



NATIONAL OPEN UNIVERSITY OF NIGERIA

COURSE CODE: NSC 312

**COURSE TITLE: MATERNAL AND CHILD HEALTH
NURSING II**



NATIONAL OPEN UNIVERSITY OF NIGERIA

COURSE GUIDE

NSC 312: MATERNAL AND CHILD HEALTH NURSING II



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INSTRUCTORS AND THEIR CONTACT INFORMATION:

COURSE TEAM

- 1. Mrs. Hanson V.F (Team leader)**
Tel: (234) 08130949720
Email: toriasonus@yahoo.com
- 2. Mrs. Ibitoye O.F**

Tel: (234) 07061683769

Email: bisitoye04@yahoo.co.uk

COURSE COORDINATOR: Mrs. Hanson V.F

COURSE UNITS: 6 units (30 hours of Class Sessions and 135 hours of clinical practice)

☉ **PRE-REQUISITE COURSES:** NSC 315 course.

CON-CURRENT COURSES: All courses at the 300 level of the BNSc degree programme
SESSION: 2014/2015

COURSE OVERVIEW AND DESCRIPTION

Children deserve the best possible care, and this cannot be provided unless there is an understanding of the context of children's lives, both in the community at large and within healthcare settings. The concept of partnership in child health and care focuses upon the need to deliver paediatric care in collaboration with the child and the family. This course encourages the prepares the learner to apply this approach to the delivery of child care in any situation in which he or she works.

The terms and the philosophies applied to in this course can be adapted to suit a number of healthcare workers at various levels and in a range of settings in order to develop caring skills.

NSS 312, Maternal and Child Health Nursing II is a six (6) unit-course for the students in the Bachelor of Nursing Science programme. The course is broken into 3 modules with 9 study units. It is the second part of the course Maternal and Child Health Nursing I. The contents cover growth and development of the neonate/infant, infant feeding methods and practices, common childhood infections and management of a child from birth to adolescent.

The course presents up-to-date information that the nurse/nurse midwife requires in order to provide safe and quality care to children within family context, in institutional care (for example the hospital) and the community (in the school or the child's own home).

COURSE AIM

The overarching aims are to help the learner build on the understanding of the fundamental aspects of child care in order to facilitate safe and quality care; to drive effective practice; to stimulate critical thinking and to generate discussions. This will encourage the development of paediatric caring skills based on sound knowledge. The course will equip the learners with the knowledge, skills and desirable competency in drug administration in midwifery, care and management of a child from birth to adolescence.

COURSE OBJECTIVES

At the completion of this course, the learners should be able to:

1. Discuss the concept of child care and cultural ideas affecting the care of the newborn.
2. Discuss prenatal development and factors that influence development.
3. Explain physiological and physical adaptation of the newborn at birth.
4. Apply the understanding of the physiology of lactation in education and capacity building of mothers for effective breast feeding
5. Explain the principles of exclusive breast feeding and use the knowledge in promoting EBF among mothers.
6. Apply the the principles and theories of child development in planning care for children of different ages.
7. Utilize the approved guidelines in integrated management of childhood illnesses.
8. Apply the knowledge and skills acquired in conducting physical health assessment, planning and implementing jointly planned care of children With families and other health care providers.

Module contents :

Module 1 : Concepts and development of Child health Care

Module 2 The Newborn

Module 3 Culture and newborn infant care

Module 4: Nutritional needs of the newborn

Module 5: Growth and Development

Module 6: Common Childhood Diseases

Module 1: Concept and trends of child health Care**INTRODUCTION**

In this module you will learn as a nurse preparing to care for today's and tomorrow's children and child-rearing families faces vastly different responsibilities and challenges than did the pediatric nurse of even a decade ago. Nurses and other health professionals are becoming increasingly concerned with much more than the care of normal children and also the at-risk and sick children. You will learn about prenatal development of the fetus , the critical periods of development and the factors that affect prenatal development.as well as health teaching; preventing illness; and promoting optimal (most desirable or satisfactory) physical, developmental, and emotional health which have become a significant part of contemporary nursing. Scientific and technological advances have reduced the incidence of communicable disease and helped to control metabolic disorders. Patients now receive health care in the home, at schools and clinics, and from their primary care provider.

MODULE OBJECTIVES

At the end of this module you will be able to:

- i. Discuss the changing concepts in child health care
- ii. Pre natal development

Module Content

Unit 1: Changing concepts in child health care

Unit 2: Pre natal development

Unit 1: Changing concepts in child health care

1.1.0 Unit objectives

At the end of this unit you will be able to

a. Describe the different critical concepts of child health care

1.1.1 Introduction

Child health care has evolved from a sideline of internal medicine to a specialty that focuses on the child and the child's family in health and illness through all phases of development. Technological advances account for many changes in the last 50 years, but sociologic changes, particularly society's view of the child and the child's needs, have been just as important. Pediatrics is a relatively new medical specialty, developing only in the mid-1800s. In colonial times, epidemics were common, and many children died in infancy or childhood. In some cases, disease wiped out entire families. In this unit, your knowledge of 6 critical concepts in child health care will be expanded.

Content

1.1.2 Concepts of newborn care

1.1.2.1 Critical Concept

1.1.2.2 Critical Concept 2

1.1.2.3 Critical Concept 3

1.1.2.4 Critical Concept 4

1.1.2.5 Critical Concept 5

1.1.2.6 Critical Concept 6

1.1.3 Activity

1.1.4 Self-Assessment Questions (SAQs) for Unit 1

1.1.4.1 What does concept 5 of the newborn care address?

1.1.2 Concepts of newborn care

1.1.2.1 Critical Concept 1

Newborns have a unique appearance, with tiny features, disproportionately large heads, and a look of vulnerability. Right after birth, they may have puffy features and misshaped heads.

Expecting parents can prepare themselves for the distinct even startling appearance of their newborns by reading, viewing videotapes, or participating in childbirth classes. They should give in to desires to nurture and protect their newborn. These are natural responses due, in part, to their child's look of helplessness and vulnerability.

1.1.2.2 Critical Concept 2

Newborns spend their time in a narrow range of psychological states. They sleep for many hours. When awake, they cry and eat. Two particularly important states are the alert and waking periods, during which newborns visually explore the world and the people in it.

Infant caregivers and parents should be able to identify and understand the importance of each newborn psychological state. Babies should be afforded opportunities to spend meaningful time in each state; for example, a soothing, quiet space for uninterrupted sleep and a visually stimulating environment for alert looking should be provided. Caregivers should respond appropriately to infants' cries for food and nurturance.

Parents should learn to read newborn states and adjust interactions accordingly. Babies learn most during the active and waking states; these are important times for moderate stimulation. The drowsy state, in contrast, is a time when babies should not be disturbed.

1.1.2.3 Critical Concept 3

Breastfeeding is found to have significant developmental and health benefits for both infants and their mothers. Children who are breastfed have a lower incidence of serious illness, tooth decay, and childhood obesity. Mothers who breastfeed their baby show a higher-quality relationship with their infants and are less likely to be afflicted with breast cancer.

Mothers should try to breastfeed their infants, even if only for a few months following birth. A longer duration of breastfeeding will lead to even more positive outcomes for children.

Professionals can encourage new mothers to breastfeed by providing reading materials and Website addresses describing the many health benefits and by introducing them to support organizations, such as the La Leche League (<http://www.lalecheleague.org>).

1.1.2.4 Critical Concept 4

During waking states, newborns habituate to familiar sights and sounds; that is, once they come to know something, they grow disinterested in it. They become excited when new objects appear

and new events occur. Parents can observe habituation processes in newborns as a way of assessing perceptual and intellectual development. For example, when a baby studies a new mobile and then shows disinterest in it over time, it can be concluded that the child has perceived and learned about the mobile and is now ready for new stimulation. Parents should provide a moderate amount of stimulation for newborns. If the environment does not include interesting events or objects, babies will have nothing to study and habituate to. If too much stimulation is provided, babies may not be able to study and become familiar with any one object or person. They may become overwhelmed by the bombardment of perceptual stimuli.

1.1.2.5. Critical Concept 5

The time newborns spend in various states and how quickly they habituate to new stimuli vary from one ethnic group to another. This may be due partly to genetics. However, parents of diverse backgrounds respond in unique ways to newborn states. For example, some parents respond quickly with warmth and feeding when babies cry; others are slower to respond or use distracting techniques. These differences in interactions may explain some of the diversity in infant states and behavior.

Parents should understand and be sensitive to cultural differences in newborn states and habituation. Care should be taken not to misconstrue neonatal differences as deficits.

Parents should adjust their interactions to the unique state patterns of individual babies. Babies who are easily upset and cry more often should be soothed and nurtured more. Those who are often awake and active should receive more social stimulation. Babies who habituate more slowly should not be overwhelmed with too many novel objects or people. Slow-habituating babies may warm up slowly to new people, new room arrangements, and new experiences.

1.1.2.6 Critical Concept 6

Some newborns may be at risk of poor development. Low-birth-weight infants can suffer poor developmental outcomes, particularly within families living in poverty. Genetic disorders and illness may also threaten healthy development in the earliest days of life. Some problems stem from barriers to health care for families of historically underrepresented groups.

Parents should provide special support for babies in high-risk categories and their families. Low-birth-weight infants, for example, would benefit from greater social and intellectual stimulation in child care. Parent education programs can be provided to help families of high-risk babies provide positive interaction in the home. Parents should serve as advocates for families of

children in high-risk categories. Helping parents gain access to nutritional and health care services is an important role of the infant care provider in modern life. Actually accompanying family members to a clinic or a public assistance office may be necessary to overcome cultural and linguistic barriers to family services.

Parents should take steps to reduce the risk of sudden infant death syndrome; caregivers and medical professionals should educate them in how to do so. Among the recommendations: Babies should always be put to sleep on their backs or sides—never on their stomachs. Adults should never smoke around newborns.

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Unit.

1.1.3 Activity

Visit the Infant welfare clinic, choose 2 newborn and discuss with their parents on their feelings about their birth and babies. Submit your report to your preceptors.

1.1.4 Self-Assessment Questions (SAQs) for Unit 1

1.1.4.1 What does concept 5 of the newborn care address?

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Unit 2: Pre natal development

1.2.0 Unit Objectives

At the end of this unit you will be able to:

- i. Outline the three major stages in pre-natal development
- ii. Describe the critical periods in pre-natal development
- iii. List factors that influence pre-natal development

1.2.1 Introduction

The first 3 weeks of life is crucial to survival of a baby. The neonatal period is from birth to 28 days. The neonate after birth has to make physiological adjustment to extra uterine environment. Health status of newborn depends on pre-natal development. In this unit, you will be exposed to the pre-natal development, physiological status, assessment and common problems of neonate.

1.2.2 PRE-NATAL DEVELOPMENT

The word pre-natal means the period of development before birth. Conception takes place when a male sperm cell unites with or fertilizes the female egg cell. Conception marks the beginning of the pre-natal period of development. The pre-natal period of development spans approximately nine calendar months or 265 days (plus or minus 14 days) of rapid growth and development. Individual differences may, however, occur in the length of the pre-natal period. The shortest time for the fetus to be born alive is 180 days. The longest time, regarded as the legal limit of post-maturity, is 334 days.

1.2.2.1 Stages in Pre-natal Development

The pre-natal period consists of three distinct stages, namely: the germinal, the embryonic and the fetal stages.

1. The Germinal Stage (Fertilization to 2 weeks)

The germinal stage starts when the male sperm cell fertilizes the female egg cell. It is the shortest stage of the pre-natal period of development. It lasts for about two weeks following conception. During this stage, the new organism, now called the zygote travels towards the uterus. On reaching the uterus, the zygote becomes implanted in the wall of the uterus. The wall of the uterus is very rich in nutrients which nourish the zygote.

During the germinal stage, significant changes occur in the internal structure of the zygote. The stage is characterized by rapid cell division.

In addition to increasing number, the cells of the zygote become increasingly specialized. The mass of cells separate into the outer and inner parts. Some of the cells form a protective layer around the mass of cells. Others begin to establish the rudiments of a placenta and the umbilical cord. When fully developed, the placenta serves as a conduit between the mother and the developing organism. The placenta provides nourishment and oxygen via the umbilical cord. Also, waste materials from the developing child are removed through the umbilical cord.

2. The Embryonic Stage (2 weeks to 8 weeks)

The stage of the embryo starts from the end of two weeks after conception and extends to the end of the second month. By the second week the organism had become firmly secured to the wall of the mother's uterus. At this point, the child is called an embryo.

The major highlight of this stage is the differentiation and development of the major organs and the body systems. The embryonic disc first differentiates into three layers: the ectoderm, the mesoderm and the endoderm. Each of these forms a different set of structures as development unfolds.

- The Ectoderm. The outer layer is the ectoderm. The ectoderm forms the epidermis of the skin, hair, nails, teeth, sense organs, the brain and the spinal cord.
- The Mesoderm. The middle layer is the mesoderm. The mesoderm produces the dermis or the inner layer of the skin, the muscle, bones, blood, the circulatory system and the reproductive system.
- The Endoderm. The inner-most layer is the endoderm. The endoderm produces the digestive system, the pancreas and the thymus.

Every part of the human body is formed from the three layers of the embryo mentioned above. The stage of the embryo is characterized by very rapid and orderly changes.

By the end of the embryonic stage the organism resembles a miniature human being. All the basic organs and features of the human being have been formed. However, the sex of the baby cannot be known at this point. Beyond this stage, no other changes in the features take place.

The only further changes are in the relative size of the different parts of the body.

3. The fetal Stage (8 weeks to birth)

The fetal stage is the longest stage in the pre-natal period of development. During this stage, the child is instantly recognizable. The stage starts at about 8 weeks after conception and continues until birth.

The organism, now called the fetus, undergoes outstandingly rapid changes. It increases in length about 20 times. Its proportions also change dramatically. At about the beginning of the fetal stage, the head is about one-half of the fetal size. At the time of birth, the fetal head is only about one quarter of the total size of the fetus.

The fetal stage witnesses increased complexity of the organs and systems. The organs and systems become more differentiated and operational. For example, at 3 months, the fetus swallows and urinates.

Arms develop hands. Hands develop fingers. Fingers develop nails.

At this period, the fetus makes itself known to the outside world. It becomes increasingly active. By 4 months, the mother can feel the movement of the fetus. A wide range of fetal activities become noticeable.

The fetus can now turn, do somersaults, cry, hiccup, clench its fist, open and close its eyes and suck its thumb. The fetus responds to a variety of sensory stimulation such as: taste, smell, sight, touch and sound. Indeed, it has been reported that the fetus heard and responded to sounds it had heard repeatedly.

During the third trimester, the brain grows rapidly, expanding its abilities. The heart and lungs strengthen, making it possible for the fetus to survive on its own if birth comes. The fetus stops growing about 5 to 7 days before birth. It drops into position for delivery. A good number of normal, full-term fetuses end in birth 259 to 273 days after fertilization. We note that good nutrition on the mother's part increases the chances of normal delivery, and a healthy baby.

1.2.2.2 Critical Periods in Pre-natal Development

Critical periods in pre-natal development refer to periods when delicate and important organs and systems of the body are being formed. These periods are considered critical because if the uterine environment is not conducive major structural abnormalities or pre-natal death occur.

Such abnormalities may include central nervous system deformities, organ or system deformities involving the heart, arms, legs, eyes, teeth, palate, external genitalia, or the ear. The effect of adverse uterine environment is most potent at the critical periods of pre-natal development.

The critical periods are: the first trimester or the first three months after conception, the seventh month, and the ninth month. We will look into more details of each of these critical periods.

- The First Trimester

As has already been noted, the first three months of pregnancy includes the germinal and embryonic stages of pre-natal development. During this period, delicate organs and systems of the body form and differentiate. Structural abnormalities and physiological defects of the heart, the central nervous system, the spinal column, the eyes, the ears, the arms and the limbs are most likely to occur during the first trimester.

- The Seventh Month

By the seventh month of pregnancy, the fetus would have attained sufficient development to be viable. The fetus has a chance of survival outside the uterus if delivered pre-term. For a pre-term baby to survive, the central nervous system and the brain must have developed sufficiently to support partial regulation of breathing, swallowing and body temperature. If for whatever reason, the brain and the nervous system failed to complete their development, a pre-term baby will be negatively affected.

- The Ninth Month

By the end of nine calendar months or approximately 280 days of pregnancy, a child should be delivered without much problem.

