

Unit 6



CHILD HEALTH NURSING



LEARNING OBJECTIVES

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

- ❖ to learn about the growth and development of a child.
- ❖ to identify the major child hood problems.
- ❖ to orient about the health programs related to child health.
- ❖ to learn the normal characteristic of newborn
- ❖ to learn nursing care to a healthy neonate
- ❖ to understand the methods and importance of breast feeding
- ❖ to know about additional feeds.
- ❖ to orient the immunization schedule.



திருக்குறள்:

மக்கள் மெய்தீண்டல் உடற்கின்பம் மற்றுஅவர்
சொற்கேட்டல் இன்பம் செவிக்கு.

விளக்கம்:

மக்கள் உடம்பைத் தொடுதல் உடம்பிற்கு இன்பம் தருவதாகும்.
அம்மக்களின் மழலைச் சொற்களைக் கேட்டல் செவிக்கு இன்பம் தருவதாகும்.

EXPLANATION:

The touch of children gives pleasure to the body, and the hearing of their words, pleasure to the ear.

6.1 INTRODUCTION

Child Health Nursing is aimed to provide the highest possible state of health to each child. It includes preventing diseases or injuries, helping children to meet their health needs, to achieve and maintain adequate health and development. The role of the paediatric nurse depends on her education, experience, job structure and professional demands. The child care depends on the understanding of the parent about the growth and development of the child.

The goal of the paediatric nursing is to foster the growth and development of the children and promote an optimum state of health physically, mentally and socially, so that they may function at the peak of their capacity.

6.2 GROWTH AND DEVELOPMENT

Growth is an increase in the size of the whole body or any of its part. It can be measured in inches, centimetres, pounds or kilograms. Development is functional maturation. It is a progressive increase in skills and capacity of function. Each child has its own rate of physical, social, emotional and spiritual growth and development. All children grow through the normal sequence of development.

6.2.1 Factors influencing Growth and Development

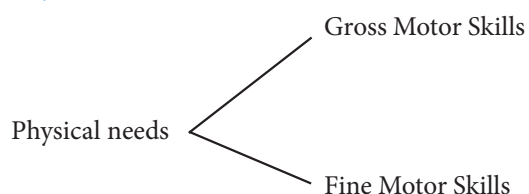
1. **Heredity:** The characteristics are transmitted through genes that are responsible for size, shape of the body and also the family illness.
2. **Race:** Similar physical characteristics are seen in people belonging to the same race.
3. **Sex:** A male baby is larger than female
4. **Intra uterine development:** Maternal and nutritional deficiencies, drugs and infections during pregnancy can have effect on the growing foetus.
5. **Illness and injury:** Illness may reduce the weight and minimise the child's process.
6. **Nutrition:** Quality and quantity of food consumed by the child have effect on his/her body building and resistance.
7. **Environment:** Sunshine, air, socio economic factors also affect children's development.
8. **Ordinal position in the family:** Younger children learn from older, which may be lacked by the first child.
9. **Emotions:** Lack of love, security, and parent child attachment can affect the personality. The disturbed children are always slow in development.
10. **Intelligence:** It influences motor development, Psycho social development and learning ability.
11. **Exercise:** Stimulates physical and muscular activity.
12. **Hormones:** Plays an important role in growth and development. E.g. deficiency of growth hormone causes dwarfism and over production leads to gigantism.

6.2.2 Growth Periods

1. New born – From birth to four weeks.
2. Infant – from birth to one year.
3. Toddler – from one year to three years.
4. Preschooler – from three years to six years.
5. Schoolage – from six to twelve years.

6. Adolescent – from thirteen to nineteen years.

Physical Growth



Gross Motor Skills:- Movement of the whole body. (E.g. Holding a spoon)

Fine Motor Skills:- Takes more learning to get the correct movement. (Eg. Head control)

6.2.3 Infant (1-12 months) : The infancy period is one of the rapid motor cognitive and social development period

Physical growth:- During infant period the birth weight doubles at 6 months and triples at 1 year. Total height increases by 50% at 1 year. Head and chest circumference are equal at 1 year.

Pulse rate is 130 – 140/mt.

Respiration is 36-40 /mt.

Blood pressure is 64/41 – 95/58 mmHg.



Famous premature babies include Albert Einstein, Isaac Newton, Mark Twain, Stevie wonder, Johannes kepler and Sir Winston Churchill.

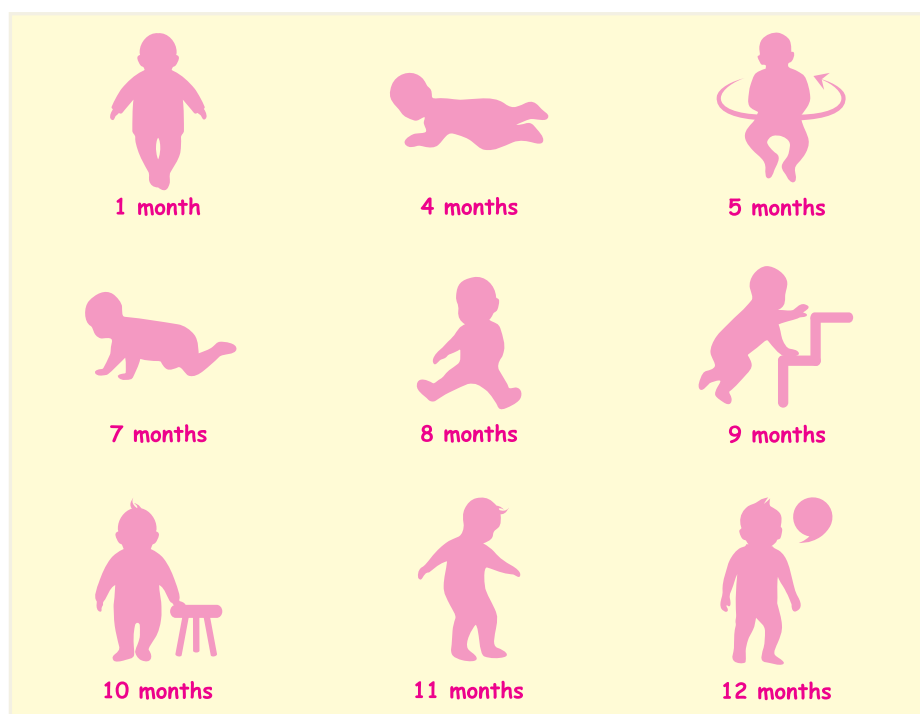
Dentition

Central incisors – 6-8 months.

Lateral incisors – 8-11 months

6.2.4 Mile stone development

- 1 month – Recognizes mother's voice
- 2 months – Social smile
- 3 months – Head control
- 4 months – Giggle and laugh
- 5 months – Turn backs to abdomen
- 6 months – Sitting with support
- 7 months – Sitting without support
- 8 months – Crawling
- 9 months – Standing with support
- 10 months – Stands without support
- 11 months – Walking with support
- 12 months – Walks without support



6.2.5 Toddler: (1-3 years)

Toddler period is characterised by intense activity and discovery. It is a time of marked physical and personality development.

