should be locked at all

times. Keys should be kept where only doctors and nurses have access to it.

3. The bottles should have proper label and adequate lighting should be provided within the cabinet to read the labels clearly.
4. Bottles should be arranged alphabetically.
5. Poisonous drugs should be kept in a separate cupboard, which must have separate lock and key. The senior sister is entirely responsible for the cupboard.
6. A register should be maintained to keep the account of poisonous drugs.
7. Drugs that are unusual in colour, odour and consistency should be returned to the pharmacy to be discarded.
8. Oils such as castrol oil, serum, vaccines and antibiotics such as penicillin should be kept in refrigerators.
9. Emergency drugs such as stimulants should be kept in a box or tray where they are readily obtainable
10. When indenting for drugs, indent only the required quantity.
11. The medicine cabinet should always be kept neat & clean.
12. All equipments should be cleaned and returned to its proper place after use.

3.1.8 The side effects of drugs:

1	Dermatological reaction	:	Purities
2	Blood dyscrasias	:	hemolytic anemia
3	Hepatotoxicity	:	Biliary obstruction, Hepatic Necrosis
4	Nephrotoxicity	:	Kidney damage
5	Ototoxicity	:	Vestibular damage
6	Central nervous system	:	Toxicit, Poor motor coordiantion, convulsion

7	Gastro intestinal disturbances	:	Diarrhea, nausea, vomiting etc.
8	Drug Dependence	:	Psychological dependence

3. 2 Disease affecting gastro intestinal system (mouth to rectum) –

3.2.1 Stomatitis

Stomatitis is an inflammation of the mouth.

Glossitis:

Inflammation of the tongue.

Etiology:

Caused by

1. Drugs : Eg : Barbiturates.
2. Infections with pathogenic organisms.
3. Mechanical trauma.
4. Irritants.
5. Nutritional disorders.

Signs and symptoms:

1. Swelling of the mucous membrane.
2. Increased salivation.
3. Pain.
4. Halitosis (fetid odor of the breath).
5. Elevation of temperature – occasionally.

Diagnosis:

By physical examinations.

Treatment:

There is no specific treatment and only symptomatic management.

1. Mild alkaline mouthwash (saline rinse)
2. oral hygiene.
3. improve nutrition and increase fluid intake
4. cessation of smoking
5. local anesthetics may relieve pain.

3.2.2 Parotitis

It is inflammation of parotid gland. It is the most common inflammatory condition of the salivary gland.

Etiology:

Causes

1. Poor oral hygiene.
2. Acutely ill, debilitated people with decreased salivary flow due to dehydration or medication.
3. If affects mostly elderly patient
4. Staphylococcus infection.

Signs and symptoms:

1. Fever.
2. Pain felt in ears.
3. Swelling of parotid gland
4. Absence of salivation
5. Sometime purulent exudates from the duct of gland.

Treatment:

Medical management:

1. Antibiotics are often given.
2. Analgesics are given to control pain.

Nursing management:

1. Warm or cold compress may be applied externally to make the patient more comfortable.
2. Mouth wash
3. Increases fluid intake and adequate nutrition.

3.2.3 Dental caries:

Dental caries or tooth decay is an erosive process, that results from the action of bacteria on fermentable carbohydrates which in turns produce acid that dissolves tooth enamel.

Etiology:

The major cause of dental decay is bacteria, nourished by food particles, left on the teeth as a result of faulty brushing.

Signs and symptoms:

1. Soreness of gum
2. Teeth pain
3. Cavity formation

Treatment:

1. Proper brushing techniques to prevent tooth decay and mouth wash with fluoridated water.
2. Periodical dental check up twice a year.
3. Health Education to avoid chocolates, pans smoking cigarettes, etc.
4. Mouth wash and brushing to be done before going to bed, and in the morning, after eating.

3.2.4 Gastritis:

Inflammation of the stomach, and is often called as heartburn or indigestion. It can be divided into two types. They are

1. Acute gastritis.
2. Chronic gastritis.

Etiology:

1. Acute gastritis is caused by over eating or eating the wrong food. Other cause of acute gastritis are alcohol, aspirin, bile reflex or radiation therapy.
2. Chronic gastritis is caused by alcohol or ulcers (be sign or malignant) and H pylori

Signs and symptoms:

	Acute gastritis	Chronic gastritis
1	Abdominal discomfort with headache.	Anorexia
2	Lassitude	Heartburn after eating.
3	Nausea	Belching.
4	Anorexia often accompanied by vomiting and hiccough.	Sour taste in the mouth.
5	Gastric mucous membrane becomes, edematous and hyperemic.	Nausea and vomiting may or may not be.

Diagnostic evaluation:

1. Endoscopy(Fiber optic)
2. Abdominal X-ray.
3. Serologic

Treatment:

Treatment for acute gastritis is usually symptomatic.

1. Keep the patient NPO (nil per oral) until symptom subsides.
2. Then provide a bland diet, milk and antacid.
3. Treatment of chronic gastritis
4. Modification of diet
5. Promoting rest.
6. Reduce stress
7. Pharmacotherapy as prescribed.
8. Provide vitamin B12 supplement.

Nursing management:

1. Reduce the patient anxiety by explain all procedures and treatment plan according to the patient condition and level of understanding.
2. Promote nutrition by advising the patient to reduce the intake of caffeinated beverages and discourage alcohol.
3. Relieve pain by providing prescribed medication on time or avoiding food and beverages which induces gastritis.
4. Maintain adequate fluid intake
5. Monitor vital signs every fourth hourly.
6. patient is educated regarding the foods to be avoided eg caffeine, nicotine, spicy, irritating or highly seasoned foods and alcohol.

3. 2.5 Peptic ulcer.

A peptic ulcer is an ulcerative lesion in the mucus of the lower esophagus, stomach, pylorus and duodenum.

The types of peptic ulcer can be divided into 3 types according to the place if affects.

1. Gastric ulcer
2. Duodenal ulcer
3. Marginal ulcer

Etiology:

1. Peptic ulcer occurs four times more commonly in men than in women.
2. Duodenal ulcer occurs five to then times more often than gastric ulcer.
3. Most common between 20 - 60 years of age.

Causes:

1. Hyper secretion of gastric fluid.
2. Non-steroidal anti-inflammatory drugs (NSAIDS) induced ulcer.
3. Helico bacterium pylori injection (H pylori)

Signs and symptoms:

1. Pain occurring in the epigastric region
2. Pain may be described as dull, aching, gnawing.
3. Nocturnal pain may also be present.
4. Pain may increase when the stomach is empty.
5. Patient may report relief from pain after eating or taking antacids. (common in duodenal ulcer)
6. Nauseas and anorexia. (common in gastric ulcer)
7. Weight loss and vomiting

Diagnosis:

1. Endoscopy
2. Stool examinations for occult blood.
3. Gastric secretion analysis.
4. Serum test for presence of H . Pylori antibody.

Treatment:

1. Symptomatic treatment
2. Treatment to heal the ulcer
3. Treatment to prevent recurrence

Medical Management:

1. Antacids, eg. gelusil
2. H_2 receptor antagonists eg ranitidine, cimetidine,
3. Antimicrobial , eg. flagyl.
4. Antidiarrheal affects of Bismuth and salicylate.
5. Anticholigics.

Surgical Management:

Types of surgeries are

1. Gastrojejunostomy and vagotomy.
2. Subtotal gastrectomy.
3. Vagotomy and pyloroplasty.

Emergency surgery is necessary when a peptic ulcer perforates and causes peritonitis or crodes a blood vessels, causing severe haemorrhage.

Nursing management:

1. Maintain adequate hydration by
   - Administer intravenous fluids and blood transfusion.
   - Intubate nasogastric tube(Ryle' s tube) for gastric decompression
   - Maintaining intake and output accurately
2. Observe stool for occult blood.
3. Minimise pain
4. Encourage bed rest.
5. Provide small frequent meal to prevent gastric distension, if not in NPO.
6. Administering prescribed medication.
7. Maintain adequate nutrition by
   - Providing small and frequent feeding on time.
   - Avoiding coffee and other caffeinated beverages.
   - Avoiding extreme hot/cold, spicy food or fluids.

8. Educate about the treatment and all procedures to reduce anxiety.
9. Diet and food to avoid.

Complications:

1. Gastro intestinal hemorrhage.
2. Ulcer perforation
3. Gastric outlet obstruction.

3.2.6 Hernia:

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

Etiology:

1. Congenital weakness of the abdominal valve
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 card emerges in the male and the round 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. Occurs most often in obease 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 the increase in size and recurs with intra abdominal pressure.
3. Strangulated hernia presents with pain, vomiting, swelling of hernial sac, peritoneal irritation and fever.
4. In hiatus hernia the patient complaints 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 in the bowel.

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 from entering the hernia sac.

Surgical management:

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

a. Herniorrhaphy:

1. Removal of hernial sac, contents replaced into the abdomen, layers of muscle and fascia sutured.
2. Laparoscope Herniorrhaphy is a possibility is often performed on outpatient basis.

b. Hernioplasty:

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

c. 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.
- Teach about bed rest, intermittent ice packs. Scrotal elevation is done with T bandage to reduce scrotal edema or swelling after repair of an inguinal hernia.
- 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:

1. Bowel obstruction.
2. Gangrene formation
3. Wound dehiscence

3.2.7 Appendicitis:

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

Etiology:

Appendicitis commonly affects the male than female between ten to thirty years of age.

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. Pain around the umbilicus and / or throughout the abdomen.
2. Rebound tenderness at McBurney's point (McBurney's point is halfway between the umbilicus and the iliac crest).
3. Anoxia.
4. Moderate malaise, mild fever
5. Nausea and vomiting.
6. Usually constipation occurs.

Diagnosis:

1. Physical examination. Rebound tenderness at Mc Burney's point
2. Laboratory test : complete blood count will show
   - § leucocytosis
   - § Urinalysis
   - § Abdominal X-ray to visualize shadow consistent with fecalith in appendix.

Management:

Surgical management:

1. **Pre-operative care**

- Provide bedrest to the patient
- Keep the pateient in nil per oral status (NPO)

- Maintain adequate hydration with IV infusions
- Administer antibiotics and analgesics as prescribed
- Monitor pain level including location, intensity and pattern.
- Assign patient to semi- Fowlers position to relax the abdominal muscles to promote comfort.

2. Types of surgery:

- Appendicectomy
- Laparoscopic appendicectomy.

3. Post-operative management:

- Keep the patient in the nil per oral status for the first 48 hours after surgery or until the restoration of bowel movements.
- Maintain hydration and caloric requirements with intravenous (IV) infusions
- After 48 hours give bland diet and plenty of water.
- The patient usually resume their normal activities in two to four weeks.

Complication:

- Peritonitis.
- Perforation
- Abscess formation

3.2.8 Fistula

An abnormal passage between two epithetical surface usually connecting the cavity of one organ with another or a cavity with the surface of the body.

Etiology:

1. abscess
2. inflammatory diseases
3. Malignant tumers
4. radiation therapy
5. developmental defect

6. Failure of embryonic development.
7. Acquired by surgical complication.

Anal Fistula is the most common among other types of fistulae. Abnormal tube like passage from skin near anus into anal canal. It results from the rupture or drainage of anal abscess.

Signs and symptoms:

itching and pain around the fistula opening

Purulent drainage from the opening

Diagnosis:

1. clinical signs and symptoms
2. Rectal examination (A metal probe is used to identify the direction of fistula)

Management:

Fistulectomy, Fistulotomy.

Nursing management:

Monitor vital signs for signs of infection.

Bowel rest to allow fistula to heal.

Daily asses the wound for sign of infection.

Administer analgesics and antibiotics as ordered.

Encourage frequent sitz bath.

Initially encourage fluid diet followed by a balanced diet

Complication:

Infection.

3.2.9 Hemorrhoids:

Hemorrhoids are vascular masses in the lower rectum or anus that have become loosened from connective tissue.

Etiology:

The exact cause is not known,

Predisposing factors

1.Heredity.

2.Occupation requiring long period of standing or sitting.

3.Structural absence of valves in the hemorrhoidal veins.

4. Increased Intra-abdominal pressure (caused by constipation, straining for defecation and pregnancy)
5. Loosing of vessels from surrounding connective tissue occurs with protrusion or prolapsed into anal canal.

Types of Hemorrhoids:

External Hemorrhoids:

External Hemorrhoids are those, which appear outside the anal sphincter. They bleed rarely and seldom cause pain unless a hemorrhoidal vein ruptures.

Internal Hemorrhoids:

Internal Hemorrhoids are those, which appear above the internal sphincter. They are not visible unless they protrude through anus where they become constricted and painful. At times they may bleed on defecation.

Signs and symptoms:

1. Sensation of incomplete fecal evacuation.
2. Visible (if external) and palpable mass.
3. Constipation
4. anal itching.
5. Bleeding during defecation, (bright red blood on stool due to injury of mucosa covering hemorrhoids).
6. Infection or ulceration, mucus discharge.

Diagnosis:

1. History of fresh bleeding during defecation
2. Rectal examination with proctoscope

Management:

Asymptomatic hemorrhoid requires no treatment.

Medical Management:

a. Regulating bowel movements with non-irritating stool softeners and high fibre diet to keep stool soft.
b. Frequent warm sitz bath to ease pain and combat swelling.
c. Insertion of soothing suppository 2-3 times daily as prescribed.

d. In controlling itching by improved anal measures and sitz baths.
e. Injection of sclerosing solutions to produce scar tissue and prevent prolapse.

Surgical Management:

1. Indications for surgery:
    f. Prolonged bleeding.
    g. Disabling pain.
    h. Intolerable itching.
    i. General unrelieved discomfort.
2. haemorrhoidectomy – excision of dilated blood vessels

Nursing Management:

1. After surgery assist with frequent positioning by using pillow support for comfort.
2. Monitor vital signs
3. Watch the operated site for any unusual bleeding.
4. Apply anal creams or suppositories if ordered to relieve discomfort.
5. Provide analgesics and antibiotics as ordered.
6. Provide warm sitz bath from fifth post-operative day onwards
7. Encourage proper anal hygiene to prevent infection
8. Monitor the signs for infection at the incision site , drainage, bleeding , itching etc
9. Administer stool softener to assist with bowel movement soon after the surgery to reduce the risk of stricture.
10. At discharge encourage the patient to take a balanced diet with high fibre content adequate fluid and regular exercise to prevent constipation and straining

Complications:

1. Hemorrhage,
2. anemia.
3. Incontinence of motion.
4. Rectal prolapse and strangulation.

3.2.10 Constipation (refer practicals - enema)

Constipation refers to an abnormal infrequency of defecation.

Causes:

1. Medication (eg. Tranquillizers, anticholinergics, Anti-hypertensives, opioids, antacids)
2. Hemorrhoids and or fissure
3. Malignancy (bowel cancer)
4. Diabetes mellitus, parkinsonism, multiple sclerosis
5. Hypothyroidism
6. Impaired mobility
7. Unconscious patient
8. poor dietary habits (low fibre diet and / or inadequate fluid intake)
9. Lack of exercises, and stress filled life.

Sign and symptoms:

1. Abdominal distention
2. Borborygmus (intestinal rumbling)
3. Pain and pressure.
4. Loss of appetite.
5. Headache.
6. Fatigue.
7. Indigestion.
8. Straining at defecation
9. Passing of small, hard, dry stool.

Diagnosis:

1. History
2. Physical examination.
3. Digital exploration of the rectum

Management:

Treatment based on underlying cause of constipations.

- Discontinuing abusive laxative use.
- Advice to Include high fiber diet and adequate fluid intake
- Routine exercise to strengthen abdominal muscles.

Complication:

Fecal impaction

Hemorrhoids

Fissures

3.2.11 Fissure

Fissure is a narrow shallow ulcer or a cleft resembling a crack usually seen in the lining of the anal and canal or below the anorectal line.

Etiology:

1. Constipated stool may tear anal lining.
2. Perinial straining during childbirth.

Signs and symptoms:

1. Acute pain and irritation during and after defecation.
2. passing of bright red blood with stool.
3. Constipation

Diagnosis:

1. Rectal examination done under anesthesia to prevent anal spasm.
2. Stool examination for occult blood.

Management:

Medical:

1. Promotion of regular, soft-bowel movements through stool softeners and rectal suppositories.
2. Local application of antiseptic solutions.

Surgical:

Fissurectomy.

Nursing management:

1. Assist the patient with warm sitz baths and local application of anesthetic ointment to reduce pain.
2. Instruct to take high-fibre foods fresh fruits vegetables green leafy vegetables etc and drink plenty of fluids to prevent constipation.

3.2.12 Hepatitis:

Hepatitis is an inflammation of the liver. Hepatitis is a viral infection of the liver associated with a blood spectrum of clinical manifestation from asymptomatic infection through icetrie hepatitis to hepatic necrosis.

Five types of hepatitis virus have been identified.

1. Type A - Hepatitis (HAV)
2. Type B - Hepatitis (HBV)
3. Type C - Hepatitis (HCV)
4. Type D - Hepatitis (HDV, Delta hepatitis)
5. Type E - Hepatitis (HEV).

Diagnosis:

1. Clinical evaluation
2. Elevated serum for all forms of hepatitis. (Liver function test)
3. Liver biopsy to detect chronic active disease, progression, and response to therapy.

Table showing the Hepatitis types with signs and symptoms are as follows							
No	Hepatitis type	Causative Organism	Mode of Transmission	Sign and symptoms	Period Incubation	Occurrence	Mortality
1	Hepatitis A	RNA virus centro virus family	Fecal-oral route	Fatigue Anorexia Malaise Headache 4 Low grade fever Nausae Vomiting Jaundice Tea colored urine Gray-colored stool	3-5 weeks (Average weeks)	World wide usually among children and young adults	0%
2	Hepatitis B	Double Sheller DNA	Blood born disease Sexual activity through blood.	Fatigue Anorexia Transient fever Abdominal discomfort Nausea	2-5 months	All ages, mostly affects young adults	10% (May in rare cases leads to hepatic failure also called

			semen saliva or vaginal secretions	Vomiting Headache Jaundice			hepatitis.
3.	Hepatitis C	Formely called Non-A Non-B Hepatitis	Blood and Blood product transfusion	Symptom's occur 6-7 weeks after transfusion Similar to those of HBV	1 week to several months	All age group	20% leads to cirrohosis
4	Hepatitis D (HDV)	Defective DNA agent	Same as HBV	Similar to HBV but more severe	2-5 months	In multiply transferred patients.	50 % leads to hepatitis
5.	Hepatitis E (HEV)	Single strand RNA virus	Fecal-oral route	Similar to HBV but more severe	3-5 weeks	most common. In young adults and more severe in pregnant-women	

Diagnosis:

1. Serum liver function test [Elevated serum transferase level in all forms of Hepatitis.
2. Hepatitis C –antibody may not be detected for 3-6 months after onset of HCV illness.
3. Liver biopsy to detect chronic active disease, progression and response to therapy.

Management:

1. Rest according to patient' s level of fatigue.
2. Hospitalisation for projected nausea and vomiting or life threatening complication.
3. Small frequent feeding of high –caloric, low-fat diet and protein are restricted.
4. Vitamin K injected if prothrombin time is prolonged.
5. Intravenous fluid and electrolyte replacement as indicated.
6. Administration of antiemetics for nausea.
7. After jaundice has cleared, gradual increase in physical activity.

Nursing management:

1. **Maintain adequate nutrition.**
   - Encourage frequent small feedings.
   - High calorie and low fat diets.
   - Avoid large protein during acute phase of illness.
   - Administer or teach self-administration of antiemetics.
2. **Maximum adequate fluid intake**
   - Provide frequent oral fluids as tolerated.
   - Administer fluids for problems with inability to maintain oral fluids.
   - Monitor intake and output chart.
3. **Maintain adequate rest.**
   - Promote period of test during symptomatic phase.
   - Promote comfort by administring analegics as prescribed.

- Provide emotional support and diversional activities.
- Encourage mild exercises during convalescent period.

4. Ensuring prevention of disease transmission.

- Educate the patient about diseases and mode of transmission.
- Encourage good hand washing and hygienic measures while toileting.
- Avoidance of sexual activity
- Avoidance of sharing needles, eating utensils, and tooth brush. Prevent blood or body fluids contact.
- Report all cases of hepatitis to public health officials.
- Avoid trauma that may cause bruising and limit invasive procedures.
- Encourage vaccination for HBV with series of three doses. (At birth, 1 to 6 months) for high risk individuals, such as health care workers or institutionalized persons.

Complications:

1. Dehydration,
2. hypokalemia
3. Hepatitis.
4. Hepato cellular carcinmua.

3.3 Heart Failure:

It is the clinical syndrome or the condition in which the heart is unable to pump the amount of oxygenated blood necessary to meet the metabolic requirements of the body.

Causes:

Heart failure has three main causes:

1. Structural abnormalities such as malfunctioning of valves and the abnormal communication between chambers.
2. Inadequate contractible ability of the myocardium.
3. Cardiac arrhythmias.

Other causes include:

- Pulmonary embolism; chronic disease.
- Hemorrhage and aemia.
- Anesthesia and surgery.
- Transfusions or infusions.
- Fever, infection, pregnancy.
- Physical and emotional stress.

Heart failure can be divided into two parts.

1. Left sided heart failure
2. Right-sided heart failure.

Signs and symptoms:

1. Left sided heart failure:

- Shortness of breath.
- Dyspnea on exertion and orthopnea.
- Proxymal noctural dyspnea (Dyspnea after few hours of sleep)
- Dry and non-productive cough often worses in night.
- Fatigability- from low cardiac output, nocturia, insomnia, dysponea
- Tachycardia
- Chyene- stork respiration- A forms of irregular respiration.

2. Right sided Heart Failure:

Signs and symptoms

1. Elevated pressures and congestion in systemic veins and capillaries.
2. Peripheral edema
3. Weight gain.
4. Liver congestion
5. Distended veins.
6. Abnormal fluid on body cavity
7. Anorexia and nausea.
8. Nocturia occurs at night.
9. Weakness.

Diagnosis:

1. ECG
2. Chest X-ray
3. Echo cordiography
4. ABG studies
5. Liver Function studies.

Management:

Medical:

1. Rest and sleep
2. Oxygen administration (refer practicals)
3. Diuretics.
4. Digitalis
5. Vasodilator theraphy:

Surgical:

Heart transplant:

Nursing management:

1. Place the patient in a comfortable position
2. Provide complete bed rest
3. Provide bedside commode.
4. Check vital signs
5. Administer medications as prescribed.
6. Administer oxygen if necessary
7. Encourage deep breathing exercises every 1 to 2 hours.
8. Daily weight.
9. Passive range of motion exercises
10. Give appropriate sedation
11. Restrict sodium as directed.
12. Constipation may be avoided

Complication:

Cardiac dysarrthymias.
Myocardial failure
Digitalis toxicity
Pulmonary infarction, pneumonia emboli

3.3.1 Cardio pulmonary resustitation (CPR)

Cardiac arrest:

Resustitation includes that are applied to revive patients who have stopped breathing suddenly and unexpectedly due to either respiratory or cardiac failure. Cardiac arrest is one of the common causes.