However, environmental conditions could introduce complications and make the birth process problematic.

Conditions such as a weak womb, a narrow pelvis, improper position of the fetus, maternal illness or malnutrition could result to prolonged labour. A convergence of several health factors, namely: poverty, poor antenatal care, low levels of immunization and unsanitary delivery conditions make the ninth month and the birth process a very critical period in developing countries and especially in Nigeria

1.2.2.3 Factors influencing Pre-natal Development

Fetal environment exert significant influence on fetal development. The degree of influence depends on the nature of the factor, the intensity and the time of exposure to factors. Among the factors are the following: mother's diet, mother's age, mother's illness and mother's drug use.

1. Mother's Diet

A mother's diet plays an important role in sustaining the rapid development of the fetus during the pre-natal development. Studies indicate that a mother who takes diet high in nutrients has fewer complications during pregnancy. Labour is also easier, and the baby generally healthier than a baby whose mother had a diet poor in nutrients. It has been reported that protein and vitamin deficiencies in the mother's diet can result to eye and internal organs defect, and an increase in a number of malformation of the baby

2. Mother's Age

The age of the mother at conception is an important factor that influences pre-natal development. Babies born to teenage mothers are exposed to greater risks than babies born to mothers in their twenties.

The mortality rate of infants and premature deliveries are higher in babies born to adolescent mothers than in babies born to mothers in their twenties. Furthermore, the risks involved in pregnancy are greater, not only for teenage mothers, but also for unusually old mothers. Older mothers are more likely to give birth prematurely, and their children are more likely to have low birth-weights. The incidence of children with Down Syndrome, a form of mental retardation, is more among mothers who are more than 40 years at the time of conception.

3. Mother's Illness

Infectious diseases abound in the African environment. This is more so in the slum areas of the cities. These diseases include: rubella virus, genital herpes, human immuno deficiency virus (HIV), some sexually transmitted diseases such as: syphilis and gonorrhoea; chicken pox, measles, tuberculosis, polio, cholera, leprosy and others.

When a pregnant woman contracts any of these diseases, it may not only affect her health, but it may also be transmitted to the unborn baby.

Depending on when it strikes, an illness in a pregnant woman can have very serious consequences for the unborn baby. The onset of rubella in the mother prior to the 11th week of pregnancy is likely to cause in the baby blindness, deafness, heart defects, or brain damage.

Chicken pox may produce birth defects. Infants born to mothers with HIV/AIDS (Acquired Immune Deficiency Syndrome) may have birth abnormalities, including small, misshapen faces, protruding lips, and brain deterioration.

4. Mother's Drug Use

Mother's use of drugs poses risks to the unborn child. Even drugs prescribed by medical professionals have sometimes posed serious consequences. In the 1950's, many women who were told to take thalidomide for morning sickness during their pregnancies gave birth to children with stumps instead of arms and legs

The physicians who prescribed the drugs did not know that the thalidomide inhibited the growth and development of limbs that normally would have occurred during the first three months of pregnancy.

Pregnant mothers who used illicit drugs such as marijuana and cocaine gave birth to infants who are irritable, nervous, and easily disturbed. In particular, cocaine use was found to produce intense restriction of the arteries leading to the fetus, causing a significant reduction in the flow of blood and oxygen. This process increased the risk of fetal death.

Also, mother's use of alcohol and tobacco can have profound consequences for the unborn child. Studies have found that children whose mothers consumed substantial quantities of alcohol during pregnancy had below average intelligence and had problems in behavior and other psychological functioning. It is because of the risks associated with alcohol and tobacco smoking that physicians today counsel pregnant women to avoid any alcoholic beverages and tobacco smoking.

1.2.3 Activity

Visit the ante natal clinic and discuss with 4 pregnant women on how they are coping with pregnancy. Share your report on the discussion forum

1.2.4 Self -Assessment Questions (SAQ) for Unit 2

1.2.4.1 Describe the critical periods of pre natal development

1.2.4.2 **Critical Periods in Pre-natal Development**

Critical periods in pre-natal development refer to periods when delicate and important organs and systems of the body are being formed. These periods are considered critical because if the uterine environment is not conducive major structural abnormalities or pre-natal death occur.

Such abnormalities may include central nervous system deformities, organ or system deformities involving the heart, arms, legs, eyes, teeth, palate, external genitalia, or the ear. The effect of adverse uterine environment is most potent at the critical periods of pre-natal development.

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- The Ninth Month

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However, environmental conditions could introduce complications and make the birth process problematic.

Conditions such as a weak womb, a narrow pelvis, improper position of the fetus, maternal illness or malnutrition could result to prolonged labour. A convergence of several health factors, namely: poverty, poor antenatal care, low levels of immunization and unsanitary delivery conditions make the ninth month and the birth process a very critical period in developing countries and especially in Nigeria

Module 2: The Newborn**INTRODUCTION**

Every newborn requires a brief physical examination within the first few minutes after birth and then a full and detailed assessment within the next 48 hours and prior to discharge from hospital. A follow up assessment should be performed later in the first week (by a midwife or General Practitioner (GP) outside the hospital setting) and then at 6-8 weeks after birth. The physical examination component of the newborn assessment is the most important screen for major occult congenital anomalies.

In this module you will learn various activities around the assessment and care of a newborn which will prepare you to render a professional care to the newborn.

MODULE OBJECTIVES

At the end of this module you will be able to:

- i. Describe the physical and neurological assessment of the neonate
- ii. Describe the care of the newborn

iii. Discuss the immunization schedule of the newborn baby from birth
Module Content

Unit 1 Features of the new born

Unit 2 Physiological, chemical and structural changes in the newborn

Unit 3 Care of the newborn

Unit 4 Immunization schedule

Unit 1. **Features of the newborn**

2.1.0 Unit objectives

2.1.1 Introduction

2.1.2 Features of the new born

2.1.2.1 Gastrointestinal System

2.1.2.2 Circulatory System

2.1.2.3 Endocrine System

2.1.2.4 Neuromuscular System

2.1.2.3 Newborn Measurements

2.1.3 Activity

2.1.4 Self-Assessment Questions (SAQs) for unit 1

2.1.0 Unit objectives

At the end of this unit, you should be able to:

- a. Describe the physical and physiological features of the new born
- b. Assess and record the vital statistics of the newborn
- c. Discuss the neurological features of the newborn

2.1.1 Introduction

The newborn is a unique individual different from the fetus, older infant, child, and adult. The newborn's anatomy and physiology change immediately after birth and continue to change as he or she grows. It is essential for the nurse/midwife to be aware of adjustments the newborn must make as he or she goes through transitions to life outside the womb. It also is important for the

nurse to know the characteristics of a normal newborn in order to make accurate assessments. In addition, this knowledge will enable the nurse to appropriately answer parents' questions and concerns about their newborn. This unit explores the immediate and ongoing adaptation of the normal newborn to life outside the womb and describes initial nursing assessments. A termed newborn is born between 38th – 40 weeks. The baby usually cries and establishes rhythmic respiration independently. Normal birth weight is between 2.5- 3.5kg.

Newborn baby



Source: newborns.stanford.edu

2.1.2 Features of the new born

HEAD: - The newborn infant's head represents one-fourth of his total body length. Its circumference is equal to that of his abdomen or chest. The average size is 33-35 cm.

a. **Moulding.** During delivery, for the large head to pass through the small birth canal, the skull bones may actually overlap in a process referred to as molding. Such molding reduces the diameter of the skull temporarily. This elongated look usually disappears a few hours after birth as the bones assume their normal relationships.

b. **Fontanels.** The infant's skull is separated into six bones one from another along the suture lines. Where more than two bones come together, the space is called a fontanel. This is the unossified space or soft spot between the cranial bones of the skull in an infant. The infant's pulse is sometimes visible there. The anterior fontanel is located at the intersection of the sutures of the two parietal bones and the frontal bones. It is diamond-shaped and strongly pulsatile. It normally closes at 9 to 18 months of age. The posterior fontanel is located at the junction of the sutures of the 2 parietal bones and 1 occipital bone. It is small, triangular shaped, and less pulsatile. It normally closes within 6 -12weeks.

c. **Cephalohematoma.** This is a collection of blood between a cranial bone and its overlying periosteum. Bleeding is limited to the surface of the particular bone. It is caused by pressure of the fetal head against the maternal pelvis during a prolonged or difficult labor. This pressure loosens the periosteum from the underlying bone, therefore rupturing capillaries and causing bleeding. It may be apparent at birth but sometimes are not seen until 24 to 48 hours of life

because subperiosteal bleeding is slow. It varies in size, rather firm to the touch and tends to increase in size from 1 to 3 days and then become softer and more fluctuant. Most cephalhematomas are absorbed within several weeks. No treatment is required in the absence of unexplained neurologic abnormalities.

d. Caput Succedaneum. This is an abnormal collection of fluid under the scalp on top of the skull that may or may not cross the suture lines, depending on the size. Pressure on the presenting part of the fetal head against the cervix during labor may cause edema of the scalp. This diffuse swelling is temporary and will be absorbed within 2 or 3 days.

Eyes: The infant's eyes may be folded and creased and may seem out of shape because they contain little hardened cartilage. The infant's eyes may not track properly and may cross (strabismus) or twitch (nystagmus). This will cause concern if it extends beyond six months.

(1) Color. At birth, the iris colour is usually blue in light-skinned baby and brown colour in dark-skinned baby. A gradual deposition of pigment produces the final eye color of the baby at the age of three to six months and sometimes it may take a year.

(2) Pupils. The pupils do react to light and the infant can focus on objects about eight inches away. The infant's blinking is a natural protection reflex.

(3) Lacrimal apparatus. The lacrimal apparatus is small and nonfunctioning at birth and tears are not usually produced with crying until one to three months of age.

Neck: - The infant neck is short, straight and may be creased anterior. Clavicles should be intact. Head held in midline with free range of motion.

Chest: - The chest is circular and barrel shape with symmetric respiratory movement and Clear, bilateral breath sounds. The breast is well-formed with symmetric nipples

Umbilicus: - There should be two arteries and one vein visible at birth. No intestinal structures visible inside cord. The cord should be dry without bleeding, and odor

Skin: - The infant has delicate skin at birth that appears dark red because it is thin and layers of subcutaneous fat have not yet covered the capillary beds. This redness can be seen through heavily pigmented skin and becomes even more flushed when the baby cries.

a. **Vernix Caseosa.** This is a soft, white, cheesy, yellowish cream on the infant's skin at birth. It is caused by the secretions of the sebaceous glands of the skin. It offers protection from the watery environment of the uterus, is absorbed in the skin after birth, and serves as a natural moisturizer.

b. **Lanugo.** This is a long, soft growth of fine hair on the infant's shoulders, back, and forehead. It disappears early in postnatal life.

c. **Mongolian Spots.** These are blue-black colorations on the infant's lower back, buttocks, and anterior trunk. They disappear in early childhood.

d. **Jaundice.** This is a yellow discoloration that may be seen in the infant's skin or in the sclera of the eye. Jaundice is caused by excessive amounts of free bilirubin in the blood and tissue.

e. **Petechiae.** These are small, blue-red dots on the infant's body caused by breakage of tiny capillaries. They may be seen on the face as a result of pressure exerted on the head during birth. True petechia does not blanch on pressure.

f. **Milia.** These are tiny sebaceous retention cysts. They appear as small white or yellow dots and are common on the nose, forehead, and cheeks of the infant. They are of pin head size and opalescent. Milia is due to blocked sweat and oil glands that have not begun to function properly. They disappear spontaneously within a few weeks.

g. **Birthmarks.**

(1) These are small, reddened areas sometimes present on the infant's eyelids, mid-forehead, and nape of the neck. They may be the result of local dilatation of skin capillaries and abnormal thinness of the skin. They are sometimes called stork bites or telangiectasia. These marks usually fade and disappear altogether. They may be noticeable when the infant blushes, is extremely warm, or becomes excited.

(2) A Hemangioma or strawberry mark is a type of birthmark that is characterized by a dark or bright red raised, rough surface. They do not develop for several days. They may regress spontaneously or may even increase in size.

2.1.2.1 Gastrointestinal System

a. **Mouth.** The infant's lips should be pink and the tongue smooth and symmetrical. The tongue should not extend or protrude between the lips. The connective tissue attached to the underside of the tongue should not restrict the mobility of the tip of the tongue. The gums may have tooth ridges along them, and rarely a tooth or two may have erupted before birth. The roof of the mouth should be closed, and the uvula should be present. Sometimes there are glistening spots (firm white or grayish-white nodules, usually multiple) on the palate that are referred to as Epstein's pearls. A common site for them is at the junction of the hard and soft palates.

b. **Stomach.** The capacity of the infant's stomach is about 30 to 60 ml at birth, but increases rapidly. Milk passes through the infant's stomach almost immediately. The infant is capable of digesting simple carbohydrates and proteins, but has a limited ability to digest fats.

c. **Intestines.** Irregularity in peristaltic motility slows stomach emptying. Peristaltic increases in the lower ileum, which results in one to six stools a day. The first stools after birth and for three to four days afterwards are called meconium. Meconium is stringy, tenacious, and black and has a tarry texture. With the ingestion of colostrums or formula, a gradual transition occurs. There may be few greenish stools and the stools will gradually become more yellow. Formula stools are lemon yellow and curdy. Breast milk stools are yellow-orange, soft, and more frequent.

Extremities: - Term baby assumes in utero flexed positioning at birth. The hand and legs should be equal and should be able to perform symmetric full range of motion but extension may be limited. Muscle tone congruent with gestational age. Ten fingers, ten toes appropriately spaced with fingernails and toenails should be present with the fists clenched

2.1.2.2 Circulatory System

a. **Blood Flow.** When the umbilical blood stops flowing at birth, sudden pressure differences occur within the circulatory system. These differences cause the blood flowing to the lungs and liver to increase and the blood flowing through the bypass channels to decrease. Peripheral circulation refers to residual cyanosis in hands and feet. This may be apparent for one to two hours after birth and is due to sluggish circulation. Blood is shunted to vital organs immediately after birth.

b. **Blood Coagulation.** During the first few days of life, the prothrombin level decreases and clotting time in all infants is prolonged. This process is most acute between the second and fifth postnatal days. It can be prevented to a large extent by giving vitamin K to the infant after birth. With the ingestion of food, establishment of digestion, and maturation of the liver, vitamin K is manufactured by the baby and clotting time stabilizes within a week to ten days.

2.1.2.3 Endocrine System

The endocrine glands are considered better organized than other systems. Disturbances are most often related to maternally provided hormones (estrogen, luteal, and prolactin) that may cause the following conditions:

a. Vaginal discharge and/or bleeding may occur in female infants. This discharge is white mucoid in color. Bleeding may occur as a result of withdrawal from maternal hormones at the time of birth. There are usually only a few blood spots seen on the diapers. The entire process terminates in one to two days.

b. Enlargement of the mammary glands may occur in both sexes. This is particularly noticeable about the third day of life. Breast secretion may also occur. Swelling usually subsides in two to three weeks. The breast should not be squeezed; it only increases the chances of infection and injuries to the tender tissue.

2.1.2.4 Neuromuscular System

The newborn infant exhibits remarkable sensory development and an amazing ability for self-organization in social interactions. The infant's muscles are firm and resilient. He has the ability to contract when stimulated, but lacks the ability to control them. He wiggles and stretches, but movements are uncoordinated.

- a. **Cephalo-Caudal (Head to Toe) in Development.** Gross motor development occurs first, followed by finer motor development. Reflex actions present at birth serve the infant until

neuromuscular development is improved. Absence of reflex activity often indicates some form of brain damage.

Newborn Measurements



Source: newborns.stanford.edu

a) Weight

- Place a paper or warm blanket on the scale basket and zero scale.
- Remove the infant's clothing/blanket (no diaper).
- Place the infant on the scale, keeping one hand over the infant without touching.
- Read and note weight.



Source: www.colourbox.com

b) Length

- Lay the infant on a flat surface in a recumbent position.
- Place a hand over the knees so that the infant's legs are extended.
- with the foot flexed, draw a line marking the bottom of the heel.
- Continue to immobilize the infant and draw a line at the infant's head.
- Remove the infant and measure the distance between the two points.

c) Head Circumference

- Wrap measuring tape around the largest area of the infant's head, over the occipital, parietal, and frontal prominences. Begin above the eyebrows and ears, and continue around the back of the head. Take the largest of several measurements. **NOTE:** Cranial molding or scalp edema may affect the measurements. Head circumference- 33-38 cm
- Measure head circumference (HC) daily or as ordered if abnormal results are obtained.