Age	Physical	Development			
		Gross	Fine	language	Psycho social
1-3 yrs	Molar eruption. Temp 97.8 F – 98.4 F Pulse 110-130 /mts Res. 20-40 /mts BP – 91/56 mmHg Chest circumferences exceeds head circumference Average weight gain 2-2.7 kg/years Height increases about 10-12.5cm years.	Climbs up down stairs. Use both feet for jumping Pedals tricycle. Dresses and undresses self.	Drinks from cup. Holds crayons with fingers. Builds and balances to block tower.	Identifies parts when named. Enjoys stories. Asks “why” Repeats phrases and words aimlessly.	Begins to imitate parents. Possessive in nature. Knows own sex attains toilet training.

6.2.6 Preschooler: (3–6 years)

The children between 3 and 6 years of age are known as preschooler. Children in the preschool years grow relatively slow. They become taller and thinner without gaining much weight. They look more like an adult because of skeletal maturation.

Age	Physical growth	Development			
		Gross motor	Fine motor	language	Psycho social
3-6 yrs	Weight 12.5 – 20 kg Height 100 -115 cm Pulse 90-105/mt Respiration 22-30/mt Blood pressure 100/60 mm Hg	Walks in tiptoes. Climbs tree and ladders. Imitates dance steps. Catches a ball smoothly with one hand	Draw a simple face. Cuts around pictures with scissors. Copies letters. Uses 4 word sentences.	Names primary colours Understands directions (under, back, front) Counts 1 to 10 Vocabulary 1200 words	Egocentric fears the dark Dreams and nightmares Jealousy of siblings. Engages in co-operative play.

6.2.7 School aged child (6-12 years)

This is the time of gradual growth and development with more event progress in both physical and emotional aspects.

Age	Physical growth	Development			
		Gross motor	Fine motor	language	Psycho social
6-12 yrs	Weight 20-35 kgs Height 110-140 cm Pulse 90/mt Respiration 20/mt BP 100 /60 mmHg	Performs tricks on bicycle. Throws a ball skill fully. Enjoys all physical activities.	Learns cursive writing Draws person with 18-20 parts Co- ordination continues to improve.	Begins to uses shorter and more compact sentences. Follows suggestion better than requests. Oral vocabulary 7200 words Use parts of speech correctly.	Easy to get along with others Gets short bursts of anger. Hero worship continues.

6.2.8 Adolescent: (13-19 years)

Adolescent is a period of transition from child hood to adulthood. It is time of rapid physical, cognitive, social and emotional maturing. This period is viewed as beginning with the gradual appearance of secondary sex characteristics (11-12 yrs) and ending with cessation of body growth at 18 – 20yrs.

Age	Physical growth		Development			
	Female	Male	Gross motor	Fine motor	language	Psycho social
13-19 yrs	Weight 40 -60 kgs Height 140-166 cms Pulse 66/mt Respiration 16-18/mt BP 112/66 mm Hg	Weight 35-60 kgs Height 140-170 cms Pulse 66 – 70 /mt Respiration 16-18/mt Bp 114 /68/ mm Hg	Comparable to adult level	Comparable to adult level	Comparable to adult level	Egocentrism diminishes Hetro sexual relationship Few close friends Separation from parents.

For girls

Beginning of puberty 8-13 years

- First pubertal change – breast development.
- Pubic hair development.
- Under arm hair development.
- Menstrual period 10 -16.5 years of age.

For boys

- Enlargement of scrotum and testes.
- Pubic hair development.
- Under arm hair development.
- Crack and breaky voice.



Among teens 44% girls are attempting to loose weight and 40% of boys regularly exercise with the goal of increasing muscle mass.

6.3 NEW BORN CHARACTERISTICS

Measurements



1. **Length :** The normal range of height ranges from 47.5 cms to 53.75cms.
2. **Weight:** The normal full term infant weighs between 2700 gms and 3850 gms.

3. **Head circumference :** Usually 33cms – 37cms

4. **Chest circumference :** The chest circumference is about 30-33cms

5. **Skin :** The skin is pink or red. In the black newborn reddish black.

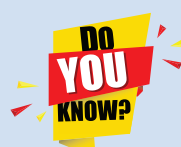
The skin may be covered with vernix caseosa, a cheese like greasy yellowish white substance.

Lanugos is a very thin, soft distribution of fine hair over the body. Most evident on the shoulders, extremities, forehead and temporal.

6. **Ear:** New born's ear cartilages are well formed.

7. **Female genitalia:** Labio majora are fully formed and the clitoris is not prominent.

Male genitalia: Scrotum is well developed pendulous and testes are well down in the scrotal sac.



Baby Valentine in California was the largest newborn baby in the world weighing more than 13 pounds (5.9 kg)

8. **Apgar Score:-** The APGAR score was formulated by Dr. VIRGINIA APGAR in the 1950 as a way of assessing the



baby's condition at birth and the need for resuscitation. Five inter related variables assessed at 1,5 and 10 minutes.

Sign	0	1	2
Appearance	Blue, pale	Body pink Limbs blue	All pink
Pulse (heart rate)	Absent	<100	>100
Grimace (response to stimuli)	None	Grimace	cry
Activity (muscle tone)	Limp	Some flexion of limbs	Active movements
Respiratory effort	None	Slow irregular	Good strong cry



Total score – 10

No depression – 7-10

Mild 4-7

Severe 1-4

The scores are added and the total score is documented. Babies scoring above seven rarely need resuscitation. The APGAR score which is undertaken to determine how well the baby is adjusting from intrauterine to extra uterine life.

9. Vital Signs:

Axillary temperature 36.5° C – 37.6° C

Heart rate 120 – 140/minute

Respiration 40-60 /minute

10. Grasp reflex :

Mature newborn's grasp is strong.



What reflexes should be present in an infant?

1. Rooting reflex – The reflex begins when the corner of the baby's mouth is touched.
2. Sucking reflex – Helps the baby become ready to suck.
3. Moro reflex – It is often called as startle reflex.
4. Tonic neck reflex – Also known as fencing reflex.
5. Grasp reflex – When an object is placed in an infant's hand and the palm of the child is stroked. The fingers will close reflexively.
6. Stepping reflex – when the soles of their feet touch a flat surface, they will attempt to walk by placing one foot in front of another.

6.4 NURSING CARE OF HEALTHY NEONATES

The first week of life is the most critical period in the life of an infant. The expert obstetric care is scarce and the home environment conditions in which baby is born are usually unsatisfactory.



