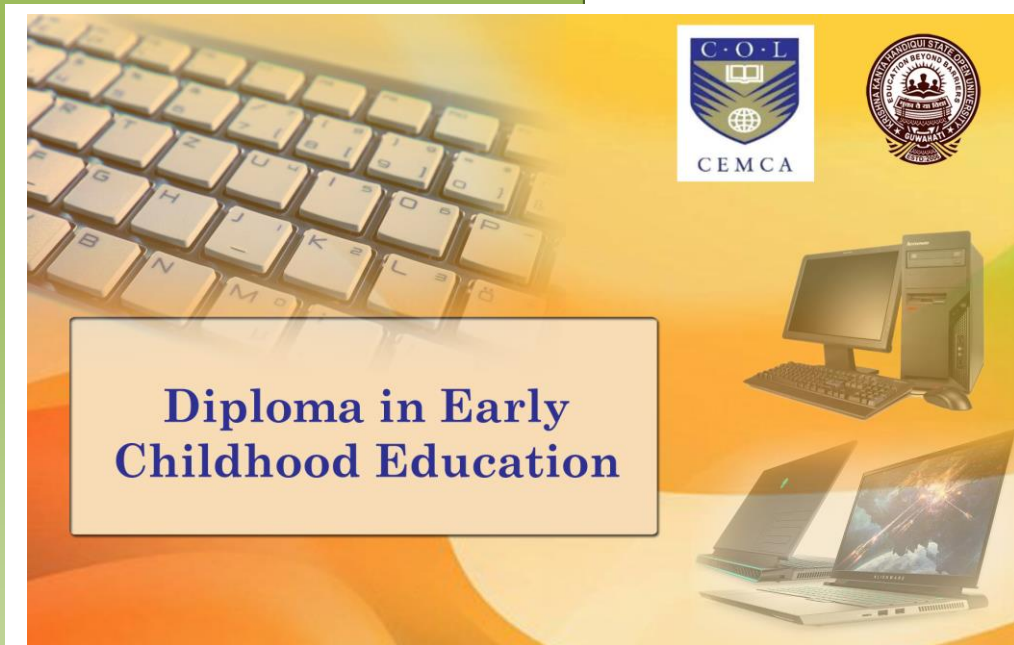


Course : 03

**HEALTH, CARE AND
NUTRITION OF
CHILDREN**



Year : 2021



**Commonwealth Educational Media Centre for Asia
and
Krishna Kanta Handiqui State Open University**





HEALTH, CARE AND NUTRITION OF CHILDREN



**Commonwealth Educational Media Centre for Asia
and
Krishna Kanta Handiqui State Open University**



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Course Introduction

This is the third course of Diploma in Early Childhood Education. There are four modules in this course. The first module gives a detail elaboration of *health and hygiene*. The second module reflects on important aspect of human health i.e. *-nutrition*. The third module deals with the *health record and its allied means*. The fourth and last module of this course highlights upon the other important aspects of health - *ailments, accidents and most important concept of first Aid*

While going through the modules you will find some Video links and QR Codes given inside the boxes. This will help you to understand the content of the module. In some of the modules there are some boxes which highlight the important points of the very module.

Introductory Video of the DECE Programme	Video link : https://www.youtube.com/watch?v=_1vucY - Glo	Scan with QR Code 
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Module I :
HEALTH AND HYGIENE



Module Structure

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- 1.6. Habit formation
- 1.7. Let Us Sum Up
- 1.8. Further Reading

1.1. LEARNING OBJECTIVES

After going through this module, you will be able to—

- Describe the concept of health
- Discuss the importance of health in our life
- Describe the concept of hygiene
- Discuss the importance of hygiene
- Implement the principles of habit formation for good health and well-being in class
- Describe the concept of environmental sanitation
- Discuss the importance of environmental sanitation for maintaining good health


1.2. Introduction

This module deals with two important aspects of our life—health and hygiene. Both health and hygiene are very crucial for a successful life. So, it is essential to take care of our health and hygiene habits right from the young age. Being an early childhood educator, it becomes very important for you to understand about health and hygiene and to develop healthy habits among the children. The child's health is dependent on a large number of factors including the environment and the mother's health. Let us first understand in detail about health.

1.3. Health

We talk about health in our day-to-day life. But, have you ever seriously thought what health is? A person's mental or physical condition is called health. It is the state of being free from illness or injury. A healthy body means the body is

functioning in the right way. We define good health as the state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. To remain healthy and promote overall health, our body requires some fuel which we gain in the form of nutrition.

Health and Hygiene	<p style="text-align: center;">Video link :</p> <p style="text-align: center;">https://youtu.be/lfrETRaQwU4</p>	<p style="text-align: center;">Scan with QR Code</p> 
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1.3.1. Child's Health

A child's health is more important or different from that of adults in that it is in growth stage and in the foundational stage. A child is regarded as healthy if it is free from any diseases. Nutrition is of utmost importance for the health of the child along with a balanced mental and emotional environment. Breast milk is widely acknowledged to be the most complete form of nutrition for most infants, with a range of benefits for their health, growth, immunity, and development. Furthermore, children reared in safe and nurturing families and neighbourhood, free from maltreatment and other adverse childhood experiences, are more likely to have better health as adults. To keep a child healthy, it is necessary to understand its deficiencies, fulfil them accordingly and giving ample opportunities for development.

1.3.2. Maternal health

The importance of caring for mothers is a crucial factor in the health of children. Their well-being determines the health of the next generation. The cognitive and physical development of infants and children may be influenced by the health, nutrition, and behaviour of their mothers during pregnancy and early childhood. During pregnancy, maternal nutrition is very important for the health of the offspring. The ability of mother to provide nutrients and oxygen for her baby is a critical factor for fetal health and its survival. A nutritious diet during pregnancy is linked to good fetal brain development, a healthy birth

weight, and it reduces the risk of many birth defects. A simple way to satisfy nutritional needs during pregnancy is to eat a variety of foods from each of the food groups every day. Consumption of recommended amounts of folic acid before and during pregnancy can reduce the risk for neural tube defects. Moderate exercise is not only considered safe for pregnant women, it's encouraged and thought to benefit both mom and growing baby. A healthy lifestyle can have a massive impact on health. Eating a balanced diet, taking regular exercise and maintaining a healthy weight can add years to life and reduce the risk of certain diseases.

Pregnancy can provide an opportunity to identify existing health risks in women and to prevent future health problems for women and their children. These health risks may include—hypertension and heart disease, diabetes, depression, intimate partner violence, genetic conditions, sexually transmitted diseases (STDs), tobacco, alcohol, and substance use, inadequate nutrition, unhealthy weight, etc.

Moreover, healthy birth outcomes and early identification and treatment of developmental delays and disabilities and other health conditions among infants can prevent death or disability and enable children to reach their full potential. Environmental and social factors such as access to health care and early intervention services, educational, employment, and economic opportunities, social support, and availability of resources to meet daily needs influence maternal health behaviour and health status. The determinants that influence maternal health also affect pregnancy outcomes and infant and child health.

1.4. Hygiene


In the previous section, you have understood what health is. In this section, you will learn about the concept of hygiene, its importance and types. Health and hygiene are very closely related.

1.4.1. Concept of Hygiene

Hygiene is the conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness. It is the practice of keeping ourselves and our surroundings clean, especially in order to prevent illness or the spread of diseases. Hygiene is a set of practices performed to preserve health. In general, hygiene refers to practices that prevent spread of disease-causing organisms.

1.4.2. Importance of Hygiene

As you have seen in the previous section, hygiene is a essential condition for maintaining health and poor hygiene can lead to any number of health issue. Poor hygiene habits can also affect your self-esteem. Personal hygiene habits such as washing our hands and brushing and flossing our teeth will help keep bacteria, viruses, and illnesses at bay. The exercise of proper personal hygiene is one of the essential parts of our daily life. The prevention of communicable diseases, like diarrhea, trachoma and many others is highly possible through the application of proper personal hygiene.

Importance of Hygiene	Video link : https://youtu.be/wkjK0u0_jZI	Scan with QR Code 
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1.4.3. Types of Hygiene

Based on the extent, hygiene may be divided into two types—personal and environmental.

Personal hygiene

Personal hygiene refers to maintaining the body's cleanliness. It includes such personal habit choices as how frequently to bathe, wash hands, trim fingernails

and change clothing. It also includes attention to keep surfaces in the home and workplace clean and pathogen-free. Personal hygiene is defined as a condition promoting sanitary practices to the self. Generally, the practice of personal hygiene is employed to prevent or minimize the incidence and spread of communicable diseases.

Personal hygiene consists of different components. These are—skin care, oral hygiene, hand washing, cloth washing, menstrual hygiene, etc.

Skin care

You have surely seen people sweating. The body has nearly two million sweat glands which produces sweat. Moistened and dried sweat and dead skin cells all together make dirt that sticks on to the skin and the surface of underclothes. The action of bacteria decomposes the sweat, thereby generating bad odor and irritating the skin. This is especially observed in the groin, underarms and feet, and in clothing that has absorbed sweat. Skin infections such as scabies, pimples and ringworm are results of poor body hygiene.

Figure 1 shows ringworm of the scalp (*Tinea capitis*).



<https://emedicine.medscape.com/article/1091351-overview>)

The first task in body hygiene is to find water, soap and other cleansing materials. Taking a bath or a shower using body soap every day or after periods of sweating or getting dirty is very important for skin care. The genitals and the

anal region need to be cleaned well because of the natural secretions of these areas.

Oral hygiene (oral care)

The decaying process that takes place on the surface of the teeth eventually produces a build-up called *plaque* (a sticky deposit on which bacteria grow) that is then converted into *tartar* (a hard, yellowish, calcified deposit on the teeth, consisting of organic secretions and food particles). The result is tooth decay. In addition, unpleasant smelling breath, teeth and gum infections could be a result of poor oral hygiene.

Hand washing

The cleanliness of our hands is very important in all our daily activities. In our normal activities our hands frequently get dirty. There are many situations in which micro-organisms are likely to attach to our hands along with the dirt. There are many communicable diseases that follow the route of face-oral transmission. Hand hygiene plays a critically important role in preventing this transmission. Hygienic hand washing involves removal of micro-organisms from contaminated hand surfaces using soap or detergent.

The following handwashing technique (also shown in Figure 5) ensures that the hands are properly washed and it doesn't take long to complete.