Causes:

Major causes are

Anoxia
Myocardial infection
Anesthetic depression
Electric shock
Poisioning
Pulmonary embolism
Brain injury
Drowning

Signs and symptoms:

Apnoea
Abscemnce of carotid and femoral pulse
Dilated pupils
Cynosois
Unconsciousness]
Fits

Sequence of cardio pulmonary resuscitation is

A – Airway
B – Breathing
C - Circulation

Airway, Breathing And Circulation (ABC):

Checking of Airway, breathing and circulation is the priority assessment of and treatment of any casualty or emergencies. ABC must be established with in three minutes if the casualty is unconscious in order to prevent permanent injury.

A - Airway

Airway is the passage between the mouth, nose and throat. It must be opened and kept open if the casualty is unconscious or choking.

- **Opening the Airway:**

If the casualty is unconscious and particularly if he or she is lying face up, air cannot get through to the lungs for the reasons described opposite. Therefore one thing is essential. [The head must be tilted right back with lower jaw passed well forward. This moves the tongue, forward thus opening the airway.]

Procedures:

1. Place one hand on the casualty' s forehead and the other under her neck and tilt the head back so that the nostrils are pointing upward.
2. Push the lower jaw up and forward so that the chin lifts up.
3. Look, listen and feel to see if the casualty is now breathing. If she is, place her in the recovery position.

- **Clearing the airway:**

If the casualty is not breathing after the airway has been opened, it may be because the airway is blocked by broken teeth, mud, weeds or vomit.

Turn the casualty' s heads to one side. Keep it well back as described and with one quick sweep round the mouth with the index finger, lift out any foreign matter one find. Make sure that by doing this; you do not push the object further down the airway.

B-Breathing:

The alternate inspiration and expiration of air into and out of the lungs. Before placing a casualty in the recovery position one must first satisfy oneself that he or she is breathing normally and that the heart is breathing.

Procedure-recovery position:

1. Turn the casualty' s head towards you and tilt it back slightly to open the airway.

2. Place the arm nearest you by the casualty' s side. Keeping his hand flat, slide it well under his buttock.
3. Being the casualty' s other arm up and lay it across his chest. Then slightly raise the leg, bring it towards you and cross it over his other leg.
4. Kneel bedside the casualty, about 22.5 cm(9in) from his chest and support his head with one hand. Grasp the casualty' s clothes at the hip farthest from you and pull him towards you until he is resting against your kneels.
5. Re-adjust the casualty' s head so that it is now well back to make sure the airway stays open.
6. Working on the uppermost limbs, bend first the arm, then the leg into a convenient position to prevent the casualty rolling on to his face.
7. The arm behind the casualty should now be free, if it is not, carefully ease it out from under his back and leave it lying parallel to his body to prevent him rolling on to his back.

Mouth to mouth ventilation

The following instructions are for giving mouth to mouth to unconscious adults who are not breathing.

1. Clear the casualty' s airway keeping her head well back, jaw forward and the mouth open, pinch her nostrils shut with fingers and thumb by one hand: Maintain this position through out.
2. Take deep breaths, open your mouth wide and seal your lips around the casualty' s mouth.
3. Blow firmly but gently into the casualty' s mouth blow from your chest not your cheeks and blow hard enough to make her chest raise.
4. Lift your mouth away from the casualty' s and turn your head toward her chest.
5. If you have been successful you will see that her chest movement occurs.

6. Give the casualty three more full breathes as quickly as possible.
7. Then check the skin colour and watch casualty' s heart rate.
8. If casualty is breathing, continue mouth-to-mouth breathe, at a rate of one every three or four seconds. (About the times per minute) keep watching the chest movements.
9. If there is no pulse you must begin external chest compression.
10. When breathing returns, place the casualty in the recovery position.

C-Circulation:

The circulation can fail because of two basic reasons.

1. The heart may stop working (or)
2. The volume of blood circulating in the body may be drastically reduced as result of severe bleeding.

Check the pulse in the carotid arteries of the neck. If there is no pulse or breathing, it means that the heart has stopped pumping and you must immediately begin to give external chest compression.

External chest compression:

It means applying pressure to the lower half of the breastbone (Sternum) which in turn causes blood to be pushed (pumped out) of the heart, each time you release the pressure, the heart refills. In this way you can maintain the casualty' s circulation.

This technique must be taught by a trained instructor and should never be practiced on any one whose heart is beating because, you can easily upset the rhythm of the person' s heart rate.

1. Lay the casualty flat on the ground kneel bedside him facing his chest.
2. Find the breastbone (the bone which runs down the center of the chest.], and find its center by measuring it with both hands. Place the heart of one hand on the center of the lower half, keeping your finger off the ribs.
3. Cover your hand with the heel of your other hand and lock your fingers together.

4. Kneel upright so that your shoulders are directly over the casualty' s breastbone and your arms are straight.
5. Press down about 4.5 cm then release the pressure but do not remove your hands.
6. Complete 15 compressions at a rate of 80 per minute by counting "one-and- two and" as you work.
7. When you reach 15 , move back to the casualty ' s head , tilt the chin back and give him two breaths of mouth to mouth.
8. Continue giving 15 heart compressions followed by the two breathings of mouth to mouth. Stop after one minute to check for the pulse, check it again every three minutes.
9. When you can feel the pulse again, stop pumping immediately.
10. Continue with mouth to mouth until natural breathing is restored, then stop assistance and place the casualty in the recovery position

3.4 Anemia

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

Etiology:

1. Blood loss related to trauma, decreased production of plalets. Increased destruction of platelets and decreased number of clotting factor.
2. Impairment of RBC production due to nutritional deficiency, (eg Iron deficiency, folic deficiency, Vitamin B12 deficiency, Vitamin B6 deficiency.
3. Decreased erythrocyte production, bone narrow depression.
4. Increased erythrocycte destruction due to
   i) Extrinsic factor.
   - Drugs and chemicals.
   - Infection.
   - Antibody reaction.

ii) Intrinsic factors.

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

Pathophysiology

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

Whenever formation of RBCs or hemoglobin is decreased or their destruction is increased, anemia results.

Sign and symptoms:

1. **Early Symptoms:**
   Restlessness, Fatigability and Anorexia related to decreased energy.
2. **Late symptoms:**
   Pallor, Weakness, Tachycardia, palpitation, Tachypneoa, shortness of breath.

Diagnosis:

1. Complete blood count.
2. Hemoglobin electrophoresis

Types of Anemia

1. **Anemia from blood loss:** Hemorrhage or continued slow bleeding will cause anemia.
2. **Iron deficiency Anemia:** It may result from faulty eating habits (Poor diets or hurrying meals)
3. **Pernicious Anemia:** A patient with pernicious Anemia lacks substances in the gastric juice called instinct factor, which is necessary to enable the body to absorb vitamin B12 from food.
4. **Sickle cell anemia:** It is genetic disease in which the red blood cells become sickled in shape due to the presence of abnormal hemoglobin.

5. **Aplastic anemia:** It results from disease of the bone marrow (where most blood cells are produced.) whereby the marrow is destroyed.
6. **Megaloblastic anemia:** 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. **Hemolytic anemia:** The erythrocyte has a shortened life span.

Treatment:

1. **Anemia from blood loss:** Replace the blood cells by transfusion and sometime to administer iron supplements.
2. **Iron-deficiency Anemia: T**ake extra iron containing food.
3. **Pernicious Anemia:** Take vitamin B 12 containing foods An injection every 2 or 3 weeks will allow the person to live normally.
4. **Sickle cell Anemia:** Citadels citrate , pentoxifyllin, vanillin oil as anti sickly effects evaluated as adjunctive therapy for sickle cell anemia. Blood transfusion and folic acid therapy is administered.
5. **Aplasstic anemia:** Two methods of treatments are currently employed. Bone marrow transplantation and Administration of immunosuppressive therapy with entity
6. **Megaloblastic anemia: Injection** B12 is administered, provide nutritious diet and folic acid 1 mg per day.

Nursing Management:

i) Offer small amount of foods at frequent intervals.
ii) Provide iron-rich foods and vitamins
iii) Teach and assist with good hygienic practices,.
iv) Good dietary habits.

Complication:

i. Mental sluggishness
ii. Growth retardation
iii. Delayed puberty related to growth retardation.

iv. Cardiac failure related to circulatory collapse and shock resulting in death.

3.5 Upper respiratory tract infection.

Any infection or disorders affecting the nose and throat is called the upper respiratory infection.

3.5.1 Common cold.

Common cold (coryza) refers to a syndrome related to inflammation of the cells of the respiratory epithelium by any group of respiratory viruses.

Etiology:

i) Rhinovirus (Accounts for 50% of common cold)
ii) Adenoviruses
iii) Myxoviruses
iv) Pura myxoviruses and
v) corona viruses

Signs and symptoms:

Occurs within 72 hours after viral infection.

i) Sneezing, sore throat and headache.
ii) Nasal discharge (initially clear, then yellow and thickened) and nasal congestion and obstruction.
iii) cough.

Management

No single specific treatment.

1. Symptomatic treatment includes
   - Aspirin as prescribed.
   - Steam inhalation. (refer practicals)
   - Decongestions, cough suppressions.

Nursing management:

The most important is patient education about how to break the chain of infection.

1. Hand washing remains the most effective measure to prevent transmission of organisms.

2. Using disposable tissues and discarding them hygienically, covering the mouth when coughing, and avoiding crowds are important measures.
3. Avoid inhaling irritating substances: smoke, dust, chemicals, sprays etc.
4. Educate good nutrition, regular exercise, adequate sleep and positive coping strategies.

Complication:

Bacterial Sinusitis.

3.5.2 Herpes simplex infections:

It is also known as cold sores of fever blister. The herpes simplex virus (Type I) is a DNA virus most often associated with lips and oral lesions (herpes labialise) (General herpes is usually caused by herpes simplex virus type 2.).

Etiology:

Herpes virus infections appear often in association with other fibrils infections, such as streptococcal pneumonia, meningococal meningitis, and malaria. The virus remains latent in cells of the lips or nose and is activated by febrile illness.

Signs and symptoms:

i) Prodromal period: Tingling, soreness, burning sensation or swelling in area where lesion will develop.
ii) Small vesicles appear, frequently in the lips or adjacent skin.
iii) Vesicle.

Management:

A. Medical Treatment:

i. Acyclovin(Zovirax) may be useful for immuno comprised patients.
ii. Topical anesthetic, lidocaine (xlylocaine), ordyclonine (Dyclonine) may provide relief of painful lesions.
iii. Application of drying lotions/ liquids may help dry lesion.

B. Nursing management:

i. Advise adequate rest and nutrition and prevention of sunburn and illness to prevent outbreak.
ii. Advise patient that virus is transmitted through close contact, so avoid kissing and sharing food and utensils during out breaks.
iii. Recommended good hand washing and hygiene to prevent spread.

3.5.3 Sinusitis

Inflammation of sinus

Types:

Acute and Chronic.

A. Acute sinusitis:

Acute inflammation of the one or more sinuses.

Etiology:

i. It develops as a result of upper respiratory tract infections particularly viral infections.
ii. Obstruction of the Para nasal sinuses leads to secretion of sinuses and infection.

Types:

Frontal sinusitis and Maxillary sinusitis.

Signs and symptoms:

i. Pressure, pain over sinus, area.
ii. Purulent nasal secretion.
iii. Maxillary sinusitis will cause pain over the eyebrows.
iv. Frontal sinusitis often cause pain over eyebrows.

Diagnosis:

i. History collection and physical examination.
ii. Sinus x-ray studies.

Management:

i. Antibiotics as prescribed.
ii. Oral and topical decongestion (Afrin and otvivin) may be prescribed.

iii. Head mist and saline irrigation also may be effective for opening blocked passages.

Nursing Management:

i. Steam inhalation.
ii. Increasing fluid intake.
iii. Applying local heat (hot wet packs).

B. Chronic Sinusitis:

Chronic sinusitis usually is caused by chronic nasal obstruction due to discharge and edema of the nasal mucous membrane.

Signs and symptoms:

i. Chronic patient discharge.
ii. A chronic cough.
iii. Chronic dull sinus, headache that is present on awakening, fatigue and nasal stuffiness.

Management:

i. Treatment of chronic sinusitis may be surgical.
ii. Removal of nasal deformities such as deviated, nasal septum hypertrophied turbinate bone or nasal polyps that are obstructing the sinus opening.
iii. Sinus irrigation may be done to ensure better drainage.
iv. Increasing fluid intake and applying local heat.

3.5 4. Rhinitis

Rhinitis is an inflammation of the mucous membrane of the nose and may be classified as either non-allergic or allergic rhinitis.

Types:

Rhinitis may be an acute or chronic condition.

Etiology:

It occurs as a result of foreign bodies entering the nose structural deformities, neoplasm, and massed

Chronic use of decongestions, use of oral contraceptives, cocaine and anti hypertensive drugs.

Signs and symptoms:

i. Nasal congestion
ii. Nasal discharges
iii. Nasal itchiness and sneezing.
iv. Headache

Complete history and asking about possible exposure of to allergies in the home, environment on work place.

Management:

Medical Management:

Antihistamines, decongestants and topical corticosteroids.

Nursing Management:

i. The patient is instructed to avoid allergies and irritants, such as dusts, firms, odors, powders, sprays and tobacco soap.
ii. Saline nasal spray may be helpful in soothing mucous membranes, softening crusted secretions and removing irritants.
iii. The patient is instructed to use the technique for administration of medication, particularly nasal sprays or aerosols.
iv. The patient is instructed to blow the nose before applying any medication into the nasal cavity.

3.5 5 Pharyngitis

Pharyngitis is an acute bacterial infection of the throat caused by group A, beta hemolytic streptococci.

Signs and symptoms:

i. Abrupt onset of sore throat and fever.
ii. Throat pain aggravated by swallowing.
iii. Pharynx appears reddened with edema of uvula, tonsils enlarged and reddened. Pharynx and tonsils may be covered with extudate.
iv. Swollen, palpable, and tender cervical lymph nodes.

Diagnosis:

i. Blood investigation
ii. Throat culture
iii. Throat swab

Management:

i. Penicillin orally for 10 days or Benzedrine penicillin G in a single intramuscular dose as prescribed.
ii. Erythromycin for patient who is allergic to penicillin

Complication:

11. Acute Rheumatic fever.
12. Peritonsillsr abscess/ Cellulites.
13. Acute glomerulonephritis
14. Sinusitis, otitismedia

3.5.6 Laryngitis

Inflammation of the larynx often occurs as a result of voice abuse, exposure to dust, chemicals, smoke and other pollutants, or as part of an upper respiratory tract infection.

Etiology:

It is common in winter as the onset of infection may be associated with exposure to sudden temperature changes, dietary deficiencies, malnutrition and lack of immunity.

Sign and symptoms:

Acute laryngitis: include hoarseness or complete loss of voice (Aphonia) and severe cough.

Chronic laryngitis: named by persistent hoarseness.

Management:

i. Resting the voice, avoiding smoking.
ii. Resting in bed and inhaling cool steam or an aerosol.
i. Restricting smoking.
ii. Use of topical corticosteroids as prescribed.

Nursing management:

i. Instruct the patient to rest voice and to maintain a well-humidified environment.
ii. Expectorants are suggested along with daily fluid intake.

3.6. Lower respiratory tract infection:

3.6.1 Pneumonia:

Inflammation of the airway and alvioli of the lung caused by infectious agent is known as pneumonia.

Etiology:

i. The organism gains access to the lungs through aspiration of oropharynx content
ii. By inhalation of respiratory secretions from infected individuals via the blood stream.
iii. Direct spread to the lungs from surgery or trauma.
iv. Immuno compromised patient. (eg Those receiving carticosteroids or immunosuppressives)

Predisposable factors:

i. Tumour, general anesthesia, poor operative immobility, depression of central nervous system, neurological disorders and intubations.
ii. People who have over 65 years have a high mortality rate.

Signs and symptoms:

i. Sudden onset, shaking chill and rapidly rising fever
ii. Cough productive of purulent sputum.
iii. Chest pain aggravated by coughing.
iv. Tachypnoea accompanied by respiratory grunting and nasal flaring.
v. Rapid bounding pulse.

Diagnosis:

i. Chest, x-ray to show pressure/extent of pulmonary disease.
ii. Gram' s strain, culture, and sensitivity studies of sputum

iii. Blood culture
iv. Immunologic test

Management:

i. Antimicrobial therapy - depends on laboratory identification of causative organism and sensitivity to specific antimicrobials.
ii. Oxygen therapy if patient has inadequate gas exchange.(refer practicals)

Nursing management:

i. Follow ABCs to determine oxygen need and response to oxygen therapy.
ii. Place patient in a fairly upright position to obtain greater lung expansion
iii. Encourage patient to cough
iv. Encourage increased fluid intake
v. Oxygen therapy to loosen secretions and improve ventilation.
vi. Employ postural drainage.
vii. Ascultate the chest.
viii. Administer cough suppressants.
ix. Place in a comfortable position
x. Apply heat and / or cold as prescribed.
xi. Encourage modified bed rest during febrile period.
xii. Monitor vital signs
xiii. Encourage breathing exercises
xiv. Educate to avoid smoking
xv. Advise patient to keep up natural resistance with good nutrition, adequate rest.
xvi. Encourage the early immunization

Complication:

i. Pleural effusion.
ii. Hypertension and shock.
iii. Meningitis

iv. Delirium.
v. Atelectasis.

3.6.2 Pulmonary Tuberculosis

Pulmonary tuberculosis is an infectious disease caused by mycobacterium tuberculae.

Etiology:

Transmission

i. Droplet infection.(coughing, talking, sneezing or singing.)
ii. When an uninfected susceptible person inhales the droplet, containing air, the organism is carried into the lung to the pulmonary alveoli.

Signs and symptoms:

Patient may be asymptomatic. Later it can show symptoms as follows:

i. Fatigue, Anorexia, weight loss, low-grade fever, night sweats indigestion.
ii. Some patients have acute febrile illness, chill, generalized influnzalite symptoms.
iii. Cough (insidious onset) progressing in frequency and producing mucous or mucopurulent sputum.
iv. Hemoptysis, chest pain, dyspnoea.

Diagnosis:

i. Sputum smear and culture
ii. Chest x-ray

Management:

Medical management:

i. Anti tuberculosis therapy

Nursing management:

i. Obtain history of exposure to tuberculosis.
ii. Administer and teach self-administration of medication as ordered
iii. Encourage rest and avoidance of exertion.

iv. Monitor breath sounds, respiratory rate, sputum production and dyspnoea.
v. Provide supplementary oxygen as ordered.
vi. Encourage and explain the importance of eating a nutritious.
vii. Monitor weight.
viii. Administer vitamin supplements as ordered, particularly pyridoxine (Vitamin B12) to prevent peripheral neuropathy in-patient taking isonized.

Prevention of transmission

i. Be aware that, respiratory droplet or secretions transmit tuberculosis.
ii. Provide care for hospitalized patient in a negative pressure room to prevent respiratory droplets from leaving room when door is opened.
iii. Enforce that all staffs and visitors use standard face mask for contact with patient.
iv. Use high-efficiency particulate mask for high-risk procedures
v. Educate the patient about the etiology transmission of effects of tuberculosis.
vi. Stress the importance of continuing to take medication for prescribed time.
vii. Follow up care

Complication:

i. Pleural effusion
ii. Tuberculosis pneumonia.
iii. Other organ involvement with tuberculosis.

3.7. HIV / AIDS

AIDS:

Acquired Immuno Deficiency Syndrome is defined as the most severe form of contageous disease associated with human immuno deficiency virus (HIV) infection.

Etiology:

i. HIV, is transmitted through blood, vaginal secretions, semen and breast milk.
ii. HIV is transmitted by injection of blood or blood component,
iii. sexual contact (vaginal/anal intercourse, oral sex) and perinatally
iv. from an infected mother to the child.

High risk Group:

i. Homo sexual or bisexual.
ii. Intravenous drug users.
iii. Transfusion and blood product recipient
iv. Heterosexual contain of HIV positive individuals.
v. Newborn babies of mother who are HIV positive.

Signs and symptoms:

i. Pulmonary manifestation: Persistent cough with or without sputum production, shortness of breath, chest pain, fever.
ii. Gastrointestinal Manifestation: Diarrhea, weight loss, anorexia, abdominal cramping, rectal urgency.
iii. Oral manifestation: Appearance of oral lesions, while plaques an oral mucous, and angular stomatitis.
iv. While thickened lesion on lateral margins of tongue form hairy leukoplakia.
v. Oral warts due to human papilloma virus (HPV) and associated gingivits.
vi. Periodontitis progressing to gingival neurosis.
vii. **Central nervous system (CNS) manifestation:** Demonstrated by mental slowing, impaired memory and concentration, loss of balance, lower extremity weakness, ataxia, apathy and social withdrawal.
viii. **Malignancies:** Kaposis sarcoma (aggressive tumor involving skin, lympn nodes, gastrointestinal tract and lungs)
ix. Non-Hodgkin' s lymphoma and lympnode mass.
x. Cervical carcinoma

Diagnosis:

i. History of risk factors.
ii. Positive blood test for HIV [Enzyme –linked immuno sorbent assay (elisa), western blot test used to confirm a positive result on elisa test]
iii. Lymptocyte panel shows decreased count.
iv. A complete blood count may show anemia
v. Diagnostic procedure (biopsy, imaging procedures etc)
vi. Neuropsychological testing.
vii. Viral load testing monitors disease activity.

Management:

Specific therapy: Multiple drug regiments of antiviral agents are most effective.

Supportive care:

i. Treatment of reversible illness.
ii. Nutritional support.
iii. Palliative care.
iv. Dental management.
v. Evaluation and management of psychological and social aspects of AIDS.
vi. Treatment to relieve symptoms (cough, diarrhea)
vii. Antidepressant drugs, psychiatric interventions.

Nursing management:

i. Help patient identify and strengthen personal resources such as positive coping skills, relaxation techniques strong support network, and optimistic look.
ii. Follow universal precautions for all patients.
iii. Administer and teach patient/family good skin care a break in a skin is a source of secondary infection, use position changes, emollient lotions, special pads and beds and attend to hydration and nutrition.
iv. Maintain cleanliness of environment.

v. Use aseptic techniques when performing invasive procedures.

vi. Teach patient how to minimise the risk of disease.