Objectives

1. To establish and maintain cardiopulmonary functions.
2. To maintain body temperature.
3. To avoid infections.
4. For satisfactory feeding regime.
5. For early detection and treatment of congenital and acquired disorders.

6.4.1 Nursing care of healthy new born baby includes

I Immediate care

II Routine care

I. Immediate Care

Immediate basic care of neonates at birth includes maintenance of temperature, establishment of airway, initiation of breathing and maintenance of circulation.

1. Clearing the Airway

As majority babies cry at birth and take spontaneous respiration. No resuscitation is required at birth for about 95 to 98% neonates. Establishment and maintenance of cardio respiratory function (ex. breathing) is the most important thing. The chest movement of the baby is primary and everything else is secondary.

Airways should be cleaned of mucus and other secretions by gentle suction

Resuscitation may require more active measures such as suction, application of oxygen mask, integration and assisted respiration.

2. Apgar Score

It is an useful quantitative assessment of neonates condition at birth, especially for the respiratory, circulatory and neurological status.

II. Daily routine Care of Neonates

- ❖ Warmth
- ❖ Care of umbilical cord
- ❖ Care of the eyes
- ❖ Care of the skin
- ❖ Breast feeding
- ❖ Baby bath
- ❖ Clothing
- ❖ General care
- ❖ Weight Recording
- ❖ Immunization

The major goal of nursing care of the new born, infant is to establish and maintain homeostasis.

1. Warmth

Warmth is provided by keeping the body dry and wrapping with adequate clothing. It can be placed in skin to skin contact with mother to maintain temperature. (Auxillary temp 36.5° C – 37.6°C)

2. Care of Umbilical Cord

The umbilical cord is cut about 2-3 inches from the naval with aseptic precautions during delivery and tied with sterile cotton thread or disposable plastic clip. The cord must be inspected for infection.

3. Care of the Eyes

- Eyes should be cleaned with sterile cotton swabs soaked in sterile water or normal saline.
- Observe the eyes for redness, sticky discharge or excessive tearing for early detection of problems and for prompt management.



4. Care of the Skin

- The baby must be cleaned off blood, mucous and meconium by gently wiping before he or she is presented to the mother.
- During hospital stay 'no bath' reduces the incidence of neonatal infections. No vigorous attempt should be made to remove the vernix caseosa.

5. Breast Feeding

- The baby should be put to the mother's breast within half an hour of birth or as soon as possible.
- No prelactal feeds to be given and colostrums feedings must be offered.
- Educate the mother about breast feeding techniques.
- Initially the feeding should be given in short interval of 1-2 hours and then every 2-3 hours. Most babies regularize their feeding pattern by the end of first week.

6. Baby Bath

- During hospital "No bath"
- Baby bath should be given with warm water in warm room
- Baby should be dried immediately from head to toe and wrapped in a dry warm towel.
- Use of olive oil or coconut oil can be allowed after 3-4 weeks of age.
- Exposure to sunlight is an important source of vitamin D and warmth.

7. Clothing

- The baby should be dressed with loose soft and cotton clothes.
- The clothes should not be too tight around the neck or abdomen.
- Clothes should be cleaned with light detergent and washed properly and sun dried.

8. General Care

- Baby should be handled with gentle approach after proper hand washing.
- No infected person should handle.
- Baby should be allowed to sleep in supine position.

9. Weight Recording

- Average daily weight gain in healthy, new born baby increases about 30g/day in the first month of life.
- It is about 20g/ day in second month and 10g/day afterwards during the first year of life.
- Most infants double their birth weight by 4-5 months.

10. Immunization

- All neonates should be immunized with BCG, 'O' dose OPV and 'hepatitis B' vaccine at birth.
- Mother should be informed about the recommended National Immunization Scheme.

6.4.2 Harmful Traditional Practices

Harmful traditional practices are forms of actions in certain communities. A large number of customs and cultural practices are found for mother and child. Harmful practices should be avoided. The examples are

- Use of cow dung or mud on umbilical cord
- Discarding colostrums and delayed breast feeding. Prelactal feeds like gold rubbed in water, honey, sugar water, distilled water and donkey's milk
- Neglecting female new born emotionally and nutritionally
- Instillation of oil into eye and ears before bath
- Using grape water or bonnison
- Giving opium and brandy
- Using feeding bottles
- Application of kajal in the new born eyes



In Zambia people use the following in umbilical cord as:

Drying agents: charcoal & dust.

Lubricating agents: Vaseline, cooking oil and used motor oil.

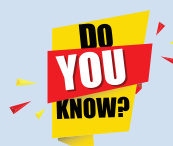
Protective agents: breast milk, cow dung and chicken faeces

6.4.3 Identification of Risk Infants

It means that a new born has great chances of complication because of the mother during labour or birth.

The basic criteria for identifying these babies include

- Birth weight less than 2.5 kg – preterm or small for date. Weight below 70% expected weight
- failure to gain weight during 3 successive months
- Twins, Birth order 5 and more
- Artificial feeding, Children with diarrhoea
- Congenital disorders like down's syndrome
- Apnoea or asphyxia
- Dimorphism



Stem cell therapy:- Stem cell therapy is the use of stem cells to treat or prevent a disease or condition. Bone marrow transplant is the most widely used stem – cell therapy. But some therapies derived from umbilical cord blood are also in use. It is more applicable to treat neurodegenerative diseases and conditions such as diabetes and heart disease.

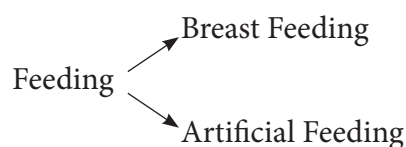
6.5 FEEDING

The growth of the infants during the first 6 months of the life is greater and faster than any other period of life. Feeding plays an important role in it.

Principles

1. To provide sufficient fluid
2. To get adequate food
3. To provide balanced composition
4. To provide easily digestible food

6.5.1 Types of Feeding



Breast feeding: The two important reasons for breast feeding is avoidance of infections and survival.



Advantages of Breast Feeding

1. Ideal composition for easy digestion with low osmotic load.
2. Protection against infection and deficiency disorders.
3. Breast milk are readily available in body temperature and sterile.
4. Requiring no preparation and costs nothing.
5. It has laxative action.
6. No danger of allergy.
7. Maintains healthy mother and child relationship.
8. Chance of conception is less during lactation.
9. Helps in the involution of the uterus.
10. Reduces the risk of breast and ovarian cancer of mother.
11. Breast feeding protects the infant from allergy and bronchial asthma. It also protects against tetany, neonatal hypoglycemia and vitamin deficiencies.
12. It is essential for the brain growth of an infant.