Source: www.colourbox.com

d) Chest Circumference

- Place the measuring tape under the infant's back at a level corresponding to the xiphoid process and brings each end toward front under the axilla at the nipple line.
- secure the zero end over the sternum and then pull the other portion of the tape so it fits snugly around the chest.
- Read the measurement when the infant exhales.
- Chest circumference-31-36 cm



Source: www.colourbox.com

e) Abdominal Girth

- Place the tape under the infant's back at a level corresponding to the position of the umbilicus.
- Secure the zero mark above the umbilicus.
- Pull the other portion of the tape until it fits snugly around the abdomen.
- Read measurement at the point where the zero mark meets the other portion of the tape when the infant exhales.

2.1.3 Activity

During your clinical posting to the Maternity unit, visit the labour/post natal ward during your posting. Assess 10 newborn babies and record them in your Midwifery Record. Document deviations from the normal the features of a newborn baby in any of the babies. Share your experience with your mates on the discussion forum.

2. 1.4 Self-Assessment Questions (SAQs) for unit 1

2.1.4.1 Describe how you will conduct the length and head circumference of the newborn

2.1.4.2 .Length

- lay the infant on a flat surface in a recumbent position.
- Place a hand over the knees so that the infant's legs are extended.
- with the foot flexed, draw a line marking the bottom of the heel.
- Continue to immobilize the infant and draw a line at the infant's head.
- Remove the infant and measure the distance between the two points.

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- Measure head circumference (HC) daily or as ordered if abnormal results are obtained.

Unit 2. Adaptation to extra uterine life

Content**2.2.0 Unit objectives****2.2.1 Introduction**

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2.2.2.6 Digestion

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2.2.2.9 Hepatic

2.2.2.10 Skin

2.2.2.11 Reaction to Organism

2.2.2.12 Skeleto-Muscular System

2.2.2.13 Reaction and Response to Environment

2.2.2.14 Special Senses

2.2.2.15 Reproductive systems

2.2.0 Unit Objectives

At the end of this unit, you should be able to:

- i. Discuss the transition of the newborn to extra uterine life
- ii. Assist the newborn to establish and maintain respiration
- iii. Discuss the physiological, chemical and structural changes in the newborn

2.2.1 Introduction

Healthy full-term newborns show a predictable pattern of behavioral changes, behavioural states and cues, sensory abilities, and physiologic adaptations during the first 6- 8 hours following delivery. This transitional period is divided into an initial period of reactivity and inactivity and a second period of reactivity.

2.2.2 Transition from intra-extra uterine life

This transitional period is divided into an initial period of reactivity and inactivity and a second period of reactivity.

1. 1st period of reactivity: - it occurs in the first 30-60 minutes of life and is described by an alert, exploratory and active newborn. During this initial period, the newborn may be tachypneic (up to 80 bpm) and tachycardia (up to 180 bpm). Mild to moderate chest wall retractions, nasal flaring and expiratory grunting may be observed and crackles may be heard. Periodic breathing (pauses in breathing of less than 15 seconds) may be noted and acrocyanosis (bluish hands and feet) is also normal
2. Period of Inactivity -The period of relative inactivity takes place 2 -3 hours after birth. The newborn becomes less interested in external stimuli and falls asleep for a few minutes to several hours. During deep sleeps, the baby is difficult to arouse. Feeding may be difficult. Heart rate should stabilize at 100 - 140 bpm and the respiratory rate decrease to 40 to 60 breaths per minute. The newborn should be centrally pink with clear breath sounds and show no signs of respiratory distress.
3. 2nd period of reactivity: - The second period of reactivity occurs between 4 - 6 hours after birth. This will last from 10 minutes to several hours. Heart and respiratory rates may increase but should remain within normal limits.

2.2.2.1 Initiation of breathing

The initiation of breathing is a complex process that involves the interaction of biochemical, neural and mechanical factors. Pulmonary blood flow, surfactant production, and respiratory musculature also influence respiratory adaptation to extra uterine life.

- Umbilical cord clamping decreases oxygen concentration, increases carbon dioxide concentration, and decreases the blood pH. This stimulates the fetal aortic and carotid chemoreceptors, activating the respiratory centre in the medulla to initiate respiration.
- Mechanical compression of the chest during the vaginal birth forces approximately 1/3 of the fluid out of the fetal lungs. As the chest is delivered, it re-expands, generating a negative pressure and drawing air into the lungs. Passive inspiration of air replaces fluid. As the infant cries, a positive intra-thoracic pressure is established which keeps the alveoli open, forcing the remaining fetal lung fluid into the lymphatic circulation.

In order for the respiratory system to function effectively, the infant must have:

- Adequate pulmonary blood flow
- Adequate amount of surfactant
- Respiratory musculature strong enough to support respiration

Common characteristics of newborn respirations.

- (a) Nose breathers. Sleeps with mouth closed, does not have to interrupt feedings to breathe.
- (b) Irregular rate.
- (c) Usually abdominal or diaphragmatic in character.
- (d) Ranges from 40 to 60 breathers per minute.
- (e) Breathing is quiet and shallow.
- (f) Easily altered by external stimuli.
- (g) Periods of apnea less than 15 seconds is normal.

(h) Acrocyanosis may occur during periods of crying. Acrocyanosis refers to cyanotic look of the baby's hands and feet when he is crying. When the baby stops crying, his hands and feet get pink again.

2.2.2.2 Respiratory Adaptation

Breathing is the first function to be established at birth. In-utero the nervous system plays little role in respiratory exchange of gas, as this is done mainly by the placenta; because the lungs are solid, the presence of fluid containing surfactant (lecithin), a phospholipids substance in the lungs reduces surface tension. It facilitates alveolar expansion, stabilizes it and prevents collapse of the small alveoli by permitting air to remain there after expiration. During delivery some of this fluid is expelled by the compression of the chest wall. The rest is absorbed by the pulmonary circulation and lymphatic system.

Respiration is triggered by the sensory stimuli, tactile, thermal, pain and the centre chemosensory mechanism which is sensitive to blood gas state. This stimulates respiratory centre and helps to maintain respiration. Respiration is therefore a response to low Oxygen (hypoxia Acidosis) and high carbon dioxide level in the blood stream (asphyxia) caused by uterine contractions. This is responsible for the first gasp and aided by external sensory stimuli i.e. cool air on the face, compression of the chest wall, gravity, noise, light, odour and suctioning of the oropharynx. Increase pulmonary blood flow is required to facilitate gaseous exchange in the alveoli. The normal baby cries as soon as he is born, after the first breathe and this is followed by the first gasp. Initially respiration is rapid average of 40 beats per minute may be irregular for a few seconds but soon regulates itself. To facilitate lung expansion, healthy baby should be made to cry vigorously for complete aeration of the lungs. Breathing is almost entirely abdominal in the newborn. Tongue is a good index of central oxygenation. The newborn's respiratory, cardiovascular and central nervous system must be structurally normal and the airways patent to enable ventilation of the lungs.

2.2.2.3 Circulatory Adaptation

Placenta is the organ of gaseous exchange in fetal life. At birth when the baby is separated from the placenta (life support system) he has to make a major adjustment within his circulatory system for blood to flow to the lungs for re-oxygenation. This involves several mechanisms which are influenced by clamping of the cord and pulmonary vascular bed resistance. In-utero only about 10% of blood flow to the lungs, but with the clamping of the cord most of the blood goes to the lungs. As this oxygenated blood from the lungs return to the heart, the pressure in the left atrium increase and the pressure in the right atrium decreases because blood no longer flow from the cord there. This results in functional closure of the foramen Ovale. The Ductus arteriosus contracts and closes to become a cardiac ligament within five minutes of birth. Sometimes this may not be complete immediately leading to periodic cyanotic attack e.g. preterm and respiratory distress syndrome. But final closure takes place within first one year of birth. All other temporary openings i.e. umbilical vein, Ductus venous are hypogastric arteries also close down. Due to high metabolic need the heart beats rapidly (120-160/min) with the mean of 140 and this can be influenced by baby's activities. The heart lies transversely and the apex beat can be detected at the 3rd or 4th intercoaster space on the left side. Peripheral circulation is sluggish resulting in cyanosis of the limbs. Blood pressure varies according to activities 50/25 – 70/40 mmHg.

Blood: Pulse rate 100-120b/min. The total blood volume at birth is about 80ml/kg \approx 8% of the body weight, but this may increase if cord is not closed on time. Haemoglobin level is between 17-20gm milliliter and is 70% fetal Hb. As soon as normal saturation of oxygen is normalized production of FHB ceases and is gradually replaced by adult type within 1-2 years of life. Haematocrit is 55%, Red cell Count (RCC) is $5-7 \times 10^2/l$. The excess is broken down in the liver and spleen which predisposes the infant to jaundice. Prothrombin level is low due to lack of vitamin K until the gastrointestinal tract is colonized by bacteria which synthesize intrinsic vitamin k when feeding is established. Hence the infant is prone to bleeding in the first week of life especially the preterm infants. The platelet level is equal with adult's white blood cell is high but soon returns to normal.

2.2.2.4 Thermal Adaptation

Heat regulation in the newborn is very poor and unstable, due to undeveloped heat regulating centre in the hypothalamus, low metabolic rate, excretion, large surface area, poor insulation and wet skin. The new born does not shiver like the adult but uses adaptive mechanism by metabolizing brown fat found at the base of the neck, between the scapulae, mediastenum, around the kidneys and adrenals, which produces heat at a faster rate (Non-shivering thermogenesis). Heat loss from the surface is by vasoconstriction of the skin due to changes in skin blood flow, through processes of radiation, convection, conduction and evaporation. A baby nursed in a low temperature adjusts by increasing heat production thereby increases oxygen consumption, that is, valuable calories for maintenance of growth will now be diverted to maintaining temperature. It is therefore very important to dry baby's skin, wrap properly and transfer to warm environment to prevent heat loss. The first bath should be down in a warm room ($21 - 26^0c$) and water at $36.7^0c - 37.7^0c$ in cold weather.

2.2.2.5 Digestion

At birth gastrointestinal tract is structurally complete through functionally immature. In-utero, the fetal requirement for nutrient is met by the mother through the placenta. The enzymes needed for digestion is not fully matured to function until a few days after birth, it is important to avoid over feeding, as the digestive capacity is low at this period (15-30 ml).It increases rapidly with the first one week of life. Early feeding is required to maintain normal blood glucose level ($2.2 - 4.4mm/l$ feeding stimulate liver function and colonization of the gut which aid formation of vitamin K. Cardiac sphincter is weak and this predisposes the infant to possetting or regurgitation.

2.2.2.6 Elimination

Elimination of waste product involves the bowel, kidneys, liver, skin and the lungs. In the absence of hypoglycemia and hypothermia the new born is capable of evacuating its wastes (e.g. meconium, stool, urine etc) provided there is no mechanical obstruction. Meconium is the first stool and is present in the rectum as early as the 16th week of pregnancy. It should be passed in the first 48 hours of birth. Composition of **Meconium**: Fatty Acid, bile pigments, debris from the intestinal tract (epithelial cells), vernix caseosa, lanugo and liquor amni starts to change colour to yellowish brown by 3rd - 5th day of birth and completely yellow when feeding is established.

2.2.2.7 Urinary System

The kidneys are well formed in-utero but not functioning well. This account for the metabolic acidosis in the preterm baby. Urine secretion occurs in the latter half of pregnancy. Baby sometimes passes urine at birth or within 24 hours after birth. The frequency and volume of urine passed depends on the amount of fluid intake. Therefore baby needs fluid by 4-6hrs after birth. Those prone to hypoglycaemia should have glucose water about 2 hours after birth. Urine should be clear, odourless, at least about 20-30mls per day in the first 1-2 days and 100-200mls by the end of the first week of life.

2.2.2.8. Hepatic

The liver act as a biochemical factory for preparation of proteins and other substances necessary for tissue growth. It plays a major role in elimination of toxic product of metabolism. It conjugates bilirubin non-toxic by conjugating with glucuronic Acid to form bilirubin diglucuronide which is water soluble and non harmful to the tissue. The enzyme glucuronyl transferase is responsible for the conjugation. This enzyme is inadequate in the first few days of life this is the cause of jaundice in the newborn. The liver is capable of synthesizing protein (albumin) especially in time of needs e.g. Infection, tissue break down, loss of protein etc. the liver is able to take up oxygen and glucose as adults liver. The liver plays significant roles in Iron storage, carbohydrate metabolism, coagulation and bilirubin conjugation. Iron is stored in last 3 months of pregnancies.

2.2.2.9 Skin

A healthy newborn's skin is smooth, pink with good turgor. The colour depends on race, ranging from pink and white to olive or dark brown. There is hyper pigmentation of the genitalia and nipple in dark colour, linear nigra may be present. The skin is darker for children of dark colored parents in the first week of life except the palm and sole of the feet which remain pink. Sweat glands are inactive in the first few days. There are plenty of palm and sole creases. Nails are fully formed and adherent to the tips of the fingers, many extend beyond the finger. Hair is soft and silky, may be straight or curly. The ear cartilage is well formed. Vernix caseosa is seen on the skin especially around the folds. It protects the skin against infection.

2.2.2.10 Reaction to Organism

Baby does not produce active immunity during the intrauterine life because the environment is relatively sterile, some passive immunity. However cross the placenta barrier to the baby. This protects the baby for the first 3-6 months after birth when the baby starts to produce active immunity for himself e.g. malaria, tetanus, measles, poliomyelitis etc. Baby has low resistance to staphylococcus aureus etc. Out of the three immunoglobulin IgG, IgA and IgM only IgG with small molecular weight is present adequately. It provides passive immunity during the first month of life. Increase level of IgG at birth is suggestive of intrauterine infection. IgA and IgM do not cross the placenta barrier but can be manufactured by the fetus. This prones the baby to infection. IgA protects against specific viral infection of the Respiratory tract G.I.T., Eyes skin and umbilicus. So all equipment used for delivery should be properly sterilized and immunization should start as soon as possible. Cholostrum provides immunity in form of lactobacillus bifidus, lactofarrin, Lysosomes and IgA.

2.2.2.11 Skeleto-Muscular System

At birth the long bones are incompletely ossified to allow growth of epiphysis. The vaults leave sutures between them. Muscles are complete, growth occurs by hypertrophy rather than hyperplasia. Skeletal muscle are used for movement very early in fetal life, this promotes motor development.

Weight: The average weight at birth is 2.5 – 3.5kg. The birth weight is generally influenced by the period of gestation but occasionally term babies weigh quite less than average. Boys are usually 250g heavier than girls. Weight tends to increase with subsequent deliveries. Other factors are placenta functions, nutritional state of the mother, race, structure and size of the parents, sex, and type of pregnancy (single or multiple) state of health of the mother. There is physiological weight loss in the first 3 days of life of about one tenth of the birth weight. The bigger the weight the more the baby loses weight through the skin, meconium, urine, respiration, inadequate food and fluid intake. With good feeding the baby should regain back the birth weights by 8-10th day after birth. Sometime baby loses much less and gains the birth weight much earlier. Weight may double by 5 months and triple by 1year. From the 4th day a steady weight gain 150-200g per week may occur.

Umbilicus

The stump of the umbilical cord shrivels and dries up by a process of dry gangrene and it separate from the normal skin by 4-7 days (average of 6 days) a thick cord may take a longer period. It is important to keep the cord dry and clean to aid separation. Delay in separation may be due to infection.

2.2.2.12 Reaction and Response to Environment

A normal infant sleeps for about 20-22hrs a day during the first week of life. He only wakes up to feed; this period of wakefulness later lengthens for social interactions

Crying: First cry is called **Vagitus**, usually with first breath that results in lung expansion. Crying is the baby's only language. Baby cries to alert of the slightest discomfort e.g. pain, hunger, cold wet cloths.. Different cries cannot be easily recognized in first two weeks of life because baby cries vigorously most times. Reasons for crying can be recognized by the nature of the cry. A hunger cry is soft supple and continuous. Normal cry is lusty. High pitched or shrill cry indicate intracranial injury. If the baby is neither hungry nor wet common changing of position many quiet him. Later the baby may scream for colic pain, caused by air swallowing. Parent may get advice on how to deal with crying to avert battered baby syndrome as mother with unstable personality may be provoked by his cry and handle the baby roughly. The baby does not weep but cries.