Figure 2: Hand washing methods



Clothes hygiene

We usually have two layers of clothing. The internal layer is underwear (or underclothes) such as pants, vest and T-shirt. These are right next to our skin and collect sweat and dead skin cells, which can stain the cloth. Bacteria love to grow on this dirt and produce a bad smell in addition to the specific odour of the sweat. Underwear must be washed more frequently than the outer layer of clothing. Clothes hygiene is an important aspect of one's dignity. Changing used clothes for clean ones every day is recommended. Washing dirty clothes requires adequate clean water, detergents (solid or powdered soap) and washing facilities. If possible, the washed clothes should be ironed to help the destruction of body lice and nits. Boiling water can be used to destroy clothes infestation.

1.4.4. Food Hygiene

Food hygiene is the conditions and measures necessary to ensure the safety of food from production to consumption. Food can become contaminated at any point during slaughtering or harvesting, processing, storage, distribution, transportation and preparation. Food safety is important for the following reasons. Bacteria, viruses and parasites found in food can cause food poisoning. Food poisoning can lead to gastroenteritis and dehydration or potentially even more serious health problems such as kidney failure. Proper food hygiene is very important when it comes to food preparation. Without washing hands and kitchen tools, diseases may easily spread. Bacteria can also be transferred indirectly, for example from hands, tools, surfaces, knives, and clothes.

1.5. Environmental Sanitation

Sanitation is important for all, helping to maintain health and increase life-spans. However, it is especially important for children. Basic sanitation is described as having access to facilities for the safe disposal of human waste (faeces and urine), as well as having the ability to maintain hygienic conditions, through services such as garbage. The absence of adequate sanitation has a serious impact on health and social development, especially for children. Without improved sanitation—a facility

that safely separates human waste from human contact—people have no choice but to use inadequate communal latrines or to practice open defecation.

In the immediate environment, exposed faecal matter will be transferred back into people's food and water resources, helping to spread serious diseases such as cholera. Beyond the community, the lack of effective waste disposal or sewerage systems can contaminate ecosystems and contribute to disease pandemics. The benefits of having access to an improved drinking water source can only be fully realized when there is also access to improved sanitation and adherence to good hygiene practices.

Activities aimed at improving or maintaining the standard of basic environmental conditions affecting the well-being of people. These conditions include—

- 1) clean and safe water supply
- 2) clean and safe ambient air
- 3) efficient and safe animal, human, and industrial waste disposal
- 4) protection of food from biological and chemical contaminants
- 5) adequate housing in clean and safe surroundings

Environmental impacts of poor sanitation and waste management at a local level include pollution of land and watercourses, the visual impact of litter, and bad odors.

There is difference between sanitation and hygiene. Hygiene has to with personal habits for bodily cleanliness. Sanitation is about facilitating hygiene with clean surroundings. Hygiene and sanitation are mutually bound. Hygiene is defined as a cumulative group of practices that is perceived by groups of people to be a way towards healthy living or good health.

1.6. Habit Formation

Habit formation is the process by which behaviour, through regular repetition, becomes automatic or habitual. A healthy habit is any behaviour that benefits the physical, mental and emotional health of an individual. These habits improve your overall well-being and make you feel good. Healthy habits often require changing your mind-set.

Dietary habits established in childhood are often carried into adulthood, so teaching children how to eat healthy at a young age will help them stay healthy throughout their life. Good nutrition is an important part of leading a healthy lifestyle. Combined with physical activity, a diet can help to reach and maintain a healthy weight, reduce the risk of chronic diseases (like heart disease and cancer), and promote the overall health. Unhealthy eating habits often results in increasing the risk factors for adult chronic diseases like hypertension and type 2 diabetes in younger ages. The part of responsibility as an early childhood educator or a parent is to teach children how to lead healthy lives. The best time to start teaching these lessons is when they are young. This helps them avoid making unhealthy choices and developing lifelong bad habits. It is important that parents set a good example. The following habits of the mother may help in instilling good health in the child as well as in other members of the family—

- Serve a variety of healthy foods and use proper portion sizes.
- Eat meals and snacks together as a family.
- Give your children plenty of water and milk to drink.
- Monitor your children’s activities. They should spend no more than 2 hours per day watching television, using the computer, or playing video games.
- Make physical activity part of your family’s routine.
- Encourage your kids to try group activities, such as team sports or martial arts. These can help a child’s growth and self-esteem.
- Also teach your children healthy oral health habits. This includes brushing their teeth twice per day. Take them to the dentist for regular cleanings every six months.
- Make it known that your children are not allowed to smoke cigarettes, chew tobacco, drink alcohol, or use drugs. Explain why these substances are harmful. Give real-life examples.
- Talk to your children about peer pressure. Role-playing can help prepare them to say no if someone offers cigarettes, alcohol, or drugs.
- Get to know your children’s friends and their friends’ parents.

- Set a good example. Pay attention to how your actions affect your children.
- Be honest with your children about your family's values, and opinions.
- Think about the sexual messages your children get in school and from the media. Talk to your children about these messages to help them understand what is real.
- Keep an open mind. Your children are more likely to talk to you if they aren't afraid of your reactions.

Things to consider

Most children look up to their parents and teachers. It's important for you to set a good example. Get your kids involved by giving them choices. Reward their good behaviour with healthy treats or activities. Staying positive and supportive can help them develop confidence and a lifetime of healthy habits.

1.7: Let us sum up:

After going through the module, it can be summarized as-

- Both health and hygiene are very crucial for a successful life.
- A person's mental or physical condition is called health.
- Good health may be defined as the state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
- Nutrition is of utmost importance for the health of the child along with a balanced mental and emotional environment.
- The cognitive and physical development of infants and children may be influenced by the health, nutrition, and behaviour of their mothers during pregnancy and early childhood.
- A nutritious diet during pregnancy is linked to good fetal brain development, a healthy birth weight, and it reduces the risk of many birth defects.

- Hygiene is the conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness.
- Personal hygiene is defined as a condition promoting sanitary practices to the self.
- Personal hygiene consists of different components. These are—skin care, oral hygiene, hand washing, cloth washing, menstrual hygiene, etc.
- Skin infections such as scabies, pimples and ringworm are results of poor body hygiene.
- Hand hygiene plays a critically important role in preventing this transmission.
- Food can become contaminated at any point during slaughtering or harvesting, processing, storage, distribution, transportation and preparation.
- Environmental impacts of poor sanitation and waste management at a local level include pollution of land and watercourses, the visual impact of litter, and bad odour.
- A healthy habit is any behaviour that benefits the physical, mental and emotional health of an individual.
- The best time to start habit formation is when they are young.
- Keep an open mind. Your children are more likely to talk to you if they aren't afraid of your reactions.

1.8 Further Reading

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<http://www.open.edu/openlearncreate/mod/oucontent/view.php?id=189&printable=1>

OER Link:

[https://spokentutorial.org/watch/Health+and+Nutrition/Personal+Hygiene+needed+for+handling+baby+food/English/\(Nutrition\)](https://spokentutorial.org/watch/Health+and+Nutrition/Personal+Hygiene+needed+for+handling+baby+food/English/(Nutrition))



Module II : NUTRITION



Module Structure:

2.1 Learning Objectives

2.2 Introduction

2.3 What is Food?

2.4 Meaning of Nutrients and Nutrition.

2.4.1 Sign of Good and poor Nutrition.

2.5 What is Balanced Diet?

2.6 Importance of Nutrition for Children's Development.

2.6.1 Nutritional Requirements of Children.

2.6.2 Planning and Preparing Low-cost Nutritious Food and Balanced Menu for Children.

2.6.3 Nutritional values of Locally Available Foods.

2.7. Let us Sum up

2.8 Further Reading

2.1 Learning Objectives

After going through this module, you will be able to -

- define the concept of food.
- discuss the importance of nutrition for children's development.
- explain the balanced diet and requirements of children's nutritional values of locally available foods.
- plan and prepare for low cost nutritional food for children.

2.2. Introduction:

We know that development of human life depends on the care and nutrition a child receives in the preliminary stage of his life. Because proper development relies on the food and nutrition. A healthy child can develop fast and learn more than the underdeveloped one. Therefore, food and nutrition have a very significant role in the early childhood education. In this module, we will discuss about food, nutrients and nutrition, its importance in child's life, and as an anganwadi worker and early childhood teacher to plan and prepare low-cost nutritious food and balanced menu for children. Let's discuss-

2.3. What is Food?

Food is the prime necessity of life. Everybody we eat foods and most people enjoy it. From the beginning, scientists were curious about the food they consumed, its passage in the body and its effects. This curiosity led to the development of the science of nutrition.

Food is defined as anything solid, semi-solid or liquid eaten or drunk which meets the needs for energy, building, growth, regulation and protection of the body.

Food nourishes the body in one or more of the following ways:

- 1) By furnishing fuel for energy to work like carbohydrates and fats.
- 2) By providing materials for building the tissues and repairing them i.e., for growth e.g., amino acids, proteins, carbohydrates and fatty acids.
- 3) By supplying substances for regulating body processes e.g. vitamins and growth hormones.

2.3.1. Classification of food according to five group plan:

The nutrition expert group of Indian Council of Medical Research (ICMR) India suggested a five food group plan---

1. Cereal, millets and its products
2. Pulses, legumes and its products
3. Milk, meat and its products
4. Fruits and vegetables
5. Fats, oil and sugars



Fig 1: Five Food Groups

The role of these five food groups in the diet is comprehensively shown in the Table1. It must be remembered that each group supplies some nutrients and not all nutrients. A combination of items selected from each of the five groups in the right proportion is ideal and will work towards a balanced diet.

Table 1: Nutrients from five food groups:

Food Groups	Food Stuff	Nutrients
1.Cereal, millets and its products	Rice, wheat, jowar, bajra, ragi, maize and their products such as sooji, rice flakes, puffed rice, vermicelli, bread, noodles etc.	Rich source of carbohydrates and fair source of protein, important source of vitamin B, calcium and other minerals.
2. Pulses, legumes and its products	Peas, beans, dals, grain etc.	Fairly good sources of calories, a good source of protein. Provide vitamin B and minerals, vitamin C enhanced on sprouting.
3. Milk, meat and its products	Milk, curd, cheese, paneer, butter, eggs, meat, fish, liver, poultry etc.	Milk is complete food, good source of proteins and fats, calcium and fat soluble vitamins. Meat and meat products are rich source of proteins, phosphorous, vitamin-B complex, iron etc.
4. Fruits and vegetables	Apple, mango, guava, papaya, orange, brinjal, cauliflower, cabbage, spinach, carrot, potato, spinach, amaranth, fenugreek leaves etc.	Fairly good sources of minerals and vitamins. Potatoes are good sources of carbohydrates.
5. Fats, oil and sugars	All oils like ground nut, mustard, til, sunflower, soya, corn. All fats such as ghee, butter, vanaspati. Sugars like table sugar, sugar cubes, jaggery, honey etc.	Concentrated source of fat, calorie and fat soluble vitamins like vitamin A, D, E and K.