6.5.2 Common Problems in Breast Feeding

Even though breast milk is best to feed the baby as it offers a lot more than just nutrition. There are several challenges in breast feeding. They are

1. Due to mother
2. Due to infant

Due to Mother

1. Reluctance
2. over anxiety
3. Following operative surgery
4. Maternal illness
5. Inadequate secretion
6. Breast ailments

Due to Infant

1. Low birth weight babies
2. Preterm babies
3. Temporary illness
4. Over distension of the foetal stomach
5. Congenital malformation like cleft palate etc

6.5.3 Techniques of Breast Feeding

- Mother should be comfortable and relaxed physically and mentally before giving feed. She should wash her hand and can have a glass of milk or water. Mother should have no due work while feeding the baby.
- Baby should be cleaned and dried before feeding because, baby may feel discomfort or may not co-operate during feeding.

Positioning during Breast Feeding



- Sit or lie down comfortably with mother's back supported.
- Make sure the baby has one arm on either side of the breast as you pull the baby close.
- Use firm pillows or folded blankets under the baby to keep supported during the feeding.
- Support the baby's back and shoulder firmly.
- Once the baby's mouth is open wide, pull the baby quickly on your back.



Babies have a powerful sense of smell and can identify their mother's breast milk by scent.

Common positions used during breast feeding

- a. Football position
- b. Cradling position
- c. Lying down position
- d. Across the lap position
- e. Latching on position

6.5.4 Burping



All babies swallow air when they suck. They collect as a bubble in the babies stomach causing discomfort. So burping of the baby is essential to prevent aspiration of milk into trachea. Burping should be done each time after every feed. Put the baby over the mother's shoulder and give a gentle tap on the child's back, till the baby burps or for few seconds.



World breast feeding week is an annual celebration which is being held every year from 1-7 August in more than 120 countries.



SAVE THE EARTH !

Children of the Earth (icon)

6.5.5 Weaning

It is the process of gradually introducing an infant to what will be its adult diet and withdrawing the supply of its mother milk.

Begin the Weaning by 6 Months

Upto six months no other foods (including water) should be given except breast milk.



Problems during Weaning

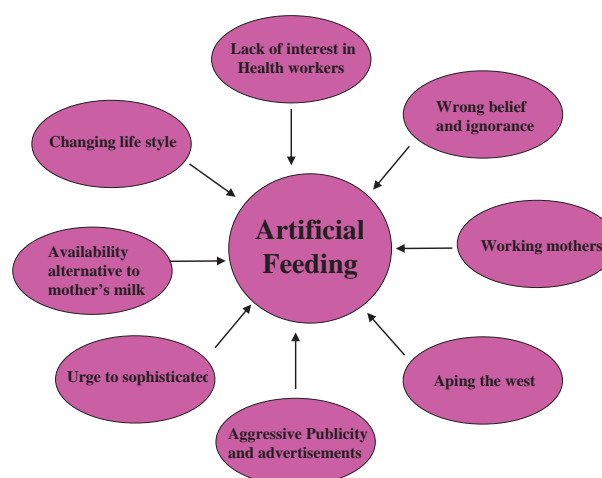
1. If breast feeding is stopped, suddenly, it can have psychological and nutritional effect on the young children.

2. Solid foods can cause diarrhoea if not digested properly.
3. If weaning foods are too poor to provide adequate nutrients, the children can develop malnutrition.

6.6. ARTIFICIAL FEEDING

When the infant is fed by any preparation other than breast milk is called artificial feeding.

Factors contributing to rising incidence of artificial feeding in India



Indication

- Contraindication of breast feeding either temporary or permanent reason.
- Mother reluctant in breast feeding.
- Inadequate of breast milk as evidenced by first feeding.
- Changing life style of women or pressurized under socio economic condition.

Foods used

There is no perfect substitute for breast milk. In general boiled liquid cow's milk various dried milk preparation and to a lesser

event unsweetened or sweetened condensed milk are commonly used as artificial feeds. In some countries goat's milk or buffalo milk are used.

Composition

	Sugar	Fat	Protein	Minerals	Water	Calories
Human	7	3.5	1.2	0.4	89	67
Cow	4.5	3.5	3.4	0.8	88	67

6.6.1 Cup feeding

Various types of utensils are used for artificial feeding of infant. In some communities metal cups or container with a spout are used for this purpose. But cup feeding is more advisable for newborn than bottle feeding.



Advantages of Cup Feeding

- ❖ Promotes tongue action
- ❖ Heat confusion
- ❖ Encourages the initial digestion of the milk in the mouth
- ❖ Easy to sterilize than bottle and heat

Disadvantages

- ❖ Addiction to the cup feed
- ❖ Aspiration may occur with an incorrect technique
- ❖ The length of the feed is longer

Indication

As an interim measure for full term babies when breast feeding is not yet established e.g. maternal infant separation.

For the preterm infant without sufficient suck / swallow coordination.

Procedure

- Ensure the baby is alert and interested.

Gather equipment.

- Expressed breast milk.
- Sterilized cup (small, open, slightly shaped and made from polyethylene or similar)
- Bib / napkin
- Baby's records

- Wash and dry hands
- Sit comfortably with the baby in an upright sitting position. Cuddled close to the parent's body. Consider swaddling the top half of the baby (to prevent hands knocking the cup) and using a suitably placed bib. Choose to feed in skin-to-skin contact.
- Place the cup (about half full, if possible) lightly on the baby's bottom lip, reaching the corners of his mouth, with the level of milk touching his lips. Begin slowly.
- Retain the cup in this position (throughout any pauses) allowing the baby to lap with tongue forwards. Avoid the temptation to pour the milk in.
- The baby will determine the pace and cease feeding when no longer hungry.
- Ensure that the feed time has been relaxed and pleasurable with lots of comfort and social interaction for the baby. Return the baby to a safe environment once finished.

- Wash and sterilize the cup, wash and dry hands.
- Complete documentation, note the volume of liquid ingested, the time taken and the effect for the baby.

When a baby is not being breast fed the midwife has an important role in facilitating safe and effective infant nutrition using formula milk.

Powdered infant formula milk is suitable for newborn babies are modified cow's milk and are either whey or casein dominant whichever milk is chosen, it must be an age suitable formula. Equally where the manufacturers suggest preparation at a lower water temperature; this advice should be disregarded.

6.6.2 Storage of prepared Feeds

- Preparing a powdered feed and then storing it is strongly discouraged.
- It should be prepared as near to the time to leave as possible.
- If the feed is not used within 2 hours it should be discarded.
- If reheating a feed, warm water can be used for upto 15 minute either by placing the bottle in the water or by holding it under a running tap.
- Microwaves should not be used due to the inconsistent action of reheating.

6.6.3 Complementary Feeding

It's a gradual addition of solid foods to the infant's diet according to individual infant's capacity and gradual withdrawal of breast / artificial feeding in frequency and quality.

Principles

- Start weaning when child is free from any Gastrointestinal trouble.
- One food item is introduced at interval of 4-7 days to allow for identification of food allergies and to allow the child to get used to it.
- New foods are fed in small amounts from one teaspoon to few tablespoons.
- Food should not be mixed in bottle and feed through nipple.

