



# BISHOP BENZIGER COLLEGE

# OF NURSING

*Accredited by NAAC,*

*Member of United Nations Academic Impact Program*

*Approved Research Centre of Kerala University of Health Sciences*



## 5.1.2 Swashraya Course Content

**Course Content**  
**for**  
**Community Health Diploma Programme**



## **INTRODUCTION:**

Community health promotion is of utmost importance for many reasons. Free medical care is available only to small minority of people through public medical services. The vast majority of people depend on private medical care which is unaffordable especially in the context of commercialization of sector. Hence health care expenses are one of the major causes of indebtedness among the lower income groups and therefore off stagnation in development. Radio Benziger has already gained experience in community health promotion activities in several areas. The resource and experience are available as Community Radio Benziger (CRB) is a hospital based radio. Hence proposes to start six month diploma programme in community health.

### **Objectives of the programme:**

General objectives:

The programme objective is to educate the participants regarding basic knowledge and skills of human caring necessary for promoting health care for the community.

Specific objective:

On the completion of the programme the participants will be able to

- Understand the different dimensions of health and illness
- Identify the environment for health promotion
- Understand environment health hazards
- Identify the nutritional needs of vulnerable group in the community
- Understand the concept of balanced diet
- Describe the basic health care parameters

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- Check vital signs of community people
- Demonstrate basic procedure like a nail care, hair care, bed bath etc....
- Become skilled in the first aid measures in various emergency
- Uphold the ethical value in health care delivery

## COURSE PLAN

Course title: Basics of personal health

Placement:

Time allotted: Broadcast hours-30

Practical hours-15


Course description- This course is designed to enable the students to acquire understanding of fundamentals of health and illness, basic personal health personal hygiene. It also provides opportunities for practicing hygienic measures in their home and community settings.

Course objectives:

At the end of course the students will be able to:

- describe the hygienic measures
- identify the environment for health promotion
- explain environmental health hazards
- identify the nutritional needs of vulnerable groups in the community
- educate about balanced diet to the community people
- describe the basic care
- check vital signs of community people
- Demonstrate basic procedures like nail care, hair care, bed bath etc.
- explain about the first aid measures in various emergencies
- uphold the ethical values in health care delivery

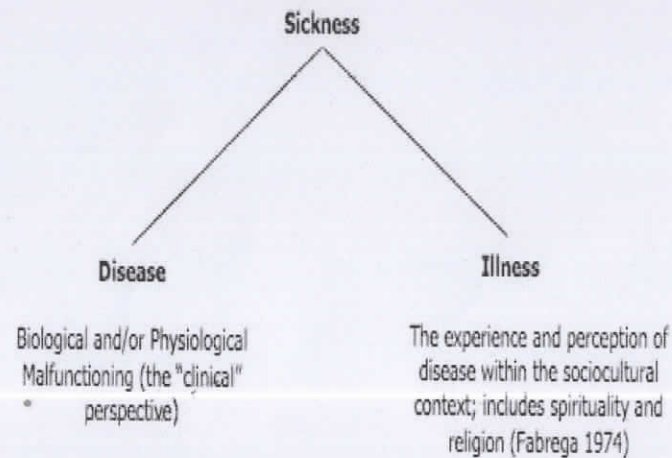


Unit No	Time	Learning objective	Content	Teaching-Learning activities	Teaching aids	Method of evaluation
1		Define the health and illness	<p style="text-align: center;"><b>HEALTH AND ILLNESS</b></p> <p><b>INTRODUCTION</b></p> <p>A perception of health or mental health is not only defined within the medical context, but it is also defined by the patient within a socio cultural context that includes family and social network as well as a wide selection of potential providers. For children and adults, three main categories may be considered: physical appearance, emotional disposition, and behavioural traits. For many adults, the functional component is a critical factor in defining health or illness--in the absence of symptoms, there is no disease. A world view of many cultural groups integrates physical, emotional, and spiritual well-being, and holds that all three are necessary for optimal health.</p> <div style="display: flex; align-items: flex-start;">  <div style="margin-left: 10px;"> <p><b>Definition: Health</b></p> <p>“State of complete physical, mental, and social well-being and not merely the absence of disease, or infirmity” (WHO 1946</p> </div> </div> <p><b>Definition: Illness</b></p> <p>Illness refers to the socio cultural context within which</p>	Lecture cum discussion	Radio broadcasting	Objective type

disease is experienced. The patient and his/her family label, classify, and explain the sickness episode in such a way that it can be personally and socially meaningful (Kleinman 1978).

**Definition: Sickness**

Sickness can also be regarded as a concept that combines the biomedical model (disease) with the socio cultural context of the patient (illness). Spirituality and religion can potentially play an important role in defining, understanding, and responding to disease within "illness." For the "disease" part of sickness, the personal beliefs of a health or mental health care provider must also be considered, as they impact patient-provider communication.





Unit 2		Describe the methods of maintaining personnel hygiene	<p style="text-align: center;"><b>PERSONAL HYGIENE</b></p> <p><b>INTRODUCTION</b></p> <p>The human body can provide places for disease-causing germs and parasites to grow and multiply. These places include the skin and in and around the openings to the body. It is less likely that germs and parasites will get inside the body if people have good personal hygiene habits.</p> <p><b>GOOD PERSONAL HYGIENE</b></p> <p>Good personal hygiene habits include:</p> <ul style="list-style-type: none"> <li>• Washing the body often. If possible, everybody should have a shower or a bath every day. However, there may be times when this is not possible, for example, when people are out camping or there is a shortage of water</li> <li>• If this happens, a swim or a wash all over the body with a wet sponge or cloth will do</li> <li>• Cleaning the teeth at least once a day. Brushing the teeth after each meal is the best way of making sure that gum disease and tooth decay are avoided. It is very important to clean teeth after breakfast and immediately before going to bed</li> <li>• washing the hair with soap or shampoo at least</li> </ul>	Lecture cum discussion	Radio broad casting	Short answers Essay type

			<p>once a week</p> <ul style="list-style-type: none"> <li>• washing hands with soap after going to the toilet</li> <li>• Washing hands with soap before preparing and/or eating food. During normal daily activities, such as working and playing, disease causing germs may get onto the hands and under the nails. If the germs are not washed off before preparing food or eating, they may get onto the food</li> <li>• Changing into clean clothes. Dirty clothes should be washed with laundry soap before wearing them again</li> <li>• Hanging clothes in the sun to dry. The sun's rays will kill some disease-causing germs and parasites</li> <li>• Turning away from other people and covering the nose and mouth with a tissue or the hand when coughing or sneezing. If this is not done, droplets of liquid containing germs from the nose and mouth will be spread in the air and other people can breathe them in, or the droplets can get onto food</li> </ul>			
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Washing the body helps keep it free of disease-causing germs



Cleaning teeth helps keep gums and teeth healthy.



Washing hands after going to the toilet helps stop the spread of germs.



Washing hands before preparing food helps keep germs out of our bodies.



Washing hands before eating food helps stop germs getting into our bodies



Washing clothes helps keep them free of disease-causing germs.



Hanging clothes in the sun helps to kill some disease-causing germs and parasites.





Covering the nose and mouth when sneezing helps stop the spread of germs.

#### OVERCROWDING

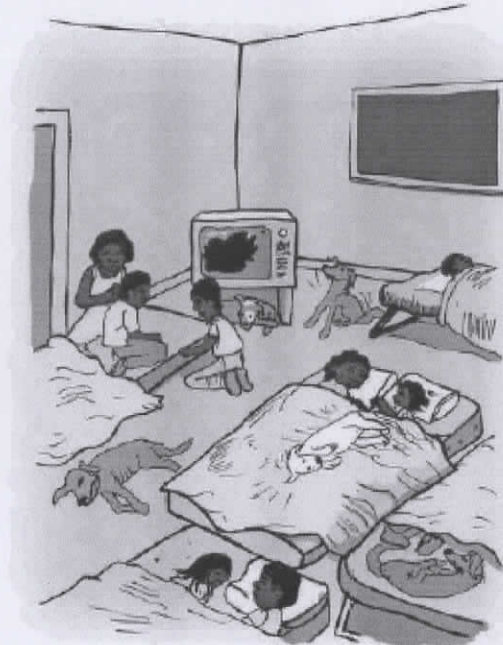
When there are too many people in any house, the likelihood of them getting disease is greater than if the house is not overcrowded. This is because people in an overcrowded house will be much closer to each other and it is therefore easier for any germs to spread from one to another. For example:

sneezing and coughing in crowded rooms makes it easier to spread cold and flu germs

sharing towels can spread trachoma germs and other



germs which cause eye infections (runny or sore eyes)  
several children sleeping in the same bed makes it  
easier to spread a scabies infection



Overcrowding helps spread germs and parasites such as scabies.

Each house is designed to allow a particular number of people to live there comfortably. This number will depend upon the number and size of the rooms, especially bedrooms, and the size of other facilities such as the sewage system and washing and cooking areas.

If the number of people living in the house is greater than the number it was designed for, these facilities will not be able to cope properly. For example, large

		<p>numbers of people using the toilet may mean that the septic tank will not be big enough to take and treat the additional load of sewage.</p> <p>For good health and comfort, the number of people who should live in a house depends upon the factors outlined below.</p> <p><b>The number and size of bedrooms</b> While most people who live permanently in a house will have a bedroom to them or share one with one or two other people, other rooms are often used as bedrooms. The number of people who should sleep in a room will depend upon the amount of air which is available to each person. The law requires that each adult person has at least 13 cubic metres of air and each child has at least 10 cubic metres of air in a sleeping area.</p> <p><b>The type and size of the sewage system</b> Usually, a household septic tank system with 2 round tanks caters for a maximum of ten people.</p> <p><b>The size and availability of other facilities</b> The facilities within the house may not be able to handle all of the demands placed on them by the occupants. For example, the hot water system may not be able to produce enough hot water, or the amount of food to be chilled is too great for the refrigerator to hold.</p> <p>In Indigenous communities, overcrowding in houses occurs for a number of reasons, such as: there not being enough houses for the number of people who live in the community</p>		
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			<p>families not being able to afford to pay rent on a house of their own and needing to live with relatives to share the cost</p> <p>people visiting relatives and staying for a long time</p> <p>visitors coming to stay so that they can attend special events such as funerals</p> <p>It is important that EHPs remember that overcrowding is a significant environmental health problem in many communities.</p>			
3		Describe the concept of Ill health	<p><b>Ill health</b></p> <p>A condition of inferior health in which some diseases or impairment of function is present but is usually not as serious in terms of curtailing activity as an illness . Elderly parents who are in ill health and need their financial and personal help</p> <p>E.g.; Work related ill health</p> <p>It is any health condition caused ,or made worse by our job.eg; back pain</p>	Lecture discussion	Radio broad casting	Objective type



## COURSE PLAN

Course title: First aid procedures

Time allotted: Broadcast hours—30

Practical hours-15

Course description:

This course is designed to enable the students to acquire skills in providing first aid

Course objectives:

- At the end of course the students will be able to
- Perform first aid measures for various situation
- Minimizing the risk of injuries

Unit no	Time	Learning objectives	Contents	Teaching-learning activities	Av aids	Method of evaluation
1			<p style="text-align: center;">FIRST AID</p> <p><b>Introduction</b>  First aid is the assistance given to any person suffering a sudden illness or injury, with care provided to preserve life, prevent the condition from worsening, and/or promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available, such as performing CPR while awaiting an ambulance, as well as the complete treatment of minor conditions, such as applying a plaster to a cut</p> <p><b>A. Treating a Bruise at Home</b></p> <p><b>1. Reduce Bruising and Swelling</b></p> <ul style="list-style-type: none"> <li>• Ice the area on and off for the first 24-48 hours.</li> <li>• Apply ice for about 15 minutes at a time, and always put something like a towel or wash cloth between the ice and your skin.</li> <li>• Rest the affected area.</li> <li>• If possible, elevate the affected area.</li> </ul> <p><b>2. Treat Symptoms</b></p> <ul style="list-style-type: none"> <li>• For pain, take acetaminophen (Tylenol),</li> </ul>	Lecture cum discussion	Radio broadcasting	Short answer type Essay

or ibuprofen (Advil, Motrin),  
or naproxen (Alleve).

### **3. When to Call a Doctor**

- If bruise is accompanied by extreme pain, swelling or redness
- If the person is taking a blood-thinning medication
- If bruises appear on skin for no apparent reason
- The bruise is on the face or head
- You can't move a joint
- You may have a broken bone

### **4. Follow Up**

- Two days after a bruise develops, apply a heat pack or wash cloth soaked in warm water to the area several times a day to promote healing.
- Pain and tenderness should get better within a few days and the bruise should go away within a couple of weeks

## **B. CUTS AND LACERATIONS**

### **1. Stop the Bleeding**

- Apply direct pressure on the area.