2.4. Meaning of Nutrients and Nutrition:

Nutrients are chemical components of food that are needed by the body in adequate amounts in order to grow, reproduce and lead a normal, healthy life. Nutrients include protein, fat, carbohydrate, vitamins, minerals and water.

Nutrition is defined as the science of food and its interaction with an organism to promote and maintain health. Thus, nutrition is a combination of processes by which all parts of the body receive and utilize the materials necessary for the performance of their functions and for the growth and renewal of all the components. The study of the science of nutrition deals with what nutrients we need, how much we need, why we need these and where we can get them. Nutrition is the result of the kinds of foods supplied to the body and how the body uses the food supplied.

Nutrition is of three types-

1. Good or optimum nutrition
2. Under nutrition
3. Malnutrition

1. Good or optimum nutrition: When all the essential nutrients are present in correct proportions as needed by our body, it is known as good or optimum nutrition. Good nutrition helps in maintaining good health. For example- height and weight for age, healthy teeth, skin, hair etc.

2. Under nutrition: It is just opposite to good nutrition. i.e. the amount of nutrients present in the body are below the requirements. An undernourished person becomes weak, susceptible to infections and deficiency diseases.

3. Malnutrition: When one or two nutrients are less or more in the body, that condition is known as malnutrition. Malnutrition affects both physical and mental health and makes one suffers from deficiency diseases. Malnutrition may occur due to less or excess nutrition.

Malnutrition is divided into under nutrition and over nutrition.

- a) **Under nutrition:** When our body gets less than the required amount of food for long time, the nutrition level becomes low which leads to death due to starvation.

- b) **Over nutrition:** When one individual eats more food than his requirements, he will get more nutrition and this will make him over weight. He may also suffer different diseases such as diabetes, joint pain etc.


2.4.1 Signs of Good and Poor Nutrition

Nutrition is the result of the kinds of foods supplied to the body and how the body uses the food supplied. Adequate, optimum and good nutrition are expressions used to indicate that the supply of the essential nutrients is correct in amount and proportion adequate or good nutrition reflects the good nutritional status of the individual.

Nutritional status is the state of our body as a result of the foods consumed and their use by the body. Nutritional status can be good, fair or poor.

The signs of good nutrition are an alert, good natured personality, a well-developed body, with normal weight for height, well developed and firm muscles, healthy skin, and reddish pink colour of eyelids and membranes of mouth, good layer of subcutaneous fat, clear eyes, smooth and glossy hair, good appetite and excellent general health. General good health is evident by stamina for work, regular meal times, sound regular sleep, normal elimination and resistance to diseases.

The signs of poor nutrition are listless, apathetic or irritable personality, undersized poorly developed body, abnormal body weight (too thin or fat and flabby body), muscles small and flabby, pale and sallow skin, too little or too much subcutaneous fat, dull or reddened eyes, lusterless and rough hair, poor appetite, lack of vigour and endurance for work and susceptibility to infections. Poor nutrition leads to poor health which may be the result of poor food selection, irregularity in schedule of meals, work, sleep and elimination.

Food and Nutrition	<p style="text-align: center;">Video link :</p> <p style="text-align: center;">https://youtu.be/TYUKNjjRfCs</p>	<p style="text-align: center;">Scan with QR Code</p> 
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2.5. What is Balanced Diet?

Balanced diet having all the food groups and nutrients in required qualities and quantities in terms of age, sex, physiological stress and strain, occupation and activities. A balanced diet should provide around 60-70% of total calories from carbohydrate, 10-12% from protein and 20-25% of total calories from fat. A balanced diet must contain sufficient amount of carbohydrate, protein, fat, vitamins, minerals and fibre in the required amounts. Each of these nutrients has a vital role in the all-round growth and development of children.

In addition, a balanced diet should provide bioactive benefits. Thus, balanced diet enhances quality of life because-phytochemicals such as dietary fibre, antioxidants and other nutraceuticals which have positive health

- It meets nutritional requirements.
- It provides phytochemicals.
- It prevents degenerative diseases.
- It improves longevity.
- It prolongs productive life.
- It improves immunity.
- It develops optimum cognitive ability and also helps in coping up stress.

The following is the table of the nutritional requirements and balanced diet recommended by Indian Council of Medical Research (ICMR, 2010).

Table 2: Balanced Diet for Children (Number of Portions)

Food Groups	g/portion	1-3 years	4-6 years	7-9 years
Cereals and millets	30	2	4	6
Pulses	30	1	1	2
Milk & milk products	100	5	5	5
Roots and tubers	100	0.5	1	1
Green leafy vegetables	100	0.5	0.5	1
Other vegetables	100	0.5	1	1
Fruits	100	1	1	1
Sugar	5	3	4	4
Fats / oil	5	5	5	6

- One portion of pulse may be exchanged with one portion (50g) of egg/meat/chicken/fish.

Balanced Diet	<p style="text-align: center;">Video link :</p> <p style="text-align: center;">https://youtu.be/iNNalawVlwc</p>	<p style="text-align: center;">Scan with QR Code</p> 
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2.6 Importance of Nutrition for Children’s Development

Childhood and adolescence are periods of continuous growth and development. An infant grows rapidly, doubling its birth weight by 5 months and tripling it by 1 year of age. During the second year, the child increases not only in height by 7-8 cm but also gains 4 times of its birth weight. During the pre-adolescent period the child grows, on an average, 6-7 cm in height and 1.5 to 3 kg in weight every year and simultaneously development and maturation of various tissues and organs take place.

2.6.1. Nutritional Requirements of Children

A well formulated balanced diet for children and adolescents help optimum growth and boosts their immunity-

- A nutritionally adequate and balanced diet is essential for optimal growth and development.
- Appropriate diet and physical activity during childhood is essential for optimum body composition, Body Mass Index (BMI) and to reduce the risk of diet-related chronic diseases in later life and prevent vitamin deficiency.
- Common infections and malnutrition contribute significantly to child morbidity and mortality.
- A child needs to eat more during and after episodes of infections to maintain good nutritional status.

Childhood is the stage in a human’s life associated with growth and development. Growth proceeds rapidly in early life, slows down in middle childhood and accelerates at

puberty before linear growth ceases. With increasing age there is also physical and psychomotor maturation and this influences activity, body composition, feeding skills and food choices. Adequate nutrition is essential for growth, health and development of children. Poor nutrition increases the risk of illness, and is responsible directly or indirectly for one third of the estimated 9.5 million deaths that occurred in 2006 in children less than 5 years of age. As WHO announced inappropriate nutrition can also lead to childhood obesity.

Body Composition in Childhood:

After birth the total body water decreases, and the percentage body weight that is fat increases rapidly to peak at around 6 months of age. Early infancy is then followed by a period of natural slimming until around 5 years of age. This is typically followed by a second phase of relatively rapid fat deposition, the adiposity rebound, which continues almost unabated in girls until growth ceases.

- **Infancy**

Optimal infant and young child feeding practices rank among the most effective interventions to improve child health. The WHO and UNICEF's global recommendations for optimal infant feeding state that an infant should be exclusively breastfed for the first 6 months of life. As announced by WHO, Nutritionally adequate complementary feeding should start from the age of 6 months with continued breastfeeding up to 2 years of age or beyond. Poor breastfeeding and complementary feeding practices are however widespread.

- ❖ **Why “Breast milk is the Best”.**

Human breast milk is specifically designed for the requirements of a human baby. Breast milk contains all the nutrients that an infant needs in the first 6 months of life. This includes fat, carbohydrates, proteins, vitamins, minerals and water Carbohydrates

Lactose is the main carbohydrate (80%) in milk. It is well designed to fit its role in providing the infant's nutritional requirements since it is highly soluble, promotes growth of protective intestinal flora and facilitates calcium absorption through the relative solubility of calcium lactate.

- **Proteins**

Breast milk protein differs in both quantity and quality from animal milks and it contains a balance of amino acids which makes it much more suitable for a baby. Human milk protein is 30 to 40% casein and 60 to 70% whey. Human milk casein forms smaller micelles with looser structure than the casein of cow's milk.

- **Fat**

Although the quantities of fat in human and cow’s milk are not very different, the component fatty acids differ greatly. Human milk fat is higher in unsaturated fat, particularly the essential fatty acids linoleic and alpha-linoleic acid and also contain the long chain polyunsaturated fatty acids (LCPUFA). These fatty acids are important for the neurological development of a child. The fats in human milk are more readily digested and absorbed than those in cow’s milk.

- **Micronutrients**


Breast milk normally contains sufficient vitamins for an infant (besides vitamin D which the infant produces on exposure to sunlight). Breast milk contains lactoferrin and other micronutrient binding compounds. These facilitate absorption of iron, folic acid, vitamin B₁₂, zinc and other micronutrients.

- **Anti-infective factors**

Breast milk contains many factors that help to protect an infant against infection and many diseases.

Complementary feeding

From 6 months of age, an infant’s need for energy and nutrients start to exceed what is provided by breast milk. Complementary feeding therefore becomes necessary. Ideally parents wait till the baby is 6 months old, since the renal and digestive systems are not fully developed at an earlier age and to decrease the risk of food allergies and choking. Complementary foods need to be nutritionally adequate, safe and appropriately fed.

Importance of Nutrition	<p>Video link :</p> <p>https://youtu.be/TQo37bB3L6E</p>	<p>Scan with QR Code</p> 
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Characteristics of good complementary foods:

- Rich in energy, protein and micronutrients (particularly iron, zinc, calcium, vitamin A, vitamin C and folate)
- Not spicy or salty

- Easy for the child to eat
- Liked by the child
- Locally available and affordable

❖ **CALCIUM RICH FOODS:**

- Calcium is needed for growth and bone development.
- Children require more calcium.
- Calcium prevents osteoporosis (thinning of bones).
- Milk, curds and nuts are rich source of bio-available calcium.
- Regular exercise reduces calcium loss from bones.
- Exposure to sunlight maintains vitamin D status which helps in calcium absorption.

❖ **DURING ILLNESS**

- Never starve the child.
- Feed energy rich cereal-pulses diet with milk and mashed vegetables.
- Feed small quantities of frequent intervals.
- Continue breast feeding as long as possible.
- Give plenty of fluids during illness.
- Use oral rehydration solution (ORS) to prevent and correct dehydration during diarrhea episodes.