6.6.4 Methods of Complementary Feeding

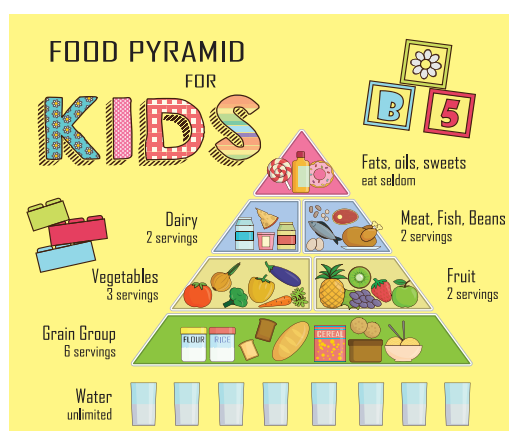
Sl. No.	Age	Food items to be given
1	6 months	<ul style="list-style-type: none"> • Dhal soup • Orange soup / fruit soup • Green leafy vegetable soup • Ragi porridge • Banana
2	7-9 months	<ul style="list-style-type: none"> • Idli • Mashed rice with dhal • Vegetable soup • Egg yolk / fish • Mashed carrot or potato • Biscuits, kitchadi, kesari
3	10-12 months	<ul style="list-style-type: none"> • Chicken, liver • Chappathi, idiyappam • Bread, rice, dhal, egg.

6.6.5 Dietary need

Growth requirements combined with physical activity play a role in determining a child's nutritional needs. Nutritional needs change with different life stages. It is important to take into account the extra demands placed on the body by these changes.

	Toddler	preschool	School age
Calories (kcal)	1200/day	1500-1600/day	2000-2500/day
Protein	1gm/wt/day	1gm/wt/day	1gm/wt/day
Fluid	1100ml/day	1500 ml/day	2100 ml for boys; 1900 ml for girls
Type	Small frequent chopped food	Food in various colours and shapes	All types of food increased quantity

Food pyramid



Foods to be avoided for children

1. Fast food and junk food like chips, popcorn etc
2. Processed meats
3. Canned fruits and drinks
4. Honey
5. Dipping sauces
6. Raw milk and eggs

6.7 IMMUNIZATION

Immunization against vaccine preventable diseases is essential to reduce the child mortality, morbidity and handicapped conditions. It is mass means of protecting large number of children from various diseases.

Definition

Immunization is the process of protecting



STUDENT'S ACTIVITY

Mrs. Ranjitha and her 3 months baby visited the paediatric clinic with the question of

- When should I introduce solid food to my baby?
- Which solid food should I feed my baby first?
- What can I do to minimise the risk of food allergies?
- How do I introduce each new food to my baby?
- What are the signs of a food allergy?
- Do I still need to give my baby breast milk or formula
- How can I help my child to develop healthy eating habits?

Prepare answers for these questions.

an individual from diseases through introduction of live /killed/attenuated organisms in the individual system.

6.7.1 Vaccine preventable Diseases

a) Six killer vaccine preventable diseases

- Poliomyelitis
- Tuberculosis
- Diphtheria

- Pertussis
- Tetanus
- Measles

b) Other vaccine Preventable Diseases

- Hepatitis B
- Rubella
- Typhoid
- Influenza
- Chickenpox
- Yellow fever
- Plague
- Rabies

- Mumps
- Haemophilus influenza Type B
- Meningococcal meningitis
- Pneumococcal Pneumonia
- Rotta virus
- Diarrhoea
- Cholera
- Malaria

6.7.3 The Cold Chain

The cold chain system is necessary, because vaccine failure may occur due to store and transport under strict temperature controls.