			<p><b>2. Clean and Protect</b></p> <ul style="list-style-type: none"><li>• Clean the area with warm water and gentle soap.</li><li>• Apply an antibiotic ointment to reduce chance of infection.</li><li>• Put a sterile bandage on the area. In some people, antibiotic ointments may cause a rash. If this happens, stop using the ointment.</li></ul> <p><b>3. Call a Health Care Provider</b></p> <ul style="list-style-type: none"><li>• Call a health care provider if:</li><li>• The cut is deep or over a joint</li></ul> <p>You cannot get the cut or laceration clean</p> <ul style="list-style-type: none"><li>• The injury is a deep puncture wound or the person has not had a recent (within the last 5 to 10 years) tetanus shot or booster</li></ul> <p><b>. Follow Up</b></p> <ul style="list-style-type: none"><li>• For a minor cut or laceration, remove bandage after a couple of days to promote healing.</li><li>• See a health care provider if the cut doesn't heal or shows signs of infection, including redness, swelling, pus, or excessive pain.</li></ul>			
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## **C. FOOD POISONING**

### **1. Control Nausea and Vomiting**

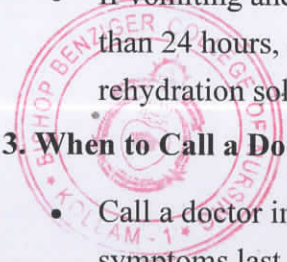
- Avoid solid foods until vomiting ends. Then eat light, bland foods, such as saltine crackers, bananas, rice, or bread.
- Sipping liquids may help avoid vomiting.
- Don't eat fried, greasy, spicy, or sweet foods.
- Don't take anti-nausea or anti-diarrhoea medication without asking your doctor. They may make some kinds of diarrhoea worse. Your doctor may give you anti-nausea medication if you are at risk of being dehydrated.

### **2. Prevent Dehydration**

- Drink clear fluids, starting with small sips and gradually drinking more.
- If vomiting and diarrhoea last more than 24 hours, drink an oral rehydration solution.

### **3. When to Call a Doctor**

- Call a doctor immediately if symptoms last more than 3 days and





include:

- Severe belly pain
- Fever
- Bloody diarrhoea or dark stools
- Vomiting that is prolonged or bloody
- Signs of dehydration, such as dry mouth, decreased urination, dizziness, fatigue, or increased heart rate or breathing rate

#### **D. NOSE BLEED**

##### **1. Stop the Bleeding**

- Have the person sit up straight and lean forward slightly. Don't have the person lie down or tilt the head backward.
- With thumb and index finger, firmly pinch the nose just below the bone up against the face.
- Apply pressure for 5 minutes. Time yourself with a clock.
- If bleeding continues after 5 minutes, repeat the process.

##### **2. Call a Health Care Provider**

- See a health care provider immediately if:

		<ul style="list-style-type: none"><li>• Nosebleed doesn't stop after 10 minutes of home treatment.</li><li>• There is so much bleeding that it is hard to breathe.</li><li>• Nosebleed happens after a severe head injury or a blow to the face.</li></ul> <p><b>3. Medical Treatment</b></p> <ul style="list-style-type: none"><li>• The health care provider may use specialized cotton material, insert a balloon in the nose, or use a special electrical tool to cauterize the blood vessels.</li></ul> <p><b>4. Follow Up</b></p> <ul style="list-style-type: none"><li>• Broken noses often are not fixed immediately. The health care provider will refer the person to a specialist for a consultation once the swelling goes down.</li><li>• The person should avoid strenuous activity; bending over; and blowing, rubbing, or picking the nose until it heals.</li><li>• The nostrils should be kept moist with a water-based lubricant or by increasing the humidity in the home.</li></ul>			
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## **E. DROWNING**

Drowning is the leading cause of injury-related death among children ages 1 to 4 -- and the second-leading cause of death in children 14 and under. Young kids are especially at risk because they're curious, fast, and attracted to water but are not yet able to understand how dangerous it is. The good news is that a few safety precautions can prevent most drowning. If your child is the victim of a near-drowning, this fast-action rescue plan can prevent a tragedy.

### **Emergency**

1. Take the Child Out of the Water
2. Get Help, if You Are Not Alone

Starting CPR immediately is the most important thing you can do to prevent a child from dying.

If you are alone, follow the steps below before stopping to call 911.

If you are not alone, while you start the steps below, ask someone to call 911 and to notify a lifeguard, if one is close.

3. Check for Breathing and Responsiveness

See whether the child is breathing. Place your ear near the child's mouth and nose. Do you feel air on your cheek? Is the child's chest moving? (Gaspings is not breathing.) While checking for breathing, you can also call the child's name to see if the child responds.

4. If the Child Is Not Breathing, Start Rescue Breathing

- You do not need to remove water from the child's throat to start CPR.
- Carefully place the child on his or her back on a firm surface.
- If you suspect a neck or head injury, roll the child over by moving the entire body (head, neck, spine, and hips) together, keeping them all aligned.
- Tilt the child's head back and lift the chin. If you suspect a neck injury, do not tilt the head, just open the jaw. For a baby, be careful not to tilt the head back too far.
- With an infant, place your mouth over the baby's nose and mouth to form a tight seal.
- With an older child, pinch the nose closed and put your mouth over the

		<p>child's mouth, forming a tight seal.</p> <ul style="list-style-type: none"><li>• Blow into the child's mouth for 1 second. The child's chest should rise when you do this.</li><li>• Repeat the breath a second time.</li></ul> <p>5. Begin Chest Compressions</p> <p>All ages:</p> <p>Continue the cycle of five chest compressions followed by a breath for one minute, then check for a pulse. Repeat cycle until you find a pulse or help arrives and takes over.</p> <p><b>F. BURNS</b></p> <p>Contact with any source of heat can cause a burn or scald injury. A burn can result from contact with a heat source such as hot metal or electricity, hot liquid or steam. Clothing over the area may retain the heat and cause further injury.</p> <p><b>Symptoms and signs – Not all may be present</b></p> <ul style="list-style-type: none"><li>• severe pain</li><li>• red, peeling or blistered skin (or blackened if caused by electricity)</li><li>• watery fluid weeping from the injured area</li><li>• the patient may be pale, cold and sweaty, feeling faint and dizzy, and complaining of nausea or vomiting</li><li>• swelling of the injured area may</li></ul>		
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appear later

**How you can help**

1. Remove the heat source from the patient, or the patient from the heat source, whichever is easiest and safest.

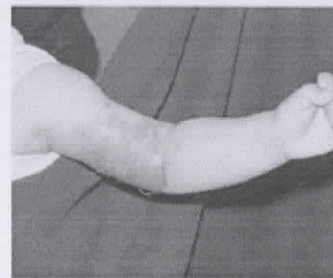


Cool the injured area

**2. Cool the injured area**

Immediately cool the affected area for up to 20 minutes using cool running water from a tap or shower. In the absence of water any cool clean fluid (beer, soft drink, etc.) can be used.

A first aid burn gel may be used in place of water, provided there is enough to cover the



		<p>burn.</p> <p>If any clothing is wet with hot liquid or affected by a chemical splash, remove it quickly and carefully.</p> <p>Remove any tight clothing, watches, rings or jewellery from the injured area, if possible, because of the risk of swelling.</p> <p><b>If the patient is badly injured, or the burn is causing significant pain, or involves the eyes, or is larger than half the patient's arm – call for an ambulance.</b></p> <p><b>See a doctor if the burn is causing ongoing significant pain, or involves the face, hands, joints or genitals.</b></p> <p><b>3. Position patient</b></p> <p>If the patient is feeling faint lay them down.</p> <p>The injured part (depending on the location of the burn) can be placed in a bowl or bucket of cold water if this is easier than pouring water over the burn.</p>			
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Position patient

**4. Apply a sterile dressing**

After cooling the injured area for up to 20 minutes, apply a sterile dressing. Use a non-adherent dressing or a piece of clean plastic kitchen wrap.





Apply a sterile dressing

- Do not break blisters or remove peeled skin.
- Do not try to remove any fabric that is stuck to a burn.
- Do not apply creams, ointments, lotions or butter to any burn injury because infection may occur and complicate the injury.
- Do not place small children or babies in a cold bath or shower for a full 20 minutes, as this can cause hypothermia.

Remember that any substance applied to a burn injury may have to be removed later in hospital and may also delay the healing process.

Avoid using adhesive tape on the skin around the burn because this may cause further tissue damage.

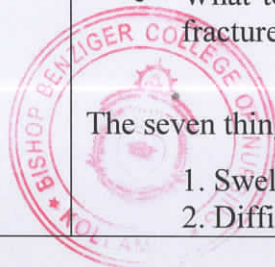
The rule is to STOP, DROP and ROLL the patient before checking for burns and cooling the injury.

### **F. BROKEN BONES AND FRACTURES**

- A break or crack in a bone is called a fracture.
- In most cases the damage to the bone will be under the skin, which is called a closed fracture, but sometimes bits of the bone can puncture through the skin to become an open fracture.
- In both cases you'll need to treat the casualty for shock. Even if you can't see any blood, the break might have caused some internal bleeding.
- To break a fully grown bone, a huge amount of force is needed. But bones that are still growing are supple and can split, crack or bend quite easily, a bit like a twig.
- What to look for - Broken bones and fractures

The seven things to look for are:

1. Swelling
2. Difficulty moving



3. Movement in an unnatural direction
4. A limb that looks shorter, twisted or bent
5. A grating noise or feeling
6. Loss of strength
7. Shock

What you need to do –

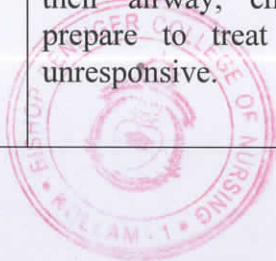
- If it is an open fracture, cover the wound with a sterile dressing and secure it with a bandage. Apply pressure around the wound to control any bleeding.
- Support the injured body part to stop it from moving. This should ease any pain and prevent any further damage.

**Waiting for medical help to arrive**

Protect the injured area by using bandages to secure it to an uninjured part of the body to stop it from moving. For example, fractures on the arm can be secured with a sling, and a leg with a fracture can be tied to the uninjured leg.

Keep checking the casualty for signs of shock. This does not mean emotional shock, but is a life-threatening condition, often caused by losing blood.

If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.



## Course plan

Course title: Basic patient care

Time allotted: Broad cast hours-30

Practical hours-15

Course description:

The course is designed to assist the student in developing a skills improving basic patient

Course objectives:

At the end of the course students will be able to:

Calculate normal BMI

Identify the abnormalities

Describe basic patient care

Measure vital signs

Course content:

Unit no	Time	Learning objective	Content	Teaching-Learning activities	Av aids	Method of evaluation																																							
1		Describe the Vital signs and methods of measure the blood pressure	<p style="text-align: center;"><b>BASIC CARE</b></p> <p><b>Vital signs</b> Vital signs (often shortened to just vitals) are a group of the 4 to 6 most important signs that indicate the status of the body's vital (life-sustaining) functions. These measurements are taken to help assess the general physical health of a person, give clues to possible diseases, and show progress toward recovery. The normal ranges for a person's vital signs vary with age, weight, gender, and overall health. There are four primary vital signs: body temperature, blood pressure, pulse (heart rate), and breathing rate (respiratory rate), often notated as BT, BP, HR, and RR.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Age</th> <th colspan="2">Normal heart rate (beats per minute)</th> <th colspan="2">Normal respiratory rate (breaths per minute)</th> </tr> <tr> <th>Range[28]</th> <th>Typical example</th> <th>Range[29]</th> <th>Typical example</th> </tr> </thead> <tbody> <tr> <td>Newborn</td> <td>100–160[30]</td> <td>130</td> <td>30–50</td> <td>40</td> </tr> <tr> <td>0–5 months</td> <td>90–150</td> <td>120</td> <td>25–40</td> <td>30</td> </tr> <tr> <td>6–12 months</td> <td>80–140</td> <td>110</td> <td>20–30</td> <td>25</td> </tr> <tr> <td>1–3 years</td> <td>80–130</td> <td>105</td> <td>20–30</td> <td>25</td> </tr> <tr> <td>3–5 years</td> <td>80–120</td> <td>100</td> <td>20–30</td> <td>25</td> </tr> <tr> <td>6–10 years</td> <td>70–110</td> <td>90</td> <td>15–30</td> <td>20</td> </tr> </tbody> </table>	Age	Normal heart rate (beats per minute)		Normal respiratory rate (breaths per minute)		Range[28]	Typical example	Range[29]	Typical example	Newborn	100–160[30]	130	30–50	40	0–5 months	90–150	120	25–40	30	6–12 months	80–140	110	20–30	25	1–3 years	80–130	105	20–30	25	3–5 years	80–120	100	20–30	25	6–10 years	70–110	90	15–30	20	Lecture cum discussion, Demonstration	Radio broad casting	Essay type Return demonstration
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11-14 years	60-105	80	12-20	16
15-20 years	60-100	80	12-30	20

**Blood pressure measurement**

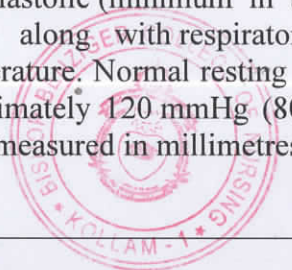
**INTRODUCTION**

In daily life blood pressure changes from instant to instant and is influenced by many physiological and environmental factors. To obtain reproducible results, it is important to control these factors as much as possible and otherwise document them in the blood pressure data recording forms. The items that need to be recorded before beginning the measurement are: time of the day, room temperature, arm circumference and cuff width used. Also, if deviations from the measurement protocol are unavoidable, e.g. a person has lost his/her right arm and the measurement had to be taken from the left arm or if a person for some reason is not able to sit and measurement had to be taken in recumbent position, they have to be documented together with the blood pressure data.