- Avoid exposure to persons with infections
- Do coughing, and do breathing exercises when confined to bed.
- Instruct visitor about hand washing before entering and leaving the room.
- Advise the patient/ family to wash hands before preparing the food and hygienic manner.
- Advise patient not to eat raw or undercooked food.
- Monitor nutritional status by recording weight.
- Encourage small, frequent meals
- Teach the patient for mouth rinses regularily using antifungal mouth wash liquid.
- Perform or encourage oral care for two or three times a day.
- Monitor intake and output chart
- Administer fluids and electrolytes as prescribed.
- Advice patient to eliminate the caffeine, alcohol, dairy products, food high in fats, fresh juices, and acidic juices if diarrhea persist.
- Advise the patient to drink liquids at room temperature.
- Advise the patient to avoid foods that increase intestinal motility and distention such as gas-forming fruits and vegetables.
- Provide safety for the patient (bed rails up; call signal available; things with in patient reach).
- Encourage high fluid intake to replace insencible water losses incurred by fever/ diaphoresis.
- Administer antipyretics as prescribed.
- Provide supplemental oxygen as ordered.
- Administer saline nebulization to induce sputum collection for culture and sensitivity.
- Answer questions and support patients' decision

Complication:

i. Repeated overwhelming opportunistic infection.
ii. Respiratory failure.
iii. All systemic disease.

3.8 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:

i. IDDM: Insulin dependent diabetes mellitus.
ii. NIDDM: Non-Insulin dependent diabetes mellitus.

Etiology:

i. Lack of insulin produced by the beta cell resulting in hyperglycemia.
ii. Defects of the cell receptor site, impaired secretary response of insulin (gluconeogenosis).
iii. Viral, autoimmuno, and environmental theories are under review (IDDM).
iv. Heredity/genetics and obesity plays a major role (NIDDM).

Signs and symptoms:

i. Hyperglycemia:(Increase Of Blood Glucose)
ii. Weight loss, fatigue.
iii. Polyuria , polydipsia, poly phagia.
iv. Blurred vision.
v. Poor wound healing.
vi. Recurrent infections, particularly of the skin.

Diagnosis:

i. Random, fasting
ii. GTT may be done (glucose tolerance test)

Management:

1. Diet
2. Exercise

3. Medication.
4. Health education.

1. Diet:

i. Dietary control with calorie restriction of carbohydrates and saturated fats is to maintain ideal body weight.

ii. Advise patient of the importance of an individualized meals plan in meeting weight loss goals.

iii. Explain the importance of exercise in maintaining/ reducing body weight. Calorie expenditure for energy in exercise.

iv. Strategise with the patient to address the potential social pitfalls of weight reduction.

2. Exercise:

Weight reduction is the primary treatment 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.

3. Medication:

- Oral hypoglycemic 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 hypoglycemic agent therapy. Hypoglycemic may result, as well as rebound hyperglycemic 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 of pain from injection
- Instruct patient in filling syringe when he or she expresses confidence in self-injection procedure.

- Review dosage and time of injections in relation to meals, activity, and bedtime based on patient's individualized insulin regimen.

4. Health education:

i. Preventing injury secondary to Hypoglycemia:

1. Closely monitor blood glucose levels to detect hypoglycemia.
2. Asses patient for the signs and symptoms of hypoglycemia.

- Sweating, cardiac palpitation and nervousness
- Head ache, light–headedness, confusion, imtability, slurred speech, lack of co-ordination staggering gait from depression of central nervous system as glucose level progressively falls.
- Treat hypoglycemia 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 treatment for hypoglycemia at all times.
- Encourage patients to wear an identification bracelet or card that may assist in prompt treatment in a hypoglycemia emergency.
- Identification bracelet may be obtained from medic Alert foundation
- Identification card may be requested from the American Diabetes Association
- Between meal snacks as well as extra food taken before exercise should be encouraged to prevent hypoglycemia.

ii. 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 hypoglycemia.
- Instruct patient to avoid exercise whenever blood glucose levels exceeds 250 mgs per day.

iii. Providing information about oral hypoglycemic 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.

iv. Maintain skin integrity:

- Maintain skin integrity
- Use-heal protection, special mattress, foot cradla, for patients on bed rest.
- Avoid drying agents to skin.(eg. Alchol)
- Apply skin moisturizers to maintain supplement and prevent cracking, fissures.

v. Improving coping strategies:

- Encourage patient and family participation is diabetes self care regimen to foster confidence.

Complication:

1. Hypoglycemia
2. Diabetic ketoacidocis
3. Hyperglycemic syndrome.
4. Micro vascular complication eg retinopathy, nephropathy, neuropathy
5. Micro vascular complications in cardiovascular disease occurring both in NIDDM and IDDM.

3.9 Fracture

A fracture is a break in the continuity of bone and is defined according to type and extent,

Causes:

1. Direct blow.

2. crushing force.
3. Sudden twisting motion
4. Extreme muscle contraction.

Types of fracture:

1. A complete Fracture: Involves a break across the entire cross section of the bone and is usually displaced (removed from normal position.)

2. An Incomplete Fracture: Involves a portion of the cross section of the bone or may be longitudinal.

3. A closed fracture or Simple fracture: Does not produce a break in the skin.

4. Open fracture/compound fracture/complex fracture: Is one in which the skin or mucous membrane rapture extends to the fractured bone. It can be classified or graded into

- Grade I : Is a clean wound less than 1 cm long.
- Grade II: Laceration grater than 1 cm without extensive soft tissue flaps.
- Grade III: Which is highly contaminated and has extensive soft tissue injury, including skin, muscle, neurovascular structure, with crushing, is the most severe.

5. Pathologic: A fracture that occurs through an area of diseased bone (bone cyst, pager' s disease, bony metastasis, tumor).

Fractures are also are classified as,

1. **Greenstick:** A fracture in which one side of a bone is broken and the other side is bend.
2. **Transverse:** A fracture that is straight across the bone
3. **Oblique:** A fracture occurring at an angle across the bone (less stable than the transverse)
4. **Spiral**: a fracture twists around the half of the bone.
5. **Communicated**: A fracture in which bone has splintered into several fragments.
6. **Depressed**: A fracture in which fragments of skull and facial bones.

7. **Compression:** A fracture in which has been compressed on collapses in on itself.(Seen in vertebral fractures)
8. **Avulsion:** A pulling away of a fragment of bone by a ligament or tendon and its attachments.
9. **Impacted:** A fracture in which a bone fragment is driven into another bone fragment.
10. **Others:** Described according to anatomic location: Epiphyseal, supracondylar, mid shaft, intra articular etc.

Signs and symptoms:

1. Pain at sick of injury.
2. Swelling.
3. Tenderness
4. False motion and crepitus.
5. Deformity.
6. Loss of function.
7. Ecchymosis.
8. Parasthesia
9. Injured muscle, blood vessels and nerves.
10. Compression of structures resulting in ischemia.
11. Loss of active motion.
12. Bone is very vascular so hemorrhage can be detected and treated and if not will lead to fatality.

Diagnosis:

1. X-ray and other imaging studies to define integrity of bone.
2. Blood studies
3. Arthroscopy: To detect joint involvement.
4. Angiography: It associated with blood vessel injury.
5. Nerve conduction and electromyogram studies to detect nerve injury.

Management:

1. Factors influencing choice of fracture management:

- Type, location, and severity of fracture.

- Soft tissues damage.
- Age and health status of patient, including type and extent of other injuries.

2. Process:

i. **Reduction:** May be used to reduce a fracture.
   - **Closed reduction:** In most instances, closed reduction is accomplished by bringing the bone fragment into apposition by manipulation and manual fraction restore alignment.
   - **Open reduction:** Operative intention to achieve reduction, alignment and stabilization.

ii. **Immobilization:** After the fracture has been reduced, bone fragments must be immobilized or hold in correct position. It can be achieved by
   - Cast or splint applied he immobilize extremity and maintain reduction.
   - Skin traction: Force applied to the skin using foam, rubber, tape etc.
   - Skeletal traction: Force applied to the body skeleton directly using wires, pins or tongs placed into or through the bones.

iii. **Rehabilitation:**

Regaining normal fraction of the infected part by traction, exercises, or physiotherapy.

Nursing Management:

1. Monitor vital signs for evaluating hemorrhage and shock.
2. Watch for evidence of hemorrhage or dressing.
3. Administer prescribed fluid/blood to maintain circulating routine.
4. Monitor neurovascular status for compression of nerve, diminished circulation, development of compartment syndrome.

- Pain - on passive stress, localized, persistent, unrelieved by immobilization and medication.
- Weakness and pulselessness
- Altered sensation hypothesis
- Skin colour- pale.

5. Position to enhance respiratory effort.
6. Encourage deep coughing and deep breathing exercise to promote lung expression.
7. Administer oxygen as prescribed.
8. Reduce swelling by elevating injured extremity (unless compartment syndrome is suspected - may contribute vascular compromise).
9. Relieve pressure caused by immobility device as prescribed.
10. Relieve pressure on skin to prevent development of pressure sore by frequent positioning, skincare and special mattress.
11. Encourage active and passive exercise.
12. Use elastic stockings.
13. Encourage ambulation
14. Administer anti coagulants as prescribed.
15. Immobilize the injured part.
16. Position the patient in correct alignment and support with splint or cast.
17. Provide high caloric diet and plenty of liquids.
18. Monitor intake and output chart.

Complications

1. Muscle atrophy
2. Joint contrasture
3. Pressure sore
4. Venous stasis and thromboembolism.
5. Infection- especially in open fracture.
6. Shock-due to significant hemorrhage.
7. Pulmonary emboli.

8. Fat emboli syndrome
    - respiratory
    - Mental disturbances.
    - Fever

3.10 Burns And Scalds

Burns are form of traumatic injury caused by thermal, electrical, chemical or radioactive agent.

A burn injury usually results from energy transfer from a heat source to the body.

Type of burn injury may be flame/flash, contract, scald (water, grease, etc) chemical, electrical, inhalation or any thermal source.

Causes:

1. Fire accidents
2. Electrical injures
3. Chemical injury (acids)

Signs and symptoms:

1. Many factors alters the response of the body tissue to these sources of heat.
2. Local tissue Conductivity – bone is most resistant to the heat source accumulation. Lesser resistance is seen in nerves, blood vessels and muscle tissue. Adequacy of peripheral circulation
3. Skin thickness, insulating material of clothing or dampness of the sun.
4. Physiologic reaction to a burn is similar to inflaming process.
5. Adjacent intact vessels dilate, causing redness and blanching with pressure.
6. Platlets and leukocytes being to adheres to the vascular endotheliuem, as an early event in the inflaming process.
7. Increased Capillary permeability produces wound edema.
8. Burns may be partial or full
9. Respiratory Distress Syndrome (ARDS).

Diagnosis:

It depends upon the severity of burns determined by.

1	Medical history		
2	Deep	-	First second, third degree
3	Extent	-	Percentage of Total body surface area.
4	Age	-	The very young and very old have poor prognosis the prognosis alters after age 45.
5	Area of the body burned	-	Face, hands, feet, perineum and circumferential burns.
6	Inhalation injury.		
7.	Obtain arterial blood gas analysis.		
8.	A chest x-ray should be obtained as a base line.		

Treatment of burns :

Management of acute burns injury includes.

1. Hemodynamic stabilization
2. Metabolic support
3. Wound debridemens
4. Use of topical antibacterial therapy.
5. Biological dressing and would closing

3.10.1 Hemodynamic stabilization:

The goal is to give sufficient fluid to allow perfusion of vital organs without over hydrating the patient.

1. Immediate intravenous (IV) fluid resuscitation is indicated.
2. First day a crystalloid (RL) solution is used and on the second day a colloid is used.
3. Several formulas may be used to determine the amount of fluid to be administered in the first 48 hrs.

   @ Parkland formula: First 24 hrs – 4 ml of RL x wt in Kg

X % TBSA burned.

One half amount of fluid is given in the first 8 hours calculated from the time of injury

Boluses of any colloid may be necessary to keep a urinary output of 0.5 m1 to 1 ml / kg/ hour.

Additional Intervention:

1. All nonviable tissue is removed down to a viable base.
2. Fluid may be titrated to achieve a urinary output of 30.50 ml/hr (0.5 ml to 1. mg / hr in adult)
3. An indwelling urinary catheter is needed to monitor response to fluid therapy.
4. Weigh the patient on admission and then daily.
5. Elevate extremities
6. Monitor peripheral pulses
7. Administrator humidified oxygen through a nasal canula, mask or endotracheal tube.

Metabolic supports :

1. Keep the patient by naming by month status. However small amount of (5 to 10 ml/hr) Isotonic enteral tube feedings are often started within 24 hrs to help maintain a functioning of gastrointestinal system.
2. When bowel sounds normal, administer oral fluids
3. Provide 3 gm protein / kg body weight 20% of needed calories inform of fats remainder in carbohydrates.
4. When calorie requirements, cannot be met by external feeding it may be necessary to initiate total parental nutrition (amino acids, carbohydrates, and fat emulsion)
5. Provide potassium and vitamin and mineral supplements (zinc, iron, vitamin C)

3.10.2 Wound cleansing and Debridment. (refer practicals)

Treatment of true burns would include daily or twice daily would cleansing with debridement, or hydrotheraphy and dressing changes.

Burn must be cleansed with a mild antibacterial cleansing agent and saline solution or water.

Burn slough will be removed through daily or twice daily dressing changes and use of forceps and scissors at time of wound cleansing.

3.10.3 Hydrotheraphy:

Hydrotheraphy is the bathing of the patient in a tub of water or a water shower to facilitate cleansing and debridement of the burned area.

Advantage:

1. Adherent dressing are more easily removed
2. Provide patient to practice range of motion exercises.

Disadvantages:

1. Loss of body heat, sodium loss
2. Uncomfortable to the patient and at times painful.

3.10.4 Topical Antimicrobials

Topical medications are used to cover burn areas and to reduce the number of organism.

Surgical management :

Early excision and grafting is the basic goal

3.10. 5 Burn wound covering :

Biological Dressing	are used to cover large surfaces of the body. Usually they are split thickness grafts harvested either from human cadavers or other mammalian donors such as pigs. Human amnion may also be used.
An Allograft	is a graft of skin taken from a person

	other than the burn victim and applied to a burn would temporarily (a cadaver is a most common source)
A. Kenograft or heterogfart	is a segment of skin taken from an animal, such as a pig. It is useful in preparing debrided area for grafting and is really a biologic dressing.

Nursing intervention:

1. Achieving adequate oxygenation and respiratory function
   - Provide humidified 100% oxygen
   - Asses for sign of hypoxemia
   - Asultate chest and note the breath sounds.
2. Promoting Peripheral Circulation
   - Remove all jewellary and clothing
   - Elevate extremities.
   - Maintain intake of output accurately
   - Weight the patient daily
   - Administer diuretics as ordered.
3. Promote skin integrity
4. Maintain body temperature.
5. Avoid infection
6. Administor antibiotics as prescribed
7. Promote optimal personal hygiene
8. Initiate passive and active range of motion and breathing exercise during early post burn period, provide back care.
9. Administer analgecis as prescribed

Complication :

1. Infection and stock
2. Pulmonary damage.

3.11 Cataract:

Cataract means clouding or opacity of the crystalline lens. In general cataract may be classified into :-

1	Senile Cataract	:	Commonly occurs and associated with aging.
2	Congenital Cataract	:	Occurs at birth
3	Traumatic Cataract	:	Occurs after injury
4	Aphakia	:	Absence of crystalline lens.

Etiology :

1. It is caused by chemical changes in the portion of the lens because of slow degenerative changes of aging person.
2. Infant whose mother with german measles during first trimister of pregnancy.
3. Aging above 80 years 80% of the people are affected.

Signs and symptoms:

1. Blurred or distorted vision
2. Glare from bright light
3. Gradual and painless loss of vision
4. Previously dark pupil may appear milky or white.

Diagnosis:

1	SLIT lamp Examinations	:	To provide magnification
2	Tonometry	:	To determine Intra ocular pressure

3 Direct and Indirect opthalmoscopy

4 Occular examinations

5 Perimetry to determine the scope of the visual field

Management:

General instructions / Information:

1. Operative treatment is the only satisfactory treatment for cataract.
2. A patient with one cataract usually manages without surgery, but if it is in both eyes, surgery is recommended.
3. Surgery is done on only one eye at a time.

4. Cataract surgery is done usually under local anesthesia
5. Pre-operative medication procedure decreased response to pain and lessened motor activity (neuro leptic analgesics)
6. Oral medications are given to reduce T.O.P. [Intra ocular pressure]
7. Intra – Occular lens are usually implanted at the time of cataract extraction.
8. In some instances after lens extraction and the healing process the patient may be fitted with appropriate eyeglasses or cataract lenses to correct refractions.

Surgical management :

There are two types of extracts in this procedure

Intra Capsular extraction	:	The lens as well as the capsule are removed through the small incision.
Extra Capsular Extraction	:	In this procedure, the lens capsule is incised and the nucleus, cortex and anterior capsule are extracted.

Two types of procedures for extracts are :

1	Cryosurgery		It is special technique in which the pencil like instrument with a metal tip is super cooled ($-35^{o}C$) then is touched to the exposed lens, freezing to it so that the lens is easily lifted out.
2	Phaco Emulsification		It is the mechanical breaking of (emulsifying) of the lens by a hollow needle vibrating at ultrasonic speed. This action is coupled with irrigation and aspiration of the emulsified particles from the anterior chamber.

Nursing management:

Pre -operation:

1. Orient the patient and explain the procedure and plan of care to decrease anxiety.

2. Instruct not to touch the eyes to decrease contaminations.
3. Administer pre-op medication as prescribed

Post –operation:

1. Medicate for pain as prescribed to promote comfort
2. Administer medication to control nausea and vomiting
3. Caution the patient against coughing or sneezing to prevent increased Intra-ocular pressure.
4. Avoid taped movements or bending from the waist to minimizing the Intra-ocular pressure.
5. Allow patient to ambulate as soon as possible.
6. Encourage patient to wear eye shield at night to protect the operated eye for injury while sleeping.

3.12 Ear Wax:

Earwax is otherwise called as cerumen

1. It is the soft, brownish, yellow, waxy secretion of the ceruminous gland of the external auditory means.
2. It usually gets impacked due to use of Cotton swabs to clean ears, and may be a problem for some people while playing with sand.

Signs and symptoms:

1. Cerimen usually builds up over period of time and causing slighty decreased hearing activity and feeling the ear is plugged.
2. Pain severe and drainage may occur

Management :

1. Accumulated cerimen (earwax) need not be removed unless it becomes impacked with hearing defict by irrigating ear canal.
2. Foreign bodies may be removed by instrumentation or irrigation.
3. **Insects :** Treatment by instilling oil drops
4. **Vegetable Foreign bodies (eg Peas):** It can' t be removed by irrigation and it is removed skillfully with instruments

5. If the victims very young general anesthesia is required.
6. Teach proper ear hygiene especially not to put any thing in ears.

3.12.1 Ear Infections:

A. External Otitis Media:

Inflammation of the external ear is called external otitis media, which may involve the pinna and also the epidermal layer of tympanic membranes.

Types :

It can be divided into two types

1. Acute external otitis media
2. chronic external otitis media

Etiology :

1. They are usually common in the summer and winter.
2. It is caused by eczematous dermatitis fungus and bacterial infection. And also caused by trauma or the result of primary invasion of organism.

Sign and symptoms :

Acute E.O.M.	Chronic E.O.M
Feeling of hot burning sensation in the ear	Severe itching due to irritated feeling
Small amount of oozing will be present	Oozing turns into crust.
Meatal line becomes inflamed and swollen	Swollen meatus becomes dry and scally and has a feeling of impaired loss in hearing.

Management :

1. Local treatment may include application of medication ointment or powders.

2. Compresses to provide heat, soften crusts or supply medication. (Eg warm glycerin can be applied over swalling
3. Cool application to lesson inflammation and relieve discomfort.
4. Analgesics and antibiotic may also be ordered.
5. Ointment is avoided with acute external otitis. Barrow's solution (Aluminium aceste solution) often is used for its astringent action which has cooling and sooring effect.
6. In caring for person with either chronic or acute external otitis it is important to avoid further infection thus had washing is important.

B. Serous Otitis Media

Inflammation of the middle ear. Serous (catarnal) otitis media is a condition in which serum is present in the middle ear and interferes with hearing.

Types:

They are two main types.

1. Acute sapurative otitis media
2. Chronic sapurative otitis media.

Etiology :

1. Streptococous
2. Pneumocous

Signs and symptoms :

1. It may last for a few days or to years.
2. The patient may complain of a sense of fullness or blockage in the ear.
3. Hearing loss
4. A low pinched tinnitus
5. A severe ear ache
6. Loss of appetite and Insomnia
7. Raise of body temperature

Treatment :

1. Gentle aspirate the fluid and clean the ear
2. Antipyretics, Antibiotics and analgesics are prescribed with multivitamin tables.
3. Mild Sedatives and ear drops are administered.

C. Otosclerosis

Otosclerousis is a progressive condition in which the normal bone of the inner ear is replaced by abnormal osseous tissue leads to progressive deafness.

Etiology:

The cause of o**tosclerosis** is not known as predisposing factors and are

1. Hereditary
2. Vitamin deficiency
3. Calcium and metabolic disorders
4. In some women pregnancy may be precipitating factor

Signs and symptoms:

1. Deafness
2. Trinities and depression
3. Loss of appetite
4. Patient hears better in noisy place
5. Tympanic membrane will be bluish in colour

Management :

The Treatment for hearing loss due to **otosclerosis** is stapedectomy

Surgical management:

Surgery is for removing the stapes and replacing it with some types of prosthesis.

Nursing management :

1. Provide bed rest and reduce anxiety.

2. Administer, Analgesics, antibiotics, ant emetics and multivitamin tables as prescribed
3. Instruct the patient to keep the operated ear away from the bed side to prevent dislodgement.
4. Educate the patient not to blow the nose and prevent cold and cough, not to swimming and shampoo bath is avoided.

D. Mastiditis

Inflammation of the mastoid results from the middle ear infection.

Signs and symptoms :

Severe pain, fever, headache, loss of weight Tenderness, swelling, insomnia, loss of apposite etc.

Management :

Surgical Management :

- Mastoidectomy

Medical management :

- Analgesics and antibiotics

Nursing management :

- Same as post stapidectomy patient

Complication :

1. Meningitis
2. Facial palsy
3. Brain abscess
4. Hearing loss

E. Menier' s disease

It is an inner ear disease characterised by vertigo, dizziness and with pathological distension of endolympatic system.