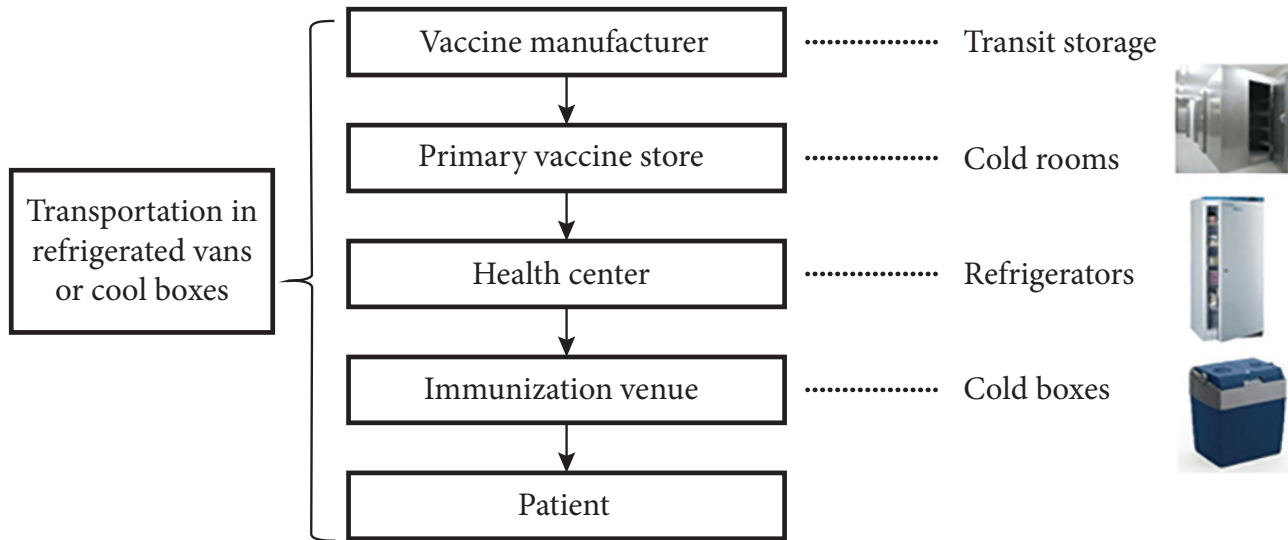
6.7.2 Immunization Schedule

National Immunization Schedule for infants, Children and pregnant Women				
Vaccine	When to give	Dose	Route	Site
For Pregnant Women				
TT – 1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT – 2	4 weeks after TT – 1	0.5 ml	Intra-muscular	Upper Arm
TT - Booster	If received 2 TT doses in a pregnancy within last 3 yrs	0.5 ml	Intra-muscular	Upper Arm
For Infants				
BCG	At birth or as early as possible till one year of age	0.1ml (0.05 ml till 1 month age)	Intradermal	Left Upper Arm
Hepatitis B	At birth or as early as possible within the first 24 days	0.5ml	Intra-muscular	Antero-lateral side of mid-thigh
OPV – O	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1,2&3	At 6 weeks 10 weeks & 14 weeks	2 drops	Oral	Oral
DPT 1,2&3	At 6 weeks 10 weeks & 14 weeks	0.5ml	Intra-muscular	Antero-lateral side of mid-thigh
Hep B 1,2&3	At 6 weeks 10 weeks & 14 weeks	0.5ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles	9 completed months – 12 months	0.5ml	Subcutaneous	Right Upper Arm
Vitamin – A (1st dose)	At 9 months with measles	1ml (1 lakh IU)	Oral	Oral
For Children				
DPT booster	16-24 months	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles 2 nd dose	16-24 months	0.5 ml	Subcutaneous	Right Upper Arm
OPV Booster	16-24 months	2 drops	Oral	Oral
Japanese Encephalitis	16-24 months	0.5 ml	Subcutaneous	Left Upper Arm
Vitamin – A (2 nd to 9 th dose)	16 months. Then, one dose every 6 months upto the age of 6 years	2ml (2 lakh IU)	Oral	Oral
DPT Booster	5-6 years	0.5 ml	Intra-muscular	Upper Arm
TT	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm

JE vaccine, in selected endemic districts after the campaign.

The 2nd and 9th dose of Vitamin A can be administered to children 1 to 5 years old during bi-annual rounds, in collaboration with ICDS.

STORAGE METHOD



Definition

The cold chain is a system of storage and transport of vaccines at low temperature from the manufacturer to the actual vaccination site.



The Cold Chain Equipment

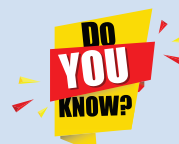
The cold chain equipment consists of:

- Walk in cold rooms
- Deep freezers
- Ice lined refrigerator
- cold boxes
- Vaccine carriers
- Dry carriers
- Ice packs

For successful cold chain system, cold chain equipment, transportation system and motivation and training of the workers for maintenance of cold chain link are essential.

Vaccines stored

- Freezer – polio and measles.
- Cold compartment – DPT, DT, TT, diluents, typhoid and BCG.



1998 study of 12 U.K. children revealed that there is no link between vaccination and autism.

6.8 DISORDERS OF NEWBORN

Neonatal disorders means disturbance of normal state of body organs and abnormal function of a new born.



Neonatal Disorders



6.8.1 Minor Disorders of the Newborn

- a. **Molding:** The head may appear asymmetric in the new born of a vertex birth caused by the over riding of the cranial bones during labour and birth. Diminishes within few days after birth.
- b. **Stuffy Nose:** Stuffy nose leads to mouth breathing and excessive air swallowing which leads to abdominal distension and vomiting. Cleaning the nostrils with cotton swabs soaked with normal saline will reduce the problem.
- c. **Thrush:** Thrush may be oral or in the napkin area including buttocks and inner thighs. Treatment is 1% G.V paint or Nystatin suspension applied with cotton swabs.
- d. **Phimosis:** Pinpoint prepuce which makes the baby cry during micturition. It requires dilatation by mosquito forceps.
- e. **Mangolian Spots:** Bluish black areas of pigmentation more commonly noted on the back and buttocks. They fade gradually all over months or years.
- f. **Nevi:** Telangiectatic nevi are pink and easily planched. They may appear on the upper eyelids, nose, upper lip and nap of the neck. They have no clinical significance and fade my second year of life.
- g. **Physiological Jaundice:** 40% of term neonates and 60% of preterm neonates develop physiological jaundice. Jaundice becomes visible on second and third day. Usually peaking between the second and

fourth day and decreasing between 5th and 7th days of life. It is believed to be the result of increased bilirubin production from the break down of foetal RBCs. Treatment is not necessary, but some children may need phototherapy.

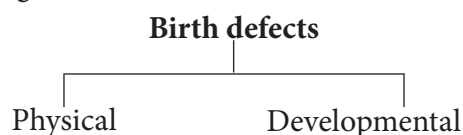
- h. **Pseudo Menstruation:** Pseudo menstruation or vaginal bleeding is caused by pregnancy hormones. It resolves when maternal hormones deplete from neonates body. Reassure the parents.
- i. **Vomiting:** Many newborns vomit, be alert indicate a bowel obstruction which needs attention. Vomi of blood vomit, vomiting green - bile can ting can be due to motion sickness or indigestion.
- j. **Dehydration:** The water content in the body reduces resulting in dehydration. When babies suffer from health problems like cold, cough or throat infection, the intake reduces and resulting in dehydration.
- k. **Diarrhoea:** The poop is normally much softer than an adult, if it suddenly gets much looser or more watery and happens more often and in large amounts it may be diarrhoea. An infection with a virus, bacteria or parasite. Babies can get dehydrated very quickly within a day or two after diarrhoea starts. Continue breast feeding or formula feeding. Small amounts of hydrating solutions should be given frequently.
- l. **Cord infection :** Infection of the umbilical cord stump is called as omphalitis. It can be caused by skin bacteria. Application of an antiseptic to umbilical cord is a best treatment.

6.8.2 Major New born Disorders

It can be divided into congenital anomalies and acquired problems.

6.8.2.1 Congenital Anomalies

It can be defined as structural or functional anomalies, for example metabolic disorders. That occur during intra uterine life and can be identified in prenatal period or birth, or some times may only be detected in infancy such as hearing defects.



Most Common Types

- a. Congenital Heart Disease: An abnormality in the heart that develops before birth ex. Ventricular septal defect.
- b. Down Syndrome: A genetic chromosome 21 disorder causing developmental symptoms.
- c. Cleft Lip and Palate: Opening or splits in the roof of the mouth and lip.
- d. Spina Bifida: Failure in the development of spinal cord.
- e. Club Foot: Foot is twisted out of shape or position.
- f. Phenyl Ketonuria: A birth defect that causes amino acid called phenylalanine to build up in the body.
- g. Edward's Syndrome : A condition that causes severe developmental delays due to chromosome disorder. It also called as trisomy 18.



1983 the average life expectancy of a person with down's syndrome was a mere 25 years old today its 60.

6.8.2.2 Acquired Disorders

These are not inherited or present at birth, but developing after birth. Some of the disorders are

1. Low birth weight
 2. Malnutrition
 3. Infections and parasites
1. **Low birth weight:** A (LBW) low birth weight infant is an infant with a birth weight of less than 2.5 kg regardless of gestational age.

a. **Preterm babies:** Babies born before 37 weeks of gestation. If given good neonatal care these babies can catch up growth by 2-3 years of age.

b. **Small for date:** (SFD) These babies may be born at term or preterm. They weigh less than 10% of the gestational age. SFD have a high risk of dying not only during the neonatal period, but during their infancy most of them become victims of protein energy malnutrition and infections.

Risk factors

1. Malnutrition
2. Infection

Treatment

1. Increase food intake
2. Control infections
3. Early detection and treatment of medical disorders.

2. **Malnutrition:** Scarcity of suitable food, lack of purchasing power of the family, traditional beliefs, taboos, leads to an insufficient balanced diet resulting in malnutrition.