**Definition**

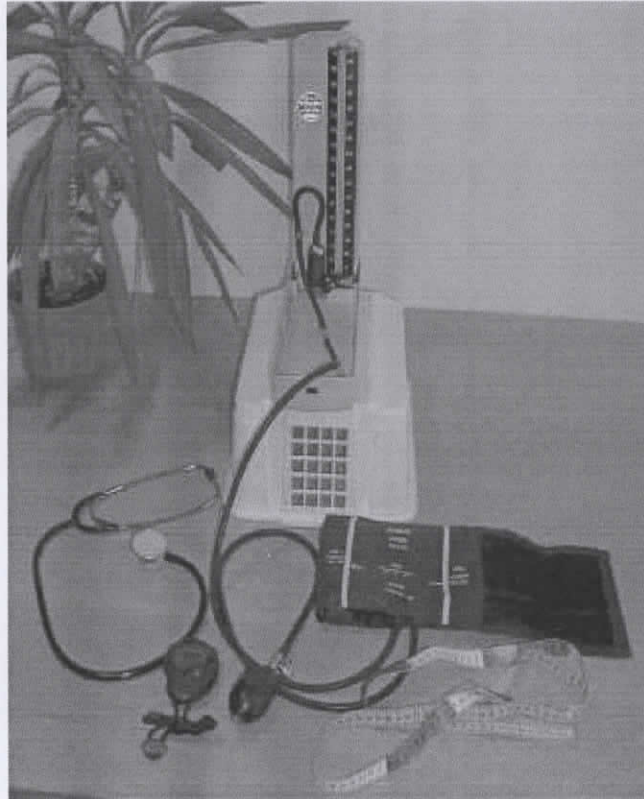
**Blood pressure (BP)** is the pressure of circulating blood on the walls of blood vessels. When used without further specification, "blood pressure" usually refers to the arterial pressure in the systemic circulation. Blood pressure is usually expressed in terms of the systolic (maximum during one heart beat) pressure over diastolic (minimum in between two heart beats). It is one of the vital signs, along with respiratory rate, heart rate, oxygen saturation, and body temperature. Normal resting systolic (diastolic) blood pressure in an adult is approximately 120 mmHg (80 mmHg), abbreviated "120/80 mmHg" pressure and is measured in millimetres of mercury (mmHg)

**Equipment**



blood pressure measurements the following equipment is required

- simple mercury sphygmomanometer,
- stethoscope,
- cuffs,
- Non-elastic measuring tape.



Blood pressure measurement equipment

The simple mercury sphygmomanometer is recommended because there are no reliable automated devices on the market. This may change when the accuracy of future automated devices is found to be sufficient in validation against the simple mercury sphygmomanometer.

The bell of the stethoscope should be used because it gives clearer sounds than the diaphragm.

A set of 3-4 cuffs with different size should be available and special attention should be paid to the use of proper cuff width in relation to the size of the arm.

A measuring tape is used to measure arm circumference before selecting the proper cuff width.

### **Measurement procedures**

#### **Preparation for measurement**

Before the blood pressure measurement begins the following conditions should be met:

1. Subjects should abstain from eating, drinking (anything else than water), smoking and taking drugs that affect the blood pressure one hour before measurement.
2. Because a full bladder affects the blood pressure it should have been emptied.
3. Painful procedures and exercise should not have occurred within one hour.
4. Subject should have been sitting quietly for about 5 minutes.
5. Subject should have removed outer garments and all other tight clothes. The sleeve of shirts, blouses, etc. should have been rolled up so that the upper right arm is bare. The remaining garments should not be constrictive and the blood pressure cuff should not be placed over the garment.
6. Blood pressure should be measured in a quiet room with comfortable temperature. The room temperature should have been recorded.
7. The time of day should have been recorded.
8. The blood pressure measurer should be identified on the blood pressure data recording form.

#### **Position of the subject**

Measurements should be taken in sitting position so that the arm and back are supported. Subject's feet should be resting firmly on the floor, not dangling. If

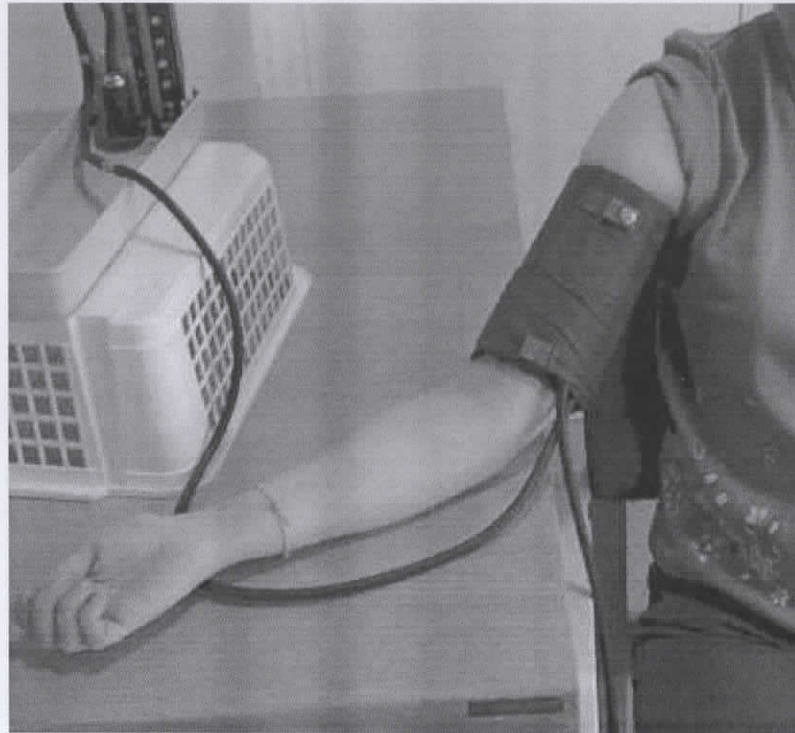


the subject's feet do not reach the floor, a platform should be used to support them.

**Position of the arm**

The measurement should be made on the right arm whenever possible.

The subject's arm should be resting on the desk so that the antecubital fossa (a triangular cavity of the elbow joint that contains a tendon of the biceps, the median nerve, and the brachial artery) is at the level of the heart and



Position of the arm and placement of the cuff

palm is facing up. To achieve this position, either the chair should be adjusted or the arm on the desk should be raised, e.g. by using a pillow. The subject must always feel comfortable.

**Selection of the cuff**

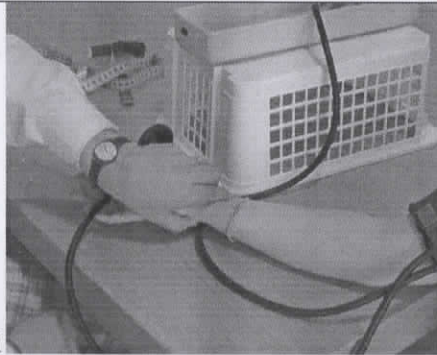
Select the correct cuff for the arm circumference and record the size of the selected cuff in the blood pressure recording data form. The instructions for deriving rules to select the proper cuff size for each arm circumference are given in The cuff should be placed on the right arm so that its bottom edge is 2-3 cm above the antecubital fossa, allowing sufficient room for the bell of the stethoscope. The top edge of the cuff should not be restricted by clothing.

**Number of measurements**

Three measurements should be taken one minute apart. If three measurements are not feasible, two will suffice with a certain loss in data stability.

**Procedure of the pulse rate and blood pressure measurement**

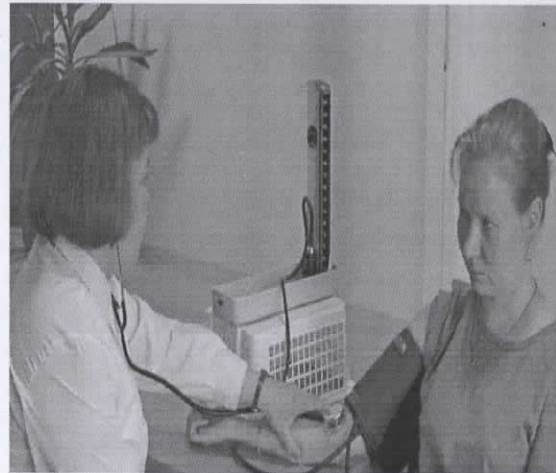
1. The radial pulse is palpated and the pulse rate is counted for 30 seconds, measured by a digital wrist watch or one



with second hand

#### Measurement of the pulse rate

2. Record 30-second pulse count and whether pulse was regular.
3. The manometer should be placed so that the scale is at eye level and the column perfectly vertical. The subject should not be able to see the column of the manometer.



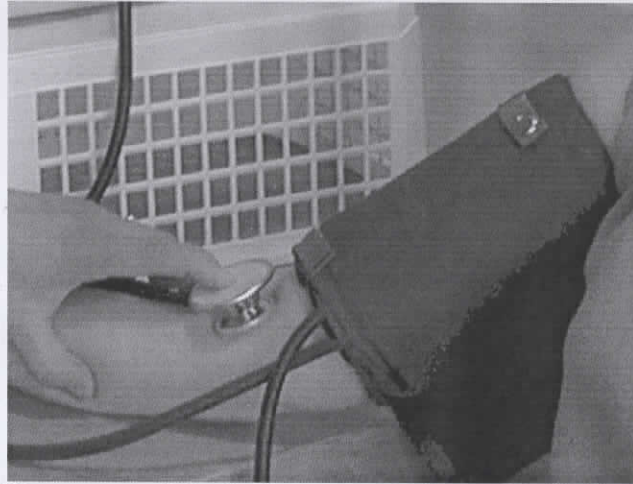
#### Placement of the manometer

4. Determining the peak inflation level:
  - i. The mercury column has to be at 0 levels.
  - ii. The subject's radial pulse is again palpated.
  - iii. The cuff is inflated and the level of the top of the meniscus of the mercury column is noted at the point when the radial pulse disappears. The cuff is immediately deflated by completely

opening the valve.

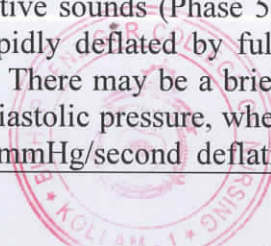
iv. The peak inflation level is determined by adding 30 mm to the pressure where the radial pulse disappeared.

5. Venous blood pool in the forearm is normalized by waiting at least 30 seconds or by raising the arm for 5-6 seconds.
6. The brachial pulse is located and the bell of the stethoscope is placed immediately below the cuff at the point of maximal pulsation. If it is not possible to feel the brachial pulse, the bell of the stethoscope should be placed over the area of the upper arm immediately inside the biceps muscle tendon. The bell should not touch the cuff, rubber or clothing.



Placement of the bell

7. The cuff is rapidly inflated to the peak inflation level and then deflated at a rate of 2 mmHg per second.
8. The pressure should be reduced steadily at this rate until the occurrence of the systolic level at the first appearance of a clear, repetitive tapping sound (Korotkoff Phase 1) and diastolic level at disappearance of repetitive sounds (Phase 5) have been observed. Then the cuff should be rapidly deflated by fully opening the valve of the inflation bulb. Note: There may be a brief period (auscultatory gap) between systolic and diastolic pressure, when no Korotkoff sounds are heard. Therefore, the 2mmHg/second deflation should be continued until the diastolic



blood pressure is definitely established. If Korotkoff sounds persist until the cuff is completely deflated, a diastolic blood pressure of 0 should be recorded.