Etiology :

The cause of menier' s disease is unknown. But it appears to be related to dysfunction of the autonomic nervous system.

Signs and symptoms:

1. Severe vertigo some times unable cross the road.
2. Pain, Headache, loss of hearing.
3. Sensation of dizziness severe tinnites (dinging sensation in the ears)
4. Nauses and vomiting and loss of appetite.
5. May be irritable and shows loss of interest in activity
6. Profuse perspiration and nystagmus.

Investigation :

1. Autoscope, Audiogram (Audiometry)
2. The Caloric test
3. The glycerin test (1.5ml / of glycard is mixed with equal amount of water and given to the patient. So that it reduce inflammation and it has dehydrating agent.
4. Electro nystagmography

Management :

1. No medical treatment for menier's disease has proved successful.
2. To reduce endolymphatic hypertension, fluid intake may be limited and diuretic drugs such as Diruil and Diamox may be ordered.
3. A low salt diet may be helpful.
4. Other medications include histamine

Surgical management :

1. **Conservative :** The tube is introduced to the labryinsh in to the endolymphatic sac to drain the excess endolympic fluid.
2. **Destructive labynthectomy:** In this the labyrinth is exercised and removed surgically.

Nursing care:

1. Reassure the patient
2. Give comfortable bed to prevent fall (put side rails)
3. Monitor vital signs

4. Assist the patient in all simple axes.
5. Restrict the intake of sodium and water to reduce odema.
6. Arrange for pleasant music to overcome tannitis
7. Health education regarding
    a. Advise to stop smoking
    b. Avoid allergic food
    c. Intake the medicine is an appropriate way
    d. Control of environmental factors.
8. Follow up care.

General terms :

Anosmia	:	absence of odour of smell
Hyperosmia	:	increased sense of smell
Hyposmedia	:	decreased sense of smell
Cachosmia	:	perspiration of bad odour
Perosmia	:	wrong odour

E. Tonsilitis:

It is an acute or generalized inflammation of the mass of the tonsil caused by straptococus or staphylococcus.

Etiology :

Caused by bacterial or viral organism

1. It is common in children
2. More among the person who' s resistance is low.

Signs and symptoms:

1. Onset is Sudden
2. Sorethroat pain on swallowing
3. Fever, Chills generlised muscle acting a malaise.
4. Tonsils appear red and peritonsillar tissue are swollen

Diagnosis:

1. Throat examination and appropriate cultures to determine the presence of source of infection.
2. Blood studies.

Management :

1. Pre-operative management :

- Adequate bed rest
- Diet should consist of large amount of fluids and
- Soft cool, non-irritating foods.
- Antibiotic penicillin should be given.
- Must be kept free from upper respiratory truck infections.
- Explain the procedure and keep nothing by mouth
- Discourage coughing
- Acetylsalisilic acid and sometimes iodine sulphate may be ordered to relieve pain and discomfort.
- Ice color may be applied to neck.
- If temperature 39^{o}C – Alcholic sponge bath may be given.

Surgical management :

Chronic tonsillitis may lead to tonsillectomy

Indication for tonsilectomy :

- Repeated attacks of tonsillitis
- Paritonsillar abcess (quinsy)
- The sleep apnea syndrome

2. Post operative nursing care : -

- Post operative care should be directed in preventing hemorrhage the most common complication.
- The nurse must watch the vomiting substances, amount , frequency and nature of vomit.
- The patient should be ensured for side lying position
- Vital signs must be watched carefully.
- Airway must be maintained because swelling may occlude it.
- Fluid must be encouraged orally by swallowing clear fluids and straw should be privded.

3.13 Pharyngitis:

Inflammation of the pharynx. Acute pharyngitis is the most common throat inflammation caused by hemolytic streptococci.

Etiology :

Pharyngitis may occur after the removal of tonsils

Signs and symptoms:

1. Dryness of throat
2. Sore throat, fever above 38.2 (101 F)
3. Throat pain aggrevated by swallowing
4. Hic cough
5. Throat appears red and soreness starts from acute rhinitis and acute sinusitis.

Diagnosis :

1. WBC ,shows leukocytosis.
2. Throat culture for bacterialogical diagnosis to determine the presence absence of streptococci.

Management :

1. Medical :

- Penicillin Orally for two days or benzathine Penicillin G in single intra muscular dose.
- Erythromycin for the patient who is allergic to Penicillin.
- Acetylsalicylic acid as prescribed
- Lozenger containing mild anesthetic after may help to relieve the local soreness.

2. Nursing management:

- Acute pharyngitis is relieved by hot saline solution throat gargle.
- An ice collar may help the patient to feel move comfortable
- Moist inhalation may help to relive the dryness of the throat

- A liquid diet
- Bed rest is advised
- Maintain good oral hygiene to prevent drying and cracking of the lips.

3.14 Urinary tract infection

Urinary tract infection is an infection of the urinary tract and it is caused by the presence of pathogenic microorganism in the urinary tract with or without signs and symptoms.

The most common site of infection are in

Bladder **:** Called as cystitis
Urethra **:** Urethritis
Prostrate **:** Prostatitis
Kidney **:** Pyelonephritis

Etiology :

1. Ascending infections [Enter via Urinary meatus]
2. Obstructive abnormalities [stricktures, prostatic tumors or hyper plasia]
3. Upper Urinary track disease may occasionally cause recurrent bladder infections.

Sign and symptoms:

1. Dysurea, frequency, urgency and a nocturnal
2. Suprapubic pain and discomfort
3. Gross hematuria.

Diagnosis:

1. **Urine dipstick** :May react positively for blood WBC and titrates indicates infection.
2. **Urine microscopy** : Shows RBC and many WBC per field with our epithelial cells.
3. **Urine culture** : It is used to detect presence of bacteria and for antimicrobial sensitivity testing.

Management :

1. Relieve discomfort and provide rest. (catheterisation if needed, see practicals)
2. Antibiotic Theraphy :A wide variety of antimicrobial drugs are used.
3. Follow up culture to prove treatment effectiveness.
4. Increase the fluid intake.
5. Avoid irritants : - Coffee, tea, alcohol, cola drinks.
6. Promote Urinary output
7. Provide Rest
8. Encourage plenty of fluids .

Complication :

1. Pyelonephritis
2. sepsis.

3.15 Acute renal failure

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

Etiology :

1. **Pre-renal causes**: It results from the condition that decreases renal blood flow [eg. Hypovolemia, shock, hemorrage, burns, diuretic therapy]
2. **Post-renal causes** : It comes from obstruction or distruption of urine flow anywhere along the urinary tract.
3. **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:

1. Decreased tissue turger, dryness of mucous membrane, weight loss, hypotension, oliguria.
2. Difficulty in voiding and changes in urine flow
3. Fever and skin rashes odema

4. Changes in urine volume, increases of blood urea, creatinine, uric acid, potassium etc.

Diagnosis :

1. Urine analysis : Revels protenuria haematurea
2. Raise of Serum creatinine in Blood
3. Urine cultures
4. Renal ultrasonography

Management :

1. Correct any reversible cause of acute renal failure Eg: Improve renal perfusion maximize cardiac output, surgical release of obstruction
2. Be alert for fluid excess or deficit.
3. Monitor the signs of hypovolenia or hypervolemia.
4. Monitor Intake and output chart,
5. Weigh the patient daily
6. Monitor vital signs.
7. Correct and control biochemical imbalances
8. Restore and maintain B/P
9. Maintain nutrition
10. Initiate haemodialysis
11. Renal replacement theraphy

Complication:

1. Infection
2. Arrhythmias due to hyperkalemia
3. Electrolyte abnormalities
4. Gastrointestinal bleeding
5. Multiple organ system failure

3.16 Head injury:

Head injury can include fracture to the skull or face.

Direct injuries to brain (as from a bullet) and

indirect injuries to the brain (Such as concussion, confusion, contusion or Intra cranial hemorrhage).

1. **Concussion:** A temporary loss of consciousness that results from a depression of the skull bone.
2. **Confusion :** A temporary loss of consciousness that results from a transcient interruption of the brain's normal function.
3. **Contusion:** A bruising of the brain tissue. Actual small amount of bleeding into the brain tissue.
4. **Intra cranal hemorrage :** Significant bleeding into a space or a potential space between the skull and the brain this is serious complication of a head injury with a high mortality rate due to raising [TCP] Intra Cranial Pressure and potentially for brain herniation .

   Intra cranial hemorage [ICH] can be classified as

   - Epidural Haematomas
   - Subdural Hematoms
   - Subarachnoid Hematoms depending upon the site of bleeding

Causes :

Head injury commonly occurs from

1. motor vehicle accident
2. assaults
3. falls.

Types :

1. **Open head injury :**Any time the skull is fractured the patient is said to be have on open head injury.
2. **Closed head injury :Any time an internal injury occurs inspite of the** skull being intact the term is closed head injury.

Primary assessment:

1. **Airway:** Asses for vomitus bleeding or foreign objects obstructing the mouth or airway.
2. **Breathing:** Asses for slow or shallow respiration

3. **Circulation:** Asses vital signs and watch for bleeding.

Primary intervention:

1. Open the airway using the jaw thrust technique without heat tilt.
2. Administer high flow O_2 (Oxygen)
3. Assist inadequate respiration with a bag valve mask.
4. Control bleeding, Do not apply a bulky lose dressing Do not attempt to stop the flow of blood or CSF (cerebra spinal fluid
5. Initiate an Intravenous line.

Subsequent assessment :

1. History: Mechanism of injury, Duration of loss of consciousness position found.
2. **Level of consciousness:** By Glasgow coma scale, score.
3. **Vital signs:** Hypertension, Changes in respiration or apnea may indicate head injury.
4. **Seizure activity:** Do not attempt to restrain during the seizure activity, Put airway to prevent tongue bite.
5. Battle' s sign: A bluish discolouration behind the ears (indicates the possible basal skull fracture)
6. Rhinnorhea : Indicates the leakage of CSF through the ears)

Treatment intervention :

- Keep the neck in a neutral position with the cervical spine immobiliyed
- Hyperventilation to reduce ICP
- Establish an intravenous line
- Be prepared to manage seizure
- Maintain normal temperature
- Pharmacological intervention
- Prepare for immediate surgical intervention before patient shows an evidence of neurological deterioration.

3.17 Convulsion

Convulsions are episodes of abnormal motor, sensory, autonomic or psychic activity as a consequence of sudden excessive discharge from cerebral neuron.

Causes:

1. Idopathic
2. Genetic and developmental defects
3. Acquired.
4. Hypoxernia of any cause
5. Fever (Childhood)
6. Head injury
7. Metabolic disorders
8. Central nervous system infection
9. Tumors (eg. Brain tumor)

Classification:

Seizures are classified by the origin of the seizure activity.

1. **Simple partial seizure:** It is autonomic symptom without impairment of consciousness.
2. **Complex partial seizure:** It has a impairment, but not a loss of consciousness
3. **Generalised Seizure:** It can have loss of consciousness with convulsive or non-convulsive behaviours.
4. **Unclassified Seizure:** There are termed because of incomplete data.

Signs and symptoms:

1. Seizures may start from a simple starting spell of prolonged convulsive movements with loss of consciousness.
2. It simple partial seizure: For patient, only a finger on hand may state, or uncontrollable mouth jerk.
3. The person may talk irrelevantly.
4. May experience unusual or unpleasant sights, sound and odors or task, but without loss of consciousness.

5. In complex partial seizure; The person either remains motion less or moves automatically but inappropriately for time and place, or may experience excessive emotion of fear, anger, elation or irritability whatever manifestations, the person does not remember the episode when it is over.
6. In Generalised seizure: More commonly referred to as grand mal seizure involves both hemispheres of the brain, causing both sides of the body to react. They may be intense rigidity of the entire body followed by Jerky alteration of muscle relaxation and contraction (generalized tonic– clonic seizures).
7. The simultaneous contractions of the diaphragm and chest muscles may produce a characteristics epileptic cry. Often the tongue is chewed and the patient is incontinent of urine and stool. After for 2 minutes the convulsive movement begins to subside.
8. The patient relaxes and lies in deep coma, breathing noisily.
9. The respirations at this point are chiefly abdominal. In the postical state the patient often is confused and may sleep for hours. Many patients complain of headache or sore muscles.

Diagnosis:

1. EEG with CT without video monitoring It helps to classify seizure
2. MRI. scan to identify lesion
3. Neuropsychologial studies to evaluate behavioral disturbances

Management :

A. Pharmocotherpahy

1. Carbamayepine
2. Phenytoin
3. Valporic acid

B. Bio feed back

It is useful in patients with reliable areas.

C. Surgery

Reserve and pallitive operations (temporal lobotomy, extra temporal resection, corpus colostomy, hemispherectomy)

D. Psycotheraphy

Nursing intervention:

1. Maintain a patient airway until patient is fully awake after a seizure
2. Provide oxygen during the seizure if color change occurs
3. Stress the importance of taking medication regularly
4. Provide a safe environment by padding side rails and removing clutter.
5. Place a bed in a low position and place a patient on side during a seizure to prevent aspiration.
6. Do not restrain the patient during a seizure
7. Do not put anything in the patient mouth during a seizure.
8. Protect the patient' s head during a seizure
9. Stay with a patient who is ambulating or who is in a confused state during seizure.
10. Provide a helmet to the patient who falls during seizure.
11. Consult with social worker for community resources for vocational rehabilitation, counselors and support groups.
12. Teach stress reduction techniques that will fit into a patient lifestyle.
13. Answer questions related to use of computerized video EEG monitoring and surgery for epilepsy management.

Complication:

1. Status epileptics
2. Injuries due to falls.

3.18 Care of unconscious patient

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:

1. Head injuries
2. Meningitis, encephalitis
3. Diabetes mellitus
4. Renal failure
5. Poisonous drugs (stomach wash, refer practicals)
6. Asphaxia
7. Epilepsy.

Diagnosis:

1. Asses the patient's level of consciousness by Glasgow coma scale.
    a. Responds to command
    b. Eye opening
    c. Verbal responses
    d. Motor responses

Glasgow coma scale assessment

Parameter	Findings	Score
Eye opening	Spontaneously To speech To pain Do not open	4 3 2 1
Best verbal response	Oriented Confused Inappropriate speech Unintelligible speech No verbalization	5 4 3 2 1

Best motor response	Obey commands	6
	Localizes pain	5
	Withdraws from pain	4
	Abnormal flexion	3
	Abnormal extension	2
	No motor responses	1

Interpretation :

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

Nursing Management :

a. 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
- It necessary insert oral airway for easy breathing.

b. 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)
- Monitor Intake and output chart accurately and record.
- Monitor vital signs and record.

c. 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 4^{th} hourly and 2^{nd} hourly position changing to relieve pressure on pressure areas
- Clip the nails
- Range of motion exercises at least 4 times daily.
- Cleanse the mouth with the prescribed solution every 2^{nd} hourly 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 ankles to the legs with a help of pillow or sand bags to prevent foot drop.

d. 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 bedpans 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
- Ascultate bowel sounds.

e. 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.

3.19 Dying and terminally ill patient

Death is the natural part of life and comes to all human beings. Some Society treat death as a naturally occurring phenomena and they will have to accept it in non-threatening manner. In our culture however death is often treated as taboo.

People face death many ways. According to Kubler Ross in 1969. Emotional responses of a person facing death can be traced through five stages.

1. Denial and Isolation : Occurs at a first reaction to the possibility of impending death. The person cannot accept the fact that death is near.
2. Anger : The next emotion expressed is Anger eg. ' Oh God' I don' t know why I want to die?
3. Bargaining: It is a coping during which a dying person accepts the truth of death.
4. Depression : It is evident when the person realizes the full impact of the inevitable.
5. Acceptance : It is the time of relative peace.

Nursing management :

In our society, dying and death can occur in a variety of settings. The nurse in this situation supports the dying patient, friends and family members.

1. Care must be provided in a sensitive manner.
2. The visiting time is limited
3. Hospice care can be provided
4. Care must be given as same as an unconscious patient.

Summary:

The principles and practices of nursing which includes medical surgical nursing measures has been revised taking into account the changes in medical, surgical nursing practices.

Health and illness, systemic approaches of nursing, common problems discussed and nursing care of person with specific medical surgical problems are very important factors in the trends in modern nursing practices.

The above given information reflects current practice and further trends in nursing.

QUESTIONS

I Fill in the blanks

1. Causative organism for diphtheria is _____.
2. _____ is an inflammation of the mouth.
3. Inflammation of the parotid gland is called _____.
4. Heartburn is otherwise called as _____.
5. MC Burney' s Point is a signs and symptoms of _____ .
6. Right-sided heart failure is otherwise called _____.
7. Coryza is refers to _____.
8. Inflammation of sinuses is called _____
9. Hospital acquired infections are called as _____.
10. The causative organism for pulmonary tuberculosis is _____.

II. Answer in brief:

1. Define drug?
2. Define pharmacology?
3. Anti diabetic drug is given for what type of disease and give example for the drug?
4. Which is the causative organism for chicken pox?
5. What is the incubation period for mumps?

6. Which is the causative organism for peptic ulcer?
7. What is meant by hernia?
8. What are the complications of appendicitis?
9. Define fistula.
10. What do you mean by ABC?
11. Define anemia
12. What do you mean by diabetes mellitus?
13. Define fracture.
14. Define cataract.
15. What do you mean by acute renal failure?
16. Define convulsion or seizures.
17. Differentiate Mydriatics and Myotics.
18. Write the signs and symptoms of stomatitis.
19. Define dental caries.
20. What are the types of gastritis?
21. Define peptic ulcer.
22. What do you mean by umbilical hernia?
23. What are the signs and symptoms of fistula?
24. Define haemmorrohids and its types
25. Explain hepatitis.
26. Explain external chest compression.
27. What are the main causes for heart failure?
28. Write the clinical manifestation of Anemia.
29. Write the types of diabetes mellitus?
30. Explain signs and symptoms of diabetes mellitus.
31. Mention the signs and symptoms of fracture.
32. What are the complications of fracture?
33. Mention the signs and symptoms of cataract patient.

III. Answer in detail:

1. Explain how to care the medicine cabinet and drugs
2. Differentiate the acute and chronic gastritis.
3. What are the investigations done for peptic ulcer?
4. Write in detail the treatment for constipation.
5. Write the types of hepatitis and the mode / route of transmission
6. Write the treatment for heart failure.
7. What are the signs and symptoms for pulmonary tuberculosis?
8. Mention the signs and symptoms of HIV/AIDS
9. Define the types of fracture.
10. Nursing management for cataract patient.
11. Write the classification of seizure.
12. What will you find in Glasgow coma scale and how will you score?
13. What are the stages of person facing death?
14. Mention the signs and symptoms of peptic ulcer and its treatment.
15. Write briefly about appendicitis symptoms, diagnosis and its treatment.
16. Write the nursing management for hepatitis.
17. Explain the types and treatment of anemia.
18. What are the medical and nursing management of tuberculosis?
19. Nursing management for HIV patients.
20. Write the nursing care for burns patient.
21. Write the management of seizure.
22. Write the care of an unconscious patient.

4. Child health nursing- Principles and practices

4.1 Introduction:

Indian traditional child care practices are beneficial and are adopted from western nursing care system such as, breast feeding and contact of a mother with the child during the hospitalisation. However many childcare practices are harmful, such as, late weaning, care based on superstitions and so on.

Despite the changes in scientific technology and health care system, there has been little awareness to change harmful practices. Government policies based on the WHO program, has created progress in preventive pediatrics to some extent. The national plan is to achieve the target of health for all and 100% coverage of immunisation, by 2000 A.D."(WHO).

This plan has developed entire national health services to reach to the roots of the community through Maternal and Child Health Services.

In India, infant mortality rates are still high compared to developed countries. According to WHO, Japan has the lowest infant mortality of 4 per 1,000, against India's infant mortality rate of 77 per 1,000 (WHO, 1995).

India's target is to achieve the infant mortality rate below 60 per 1,000 by the year 2,000. There is an utmost need for better child care, especially neonatal and infant care becomes very important to achieve this target. In India, the mortality rate of under five children is reported 105 per 1,000. In Japan, it is 6 per 1,000 in 1995 (WHO, 1995).

If we consider causes of infant mortality, we find poor socioeconomic conditions and maternal ill health during pregnancy resulting in intrauterine growth retardation and pre-maturity, bad obstetrical practices, and neonatal infections such as diarrhoea, bronchopneumonia, and meningitis. Many causes of infant mortality and morbidity are preventable.

Nurses play the pivotal role in preventing infections, improving nutritional status, improving intra natal and immediate postnatal care techniques in the hospital as well as in the community. This can be done by demonstration, health education, and guidance to the parents and children for creating awareness and making changes toward better health care practices.

Health care of children has been markedly changed in developed countries. There is a change in the view of children from "miniature adults" to "unique individuals" with special needs and qualities.

The child health care system should focus 'to' meet the needs of the children and their families by providing comprehensive child health care during the illness as well as in health.

The child health care is required for promotion of health, prevention of diseases, provision of treatment, and follows up. Preventive measures should be practiced in wards, clinics, centers, and in the community, to help the people to prevent or solve their health problems.

Every nurse has her responsibility, in her area of work, in whatever capacity she works in relation to childcare.

4.2 Concept of childcare:

The increasing complexity of medical and nursing techniques has created a need for special area for childcare. The childcare has prime importance, as the mortality and morbidity are higher in this group. Many diseases are preventable such as nutritional deficiency.

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.

Since most of the responses of children are influenced by the phases of growth and development, the ages of the child are the most significant factor affecting nursing activities.

For example, fractured jaw is more traumatic to an infant who is in oral phase of the development than to a child of the six years of age who has already passed this phase. The separation of the family during the hospitalisation will cause an anxiety in the young child and may disturb the parent-child relationship.

The nurse can minimise the psychological trauma of a hospitalisation experience by helping the children to adjust to the situation rather than to repress their feelings. Play therapy has an importance in childcare, by which children can play out their problems.

To provide comprehensive care to children, the nurse must clearly understand the effect of illness and hospitalization experience, upon the growth and development process of children and the effect of the developmental status of the children upon their responses to therapy.

The role of the paediatric nurse has been influenced by the research findings in other health disciplines of prevention and therapy, in various areas of genetics, drugs, medical, and surgical techniques. It is also influenced by the research carried out within the nursing profession itself.

The concept of assessment of children is important for providing care to patients and their families. The function of the paediatric nurse is to promote and support children in their adaptation process. The nurse must observe the children's health and illness state, their strengths and weaknesses, and effectiveness of their coping mechanism.