2.6.2. Planning and preparing low cost nutritious food and balanced menu for children:

❖ **Meal Planning:**

Meal planning or management is the process to provide meals that meet the nutritional and economic needs of the family and at the same time contribute to its social and aesthetic development.

Meal planning is both an art and a science, art in the skillful blending of colour, texture and flavour and a science in the wise choice of food for optimum nutrition and digestion. Meal planning means planning for adequate nutrition. Adequate nutrition is a vital need for everyone in all ages. Body needs a balanced diet. It is defined as that diet which is containing different items of food in such quantities and proportion that need for all the nutrients is adequately met.

❖ **Characteristics of a well-planned nutritious meal:**

The meal is well planned if it fulfills the following characteristics:

1. **Palatability:** First of all we have to see that food has to be palatable before it becomes nutritious as the majority of the people will not eat something they do not like even if it has excellent nutritive value. Appetite is the pleasurable anticipation of food and depends not only on hunger but also on the taste, texture, appearance and attractiveness of the foods.
2. **Judicious combination of foods:** Even the food may be adequate from the nutritional stand point but it should be within the purchasing capacity of the home maker. It means the planners must know the cost of the foods but their cost in relation to food value e.g. when the diet is lacking in milk, butter and eggs then carotene rich vegetables such as pumpkin and carrots are better choices.
3. **Effect of cooking:** It is also very important before meal planning that how best the nutritive value of food can be preserved during cooking so that necessary losses can be avoided.
4. **Purchasing power:** Meal planner should learn to budget carefully the time spent on cooking and use of procedures that will ensure economy of time, labour and fuel.
5. **Variety in foods:** The attractiveness of meals can be greatly increased by introducing an interesting variety of foods. Planners should know the sources of different nutrients, equivalence of foods from the nutritional stand point and the widely different ways in which the same food stuff can be used.
6. **Low cost nutritious foods:** It is not necessary to go in for expensive foods like butter, almond etc. Low cost substitutes can be used while planning the diets.
7. **Use of time saving devices:** It is important to use time and energy saving devices while preparing meals.

Good diet is needed to sustain good health. By health means the wellbeing of an individual in physical, emotional and social conditions. A healthy person will have a positive attitude towards life. To have good diet along with money, knowledge of nutrition is also necessary.

Children who eat a balanced diet lay the foundation for a healthy and active lifestyle and this further lowers the risk of long term health issues. Childhood is the most critical time for growth as well as for development of the mind and to fight infections. So, it is very essential that the children get a good dose of energy, proteins, vitamins and minerals. A well formulated balanced diet is necessary for children and adolescents to achieve optimum

growth and boost their immunity. Balanced diet, playing outdoors, physical activities of child are essential for optimum body composition and to reduce the risk of diet related chronic conditions later in life and to prevent any sort of vitamin deficiency.

Development of bone mass is going on during this childhood period so inclusion of dairy products (curd, milk, cheese, yoghurt) and green leafy vegetables like spinach, amaranth, broccoli and celery which are rich in calcium is a must.

Children require good amount of carbohydrates and fats for energy. Therefore, it is very essential to give them a daily intake of energy rich foods as whole grains (wheat and its products), nuts, vegetable oils, vegetables like potato, sweet potato, carrot etc and fruits like banana, orange etc.

In case of children, proteins are essential for muscle building, repair and growth. So, it is necessary to include meat, egg, fish and dairy products in their daily diet.

A child needs vitamins for the body to function properly and to boost the immune system. A variety of fruits and vegetables of different colours should be added in child's food. Vitamin-A is essential for vision and a deficiency of the same can lead to night blindness (difficulty in seeing in night). Dark green leafy vegetables, yellow-orange coloured vegetables and fruits (such as carrots, papaya, mango, orange etc) are good sources of vitamin.

Vitamin-D helps in bone growth and development and it is essential for absorption of calcium. Children get most of their vitamin-D from sunlight and small amount from some food items like (fish oils, fatty fish, cheese and egg yolks).

Nutrition during childhood is very important because child has not maintained itself but also grow to normal diet stature. A child should be given a nutritional diet i.e. simple and attractive. So, the diet for pre-school child must contain all the five food groups in proper proportions. Some low cost and nutritious food items for children are listed below:

- ❖ Stuffed parantha (stuffed with potato, mashed bengal gram dal or moong dal)
- ❖ Sprouted moong and bengal gram
- ❖ Vegetable sandwich
- ❖ Vegetable cutlet/ fish cutlet
- ❖ Paushtik roti (Add wheat, gram flour and green leafy vegetables)

- ❖ Sago porridge with milk
- ❖ Rice flakes with milk and jiggery
- ❖ Rice flour pan cake
- ❖ Puffed rice and peanut laddoo
- ❖ Mixed vegetable sooji upmah

• **Table 3: A Sample Balanced Menu for Children:**

Time	Menu	Amount
Early morning	Warm milk	1 glass
Breakfast	Stuffed parantha Mixed vegetable Sabji Boiled egg	2nos. 1 katori 1no.
Mid morning	Seasonal fruit (amla, orange, mango, jamun, ripe papaya etc.)	1no.
Lunch	Rice Fish curry with spinach Salad (cucumber, carrot, beet, tomato)	1 katori 1 katori ½ katori
Evening	Rice flakes with milk and jiggery	½ katori
Dinner	Plain rice Soyabean green banana kofta curry Pumpkin and potato Sabji Egg omellete	½ katori 1 katori ½ katori 1 no.

2.6.3 Nutritional Values of Locally Available Foods:

The nutritional value of food defines what a food is made of and its' impact on the body. The health benefits of nutritional values of locally available foods are:

1. **Local foods are fresh:** Fruits and vegetables begin to lose nutrients as soon as they are picked. Buying local produce cuts down travel time from farm/kitchen garden to table. Eg: fresh fruits and vegetables like amla, guava, berries, mango, papaya, potato, pumpkin, bottle gourd, carrot etc. and milk and its home made products such as paneer, sweets, curd etc.
2. **Local foods are seasonal:** Fresh tomatoes and berries all year round, but eating seasonally means avoiding “artificial ripening” with gases or other chemicals. Eating seasonally results in the most delicious and nutrient-dense produce. Eg: banana, pomelo, jackfruit etc.

3. **Local foods promote food safety.** Less distance between food's source and kitchen table leaves less of a chance of contamination and makes people healthy and disease free.
4. **Local foods promote variety.** Local foods create a greater variety of foods.
5. **Local foods support local economy:** Locally available foods are low cost as well as nutritious.

Table 4: Nutritive Value of Some Locally Available Foods:

Food Groups	Carbohydrate g/100g	Protein g/100g	Fat g/100g	Energy Kcal/100g	Calcium mg/100g	Iron mg/100g
Cereal and its products						
Rice, parboiled, milled	79.0	6.4	0.4	346	9.0	1.0
Rice, raw, milled	78.2	6.8	0.5	345	10	0.7
Rice flakes	77.3	6.6	1.2	346	20	20
Puffed flakes	73.6	7.5	0.1	325	23	6.6
Wheat flour	69.4	12.1	1.7	341	48	4.9
Pulses and legumes						
Bengal gram dal	59.8	20.8	5.6	372	56	5.3
Bengal gram whole	60.9	17.1	5.3	360	202	4.6
Black gram dal	59.6	24.0	1.4	347	154	3.8
Green gram whole	56.7	24.0	1.3	334	124	4.4
Red gram dal	57.6	22.3	1.7	335	73	2.7
Green leafy vegetables						
Amaranth	3.8	5.2	0.3	38	330	18.7
Bathua leaves	2.9	3.7	0.4	30	150	4.2
Bottle gourd leaves	6.1	2.3	0.7	39	80	-

Cabbage	4.6	1.8	0.1	27	39	0.8
Colocasia leaves	8.1	6.8	2.0	77	460	0.98
Pumpkin leaves	7.9	4.6	0.8	57	392	-
Mint	5.8	4.8	0.6	48	200	15.6
Curry leaves	18.7	6.1	1.0	108	830	0.93
Spinach	2.9	2.0	0.7	26	73	1.14
Other vegetables						
Bottle gourd	2.5	0.2	0.1	12	20	0.46
Brinjal	4.0	1.4	0.3	24	18	0.38
Cauliflower	4.0	2.6	0.4	30	33	1.23
Jackfruit seeds	25.8	6.6	0.4	133	50	1.5
Pumpkin	4.6	1.4	0.1	25	10	0.44
Tomato	3.6	1.9	0.1	23	20	1.8
Papaya	5.7	0.7	0.2	27	28	0.9
Fruits						
Amla	13.7	0.5	0.1	58	50	1.2
Banana	27.2	1.2	0.3	116	17	3.6
Guava	11.2	0.9	0.3	51	10	0.27
Jackfruit	19.8	1.9	0.1	88	20	0.56
Mango	16.9	0.6	0.4	74	14	1.3
Jambu fruit	14	0.7	0.3	62	15	0.43

Human needs a wide range of nutrients to lead a normal healthy life. For providing these nutrients, good nutrition or proper intake of food in relation to the body's dietary needs is required. An adequate, well balanced diet is a corner stone of good health. Poor nutrition can lead to reduce immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity.

A healthy diet consumed throughout the life-course in preventing malnutrition in all its forms as well as wide range of non-communicable diseases and conditions.

Healthy dietary practices begin early in life. Breast feeding promotes healthy growth and improves cognitive development, and may have longer-time health benefits, like reducing the risk of becoming overweight or obese and developing NCDs later in life.

2.7. Let us Sum up

After going through the module, it can be summarized as-

- Food is the prime necessity of life. Everybody we eat foods and most people enjoy it. From the beginning, scientists were curious about the food they consumed, its passage in the body and its effects.
- A balanced diet should provide around 60-70% of total calories from carbohydrate, 10-12% from protein and 20-25% of total calories from fat.
- Nutrition is the result of the kinds of foods supplied to the body and how the body uses the food supplied
- Nutrients are chemical components of food that are needed by the body in adequate amounts in order to grow, reproduce and lead a normal, healthy life.
- Breast milk contains many factors that help to protect an infant against infection
- The nutrition expert group of Indian Council of Medical Research (ICMR) India suggested a five food group plan-Cereal, millets and its products, Pulses, legumes and its products
Milk, meat and its products, Fruits and vegetables, Fats, oil and sugars
- Meal planning or management is the process to provide meals that meet the nutritional and economic needs of the family and at the same time contribute to its social and aesthetic development.
- Palatability, Judicious combination of foods, Effect of cooking ,Purchasing power: Variety in foods are some of the characteristics of a well-planned nutritious meal
- Human needs a wide range of nutrients to lead a normal healthy life. For providing these nutrients, good nutrition or proper intake of food in relation to the body's dietary needs is required.