9. The measurements should be recorded to the nearest 2 mmHg. If the top of the meniscus falls half way between two markings, the marking immediately above is chosen. The subject is not told the blood pressure values at this point.
10. After one minute of wait to allow redistribution of blood in the forearm a second measurement is made by repeating steps 7 to 9. The subject should not change position during the wait.
11. After another one minute a third measurement is made by repeating steps 7 to 9.
12. The subject may now be told the measurement values.

Classification of blood pressure for adult

Category	<u>systolic, mmHg</u>	<u>diastolic, mmHg</u>
<u>Hypotension</u>	< 90	< 60
Desired	90–119	60–79
<u>Prehypertension</u>	120–139	80–89
Stage 1 <u>hypertension</u>	140–159	90–99
Stage 2 hypertension	160–179	100–109
<u>Hypertensive urgency</u>	≥ 180	≥ 110

<u>Isolated systolic hypertension</u> $\geq 160$	$< 90$
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Reference ranges for blood pressure in children

Stage	Approximate age	Systolic	Diastolic
Infants	1 to 12 months	75–100	50–70
Toddlers and preschoolers	1 to 5 years	80–110	50–80
School age	6 to 12 years	85–120	50–80
Adolescents	13 to 18 years	95–140	60–90

2

Describe techniques of Anthropometric measurements

**Anthropometric measurements**

**Equipment**

For anthropometric measurements (weight, height, waist and hip circumference) the following equipment is needed:

- balanced beam scale;
- portable/wall mounted stadiometer with movable head piece, or measuring rod, typically mounted on balanced beam scales;
- flexible, but non-stretchable measuring tape or insertion tape;
- full body-length mirror with 10cm  $\square$  10 cm grid lines;
- carpenter's level;
- several calibrated weights (e.g. 10 kg or 20 kg each) that can be

Lecture - discussion demonstration

Radio broadcasting

short answers  
Return demonstration

- combined to give test weights between 50 kg and 100 kg;
- Calibrated length rods of 150 cm and 200 cm.

**Measurement procedures**

**Weight measurement**

Weight should be measured in all participants, except pregnant women, wheelchair bound individuals, or persons who have difficulty standing steady.

**Setting up scale at the examination site**

The scale should be placed on a hard-floor surface (not on a floor which is carpeted or otherwise covered with soft material). If there is no such floor available, a hard wooden platform should be placed under the scale. A carpenter's level should be used to verify that the surface on which the scale is placed is horizontal.

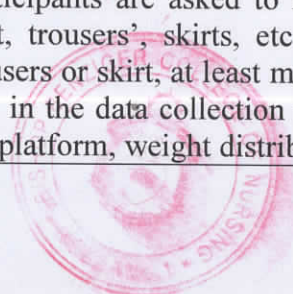
**Calibration of scale**

Calibration should occur at the beginning and end of each examining day.

The scale is balanced with both sliding weights at zero and the balance bar aligned. The scale is checked using the standardized weights and calibration is corrected if the error is greater than 0.2 kg. The results of the checking and the recalibrations are recorded in a log book.

**Normal weighing procedure**

1. Participants are asked to remove their heavy outer garments (jacket, coat, trousers, skirts, etc.) and shoes. If subjects refuse to remove trousers or skirt, at least make them empty their pockets and record the fact in the data collection form. The participant stands in the centre of the platform, weight distributed evenly to both feet. Standing off-centre





may affect measurement.

. Posture of the subject during the weight measurement

2. The weights are moved until the beam balances (the arrows are





aligned).

Moving the weights to balance the beam

3. The weight is recorded to the resolution of the scale (the nearest 0.1 kg or 0.2 kg).

#### **Weighing procedure for heavily overweight persons**

If the participant is heavily overweight, i.e. weighs more than the upper limit of the scale, this fact should be noted in the data collection form, together with the upper limit of the scale **Self-reported weight**

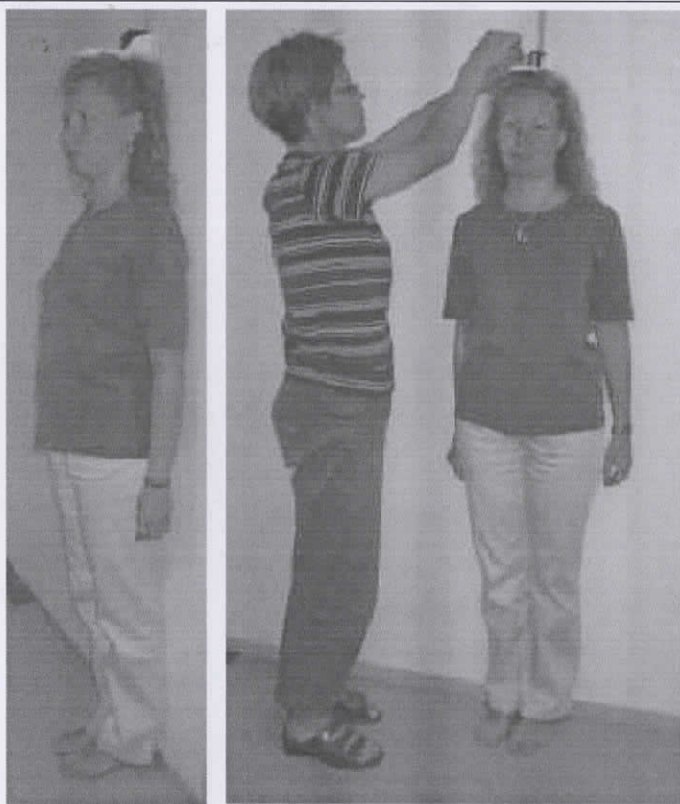
Self-reported weights are not acceptable, even if the participant is immobile or refuses to be weighed.

#### **Height measurement**

Height should be measured in all participants, except wheelchair bound individuals, persons who have difficulty standing steady or straight, and participants with hairstyle (e.g. Afro or Mowhawk) or head dress (e.g. turban) that prevents proper use of the height measuring equipment.

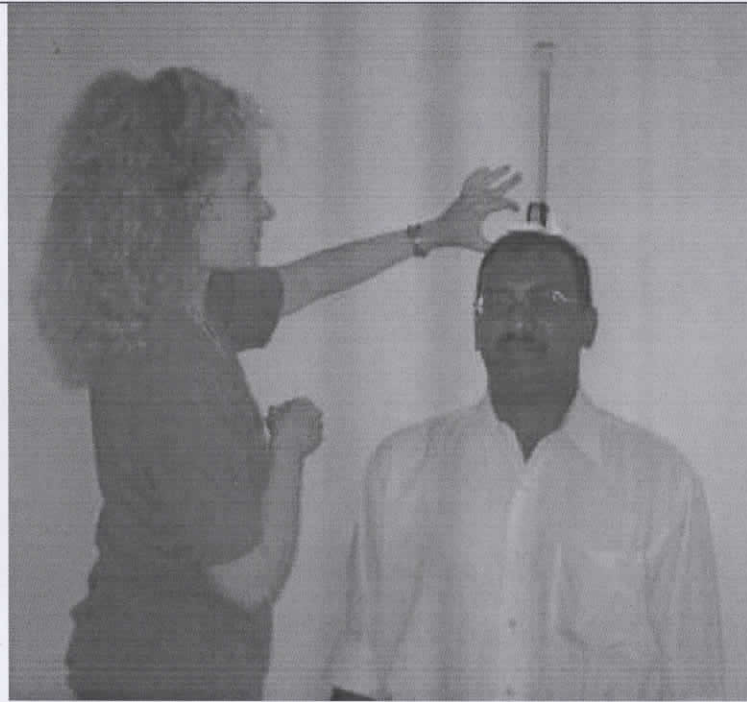
#### **Setting up stadiometer at the examination site**

		<p>If the height is measured with the measuring rod attached to the balanced beam scale no further set-up procedures are required, if the scale has been placed properly for weighing. However, it should be verified that the upper part of the measuring rod is straight and vertical (i.e. not bend or curved).</p> <p>If the height is measured by stadiometer, the height rule is taped vertically to the hard flat wall surface with the base at floor level. The wall may not have a baseboard moulding. A carpenter's level is used to check the vertical placement of the rule.</p> <p>The floor surface next to the height rule must be hard. If no such floor is available, a hard wooden platform should be placed under the base of the height rule. Using the carpenter's level, the surface on which the height rule rests should be checked to be horizontal.</p> <p><b>Calibration of height rule</b></p> <p>At the beginning and end of each examination day, the height rule should be checked with standardized rods and corrected if the error is greater than 2 mm. The results of the checking and recalibrations are recorded in the log book.</p> <p><b>Normal height measurement procedure</b></p> <ol style="list-style-type: none"><li>1. Participants are asked to remove their shoes, heavy outer garments, and hair ornaments.</li><li>2. The participant is asked to stand with his/her back to the height rule. The back of the head, back, buttocks, calves and heels should be touching the upright, feet together. The top of the external auditory meatus (ear canal) should be level with the inferior margin of the bony orbit (cheek bone). The participant is asked to look straight.</li></ol>			
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Position of the subject during the height measurement

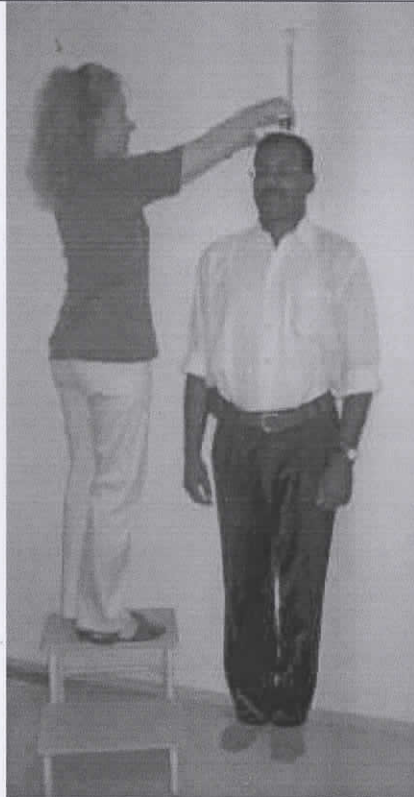
3. The head piece of the stadiometer or the sliding part of the measuring rod is lowered so that the hair (if present) is pressed flat.



Lowering of head piece of measuring tape

4. Height is recorded to the resolution of the height rule (i.e. nearest millimetre/half a centimetre). If the participant is taller than the measurer, the measurer should stand on a platform so that he/she can properly read the height rule.





Use of platform when measuring tall person

5. If a participant is excluded from height measurement, the reason should be recorded in the data collection form

**Height measurement procedure for very tall persons**

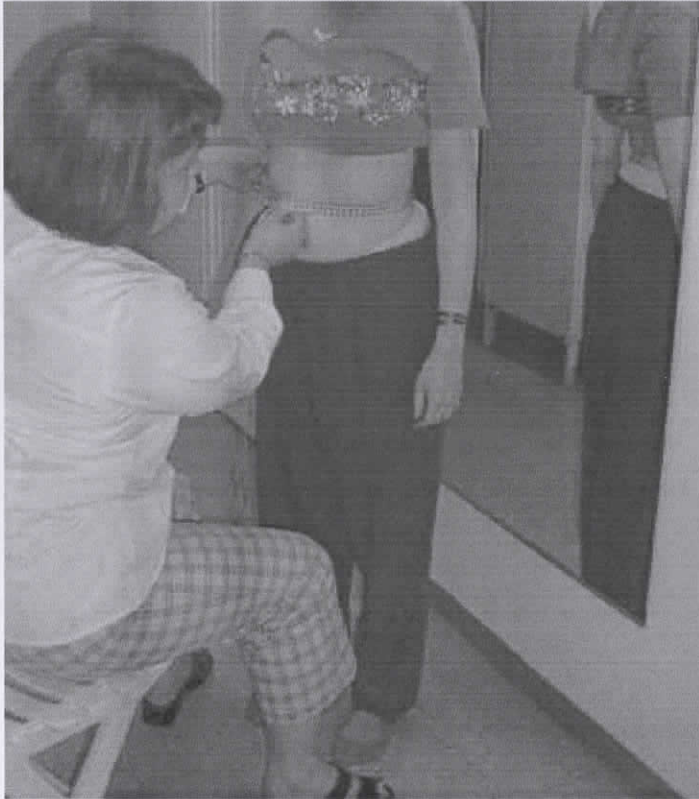
If the participant is taller than the scale of the height rule, no height measurement should be made and this fact, together with the upper limit of the height rule, should be recorded in the data collection form

**Self-reported height\***

Self-reported height is not acceptable, even if the participant is immobile or refuses to have his/her height measured.