2.2.2.13 Special Senses

Vision

The structures necessary for vision are present and functioning at birth but they are immature giving rise to poor focusing. Baby can focus at 15-20cm at the level of mother's face and at 30 degrees in either direction when being nursed, this aid bonding process. He can track a moving object. Bright light seems unpleasant which makes him to blink or frown. He can recognize

mother's face by 2wks. He can recognize bright, black and white colours, interest in colour variety develops within the first two months of life.

Full term baby can shed tears though may not be obvious until a few weeks after birth.

Taste

Sense of taste is highly developed. This is shown by his preference for sweet fluids and breast milk and rejection of sour, salty and bitter tastes.

Touch

This is the most highly developed of all the senses and this is more acute on the lips, tongue, ears and forehead. They enjoy skin to skin contact, immersion in water, stroking cuddling and rocking movement. Baby withdraws from painful stimulus and cries. Failure to grasp nipple is an indication of brain damage.

Hearing

Neonate can hear though can not distinguish between sounds. He reacts to high pitched sound while a sudden sound can cause a startle or blink reflex. He prefers the sound of human voice to other sounds. He reacts to the mother's voice. This promotes mother child bonding. Baby reacts to loud noise.

Smell

Baby can distinguish the smell of mother's milk from others. He turns away from unpleasant smells. Strong scents give the baby cold.

2.2.2.14 Reproductive systems

The sex of the fetus is determined at the time of fertilization, but not distinguishable until the end of second months of pregnancy. In boys the testes descend into the scrotum as early as 24-34wks of pregnancy. The canal through which they descend is not completely closed until several months of age. Sometimes one or both testes are undescended at birth; such require doctor's attention for evaluation of the course and further treatment. The urethral meatus opens at the tip of the penis and prepuce is adherent to the glans. Spermatogenesis does not occur until puberty. In girls, labia majora cover the labia minora, the hymen and clitoris are large. The premodial follicle containing primitive ova are present in the ovary. In both sexes withdrawing of maternal oestrogen results in breast engorgement sometimes accompanied by secretion of milk by 4th – 5th day. Baby girl may develop Pseudo menstruation for the same reason. At birth, both sexes have nodule of breast tissue grounded in the nipple on the chest wall.

2.2.3 Activity

During your posting in the labour ward, describe the first response of the baby to life, describe your experience on the discussion forum.

2.2.4 Self-Assessment Question(SAQ) Unit 2

Describe circulatory adaptation of the newborn

2.2.4.1 Self Assessment Answer(SAQ)

Circulatory Adaptation

- Placenta is the organ of gaseous exchange in fetal life. At birth when the baby is separated from the placenta (life support system) he has to make a major adjustment within his circulatory system for blood to flow to the lungs for re-oxygenation.
- This involves several mechanisms which are influenced by clamping of the cord and pulmonary vascular bed resistance.
- In-utero only about 10% of blood flow to the lungs, but with the clamping of the cord most of the blood goes to the lungs.
- As this oxygenated blood from the lungs return to the heart, the pressure in the left atrium increase and the pressure in the right atrium decreases because blood no longer flow from the cord there.
- This results in functional closure of the foramen Ovale. The Ductus arteriosus contracts and closes to become a cardiac ligament within five minutes of birth.
- Sometimes this may not be complete immediately leading to periodic cyanotic attack e.g. preterm and respiratory distress syndrome. But final closure takes place within first one year of birth.
- All other temporary openings i.e. umbilical vein, Ductus venous are hypogastric arteries also close down.
- Due to high metabolic need the heart beats rapidly (120-160/min) with the mean of 140 and this can be influenced by baby's activities.
- The heart lies transversely and the apex beat can be detected at the 3rd or 4th intercoaster space on the left side. Peripheral circulation is sluggish resulting in cyanosis of the limbs. Blood pressure varies according to activities 50/25 – 70/40 mmHg.

Blood:

- Pulse rate 100-120b/min. The total blood volume at birth is about 80ml/kg ~ 8% of the body weight, but this may increase if cord is not closed on time.
- Haemoglobin level is between 17-20gm milliliter and is 70% fetal Hb. As soon as normal saturation of oxygen is normalized production of FHB ceases and is gradually replaced by adult type within 1-2 years of life. Haematocrit is 55%, Red cell Count (RCC) is 5-7 x 10¹²/l.
- The excess is broken down in the liver and spleen which predisposes the infant to jaundice. Prothrombin level is low due to lack of vitamin K until the gastrointestinal tract is colonized by bacteria which synthesize intrinsic vitamin k when feeding is established

- . Hence the infant is prone to bleeding in the first week of life especially the preterm infants.
- The platelet level is equal with adult's white blood cell is high but soon returns to normal.

Unit 3. Care of the newborn

Content

2.3.0 Learning Objectives for unit 3

2.3.1 Introduction

2.3.2 Immediate Care

2.3.2.1 Assessment of the Baby's Condition at Birth

2.3.2.2 Subsequent Care

Maintenance of Respiration

Maintenance of Warmth

Provision of Food

Protection from infection and injuries

Observation and Recording

Education of Mother

2.3.3 Immunization and Immunization schedule

2.3.4 Activity

2.3.5 SAQ (Tests Learning Outcome 3.3)

2.3.0 Learning Outcomes for unit 3

At the end of this unit, you should be able to:

- a. Perform immediate care of the newborn
- b. Evaluate the newborn using Apgar scoring
- c. Maintenance of Respiration , warmth, nutrition and protection the newborn from Infection and injuries
- d. Give health education to mothers on the care of newborn

2.3.1 Introduction

It is the duty of the Nurse to assess the neonate's physical and behavioral condition, conduct routine procedures teach the parent important aspect of child care. During this time the nurse looks for deviation from the normal or other concerns that may need further evaluation or intervention.

Nursing care of the newborn therefore emphasized neonatal assessment, procedures, infection prevention and the teaching of infant care to the mother and family.

2.3.2 Immediate Care:

This includes care given during and after delivery. Immediately the baby's head is delivered, the face, mouth and eyes are wiped. The airways are sucked with mucus extractor or low grade suctioning machine. The remaining liquor from the mouth is drained by lowering the head or turn upside down (this is not done if the baby is in shock). When the baby is completely expelled, note the time, double clamp the cord with artery forceps, first forcep being at 8cm and the second one at 10cm from the base of the umbilicus and cut in between them and ligate the cord. The baby obtains about 30-60mls of blood if the cord is not clamped until pulsation ceases. Wipe the baby's body; show the baby to the mother to identify the sex. Assess the baby's condition within the first 1 minute and 5 minutes later. Label the baby before leaving the bedside. Throughout, the baby's need for warmth should be kept in mind.

2.3.2.1 Assessment of the Baby's Condition at Birth

As soon as the baby is born, the general condition of the baby is assessed using the most widely used method APGAR SCORE (invented by Dr. Virginia Apgar in 1953. The assessment is done at 1 minute and 5 minutes later. The first 1 minute is important for further management of resuscitation.

Apgar score can be defined as clinical assessment of the baby's condition measured in numerical term at 1 minute after birth and 5 minutes later. Apgar score makes for proper evaluation, closer observation of the baby and ensures early evaluation of the baby's condition; it prevents unnecessary delay in resuscitation. Apgar score should be properly documented. The higher the score the better the prognosis of the baby and lesser the score the greater risk of permanent brain damage.

The factors to look for are:

- | | | | | |
|---|---|-------------|---|----------------------|
| A | - | Activity | - | Muscle tone |
| P | - | Pulse | - | Heart rate |
| G | - | Grimace | - | Response to stimulus |
| A | - | Appearance | - | Colour |
| R | - | Respiration | - | Breathing |

A score of 0, 1, or 2 is awarded to each item.

Apgar Score

Signs	0	1	2
Heart Rate	Absent	Less than 100 b.p.m.	More than 100 bpm
Respiratory effort	Absent	slow, irregular	Good or crying
Muscle tone	Limp	some reflexion of limbs.	Active
Response to Stimulus	None	Minimal grimace	Cough or sneeze
Colour	Blue, Pale	Body pink, extremities blue	Completely pink.

A score of 8-10 is good. A score less than 7 will need medical Aids and active resuscitation.

8-10 -Good

5 -7 -Mild asphyxia

0-4 -Severe asphyxia

2.3.2.2 Subsequent Care

Principles of Care

1. Maintenance of Respiration
2. Maintenance of Warmth.
3. Protection from Infection and injuries
4. observation and Recording
5. Provision of food/fluids
6. Education of the mother.

- **Maintenance of Respiration**

It is important to ensure that the baby maintain patent airways. Baby should continue to breath. If the baby is mucousing, clear the airways frequently. Stomach washout could be done if necessary. Keep baby on his side and turn from side to side. Avoid suffocation from clothing and pillow or mother lying over the baby.

Maintenance of Warmth



Source: newborns.stanford.edu

- **Maintenance of Warmth**

At birth the baby's temperature regulatory centre is very poor, so it is important to keep baby warm. Avoid over exposure to prevent heat loss. Put on warm clothing, cotton materials are good, woolly material on the skin can lead to heat rashes. Additional clothing or blanket may be required on cold days; a hat may also be required. Avoid over clothing of baby especially on hot days. Clothing should vary with environmental temperature.

- **Provision of Food**

As much as possible breast feeding should be encouraged. Mother should put her baby to breast as soon as possible. Feeding should be on demand. In the first day the infant needs about 30mls of feed. Baby friendly should be practiced as much as possible. If need be in case of sick or dead mother plain fluid or glucose water may be given 4-6hrs after birth. Glucose aids proper absorption and gives calories to the baby.

- **Protection from infection and injuries**

Neonate should be protected from all forms of injuries. Midwife must keep her finger nails short when holding the baby and grip the hand securely, protect baby when sleeping to avoid rolling down from bed. Avoid the use of sharp object/instruments for the baby. Dresses must be clean, napkins should be changed as necessary. Wash hand thoroughly before handling the baby. Baby's items must be separated from the family's. Restrict handling by visitors. Maintain hygiene of mother and the baby and feeding utensils. There should be proper cot spacing in the nursery. Ideally baby should be with the mother – (Rooming in method). Avoid the use of pillow to prevent suffocation prevent choking; fall, over laying, bright light and strong wind.

- **Observation and Recording**

After the initial assessment, a general and complete examination is performed later. Neonate must be examined daily to ensure he is healthy and thriving well. During the first 24 hrs close observation is necessary as the majority of complication manifest during this time. The doctor depends on the vigilant observation of the Midwife to detect abnormalities and early signs of

illness, and on her careful recording of her finding. The baby is examined from head to toe, both physically and neurologically.

Head – For size, shape, sutures and fontanelles and any abnormalities are noted.

Eyes and Ears for – discharges

Mouth - Infection, thrush

Skin – colour for cyanosis and jaundice rashes around the neck, axilla and groins buttocks and all skin folds.

Temperature – twice daily, normal $36.5^0 - 37.5^0$

Respiration – Rate and type are most important during the first 48hours of life. It should be smooth, regular and quiet. Any periodic apnoea, grunting respiration, flaring of the nasal alae or withdrawing of the chest wall should be reported.

Abdomen – check for distension rashes or protrusion.

Umbilicus: Note bleeding, infection etc.

Groin & Buttocks – Sore and rashes.

Stool & Urine – Meconium should start to change colour by the 2nd day. Bowel should open 3-4 times daily in a breast feeding baby.

Urine – Passed within 24 hours, should be clear, it may be up to 6 times in 24hrs and should not be less than 30mls.

Weighing – At birth then every alternate days, maximum drop of 50gm daily for the first 3 days. From the 4th day there should be daily increase of 30gm and should recover the lost weight by 8-10 days.

Feeding – should suck actively on breast if given artificial milk amount is recorded. Healthy baby feeds eagerly on demand or timed.

Cord – check for signs of infection should be dry and not-offensive. It should fall of 5-7 days after birth.

Behaviour – Activities, sleep, feeding patterns are observed

- **Education of Mother**

This should have started from the ante natal clinic. Midwife must ensure that the woman receives enough instruction and supervision. She must be a good example to her patient. She should demonstrate how to do baby bathing, changing of napkin, feeding and general care of the baby. Instruction should be given as regard self medication to herself and baby, regular immunization and further care at the nearest welfare clinic. She should report any problem to her doctor or Nurse.

Mother should be taught how to deal with baby's crying. She should have adequate education on nutrition for herself and the baby.

2.3.3 Immunization

To improve child health in Nigeria, a new pentavalent vaccine has been introduced to the normal routine immunization schedule. Pentavalent vaccine is a combination of five vaccines-in –one that prevents diphtheria, tetanus, whooping cough, hepatitis B, and haemophilus influenza type B, all through a single dose.

Children between six weeks and one should receive three doses of pentavalent vaccine with an interval of at least four weeks between doses. They are also to receive other routine immunizations like BCG for tuberculosis, OPV for polio, measles and yellow fever vaccines must be completed

Immunization schedule

AGE	ANTIGEN
Birth	BCG, OPV0,HepB0,(OPV0 and HepB0 must be given within 2weeks of delivery)
6 weeks	OPV1 , pentavalent 1
10 weeks	OPV2 , pentavalent 2
14 weeks	OPV3 , pentavalent 3
9 months	Measles, and Yellow Fever vaccine

2.3.4 Activity

Visit the infant welfare clinic and choose five mothers and find out the immunization schedule of their babies, check if appropriate with the age of their babies. Investigate what the mothers know about immunization, their concerns and plans to complete the immunization of their children. Share your experience with your colleagues on the discussion forum.

2.3.5 SAQ (Tests Learning Outcome)

- Describe the immediate care of the newborn

SAQ 3.3 (Tests Learning Outcome 3.3)

Immediate Care:

This includes care given during and after delivery. Immediately the baby's head is delivered, the face, mouth and eyes are wiped. The airways are sucked with mucus extractor or low grade suctioning machine. The remaining liquor from the mouth is drained by lowering the head or turn upside down (this is not done if the baby is in shock). When the baby is completely

expelled, note the time, double clamp the cord with artery forceps, first forcep being at 8cm and the second one at 10cm from the base of the umbilicus and cut in between them and ligate the cord. The baby obtains about 30-60mls of blood if the cord is not clamped until pulsation ceases. Wipe the baby's body; show the baby to the mother to identify the sex. Assess the baby's condition within the first 1 minute and 5 minutes later. Label the baby before leaving the bedside. Throughout, the baby's need for warmth should be kept in mind.

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Module 3: Culture and care of the newborn

Introduction:

Cultural and traditional practices, values and beliefs play an important role in the medical attention-seeking behaviour of postpartum mothers as well as in newborn babies during the postnatal period.

There are various traditional and cultural practices followed which affect the newborn. A family which mirrors values, traditions, customs and beliefs, i.e. culture of a society to which it belongs, plays an important role in physical, psychological, social development and health in children.

Module Objectives

At the end of the module the learner will be able to:

- i. Articulate cultural practices and other factors that contribute to child development.
- ii. Discuss the role of the paediatric nurse in cultural care of newborn

Content

Unit 1: Cultural practices in child care and factors contributing to child development.

Content

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3.1.0 Introduction:

Cultural beliefs and practices are an important part of data gathering in the nursing assessment. Nurses continually encounter beliefs and practices that may facilitate or impede nursing interventions, including attitudes toward family planning, food habits, and folkways that are firmly entrenched in the culture. The language of the client may be different from that of the larger culture, or there may be regional or ethnic peculiarities in the use of basic English. Sub-cultural influences, such as some religious beliefs and practices, may be in conflict with standard health practices and therapeutic interventions

Many factors affect a child's development. Some of them we don't even see or know about except when we look out for them and pay attention to family interactions. Some examples of factors that affect a child's development are the child's housing, their family's financial status, their parent's employment, their education, gender, race, class, physical and mental health, their level of attachment, their parent's parenting styles and the social group they are exposed to.

3.1.1 Learning objectives

At the end of the unit you will be able to:

- i. Explain the cultural practices in child care
- ii. Discuss the factors influencing child development

3.1.2 Cultural practices in child care

Parenting is an activity rooted not only in one's own childhood experiences, but in the culture one grew up and lives in. Culture can have a powerful effect on parenting styles and practices, according to the Centers for Disease Control and Prevention. For example, a culture in which the father is expected to be a stern disciplinarian and the breadwinner will have a different effect on child-rearing practices than one in which both parents work full time and parenting responsibilities are shared.