Common deficiencies are

S. No.	Content	Deficiency
1.	Protein	Kwashiorkor
2.	Energy	Marasmus
3.	Vitamins A	Xerophthalmia, Bitots spots
4.	Vitamin D	Rickets
5.	Vitamin K	Coagulating disorder
6.	Vitamin C	Scurvy
7.	Vitamin B Complex	Beriberi, Pellagra, Stomatitis
8.	Calcium	Rickets
9.	Iron	Anaemia

3. Infections and parasitic diseases

Young children fall an easy prey to infectious diseases. They are diarrhoea, respiratory infections, measles, pertussis, polio, neonatal tetanus, tuberculosis and diptheria. Intestinal parasites such as ascariasis, hook worm, and giardiasis are common, because of poor environmental sanitation and paucity of portable drinking water.

6.9 MAJOR CHILDHOOD PROBLEMS

A child's development is usually continuous, but temporary pauses may occur. Common disorders of the children are.

6.9.1 Behavioural problems

Children abandoned by their families present severe social and health problems.

Definition

Behavioural problem is characterised by a significant deviation from the socially accepted normal behaviour.

Etiology

- Faulty parental attitude.
- Inadequate family environment
- Mentally and physically sick or handicapped children
- Influence of social relationship
- Influence of mass media

Common Behavioural Problems

a) Feeding problems:

Food refusal

Over eating

Pica

Anorexia nervosa

b) Habit disorders

Lack of physical activity

Thumb sucking

Nail biting

Enuresis

Encopresis

Internet addict

c) Sleep problems

Somnambulism

Night terrors

Nightmares

Insomnia

d) Adjustment problems

- Disobedience
- Misconduct
- Temper tantrum

e) Anti social problems

- Delinquency
- Kleptomania
- Drug abuse
- Alcohol abuse
- Sexual abuse
- Teen pregnancy
- Smoking

Management

- ❖ Warm and understanding family environment communication between family members should be direct.
- ❖ Deal with emotional disturbances at the earliest.
- ❖ Behavioural therapy.
- ❖ Positive reinforcement
- ❖ Relaxation therapy
- ❖ Referral to child guidance clinic
- ❖ Drug therapy.

6.9.2 Childhood Accidents

Despite the best child proofing and safety efforts childhood accidents sometimes happens.


The examples are

- ❖ Burns
- ❖ Poisoning
- ❖ Drowning
- ❖ Falls
- ❖ Choking, strangulation and suffocation.
- ❖ Common injuries
- ❖ Mishandling guns and cars

Management

Call an ambulance if the child shows the following after accidents.

- ❖ Unconscious
- ❖ Vomited and drowsy
- ❖ Poisoned
- ❖ Dyspnoea
- ❖ Unstopped bleeding from cut or ear
- ❖ Severe pain



One in five children and youth struggle with their behavioural problems. 70% of adult mental illness begins during childhood or adolescence.

6.10 HEALTH PROGRAMMES RELATED TO CHILDREN

- ❖ Maternal and child health programme (MCH)
- ❖ Weekly iron and folic acid supplementation (WIFS) Programme
- ❖ National Deworming day
- ❖ Universal Immunization Programme
- ❖ Rashtriya Bal Swasthya Karyakram (RBSK)
- ❖ Pulse Polio Immunization (PPI)
- ❖ Intensified efforts to reduce child deaths due to diarrhoea
- ❖ The Reproductive and Child health Programme (RCH)
- ❖ Integrated Child Development Services (ICDS)
- ❖ Balwadi Nutrition Programme
- ❖ Mid-day meal programme
- ❖ Pallisrar Kannoli Kappom Thittam

Since India became independent several measures have been undertaken by the Government to improve the health of the

people. A brief account of these programmes which are currently in operation and related to child health are discussed below.

6.10.1 Maternal and Child Health Programme (MCH)

The term maternal and child health refers to the promotive, preventive, curative and rehabilitative health care for mothers and children. The main objective is reduction of maternal, perinatal infant and childhood mortality and morbidity.

6.10.2 Weekly Iron and Folic acid Supplementation (WIFS) Programme

Iron and folic acid supplementation of 100mg iron and 500mg folic acid to reduce the prevalence and severity of anaemia in school going adolescent girls and boys in 6th-12th government / government aided / municipal schools.

6.10.3 National Deworming Day

National deworming day is a single fixed day approach to treating intestinal worm infection in all children aged 1-19 years and is held on 10th February and 10th August each year.



6.10.4 UIP

Universal Immunization Programme (UIP) is a Vaccination Program launched by the Government of India in 1985. It became a part of child survival and safe motherhood programme in 1992. The aim of this programme is to give vaccination for 12 diseases. The twelve diseases are Tuberculosis, Diphtheria, Pertussis, Tetanus, Poliomyelitis, Measles, Hepatitis B, Diarrhoea, Japanese Encephalitis, Rubella, Pneumonia and Pneumococcal diseases.

6.10.5 Rashtriya Bal Swasthya Karyakram (RBSK)

It is a new initiative aiming at early identification and early intervention for, children from birth to 18 years to cover '4D's

- Defects at birth
- Deficiencies
- Diseases
- Delayed developments / Disability

6.10.6 Pulse Polio Immunization: (PPI)

This programme was launched in India in 1995. Children in the age group of 0-5 years administered Polio drops during national and sub national immunization rounds.



World Immunization Day is celebrated every year on November 10.

This day is celebrated to make people aware about the importance of getting timely vaccination against vaccine preventable diseases.

6.10.7 Intensified efforts to reduce child deaths due to diarrhoea

The main aim is to reduce child deaths due

to diarrhoea. All the deaths due to diarrhoea can be prevented by treating dehydration, with the use of ORS (Oral Rehydration Solution) and administration of zinc tablets along with adequate nutritional intake by the child. ASHA worker would undertake the distribution of ORS packets to households with the supervision of safe drinking water, breast feeding, sanitation, nutrition and hand washing. (ASHA – Accredited Social Health Activist)

6.10.8 The Reproductive and Child health Programme (RCH)

This programme was launched in October 1997. The main aim of the programme is to reduce infant, child and maternal mortality rates and to reduce total fertility rate.

The package include

- Prevention and management of unwanted pregnancy.
- Provision of services to promote child survival.
- Prevention and treatment of reproductive tract infection and diseases.



WHO on 24th February 2012 removed India from the list of countries with active endemic wild polio virus transmission.

6.10.9 Integrated Child Development Services (ICDS)

It was initiated by the Government of India in the Ministry of social and women's welfare in 1975. Which provides food, preschool education and primary health care to children under 6 years of age and their mothers.