		<p><b>Waist circumference measurement</b></p> <p><b>Setting up the place for the waist circumference measurement</b></p> <p>The full body length mirror is placed against the wall or if the mirror stands on its own feet next to the measurement place. Using the carpenter level, it should be verified that grid lines on the mirror are horizontal.</p> <p><b>Checking of tape</b></p> <p>The length of the measuring tape is checked with the calibrated length rod (usually the 150 cm one) at least once per month. If the measuring tape is stretched it should be replaced.</p> <p><b>Position of waist circumference measurement</b></p>			
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Waist circumference should be measured at a level midway between the lower rib margin and iliac crest with the tape all around the body in horizontal position.



Position of waist circumference measurement

#### **Waist circumference measurement procedure**

1. Participants are asked to remove their clothes, except for light underwear. If this is not possible, for example due to cultural reasons, the alternative is to measure the circumference on the subject without heavy outer garments and record this fact in the data collection form. Tight clothing, including the belt, should be loosened and the pockets emptied.
2. The measurer should stand at the side of the participant in order to have a clear view of the mirror.
3. Participants should be standing with their feet fairly close together

(about 12-15 cm) with their weight equally distributed to each leg. Participants are asked to breathe normally; the reading of the measurement should be taken at the end of gentle exhaling. This will prevent subjects from contracting their abdominal muscles or from holding their breath.

4. The measuring tape is held firmly, ensuring its horizontal position. Use the grid lines on the mirror to verify that the tape position is horizontal all around the waist. The tape should be loose enough to allow the observer to place one finger between the tape and the subject's body.



The position of measuring tape and placement of one finger between the tape and the subject's body





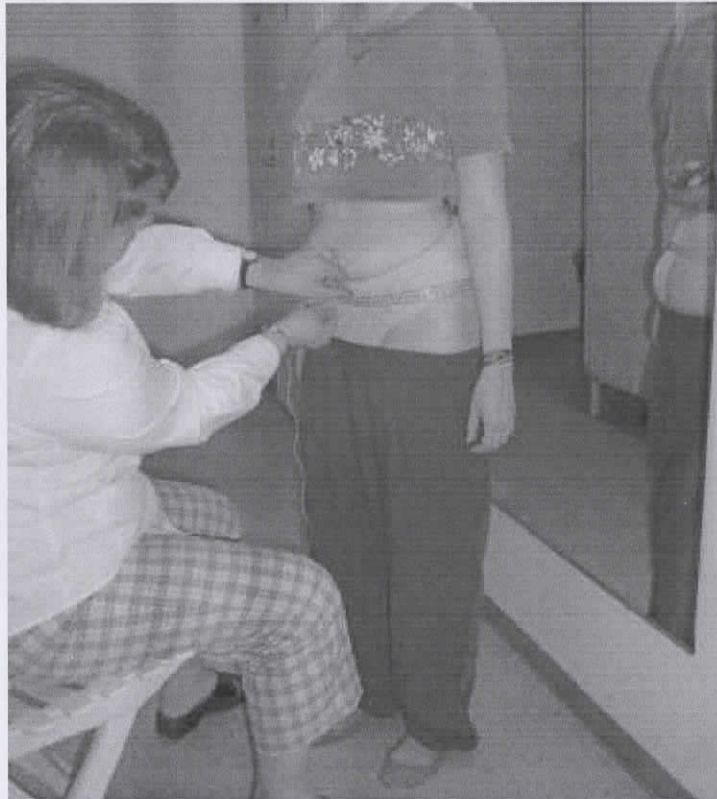
		<p>5. Measurements are recorded to the resolution of the tape (nearest millimetre/half centimetre).</p> <p><b>Self-reported waist circumference</b></p> <p>If the participant is immobile or refuses to have his/her waist circumference measured, this fact should be recorded in the data collection form. Self-reported waist circumference is not acceptable as a substitute.</p> <p><b>Waist circumference exceeds the length of the tape</b></p> <p>If the waist circumference exceeds the length of the tape, this fact should be recorded in the data collection form together with the maximum length of the tape</p> <p><b>Hip circumference measurement</b></p> <p><b>Position of hip circumference measurement</b></p>		
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*[Handwritten signature in green ink]*

Dr. ANOOPA. K.R. Ph.D (N)  
 PRINCIPAL  
 BISHOP BENZIGER COLLEGE OF NURSING  
 KOLLAM - 1, KERALA

Hip circumference should be measured as the maximal circumference over the buttocks. The grid lines on the mirror are used to verify that the tape position is horizontal all around the body.



Position of hip circumference measurement

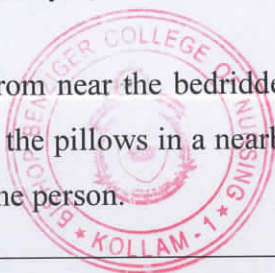
#### **Hip circumference measurement procedure**

Same as for waist circumference, except for tape position.

#### **Self-reported hip circumference**

If the participant is immobile or refuses to have his/her hip circumference measured, this fact should be recorded in the data collection form. His/her self-reported hip circumference is not acceptable as a substitute.

			<p><b>Hip circumference exceeds the length of the tape</b></p> <p>If the hip circumference exceeds the length of the tape, this fact together with the maximum length of the tape should be recorded in the data collection form.</p>			
3	Explain the procedures of shampooing hair	<p><b>Shampoo a Bedridden Person's Hair</b></p> <p>More people are caring for elderly family members at home. Even if they are bedridden, they still need basic care. You can help them feel better and more relaxed by shampooing their hair.</p> <p><b>ARTICLES</b></p> <ul style="list-style-type: none"> <li>• Waterproof mat or sheet</li> <li>• Cotton blanket</li> <li>• Trough or trash bag and towel to make one</li> <li>• Catch basin</li> <li>• Pitcher or plastic cup</li> <li>• Shampoo</li> <li>• Hair conditioner</li> <li>• Washcloth</li> </ul> <p><b>Preparing to Shampoo</b></p> <ul style="list-style-type: none"> <li>• Arrange supplies nearby..</li> <li>• Remove bedding from near the bedridden person. Get the person in a flat position. Stack the pillows in a nearby chair. Fold the blankets and sheets away from the person.</li> </ul>	Lecture cum discussion Demonstration	Radio broadcasting	Return demonstration	



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|  |  | <ul style="list-style-type: none"><li>• Place a waterproof mat under the person. Make sure the waterproof mat or sheet is beneath his head and shoulder before begin shampooing.</li><li>• Cover the person with a cotton blanket tucked under his chin.</li><li>• Set a trough under the person's head and connect it to the catch basin beside the bed. Or else roll a towel up and fold it into a "U" shape and insert it into a trash bag. Place the bag and towel under his head, so a leg of the U is under his head and the curve of it prevents the water from running onto the bed. The edge of the trash bag should drip into the catch basin.</li></ul> |  |  |  |
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**Shampooing the Person**

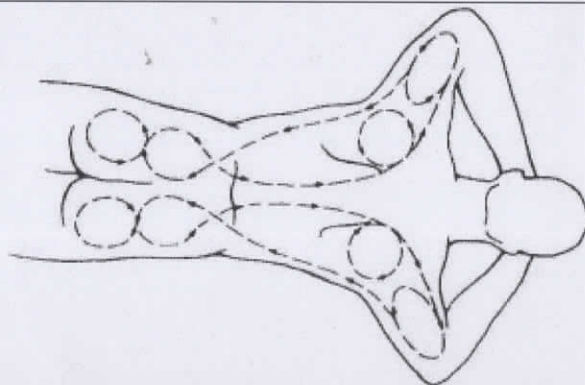
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|  |  | <ul style="list-style-type: none"><li>• Pour water onto person's head. Control the water from gushing onto his head too quickly. For short hair, rub a wet washcloth over the head until the hair is thoroughly wet.</li><li>• Apply the shampoo. Start with a small amount of shampoo into hands and rub them together.</li><li>• Massage the shampoo into his head. Work the shampoo into lather by massaging his scalp with fingertips from front to back.</li><li>• Rinse his hair. The best way to rinse it is to wet it the same way .Rinse</li></ul> |  |  |  |
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			<p>completely to prevent his scalp from getting dry and itchy.</p> <ul style="list-style-type: none"> <li>• Condition his hair. Work conditioner through his hair, before a final rinse.</li> <li>• Wrap his hair in a towel. Hold his head up and remove the trough from beneath it.</li> <li>• Wipe water from the head and neck. Using a washcloth, wipe away any excess water from the person.</li> </ul>			
4	Demonstrate the partial bath	<p><b>Partial Bath (Bed Bath) to the Bedridden Patient</b></p> <p>Daily bathing helps in keeping the patient comfortable and healthy. It speeds up the recovery process. Some patients are unable to perform this activity on their own. Therefore, they need your assistance. For a bedridden patient, it's very difficult to move to bathroom for taking bath. You are required to provide bed baths to such patients. While assisting with this activity, you can evaluate the physical condition of the client and inform any issue (like bedsores) to the in-charge nurse immediately. If you are going to appear for CNA skills test and want to know the appropriate procedure to give a partial bath (bed bath) to the bedridden patient, go through this article.</p> <p><b>Step-wise Procedure for Giving a Partial Bath to the Bedridden Patient</b></p> <p><b>Step 1- Begin with hand washing</b></p> <p>Rinse your hands using proper hand-washing procedure, before commencing. Wear the gloves.</p>	<p>Lecture cum discussion,</p> <p>Demonstration</p>	Radio broadcast	Short answer Return demonstration	



		<p><b>Step 2- Provide information to the patient</b> Provide a friendly greeting to patient. Inform them that you are going to help them in bathing.</p> <p><b>Step 3- Ensure privacy</b> To preserve the privacy and dignity of the patient, pull the curtains on the window and close the doors of the room.</p> <p><b>Step 4- Fill the basin</b> Fill the basin with water having temperature of 105 to 115 degrees. Check the temperature of the water by dipping your inner wrist or elbow. Ensure that water is not too cold or too hot for the client to bathe.</p> <p><b>Step 5- Remove the medical equipments</b> Take out the medical equipments that are not necessary for the patient, at the time of assisting them in bathing.</p> <p><b>Step 6- First wash the patient's face</b> Start with washing the face of the patient with the help of a washcloth or sponge. Then, move down to their arms. Next, wash their chest, abdomen, legs, back and perineal region. In order to avoid the spread of germs, utilize the separate clean cloth for each body part.</p> <p><b>Step 7- Change the linen</b> If necessary, change the linen of the patient and provide them fresh linen.</p> <p><b>Step 8- Apply the lotion</b> If the client desires, apply lotion to exposed skin.</p> <p><b>Step 9- Assist the patient in returning to their comfortable position</b> After patients' bath has been completed, assist them to lay or sit down in a</p>			
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		<p>comfortable position. Allow them to dress themselves, if they are able.</p> <p><b>Step 10- After finishing the work, rinse your hands</b> Dispose the supplies used for the bath and gloves. Then, wash your hands again.</p> <p><b>Points to Remember</b></p> <ul style="list-style-type: none"> <li>• Pull the curtains and close the doors, before assisting the patient to bathe.</li> <li>• The temperature of the bathing water should not be too low or too high.</li> <li>• Let the patient help you as much as they can.</li> <li>• Use different sponge or wash cloth for each body part of the client, in order to prevent spread of germs.</li> <li>• Take care of the comfort of the patient, during the whole process.</li> </ul>			
5	Demonstrate back rub	<p><b>ADMINISTERING THE BACK RUB</b></p> <p><b>A. General.</b> The backrub is usually administered after the patient's bath. It should be offered to the patient because it promotes relaxation, relieves muscular tension, and stimulates circulation. During the backrub, the specialist is able to observe the patient's skin.</p> <p>To give an effective backrub, the specialist will massage the back for 3 to 5 minutes</p>	Demonstration	Radio broadcast	Return demonstration



**b. Important Points.**

(1) The backrub is contraindicated if the patient has such conditions as fractures of the ribs or vertebral column, burns, pulmonary embolism, or open wounds.

(2) Monitor pulse and blood pressure of those patients with a history of hypertension or dysrhythmias.

**c. Procedure.**

(1) Explain to the patient what you are going to do.

(2) Prepare equipment:

(a) Bath blanket (optional).

(b) Bath towel.

(c) Skin lotion, alcohol, or powder.

(3) Adjust bed height to working level.