3.1.2.1 Behavioral Expectations

Parents have behavioral expectations about their children that are similar in many cultures, according to the CDC. Among the areas of consensus: children should be respectful and polite, not interrupt, be honest, share and do well in school. However, some cultures have additional expectations. Asian and white parents expect children to exert self-control, while black, Latino and American Indian fathers often feel their children should have a religious or spiritual foundation, according to the CDC. Asian, Latino or black fathers often expect their children to be assertive, independent and willingly take responsibility for their mistakes.

3.1.2.2 Affection

One area in which cultures often differ is in the ways parents display affection toward their children. West African, Arabic and Asia-Pacific communities often stop such practices as kissing or fondling a child once she becomes a toddler. However, some cultures consider physical attention such as bathing, skin care or braiding a child's hair to be appropriate physical ways to express affection. Monetary rewards and praise are also signs of affection in these cultures, according to a presentation at the 2012 National Foster & Kinship Care Conference.

3.1.2.3 Education

Many parents see educational attainment as desirable for their children. In some Chinese families, however, physical punishment might be used to induce children to study hard and get good grades, according to the NFKCC. Furthermore, Asian and Indian families might also exert considerable pressure on their child to achieve scholastically. Parental involvement in activities such as checking a child's homework also varies by culture. The Center for Public Education reports that 82 percent of white parents check homework, while 91 percent of Hispanic and 94 percent of black parents check homework.

3.1.2.4 Physical Punishment

Physical punishment is another area in which parents of different cultures act differently. Most parents view spanking as a last-resort strategy, but felt it was acceptable, according to the CDC. Black parents were more willing to spank a child in a public place because they felt the need to immediately respond to misbehavior. White and American Indian parents were less comfortable with spanking in public. Some black, Latino and white parents think it's acceptable to use a belt or strap for spanking for serious misbehavior, while Asian-American and American Indian parents felt that they should only use their hands.

3.1.3 Factors That Influence Infant Development

Infant growth and development is fascinating to witness, to which most parents can attest. The rate at which a baby goes from being a helpless newborn to sitting, crawling and walking is nothing short of astounding. In the first year of life, several key factors can influence a baby's development positively -- and the good news is that parents can do concrete, everyday things to ensure their infant is happy, healthy and thriving.

3.13.1 Good Nutrition

First things first: To grow well, babies must be fed properly.

"Feeding of your baby appropriately during the first year of life is extremely important, as more growth occurs during your baby's first year than any other time in her life. Starting good eating habits at this early stage will help set healthful eating patterns for life," Children's Hospital Boston.

For the first few months, all a baby needs is breast milk or formula; you should not start solid foods before an infant is 4 months old. When a baby does start solid foods, parents should try to offer a variety of foods early, which may lead to good eating habits down the road.

3.1.3.2 Stimulation and Interaction

Infants need lots of stimulation and interaction, which is essential for their cognitive and emotional development. Talking, singing, playing music, carrying on "conversations" (such as exchanging babbling-type sounds counts for conversation), and reading stories with babies builds their vocabulary, demonstrates emotions, and teaches problem-solving skills, says the California Childcare Health Program. The program recommends that parents provide their infants with a variety of experiences and surroundings, and visit museums, aquariums, zoos and farmers' markets to stimulate their senses. Babies in the first year also love it when you read to them, the CA Childcare Health Program notes -- and, even though they cannot follow the story, the pictures and sound of a parent's voice are fascinating to them. And perhaps most important of all, the program says, is touch, which is critical for infants, because it is how infants know their parents love and want them. Physical contact with parents and caregivers sends signals to infants' brains, telling them to grow and to make important connections.

3.1.3.3 Secure Attachment

A healthy, secure attachment in infants, which is defined as "the emotional connections babies form with their parents and caregivers," develops gradually over time, if adults provide "consistent, sensitive" care, note Linda Gillespie and Amy Hunter of the National Association for the Education of Young Children. This idea stems from attachment theory, which is the work of psychologists John Bowlby and Mary Ainsworth, which holds that babies relate to their primary caregiver, in different ways, depending on the quality and consistency of their care. A secure attachment is crucial: As the U.S. Department of Health and Human Services writes, "The importance of early infant attachment cannot be overstated. It is at the heart of healthy child development and lays the foundation for relating intimately with others, including spouses and children. It affects parents' abilities to nurture and be responsive to their children.

The effects of infant attachment are long-term, influencing generations of families." Parents can create a healthy attachment in their infant by reading her cues (such as crying, screeching, laughing, turning away, pointing) and responding promptly to her needs and wants -- which is how an infant learns that the caregiver is "a source of comfort and security," say Gillespie and

Hunter. They also note that research demonstrates that how parents interact directly with their babies affects later development: Babies who display secure attachments become children who learn their world is a safe place to be because the people in it are caring; that close relationships feel good; that their attempts at communication result in responsiveness and understanding; and they can feel confident in exploring their world, which enables them to learn.

3.1.3.4 Adequate Sleep

Once infants are past the newborn phase, which is usually between 3 and 4 months, they need between nine and 12 hours of sleep per night for optimal health. When they get this sleep depends, as nap times of infants vary, with most taking 30-minute to 2-hour naps one to four times a day. As tough as it is to teach a baby to sleep well, parents should try to instill good sleep habits in infancy, notes Michael J. Breus, Ph.D. in the article "Good, Sound Sleep for Your Child" on WebMD. He notes that babies who do not get enough sleep are more "Fretful and socially demanding," and are not as comfortable playing independently. And it is not just the baby years that are affected: Breus contends that chaotic and erratic sleep patterns in infancy relate to problems with learning, attention and memory in childhood.

To establish positive sleep habits, HealthyChildren.org recommends that you put infants to bed drowsy, but not asleep, allowing them to become "self-soothers" who can fall asleep independently and who also can put themselves back to sleep in the middle of the night if they wake in their cribs. Also important: Developing regular daytime and bedtime schedules, creating an enjoyable and relaxing bedtime routine, and creating a sleep-friendly, optimal temperature in a quiet and calm environment for babies.

3.1.3.5 Hereditary Factors

The genetic constitution of individuals as groups influences the degree to which they are susceptible to a specific disorder. It may be the result of an inherent lack of resistance to a disease organism, a trait that is an advantage in one environment but which places the possessor at a disadvantage in another, or it may be the consequence of intermarriage within a relatively narrow range of geographic, ethnic, or religious restrictions.

A geographic constraint is illustrated by the classic example of the common communicable disease rubeola. The rubeola virus, or the populations that were continually exposed to it, became altered in such a way that the disease was considered to be a universal disease of childhood from which the majority of children suffered without ill effects. When other populations (e.g., the inhabitants of the Hawaiian Islands) were exposed to the virus by explorers and missionaries, they experienced a violent response that resulted in high mortality.

Another communicable disease, tuberculosis, appears to be more prevalent in certain ethnic groups such as the Native Americans of the Southwest, Vietnamese immigrants, and Mexican-Americans (Orque, 1983b). In many populations it is difficult to determine how much the increased incidence can be attributed to ethnic factors and how much is related to the life-styles in the lower social strata.

A number of diseases show ethnic or racial differences. For example, Tay-Sachs disease, characterized by early neurologic deterioration and mental retardation, affects primarily Ashkenasi Jewish families, particularly those of Northeastern European origin, while Sephardic Jewish families appear to be no more at risk for the disease than other populations. The incidence

of cystic fibrosis is highest in whites, it is almost nonexistent in Orientals, and the rare affected blacks are usually in areas where there is apt to be mixed ancestry. Some selected genetic disorders that are more prevalent in certain populations are listed in Table 2- 2. Racial and ethnic differences are further considered in relation to diseases and defects as they are discussed throughout the book.

Other groups appear to have a predisposition for certain diseases. Although sickle cell disease is a classic disorder of blacks, especially Africans, cardiovascular disease, pneumonia, and diabetes are also high among blacks. Hispanics are more likely to suffer from diabetes and infectious/parasitic diseases than their Anglo counterparts, and Native Americans have particularly high rates of tuberculosis, diarrhea, alcoholism, and suicide (Bullough and Bullough, 1982; Markides and Coreil, 1986).

Common food items and drugs may cause health problems in certain racial groups. For example, persons with glucose-6-phosphate dehydrogenase (G-6-PD) deficiency develop acute hemolytic anemia after they ingest fava (horse or broad) beans or certain drugs such as aspirin preparations, sulfonamides, or primaquine. The deficiency is the most common enzyme abnormality and is found in a large percentage of people around the world, especially those of Mediterranean, African, Near Eastern, and Asian origin (Cohen, 1984).

The sensitivity to foods containing lactose is a common hereditary characteristic of several cultural groups, especially southern Europeans, Jews, Arabs, blacks, Asians, and Native Americans. Lactose intolerance usually does not become a problem until the child reaches 3 to 5 years of age. However, lactose-intolerant children become uncomfortable with distention, flatus, and diarrhea after ingesting milk or milk products. Unknowing but well-meaning health workers may be responsible for these symptoms in their clients when they prescribe foods containing lactose as sources of nutrients.

An example of resistance to disease, or selective advantage, of a population is found in persons who possess the sickle cell trait. Persons with sickle cell trait are highly resistant to a form of malaria, and in the parts of the world

where the organisms are prevalent, there is a high frequency of the trait. However, in an environment where malaria is not a threat, possession of the trait has no advantage and only the negative aspects of the condition remain (risk of sickle cell anemia in offspring).

3.1.3.6 Physical characteristics.

Among racial groups there are observable differences in physical appearance. The most obvious are skin and hair coloring and texture. Skin color is determined by the amount of melanin pigment present in the skin. Persons from countries located near the equator have darkly pigmented skin, which serves to protect the skin from the year-round exposure to the sun's rays; persons from the northern countries have very light skin, which provides for maximum exposure to the sun's rays (necessary for vitamin D metabolism) during the short daylight hours. There can be wide variations in skin color between these two extremes in terms of geographic origin or from intermixing of dark and light skin color.

As a consequence of the dark pigmentation, the detection of skin color changes can be difficult and requires modification of assessment techniques. For example, vasomotor alterations, cyanosis, and jaundice observable in the skin are not easily recognized in very dark or black skin. Variations in the skin color can alter the appearance of the skin in a given circumstance (see Table 7-8).

Variations in the newborn are often related to racial or ethnic origin. For example, newborn infants of Asian and black parents are smaller than infants of white parentage (David, 1990).

Bluish pigmented areas (mongolian spots) on the sacral region are a common observation on Oriental, black, Native American, and Mexican-American infants.

Evaluation of stature and body build reveals some racial tendencies. Oriental children are usually smaller at all ages and black children are taller and heavier between ages 5 and 10 than white children of the same age (see growth measurements, Appendix C). This difference in stature can lead to misinterpretation of health status and capabilities. Black children who appear normal for their age may, in fact, be underdeveloped when compared with other black children (Bloch, 1983). In communication and education a child who is smaller than the average may appear precocious and one who is larger might appear to be slow. Expectations determined on this basis can be detrimental to the child.

3.1.3.7 Socioeconomic Factors

The most overwhelming adverse influence on health is socioeconomic status. A higher percentage of lower-class individuals are suffering from some health problem at any one time than are those in any other group. The sum of all aspects of their situation contributes to and compounds health problems; this includes crowded living conditions and poor sanitation, which facilitate transfer of disease. There is a higher incidence of lead poisoning in children from lower-class families, where there is more ready access to lead in the environment, such as paint and other lead-containing compounds or utensils, pottery with lead-containing glazes, and burning of lead-containing batteries for heat in winter.

In the lower classes, children are less likely to be immunized against preventable diseases than are children in the upper and middle classes. Lack of funds or inaccessibility to health services inhibits treatment for any but severe illness or injury. Sometimes health care is inadequate because of ignorance. In some areas a disorder is so commonplace that it is looked on as unavoidable; it is not recognized as something that requires (or is amenable to) treatment. The parents may not have information regarding causes, treatment, outcome of the illness, or preventive measures.

3.1.3.8 Poverty

A high correlation between poverty and the prevalence of illness has long been observed. Impoverished families suffer from poor nutrition; they have little if any preventive health care, inadequate health maintenance, and very limited access to health services. One of the most significant health problems related to poverty is a high infant mortality rate (Wise and Myers, 1988). Health care often ranks low on their list of priorities. Day-to-day needs of food, clothing, and lodging take precedence as long as the ailing person feels able to perform activities of daily living.

Poor families are denied access to many health institutions for emergency or other hospital care. Frequently they must travel long distances to service centers that are willing to assume their care. In an emergency they must find money for taxi fare, borrow an automobile, or seek other means of transportation. They must find care for dependents, such as other infants and small children, or have them accompany them when taking the ill child for care. Families tend to delay preventive care indefinitely unless health services are relatively accessible. They are more likely to consult folk practitioners or other persons within their community.

Poor nutrition accounts for many health problems in the lower classes. Lack of funds and ignorance result in a diet that may be seriously lacking in essential food substances, especially protein, vitamins, and iron. This inadequate diet often leads to nutritional deficiency disorders and growth retardation in children. In many the total intake is insufficient to support normal

growth. Unstructured eating patterns and irregularly scheduled mealtimes can also contribute to erratic food intake and a proportionately larger consumption of nonnourishing snacks, which can result in excessive weight gain.

Because of deficient preventive care, dental problems are more prevalent. Lack of standard immunizations together with reduced resistance from poor nutrition renders the exposed children in poor segments of the population vulnerable to communicable diseases. Poor sanitation and crowded living conditions also contribute to the higher incidence and perpetuation of illness. In general poor people become ill more frequently and remain ill for longer periods of time than persons in the general population.

3.1.3.9 Homeless

Homeless children experience all of the health problems associated with poverty, as well as other types of disorders. Preventive health care, especially immunization and dental care, is seriously lacking. Both delayed growth and overweight problems are common (Miller and Lin, 1988). Developmental delays, severe depression, anxiety, and learning difficulties have been reported (Bass and others, 1990; Bassuk and Rosenberg, 1990). The erratic chaotic life-style of these children increases their vulnerability to any number of physical and psychosocial problems, including child abuse, illicit drug use, and prostitution (Alperstein and Arnstein, 1988).

3.1.3.10 Migrant Families

Migrants generally suffer more illness, both acute and chronic, than does the general population. They are subject to unhealthy environments, poverty, and insufficient medical care; their health-seeking behavior in general is an illness- or injury-oriented recourse to medical care. Affected persons will postpone seeking care for themselves or their children until physical pain or suffering is almost unbearable (O'Brien, 1982).

When medical care is provided to a migrant family, follow-up care is usually impossible because of their transient life-style. Compliance to medical therapies is primarily related to accessibility and availability. For example, medications provided by health workers are more likely to be taken than those that must be obtained at a pharmacy. In addition, medications are often discontinued following self-perceived recovery. Treatment regimens that do not interfere with work or family responsibilities are most likely to be adhered to. Their entire approach to health care is described by O'Brien (1982) as "pragmatic survivalism," a concept "symbolizing a pattern of health-illness attitudes and behaviors that focus on the achievement and maintenance of low-level wellness in the most practical manner possible for the continuance of productive life."

The health problems of migrant children appear to be dental caries, upper respiratory tract infections, otitis media, scabies and lice, intestinal parasites, pesticide exposure, injuries, teenage pregnancy, and growth and development delay (American Academy of Pediatrics, 1989).

3.1.3.11 Communication

Communication is basic to all human relationships, but it may be a source of distress and misunderstanding between persons from different ethnic groups, especially if the languages are different. Ideally, conversations with families who are unable to speak the dominant language are best conducted by a health care worker who speaks the language of the family. If this is not possible, it may be necessary to engage the services of an interpreter. However, use of an

interpreter can be a source of misunderstanding if the interpreter is unfamiliar with the medical terminology or if there are no corresponding words

in the second language to express the ideas and concepts. Under discussion (see *Communicating with Families Through an Interpreter*, Chapter 6).

Some persons with poor or limited language comprehension may simply smile and nod in agreement if they do not understand the questions or directives. It is vital that the family fully understand all implications of a child's care and management before they sign permits for special procedures or assume responsibility for the child's care. It is not uncommon for an Oriental family to indicate "yes" when in fact they mean "no" in order to avoid social disharmony.