2.8 Further Reading

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OER Reading Link:

<https://2012books.lardbucket.org/books/an-introduction-to-nutrition/s06-02-what-is-nutritional-balance-an.html> (Nutrition)

<https://motherchildnutrition.org/healthy-nutrition/about-healthy-nutrition/elements-healthy-diet.html> (Health Diet)



Module III : HEALTH RECORDS



MODULE STRUCTURE

- 3.1 3 Learning Objectives
- 3.2 Introduction
- 3.3 Concept of Health Record
- 3.4 Significance of Health Record
- 3.5 Vital statistics of children
- 3.6 Nutritional records of children
- 3.7 Importance of Immunization
- 3.8 Immunization Schedule for children
- 3.9 Let us sum up
- 3.10 Further Reading

3.1 Learning Objectives

After going through this module, you will be able to—

- describe the concept of health record
- explain the significance of health record
- discuss the vital statistics of children and nutritional record of children
- explain the importance of immunization and immunization schedule for children

3.2 Introduction:

Child health is a matter of concern not only for the parents, but also for the teachers and care taker. Child health occupies the most important place in early childhood education and care. A healthy child can only proceed in the path of development. Healthy mind in a healthy body is a common proverb. Therefore, maintaining health record of the child is utmost necessary aspect of childhood education. This module will help you to acquire adequate concept of health record, the different forms and its importance. It will also help you to understand the immunization system and how to keep immunization schedule of the child. Let's discuss-

3.3 Concept of Health Record

Records are of great value in guiding the behaviour and planning the education of the individual child, for evaluating programmes, methods and outcomes in relation to the objectives of the nursery school in order to improve techniques used by the staff. They are also valuable for parent education as basis for discussion and to keep the parents informed of behaviour and progress of their child at school. Records are indispensable for helping the doctor and other specialists in their understanding of the child.

Health record is a comprehensive record for entering the details relating to personal data, family history, childhood diseases and other diseases, growth particulars, immunization, finding of physical examination, treatment follow up etc. the child's height, and weight measurements are to be made once a month, at the same hour of the day under the same conditions of clothing and eating time. These systematic monthly measurements of height and weight, when noted carefully, will furnish both teachers and parents a simple index of the child's nutritional status. Results of the medical check-up and recommendations can also be entered in the health record.

Purpose of the child health records:

- It provides health information and enables the caregivers to learn about the useful practices they need to undertake to promote the health and development of their children
- It enables the health workers to identify healthy and useful actions that need to be discussed with caregivers
- It helps the caregivers and health workers to follow the child's growth and development and keep records of children's health

3.4: Significance of health record:


Health records have played an important role throughout history as an important legal document for the exercise of individual's rights. The importance of school health has been acknowledged across countries since the beginning of 20th

century. The school health committee (1961) in India recommended medical examination of children at the time of school entry and thereafter every 4 years.

Thus the significance of health record can be presented as-

- It helps in maintaining accurate records as it is essential to provide quality care.
- It helps in protecting the health and safety of children in child care settings.
- Children’s health records can help child care providers identify preventive health needs such as immunizations or dental care.
- It helps in preparing a special care plan for children with chronic health conditions or special health needs such as asthma, and determine whether to include or exclude children from care because of their illness.
- Requiring accurate health information encourages families to have a primary health care provider for each child and facilitates communication between parents, health care providers and child care providers.

If families do not have a regular health care provider, child care providers can connect them with local resources to help them.

Health Records	Video link : https://youtu.be/77IUyWT4JPK	Scan with QR Code 
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3.5: Vital statistics of children:

Vital statistics implies that the data and analytical methods for describing the vital events occurring in communities. The raw data of vital statistics are generally obtained through the sources of population census, sample surveys and vital statistics registration.

The vital statistics are most useful for public health and nutrition. Vital statistics include the counts of births, deaths, illnesses, movements and the various statistical techniques like rates and ratios obtained from them and utilized.

Parameters of vital statistics of Children include:

- a. Neonatal mortality rate.
- b. Pre-school mortality rate.
- c. Disease specific mortality rate.
- d. Maternal mortality rate.
- e. Family size.
- f. Fertility rate.
- g. Incidence or prevalence of chronic disease like T.B., Malaria

A. Measures of mortality:

1. Infant mortality rate:

This is the number of babies dying in the first year of life per 1000 live births. The infant mortality rate is falling as there is improvement in infant feeding.

2. **Perinatal mortality rate:** This is the number of deaths of infants under 1 month and still births per 1000 total births.
3. **Toddler mortality rate:** This is the number of deaths between 1 to 4 years per 1000 toddlers born.

B. Measures of morbidity:

Morbidity relates to types and varieties of diseases one faces or experiences affecting the day to day activity. Incidence rate and prevalence rate are used to quantify morbidity.

Vital statistics are conventionally numerical records of marriage, birth, sickness and death by which the health and growth of community may be studied. It is a branch of biometry deals with data and law of human mortality, morbidity and demography.

Purpose of Vital Statistics:

1. Community health: to describe the level of community health, to diagnose community illness and to discover solutions to health problems.
2. Administrative purpose: it provides clues for administrative action to create administrative standards of health activities.
3. Health programmed organization: to determine success or failure of specific health programmed or undertake overall evaluation of public health work.
4. Legislation purpose: to promote health legislation at local, state and national level.
5. Government purpose: to develop policies, procedure at state and central level.

Sources of vital statistics:

1. **Population census:** First census was held in 1881, since then censuses have been undertaken uninterruptedly once in every 10 year. Census of India 2011 was the 15th census in the continuous series as reckoned from 1872. The task of census taking was completed in two phases. First phase, known as house-listing. The second phase, known as population enumeration. The Indian census is one of the largest administrative exercises undertaken in the world.
2. **Civil registration system:** It is defined as the continuous permanent and compulsory recording of the occurrence of vital events like live births, deaths, fetal deaths, marriages, divorces, as well as annulments, judicial separation, adoption. Civil registration is performed under a law and regulation so as to provide legal basis to the records and certificate made from system.
3. **National Sample Survey Organization (NSSO):** National sample survey organization (NSSO), now known as National Sample Survey office is an organization under the ministry of statistics of the government of India. It was established in 1950 and it is the largest organization in India conducting regular socio economic surveys.
4. **Sample Registration Survey:** In this system, there is continuous enumeration of births and deaths in a sample of villages /urban blocks by a resident part time enumerator and then an independent six monthly retrospective survey by a full time supervisor.
5. **Health survey:** A few important sources for demographic data have emerged. These are National Family Health Surveys (NFHS) and the District Levels Household Surveys (DLHS) conducted for evaluation of reproductive and child health programmes. NFHS provide estimates of fertility, child mortality and a number of fertility, child mortality and a number of health parameters relating to infants and children at state level. The DLHS provide information at the district level on a number of indicators relating to child health, reproductive health problems and quality of services availability to them.

Vital Statistics of Children:

	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001	2011
Annual rates (per 1000 population)												
Birth rate	49.2	48.1	46.4	45.2	39.9	41.7	41.2	37.2	32.5	26.1	25.8	20.22
Death rate	42.6	47.2	36.3	31.2	27.4	22.8	19.0	15.0	11.4	8.7	8.5	7.4
Natural increase	6.6	0.9	10.1	14.0	12.5	18.9	22.2	22.2	21.1	17.4	17.3	12.82
Life Expectancy (in years)												
Combined	23.0	20.2	26.8	31.8	32.1	41.3	45.6	50.5	58.2	61.1	63.00	66
Male	22.6	19.4	26.9	32.1	32.4	41.9	46.4	50.9	57.7	60.4	62.30	67.46
Female	23.3	20.09	26.6	31.4	31.7	40.6	44.7	50.0	58.7	61.8	65.27	72.61
Population (in millions)												

	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001	2011
Total	238	252	252	279	319	362	439	548	683	846	1027	1200
Males	121	128	129	143	164	186	226	284	353	439	531.3	623.7
Females	117	124	123	136	155	176	213	264	330	407	495.7	586.5
Sex ratio (Females per 1000 males)	972	964	955	950	945	946	941	930	934	927	933	940
Ratio of urban population (%)	10.8	10.3	11.2	12.0	13.9	17.3	18.0	19.9	23.3	25.7	27.8	31.16
Density of population (persons / km ²)	77	82	81	90	103	117	142	177	216	267	324	382
Literacy rate (%)												

	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001	2011
Persons	5.4	5.9	7.2	9.5	16.1	18.3	28.3	34.5	43.6	52.2	65.4	74.04
Males	9.8	10.6	12.2	15.6	24.9	27.2	40.4	46.0	56.4	64.1	75.8	82.14
Females	0.6	1.0	1.8	2.9	7.3	8.9	15.3	22.0	29.8	39.3	54.2	65.46
Sex Ratio at Birth												
Male Births	-	-	-	-	-	-	-	-	-	-	-	94,36,361
Female Births	-	-	-	-	-	-	-	-	-	-	-	80,87,068
Sex Ratio at Birth	-	-	-	-	-	-	-	-	-	-	-	857


3.6. Nutritional records of children

Childhood is the stage in a human's life associated with growth and development. Growth proceeds rapidly in early life, slows down in middle childhood and accelerates at puberty before linear growth ceases. With increasing age there is also physical and psychomotor maturation, which influences activity, body composition, feeding skills and food choices. Adequate nutrition is essential

for growth, health and development of children. Poor nutrition increases the risk of illness, and is responsible directly or indirectly for one third of the estimated 9.5 million deaths that occurred in 2006 in children less than 5 years of age. Inappropriate nutrition can also lead to childhood obesity. Their diet in general consists of cereals, roots, tubers and vegetables. Important items like pulses, leafy vegetables, yellow vegetables, milk and its products and other protein sources and fruits are consumed much below their requirement. A colourful plate makes the meal more appealing to children. He or she should be given a nutritional diet i.e. simple and attractive.