		<p>(4) Provide privacy and quiet environment.</p> <p>(5) Lower side rail. Position patient with back toward self. Cover patient so that only parts to massage are exposed.</p> <p>(6) Wash hands, and warm if necessary. Warm lotion by holding some in hands. Explain that lotion may feel cool.</p> <p>(7) Begin massage by starting in sacral area using circular motions. Stroke upwards to shoulders. Use firm, smooth strokes to massage over scapulae. Continue to upper arms with one smooth stroke and down along side of back to iliac crests. Do not break contact with patient's skin. Complete massage in 3 to 5 minutes</p> <p>(8) Gently but firmly knead skin by grasping area between thumb and fingers. Work across each shoulder and around nape of neck. Continue downward along each side to sacrum.</p> <p>(9) With long, smooth strokes, end massage. Remove excess lubricant from patients back with towel, and retie gown. Position for comfort. Lower bed, and raise side rail as needed.</p> <p>(10) Place soiled laundry in proper receptacle. Wash hand</p>			
6	Demonstrate foot care	<b>Foot Care</b>	Lecture cum discussion Demonstration	Radio broadcast	Return demonstration



Inspect feet every day, and seek care early if you do get a foot injury. Make sure your health care provider checks the feet at least once a year - more often if foot problems. Our health care provider should also give you a list and explain the do's and don'ts of foot care.

Most people can prevent any serious foot problem by following some simple steps. So let's begin taking care of your feet today.

### **Caring for Your Feet**

There are many things you can do to keep your feet healthy.

**Take care of your diabetes.** Work with your health care team to keep your blood glucose in your target range.

**Check your feet every day.** Look at your bare feet for red spots, cuts, swelling, and blisters. If you cannot see the bottoms of your feet, use a mirror or ask someone for help.

**Be more active.** Plan your physical activity program with your health team.

**Ask your doctor about Medicare coverage** for special shoes.

**Wash feet every day.** Dry them carefully, especially between the toes.

**Keep skin soft and smooth.** Rub a thin coat of skin lotion over the tops and bottoms of your feet, but not between your toes. Read more about skin care.

**If one can see and reach toenails, trim them** when needed. Trim toenails straight across and file the edges with an emery board or nail file.

**Wear shoes and socks at all times.** Never walk barefoot. Wear comfortable shoes that fit well and protect your feet. Check inside your shoes before wearing them. Make sure the lining is smooth and there are no objects inside.

**Protect feet from hot and cold.** Wear shoes at the beach or on hot pavement. Don't put feet into hot water. Test water before putting feet in it just as one would before bathing a baby. Never use hot water bottles, heating pads, or electric blankets. It might burn one's feet without realizing it.

**Keeps the blood flowing to feet.** Put feet up when sitting. Wiggle toes and move ankles up and down for 5 minutes, two (2) or three (3) times a day. Don't cross legs for long periods of time. Don't smoke.

#### DIABETIC FOOT CARE IN HOME

1. Inspect feet daily, report any foot problems to MD or Podiatrist, wash feet daily with warm soap and water and pat dry especially between toes, clip nails straight across and gently file with an emery board, wear

		<p>shoes that support and fit properly, wear socks that are clean and fit properly, avoid going barefooted, avoid exposure to extreme temperatures, and avoid tobacco</p> <ol style="list-style-type: none"> <li>2. Wear flat; comfortable walking shoes as much as possible and select adequate socks.</li> <li>3. Never walk barefoot to prevent cuts and burns and also to wear sleepers at night when getting up.</li> <li>4. Cut the toenails straight across and file the edges, don't rip off hangnails.</li> <li>5. Do not use OTC chemicals on corns, calluses or warts since they are often too strong to use in diabetics.</li> <li>6. Avoid cutting corn or calluses.</li> <li>7. Check feet by looking between toes use a mirror if necessary or have a friend or relative to check them daily. Look for blisters, redness, cuts, breaks, and scratches and report immediately if any of these occur.</li> <li>8. Check feet's temperature. If they feel cold or hot, something could be wrong.</li> <li>9. Avoid soaking feet into hot water (Test water before use).</li> <li>10. Never go barefoot or wear thigh garters. Do not wear thigh worn boots for long periods of times. Never let feet get dry and cracked, severe infections may develop. Do not use hot water pads, iodine, hot water bottles or rubbing alcohol. Never use razors, knives or corn remedies</li> </ol>			
7	Demonstrate nail care	<p><b>Nail Care of a patient</b></p> <p>When a patient is going under some treatment or is unconscious, then he/she sometimes starts scratching his/her own skin. This can bring in dangerous infections in the patients nails, which can reach anywhere in the various parts of the body. The nail beds of the patients carry various kinds of injurious germs. Hence, this is a nursing aide's responsibility to keep it clean and trimmed on a regular basis. This prevents the infections from further spreading. On the other hand, if you are treating a person, who is under the anticoagulation therapy, then do not give him/her nail care, as this may cause excessive bleeding.</p> <p><b>Points To Remember:</b></p> <ul style="list-style-type: none"> <li>• Make a habit of washing your hands thoroughly, every time you start</li> </ul>	Demonstration	Radio broadcasting	Return demonstration



giving nail care to a patient.

- Put on a fresh pair of hands gloves.
- Now, greet the patient kindly.
- Give the patient explanation regarding the nail care activity performed by you.
- Try to manage a face to face contact with the patient, while explaining the procedure.
- Before beginning this process, ensure that the devices and equipments, which are going to be utilized for trimming the nails of the patient, must be fresh and sterilized. Or else, it can cause infections.
- Always remember that providing regular nail care to the patient steadily reduces the risk of germs transmission.
- Things you will need for this process are a water bowl for warm water, a nail cutter, a clean wash cloth, a small towel, an orange stick and some soap.

**Stepwise Procedure to Follow for Conducting Nail Care of a Patient:**

**Steps 1- Set position of the patient**

Before beginning with this process, make sure that the client is in a comfortable position. If possible, it is better to help the patient to get into a chair. If not, then set the bed at a comfortable level to conduct the process with ease.

**Step 2- Place foot mat or towel**

While helping the patient to shift in the chair, spread the foot mat on the floor to shun the danger of falling down. If the person is lying on the bed, then place a towel or a sheet on the table close to the patient. And then keep the nail care equipments over the table

**Step 3- Fill in the water basin**

		<p>Fill in the water basin with warm and soapy water, so that the fingers can be totally sterilized.</p> <p><b>Step 4- Check the water temperature</b> It is imperative to get the water hotness checked by the patients themselves; however, in case of a feeble or unconscious person, keep it normal and check it.</p> <p><b>Step 5- Soak fingers in the water</b> Once, the water temperature is checked; put the patient's fingers in that soapy water for some time</p> <p><b>Step 6- Clean nails</b></p> <ul style="list-style-type: none"><li>• After a while, take out the hands from the water and clean the nails with the help of nail stick. Keep the dirty elements out of the nails and put it on the cloth.</li></ul> <p><b>Step 7- Wipe the hands to dry</b> After, the cleaning is done, wipe the hands of the patient with a clean towel to dry.</p> <p><b>Step 8- Filing of the nails</b> Now with the help of an emery board stick, do the filing of the patient's nail gently in two to three strokes.</p> <p><b>Step 9- Nail cutting</b> hold the patient's fingers one by one to cut the nails. Only cut the extended part of the nails, as trained during your training sessions.</p> <ul style="list-style-type: none"><li>• When you cut every single nail, always check that there should not be any sharp or rough edges left.</li><li>• Trim the sharp edges of the nails, as it can cause cuts to the client's skin. This also decreases the risk of infection transference throughout the breakage of the skin.</li><li>• Also, examine the client's nail beds carefully, as you may also find any symptom of soreness or fungal expansion. In case of any such sign, report it directly to the charge nurse instantly.</li><li>• While cutting the nails, collect the cut part in a separate tray or a small</li></ul>			
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7	Demonstrate blood sugar checking using glucometer	<p>cloth to dispose.</p> <p><b>Step10- Apply lotion on the hands</b> Once, the filing and cutting are done, apply some hand-lotion on the patient's hands from wrist to the fingertips. It is better to remove the excess amount of lotion from the hands, with a clean towel.</p> <p><b>Step 11- Dispose the used Wipes</b> Once, the nail care process is over, dispose the used linens and wash-cloth into the soiled linen box.</p> <p><b>Step 12- Place the equipments back</b> At the end, wash the water basin properly with soap and keep the basin in the designated dirty supply area.</p> <p><b>How to test blood sugar</b></p> <p>To check blood sugar level,articles needed include blood glucometer, a test strip , alcohol swab, lancet. The steps include:</p> <ol style="list-style-type: none"> <li>1. Wash and dry your hands—using warm water may help the blood flow</li> <li>2. Turn on the meter and prepare a test strip. Most of the glucometers turn on automatically when a strip is inserted.</li> <li>3. Choose the finger. Clean the site. Clean the finger you're going to prick with an alcohol swab, or with rubbing alcohol on a cotton ball. Alcohol evaporates rapidly so there's no need to dry the area; that will just recontaminate it. Let the alcohol air dry. Do not check from the same finger all the time. Using the side of the fingertip may be less painful than the pads.</li> <li>4. Prepare the lancet. Prick your finger with the lancet to get a drop of blood.. This usually causes no, or very minimal, discomfort. It may need to squeeze or massage the finger you pricked on either side to squeeze out a drop of blood. Let the blood form a small bead on your finger. Hold the bead of blood to touch the tip of the strip at the right</li> </ol>	Demonstrate blood sugar checking using glucometer	Radio broadcasting	Return demonstration
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			<p>place, which should be indicated on the strip</p> <ol style="list-style-type: none"><li>5. Touch and hold the test strip opening to the drop until it has absorbed enough blood to begin the test. Clean and hold the site with cotton ball till bleeding stops.</li><li>6. Wait for results. The glucometer will start to count down in seconds until results are ready to read. Newer glucometers only take about 5 seconds, whereas older versions may take 10 to 30 seconds. The meter will sound a tone, or beep, when it has a reading ready. View the test result and check if blood sugar is high or low.</li><li>7. Discard the used lancet and blood stained cotton properly.</li><li>8. Record the results in a book, hold them in the meter's memory or download to an app or computer so that it can be analyzed and reviewed later.</li></ol>			
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## Course plan

Course title: Nutrition and diet

Time allotted: Broad cast hours- 45

Course description:

This course is designed to enable students to acquire knowledge of nutrition and diet.

Course objectives:

At the end of the course students will be able to

- Define nutrition and balanced diet
- Discuss the role of diet in causing and preventing various diseases, particularly chronic diseases.
- Describe methods used to assess nutrition status.
- Explain how dietary recommendations are formulated

Unit no	Time	Learning objective	Content	Teaching-learning activity	Aids	Method of evaluation
1		Describe a healthy diet and food choices, and explain why such choices will help prevent health problems.	<p style="text-align: center;"><b>NUTRITION</b></p> <p><b>INTRODUCTION</b></p> <p>Nutrition is the science that interprets the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health and disease of an organism. It includes Food intake, absorption, assimilation, biosynthesis, catabolism and excretion.</p> <p><b>Balanced Diet</b></p> <p>A balanced diet is one that gives your body the nutrients it needs to function correctly. In order to get the proper nutrition from your diet, you should obtain the majority of your daily calories from:</p> <ul style="list-style-type: none"> <li>• fresh fruits</li> <li>• fresh vegetables</li> <li>• whole grains</li> <li>• legumes</li> <li>• nuts</li> <li>• lean proteins</li> </ul>	Lecture cum discussion	Radio broadcasting	Essay type questions

**Calories**

The number of calories in a food is a measurement of the amount of energy stored in that food. The average person needs to eat about 2,000 calories every day to maintain their weight. However, a person's specific daily calorie intake can vary depending on their age, gender, and physical activity level. Men generally need more calories than women, and people who exercise need more calories than people who don't.

The following examples of daily calorie intake are based on United States Department of Agriculture (USDA) guidelines:

children ages 2 to 8: 1,000 to 1,400 calories  
active women ages 14 to 30: 2,400 calories  
sedentary women ages 14 to 30: 1,800 to 2,000 calories  
active men ages 14 to 30: 2,800 to 3,000 calories  
sedentary men ages 14 to 30: 2,000 to 2,600 calories  
active men and women over 30: 2,200 to 3,000 calories  
sedentary men and women over 30: 1,800 to 2,200 calories

**Importance of Balanced Diet**

A balanced diet is important because organs and tissues need proper nutrition to work effectively. Without good nutrition, our body is more prone to disease, infection, fatigue, and poor performance. Children with a poor diet run the risk of growth and developmental problems and poor academic performance. Bad eating habits can persist for the rest of their lives.