6.9.10 Balwadi Nutrition Programme

This programme was started in the year 1970 under the Ministry of Social Welfare. The aim is to provide primary education to 3-6 years children. The food supplement provides 300Kcal and 10gms of protein per children.

6.10.11 Mid-day meal programme

Mid-day meal programme is also known school lunch programme to noon meal programme.

This Programme has been in operation since 1961 throughout the country under Ministry of Education. The object is to attract more children for admission to schools and return them so that literacy improvements of children could be brought about.

Principles

- The meal should be a supplement and not a substitute to the home diet.
- The cost of the meal should be reasonably low.
- The menu should be frequently changed to avoid monotonous.

6.10.12 Pallisrar Kannoli Kappom Thittam:



Refractive errors (need for glasses) are the second main cause for avoidable blind and the rate of optometrists in reducing this condition

significantly. It involved many screening activities including cataract and diabetic retinopathy. School children vision screening occupies the major.

Group Activity: Screen the school children for refractive errors. Refer affected children to the Government Hospital and encourage them to wear spectacles.

CONCLUSION

Growth is an increase in the size of the whole body parts, and the development in the functional maturation. The difference stages of growth and development are explained with the measures.

First primary tooth is lost and permanent teeth begins to erupt at 6 – 7 years. Normal length of the newborn is 47.5cms to 53.75 cms and weight is 2.7 kgs to

3.8 kgs. APGAR score was formulated by Dr. Verginia Apgar in 1950. The baby should be put to the mother's breast with in half an hour of birth or as soon as possible.

All neonates should be immunized with BCG, 'O' dose of OPV, and 'hepatitis B' vaccine at birth. When the infant is feed by any preparation other than human milk is called artificial feeding. Immunization is the process of protecting an individual from a disease through introductions of live/killed/attenuated organisms in the individuals systems.

There are minor and major disorders in infants. Acquired disorders means they are not inherited or present at birth, but developing after birth. Several measures have been under takes by the central government to improve the health of the people. These are called national health programs.

A-Z GLOSSARY

Burping (ஏப்பமிடுதல்)	-	Make a baby belch after feeding typically by patting its back.
Complementary feeding (கூடுதல் உணவு)	-	contributes extra feeding.
Encopresis (தன்னையறியாமல் மலம் கழித்தல்)	-	Untrained toilet habit or involuntary passage of faeces.
Enuresis (தன்னையறியாமல் சிறுநீர் கழித்தல்)	-	involuntary urination.
Grimace (முகபாவனை)	-	Twisted expression on a child's face.
Insomnia (தூக்கம் இல்லாமை)	-	Inability to fall asleep.
Immunisation (நோய்த் தடுப்பு)	-	Process of providing immunity against various diseases.
Kleptomania (திருடுவதற்கான கட்டுப்படுத்தமுடியாத ஆசை)	-	Uncontrollable desire to steal.
Refractory errors (ஒளிவிலகல் பிழை)	-	The lens fails to focus images on to the retina.
Somnambulism (தூக்கத்தில் நடத்தல்)	-	sleep walking.



ICT Corner

Hospital Care for Children

Let us know about How to take care of children



Step 1: This is an Android app activity. Open the Browser and type the URL given (or) Scan the QR Code. (Or) search for “WHO Hospital Care for Children” in google play store.

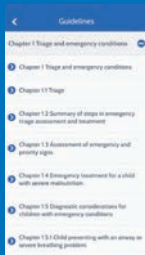
Step 2: (i) Install the app and open the app, (ii) click on the Menu “GUIDELINES”,

Step 3: In the opened page “Guidelines” click the menu “Browse by Chapter ” and then select any “Chapter”

Step 1



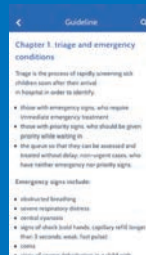
Step 3



Step 2



Step 4



WHO HOSPITAL CARE FOR CHILDREN URL:

<https://play.google.com/store/apps/details?id=au.org.rch.hospitalCareForChildren>

*Pictures are indicative





EVALUATION



I Choose the correct answer:

1. Six killer vaccine preventable diseases include everything of the following except
 - a. polio
 - b. Tuber culosis
 - c. Measles
 - d. Typhoid
2. Birth to 28 days of life in a child is called as
 - a. Neonate
 - b. Infant
 - c. Toddler
 - d. Adolescent
3. Mrs.X L.M.P was January 15th she delivered a male baby in September 16th the baby is a
 - a. Full term baby
 - b. Pre term baby
 - c. Post term baby
 - d. Normal baby
4. Up to how many months of age, exclusive breast feeding should be given
 - a. 1 month
 - b. 6 months
 - c. 8 months
 - d. 2 months
5. Midday meal programme was started since
 - a. 1961
 - b. 1986
 - c. 1950
 - d. 1956
6. Most of the infant double their birth weight by
 - a. 4 to 5 months
 - b. 3 to 4 months
 - c. 6 to 8 months
 - d. 8 to 10 months
7. The baby is said low birth weight neonate when the birth weight is
 - a. < 3.0 kgs
 - b. < 2.7 kgs
 - c. 2.5 kgs
 - d. < 2 kgs
8. Measles vaccine should be given at
 - a. 3 months
 - b. 5 months
 - c. at birth
 - d. 9 months
9. In Which month the infant crawls?
 - a. 4 months
 - b. 5 months
 - c. 11 months
 - d. 8 months
10. Maximum APGAR SCORE is
 - a. 8
 - b. 15
 - c. 11
 - d. 10
11. Bluish black areas of pigmentation more commonly noted on the back and buttocks of the newborn
 - a. Nevi
 - b. thrush
 - c. Mongolian spots
 - d. Skin rashes
12. pentavalent protects against
 - a. Diptheria, pertusis, tetanus, hepatitis B measles.
 - b. Diptheria, pertusis, tetanus, hepatitis B, polio.
 - c. Diptheria, pertusis, tetanus, hepatitis B haemophilus influenza type B.
 - d. Diptheria, pertusis, tetanus haemophilus influenza type B, polio.

II Write short answer for the following questions:

1. Midday meal programme
2. Write briefly on the stages of childhood.
3. Enumerate the physical changes in the toddler?
4. Write briefly about APGAR score
5. What are the objectives of neonatal care?
6. What is meant by growth and development?



7. In all Thursdays iron and folic acid tablets are distributed to all students from 6 – 12th standard. Write briefly about this programme.

III Write short notes for the following questions:

1. Discuss elaborately the characteristics of the normal newborn.
2. Write any five minor disorder of the newborn.
3. How do you identify risk infants?
4. Write the congenital anomalies of the newborn.

IV Answer the following questions in detail:

1. National Immunization schedule.
2. Discuss elaborately the care of newborn.
3. Write about behaviour problems of children.

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WEBLINKS

- <https://www.amazon.com/American.com>
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- Nhm.gov.in>child – health immunization.