Nutritional and food requirements:

- ❖ **Energy:** A child requires more calories per kg of body weight compared to an adult person because of the high basal metabolism of activities, extra physical activity of the child and extra calories needed for growth.
- ❖ **Protein:** A child requires more protein than an adult person not only for tissue repair but also for growth. The main sources of proteins are milk and milk products, meat, fish, eggs, nuts, cereals and pulses, proteins are essential for the secretion of digestive juices and synthesis of enzymes and hormone production. Protein requirement in term of body weight is 1.0 gm of protein per kg body weight is recommended.
- ❖ **Minerals:** Minerals like calcium, phosphorus, iron and salts are essential to maintain good health. The requirement of calcium for children is 400 mg/d and for iron is 18 mg/d for 4-6 years and 26 mg/d for 7-9 years of age.
- ❖ **Vitamins:** Throughout childhood and adolescence 200 I.U. vitamin D should be provided. Nearly 400 to 600 mg of vitamin A in the form of Retinol or 1600 to 2400 mg in the form of carotene is required; the allowance for Ascorbic acid is 40 mg.
- ❖ **CHO and fats:** Carbohydrates and fats are supplied mainly for their calorie value. Raw and cooked vegetables and fruits should be allowed in each meal.

Parameters of Vital Statistics of Children	Video link : https://youtu.be/35SPHv1mLeQ	Scan with QR Code 
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3.7. Importance of Immunization:

Immunization is a process of developing antibodies in an individual by artificially introducing controlled number of germs into the body. It is the process by which an individual's immune system becomes fortified against an agent.

Immunization is done through various techniques, most commonly vaccination. Vaccines against microorganisms that cause diseases can prepare the body's immune system, thus helping to fight or prevent an infection. The fact that mutations can cause cancer cells to produce proteins or other molecules that are known to the body forms the theoretical basis for therapeutic cancer vaccines. Immunizations are often widely stated as less risky and an easier way to become immune to a particular disease than risking a milder form of the disease itself. They are important for both adults and children in that they can protect us from the many diseases out there. Immunization not only protects children against deadly diseases but also helps in developing children's immune systems. Immunization can be achieved in an active or passive manner: vaccination is an active form of immunization.

➤ **Active immunization**

Active immunization can occur naturally when a person comes in contact with, for example, a microbe. The immune system will eventually create antibodies and other defenses against the microbe. The next time, the immune response against this microbe can be very efficient; this is the case in many of the childhood infections that a person only contracts once, but then is immune.

➤ **Passive immunization**

Passive immunization is where pre-synthesized elements of the immune system are transferred to a person so that the body does not need to produce these elements itself. Currently, antibodies can be used for passive immunization. This method of immunization begins to work very quickly, but it is short lasting, because the antibodies are naturally broken down, and if there are no B cells to produce more antibodies, they will disappear.

The importance of immunization can be summarized as-

- Immunization helps the child to become immune (protected) from diseases caused by bacteria or viruses and helps protect others around him.
- Immunization helps to control diseases and prevents them from coming back after they are controlled.
- Vaccinations not only protect the child from deadly diseases, such as polio, tetanus, and diphtheria, but they also keep other children safe by eliminating or greatly decreasing dangerous diseases that used to spread from child to child
- When children are exposed to a disease in vaccine form, their immune system, which is the body's germ-fighting machine, is able to build up antibodies that protect them from contracting the disease if and when they are exposed to the actual disease.

- Immunization is a simple and effective way of protecting children from serious diseases. It not only helps protect individuals, it also protects the broader community by minimizing the spread of disease.
- Vaccines work by triggering the immune system to fight against certain diseases. If a vaccinated person comes in contact with these diseases, their immune system is able to respond more effectively, preventing the disease from developing or greatly reducing its severity.
- Immunization protects against many serious childhood diseases, including-whooping cough (pertussis), measles, German measles (rubella), chickenpox (varicella), tetanus, mumps, polio, diphtheria, hepatitis.

High immunization coverage not only means more individuals are protected but is vital to achieve herd immunity. High coverage reduces the spread of disease to those who have not been vaccinated for medical reasons (eg, children with leukemia while receiving treatment) or because of age (eg, infants who are too young to respond to some vaccines). High coverage also reduces the spread of disease to those who may not mount an effective immune response to vaccines because of an underlying condition (eg, those on immunosuppressive regimes).

3.8. IMMUNIZATION SCHEDULE FOR SMALL CHILDREN

Sl. No	Vaccine	Prevents	Minimum Age for Dose 1	Interval Between Dose 1 and Dose 2	Interval Between Dose 2 and Dose 3	Interval Between Dose 3 and Dose 4	Interval Between Dose 4 and Dose 5
1	BCG	TB & bladder cancer	Birth				

2	HepB	Hepatitis B	Birth	4 weeks	8 weeks		
3	Poliovirus	Polio	Birth	4 weeks	4 weeks		
4	DTP	Diphtheria, Tetanus & Pertussis	6 weeks	4 weeks	4 weeks	6 months (Booster 1)	3 years (Booster 2)
5	Hib	Infections caused by Bacteria	6 weeks	4 weeks	4 weeks	6 months (Booster 1)	
6	PCV	Pneumonia	6 weeks	4 weeks	4 weeks	6 months (Booster 1)	
7	RV	Severe Diarrheal Disease	6 weeks	4 weeks	4 weeks		
8	Typhoid	Typhoid Fever, Diarrhea	9 months	15 months (Booster 1)			
9	MMR	Measles, Mumps & Rubella	9 months	6 months			


10	Varicella	Chickenpox	1 year	3 months			
11	HepA	Liver disease	1 year	6 months			
12	Tdap	Diphtheria, Tetanus & Pertussis	7 years				
13	HPV	Some Cancers & Warts	9 years	For Child aged 9-14 years: 6 months. For Child aged 15 or more: 1 month	For Child aged 15 or more: 5 months		

The above mentioned vaccines are very essential for each child.

Let's know about these vaccines-

1. **B.C.G. (Bacillus Calmette Guerin):** It provides protection against tuberculosis. It is given at birth and the reaction may occur within 3-4 weeks.
2. **D.T.P. (Diphtheria, Tetanus, Pertussis):** It is a triple vaccine providing immunity against diphtheria, pertussis or whooping cough and tetanus. The first dose is injected at 6 weeks of age and the subsequent two doses are given at an interval of 4 weeks. The child may have mild fever after injecting this vaccine.
3. **Polio:** It is an oral vaccine providing immunity against polio disease. The first dose is given at birth, second and third are given at an interval of 4-8 weeks each.
4. **Hepatitis-B:** this vaccine provides protection against jaundice. Jaundice occurs from a virus. The virus is transmitted through contaminated needles and blood transfusion. New born infant gets it from his carrier mother. this vaccine should be given to the baby at birth or one month after birth to protect the child from jaundice. Second dose at 2 months and third at 3½ months.

5. **Measles:** On the 9th month of the child, this vaccine is given to protect from measles. Some children may have fever after injecting measles vaccine.
6. **M.M.R. (Measles, Mumps and Rubella):** this vaccine provides immunity against three diseases. It is given at the age of 15-18 months.
7. **Typhoid:** it is a vaccine providing immunity against typhoid. Typhoid vaccine provides limited protection only therefore second dose can be repeated at an interval of 1-1½ months.

Immunization	Video link : https://youtu.be/VAJo_mZ-fO4	Scan with QR Code 
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3.9 Let us sum up:

- Health record is a comprehensive record for entering the details relating to personal data, family history, and childhood diseases.
- School health is a cost effective strategy for generating health awareness among children and their families
- Child needs a balanced and an adequate diet to supply the materials and energy needed for growth.
- Fruits are generally liked by young children and may be given raw or cooked.
- Vital statistics are conventionally numerical records of marriage, birth, sickness and death by which the health and growth of community may be studied.
- Immunization is a process of developing antibodies in an individual by artificially introducing controlled number of germs into the body. Immunization can be achieved in an active or passive manner.
- Immunization is a simple and effective way of protecting children from serious childhood diseases, including:
 - Whooping cough (pertussis), measles, German measles (rubella), chickenpox (varicella), tetanus etc. are some of the childhood diseases and can be prevented through immunization.

3.10 Further Reading

- Dietary Guidelines for Indians, 2011. National Institute of Nutrition (NIN), Indian Council of Medical Research, ICMR.
- Mary-Jane Schneider, Introduction to Public Health, Viva publisher
- WHO, 2009a. Infant and young child feeding, Model Chapter for textbooks for medical students and allied health professionals.
- WHO, 2009b. Global Data Bank on Infant and Young Child Feeding.

OER Reading Links:

<http://conditions.health.qld.gov.au/HealthCondition/condition/8/118/681/immunisation-is-important-for-children> (Immunization)

<https://symbiosisonlinepublishing.com/nutritionalhealth-foodscience/nutritionalhealth-foodscience146.php> (Nutrition)



Module IV :
ALIMENT, ACCIDENTS AND FIRST AID



Module Structure

4.1: Learning Objectives

4.2: Introduction

4.3: Concept of Accidents and Precautions

4.4: Concept of Malnutrition

4.4.1: Identifying early malnutrition in children

4.4.2: Providing basic remedial measures

4.5: Understanding children's fears and anxiety

4.6: Identification of common ailments and infectious diseases

4.7: Concept of First Aid

4.7.1: Principles and Practice of first aid

4.7.2: Preparation and Administration of First Aid Box

4.8: Let us sum up

4.9 : Further Reading

4.1: Learning Objectives

After going through this module, you will be able to-

- describe the concept of accidents and precautions
- describe the concept of malnutrition
- identify the symptoms of early malnutrition sans provide remedial measures
- identify some of the common ailments and infectious diseases
- describe the concept of first aid
- prepare and administer first aid

4.2: Introduction

Early childhood stage is that stage of human life which is very sensitive and vulnerable to diseases, accidents and malnutrition due to their tender nature. We found that in our country India most of the children are subject to malnutrition. To keep them healthy and free from all diseases and accidents is one of the primary task of early childhood workers. Therefore, it is

essential for them to be acquainted with concept of different ailments and accidents as well as its preventive measures. In this module, we will deal with some of such issues and concept. Lets' discuss-

4.3: Concept of Accidents and Precautions

An accident can result in death, injury, disease or infection, loss of property, damage to environment, or a combination thereof. Accidents can come with business consequences as well, such as compensation costs, loss of productivity, and a decrease in employee morale. World Health Organization has defined accidents as an unplanned, unforeseen, and unexpected occurrence which may involve injury. A number of human factors can cause accidents, such as-Unsafe conduct, Inattention, Negligence, Improper training, Inexperience, Drowsiness, fatigue, or illness. Some of the other factors like-working conditions, workplace designs, substandard safety processes and weather conditions are also responsible.