### **How to Achieve a Balanced Diet**

At the core of a balanced diet are foods that are low in unnecessary fats and sugars but high in vitamins, minerals, and other nutrients. The following food groups are essential parts of a balanced diet.

#### **Fruits**

Besides being a great source of nutrition, fruits make tasty snacks. Choose fruits that are in season in your area. They're fresher and provide the most nutrients.

#### **Vegetables**

Vegetables are primary sources of essential vitamins and minerals.eg, vegetables include green leafy vegetables, roots and tubers and other vegetables. Thee greener vegetables higher the nutritive value. Green leafy vegetables are rich in vitamin c,, pro vitamin A , riboflavin, folic acid, calcium , iron etc. Spinach, radish and cauliflower comes in this category.

Potato, radish,, carrot, onion and tapioca are chief roots and tubers.. Of these potato is the main source of the carbohydrate while tubers are deficient inn proteins, carrot is rich in vitamin A

Brinjal, tomato etc. supply minerals and vitamins and enrich the variety in diet. Some vegetables add to the flavour and make the food palatable. The quantity of vegetables in diet should be 150 to 200 gram per day..

Unfortunately, refined white flour contains poor nutritional value because the hull of the grain is removed during the refining process. The hull is the outer shell of the grain and is where the majority of the grain's nutrition lies. Whole grains, however, are prepared using the entire grain, including the hull, so they provide much more nutrition.

### **Proteins**

Meats and beans are primary sources of protein, which is essential for proper muscle and brain development. Lean, low-fat meats such as chicken, fish, and certain cuts of pork and beef are the best options. Removing the skin and trimming off any visible fat are easy ways to reduce the amount of fat and cholesterol in meats. The health and diet of the animal are important and influence the fatty acid profile of the meat, so grass-fed choices are ideal.

Animal sources; milk, egg, meat, fish,

Vegetable source; cereals, pulses, oil seeds

Daily requirements of protein per day

- Babies need about 10 grams a day.
- School-age kids need 19-34 grams a day.
- Teenage boys need up to 52 grams a day.

- Teenage girls need 46 grams a day.
- Adult men need about 56 grams a day.
- Adult women need about 46 grams a day (71 grams, if pregnant or breastfeeding)

### **Dairy**

Dairy products provide calcium, vitamin D, and other essential nutrients. However, they are also major sources of fat, so it is best to choose small portions of full-fat cheeses, and reduced-fat or fat-free milk and yogurt. Plant-based milks, such as those made from flaxseed, almond, or soy are typically fortified with calcium and other nutrients, making these excellent alternatives to dairy from cows.

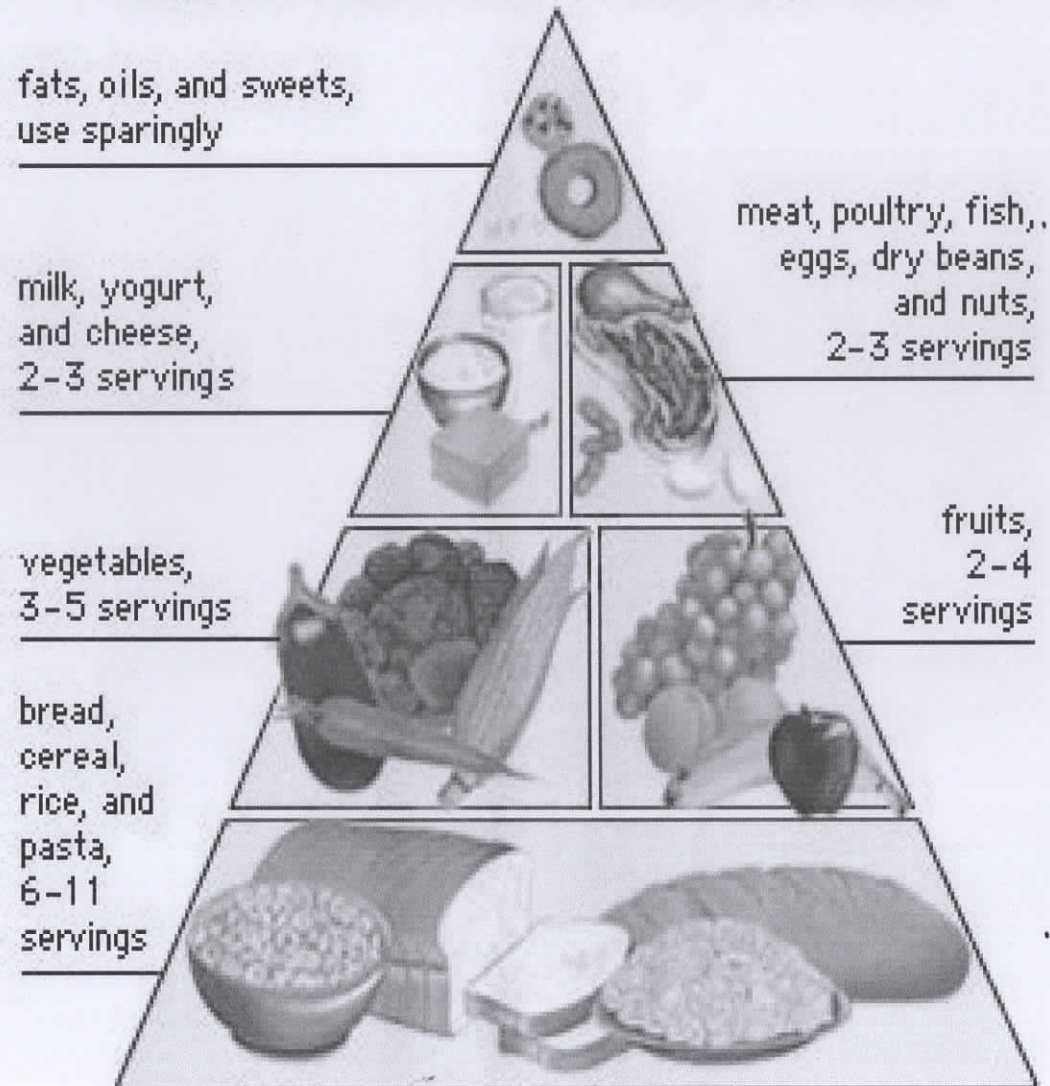
### **Oils**

Oils should be used sparingly. Opt for low-fat and low-sugar versions of products that contain oil, such as salad dressing and mayonnaise. Good oils, such as olive oil, can replace fattier vegetable oil in your diet. Avoid deep-fried foods because they contain a large number of empty calories. Aside from adding certain foods to diet; reduce your consumption of certain substances in order to maintain a balanced diet and a healthy weight. These include:

- alcohol
- refined grains
- solid fats
- saturated fats
- trans fats
- salt
- sugars



## Original USDA Food Guide Pyramid



Source: U.S. Department of Agriculture

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## MALNUTRITION

Malnutrition refers to insufficient, excessive, or imbalanced consumption of nutrients by an organism. Nutritionism is the view that excessive reliance on food science and the study of nutrition can lead to poor nutrition and to ill health.

### Insufficient nutrition

In general, *under-consumption* refers to the long-term consumption of insufficient sustenance in relation to the energy that an organism expends or expels, leading to poor health.

### Excessive nutrition

In general, *over-consumption* refers to the long-term consumption of excess sustenance in relation to the energy that an organism expends or expels, leading to poor health and, in animals, obesity. It can cause excessive hair loss, brittle nails, and irregular premenstrual cycles for females.

### Unbalanced nutrition

When too much of one or more nutrients is present in the diet to the exclusion of the proper amount of other nutrients, the diet is said to be unbalanced.

Illnesses caused by improper nutrient consumption

Nutrients	sources	Deficiency	Excess
<b>Macronutrients</b>			
Calories	Fatty oils, Nuts, Seeds	Starvation, marasmus	Obesity, diabetes mellitus, cardiovascular disease
Simple carbohydrates	Candy, sugar, Soda	Low energy levels.	Obesity, diabetes mellitus, cardiovascular disease
Complex carbohydrates	Green leafy vegetables, beans, peas	Micronutrient deficiency	Obesity, cardiovascular disease (high glycaemic index foods)
Protein	Egg, milk, cheese	Kwashiorkor	Rabbit starvation
Saturated fat	beef, pork, chicken	Low testosterone levels, vitamin	Obesity, cardiovascular disease



			deficiencies.			
		Trans fat	milk products, meat, whole milk	None	Obesity, cardiovascular disease	
		Unsaturated fat	peanuts, plant oils	Fat-soluble vitamin deficiency	Obesity, cardiovascular disease	
		Micronutrients				
		Vitamin A		xerophthalmia and night blindness	Hypervitaminosis A (cirrhosis, hair loss)	
		Vitamin B1	Eggs, oats, nuts	Beriberi		
		Vitamin B2	Beef liver, milk, mushroom	Skin and corneal lesions		
		Niacin	Turkey, chicken breast, liver	Pellagra	Dyspepsia, cardiac arrhythmias, birth defects	
		Vitamin B12	soya powder, milk, soya chunks	Pernicious anaemia		
		Vitamin C	Broccoli, citrus fruits, berries	Scurvy	Diarrhoea causing dehydration	
		Vitamin D	Liver, cod liver oil, dairy products	Rickets	Hypervitaminosis D (dehydration, vomiting, constipation)	
		Vitamin E	nuts, black berries, spinach	Neurological disease	Hypervitaminosis E (anticoagulant: excessive bleeding)	
		Vitamin K	Vegetables, whole grains, cereals	Haemorrhage	Liver damage	
		Omega-3 fats	Flaxseed oil, fish oil, walnut	Cardiovascular Disease	Bleeding, Haemorrhages, Hemorrhagic stroke, reduced glycemic control among diabetics.	

			Omega-6 fats	Egg, nuts, cereals	None		Cardiovascular Disease, Cancer	
			Cholesterol	Meat, poultry, dairy products	None		Cardiovascular Disease	
			Macro minerals					
			Calcium	Dark leafy greens, cheese, broccoli			Fatigue, depression, confusion, nausea, vomiting, constipation, pancreatitis, increased urination, kidney stones	
			Magnesium	Leafy greens, fish, dried fruit	Hypertension		Weakness, nausea, vomiting, impaired breathing, and hypotension	
			Potassium	spinach, coconut water, banana	Hypokalemia, cardiac arrhythmias		Hyperkalemia, palpitations	
			Sodium	Baking soda, canned soups, celery	Hyponatremia		Hypernatremia, hypertension	
			Trace minerals					
			Iron	Meat, beef, liver.	Anaemia		Cirrhosis, Hereditary hemochromatosis, heart disease	
			Iodine	Organic strawberry, organic yogurt, organic potato.	Goitre, hypothyroidism		Iodine toxicity (goitre, hypothyroidism)	



## COURSE PLAN

Course title: Environment and pollution

Time allotted: broad cast hours- 45

Course description- this course is designed to enable the students to acquire knowledge regarding the basic concepts of environment and pollution hereby the effect off in pollution in health and its preventive measures.

Course objectives

At the end off the course students will be able to

Understand the basic concept of environment and pollution

Describe the effects of pollution

Preventive measures of pollution



## Course content

Unit no.:	Time	Learning objective	Content	Teaching learning activities	Teaching aids	Methods of evaluation
1		understand the concept of environment and definition of environment and pollution	<p style="text-align: center;"><b>ENVIRONMENT</b></p> <p>Environment is the external factor/factors present around man and has got an influence on the health of the human being. According to ecologists, health is a state of dynamic equilibrium between man and his environment and when this equilibrium is disturbed , ill health (disease) occurs such an environment has been divided into four components</p> <ol style="list-style-type: none"> <li>1. Physical environment</li> <li>2. Biological environment</li> <li>3. Social environment</li> <li>4. Cultural environment</li> </ol> <p><b>Physical environment</b></p> <p>This consists of non living things and certain physical forces/ energy present around man. These are water, air, soil, housing, radiation, light, noise, vibration, refuse, waste etc.</p> <p><b>Biological environment</b></p> <p>This consists of living things around man. These are plants, animals, rodents, insects and microbes like bacteria, viruses, rickettsiae, parasites, fungi, etc.</p> <p><b>Social environment</b></p> <p>This consists of occupation, literacy, income, religion, standard of living,</p>	Lecture discussion	Radio broadcast	Short answer

lifestyle, availability of health services, etc.

#### Cultural environment

This consists of knowledge, attitude, beliefs, practices, traditions, culture, customs, habits, etc.

Such an environment of man is being polluted due to industrialization, urbanization and such other human activities. Man only is responsible for the pollution of his environment.