Nursing children require a better sense of responsibility and better judgment of children's health, responses, and planning for nursing management. The nurse must have patience and emotional balance while dealing with the children and their parents, specially, in critically ill cases.

4.3 Preventive paediatric nursing

4.3.1 Nutrition in children

Knowledge of the nutrition in children is important for the following:

1. It helps to provide best possible nutrition to infants and children for their growth and development.
2. The diet should be sufficient in calories, fluids, proteins, vitamins, and roughage. The food should be tasty and attractive.
3. The feeding schedule should be practiced to satisfy the children's appetite, digestibility, and requirement.
4. Nutritional requirements of children depend on the rate of growth of different body tissues and children's sex, age and health status.

Assessment of nutritional status of children is important in total health assessment.

Nutritional inadequacy can lead to the following:

1	Growth retardation	i) Failure to put on weight ii) Children look small for age iii) Children appear thin
2	History of repeated infections	i) Respiratory infection ii) Gastrointestinal infections
3	Symptoms related to inadequate nutrition	i) Hunger, irritability, lack of concentration, exhaustion, disturbed sleep, wasting of muscles.

Healthy children are full of energy and are active. Their growth and development are according to the expected norms and show no nutritional deficiency. Adequate nutrition is essential to maintain optimum health.

4.3.2 Assessment of height and weight:

Weight for age has been used as an index of malnutrition. Extent of height deficit, in relation to age, indicates the duration of malnutrition. Weight for height is the index regarded as an index of current nutritional status. The following factors should be considered while assessing the nutritional status:

- Influence of environmental conditions
- Culture and habits

- Food products available
- Socioeconomic condition
- Health and educational status of parents

The child with adequate nutrition is characterised by an erect posture, firm muscles, straight legs and spine, well-formed teeth, bright eyes, and optimum height and weight for the child's age. Poor nutritional status is characterised by sagging posture, round narrow shoulders, flat chest, abdominal protuberance, curved spine, poor muscle tone, dull hair, dull eyes, knock knees, and under weight for the child's age.

4.3.4 Importance of nutrition in sick children:

Sick children need food so that they can fight infection without using all the nutrients reserved in the body. Sick children may not feel hungry. If they consume adequate diet, their symptoms are usually less severe than those of undernourished children.

For the sick children, small frequent feeding should contain nonirritating, easily digestible, adequate in quantity, and adequate in quality. For example, cereal gruels, milk, tender fish, soft cooked egg, and non-fibrous fruits, such as banana may be given to the sick children.

During the recovery, children should be given additional calories and proteins to make up for the deficiency that occurred during the illness.

4.3.5 Nutrition and Feeding – Infant nutritional requirement:

The neonate's immature organ system and the unparalleled growth of the early period, of life impose special requirements for nutrients and fluids. These factors also limit the types and amounts of foods a neonate; can ingest and digest. Neonates diet must contain sufficient amount of carbohydrates, proteins, fats, vitamins, minerals and fluids.

Feeding of energy giving food:

Three basic nutrients, namely carbohydrates, proteins, and fats supply the body's caloric needs. Proteins promote cellular growth and maintenance, aid a metabolism, and contribute to many protective substances. Fats provide concentrated energy storage,

transport essential nutrients (such as fatty acids needed for neurological growth and development), and insulate vital organs.

Carbohydrate, which contain four calories per gram, should provide 35% to 55% of the neonate's total calories; fats that contain nine calories per gram 30% to 55%; and proteins, which contain four calories per gram, the remaining calories.

Vitamins and minerals:

Vitamins regulate metabolic processes and promote growth and maintenance of body tissues.

Fat soluble vitamins (A, D, E, and K) in excess can be stored in the body to some extent and normally are not excreted; therefore reserve, may accumulate.

Water-soluble vitamins (C, B_l, B_2, B_6, B_{12}, niacin, folic acid, pantothenic acid, and biotin) are stored only in small amounts. Consequently if these vitamins are not ingested regularly, deficiencies may develop relatively quickly.

All major minerals and trace minerals are essential for a wide range of body functions, including regulation of enzyme metabolism, acid-base balance, and nerve and muscle integrity. Calcium and iron arc particularly important for growth –calcium for the rapid bone mineralisation of the first year and for haemoglobin synthesis.

Fluid:

The neonate's difficulty in concentrating urine plus, a high extra-cellular water content result in a much greater need for fluid (150 milliliters / kg / day) compared to the adult (20 to 30 milliliters / kg / day).

The neonate has limited gastric capacity. Also, fat absorption does not reach adult level until ages six to nine months. For the first month limited splitting of the starch salivary enzyme ptyalin and absence of pancreatic amylase restrict digestion of complex starches found in solid foods.

Although the basic components of the neurological system are present at birth, myelination is incomplete. Only breast milk, infant formula and whole milk contain enough linoleic acid to facilitate myelination. Therefore, the milk that contains less than 2% milk fat is not recommended before age of one year.

4.3.6 Breast Feeding:

Human milk is considered ideal for a neonate. Breast milk is natural ready made food most suitable feed for the neonate.

Advantages of the breast feeding

1. The breast feeding provides close physical contact between the neonate and the mother which provides satisfaction. It provides an opportunity for infant-mother attachment.
2. Human milk is available at the required temperature in required strength and is fresh and free from contamination as it directly comes in the baby's mouth.
3. Human milk contains more lacto albumin, a more complete protein than casein because of its high percentage amino acids. It is more easily digested because of soft curds. Therefore, stomach emptying is rapid and thus requires frequent feeding.
4. Extra lactose helps in synthesis of certain vitamins. It also contains a high amount of crystine, an amino acid that may be essential during the neonatal period.
5. Human milk contains higher amount of lactose, a disaccharide, which is converted into monosaccharide glucose and galactose. Galactose is essential for the growth of the central nervous system. Unsaturated fatty acids in the human milk help absorption of fat and calcium in the neonate. Iron in human milk is absorbed better in the neonate.
6. The human milk contains increased amount of antibodies, immunoglobulin A (IgA), which gives immunity to the neonate against certain diseases. These antibodies are present in a high amount in the colostrum than in mature milk. In the intestines, it acts against bacteria and viruses. Lactoferin also inhibits the growth of bacteria.
7. It contains lacto albumin bifidus, which help in suppressing E-coli. Lactobacillus bifidus help to produce lactic acid, to prevent bacterial growth and make the stools acidic.
8. Early breast-feeding helps the mother in rapid involution of the uterus and lesser chance of breast cancer.

4.3.7 Antenatal Preparation:

1. Mothers' preparation and motivation for breast-feeding should begin from the second semester of the antenatal period. The nipple should be examined to see whether they are normal and protractile.
2. The care of nipples is necessary to prevent mechanical problems of feeding. If nipples are retracted, they should be pulled out at least once a day. Daily practicing, during the last trimester, can help to prepare protractile nipples.
3. The tone of the contour of the breast will be maintained by using proper brassieres.
4. A diet should be well balanced with extra proteins, calcium, and iron.
5. The mother must be convinced that the ability to produce milk does not depend on the size of the breast.
6. The mother should be told that the adequate milk is secreted from the third day of the postpartum.

4.3.8 Physiology of lactation

Lactogen and other hormones secreted by the placenta and prolactin secreted by the pituitary influence the preparation of mammary glands for lactation during pregnancy.

The breast tissues develop the glandular system, which will secrete milk and advance it to the surface of the tissue through a combination of alveoli and ducts.

Groups of alveoli connect through milk ducts to lactiferous ducts, each leading into lactiferous sinus, and then opening at the nipple. Each nipple receives the milk from about 20 lactiferous ducts. The alveoli begins to secrete colostrums in mid pregnancy.

At the time of the delivery, the balance between hormones changes abruptly when levels of estrogen and progesterone decrease rapidly in absence of a placenta. Prolactin levels remain high. This change in the balance initiates lactation. Most potent stimuli continue prolactin secretions are mechanical stimuli of sucking.

Initiation:

After delivery when the mother is still in the delivery room, she should have an opportunity to hold her baby for 10-15 minutes.

As soon as the mother is ready to feed, she should be encouraged to give breast-feeding.

The first milk:

Toward the end of the pregnancy, the alveolar cells secrete a yellow fluid called colostrum. It contains fluid secretion partly of whole and fragmental alveolar cells and some white blood cells. These cells produce antibodies, which can protect both the breast itself and the intestines of the baby against infections.

During the pregnancy, the hormones produced by the ovary and placenta inhibits milk production. Immediately after delivery, there is a rapid decrease in the inhibitory hormones. With the stimulus of sucking by the newborn, the production of milk starts. The mature and full milk production may occur within about 10 days. The milk secretion depends on reflexes as follows:

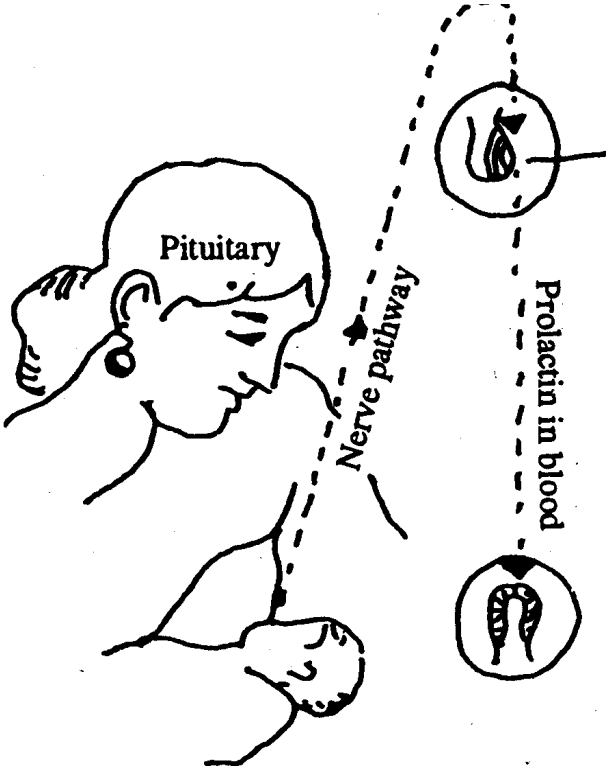

Figure 4.1 The milk- producing reflex.

1. The milk producing reflex:

The breast of the mother produces milk for the baby, according to baby's need and demand in response to its sucking. When the baby suckles, the sensory nerves ending in the breast are stimulated and impulses are carried by the vagus nerve to the hypothalamus.

This causes the anterior pituitary to release prolactin into the blood. Prolactin acts on the milk producing cells of the breasts. The more the baby suckles, the more the milk is secreted.

2. The milk-ejection reflex ("Let-down" reflex)

The sensory nerve impulses that start when the baby suckles on the nipple, cause the posterior pituitary to release oxytocin, make the myoepithelial cells around the alveoli and ducts contract. This squeezes milk from the alveoli, ducts, and sinuses toward the nipple. Therefore, when the baby suckles at the nipple, it stimulates the nipple that produces milk flow. The ejection reflex is called

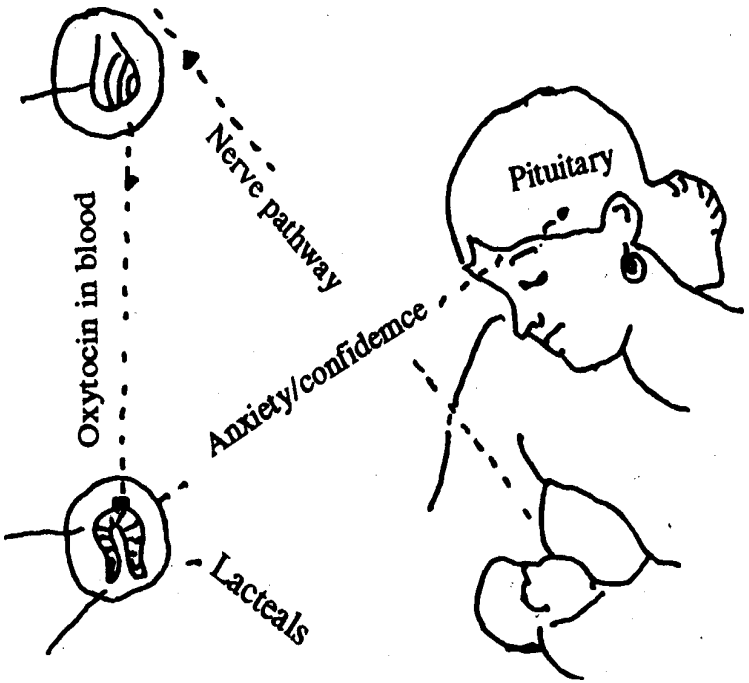

Figure 4.2 The milk-ejection reflex.

Factors affecting let-down reflex

1. When the mother thinks happily or affectionately about her baby, milk may start to flow.
2. A hungry baby suckles more often more vigorously and longer than the satisfied baby. The baby's hunger is therefore the regulatory mechanism of the milk production.
3. Fear, excitement, anger, and embarrassment may inhibit let-down reflex and prevent milk present deep in the gland from coming down to the nipple.

Composition of the milk per 100 milliliters

Nutreint	Human milk	Cow' s milk
A proteins	1.2 gm	3.5 gm
Casein	0.4 gm	2.8 gm
B Lactalbumin	0.8 gm	0.7 gm
Lactose	6.5 g	4.5
C Fat	3.5 gm	3.5 gm
D Calcium / Phospate	34 mg / 15 mg	22 mg / 90 gm
Calories	67	67

Human milk:

Colostrum (the first milk) is the yellow, thick milk secretion of the breast in the first three days after delivery. It has high content of antibodies, proteins, minerals, and less carbohydrates and fats. Fourth day onward, a good quantity of transitional milk is produced and by three weeks, it is converted to mature milk.

Technique of breast-feeding:

1. The mother's desire to feed is the first requirement for successful lactation. She should be psychologically prepared to feed. She should drink milk, juice or water before feeding.
2. She must wash her hands before feeding.
3. She should be physically and emotionally relaxed and comfortable.
4. She can sit comfortably with a support at the back. It is advisable to hold the baby in her lap.

5. If she is unable to sit, she may feed by lying on her side with a pillow under the shoulder.
6. She must check whether the baby has soiled the linen. If required the baby should be cleaned and dried to make the baby comfortable, before feeding.
7. The baby's head should be supported and slightly raised. The baby may be held in a semi-sitting position with his/her head close to the breast and supported with one arm.
8. The cheek of the baby should touch the nipple so that by rooting reflex the baby can get to the nipple and letdown reflex is encouraged.
9. If the breast is firm and full, it should be pressed with the first finger to prevent pressing of the baby's nose. Both breasts should be fed at each time, alternately, using each breast first. If possible one breast (which is given first) should be completely emptied at the alternate feeding.
10. During the first few days most of the babies fall asleep after taking a few sucks. They should be aroused by gentle tickle behind the ear or on the sole of the foot.
11. Before removal of the baby from the breast, it is necessary to break sucking by putting a little finger into (he comer of the baby's mouth.
12. Every baby swallows some air during the feeding and should beheld upright and patted on the back until the air is belched. If too much air is swallowed and not removed, the baby may have vomiting, colic, or fretfulness. After feeding, if required, the diaper should be changed.
13. After feeding, the baby must be positioned on a right side or on the abdomen.

Factors inhibiting breast milk

A. Psychological factor:

A shock, strong pain, anger, anxiety or 'worry can affect the "Let-down" reflex. The mother should be encouraged and given support by a calm and positive attitude to develop a. confidence that any difficulties may be overcome.

She should be explained the proper technique of relaxation and feeding. She should make sure that the neonate is sucking and should be encouraged to feed more often to increase sucking

stimuli. In a case of severe anxiety, the doctor for a short time may order sedative.

B. Early breast engorgement:

During the early period after delivery, breasts may be felt full and uncomfortable. Some mothers get hard engorged breasts with the pain.

This problem can be solved by application of warm compresses to the breast and then expressing the excess milk. Later, the milk production gets adjusted according to demand of the baby.

C. Flat and inverted nipple:

If nipples are flat and it is difficult for the baby to get hold of the nipple and pull it into the mouth, stimulation of the sucking reflex may be interrupted. A flat or inverted nipple may be pulled outward with the fingers to stimulate erection.

After making the nipple erect, the baby can be gently put to the breast. If it is not successful, the nipple-shield may be used. Some babies who get accustomed to the nipple shield may be reluctant to return to the mother's nipple.

Therefore, wearing a specially prepared plastic cup between the feeding may be helpful.

D. Sore nipple:

Nipples may be sore because of faulty sucking technique, such as the baby takes an insufficient amount of areola surrounding the nipple into the mouth, while nursing. Also, it may be sore due to a long period of vigorous sucking, sucking in a bad position, engorged breast, fissures, and oral thrush of the baby. Sore nipples are very painful.

Sore nipples can be prevented by proper antenatal care. Decreasing the length of the feeding time and increasing the frequency of feeding may also help. The use of soap on the breast should be avoided as it causes drying.

The cream may be used by the doctor's advice or any edible oil can be applied on the nipples between feed.

Figure 3.3 Breast-feeding with the help of a nipple shield.

Factors influencing breast-feeding:

1. Milk producing reflex is influenced by the psychology of the mother.
2. Confidence of the mother about her ability for lactation stimulates the milk production.
3. Love and affection of the mother for her baby, through the close contact, develop a psychological bond between the mother and the baby.
4. Frequent feeding stimulates the production and ejection reflex.
5. Feeding habits and technique are important to improve the close contact, positioning, comfort, and regulate the demand for feeding.
6. Social factors such as not feeding the colostrum, delays the first sucking of the baby, thus, affects the milk production.
7. The diet of the mother containing extra proteins and calcium is necessary. Pregnancy during the early lactation period affects the lactation.
8. Faulty sucking and the weak baby may cause inadequate stimulation. If the baby does not have sucking reflex, the express milk can be fed by tube feeding method. In case where mother' s milk is not available for some reason, the

milk may be obtained from the substitute mother or a milk bank.

9. The value of the human milk is very high and cannot be substituted.
10. If in any situation, it is not possible to obtain breast milk, cow milk may be used.
11. Sometime because of saturated fats in the cow milk, neonates cannot digest and absorb it.

4.3.9 Proprietary milk formulae:

There are a variety of milk formulas artificially prepared for infant feeding. Most of them are based on cows milk, with modifications to bring more close to the breast-milk composition.

The fats are modified by substituting vegetable fats such as combination of soya, coconut or corn oil, which forms polyunsaturated fatty acids to increase absorption.

The protein is derived from cow milk but altered so that lacto albumin to casein ratio is closer to the human milk. The carbohydrates used are lactose, dextrin-maltose or simple corn sugar. Minerals and vitamins are with the level close to the human milk.

Specialized Formulae:

There are many types of formula available for the babies who are allergic to cow milk, who are unable to tolerate lactose or who have mal-absorption syndromes. Soya-based formulas provide proteins derived from Soya protein isolate.

Carbohydrate is sucrose or corn syrup solid and with fat derived from vegetable oil. The milk formulas are combined with water to produce the appropriate caloric value. The dilution of the most of the formulas is two parts of formula to three parts of water during neonatal period.

4.3.10 Infant Feeding Methods:

Breast-feeding	**Formula-feeding**
Nutritionally superior to formulas	Allow more accurate measurement
Promotes immunological defenses	Lengthens time between feedings

Less expensive than formula	Regulates preparation.
Readily available at the body temperature	Refrigeration and
Promotes development of facial storage.	Necessitates access to clean water and facilities.
muscles, jaws, and teeth	May be selected by mothers returning to work
Reduces risk for food allergy	
Enhances mother infant bonding	
Aids in maternal uterine involution	

4.3.11 Preparation of milk formula for feeding:

1. Hands must be washed carefully.
2. The container should be opened with the clean opener.
3. The correct amount of milk powder should be measured and mixed with the sterilized warm water (dilute according to instructions).

Low socioeconomic status, where community sanitation is poor and water supply is potentially contaminated, and where a consumer is not accustomed to mixing and preparing processed formula, mothers may not be able to afford its continuous use and may over dilute .it with water that is unsafe for the body. In such cases, use of formula must be discouraged.

4.3.12 Feeding :

A. Feeding with cup and spoon:

1. When the neonate cannot suck on the breast or when the breast milk is obtained from the other source (other mother or milk bank) or when the baby is premature, it is a good method to feed the neonate with the spoon.
2. The cup and spoon should be washed well and boiled for 10 minutes. Then it should be kept in a sterile container. At the time of feeding, milk may be measured and placed in a cup and kept covered.

3. The baby should be made comfortable, if soiled, should be cleaned, dried and wrapped well. A bib or soft cloth may be placed loosely around the neck of the baby to prevent the baby from split feeds.
4. The mother who feeds, should hold the baby in a lap, close to the body, slightly in a propped up position. She must try to have eye-to-eye contact.
5. The warm feeds are fed by the spoon. The first bolus is allowed to swallow, before the next is fed. It is better to feed from the comer of the mouth when the baby opens the mouth. Constant observation is required to prevent aspiration and control feeding. After feeding, the baby is held in a sitting position and burped. The mouth should be wiped. The diaper should be changed, if soiled.

B. Bottle Feeding:

Though spoon feeding is more advantageous and safe for the baby, many mothers still practice bottle-feeding. The baby gets used to sucking from the bottle and becomes addicted to it. Sometime it is contaminated, not sterilized or inadequately cleaned.

As a result the baby is prone to get diarrhoea and other water-borne diseases. Weaning also becomes difficult for the bottle fed babies. A prolonged bottle-feeding may cause Baby Bottle Tooth Decay. Despite these negative factors, if the bottle-feeding is practiced it must be used in a safe manner.

For the normal neonate, the feeding is calculated according to the requirement. Individual modification may be needed, if the baby is weak or sick depending on it's weight, specific condition and clinical state.

Technique:

1. A bottle and a teat should be cleaned thoroughly from inside and outside with the brush. Then, it should be sterilized and kept covered.
2. The formula should be prepared as per requirement. Baby should be awake and hungry.
3. The milk is measured and warmed up. It is tested by sprinkling a few drops on the inner aspect of the wrist. The speed of flow should be observed by turning the bottle upside

down, the milk should drop out rapidly but not run in a stream.