They tend to use indirectness rather than confrontation and may become evasive when direct questioning makes them feel uncomfortable (Chen-Louie, 1983; Orque, 1983b).

Nonverbal communication is a practiced art in many American Indian tribes, and the members are highly sensitive to body language. They emphasize periods of silence to formulate thoughts in preparation for speech and often remain silent after listening to statements by others in order to properly assimilate what has been said. Interruption, interjection, or haste to arrive at abrupt conclusions is perceived as immature behavior.

Eye contact is viewed differently in cultures. It is not uncommon for persons in some ethnic groups to avoid eye contact and become uncomfortable when conversing with health workers. In non-Western cultures, a patient may not look directly into the nurse's eyes, as a sign of respect. Some Native Americans will make eye contact during the initial greeting, but continued, unwavering eye contact is considered insulting and disrespectful (Wilson, 1983).

There may be reluctance on the part of families to question or otherwise initiate contact with health professionals. In the Asian cultures, for example, it is considered a sign of disrespect to question those who are viewed as persons of authority (Orque, 1983b). A Japanese family may wait silently rather than ask or question. They believe that the health professionals know best and will meet their needs without being asked (Hashizume and Takano, 1983). It is also important to avoid criticism. Criticism can cause the Japanese-American to "lose face," to feel ashamed, which is highly undesirable.

It is necessary to speak slowly and carefully, not loudly, when conversing with families who have poor language comprehension. Many persons are able to read and write English better than they can speak or understand it. Also, the dominant language usually takes over in anxiety-provoking situations, even in persons who are able to communicate satisfactorily under ordinary circumstances.

Terms of address and use of first and last names vary among cultures and can create confusion in institutions. For example, in Asian cultures, the family name is given first in respect for the family and the given names follow. Therefore all siblings in a family have the same first name (in some families it may be the middle names that are the same). Ethiopians use no last names but have a very complex system whereby women retain their last names after marriage and the paternal grandfather's name becomes a child's last name. The Mennonites refer to children as sons and daughters of a particular parent, such as "Josiah's son," rather than by the son's name (Elkin and Handel, 1989).

Although all people share the basic emotions, there are decided ethnic variations in the way emotions are expressed. In some cultures (eg., persons of Latin or Jewish background) emotions are expressed openly and members are accustomed to share their sorrows and joys with family and friends. Conversely, Nordic and Asian groups are more restrained in expressing emotion.

Nurses caring for persons of another culture will be better able to communicate if they understand the common names used to describe symptoms and diseases: for example, miserias (pain) and locked bowels (constipation) in black people and caída de la mollera (fallen fontanel from dehydration), susto (fright), and la diarreya (diarrhea) in Latinos.

3.1.3.12 Food Customs

Food customs and symbolism of various cultural, ethnic, and religious groups have become an integral part of their lives. Although in a large country such as the United States most persons have adopted the eclectic food habits that have evolved over countless generations, many ethnic and Geographic food traditions and preferences are retained. Special holidays, ceremonies, and life experiences such as births, birthdays, weddings, and death are often marked by special food items or feasts. In many cultures specific food practices are followed during pregnancy in the belief that certain foods damage the developing fetus.

The distinctive food customs of ethnic groups are a product of their native environment, determined by availability. Fish is a staple food of persons living near the ocean, such as people from Japan, Polynesia, and Scandinavia. Fruit and vegetable preferences are also directly related to the climate in which these grow naturally or can be cultivated. The types of grain that are ethnically associated are also those that grow best in their native lands. For example, rice is the staple grain of the Orient and Pacific islands, wheat of the temperate climates of Europe, rye in Scandinavia, and corn of the North American Indians. The diet of the Eskimo is predominantly fish and meat, depending on which is the most easily procured in the area. Even in the continental United States there are regional favorites, such as rice, hominy grits, and okra in the southern states. In some cultures food is highly spiced; in others foods tend to be bland. Table 2-3 lists the food items common to all cultures, and Table 2-4 outlines some of the foods associated with some specific ethnic groups.

There are a number of restrictions related to food items. Some have a physiologic origin, such as lack of dairy foods in the diets of some persons of African or Asian ancestry with lactose intolerance. Others have religious restrictions, such as kosher foods and food preparation of the Orthodox Jewish faith and the vegetarian diet of Seventh Day Adventists (see Vegetarian Diets, Chapter 13).

Children in a strange environment, such as the hospital, feel much more comfortable when they are served foods to which they are accustomed (Fig. 2-5). The hospital food often tastes strange and bland, especially to children who enjoy the highly seasoned foods of their culture. The family may be concerned that the child is receiving foods appropriate to their culture and beliefs (see Health Beliefs, p. 46). Where possible, it is advisable to provide children's ethnic foods or allow families to bring favorite foods that are not available on the hospital menu. Concern for differences in food habits and patterns projects an attitude of respect of the family's ethnic or religious heritage.

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Unit.

3.1.4 Activity

There are several dialects in Nigeria perhaps with different cultural practices. Which ethnic group do you belong to? Interview women from your ethnic group and 2 other ethnic groups about cultural practices surrounding child birth and child care in the first to five years of life. What are the similarities and differences? How do the identified cultural practices contribute to the health or ill health of children from your understanding of factors contributing to the growth and development of the child? Categorise the cultural practices into “useful”, “harmful”, “undecided”. Submit your report to your facilitator.

3.1.4 Self-Assessment Questions (SAQs) for Unit 1

3.1.4.1 SAQ 1 Explain homelessness as a factor that influence infant development

Homelessness

Homeless children experience all of the health problems associated with poverty, as well as other types of disorders. Preventive health care, especially immunization and dental care, is seriously lacking. Both delayed growth and overweight problems are common (Miller and Lin, 1988). Developmental delays, severe depression, anxiety, and learning difficulties have been reported (Bass and others, 1990; Bassuk and Rosenberg, 1990). The erratic chaotic life-style of these children increases their vulnerability to any number of physical and psychosocial problems, including child abuse, illicit drug use, and prostitution (Alperstein and Arnstein, 1988).

From Endres, J.B., and Rockwell, RE.: Food, nutrition, and the young child, St. Louis, 1980, Mosby-Year Book, Inc., p. 180.

Unit 2: Role of the Midwife and Role of the Peaditric nurse in child care Content

3.2.0 Introduction

3,2,.1 Learning Objectives

3.2.2 Role of the Midwife and the Peadiatric nurse

3.2.2.1 Family Advocacy

3.2.2.2 Child Advocate

3.2.2.3 Educator

3.2.2.4 Illness Prevention/Health Promotion

3.2.2.5 Health Teaching

3.2.2.6 Support/Counseling

3.2.2.7 Therapeutic Role

3.2.2.8 Coordination/Collaboration

3.2.2.9 Ethical Decision Making

3.2.2.10 Research

3.2.2.11 Health Care Planning

3.2.3 Activity

3.2.4 Self-Assessment Questions (SAQs) for Unit

3.2.0 Introduction

Nursing of infants and children is consistent with the definition of nursing as ‘the diagnosis and treatment of human responses to actual or potential health problems’ (Nursing, 1980). Its purpose is to promote the highest possible state of health in each child. Pediatric nursing consists of preventing disease or injury; assisting children, including those with a permanent disability or health problem, to achieve and maintain an optimum level of health and development; and treating or rehabilitating children who have health deviations. At all times nursing of children incorporates the family in the scope of care.

The emerging trend toward health care has been prevention of illness and maintenance of health, rather than treatment of disease or disability. Nursing has kept pace with this change, especially in the area of child care. In 1965 specialized pediatric nurse practitioner (PNP) programs began to develop that have led to several specialized ambulatory or primary care roles for nurses. The thrust of these programs has been to educate nurses beyond the basic preparation stage in areas of child health maintenance so that all children can receive high-quality care. The practitioner programs have expanded to prepare school nurse practitioners, hospital nurse practitioners, and other specialists, such as the developmental pediatric nurse practitioner. Although the curriculum varies from program to program, the course content generally includes history taking, physical diagnosis, growth and development, health education, counseling, common childhood problems, and planning care for individuals and groups.

The clinical nurse specialist (CNS) role has been developed in an attempt to provide expert nursing care. The term nurse clinician is based on a primary philosophy of clinical competence in direct patient care. The clinical specialist is competent in providing nursing care during all stages of illness or wellness and functions in any of the settings where patients may be found—the hospital, home, community, clinic, or long-term facility. The CNS role has developed within each of the traditional specialty areas, as well as in other areas. The educational preparation includes a graduate degree in nursing that may incorporate the practitioner skills. In some settings the roles of the PNP and CNS are merging to create a new professional-advanced practice nurse (Gleeson and others, 1990).

3.2.1 Learning Objectives

At the end of the unit you will be able to

- i. Discuss the role of the paediatric nurse

3.2.2 ROLE OF THE PEDIATRIC NURSE

Pediatric nurses are involved in every aspect of a child’s growth and development. Nursing functions vary according to regional job structures, individual education and experience, and personal career goals. Just as clients (children and their families) present a vast and unique background, so it is that each nurse will bring to the clients an individual set of variables that will affect their relationship. No matter where pediatric nurses practice, their primary concern is the welfare of the child and family.

3.2.2.1 FAMILY ADVOCACY

Although the nurse is responsible to self, the profession, and the institution of employment, primary responsibility is to the recipient of nursing services, the child and family. The nurse must work with members of the family, identifying their goals and needs, and plan interventions that best meet the defined problems. As a consumer advocate the nurse has the goal of ensuring that families are aware of all available health services, informed adequately of treatments and procedures, involved in the child's care when possible, and encouraged to change or support existing health care practices. The pediatric nurse is aware of the United Nations Declaration of the Rights of the Child

3.2.2.2 CHILD ADVOCATE

Of special significance is the nurse's role as child advocate. The Pediatric Bill of Rights, composed by a 10-year-old child, clearly states the child's views regarding the desired "rights" (Box 1-3).



Box 1-3 PEDIATRIC BILL OF RIGHTS—A CHILD'S VIEW

Any person regardless of age has the right to refuse pediatric care.

Any person regardless of age has the right to pick their own pediatrician, if there a girl they can pick a girl, if there a boy they can pick a boy.

Any person regardless of age has the right to not take their medicine if they don't want to.

Any person regardless of age has the right not to wear those paperthings at the doctor's office.

Any person regardless of age has the right not to get weighed at the doctor's office.

Andreasen, S.: Pediatrics 55(3):370, 1975. Copyright American Academy of Pediatrics 1975.

Unfortunately, most of these "rights" are not in the child's best interest when health care is needed. However, they emphasize the need for nurses to consider the child's feelings and to individualize care to allow for personal preferences, fears, and dislikes.

The concept of a traumatic care is particularly important to the pediatric nurse. A traumatic care is the provision of therapeutic care in settings, by personnel, and through the use of interventions that eliminates or minimizes the psychological and physical distress experienced by children and their families in the health care system (Wong, 1989). The overriding principle in providing a traumatic care is first do no harm. A concern for the child's total welfare is the priority.

Throughout the text there are numerous examples relating to special needs of children in various age-groups. As child advocate the nurse uses this knowledge to adapt care for the child's optimum physical and emotional well-being. Examples of this may be fostering the parent-child relationship during hospitalization, preparing the child before any unfamiliar treatment or procedure, allowing the child privacy, providing play activities for expression of fear, aggression, or loss of control, and respecting cultural differences relating to childrearing practices.

3.2.2.3 EDUCATOR

The nurse is aware of the needs of children and works with all caregivers to ensure that these fundamental requirements are met. This often necessitates that the nurse expand the boundaries of practice to less traditional settings. The nurse may be involved in education, political/legislative change, rehabilitation, screening, administration, at in even engineering and architecture. Regardless of how removed from direct patient care individual nurses become, they continue to foster health care practices that promote the well-being of children by incorporating knowledge of child growth and development into particular roles of practice. For example, as educator the nurse has the primary responsibility of helping others learn about and care for children.

The audience for this information may be other nurses, parents, schoolteachers, other members of the health team, or the general public. In some states nurses are involved in mass media programs for immunization of all children.

3.2.2.4 Illness Prevention/Health Promotion

The pediatric CNS plays an important role in the care of children, performing all the functions of the pediatric nurse. In addition, however, the CNS should serve as a role model to the staff for clinical practice, a researcher to validate nursing observations and interventions, a change agent within the health care system, and a consultant/teacher to the health care team.

Every nurse involved with child care must practice preventive health. Regardless of the identified problem, the role of the nurse is to plan care that fosters every aspect of growth and development. Based on a thorough assessment process, problems related to nutrition, immunizations, safety, dental care, development, socialization, discipline, or schooling frequently become obvious. Once the problem is identified, the nurse acts to intervene directly or to refer the family to other health persons or agencies.

The best approach to prevention is education and anticipatory guidance. In this book each chapter on health promotion includes sections on anticipatory guidance

An appreciation of the hazards or conflicts of each developmental period enables the nurse to guide parents regarding childrearing practices aimed at preventing potential problems. One of the most significant examples is safety. Since each age-group is at risk for special types of injuries, preventive teaching can help prevent most injuries, thus significantly lowering permanent disability and mortality from injuries in children

Prevention also involves less obvious aspects of child care. Besides preventing physical disease or injury, the nurse's role is also to promote mental health. For example, it is not sufficient to administer immunizations without regard for the psychologic trauma associated with the procedure. Optimum health involves the practice of good medicine with a humane approach to health care; the nurse is often the one professional capable of ensuring "humanity." Because of the current educational emphasis on holistic care, the extended and less formal interaction with

the family, and the nursing role within the health team, the nurse's role is often one of facilitator of care rather than direct intervention.

3.2.2.5 Health Teaching

Health teaching is inseparable from family advocacy and prevention. Health teaching is the direct goal of the nurse, such as during parenting classes, or may be indirect, such as informing parents and children of a diagnosis or medical treatment, encouraging children to ask questions about their bodies, referring families to health-related professional or lay groups, and supplying patients with appropriate literature. Anticipatory guidance is one of the most important types of health teaching.

Health teaching is often one area in which nurses feel competent because it involves translating information rather than receiving messages, translating them, and planning intervention. In other words, it is a concrete, structured type of communication as opposed to other emotionally laden, non-directed types of interaction. However, the nurse focuses on giving appropriate health teaching with generous feedback and evaluation to promote learning.

3.2.2.6 Support/Counseling

Attention to emotional needs requires support and sometimes counseling. Frequently, the role of paediatric is supportive by the very nature of the individualized approach. Support can be offered in many ways, the most common of which include listening, touching, and physical presence. The last two are most helpful with children because they facilitate nonverbal communication.

Counseling involves a mutual exchange of ideas and opinions that provides the basis for mutual problem solving. Although it is similar to health teaching, its focus is broader and more intense because it frequently implies some crisis or upsetting event that needs intervention. It involves support as well as teaching, techniques to foster expression of feelings or thoughts, and approaches to help the family cope with stress. Optimally counseling not only results in a resolved problem but also helps the family attain a higher level of functioning, greater self-esteem, and closer relationships. Although counseling is often the role of nurses in more specialized areas, counseling techniques are discussed in various sections of the text to help students and nurses cope with immediate crises and refer families for additional professional assistance.

3.2.2.7 Therapeutic Role

The most basic of all nursing roles is the restoration of health through care-giving activities. Nurses are intimately involved with meeting the physical and emotional needs of children, including feeding, bathing, toileting, dressing, security, and socialization, Although they are responsible for instituting physicians' orders, they are also held singularly accountable for their own actions and judgments regardless of written orders.

A significant aspect of restoration of health is continual assessment and evaluation of physical status. Indeed, the concentrated focus throughout the text on physical assessment, pathophysiology, and scientific rationale for therapy is to assist the nurse in decision making regarding health status. Only when aware of normal findings can the nurse intelligently identify and document deviations. In addition, the pediatric nurse never loses sight of the emotional and developmental needs of the individual child, which can significantly influence the course of the disease process.

3.2.2.8 Coordination/Collaboration

The paediatric nurse, as a member of the health team, collaborates and coordinates nursing services with the activities of other professionals. Working in isolation does not serve the child's best interest. First, the concept of "holistic care" can only be realized through a unified interdisciplinary approach. Second, aware of individual contributions and limitations to the child's care, the nurse must collaborate with other specialists to provide for high-quality health services. Failure to recognize limitations can be non-therapeutic at best and destructive at worst. For example, the nurse who feels competent in counseling but who is really inadequate in this area may not only prevent the child from dealing with a crisis but may also impede future success with a qualified professional.