#### DEFINITION

##### ENVIRONMENTAL HEALTH

As of 2016 the WHO website on environmental health states "Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, as well as genetics

##### ENVIRONMENTAL POLLUTION

**Pollutant:** - Any substance causing Nuisance or harmful effects or uneasiness to the organisms, then that particular substance may be called as the pollutant. θ Pollution: The term pollution can be defined as influence of any substance causing nuisance, harmful effects, and uneasiness to the organisms θ Environmental Pollution can be defined as any undesirable change in physical, chemical, or biological characteristics of any

		<p>component of the environment i.e. air, water, soil which can cause harmful effects on various forms of life or property</p> <p><b>DEFINITION OF POLLUTION:-</b> When Harmful Substances Contaminate the Environment, it is Called Pollution. Pollution refers to the very bad condition of environment in terms of quantity and quality</p> <p><b>ENVIRONMENTAL POLLUTION</b></p> <p>Environmental Pollution can be defined as any undesirable change in physical, chemical, or biological characteristics of any component of the environment i.e. air, water, soil which can cause harmful effects on various forms of life or property</p> <p><b>TYPES OF POLLUTION</b></p> <ol style="list-style-type: none"> <li>1. Air Pollution.</li> <li>2. Water Pollution.</li> <li>3. Noise Pollution</li> <li>4. Land Pollution.</li> <li>5. Radio Active Pollution.</li> </ol> <p><b>AIR POLLUTION</b></p> <p>A substance in the air that can cause harm to humans and the environment is known as an air pollutant</p> <p>Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or cause damage to the natural environment or built environment, into the atmosphere</p>			
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#### Causes of air pollution

- Industries
- Automobiles and Domestic fuels
- High Proportion of undesirable gases, such as sulphur dioxide and carbon monoxide
- Mist.
- Dust (e.g. cement dust, foundry dust and windblown solid dust)
- Aerosols.
- Carbon black.
- Smoke

#### Effects of air pollution

- Various respiratory illnesses.
- Acid Rain.
- Ozone depletion (Ozone hole).
- Global warming.
- The atmosphere as a whole.
- Plants.
- Animals.
- Human health

#### How to avoid air pollution

Avoid using and use electric stoves (bio gas).

Use less Amount of Fuel for Vehicles.

Do not Burst Crackers.

Use natural Gases, like LPG (Liquefied Petroleum Gas) autos

#### HEALTH EFFECTS

Air pollution is a significant risk factor for a number of pollution-related

diseases and health conditions including The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac conditions. These effects can result in increased medication use, increased doctor or emergency room visits, more hospital admissions and premature death. The human health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system. Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, and the individual's health status and genetics. The most common sources of air pollution include particulates, ozone, nitrogen dioxide, and sulphur dioxide. Children aged less than five years that live in developing countries are the most vulnerable population in terms of total deaths attributable to indoor and outdoor air pollution.

The World Health Organization estimated in 2014 that every year air pollution causes the premature death of some 7 million people worldwide. India has the highest death rate due to air pollution. India also has more deaths from asthma than any other nation according to the World Health Organization.

### **WATER POLLUTION**

Any physical (temperature, oxygen), chemical(mercury), or biological (disease, sewage) change to water that adversely affects its use by alive beings.

#### **Causes of Water Pollution**

Water Pollution is Caused by organic and inorganic industrial wastes and effluents discharged into rivers. About 40% of deaths worldwide are caused by Water Pollution

#### **Effects of Water Pollution**

- Aquatic life gets destroyed.
- Typhoid (spread during the rainy season).



- Malaria.
- Diseases like Cholera.

**How to Avoid Water Pollution**

- Rivers should not be used for washing clothes or bathing animals in.
- Harvesting of Rainwater to meet water requirements
- Dams & embankments must be created
- The rivers must not be contaminated.
- In rivers the dead bodies shouldn't thrown

**Noise Levels:** Decibels (dB) •Intensity •Frequency •Periods of exposure and •Duration]

**NOISE POLLUTION**

Noise can be simply defined as unwanted sound. The sound is pleasant or not depends upon its loudness, duration, rhythm and the mood of the person

Noise pollution not only results in irritation and anger. Noise also causes anxiety stress reaction and fright..

**Causes of Noise Pollution**

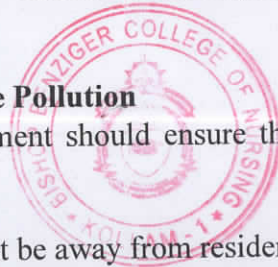
Traffic Noise, Aircraft Noise, Noise from construction and civil engineering works, Noise from the Industries, Noise from other sources

**Effects of Noise Pollution**

Hearing Loss,High Blood Pressure,Stress, Sleep Disturbance,Colour Blindness

**How to Avoid Noise Pollution**

- The Government should ensure the new machines that Should be noise proof
- Airports must be away from residential area.



- The Sound horn symbol is to be in School Roads
- Control noise at source by proper choice of equipment, design modification, mounting and proper layout
- Isolation or use of baffles
- Use of ear protection devices

#### LAND POLLUTION

One fourth of area is covered by land. Land is a earth which is occupied by people for shelter, occupation, etc...

#### Causes of Land Pollution

We can classify major sources in the following Categories:

- Mining, Erosion and quarrying.
- Household Garbage
- Urbanization and Concentration of Population.
- Municipal Solid Waste
- Industrial Waste and Hazardous Waste.
- Uncontrolled Land Treatment
- Burning open dumps and forest fires.

#### Effects of Land Pollution

- The Land Cannot use to build houses
- Man cannot be farming.
- Ground water will gets Affected.
- Death of the animals that inhabit the land
- Deforestation

#### Prevention of Land Pollution

More and more land should be brought under farming  
 Trees should be planted everywhere  
 Waste matter should be disposed immediately

			<p>Avoid drilling the Land for more underground water.          •Avoid using more fertilizers and Pesticides.          3R Principle:          •Integrated Solid Waste Management.          Reduce-Good agricultural practices          Reuse-Remediation of polluted soils          Recycle-Prevention of erosion and silting          •Containment of hazardous waste and waste water treatment using land treatment techniques.</p> <p><b>RADIO ACTIVE POLLUTION.</b></p> <p>Despite the Advantage of nuclear as a clean energy, the big concern is the resulted from nuclear reaction, which is a form of pollution called Radio activity</p> <p><b>Causes of Radioactive Pollution</b></p> <ul style="list-style-type: none"> <li>• Nuclear power plants(Ex: Naively, Kalpakam)</li> <li>• Nuclear Weapons(Ex: Missiles)</li> <li>• Disposal of Nuclear Waste</li> <li>• Uranium Mining</li> </ul> <p><b>Effects of Radioactive Pollution</b></p> <p>The Diseases include blood in cough, Ulcer, Swelling of bone joints, Cancer- Bone Cancer, Skin Cancer, Lung Cancer, Eye Problems</p> <p><b>How to Prevent of Radioactive Pollution</b></p> <p>Avoid Constructing Nuclear Power Plants, Avoid Using Nuclear Weapon, Have Proper Treatment for Nuclear Waste, Avoid mining for Uranium to a minimal</p>			
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2		Describe the methods of controlling mosquito	<p><b>Mosquito control</b></p> <p>Mosquito-borne diseases are divided into three groups (according to the pathogens): - Protozoa diseases (e.g. Malaria). - Viral diseases (e.g. dengue, Japanese encephalitis).- Nematode diseases (e.g. filariasis)</p> <p><b>MOSQUITO-BORNE DISEASES</b></p> <p>Mosquito-borne diseases and their vectors(virus disease) Disease Pathogen Vector species JE virus CulextritaeniorhynchusCulexfuscocephalaCulexgelidusCulexvishuiCulexps eudovishui DengueAedesaegypti Dengue virus Aedesalbopictushemorrhagic</p> <p>Mosquito-borne diseases and their vectors(protozoa and nematode disease) Disease Pathogen Vector species Malaria Plasmodium vivax Anopheles sp. P. FalciparumP.malariae P. ovale FilariasisWuchereriabancroftiCulexquinquefasciatus Anopheles sp. Brugiamalayi Manzoni sp. Aedestogoi Anopheles sinensis Culexquinquefasciatus (vector of Brancroftianfilariasis, Culextritaeniorhynchus (vector of Japanese encephalitis-B), Some important Culexsp. as a vector for malaria CulextritaeniorhynchusCulexfuscocephalaCulexgelidusCulexvishuiCulexps eudovish</p> <p><b>PREVENTION AND CONTROL:</b></p> <p>Personal protection - Personal protection methods, used by individuals or small groups of people to protect themselves from biting insectsand the diseases they may carry, act by preventing contact between the human bodyand the insects - Repellents - Protective clothing - Insecticide vaporizers - Mosquito nets Insecticides - The insecticide should be selected for its effectiveness against</p>	Lecture discussion	Radio broadcast	Essay type
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the target mosquito species - Insecticidal aerosols are sometimes used for the killing of flying and resting insects in situations where immediate results are needed - Because the insecticidal action does not last long it is usually necessary to repeat the procedure several times. - Space sprays are usually applied in and around houses in cities or villages and sometimes on outdoor resting places in dense vegetation or salt marshes - e.g. Malathion, Permethrin, Methoprene, Resmethrin

Prevention of breeding - Source reduction - Such measures include covering or screening water containers, draining ponds and marshes, and filling in ditches, pools, etc - Larvicides - killing immature mosquitoes by applying agents - Insect growth regulators (IGRs) - Microbial larvicides - Organophosphates (OPs) - Surface oils and films - Habitats in and around houses - Habitats in the field

Biological control - The biological control of mosquitoes and other pests involves introducing into the environment their natural enemies, such as parasites, disease organisms and predatory animals - Fish that eat mosquito larvae can be released into breeding sites - Predatory mosquitoes of the genus *Toxorhynchites*, the larvae of which feed on other mosquito larvae - Dragonflies, the larvae of which feed on mosquito larvae - Cyclopoid copepods, small crustaceans that attack first- and second-instar larvae of mosquitoes; - Nematode worms that are parasites of mosquito larvae - Fungi that grow in the bodies of mosquito larvae

### **MOSQUITOES BEHAVIOR AND ITS IMPLICATION ON CONTROL STRATEGIES**

Adult stage - Resting place after taking blood meals (outdoor or indoor), Indoor e.g. *Anopheles* - Insecticide spraying of walls - Mosquitoes resting on sprayed walls come into contact with insecticide through their feet and are killed. - Some insecticides irritate mosquitoes and cause them to leave houses - Hungry mosquitoes entering a house may bite first and then be

killed when resting on a treated wall. Outdoor e.g. *Mansonia*, *Culex* - Resting after a blood-meal normally takes place out of doors. - Space-spraying - It has an immediate effect on adult populations of insects and is therefore suitable for the control of disease outbreaks - It kills mosquitoes that do not rest in houses

Some species breed in clean water containers in and near houses, whereas others prefer polluted water in sanitation systems, or man-made and natural habitats in rural areas

eliminating or changing the breeding place to make it unsuitable for development of larvae

making the breeding place inaccessible to adult mosquitoes; - e.g. *Aedes* - Change water in flower vases weekly and scrub to remove adhering mosquito eggs before refilling with fresh water

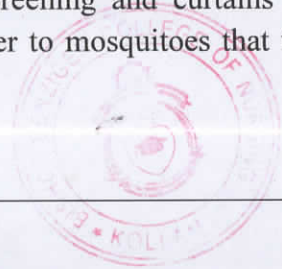
Egg, Larvae, Pupae = aquatic stages

releasing fish or other predators that feed on larvae; - mosquito fish (*Gambusia affinis*) and the guppy (*Poecilia reticulata*)

applying larvicides Insect growth regulator

The larvae and pupae of *Manzoni* attach themselves to the submerged parts of waterplants on which they depend for breathing

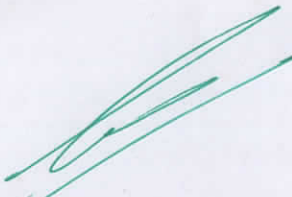
Many mosquitoes attack people at night inside houses removing or destroying the vegetation. Many mosquitoes attack people at night inside houses include the use of aerosols, mosquito coils, vaporizing mats and repellent smoke, Screening of doors, windows and other openings in houses prevents insects from entering, while maintaining some ventilation, Insecticide-treated screening and curtains - Treated screening or curtains provide a toxic barrier to mosquitoes that try to enter houses, Mosquitoes net



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Dr. ANOOPA. K.R. Ph.D (N)  
PRINCIPAL  
BISHOP BENZIGER COLLEGE OF NURSING  
KOLLAM - 1, KERALA