There are federal, states, and municipal laws and regulations aimed at preventing or reducing the number of accidents. Organizations are required to comply with these and are also expected or encouraged to follow industry best practices.

Types of Accidents:

Physical and non-physical


Physical examples of accidents include unintended motor vehicle collisions or falls, being injured by touching something sharp, hot, moving objects, contacting electricity or ingesting poison.

Non-physical examples are unintentionally revealing a secret or otherwise saying something incorrectly, accidental deletion of data, forgetting an appointment etc. The most severe **injuries among children** are associated with heat related accidents and fall from height. The power to sustain among older children is higher than the younger one after fracture. The percentage is higher among young children regarding burns and scalds and positioning and in gestation accidents

Precautions of Accident:

It is the responsibility of the parents to protect the children from unwanted incidents. A number of measures can be suggested to lower the injury rate:-

- Teachers and teachers should choose toys appropriate to the age of the children.
- Teacher and parents should ensure that small and big object harmful to child are kept out of their reach.
- Some of the household objects like blinds for the window should be kept out of children's reach.
- Caretakers, parents and teachers should keep the objects like strings and plastic bags out of children's reach.
- Parents should ensure that foldable furniture and other equipment are properly placed and locked.
- Children should be clearly advised and instructed not to play while eating.
- Children should be always supervised while taking any kind of food.
- Children should not be left alone in the bathroom or in the basin.
- Adequate care should be provided while the children are playing with peers.

Concept and types of Accidents	Video link : https://youtu.be/Uh0zQ7WJHTg	Scan with QR Code 
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4.4: Concept of Malnutrition

Malnutrition is the condition when the child does not receive essential nutrients, minerals and calories which help in development of vital organs in adequate quantities. Nutrients are important for all child to lead a disease free and healthy life. Lack of sufficient nutrition can lead to several disorders, both physical and behavioural. Here it is important to mention that malnutrition and hunger are not the same although the two might be associated. Hunger is felt when the stomach in empty

whereas malnutrition is the lack of sufficient nutrients. Malnourished kids can be prone to deficiencies which result in stunted growth and chronic sickness.

Types of Malnutrition in Children

Malnutrition is a cause of serious concern globally with more children falling prey to malnourishment each year. The effects of malnutrition can be devastating and far reaching and can cause stunted growth, mental retardation, GI tract infections, anaemia and death. Malnutrition is not only be caused due to lack of nutrients but also due to excessive intake of the same and hence a balanced diet is very important for the child to be nourished and healthy.

Malnutrition is caused by insufficient intake of essential micro-nutrients and the forms of malnourishment are divided into four categories. They are-

Underweight

This is a condition where a child does not grow in weight/height in accordance with the age and remains underweight due to wasting, stunting or both. This form of malnourishment is also known as growth failure malnutrition.

Stunting

Stunting is also known as chronic malnutrition; the condition of stunting in the child begins before birth due to poor health of the mother during pregnancy leading to abnormal and disproportionate growth in the child. Stunting happens over a long period of time and hence has long lasting consequences. The main reasons behind stunting of the baby are poor breast feeding, insufficient supply of nutrients to the body and continued infections.

Micronutrient Deficiency

Micronutrient deficiency or malnutrition indicates the lack of essential vitamins such as vitamin A, B, C and D in the body along with shortage of folate, calcium,

iodine, zinc and selenium. Micronutrient deficiency is caused by prolonged lack of these nutrients in the body.

Wasting

Wasting or acute malnutrition is the situation of sudden and drastic weight loss and leads to three types of clinical malnutrition-

1. **Kwashiorkor:** In this condition, the under-nourished child looks plump because of fluid retention (bilateral pitting oedema) in legs and feet.
2. **Marasmus:** This type of malnutrition occurs when the body fat and tissues degenerate at a drastic rate to compensate for the lack of nutrients in the body. This slows down the activity of the immune system and internal processes in the body.
3. **Marasmic-Kwashiorkor:** This is a mix of both marasmus and kwashiorkor and characterized by severe wasting as well as oedema.

Correct diagnosis of a malnourished baby and identification of the malnourishment is important so that necessary corrective measures can be taken to prevent long lasting and adverse effects of malnourishment.

Cause Malnutrition in Child

Malnutrition can be caused by lack of essential nutrients or by excessive consumption of the same. Following are the causes which can lead to malnutrition in the child-

- **Poor Diet:** Lack of sufficient food intake can cause deficiency of necessary nutrients resulting in malnourishment of the child. A diet which contains food items that are indigestible and harmful can cause a loss of appetite leading to malnutrition.
- **Irregular Diet:** Not consuming food at proper time and regular intervals can lead to indigestion and malnutrition.

- **Digestive Disorders:** Some children might have digestive disorders such as Crohn's disease which limits the ability of the body to absorb nutrients even though healthy food is consumed.
- **Lack of Breastfeeding:** Breastfeeding a new born is very important as breast milk supplies important nutrients to the baby which form the base for the child's development. Lack of breastfeeding can expose the child to malnourishment.
- **Diseases:** Children with bodily diseases are prone to malnutrition and require special care and regulated food habits.
- **Lack of Physical Activity:** Lack of sufficient physical activity can slow down the digestive process leading to malnutrition.

Other causes for malnutrition in children under five years include premature birth, excessive vomiting or diarrhoea, heart defects from birth and other long term diseases.

4.4.1: Identifying early malnutrition in children

In order to treat malnutrition it is important to identify the root cause first. Once the root cause is established, the doctor will suggest specific changes to the diet plan to include supplements and correct quantities of food items to rectify under or over nourishment. Many of the adverse effects of malnutrition can be rectified and reversed if action is taken in time. Signs and symptoms of malnutrition in infants and children depend on the kind of nutritional deficiency the child has. The following signs help to identify early nutrition in children -

- **Tiredness and fatigue:** When the child suffers from malnutrition, they don't show interest in playing, they prefer to sleep.
- **Irritability:** Due to irritation, they keep crying.
- Poor immune system increasing susceptibility of infections
- Dry and scaly skin
- Poor, stunted growth
- Bloated stomach

- Longer recovery time from wounds, infections and illness
- Reduced muscle mass
- Slow behavioural and intellectual development
- Impairment in mental function and digestive problem

4.4.2: Providing basic remedial measures

Malnutrition is the obstacle to child development. After diagnosing with the problem, the doctor will suggest medicines and supplement. But, to keep the child healthy is the first priority of parents and early childhood workers. Therefore, adoption of some remedies can prevent the child from initial stage of malnutrition. Some of the remedies are mentioned here-

Home Remedies


During the initial stages of malnutrition, proper care and consumption of a balanced and nutrient rich diet at home will help the child recover from the condition. Some home remedies to recover from malnutrition include-

- Consumption of nutritious food at regular intervals
- Ensuring a balanced diet for the child
- Following the diet plan suggested by the doctor
- Drinking more than 1.5 litres of water daily

Medication at Hospital

Depending on the severity and cause of malnutrition, the doctor will suggest necessary steps to recover from the condition--

- Consumption of medication and dietary supplements for the child at regular basis.
- Usage of feeding tubes for kids who are unable to eat on their own.
- Intensive care and continuous monitoring in case of severely malnutrition kids

Malnutrition	<p style="text-align: center;">Video link :</p> <p style="text-align: center;">https://youtu.be/W6kYDNaLCVY</p>	<p style="text-align: center;">Scan with QR Code</p> 
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4.5: Understanding children’s fears and anxiety

Most of the time prolonged disease, sudden accident and malnutrition lead the child to emotional imbalance. We know the small children are emotionally unstable. The environment where they live and receive bear an important role on their emotional development. The overall development is very much effected by the emotional adjustment made by the child. Emotions are very important force in the development of the child. An emotionally adjusted child ensures more development than the emotionally unstable one. Emotional development is controlled by maturation and by learning, the five most important forms of which are learning by trial-and-error, by imitation, by identification, by conditioning, and by training. Therefore it is very much essential for the teachers, parents and person dealing with the child to understand their emotional status. Child has many emotions like-love, fear, anger, jealousy, anxiety etc. The two most common emotions of childhood are fear and anxiety. Let’s understand their fear and anxiety emotion----

Fear

Fear is aroused when there are events with which the individual is unable to cope. Before the end of 1st year of life fear producing situations begin to affect the child. Fears are learned. Some are learned by direct association or experience with stimuli that naturally arouse fear. Young children are afraid of more things than either the babies or the older children. The types of fear decrease with age but imaginary fears increases with age i.e. fear for ghosts, robbers skeletons, being alone, death or injury, thunder and lightning or characters recalled from stories, movies, comics and television.

As the child’s activities and interest widen during, ‘childhood stage’, his range of fear widens. When the child is able to anticipate future events and is

imaginative, he will not only be fearful of the present events but also be afraid of the events that are to occur in the future. He/she may imagine fears and dangers in his future life.

Anxiety

Anxiety is kind of fear related emotional pattern. Anxiety is an uneasy mental state concerning impending or anticipated ill. It is accompanied by a feeling of helplessness because the anxious person feels blocked, unable to find a solution for problems. Anxiety is a painful uneasiness of mind concerning impending or anticipated ill. Uneasiness in anxiety differs from the uneasiness involved in fear. In anxiety, the uneasiness is on account of something within the person himself, while in fear it is on account of the threat of an impending danger. Anxiety is a response to hidden and subjective danger, fear of an obvious and objective danger. Though anxiety develops from fear and worry, it is distinguished from them. It is vaguer than fear. Anxiety depends upon the ability to imagine something not present, so it develops later than fear. It is often found more during childhood. Some of the behavioural systems which show anxiety in the child are-show-off behavior, boredom, insecurity, avoidance of anxiety-threatening situations, characteristic reactions, out-of-character behavior, excessive eating, excessive use of mass media and excessive use of defense mechanism.

Some common techniques applied to reduce and or to prevent occurrence of fear and anxiety among children are-

- Diverting the attention of the child from something he might fear and anxiety.
- Reconditioning the child from fearful object.
- Helping the child or creating an opportunity for the child to be acquainted with un-familiar objects.
- Explaining and assuring the child about the harmlessness of the objects or the individual or the factor causing anxiety.
- Teaching some reactions to actual fearful situations.
- Providing emotional support whenever they feel.

4.6: Identification of common ailments and infectious diseases

Keeping the child healthy and free from all kinds of ailments and diseases is prime duty of the parents and early childhood teachers as they are more vulnerable to get infected. To keep them healthy, the parents and teachers must take appropriate measures and protection. Therefore it is very important on their part to identify the common ailments and infectious diseases.