Even nurses who practice in isolated geographic areas widely separated from other health professionals cannot be considered independent. Every nurse works interdependently with the child and family, collaborating on needs and interventions so that the final care plan is one that truly meets the child's needs. Unfortunately, this is one aspect of collaboration and coordination that is lacking in health care planning. Often numerous disciplines work together to formulate a comprehensive approach without consulting with clients regarding their ideas or preferences. The nurse is in a vital position to include consumers in their care, either directly or indirectly, by communicating their thoughts to the health team.

3.2.2.9 Ethical Decision Making

Ethical dilemmas arise when competing moral considerations underlie various alternatives. Parents, nurses, physicians, and other health Care team members may reach different but morally defensible decisions by assigning different weight to the competing moral values. Thus, nurses are forced to determine the most beneficial or least harmful action within the framework of societal mores, professional practice standards, the law, institutional rules, religious traditions, the family's value system, and the nurse's personal values.

When ethical conflicts occur, nurses may experience conflicting loyalties to their profession, colleagues, patients and families, institutions, and society. Moreover, the nurse's role in ethical decision making can be ambiguous. A nurse may be obliged to carry out procedures based on physician orders or hospital policy that are inconsistent with the patient's best interest. At times, members of the health care team do not seek the nurse's input or involvement, leaving the nurse with incomplete information about the clinical situation or without a voice in decision making.

The role of nurses as members of the health care team justifies their participation in collaborative ethical decision making. Nurses routinely use systematic problem-solving skills to resolve clinical problems. Each decision requires the nurse to collect pertinent physiologic and psychosocial data, assess relevant values held by the patient and family, and incorporate those data into a plan of care. Each of these activities is a crucial component of ethical decision making.

Furthermore, since nurses spend the most time directly caring for the child, they are in a unique position to provide insight about the patient's condition and response to therapy. In addition, they assist families in dealing with their grief and stress and often interpret information regarding the child's condition, prognosis, and treatment options to help families make informed decisions. Because of their relationship to families, nurses are often able to represent the child's and parents' values, beliefs, and preferences, thus serving as an important liaison for communication between the family and other health team members.

Participation in ethical decision making requires knowledge of ethical theory and principles, and skills in moral reasoning, communication, and group process. Nurses have an individual responsibility to clarify their personal values and beliefs and to be informed about contemporary ethical thinking and legal, institutional, public policy, as well as professional guidelines such as the Code for Nurses. Therefore, nurses must prepare themselves systematically for collaborative ethical decision making. This can be accomplished through formal coursework, continuing education, contemporary literature, and working to establish an environment conducive to ethical discourse.

The nurse can also use the professional code of ethics for guidance. A code of ethics provides one means for professional self-regulation. The Code for Nurses by the American Nurses' Association focuses on the nurse's accountability and responsibility to the client and emphasizes the nursing role as an independent professional role that upholds its own legal liability (Box 1-4). Nurses may face ethical issues regarding patient care, such as the use of lifesaving measures for severely impaired newborns or the terminally ill child's right to refuse treatment. Throughout the text such dilemmas are addressed under a section titled "Questions and Controversies." The conflicting ethical arguments are presented to help nurses clarify their value judgments when confronted with similar sensitive issues.



Box 1-4 CODE FOR NURSES

1. The nurse provides services with respect for human dignity and the uniqueness of the client unrestricted by considerations of social or economic status, personal attributes, or the nature of health problems.
2. The nurse safeguards the client's right to privacy by judiciously protecting information of a confidential nature.
3. The nurse acts to safeguard the client and the public when health care and safety are affected by the incompetent, unethical, or illegal practice of any person.
4. The nurse assumes responsibility and accountability for individual nursing judgments and actions.
5. The nurse maintains competence in nursing.
6. The nurse exercises informed judgment and uses individual competence and qualifications as criteria in seeking consultation, accepting responsibilities, and delegating nursing activities to others.
7. The nurse participates in activities that contribute to the ongoing development of the profession's body of knowledge.
8. The nurse participates in the profession's efforts to implement and improve standards of nursing.
9. The nurse participates in the profession's efforts to establish and maintain conditions of employment conducive to high-quality nursing care.
10. The nurse participates in the profession's effort to protect the public from misinformation and misrepresentation and to maintain the integrity of nursing.
11. The nurse collaborates with members of the health professions and other citizens in promoting community and national efforts to meet the health needs of the public.

3.2.2.10 Research

Practicing nurses rarely consider themselves researchers, yet they are the individuals most likely to observe human responses to health and illness. Unfortunately, few nurses systematically record or analyze such observations. For example, pediatric nurses devise innovative methods to encourage children to comply with treatments. Only if these interventions are shared with other nurses, especially through publications, can a body of knowledge on nursing practice develop. Research also implies a questioning of why something is effective and if there is a better approach. Evaluation is essential to the nursing process, and research is one of the best evaluators. Therefore nurses need to be more involved in research and in applying research findings to their practice. Throughout the text research relevant to nursing of children and families is incorporated as appropriate and is also highlighted in the Questions and Controversies section. Research findings are presented to encourage nurses to base their practice on theoretical foundations, not tradition, and additional questions may be proposed in the hope of stimulating research in a particular area.

3.2.2.11 Health Care Planning

Up to this point the nurse's role has been viewed through the nucleus of a family. However, the nursing role is far more extensive and includes the community or society as a whole. Traditionally nurses have been involved in public health care, on either a continuous or an episodic basis. Rarely, however, have nurses been involved in health care planning, especially on a political or legislative level.

Their role must also involve the decision-making body of government. Nursing, as the largest health profession, needs to have a voice, especially as family/consumer advocate. This does not mean that the nurse must hold public office. Rather it suggests knowledge and awareness of community needs, interest government formulation of bills, support of politicians to ensure passage (or rejection) of significant legislation, and active involvement in groups dedicated to the welfare of children, such as professional nursing societies, Parent-Teacher Organizations, parent support groups, religious organizations, and voluntary organizations.

Health care planning involves not only providing new services but also promoting the highest quality of existing ones. Nursing needs to ensure the excellence of its own profession through each individual member, who practices according to the Code of Nurses and standards of practice.

A standard of practice is the level of performance that is expected of a professional. Pediatric nurses are obligated to follow the Standards of Maternal-Child Health Nursing and specific standards for their specialty, such as pediatric oncology nursing or school nursing. They should also be involved in making certain their colleagues implement the standards, through education, role modeling, and supervision. Throughout the text the highest standards of nursing practice are continually reflected in the emphasis on thorough assessment, focus on scientific rationale as the

basis for care, summary of nursing care goals and responsibilities, and comprehensive discussion of growth and development. Family-centered principles are continually evident in the consideration of dynamics affecting the child, parents, siblings, and extended members. The nurse is viewed as a vital component of the health care delivery system. Although nursing functions are clearly outlined, nursing responsibilities must be equally emphasized. It is hoped that the roles briefly described here will be studied, practiced, and implemented to the ultimate benefit of all children.

3.2.3 Activity

Visit a paediatric ward during your posting and manage a baby on admission, write a report on the care given by you. Share your report on the discussion board.

3.2.4 Self-Assessment Questions (SAQs) for Unit 2

Discuss the role of a paediatric nurse as a family advocate.

3.2.4.1 Self-Assessment Answer (SAAs) for Unit 2

Family advocacy

Although the nurse is responsible to self, the profession, and the institution of employment, primary responsibility is to the recipient of nursing services, the child and family. The nurse must work with members of the family, identifying their goals and needs, and plan interventions that best meet the defined problems. As a consumer advocate the nurse has the goal of ensuring that families are aware of all available health services, informed adequately of treatments and procedures, involved in the child's care when possible, and encouraged to change or support existing health care practices. The pediatric nurse is aware of the United Nations Declaration of the Rights of the Child

Unit 3: Parenting the healthy infant

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3.3.3 Activity

3.3.4 Self-Assessment Questions (SAQs) for Unit 3

3.3.4.1 Notes on the Self-Assessment Questions (SAQs) for Unit 3

3.3.0 Introduction

The first few months of an infant's life are critical periods for the formation of positive parent-child relationships. There are numerous factors that influence the development of motherliness and fatherliness and a couple's transition to parenthood after the birth of a healthy infant.

Appropriate nursing intervention during the early neonatal period can help to establish positive parent-child interaction patterns. It will have long lasting effects on the health of the child, parents and family. Theories of child development have validated the significance of early mother-child relationship to the development of trust and trust building capacity of the child in later years of life. In this unit, you will learn more about how you should promote parent-mother-child bonding and parent-child attachment.

3.3.1 Learning objectives

At the end of the unit you should be able to:

- i. Describe an attachment bond
- ii. Explain parent child attachment and the factors that affect parent child attachment

3.3.2 Concept of bonding and attachment

Mother bonding with child



Source : Campbell and Taylor 1979

Attachment between a parent and child is defined as an enduring affectionate bond that is reciprocal and gradual in development during the first year of life(Campbell and Taylor 1979)

Rubin (1977) used the term bonding in to describe the gradual process of development of the mother child relationship or attachment which takes place during the first 12-15 months of a child.s life.

Tulman (1981) emphasized the importance of the reciprocal interaction between parent and infant in the development of their attachment to one attachment to one another. Their interactional concept of parent-infant attachment recognizes that infants are active partners in their interaction process from birth.

3.3.2.1 What is the attachment bond?

The mother–child bond is the primary force in infant development, according to the attachment bond theory pioneered by English psychiatrist John Bowlby and American psychologist Mary Ainsworth. The theory has gained strength through worldwide scientific studies and the use of brain imaging technology.

The attachment bond theory states that the relationship between infants and primary caretakers is responsible for:

- shaping all of our future relationships
- strengthening or damaging our abilities to focus, be conscious of our feelings, and calm ourselves
- the ability to bounce back from misfortune

Research reveals the infant/adult interactions that result in a successful, *secure* attachment, are those where both mother and infant can sense the other's feelings and emotions. In other words, an infant feels safe and understood when the mother responds to their cries and accurately interprets their changing needs. Unsuccessful or *insecure* attachment occurs when there is a failure in this communication of feelings.

Researchers found that successful *adult* relationships depend on the ability to:

- manage stress
- stay “tuned in” with emotions
- use communicative body language
- be playful in a mutually engaging manner
- be readily forgiving, relinquishing grudges

The same research also found that an *insecure* attachment may be caused by abuse, but it is just as likely to be caused by isolation or loneliness.

These discoveries offer a new glimpse into successful love relationships, providing the keys to identifying and repairing a love relationship that is on the rocks.

3.3.2.2 The attachment bond shapes an infant's brain

The infant brain is profoundly influenced by the attachment bond—a baby's first love relationship. When the primary caretaker can manage personal stress, calm the infant, communicate through emotion, share joy, and forgive easily, the young child's nervous system becomes “securely attached.” The strong foundation of a secure attachment bond enables the child to be self-confident, trusting, hopeful, and comfortable in the face of conflict. As an adult, he or she will be flexible, creative, hopeful, and optimistic.

Our secure attachment bond shapes our abilities to:

- feel safe
- develop meaningful connections with others
- explore our world
- deal with stress
- balance emotions
- experience comfort and security
- make sense of our lives
- create positive memories and expectations of relationships

Stages of Attachment

Rudolph Schaffer and Peggy Emerson (1964) discovered that baby's attachments develop in the following sequence:

- **Up to 3 months of age** - Indiscriminate attachments. The newborn is predisposed to attach to any human. Most babies respond equally to any caregiver.
- **After 4 months** - Preference for certain people. Infants they learn to distinguish primary and secondary caregivers but accept care from anyone;
- **After 7 months** - Special preference for a single attachment figure. The baby looks to particular people for security, comfort and protection. It shows fear of strangers (stranger fear) and unhappiness when separated from a special person (separation anxiety). Some babies show stranger fear and separation anxiety much more frequently and intensely than others, but nevertheless they are seen as evidence that the baby has formed an attachment. This has usually developed by one year of age.
- **After 9 months** - Multiple attachments. The baby becomes increasingly independent and forms several attachments.

It was indicated that attachments were most likely to form with those who responded accurately to the baby's signals, not the person they spent most time with. Schaffer and Emerson called this sensitive responsiveness.

Many of the babies had several attachments by 10 months old, including attachments to mothers, fathers, grandparents, siblings and neighbors. The mother was the main attachment figure for about half of the children at 18 months old and the father for most of the others. The most important fact in forming attachments is not who feeds and changes the child but who plays and communicates with him or her.

3.3.2.3 Infant parent attachment/parent child attachments

Bowlby is one of the earliest writers in the field of infant attachment as behavioural system. Infant attachment or signaling behaviour were identified as those which served to initiate and maintain proximity between mother and infant e.g crying, smiling, and cooing. Secure attachment .

Attachment parenting (AP) is actually a simple concept. By developing a loving, connected relationship based on learning to read and respond to your baby's needs -- I call it getting behind the eyes of your baby -- you can raise a child who is confident and caring, and who has a solid foundation for becoming an assured, empathetic adult. To help parents learn to heed their natural instincts and incorporate AP into their everyday lives, seven attachment tools are developed which are:

1. The first few weeks of your baby's life help set the stage for your relationship. Parents should spend as much time in skin-to-skin and eye-to-eye contact as possible **birth bonding** -- after all, cuddling with your brand-new baby is one of the richest rewards of parenthood. If medical complications disrupt this attachment time, don't despair. Birth bonding isn't like Super Glue; it's the start of a lifelong process, you can still find ways to connect with your newborn through your touch, your voice and your milk.

2. **Breastfeed** as often and as long as possible. Besides providing your baby with nature's perfect milk, it's an exercise in baby reading. The intimate contact promotes bonding by teaching you to read your baby's facial expressions and sense her body language, while the very act of nursing teaches baby that you are a source of care and comfort she can trust. If a medical or lifestyle complication prevents you from breastfeeding, you can make bottle-feeding a time of high touch and high communication too. Bottle-feeding also gives dad a chance to bond with baby in a caring, giving way. Whatever the method, think of feeding time as an opportunity for connecting and communicating in addition to delivering nourishment.

3. When new parents go for their newborn's first checkup, they are taught **baby-wearing**. It's advisable to demonstrate the technique with dads. It's a treat for new moms to watch drape the baby sling over dad, position baby comfortably inside and watch the pair .

In addition to enjoying a physical connection with either parent, a baby can learn a lot in their arms: Getting a mom's-eye view helps baby tune into his environment and the people around him. It's also another way to involve dad in attachment parenting.

4. The American Academy of Pediatrics recommends that babies sleep in the same room as mother, on separate sleeping surfaces, to reap the benefits of nighttime attachment. When **bedding close to baby**, try a co-sleeper, a bedside bassinet that attaches safely to your bed, to keep baby within arm's reach and in a safe sleep environment.

5. A baby's cry is her way of communicating with you. Listen to it and **believe in the value of her "language."** Babies cry to communicate, not to manipulate, so learning how to decipher your baby's cries and respond appropriately -- whether with a feeding, a diaper change or a simple, comforting touch -- teaches her to trust you to understand her needs and take care of them. As that bond grows and you become accomplished at anticipating her needs before she becomes upset, you may even find that she cries less.

6. I'm sure you've heard well-meaning friends and relatives deluge you with their personal how-to's: "Get her on a schedule." "Let him cry it out so he learns not to manipulate you." "You're spoiling her by carrying her so much." **Beware of this baby-training.**

Certainly, modify attachment parenting to help your baby fit into your family and your lifestyle. After all, being child-focused is not the same thing as being indulgent. (In fact, AP is based on the idea that being responsive to baby ultimately helps him develop the tools and confidence to become an independent, self-assured, caring person.) But when carried to an extreme, baby training is a lose-lose situation. By following someone else's preconceived formula for interacting with your baby, you lose trust in your ability to read and respond to his cues, while he loses trust that you believe and value those cues.

7. A baby needs most is a happy, rested mother. Remember: The right dose of the right medicine is healing, but an overdose can sometimes hurt. The same is true of attachment parenting. This is why **balance and boundaries** are so important. In your zeal to give so much to your baby, it's easy to neglect your own needs and those of your marriage. Early on in the AP process, new

parents should check if their method, "Is this working for you? Is your baby thriving? Are you thriving? If not, then modify things."