4. The hole on the nipple should not be too large as the baby may choke because of the large size of the stream flow of the milk. Once the feeding bottle is prepared, it should be covered and kept ready.
5. If soiled, the baby should be cleaned, dried, wrapped and made comfortable. Then the hands should be washed well.
6. The person who is feeding should sit in a comfortable position and hold the baby's head in her/his arm and the hand under the baby's body.
7. If any medicine is prescribed, it should be fed before feeding.
8. If a baby is fed in a cradle nor incubator, the head end should be raised and the baby should be turned on the right side. This position helps the food pass easily into the duodenum and prevent regurgitation.
9. The teat should touch the corner of the baby's mouth, and when baby opens the mouth the teat should be inserted.
10. The bottle should be held at the angle and care should be taken to see that the teat is completely filled with the food.
11. The baby should be burped during the feeding and after the feeding. The baby can be held sitting in the lap, slightly tilted forward.
12. After burping, when feeding is completed, the baby should lye on the right side.

Instructions to the mother:

1. The mother should be explained about the type of formula, its preparation, and sterilization of the feeding bottle and teats.
2. She should also be told about the selection of the proper bottle, technique of feeding, position of the baby during and after the feeding, and how to burp the baby.
3. The mother should be explained about the need for additional fluids during periods of hot weather and when the baby has a fever, diarrhoea, or vomiting.

4. Mother should be told about the common potential problems related to feeding such as overfeeding, under-feeding, difficulty in digestion, improper feeding techniques, and colic, m such a case she should seek the doctor's help.

4.3.13 Development of healthy food habits:

1. The healthy food habits should be started from the birth. The breast-feeding should be given regularly at least for 4-6 months.
2. Children should feel secured, satisfied, and loved during the feeding.
3. Weaning should be started gradually. It is recommended that breast/bottle feeding should be discontinued by the age of one year.
4. Feeding from me cup can be started by the age of 8 - 10 months.
5. By the age of one year, children may eat with the family.

Health instructions on nutrition:

In general, people may have very little knowledge about the nutritive value. It is the responsibility of health workers to provide appropriate information to the people, in the community, hospitals, and clinics, at various levels of child development. Parents should be made aware of their role in practicing healthy food habits.

Demonstrations on the preparations of simple multipurpose food can create interest in the mothers. Discussion on variety of preparations with balanced diet with the reasonable cost can help people in daily feeding of children.

Prevention of malnutrition:

1. The breast-feeding may be continued for six - nine months, if possible.
2. Feeding diluted milk should be avoided.
3. Weaning can be introduced from three to four months of age.
4. Adequate calories, proteins, vitamins, calcium, and iron should be provided to the children.
5. In the early stage of diarrhoea, fever, and other diseases, the doctors or nurses advice may be helpful.

6. Spacing between children, in the family, allows better nutrition of young children.
7. Knowing about the cheap but nutritious sources of local food helps to select proper food.

4.3.14 Weaning / Introduction to solid foods:

Weaning describes the process by which the infant gradually becomes used to the full adult diet.

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 prepared unhygienically or not digested properly.
3. If weaning foods are too poor to provide adequate nutrients, the children can develop malnutrition.

For some babies the breast-feeding may be sufficient for four months while others may feel hungry even after the breast feeding and may not gain weight.

Introduction to solid foods:

To start weaning foods, the consistency of food should be gradually increased from liquid to semi-solid and then, from semi-solid to solid foods. It is advisable to start one or two spoons of the new food at first.

It should be given when a child is hungry, just before the regular feeding during the daytime. It may be continued for a few days until the child gets used to the same. Then the new food item may be started, one at a time. Always, the fresh food should be given. The amount should be increased gradually. The child should never be forced to eat.

Children may spit out initially. As children like to participate in feeding, their hands should be washed. Those who feed the child must wash their hands. Clean utensils must be used to prepare the food.

The food should be, always, covered. The solids should he fed gradually, regularly, according to children's likes. Children should be observed for an indigestion, abdominal pain, diarrhoea, or rash,

because some children may be allergic to certain food. Such problems related to feeding, should be reported to the doctor.

Choosing of weaning foods:

A food chosen for the weaning should be suitable to the family. It should be easily available, low in cost, and used frequently in most households. The local methods of food preparation may be advised. Cooking methods that use minimum fuel and less time should be recommended.

Rules of food hygiene should be followed to prevent infection. By the age of one year, the infant can eat solid foods. The toddler can eat with the family. For the infants and toddlers, the volume of the, meal should not be large. The toddler can eat 200 ml. of foods at a time. If children are eating only three small meals a day, one of those must have high concentrated calories and proteins to meet their needs for 24 hours.

Multi-purpose Food for A Young Child

Staple foods	Protein Supplements	Vitamin and mineral Supplements	Energy Supplements
(40-gm.) Rice, wheat, maize, sweets. Yam, Plantain	(15 gm.) Beans, peas, groundnuts, milk, soft curd, fish, meat, egg	(30 gm.) Dark green leaves, pumpkin, tomato, carrots, fruits	(5gm.) Vegetable oils. Ghee, butter, cooking fat, cream, sugar

Weaning Foods:

Following are the examples of weaning foods that may be started according to child's ability to feed.

Liquids:

Soup of vegetables, tomato, pulses (dhals) and fruit juices.

Semi-solids food:

Potato, pulses, and root vegetables can be well cooked and mashed before feeding. A banana can be mashed and fed Soft cooked rice and soft cooked fish can be mashed before feeding.

To increase the nutritive value, preparations can be used, such as, ragi + jaggary. bengal gram(Chana) powder + jaggary + ghee + sugar will supply proteins, calories, and iron.

Solid foods:

Cooked rice, chapati, idali, bread, biscuits, groundnuts, roasted chana, banana. Solid food should can be started when the children learn to chew properly.

4.4 Immunisation in children:

The important aspect in the child care, is to protect children against specific preventable diseases. There are a few common dangerous infections in the childhood which are preventable by immunisation, such as, poliomyelitis, diphtheria, pertussis, measles, rubella, and hepatitis B. The immunisations against these diseases stimulate the child's body to produce immunity against specific infections.

The children with malnutrition have low resistance to fight against the infection, therefore, children need timely immunisation. All children have a right to get vaccines, protection against preventable diseases. Extremely malnourished children may show severe reaction to certain vaccines because they have low antibodies. For an example, measles vaccine.

Immunisation should be done with potent immunising agents to have expected results. These immunising agents may be as following:

1. Killed suspension. For an example, cholera vaccine.
2. Live attenuated vaccines. For an example. Measles,
3. Mumps, and Rubella (MMR) vaccines
4. Toxoid. For an example. Tetanus toxoid.

4.4.1 Maintaining a cold chain:

It is essential to maintain the favourable temperature, with cold storage, to maintain the potency of vaccines. The temperature should be around 2° C to 8° C. The vaccines should be kept under me freezing compartment. The thermometer should be placed in the freeze to confirm the validity. The door of the refrigerator should be opened as minimum as possible.

During the transportation, the vaccines should be kept in a container maintaining the cited temperature or may be kept in a

plastic bag in the icebox. The vaccines should be arranged according to their expiry dates for the better use.

4.4.2. Contraindications for the immunisation:

1. An acute illness with fever.
2. When the child is on immuno-suppresive drugs or on radiation.
3. A child suffering from leukemia, lymphoma or malignancy.

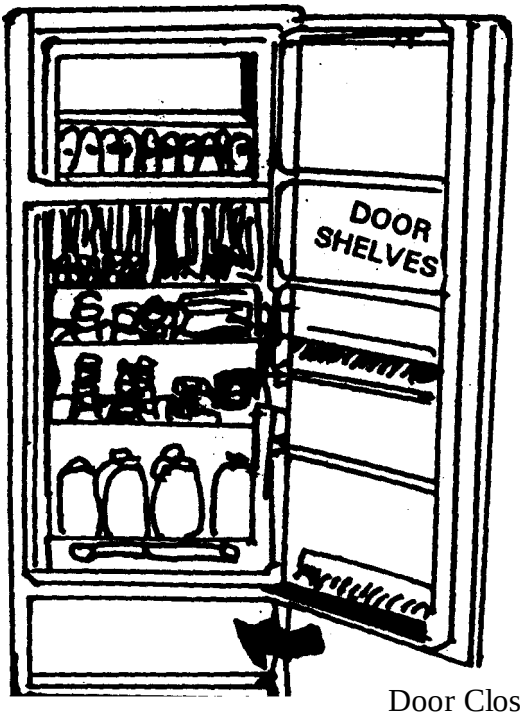

Fig 4.4 Ice box

4.4.3. Precautions:

Immunisation with live vaccines should not be repeated before three weeks. A special care should be taken as advised for specific vaccination as follows:

1. B.C.G. vaccine:

B.C.G. vaccine is prepared in a powder form and can be stored for six months. Before the use, it is dissolved with

normal saline. After dissolving it is used within 24 hours. The usual dose is 0.1 ml. It is given on the left upper arm, intra dermal. Two to three weeks after the vaccination, a papule appears. It may heal and a scar may be fanned. Parents should be instructed not to put any thing on the site on injection.

2. Polio vaccine:

Oral polio vaccine is prepared with the three types of live attenuated polio viruses. Potency of this vaccine should be maintained by the cold chain. Three doses are administered. The interval between two consequent doses should be four to six weeks.

It is advisable to instruct the parents not to give any thing by mouth, to the child about 30 minutes before and after the administration of polio vaccine.

It is necessary to give polio vaccine to those children who have suffered from the poliomyelitis, to protect them from the other two viruses, against which they may not possess an immunity.

3. Diphtheria, Pertussis and Tetanus Vaccine (DPT.):

DPT. Vaccine contains toxoid of diphtheria and Tetanus bacilli and dead bacilli of pertussis. It should be used within 10 days if kept at the room temperature. The usual dose is 0.5 ml. It is administered deep intramuscularly. The site for administration for the infants is best at upper and outer middle one third of the thigh.

4.4.4 National Immunisation Schedule:

Age	Vaccination
At birth	B.C.G. vaccine.
6 weeks -9 months	Diphtheria pertussis and Tetanus (DPT.)
6 weeks -9 months	Poliomyelitis vaccine (oral), Measles, Mumps, and Rubella (MAR.)
9 months to 3 years	First booster of Polio and DPT. vaccines

IV years to VI years (1 year after the last dose of Polio and DPT. vaccine)	Second booster dose of Polio and DPT. vaccines.
VII to VIII years	After five years of age, the second booster should not include pertussis vaccines.
10 years	Diphtheria and Tetanus (D.T.)

Source: MCH division Ministry of Health and Family Welfare, Government of India, New Delhi., 1994).

Pertussis vaccine is contraindicated, if the children have a history of a convulsion. After the DPT. vaccination, children may experience pain at the site of vaccination and may have moderate to high fever. The pain and fever may be treated with the paracetamol. It is stored at 2 ° C to 8 ° C. MAR. Vaccine is administered intramuscularly.

D. Typhoid Vaccine:

It is prepared with salmonella typhi and organism of paratyphoid A and B. It is administered during the epidemic. The usual dose of administration is 0.5 ml. and 1.0 ml. subcutaneously, at the interval of 7 to 10 days.

E. Cholera Vaccine:

It is prepared in a saline suspension of killed vibrio cholera. It is administered in two doses of 0.5 ml. and 1.0 ml. epidermal at the interval of three weeks.

4.5 Play:

A play is a natural and most easily available outlet for children's expression of needs and feelings. It is the necessary stimulation for optimal development and support for their natural curiosity.

Spontaneous play evolves from children's need for self expression, mastery in the environment and integration of past and current experiences. Young children play with exhilaration and total enjoyment. A play is important for the children's physical, psycho social, and intellectual development.

4.5.1 Physical Development:

The play encourages muscle activity and muscle tone. It also, helps to develop skills and balancing in various positions.

4.5.2 Psychological Development:

The play provides a place for children to compensate for feelings of smallness and helplessness. During the play children experience control over the objects and the environment, while they have very little control over events in the reality.

They learn to control their feelings. In dramatic play, children practice before one another the roles they will some day play as parents, providers, teachers, gardener, and so on. Through the play, children search for their own present identity and imagine the possible future identity. The play provides an opportunity for the acceptable outlet of their negative feelings.

4.5.3 Social Development:

Children develop the capacity to cooperate with their peers; Group plays provides opportunities to develop skills and social interactions and to realize the consequences of control their impulses and learn the meaning of sharing experiences.

4.5.4 Intellectual Development:

Through the play children learn the concept of' space, color, form, shape, distance, height, and speed. Children create and practice problem-solving techniques. They develop better skills.

They increase their attention span, and develop an ability to concentrate. They experience the joy of achievement. Through the play activities they improve their communication skills. Children can play whenever and wherever they wish to play. There is no need of special clothes, toys or space.

4.5.5 Selection of Toys:

It is important to provide toys suitable for children's physical and psychosocial development. Toys may not be expensive but must be able to create interest in the children.

The toys should be safe, durable, attractive, appealing, and suitable to the needs, age, and experience of the children.

The toys which can cause injuries or which are accident-prone should be avoided. For example, the toys with sharp edges, rough edges, inflammable, with the small removable parts, and those, which are painted with the lead, should be avoided, because of the risk of injury.

The characteristics of play changes according to the age, environment, and developmental level of the children. The playground equipment should be selected to suit the children's developmental need. These equipments should be checked frequently to avoid accidents.

Other materials for indoor and outdoor games should be chosen carefully to promote exploration, develop problem solving ability, develop concept formation, and encourage self-expression.

Adult's guidance is required for assisting children in relating to each other and for providing safety, self-respect, and for the intellectual and emotional development

4.5.6 Play in the hospital:

The play is a very important component of children's life. It has special importance in the hospital to help sick children to continue to grow and develop, to preserve their sense of wholeness, to understand hospital procedures, and to act out emotions.

For the hospitalized children, the hospital is a new environment with a new routine. Sick children, suffering from pain and confusion may, be under the stress. The family routine, friends, and parents are missed. Children need to vent out their feelings, emotions, and tensions. The play helps, temporarily, to divert their mind from pain and loneliness.

The nurse must remember the following factors while selecting play for the sick children:

- The capacity of the children to play during their illness
- Limitations of play and toys for an immobilized child
- Sick children may prefer small simple toys. The interest of the children to enjoy play. The maintenance of the play materials.
- There should be a separate playroom in the unit, if possible, with play material for the sick children who ambulate.

4.6 Accidents in children:

An accident is a sudden cause of death or an emergency in children. Accidents are usually related to the growth and development of the children.

In urban areas of the developing countries, due to overcrowding, one room may be used for the multipurpose, such as, for sleeping, cooking, or playing. Such a room may have electrical appliances and other materials used for day-to-day living. This surrounding, if unprotected, may cause accidents in children.

Children from the age of six months to one year can move from place to place. The mobility increases as children learn to turn from side to side, creep, crawl, cruise, and walk. Gradually, they learn to climb up and down.

During the process of progressive mobility children may lack coordination and judgment of space. These sudden changes in their activities may place the children at the risk of accidents.

Some parents or caregivers may not be aware of the changes in the children's development. This lack of knowledge or ignorance may add to the predisposing factors where children are exposed to the accident-prone circumstances.

Until the preschool age, children may have an accident in the home or surrounding the home, where they play, explore, or imitate others.

School age children move about and develop interest in play away from the home, may be at the playground, river, street, or pool. At later age children may become adventurous and become prone to many more accidents.

4.6.1 Common accidental injuries:

1. Fall:

Falls are common in infants when they turn from side to side, creep, crawl, and walk. Due to lack of motor coordination and lack of the sense of space, they easily fall from the height.
Precautions:

Infants should be never left alone, on the cot, table, or any other unprotected surface, from where they can easily fall.

2. Foreign body aspiration :

Infancy is the oral phase, when infants explore every thing by putting them in the mouth. If small objects are put in the mouth, they may get aspirated.

Precautions:

The care should be taken not to leave any small objects in infants hand and within their reach. Toys should not have any small removable parts. Infants should never be fed solid foods which are difficult for them to chew, such as groundnuts.

3. Burns:

A stove, cooking gas stove, electrical hot plate, electrical heater, or such appliances should be never within the reach of infants. If children get access to these appliances, can get bums.

Precautions:

All heating equipments and electrical appliances should be kept at higher level where children cannot reach.

4. Foreign bodies in ear, nose or trachea:

Infants enjoy putting small things into openings or holes like, nose, ear, and mouth.

Precaution:

Infants should not have access to any small things such as beads, stones, nuts, or button.

5. Drowning:

Infants may move toward the tub, water pool, well, because they enjoy water. They may get into it and being helpless may get drowned.

Precautions:

The precaution is always necessary not to leave children alone near the water tubes water drums, wells or water. The water drums should be always covered. The door of the house should be always closed so that infants cannot go out.

4.6.2 Common accidental injuries in the different age group:

A. Common accidents in toddlers and preschool children: After the age of one year, the mobility of the children is

increased. Children like to walk, run, climb up and down. They enjoy moving about always. They are interested in the surrounding. They open the doors, drawers, cupboards, tins, or boxes, for investigating.

As they are not aware of the danger related to their activity, they are prone to accidents in many circumstances. Falls, bums, ingestion of foreign bodies, aspiration of foreign bodies, drowning, suffocation and vehicle accidents are common in this age.

Precaution:

Toddlers are egocentric. The negative statement such as "do not" should never be used to control their activities. They should be instructed about the expected activities. The proper directions for the activity are recommended.

Their activities should be under the supervision. The stairs, gates should be protected. The doors should be shut. Protective screens for windows are advisable. Hot things, stove, electrical appliances should be out of their reach. The harmful objects such as, medications, kerosene, and sharp instruments should be kept beyond their reach.

The caregiver or the older sibling should be given appropriate instruction about the protective care of very young children. The toys should be provided which have fast colour, blunt edges, and which do not have small removable parts.

4.6.2. B. Accidents in school-age children:

Being more active and adventuresome, school-ages children are prone to falls, sports injuries, drowning, and vehicle accidents.

Precautions:

Schools age children should be explained the use of the toys, safety rules, and protective behaviour. They should be encouraged to play in safe place, such as playgrounds, gardens, halls or indoor.

They should be taught the precautions for using matchbox, fire, electricity, sharp instruments, and open water places. In early school age, supervisory games may be encouraged.

Measures to prevent accidents

1. To provide safe childcare:

- Parents need to know about a safe environment for their children from early infancy.
- Parents must have an understanding about the children's developmental changes and capabilities at different ages.
- Parents must know about the potential dangers of accidents related to the child's age and various situations.

4.7 Providing Safe Environment:

According to level of children's development, age, and capabilities, children are attracted toward certain hazardous environment, which may lead to accidental injuries. The steps should be taken to prevent such injuries by providing safe environment at home, school, and in the community.

4.7.1 Health education:

As a responsibility of nurses, it is important to help the parents and community to be aware of accidental injuries in children and their relation to the growth and development of their children. It should be stressed that children need the positive and clear instruction to protect themselves from the accidents. Provision of a safe environment is also important.

4.7.2 Poisoning:

Poisoning is a condition which occurs due to ingestion, inhalation or injection of injurious substance. Here the poisoning by ingestion in children is discussed. Poisoning is common in from 1 year of 4 years. It is an accident due to lack of supervision and carelessness of leaving poisonous material within the children's reach.

Common poisons may be cleansing agents, detergents, insecticides, sleeping pills, tranquilizers, paint solvent, kerosene, corrosives, cosmetics, and adulterated food.

Signs and symptoms:

1. Gastrointestinal disturbances, such as anorexia, vomiting, diarrhoea, and abdominal pain are commonly seen.
2. Respiratory problems: breathlessness, cyanosis, sternal retraction, and grunting.

3. Circulatory problems should be checked for shock and collapse.
4. Children may have convulsions or become unconscious.
5. Children's mouth may have the smell or colour of ingested poisons such as, kerosene or organophosphurous compounds.

Treatment:

1. Identification of poison is necessary to start appropriate treatment.
2. Removal of poison: Vomiting is induced immediately, to prevent further absorption of poison. Ipecac syrup with water may be given for emetic effects.

Gastric Lavage (**stomach wash – refer practicals**): Gastric lavage is given to empty the stomach off poison.

Vomiting and gastric lavage are contraindicated, if a child is comatose, in severe shock, had corrosive poisoning, or has lost gag reflex to prevent aspiration. If a poisoning agent is mineral oil, the vomiting can cause aspiration, resulting into chemical pneumonitis. If a poison is a strong corrosive (acid or alkali), vomiting may further damage the injured tissues of the pharynx and oesophagus.

- Decontaminating stomach with activated charcoal helps to absorb many compounds. It is used within one hour of poisoning but after the patient is vomited.
- Dilution of a poison: Dilution of a poisoning agent is necessary
  when toxic substance cannot be removed such as corrosives.

Management:

1. Place the patient in a semi prone position to facilitate drainage of secretions and prevent an aspiration.
2. Maintain the patent airway. Administer oxygen if necessary.
3. Check the vital signs and observe the patient for the signs of any changes in the symptoms. Maintain the normal body temperature.
4. Give emotional support to the patient and parents. Nothing should be given by mouth.
5. Monitor parental fluid intake and serum electrolytes.
6. Provide comfort measures to the patient.

Parental advice:

Parents should be explained about the measures to prevent poisoning in children as follows:

1. Instruct about proper storage of poisonous substances.
2. Explain to keep the poisonous material beyond the children's reach.
3. Instruct to put label on the container.
4. Poisonous substances should never be placed in a container used for the food, because the child may mistakenly ingest it.
5. Instruct to seek the medical advice when poisoning is suspected.

4.8 Healthy - child

4.8.1 Growth and development:

The childcare depends on the understanding of parents, about the growth and development of the child. Through nonverbal signals also a child expresses and demands many things. The parents must learn to observe their child closely and try to fulfill his or her needs by providing appropriate environment.

Importance of learning growth and development:

1. The nurse knows what to expect of a particular child at a given age.
2. The nurse can judge each child whether he/she is normal for specific level of development.
3. The nurse can understand the reason of illness at a particular age.
4. The nurse understands the need of a particular child.
5. The nurse can plan the total care of the child.
6. Growth is an increase in the size of the whole body or any of its part. It can be measured in inches, centimeters, pounds or kilograms.

Development is functional maturation. It is a progressive increase in skills and capacity of function. It is orderly, not half hazard. There is direct relationship between its one stage and the next. Each child has its own rate of growth. Physical, social, emotional, and spiritual growth and development proceed at different rates but they are interrelated.

When growth in any aspect is unusually slow or advanced, the interrelation may change. All children grow through the normal sequence of development.

Growth periods

Ovum	-	From conception to two weeks.
Embryonic	-	Up to 12 weeks intrauterine life.
Fetal	-	From 3 weeks intrauterine to birth of the baby.
Perinatal	-	From birth to one week
Neonatal	-	From birth to four weeks.
Infancy	-	From birth to one year of age.
Toddlerhood	-	From one year to three years of age.
Pre-school age	-	From three to six years of age.
School age	-	From 6 years to 12 years.
Adolescence	-	From 13 years to beginning of adult life.