Common Diseases:

1. Headache

- It is one of the most common ailment by which everybody suffers on one or the other occasions. It may be simply due to fatigue, exhaustion, worry or some diseases.

Symptoms

Pain anywhere in head which may be constant, throbbing, or intermittent.

2. Migraine

Headache may follow lack of food, noise, heat, travelling or emotional disturbances.

Symptoms and signs

- Flickering vision can precede headache.
- Nausea and vomiting.
- Intense throbbing headache.
- He cannot tolerate light or noise.

3. Earache

This can be very painful.

Symptoms and signs

Constant or throbbing pain in the ear.

4. Toothache

Most important cause is dental caries.

Symptoms and signs

- Pain in the teeth or jaws, which may be constant, throbbing or intermittent.
- The pain may be made worse by cold or hot food and drink.

5. Common cold and cough

Symptoms and signs

- Running nose.
- Headache.
- Watering of eyes.
- Mild fever.

6. Neckache

Symptoms and signs

Pain anywhere in neck increased by movement.

7. Backache

Same as in neckache.

8. Pain in abdomen

There are many causes of abdominal pain including, indigestion, colic, cramp, loose motions, constipation or food poisoning.

Symptoms and signs:

Pain anywhere in the abdomen which may be dull or sharp. Constant or intermittent, localized or generalized.

9. Diarrhea and dysentery

Watery loose motions are called diarrhea but if they are associated with blood and mucus then these are called dysentery.

Symptoms and signs

- Loose motion.
- Loose motion with blood and mucus.
- Vomiting.
- Fever.
- Malaise, weakness.
- Pain in abdomen.

10. Constipation:

Incomplete evacuation of bowel in 48 hours is constipation.

11. Vomiting

It occurs due to gastritis, food poisoning or travel sickness.

Infectious disease:

Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the diseases can be spread, directly or indirectly, from one person to another. Zoonotic diseases are infectious diseases of animals that can cause disease when transmitted to humans. Some are-

- **Hepatitis A:** Hepatitis A (HAV) is a viral infection primarily affecting the liver. It can range in severity from a mild illness to a severely disabling one lasting for several months. Lifelong immunity follows a case of infection. Hepatitis A is highly infectious to close contacts and therefore spreads easily in very young age groups in settings such as nurseries and schools.
- **Poliomyelitis:** This is an infection caused by one of three types of virus. The virus most commonly invades the gastrointestinal tract and a viremia illness may develop. In some cases the virus invades and destroys the anterior horn cells of the spinal cord. This results in flaccid muscle paralysis, more commonly of the lower limbs.
- **Typhoid:** Typhoid fever (also known as enteric fever) is a severe systemic infection caused by the Gram negative bacterium *Salmonella typhi*. Ingestion of a large number of organisms is usually necessary for the disease to occur unless there is achlorhydria.
- **Diarrhea:** Diarrhea is a clinical syndrome in which there is frequent passage of unusually loose or watery bowel movements, usually three or more in a 24 hour period, sometimes accompanied by vomiting and fever, abdominal pain or cramps, faecal urgency, tenesmus, or the passage of bloody or mucoid stools.
- **Diphtheria:** This is a serious bacterial infection, usually of the throat, caused by *Corynebacterium diphtheriae*. The throat infection may obstruct breathing and cause death. The important feature of an isolate of *C. diphtheriae* is whether it is able to produce toxins.
- **Influenza:** Influenza, commonly known as flu, is one of the oldest and most common diseases known. Influenza is an acute respiratory illness caused by influenza viruses A and B. Laboratory tests are required to distinguish it from other acute respiratory infections.
- **Pertussis:** Pertussis (whooping cough) is a highly infectious acute bacterial disease involving the respiratory tract. The causative bacteria is *Bordetella pertussis* in more than 90% of cases or more rarely *Bordetella parapertussis*. Pertussis is transmitted by airborne contact with respiratory secretions of infected persons.
- **Mumps:** Mumps is an acute viral infection usually affecting the salivary glands, chiefly the parotid gland in 60% of cases; hence the term “infectious parotitis”. The virus is one of

the paramyxovirus family, and commonly affects bilateral as opposed to unilateral parotid salivary glands. The virus may spread in the bloodstream to involve other organ systems and the central nervous system.

- **Rubella:** This is a mild febrile viral illness with a faint rash which is only of importance given the damage it may cause to the foetus when a mother contracts the infection during pregnancy.
- **Measles:** The measles virus is a paramyxovirus mainly affecting the mucous membranes of the respiratory tract and skin producing fever and rash. Measles can lead to fatal complications including pneumonia, diarrhea, and encephalitis (inflammation of the brain).

4.7: Concept of First Aid

First aid is the temporary and immediate treatment given to a person who is injured or suddenly becomes ill, using facilities or materials available at that time before regular medical help is imparted. First aid is the immediate and temporary care given to a victim of an incident or sudden illness until further medical services can be obtained. The primary objective of first aid is to save lives. A school bus driver must know how to administer basic first aid. In an emergency, an error could have disastrous consequences to the patient. It is as important to know what to do as what not to do. A person will respond more quickly to treatment if he/she recognizes that a competent person is administering the first aid.

4.7.1: Principles and Practice of first aid

Principles of first aid:

The general principles of first aid are-

- Principle of preservation
- Principle of airway
- Principle of breathing
- Principle of prevention of deterioration
- Principle of stop bleeding
- Principle of treat shock
- Principle of treat injuries
- Principle of promotion recovery
- Principle of reassure
- Principle of relieve from pain

- Principle of handle with care
- Principle of protection from harm

Practice of first aid

While practicing first aid, the first aider, a common person who may have learnt a standard method at application of first aid best suited to his skill must follow the following responsibilities-

1. Gain access to the patient in easiest and safest way.
2. Observe the accident scene and access the situation.
3. If necessary, direct others to direct traffic, keep bystanders at a safe distance and make essential telephone calls. Turn off all engines that may be still running.
4. To find out whether casualty is unconscious, conscious, alive or dead.
5. Identify the disease or condition from which the casualty is suffering.
6. Give immediate, appropriate and adequate treatment considering priority of first aid measures.
7. Should bear in mind that a casualty may have more than one injury and that some casualties will require more urgent attention than others.
8. Arranging without delay for shifting of the casualty to a doctor, hospital or home according to the condition in such a manner as not to complicate the injury or subject the victim to unnecessary discomfort.
9. Keeping the record of the patient, and of the incidence, addresses and witness.
10. Once a first aider has voluntarily started care he should not leave the scene, or stop the care until a qualified and responsible person relieves him.

4.7.2: Preparation and Administration of First Aid Box

For preparation of first aid, following equipment are needed-

- Bandages of all types
- Cotton balls and cotton tipped swabs
- Instant cold packs
- Thermometer
- Disposable latex or synthetic gloves
- Dressing/gauze pads.
- Adhesive tape.
- Eye protector.

- Stick for tourniquet.
- Upper extremity splint set.
- Lower extremity splint set.

Administration of first aid:

To prevent from minor injuries, the first aider can administer first aid in the following ways-

A. To prevent injury to the eye:

- Asking the patient to lie down so that they are facing the light.
- Stand behind the patient and gently separate their eyelids with your finger and thumb.
- Request the patient to look up and down and to their left and right so that examination of all parts of their eye is possible.
- If the object remains in place, seeking professional help.

B. To prevent from nosebleeds, bleeding from the nose-

- Asking the patient to sit down and tilt their head forwards.
- Requesting the patient pinches the soft part of their nose and breathes slowly through their mouth.
- Advising them to refrain from speaking, swallowing, sniffing, coughing or spitting as this may prevent the bleeding from stopping.
- After 10 minutes, asking the patient to release the pressure that they have been exerting on the soft part of their nose. If blood continues to flow, requesting to reapply pressure for two 10 minute periods. Once the bleeding has stopped, advising the patient to rest and refrain from blowing their nose


C. To prevent from Insect Bites and Stings

- Washing the affected area with soap and cold water and placing a cold compress over the area to lessen swelling.
- Asking the patient to refrain from scratching the affected area. If the patient is in pain, advising them to take a painkiller, such as paracetamol or ibuprofen.
- If the sting can be seen with the naked eye, brushing it off using the edge of a credit card.

- Applying a cold compress to the wound for at least 10 minutes and asking the patient to elevate the limb that has been stung.
- If swelling and pain persists, advising the patient to visit their doctor.

D. To prevent from Cuts and Scrapes

- **Washing hands:** First, washing up with soap and water to prevent from bacteria into the cut and cause an infection.
- **Stopping the bleeding:** Putting pressure on the cut with a gauze pad or clean cloth and keeping the pressure on for a few minutes.
- **Cleaning the wound:** After stopping the bleeding, rinsing the cut under cool running water or using a saline wound wash. After that cleaning the area around the wound with soap and a wet washcloth.
- **Removing any dirt or debris.** Using a pair of tweezers cleaned with alcohol to gently pick out any dirt, gravel, glass, or other material in the cut

First Aid	<p style="text-align: center;">Video link :</p> <p style="text-align: center;">https://youtu.be/22sRMubnwsc</p>	<p style="text-align: center;">Scan with QR Code</p> 
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4.8: Let us sum up

After going through the module, this can be summarized as-

- An accident can result in death, injury, disease or infection, loss of property, damage to environment, or a combination thereof.
- The most severe **injuries among children** are associated with heat related accidents and fall from height.
- Malnutrition is the condition when the child does not receive essential nutrients, minerals and calories which help in development of vital organs in adequate quantities.
- Poor diet, lack of breastfeeding, digestive disorder are some of the causes of malnutrition.
- Through home remedies, medication malnutrition can be prevented.
- Fear and anxiety are the two important emotion during early childhood which can be reduced through proper care made by teachers and parents.

- Some of the common ailments and diseases during childhood are-headache, migraine, Toothache, Diarrhoea and dysentery Hepatitis A Typhoid: Influenza, rubella etc.
- First aid is the temporary and immediate treatment given to a person who is injured or suddenly becomes ill, using facilities or materials available at that time before regular medical help is imparted Principle of preservation
- Some of the principles of first aid are-Principle of airway, Principle of breathing, Principle of prevention of deterioration, Principle of stop bleeding, Principle of treat shock

4.9 Further Reading

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OER Reading Links-

1. <https://motherchildnutrition.org/malnutrition/about-malnutrition/impact-of-malnutrition.html> (Malnutrition)
2. <https://www.qld.gov.au/health/children/school-age/common-issues> (Common Diseases in Children)
3. https://simple.wikipedia.org/wiki/First_aid (First Aid)