Factors influencing growth and development

1. **Heredity:** Heredity decides size and shape of the body. Therefore, family members bear resemblance. The characteristics are transmitted through genes that are responsible for family illness, for example diabetes.
2. **Race:** Similar physical characteristics are seen in people belonging to the same race.
3. **Sex:** A male infant is larger and heavier than female.
4. **Intrauterine development:** maternal nutritional deficiencies, drugs, and infections during pregnancy can have effect on the growing fetus.
5. **Illness and injury:** Illness may reduce the weight and cause hindrance in the child's progress.
6. **Nutrition:** Quality and quantity of food consumed by the child have effect on his / her bodybuilding and resistance.
7. **Environment:** Better sunshine, clean surrounding, fresh air, and socioeconomic status can affect parenting, thus, children's development. Emotionally sound, warm, and caring

environment which' promotes parent-child positive interactions enhances the development.

8. **Ordinal position in the Family:** Children learn from older blinds, which may be lacked by the first child. However, the parents of the children born second or later, in the order, may have more confidence in parenting skills. The youngest is petted and may be slow in certain areas of development.
9. **Emotions:** Lade of parent-child attachment, lack of love and security m children can distort the personality! The disturbed children neither sleep nor eat well as one who is happy.
10. **Intelligence:** Intelligence influences children motor development, psycho social development, and leanurig development.
11. **Exercise:** Exercise stimulates physical activity arid muscular
12. **Hormones:** Endocrine glands play an important role in growth and development. Deficiency of thyroid causes mental retardation. Overproduction of growth hormones leads to gigaritism while deficiency of growth hormone causes dwarfism.
13. **Structures of the systems of the body:** A rate of growth of the neural system is rapid before school age. It is most rapid during the months of life. Growth of the lymphoid tissue is rapid up to 11 years and gradually declines. The growth of genitals is slow until puberty that increases rapidly during adolescence.

4.8.2 Physical growth:

A. Weight:

According to World Health Organization, normal newborn infant's weight is 2.5 kg. or more. There is preliminary loss of weight, during the first 10 days after the birth, due to adjustment, inadequate feeds, and digestive adaptation.

After 10 days of life, the infant gains about 30 grams per day for five to six months. The Weight gain becomes 15 gram per day during 6 to 12 months. After the age of one year, weight gain may be 2 to 3 kg. per year.

At the age of six months, the weight is 5 to 6 kg. (doubles the birth weight). At the age of one year, the weight is 7.5 to 9 kg.

(trebles the birth weight. and the birth height approximately trebles, at the age of 13 years Birth height doubles, at the age of 4 years and becomes 100 and the birth height approximately trebles at the age of 13 years.

B. Head Circumferences:

Head circumference is related to the rate of the growth of the brain. In the newborn, it is 2 cm. Smaller than the chest circumference. At birth, it is 33 to 35 cm., at 3 months, about 40 cm., and at 12 months, 45 cm. It is abnormally large in hydrocephalus, and abnormally small in macrocephalus.

C. Chest Circumference:

The chest is barrel shaped at birth, and anteroposterior and transverse diameters are equal. Gradually, the transverse diameter increases. At the end of the one year of the age, head circumferences and chest circumference are equal. Then, the chest circumference increases.

D. Body Proportions:

At the birth, the midpoint of the body is 1.8 cm. above the umbilicus, at two years, it is just below the umbilicus, and at the age of 16 years, the midpoint is near the symphysis pubis. The relation of head and trunk to the lower extremities is 1.7: 1 at birth, which becomes 1:1 at the puberty.

4.8.3 Physical growth and development from birth to one year:

1. At Birth:

At birth, infants' posture is of generalised flexion. When newborn babies lie in the prone position, legs are drawn up and they turn the head on one side. When pulled to sit, the head lags behind. Hands are clenched and the grasp reflex is strong.

Moro's reflex, tonic neck, and crossed extensor reflexes are present. Deglutition reflex (rooting, sucking, and swallowing) is present. Dolls' eyes are seen up to two weeks. Pupillary reaction present.

2. Up to three months:

By three months, flexion is reduced. In prone position, the baby can lift the head to 90° (Fig.4.3). By the age of four weeks, walking, placing, and cross reflexes disappear, and Moro's and grasp reflexes are absent. Infants may follow the moving object through 180°.

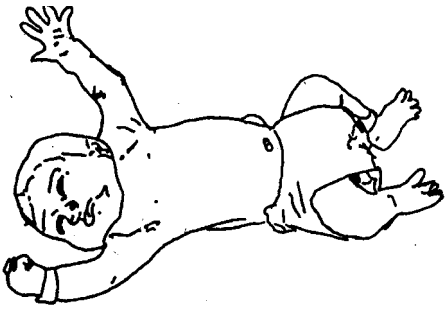

Fig. 2.1 At Birth: Moro reflex

Fig 4.3 At birth , Moro' s reflex

They turn the head toward the sound. They can grasp the toy but they lack a firm holding. They look interested in the surroundings, give a social smile, and recognize the mother. Babies show displeasure by an expression or a cry.

3. From three to six months:

During this period, infants adopt symmetrical posture, in supine. When lying in prone, infants try to raise the chest off in a vertical axis and increase the extension of legs. By six months, infants roll over from prone to supine and can sit with or without a support. (Fig.4.4).

Infants hold object with palms, grasp, and take it to the mouth for exploration. Infants recognise parents' voice. Around the six months, the teeth's eruption may start, first with lower incisors. Infants get excited at the sight of food and poise mouth for feeding. During this period, the infants laugh aloud and coo, smile at a mirror image, and show pleasure and displeasure.

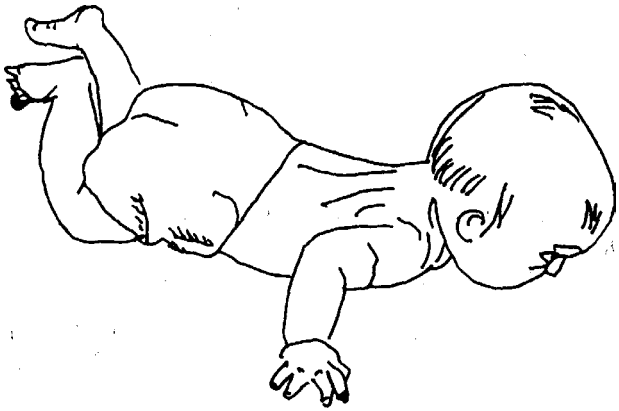

Fig. 4.4 Up to three months:

4. From six to nine months:

During this period, infants can turn from supine to prone, can sit without support, and attempt to creep and crawl. By nine months, they can stand with a support. They play with the foot and learn to put their foot in the mouth. They can transfer a toy from one hand to the other and then, to the mouth. Infants respond to their own name. They are frightened of strangers (turns away and cry, and stop crying when held by the mother). They love repetitive games.

Figure 4.5 A six month old infant can balance well in sitting without support

5. From nine to twelve months:

During this period, infants can sit without support and make movements. They walk with a support and cruise all round. They release an object to another-person, on request. They try to feed themselves and can drink from a cup. They drop toys deliberately. They make postural adjustments. Infants can speak two words with the meaning.

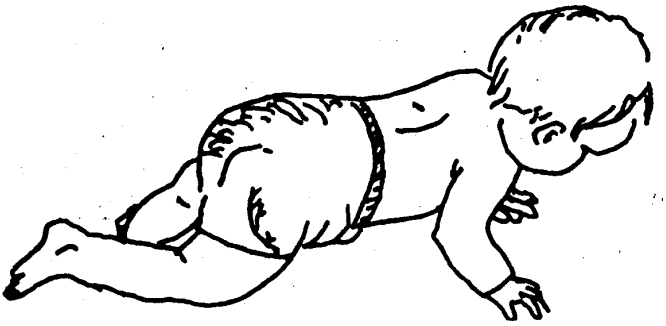

Figure 4.6 The nine-month old can crawl.

They develop an ability to show emotions, such as, fear, anger, jealousy, and anxiety and they can draw attention. They smile at their image. By one year, six to eight teeth may appear.

6. Sense of trust:

Figure 4.7 The eleven-month old can walk with support

The sense of trust may be strengthened or weakened by the positive and negative experiences, respectively.

If the mother provides a loving, warm, and consistent care, the infant develops a trust in her. With the maternal-infant attachment, the infant develops the trust and feels secure. A mother substitute also, should try to provide experiences that develop trust.

The sense of trust is accomplished with experiences and events which infants are repeatedly receiving when they are hungry, uncomfortable, cold, and lonely. If infants get attention in time, develop a trust as an integral part of their development. Each close contact with the infants is an opportunity for them to experience the pleasure of intimacy. While caring for infants in health and illness, one must understand their basic needs.

Need for warmth and comfort:

If infants are held during the feeding they can experience warmth, comfort, security, and pleasure along with the nutrition. The attitude can be expressed in the voice, touch, and handling the infant.

Need for Sucking:

During the first year, infants get pleasure by sucking. They put every thing in the mouth and enjoy. This need should be satisfied by providing breast feeding/bottle feeding and washable safe toys. Gradually, infants' need for sucking decreases over the time.

Need for sensory stimulation:

Infant receive sensory experiences right from the birth, by the contact with the mother's body and touch of the hands of various people who take care of them. They see and hear many things.

Thus, they communicate with the environment. Gradually they try to explore their body. They need a stimulation by change in the environment, by change of position, by contact with various textures, by sights and sound. They should be gradually introduced to a wider and more varied experiences and activities, through various sensory organs.

The nurse needs to understand the above needs of infants when they are separated from their family and especially from the

mother, during hospitalisation. Especially in the intensive care unit, nurses must try to fulfill these needs through the mother and other modes.

4.8.4 Growth and development of a Toddler:

1. One to three years:

Toddlers, gradually, gain physiological maturity and become more capable to fight infections, maintain body temperature, and carry other physiologic functions (Wong, 1993).

Physical changes. Toddlers appear tall and leaner because their chest circumference exceeds the abdominal circumference. They retain their pot Belly with short legs that are slightly bowed. During the toddlerhood, child gains about 2 to 3 kg. of weight per year.

The birth weight quadruples by 30 months of age, The height increases by 7.5 cm. per year. Two-year- old is about 85 cm. Tall and three years old is about 93 cm. The head circumference becomes equal to 'chest circumference by the two years of age. Anteroior fontanal closes by 12 to 18 months of age.

1.A Sensory Development:

During the toddlerhood, full binocular vision is well developed. Development of depth perception continues. Sense of hearing, smell, taste, and touch are well developed. All these senses are used to explore the environment and objects. Toddlers may lack the muscle coordination and is at risk of fall from the height.

1.B. Motor Development

Gradually, the toddlers develop control over the muscle and develop fine motor skills. By 12 to 15 months, they can walk without support. By the 18 months, they learn to run. By two years, they can run well with a wide stance, and can walk up and down stairs. By 2 ½years, they can jump.

Fine motor skills are developed with the pincer grasp by 9 moths to 10 months, so they seem to grasp very small objects. By 15 months, they repeat voluntarily throwing objects. By 15 months, they can place the round object in the hole.

By two years, they can build a tower of six to seven blocks and by 30 months, a tower of eight or more blocks. By 15 months,

they can scribble spontaneously. By two years, they can imitate a circular stroke and a vertical line. Motor skill development is observed in toddlers' play, dressing, language development, response to discipline, social interactions, and exploratory activities.

Physiologic functions are matured, by the age of three years. Stomach capacity is increased and toddlers can have three meals a day. By 14 to 18 months, toddlers can retain urine for two hours.

1.C Psycho-social development:

According to Erikson (1968), when toddlers try to develop autonomy, during the process of autonomy, they overcome a sense of doubt and shame. To hold on and let go technique is found during use of hands, mouth, eyes, and sphincter.

Toddlers can express emotion very strongly. They use “no” in their vocabulary. Swift change is seen in toddlers’ mood. They may get angry if they are unable to manipulate an activity. A temper tantrum is common. Sudden changes in their behaviour are difficult for the parents to understand and manage with.

Parents may give into toddlers’ negativism, instead of handling it constructively. Toddlers like sameness, ritualism, which provides them with the sense of reliability and comfort. They prefer familial places, people, and routines.

1. D Cognitive Development:

Toddlers can think and try to find the reason for actions. They use trial-and-error method to explore and get results. They learn to develop language. They learn to imitate with the intellectual ability. Identification with .the parent of same sex occurs by two years of age. They have a limited attention span.

Toddlers, gradually, learn the names and uses of the respective body parts. They use their own symbols to describe an object. Toddlers have unclear body boundaries and may associate nonviable parts with the body parts. Toddlers should be taught to respect the body parts by their proper names. They also find that touching certain body parts is pleasurable. Parents should accept the toddlers' sensual activities.

Following areas need specific attention and guidance:

i. Control over bodily functions of urination and defecation.
ii. Communication and language.
iii. Learning social norms.

Toilet Training:

Controls over defaecation and urination are two personal phases of toddlers' learning, closely related to their sensory and motor control. They should be taught to excrete urine and faeces at the appropriate time and place, only when they are ready. Toddlers achieve voluntary control of the anal and urethral_sphinctcr between the age, of 18 and 24 months. Toddlers can recognize the, urge to hold and let go by the age of two years.

Toddlers become aware of pleasing their parents by holding on. Parents must recognize the children's physical and psychological readiness for the toilet training. The training for toilet can be started around the age of 18 months. The daytime bladder control develops by the age of two years.

Night bladder control should not be hurried. The toilet training should not be started during illness. The selection of the potty chair is important-to fit the child's position and supports the child's feet while sitting on the potty.

Parents should have confidence in toddlers' ability to learn and must give reasonable time. The practice may be limited to 5 to 10 minutes. The parents should not force the child to sit on the potty or spank him / her for haying accidents. It is the child's cooperation, which is important for the successful learning experience.

If the mother shows a disgust about the process of excretion and gets annoyed, the toddlers will feel ashamed of their body and may feel that they are not lovable. If they have not developed a trust in their mother, they may not be strongly motivated.

1.E Language development:

Toddlers are able to understand others and express their feelings and ideas in words. They may continue to express through their gestures. They understand the meaning of the word. The mothers' voice, tone, and gestures help them to understand the meaning of the words. To speak, toddlers must have a satisfying relationship with their mother.

When they think, the mother responds to their words, they are motivated to speak. They speak to express their; needs. If their needs are supplied without their asking, they may. not be motivated to speak. In the beginning, they get pleasure in talking. They talk to anyone, example, to the people, pets, toys, and to themselves.

1.F Vocabulary building:

First, toddlers learn the nouns of one syllable, such as, Ma-Ma, Ba.-Ba., Pa-Pa. Next they learn verbs that mean some form of action which he sees, such as, give, take, rim.

By two years, gradually, they learn adjectives and adverbs. 6y three years, toddlers know about 900 words. Their ability to understand the words is greater than actually saying the words. Toddlers can speak one word sentence at the age of one year and can speak, (two to three word sentences by the age of two. Gradually, the sentence formation and expressing with the gesture are developed.

1.G Delayed Speech:

If toddlers do not speak by the age of two years, the cause of the delayed speech may be investigated.

I. H Social development:

Toddlers develop independence that is evident in their determined, strong-willed, volatile behaviour. They swiftly become docile and lovable to please their parents. They enjoy developing skills in carrying out daily activities such as feeding, dressing, playing, and developing control.

By 15 months, they can feed themselves and drink from a cup. By three years, they can eat with the family. By 15 months, toddlers try to remove their dress or shoes by pulling. By two years, they can put on their shoes and pants.

Play provides the opportunities for toddlers* physical and psychological development. Toddlers talk with the toy and try to use their senses to explore the characteristics. Parents should protect the child from the risk of injury when me child manipulates the toys.

Toddlers become social, with the development of ability to use the language and social behaviour. Play activity provides the

toddler with opportunities to team and develop socially acceptable behavior.

They team differentiation of self from significant others. Differentiation includes the process of separation, from the significant others, and individualisation, which is developed by the achievement of individual identity in the environment. Toddlers seek security. The object which provides sense of security becomes important to them.

1.I Limit-Setting:

Setting limits and shaping the toddlers' behavior is an important task. Parents may find it difficult to set the limits as toddlers are changing their activity with increased mobility and increased exploration and manipulation of the environment. While setting limits, reasoning does not work for the toddlers because they are egocentric. Setting simple rules and applying them consistently help to limit their behaviours.

1.J Dental Health:

Oral hygiene should be started from the neonatal period. Cleaning of the gums with the moist cotton is important. Parents should be encouraged to clean the teeth of their infants as soon as they erupt. A small children's toothbrush with soft, rounded, multi-tufted nylon bristles that; are short and uniform in length is recommended.

For toddlers, effective brushing can be done by parents. The toddlers can participate in brushing. The toddlers should see a dentist, at least by the time when primary dentition is completed. Oral and dental hygiene is important in toddlers as they are prone to develop baby bottle tooth decay (BBTD).

2. From 12 to 18 months:

Toddlers stand and walk without a support and creep-upstairs. They explore drawers, open boxes and pokefingers in holes. By 18 months, their anterior fontanelle is closed.

3. From 18 to 24 months:

Toddlers can run well and walk up and down with two feet per step. They can kick a large ball. They can imitate strokes with a pencil.

4. From 2 years to 3 years:

During this period, toddlers can hop on one foot. They can ride a tricycle. They can feed themselves.

4.8.6 Growth and development of a Preschooler (3 to 6 years)

1. Physical changes:

A chubby toddler transforms into a thin and tall child. The preschoolers gain 2 to 3 kg. per year. The height may increase at the rate of 5 to 7 cm. per year; The birth height doubles at the age of 4 years.

2. Psycho-social development:

The preschoolers are interested in the meaning of relations. They talk to imaginary friends. They project in imaginary play, what is bad in themselves. They team the social norms.

They like to take responsibility. Their aggression is turned toward their parents. By five years, they are cooperative, sympathetic, and usually generous with their toys. The preschoolers are interested in stories and they like outside world.

Everyday experience and parental encouragement to practice skills, lead to coordinated use of their basic motor and perceptual abilities. Proficiency depends more on the practice than on the age. Normal preschoolers like constant activity.

3. Vocalisation:

Preschoolers have vocabulary of 1500 to 2000 words. They use plural in their speech. They repeat a sentence of Up to 10 syllables, talk constantly, exaggerate and boast. They ask meaning of the words and use the language fluently with the confidence.

Preschoolers' emotional tone may change suddenly. They watch adults and attempt to imitate their behaviours. They are imaginative and creative.

Their temper tantrum is on decrease. They understand better. They are less rebellious than before. They may be afraid of darkness and loneliness.

4.8.7 Growth and development of a school age child (6 to 12 years):

1. Physical development:

During this period, there is slower growth in height, long bones continue to grow, legs lengthen, muscles develop, and children look leaner. A school child gains about 1.4 to 2.2 kg. per year and grows 4-6 cm per year. By the age 6, first primary tooth is lost and permanent teeth begin to erupt. School age children refine fine motor skills and eye-hand coordination.

2. Psycho social development:

The child may exhibit independence and still needs non-obstructive parental support. By the age of 7 years, school age children begin the stage of operational thinking. They learn to consider alternate solution to solve their problems. School age children develop a sense of industry versus sense of inferiority (Erikson, 1968). A sense of industry is a sense of being able to make things perfectly.

Those children who may fail to develop skills to make things may develop a sense of inferiority. School age children's self-concept is influenced by interactions with their friends, family members, and other persons. They enjoy plays involving gross motor activities such as ball sports, hiking. They enjoy playing with friends and exhibit cooperation and social skills.

3. Communication:

School age children like to correct their pronunciation and grammatical errors while speaking. Their vocabulary increases. By the age of 6 years, children have vocabulary of 2500 to 3000 word. After age 7, they use complex and compound sentences. By age 12, word meanings are increased about that of an adult.

School children experience emotions of anger, fear, worry, jealousy, love, and affection. By 12 years of age, children learn to organise and control their emotions.

During this stage, parents may delegate some responsibility to the children to give importance to them. School age children get new ideas from adults outside the family.

The school is the place where a child is adequately prepared, where the needs as a growing person are regarded and if successful, the school experience will have positive influence on children's personality development.

4.8.8 Growth and development of an adolescent (13 to 18 years):

Adolescence starts with the quick alteration in the body and experiences. These changes create inner alteration exhibited in the adolescent's behaviours.

1. Psycho-social development:

According to Erikson (1968), establishing, a sense of identity is the developmental crisis of adolescent. Development of identity is the major need of the adolescent, before development of an intimate relationship. Adolescents perceive themselves as unique and distinct individuals.

The adolescents experience unfamiliar feeling and seek peer approval because of the rapid physical growth and maturational changes. During this period, adolescents try to achieve autonomy from the family, hope to have group identity and try to develop a sense of personal identity.

Adolescents are egocentric, therefore, lack the ability to differentiate their own opinions from that of others. Because of their egocentrism, they lack understanding to assess the circumstances that require empathy and cooperation.

During early adolescence, adolescents have concrete thinking. Gradually concrete functioning develops into abstract during middle adolescence.

Adolescents experience different roles and are confused with role diffusion. Adolescents find it difficult to form satisfactory identity from the various aspirations, roles, and identifications.

2. Social Development:

Adolescents do not like parental restraints, but they are afraid to be independent when they think of the responsibilities along with their independence. Their wish to enjoy freedom helps them to develop social relationship and identify their social role.

Adolescents need acceptance from friends, few close friends, and supportive family for interpersonal maturity.

Adolescents tend to be critical, argumentative, and reject parental control. They spend more time outside the family, with the peer group. Their behaviors fluctuate according to their mood. Adolescents become more competent and feel the need for more autonomy. Adolescents face difficulty to face transitions at once, such as, beginning of puberty, starting to date, and attending a new school. Adolescents have a fear that they may not be able to cope with the expected role and responsibilities as an adult.

3. Sex-role identity:

In early adolescence, peer group begins to provide information regarding sexual relationships and expects development of such relationship. These expectations vary from culture to culture, among geographic area, and among socioeconomic groups.

4. Evaluation of the Physical Measurement

4. A Weight and Height

The standardized grid growth charts, percentile charts, are used to evaluate the physical growth. On these charts, the child's height and weight at different ages are plotted. This shows a linear picture of the child's growth along with the comparison of weight, and growth with the expected values at the respective ages.

The percentile chart is used to assess the growth status of the child. This chart shows the frequency divided into percentile lines, for example, a child whose weight is on the 30th percentile line would be treated as lighter that 70 per cent and heavier than 29 % of children of the same age.

To illustrate, a-five-year old marasmic child weighing 8 kg. and who is 85 cm. tall, falls below three percentiles, as is evident from the growth grid chart cited above. The height and weight of the child are generally on the same percentile. Any discrepancy should be noted. The head circumference is measured on the similar basis. This measurement is more valuable from birth to three years of age. This measurement may be useful to detect hydrocephalus and mental retardation.

The nurse can assess the growth of the child by obtaining accurate measurement of the weight, height, and head

circumference, and by comparing it with the expected values for the respective age within the normal limits. The fiftieth percentile can be considered as an average. If the measurement falls above the ninetieth or below tenth percentile, it is necessary to refer the child for further evaluation.

4.8.9 Hospitalisation:

Children who cannot be cared at home or in the health centre or in the O.P.D., may be admitted to the hospital for treatment. Hospitalisation is the disruption of the lifestyle of children and their families.

The children's reactions to the hospitalisation and coping strength depend on the age, developmental stage, body image, fear, reason for hospitalisation, and the previous experience about hospitalisation.

The change from home to hospital environment creates stress. The difference in hospital and home disturbs the child and adds to the stress, for example, environment, mealtime, toileting, feeding, bath time, and recreation.

By understanding these factors, the nurse can explore the child's reaction, describe nursing care to provide safety, promote sleep and rest, manage sensory deprivation, relieve pain, give medications, and assist in other procedures.

It is important to be aware of the variability associated with the life span, in relation to each aspect in the children's daily practices. This will help in accurate assessment, planning of management by modifications during nursing care techniques, for health advice, and to give emotional support through appropriate environment.

One should understand the needs of the child at a particular age. The child must establish trust in caregiver, and he must be encouraged for positive behaviour.

Developing rapport with the help of warm and loving words and allowing parental participation in childcare is important. Necessary information should be given to the parents about the rules, policies, care of the child and preventive measures.

4.8.10 Management of hospitalised children:

I) Help the children feel safe in the strange environment of the hospital:

Children should be accepted as they are;-

1. The nurse should be pleasant in an approach.
2. The nurse must create a warm environment.
3. The consistent nursing care should be provided.
4. Appropriate limits should be set.

II) Alleviate fear of the unknown:

1. Parents and children should be explained about elective hospitalisation.
2. Children and their parents should be reassured.
3. Children and parents should be allowed to participate in the care, where possible.

Ill) Allow expression of feelings:

1. Children should be encouraged for verbal expression.
2. Children's feelings should be observed, though play.

IV) Maintain identity as a person:

1. Children should feel that they are cared for as persons.
2. Love and affection should be provided.
3. It is necessary to establish the rapport and develop a trust, in them.

4.9 The role of a paediatric nurse

Wherever paediatric nurses practice, their main function is the welfare of the child and his family. In this country, due to a dearth of paediatric nurses, even fully trained nurses, the home care of the child is dealt with by community health worker or auxiliary nurses.

Nursing of the children is aimed at 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, and rehabilitating them, who

have deviated from normal routine. The role of the paediatric nurse depends on her education, experience, job structure, and professional demands.

1) Preventive Care:

Prevention of illness and injury is important in the role of the paediatric nurse. Preventive care should be considered in relation to all aspects of the children's health. The nurse must plan care for even- aspect of growth and development of the child. Problems related to development, nutrition, immunisation, dental care, safety, socialisation, and education should be assessed. Any required guidance should be provided.

2) Health Education:

The nurse should give appropriate health teaching with general feedback from the parents. She should give health instructions, as planned talks or incidental teaching as required. The nurse can act as a model for the parents and children by her manners and behaviours.

3) Restoration of Health :

The nurses' role in the restoration of health is accomplished through care giving activities. While nursing the sick children, the nurse is involved in meeting their needs such as feeding, bathing, security, comfort, and other care. She must do continual assessment and evaluation, to modify the care plan and meet the developmental needs, which influence children's health. The rehabilitation of physically or mentally disabled children is also an important aspect of restoration.

4) Coordination:

The nurse plays an important role in the health team by coordinating activities related to patient care, which are interdependent on various health team workers and departments. The communication and coordination may be direct or indirect, depending on health care system.

In brief, the paediatric nurse can provide comprehensive care, to the infants and children including guidance to the parents, about their role in the childcare.

4.10 Common diseases in children:

4.10.1 Cleft lip and cleft palate:

Cleft lip and cleft palate results when fusion involving a first brachial arch fails to take shape during embryonic development.

1. The cleft lip: It results from the failure of maxillary processes to fuse with the nose elevation on the frontal prominence. This defect varies from a notch in the lip to complete separation of the lip into a hare. The cleft lip may be unilateral or bilateral.
2. Cleft palate (isolated): Isolated cleft palate results from a failure of the fusion of secondary palate with each other, and with the primary palate. It can be unilateral or bilateral.
3. Cleft lip and palate: This condition results from a combined defect of cleft lip and cleft palate.

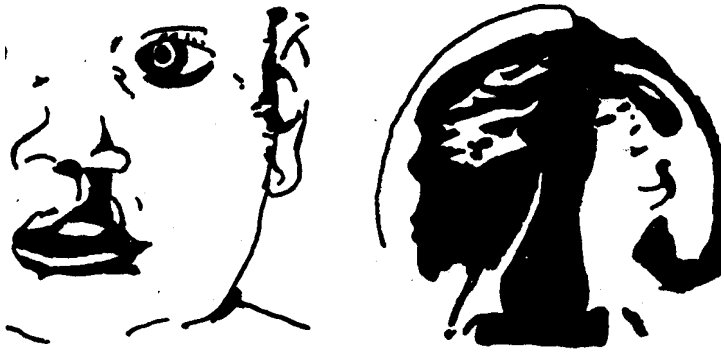

Figure 4.8 Cleft lip and Cleft palate

4. Administration of the drugs: The parents should be explained about the side effects of the drugs used over a long period and about the regular use of the drugs.
5. Any side effect such as neuritis, jaundice, rash, hearing disorder, and renal problem should be reported, promptly, to the doctor. The parents should be helped to relieve the anxiety and to avoid overprotection.

Parental advice:

1. The parents should be instructed to continue the treatment until the disease is cured and until the doctor orders to discontinue.

2. The parents and, if applicable, children should be instructed about the proper coughing and sneezing technique by covering the mouth and nose to prevent droplet infection.
3. The parents should be explained about the use of B.C.G. vaccination for other young children if necessary.
4. The importance of nutritious diet should be emphasized, to develop the resistance in the children.

Preventive Measures:

1. Early detection of condition and prompt treatment can help to prevent complications.
2. Case finding and follow-up of known contact can help to control the infection.
3. Periodic skin testing of children for tuberculosis.
4. Prophylactic anti-tuberculosis drugs may be prescribed to those who have high risk of tuberculosis.
5. Improving living conditions, if possible, is advisable.

Investigations:

Cleft lip with or without the cleft palate is easily apparent at birth. Only cleft palate may be identified when thorough assessment of the mouth is done or when the infant has difficulty with initial feeding.

Treatment:

Treatment of cleft lip and cleft palate may require joint efforts of pediatrician, plastic surgeon, nurses, orthodontist, prosthodontist, and speech therapist.

Surgical Treatment:

1. Closure of the cleft lip is done first .and then the closure of the cleft palate is done. The time for the surgery of the lip varies. Some prefer the lip closure immediately after birth whereas others may prefer to wait for two to-three months until the child gains adequate weight.
2. The cleft lip is generally repaired by Z-shaped sutures, to reduce notching of the lip. After the surgery, the suture line is protected from tension by an arched metal device taped to the cheek.

3. Cleft palate surgery is postponed later in order to wait for the changes in the palate. Many surgeons prefer to do it between the age one and two years, before the child develops defective speech.
4. Orthodeontic and prosthodontic treatment may be required to correct malposition of the teeth and maxillary arch. Children with cleft palate may have speech problem and may require speech therapy.

Management:

1. Soon after the birth, the baby may look unattractive but the nurse should not show her reactions.
2. The disfiguring defect may cause negative reaction and shock in the parents.
3. The nurse should explain the positive aspects about the correction of the defect and other possible treatment.
4. Feeding of an infant: The immediate problem faced is the feeding an infant with the cleft lip and palate, because this defect reduces the ability of the infant to suck.
5. While feeding, the infant should be held in upright position. A special cleft palate nipple can be used. A large and soft nipples with the large hole or a long and soft lamb's nipples are useful.
6. When the infants have the problem to take feeds with the nipple, a syringe with the rubber tube may be used to feed.

Pre-operative care:

1. The mother should be explained about the proper breast-feeding and that of the bottle-feeding, to help the infant gain weight.
2. The infants should be encouraged to. lie on its back to practise for postoperative essential positioning, especially with the arm restraints.
3. Parents should be motivated to provide love and affection to develop an attachment.
4. Instructions should be given to give the last feed six hours before the surgery.

Post-operative care:

1. Assessment of the vital signs should be done and the general post operative care should be provided. Side lying position helps to drain the secretions and prevent aspiration.
2. Protection of the surgical sutures at the site of the repair is done by the followings:

   The patient is positioned on the back or side for the repaired cleft lip. Positioning on the abdomen is useful for the palate surgery.

   Maintaining the protective device on the sutures. Restraining the arms by elbow restraints helps to protect the infants' hands reaching the suture line.

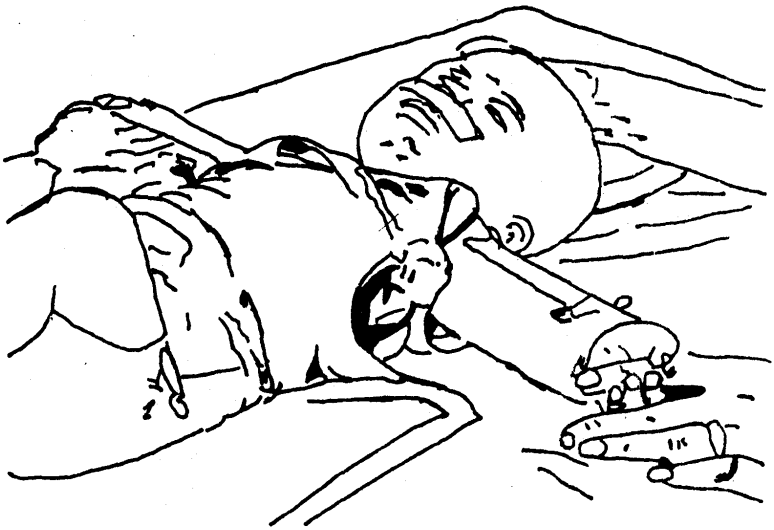

Figure 4.9 Restrained elbows to protect sutures after the surgery

3. The infection can be prevented by the cleaning the operated area, gently, with the aseptic precautions after each feeding and avoiding contamination.
4. An injury should be prevented by prevention of any object putting in the mouth.
5. Love, affection and security can be provided by cuddling of the infant.

6. Parental support may be required to clear their doubts and encourage them to accept the baby.

Parental advice:

1. Explain the routine care of the baby.
2. Demonstrate the technique of feeding.
3. Refer to the genetic counseling clinic.
4. Refer to social agencies and other agencies.
5. Explain about the follow-up.

4.10.2 Helmintiasis:

The problem of helminth infestation is common in all tropical countries due to prevalent methods of defecation and disposal of excreta. Intestinal infestation adds to the burden of the rapidly growing children whose health status is already compromised by illness, malnutrition, and unsanitary living conditions.

Common parasitic infestations are as follows:

Ascariasis:

Ascariasis is caused by ascaris lumbricoides. It is seen more common in the children between the age of one and five years, with lower socioeconomic status.

Sign and symptoms:

1. Fever and eosinophilia due to larvae
2. Ascaris pneumonia due to larvae in the lungs
3. Necrosis of liver cells due to migration of larvae into the liver causes right abdominal pain.
4. Abdominal pain due to mesentric lymphadinitis
5. Intestinal obstruction due to adult worms
6. General peritonitis and extraperitonial abscess
7. General symptoms such as diarrhoea, pica, abdominal distension, sleeplessness, irritability and loss of weight.
8. Ascaris encephalopathy may occur with other infections, diarrhoea and high fever.

Treatment:

Piperizin Citrate or Mebendazole is prescribed.

Prevention:

1. Use of the boiled cooled drinking water should be practiced.
2. Hygienic habits of eating and hand washing help to prevent orofaecal infections.
3. Proper disposal of excreta and refuse is essential.
4. Control of flies is necessary to prevent the spread of infestations.

4.10.3 Oxyuriasis (Thread Worms), Pin Worm Or Seat Worms:

Enterovirbius vermicularis is commonly found in children. It is transmitted because of insanitary living conditions in the school, hostels, institutions, and families. It is transmitted through soil, finger, flies, and linen.

Signs and symptoms:

1. Asymptomatic children may not have any complaints.
2. General symptoms are found, such as lack of appetite, loss of weight, grinding of teeth, and abdominal pain.
3. Pruritis at anal region and at valva is caused by the crawling of the gravid female worms, which come out of the anus. Scratching produces secondary infection.
4. Nocturnal enuresis may occur. Rarely, it may cause appendicitis.

Investigation: Stool examination for thread worm or ova.

Treatment:

1. Peprarizine citrate may be prescribed.
2. It is advisable to treat whole family at a time.
3. Mebendazole is prescribed and administered twice a day.

Prevention:

1. Children's nails should be cut short and scrubbed with the soft brush.
2. The use of long pyjama helps to prevent auto infestation.
3. Antipruritic cream can be used to prevent itching.
4. Hygienic eating habits should be practiced.

4.10.4 Ancylostomiasis (Hookworm):

Ancylostomiasis is commonly found in children of rural area or in the urban area where children live in the neighbourhood of field or open grounds. Infective larvae enter the human skin through hair folicles, or under particles of dequamating epidermis.

They migrate the blood vessels, enter the venules, and are carried to the lungs through the right side of the heart and lodged in the pulmonary capillaries. From capillaries they penetrate the alveoli, migrate up the respiratory tract, pass over the epiglottis and are swallowed.

On the arrival in the small intestine, they become attached to a villus and suck the blood. Each female hook worm lays several thousands eggs a day. As each worm sucks the blood, a mild or severe anaemia may develop. Anaemia may develop gradually, but it can lead to cardiac failure.

Signs and symptoms:

1. Epigastric pain
2. Fatigue and weakness
3. Pica may be present
4. Eosinophilia may be found.

Investigation:

Tetrachloroethelene is prescribed. It is usually administered in the single dose, on empty stomach, in the morning. The food is offered two hour after the dose. Tetramisole and Bephenium are the other drugs that could be prescribed to treat hook worm infestation.

Prevention:

1. Detection and early treatment of all infested persons can reduce soil contamination.
2. Use of the sanitory latrines helps to prevent the spread of the infestation.
3. Habit of using a foot wear helps to prevent the contact with the soil contaminated with hookworms, in the open fields.

4.11. Communicable diseases in children

4.11. 1 Tuberculosis (Primary complex)

Tuberculosis in children is a major health problem in the developing countries. It is caused by mycobacterium tuberculosis, an acid-fast bacilli.

The types of tubercle bacillus causing disease in man are the human and bovine. The bovine type is transmitted through milk. Tubercle bacilli enter the body through inhalation, ingestion, and inoculation. The tubercle bacilli from the lungs of infected adults are expelled as microdroplets during a cough or a sneeze.

Most common infections initially have infections in lungs. Bacilli reach the finest bronchioles. First there is an inflammatory reaction with polymorphoneuclear leukocytes. Tubercle bacilli multiply in these leukocytes. The tubercle is formed with the center; area of caseation necrosis surrounded by a ring of small round lymphocytes. This is called a primary focus.

Commonly it is found in the subpleural area of lower part of upper right lobe. It is also called Ghon focus. From there the infection is spread through the lymph nodes such as hialar nodes. The regional lymph glands become caseous and enlarged.

A primary complex is formed with the primary focus, regional lymph nodes that are caseous and enlarged, and pleural reaction. This is the reaction of the body tissue to the tubercle bacilli when they enter the body for the first time.

After the first few months of primary infection, the bacilli may enter the lymphatic and blood stream and may be carried to the different parts of the body. This depends on the age, health status, and the resistance power of the children.

There may be a natural control or the disease may progress. In untreated primary complex, when resistance lowers, the children may have local infection of the lymph glands. Heamatogenous spread is also common.

Tuberculous meningitis and miliary tuberculosis are such examples. Young children have greater risk of complications rather adults.

Signs and symptoms:

In some children it may be asymptomatic. Symptoms vary according to the age and health status of children. General

symptoms are low-grade fever, loss of weight, anorexia, and fatigue. The specific symptoms may be related to the site of infection such as in the lungs, brain, bone, or kidney.

In pulmonary tuberculosis many a times, lung infection may not produce a cough. Gradually the disease progresses over weeks or months. The affected side of the lung has decreased movements and breath sounds. Total respiratory difficulty increases. The child develops-chronic low-grade fever, anemia, pallar, weakness, and loss of weight.

Investigation:

Tuberculin test (Montoux): The tuberculin test is done to diagnose the children with tuberculosis. The hypersensitivity reaction to the test is checked two to ten weeks after the infection.

This test may produce false negative reaction with intercurrent infection, viral vaccines, corticosteroids, severe malnutrition, use of impotent material of vaccine, and overwhelming infection of tuberculous infection.

Montoux test is done with protein-purified derivatives. The 0.1ml. of the standard diluted vaccine is injected into the anterior left forearm to raise a wheel of 6-8 mm.

The result of the test is read after 48-72 hours and the size of in duration is measured. The diameter of the induration, below 5 mm. shows negative, while the diameter between 5 mm and 9 mm. is positive and shows that the children had exposure to the infection.

The diameter of in duration, above 10 mm. or more is a positive reaction.

The X - ray of the chest may reveal the primary focus and any pulmonary lesion. Examination of the smear from the sputum or other lesion is examined for acid-fast bacilli. Cerebrospinal fluid is examined for diagnosing tuberculosis meningitis.

Treatment:

Early diagnosis and treatment can prevent the danger of Tuberculous meningitis, miliary tuberculosis, and bone tuberculosis. The treatment depends on the severity of infection and the extent to which the organ is involved. Usually following line of treatment is given.

i. Antituberculosis drugs:

Standard antituberculosis drugs are streptomycin, isonicotinic acid hydrazide (INH), pyrazinamide and Ethionamide. In the primary tuberculosis, the treatment may be initiated-with these drugs.

Other drugs are Ethambutal, ethionamide, parazinamide, viamycin, xanamycin and rifampin. The physician may select the drugs according to the case. The regime with three or more drugs in combination is found effective, such as;

- INH-Rifampin – Streptomycin
- INH - Ethambutal - Rifampin

Duration, of the chemotherapy depends on the age, health status of children, and severity of the disease. It may vary from nine months to two years.

ii. Corticosteroids :

Corticosteroids may be used in the early part of the disease. It is prescribed for six to eight weeks and then the dose is gradually decreased over the next four weeks. It may be used in tuberculosis meningitis, pleural effusion, miliary tuberculosis, and overwhelming infection with malnutrition.

iii. **Surgical Treatment:**

Sometimes surgical treatment is necessary for resection of the segment or removal of the affected part.

Management:

1. Pulmonary tuberculosis in children is noninfectious so there is no need for isolation. The proper disinfection of the body discharges is required.
2. Rest and comfort may be necessary in the cases with a fever and severe illness. The child is allowed to enjoy normal activities as his condition improves. Fresh air and sunshine helps in the recovery.

3.4.12 Important principles to remember in paediatric nursing care:

1. The nurse should begin to build a working relationship with the parents and their children, from the time of first contact with them.

2. The nurse should be aware that all behaviours should be meaningful.
3. The nurse should accept parents and their children exactly as they are.
4. The nurse should have an empathy for parents and children. This implies an appreciation of how they feel inwardly, and how things are for them.
5. The nurse should let them know that their problems are important, and the nurse is there to aid in their solutions.
6. The nurse must be willing to acknowledge the parents' right to their own decisions concerning their children.
7. The nurse allows the parents and the children to express their emotions, even negative emotions.
8. The nurse should ask Questions limited to a single data
9. The nurse should ask questions limited to a single idea or reference.
10. The nurse should speak a language understandable to the parent and children.
11. The team members of health must help the parents to feel that there is unity among them.

Summary:

The knowledge of concept and principles of paediatric nursing and importance of growth and development and common diseases for children is essential for a practicing nurse.

Communicable disease and worm infestations are discussed. Nutrition for children plays an important role in paediatric nursing.

QUESTIONS:

I. Fill in the blanks:

1. DPT is _____ , _____ and _____.
2. Cold chain favourable temperature is _____ and ____.
3. At he age of six months the weight is ____ to _____ kg.
4. Anterior fontanal closes by _____ months and age.

5. Tuberculosis test is otherwise called _____.
6. Ascariasis is caused by _____.
7. Anclostomiasis is otherwise called _____.
8. Weaning is called _____.

II. Answer in brief:

1. Define pediatrics.
2. Define growth and development.
3. Define malnutrition.
4. Define fat-soluble vitamins.
5. Define water-soluble vitamins.
6. Explain breast- feeding.
7. Explain worm infestation.
8. Explain the immunisation schedule.
9. Write the principles dealing with paediatric children.

III. Answer in detail:

1. Explain in detail the present concept of childcare.
2. What is preventive pediatrics and what are the factors involved in it?
3. Discuss growth and development.
4. Explain the importance of breast-feeding.
5. Explain the immunisation schedule.
6. Define cleft lip and cleft palate and explain the management.
7. Explain the worm infestation and its management.
8. What are the safety measures to be adopted while bringing up a child?
9. What is tuberculosis and explain the management
10. Explain in detail the importance of peadatric nursing care.

THE NURSES PLEDGE

I solemnly pledge myself before God
and in the presence of this assembly
to pass my life in purity and to
practice my profession faithfully.
I will abstain from what ever is
deleterious and mischievous and
will not take or knowingly administer
any harmful drug. I will do all in my
power to maintain and elevate the
standard of my profession and will
hold the confidence in all personal
matters committed to my keeping
and all family affairs coming to my
knowledge in the practice of my calling.
With loyalty, I will endeavor to aid the
physician in his work and devote myself
to the welfare of those committed to my care.

The modified Hippocratic Oath arranged by Mrs. Lystra E. Gretter and her committee for the Farrand Training School for Nurses, Detroit is called the Florence Nightingale Pledge as a token of esteem for the **Founder of Modern Nursing.**

The pledge is taken by all the nurses who have completed the training program before entering to their practice.

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