Adapt these tools to enhance your family life and experience mutual giving. Though attachment parenting may initially seem like one big give-a-thon, it's really about parents and babies giving to each other. The more responsive you are to your baby, the more responsive baby will be to you. Before you know it, the principles of AP will become second nature for all of you, and you'll be well on your way to creating a happy, close-knit family.

3.3.2.4 Factors affecting Parent-Infant Attachment

Parental Variables

- Age
- Self –concept (including concepts of masculinity and femininity)
- Relationships with significant others
- Attitudes towards parenting
- Knowledge related to parenting and infant care
- Expectations of infant
- Illness
- Perceptions of infant
- Mothers physical health during pregnancy
- Parents satisfaction with interaction with infant
- Perceptions of the birth experience

Situational variables:

- Presence of other stressors or crises
- Support system
- Whether pregnancy was planned or unplanned
- Experience surrounding pregnancy, labour , and early postpartum period.
- Quality and quantity of parent-infant contact in early newborn

Infant variables:

- Temperament and behaviors
- Physical characteristics
- Illness.

Summary of Unit 3

In Module 2, you have learned that:

Module two has four units which discussed the following :The six critical concept of newborn care , the factors affecting the development of child care.

The module also discussed the role of the paediatric nurse and parent child attachment looking at the concept of bonding

3.3.3 Activity

1. From the knowledge acquired in this unit, develop a personal checklist that you can use to determine the level of bonding between a child and the family members, giving consideration to different members of the family, the mother, the father, other siblings, the extended member of the family.
2. Discuss with a family of a newborn child, (the mother, the father and the siblings if any) on what they think, know, do to achieve by bonding with a child. Taking it from the information they provide, explain bonding to them in simple ways they can understand.. Share your experience on the discussion forum

3.3.4 Self-Assessment Questions (SAQs) for unit 3

Describe the Critical Concept 6 of the new born

Explain the term Attachment parenting

3.3.4.1 Self-Assessment Answers (SAAs) for Unit 3

Describe the Critical Concept 6 of the new born

Some newborns may be at risk of poor development. Low-birth-weight infants can suffer poor developmental outcomes, particularly within families living in poverty. Genetic disorders and illness may also threaten healthy development in the earliest days of life. Some problems stem from barriers to health care for families of historically underrepresented groups.

Parents should provide special support for babies in high-risk categories and their families. Low-birth-weight infants, for example, would benefit from greater social and intellectual stimulation in child care. Parent education programs can be provided to help families of high-risk babies provide positive interaction in the home. Parents should serve as advocates for families of children in high-risk categories

Attachment parenting (AP) is actually a simple concept: By developing a loving, connected relationship based on learning to read and respond to your baby's needs -- I call it getting behind the eyes of your baby -- you can raise a child who is confident and caring, and who has a solid foundation for becoming an assured, empathetic adult.

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Module 4: Nutritional needs of the newborn

Introduction

Learning Objectives for Module 4

At the end of this module, you should be able to;

- Review the anatomy of the female breast
- Discuss Physiology of lactation
- Explain breast feeding components
- Explain the Principles and steps to successful breast feeding

Content

Unit 1 The female breasts

- Structure of the breast
- Gross and Microscopic structure
- Physiology of lactation

Unit 2: Breast feeding

- Exclusive Breast Feeding
- Components of breast milk
- Nutritional Requirements for the Baby
- Principles and steps to successful breast feeding

4.0 Introduction

4.1 learning objectives

4.1.2 The female breasts

4.1.2 .1 Structure of the breast Gross

Gross and Microscopic structure

4.1.2.2 Physiology of lactation

:

4.0 Introduction

Human milk is described as the gold standard for nutrition of the human infant. It contains unique constituent valuable for brain growth and immune properties that cannot be matched with any substitutes. Mothers must be encouraged to breast feed their neonates.

The female breast is structured to produce, store and offer the product, the milk, to suckle and nurture the child giving the child the best foundation for life. Structural and functional changes that starts at puberty continues through pregnancy and lactation period. Successful lactation depends on good anatomical development of the breast by oestrogen and progesterone stimulating the growth of the mammary ducts. Other hormones prolactin, oxytocins also have impact on lactation especially after delivery. In this unit, you will cover brief overview of the structure and functioning of the breast with regards to lactation.

Unit 1: Anatomy of the female breast and physiology of lactation

Unit 2 Breast feeding

4.1 Learning Outcomes for unit 1

At the end of this unit, you should be able to:

- i. Review the anatomy of the female breast
- ii. Describe the physiology of lactation

4.1.2 The female breasts

The female breasts, also known as the mammary glands, are accessory organs of reproduction.

Situation One breast is situated on each side of the sternum and extends between the levels of the second and sixth rib. The breasts lie in the superficial fascia of the chest wall over the pectoralis major muscle, and are stabilized by suspensory ligaments.

Shape Each breast is a hemispherical swelling and has a tail of tissue extending towards the axilla (the axillary tail of spence).

Size The size varies with each individual and with the stage of development as well as with age. It is not uncommon for one breast to be little or larger than the other.

4.1.2.1 Gross structure

The axillary tail is the breast tissue extending towards the axilla.

The areola is a circular area of loose, pigmented skin about 2.5 cm in diameter the centre of each breast. It is a pale pink colour in a fair-skinned woman, darker in a brunett, the colour deepening with pregnancy. Within the area of the areola lie approximately 20 sebaceous glands. In pregnancy these enlarge and are known as Montgomery's tubercles.

The nipple lies in the centre of the areola at the level of the fourth rib. A protuberance about 6mm in length, composed of pigmented erectile tissue. The surface of the nipple is perforated by small orifices which are the openings of the lactiferous ducts. It is covered with epithelium.

Microscopic structure

The breast is composed largely of glandular tissue, but also of some fatty tissue, and is covered with skin. This glandular tissue is divided into about 18 lobes which are completely separated by bands of fibrous tissue.

The internal structure is said to resemble as the segments of a halved grape fruit or orange. Each lobe is a self-contained working unit and is composed of the following structures:

Alveoli: Containing the milk-secreting cells. Each alveolus is lined by milk-secreting cells, the acini, which extract from the mammary blood supply the factors essential for milk formation. Around each alveolus lie myoepithelial cells, sometimes called 'basket' or 'spider's cells. When these cells are stimulated by oxytocin they contract releasing milk into the lactiferous duct.

Lactiferous tubules: small ducts which connect the alveoli.

Lactiferous duct: a central duct into which the tubules run.

Ampulla: the widened-out portion of the duct where milk is stored. The ampullae lie under the areola.

Blood supply Blood is supplied to the breast by the internal mammary, the external mammary and the upper intercostals arteries. Venous drainage is through corresponding vessels into the internal mammary and axillary veins.

Lymphatic drainage This is largely into the axillary glands, with some drainage in to the portal fissure of the liver and mediastinal glands. The lymphatic vessels of each breast communicate with one another.

Nerve supply The function of the breast is largely controlled by hormone activity but the skin is supplied by branches of the thoracic nerves. There is also some sympathetic nerve supply, especially around the areola and nipple.

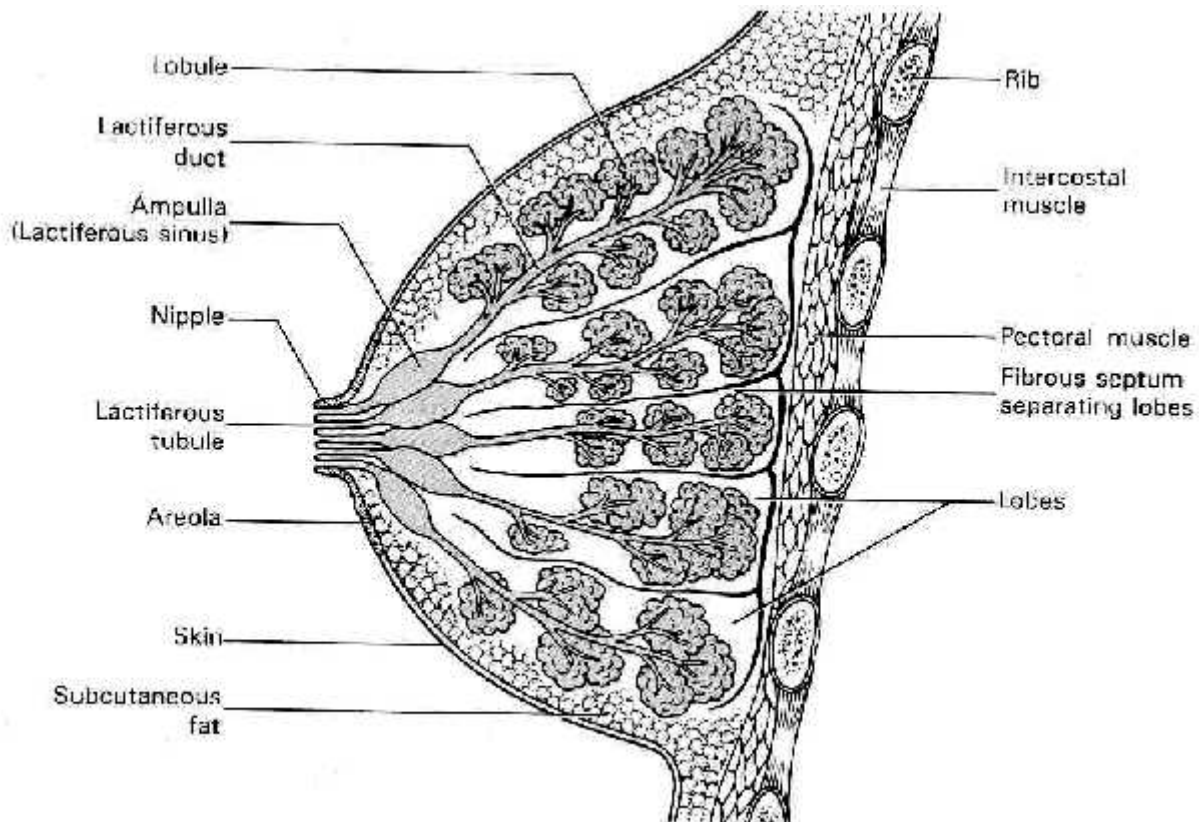


Figure ----- Structure of the Breast

4.2.1.2 Physiology of lactation

The mechanism of milk production and ejection after delivery is controlled by hormone secretion. During pregnancy, estrogen and progesterone induce alveolar and ductal growth in the breast as well as stimulate the secretion of colostrum. Prolactin and other hormones produced during pregnancy also help to prepare the breast for lactation but milk production is withheld until after delivery.

After delivery, when the placenta has been delivered, the level of hormone produced by the placenta diminishes thereby activating the anterior lobe of the pituitary gland to release prolactin. Prolactin acts on the acini cells of the breast to produce milk. The process of establishment of milk production may take 2-4 days and is usually enhanced by sucking stimulation of the baby.

Oxytocin produced by the posterior pituitary gland during labour stimulates uterine myoepithelial as well as the myoepithelial of the breast to bring about milk ejection or let-down. After let-down, milk travels into the **ductules**, then to the larger – **lactiferous or mammary** ducts. Once milk production and ejection has been established, its continuation and maintenance is based on response to baby's cry, sucking stimulation, mother's emotion, feeding patterns. Negative emotions e.g. fear, anger, anxiety, embarrassment and pain may inhibit milk let-down reflexes.

4.2.3 Activity

Draw a well-labelled diagram of the female breast. Find out about deviations that can occur in the breast that has implications for lactation and how such should be managed.

4.2.4 Self-Assessment Questions (SAQs) for unit 1

SAQ 4.2.4 (Tests Learning outcome 4.1)

- Explain physiology of lactation

SAQ 4.2.4 1 (Tests Learning outcome 4.1)

Physiology of lactation

The mechanism of milk production and ejection after delivery is controlled by hormone secretion. During pregnancy, estrogen and progesterone induce alveolar and ductal growth in the breast as well as stimulate the secretion of colostrum. Prolactin and other hormones produced during pregnancy also help to prepare the breast for lactation but milk production is withheld till until after delivery.

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Unit 2 Breast Feeding

Content

Breast feeding

- Exclusive Breast Feeding
- Components of breast milk
- Nutritional Requirements for the Baby
- Principles and steps to successful breast feeding

4.2.0 Introduction

4. 2.1 Learning objectives for Unit 2

At the end of the unit you will be able to :

- i. Describe the concept exclusive breast feeding
- ii. Discuss the nutritional requirement for the baby
- iii. Explain the Principles and steps to successful breast feeding

4.2.2 Exclusive breast feeding

4.2.2.1 Composition of breast milk

4.2.2.2. The nutritional requirement for the baby

4.2.2.3 Advantages and disadvantages of breast feeding

To the mother and baby

Some difficulties with Breast feeding

4.2.2.4 Principles and steps to successful breast feeding

4.2.3 Activity

4.2.4 SAQ 4.2 (Tests Learning Outcome 4.2)

4.2.4.1

4.2.0 Introduction

The best food for a newborn is breast milk from the mother. It is important for the midwife to assist mothers to make an informed decision to breast feed their baby exclusively for the first six months of life.

Assisting breast feeding



Source :

Exclusive breast feeding means that

- No drink or food other than breast milk is given to the baby in the 1st six months of life.
- No pacifier / dummies or artificial teats are given to the baby
- No infant formula or animal milk
- Breast feeding the baby on demand at least 8-12 times in 24 hours including nights
- Babies should continue to breast feed up to two years even when complementary food has been introduced

Exclusive Breast Feeding Hospital Policy

Principles and steps to successful breast feeding

Every facility providing maternity services and care for newborn infants should:

1. Have a written breast-feeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breast feeding.

4. Help mothers how to breast feed, and how to maintain lactation even if they should be separated from their infants.
5. Show mothers how to breast feed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in-allow mothers and infants to remain together -24 hours a day.
8. Encourage breast feeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breast feeding infants.
- 10 Foster the establishment of breast-feeding support groups and refer mothers to them on discharge from the hospital or clinic .

4.2.2.1 Components of breast milk

Human milk varies in its composition with the time of the day, stage of lactation, and maternal nutrition. Fore-milk at the beginning of the feed differs from the hind-milk at the end of the feed. Human milk is unique on its own and differs from other animal's milk. It contains all the nutrients that the infant needs for proper growth and development at the right proportion.

Colostrum is the first milk that is produced from early pregnancy to some days after birth. It is a thick, yellow, creamy fluid It contains higher level of anti-bodies, protein, minerals and fat-soluble vitamins.

After 2-4 days it is replaced by transitional milk, which is produced until 2 weeks post –partum. Transitional milk provides more calories than colostrums. It is also higher in fat, lactose and water – soluble vitamins.

Mature milk is produced by 2 wks post partum. It has high water content, looks thin, and bluish in colour.

It is utilized rapidly because of the action of enzyme Lipase:

Fat – Provides more than 50% of the caloric requirements. Value varies with feed, time of the day and its proportion increases during the course of the feed

Lactose – More in human milk than other mammals. It is converted to galactose & glucose by the action of enzyme lactase. Lactose enhances the absorption of calcium and promotes the growth of lactobacilli which increase intestinal acidity. It inhibits the growth of pathogenic organism.

Protein – Human milk contains less than half the amount of that of cow's milk but it is easily digestible and provides baby with the ideal quantity. It is mainly lactalbumin (whey protein) and little caseinogen, 2 amino Acids, cystine and taurine are found in human milk which are not in cow's milk. Cystine is necessary for growth while taurine is necessary for brain development. Colostrum contains 3 times the amount of protein in natural milk and contains all the ten essential amino-acids. It contains IgA and lactoferrin.

Vitamins:

Fat soluble

Vitamins: Fat soluble vitamins A, D.E. & K.

Vitamin A: 28011. Colostrum contains double that of cow.

Vitamin D: Both fat and water soluble are available.

Vitamin E: Rich in vitamin E. than cow's. The function is to prevent haemolytic anaemia, protect the lungs & retina from oxidant induced injury.

Vitamin K – Necessary for synthesis of blood clotting factors. Present in human milk and absorbed efficiently – level is high in colostrums. Level depends on maternal dietary intake – synthesized in infant's gut 2 weeks after birth.

Water soluble

Present at varied levels of needs.

Vitamin C – Human milk contains 43mg/100mls, cow's milk contains 21 mg/100ml.

Amount in human milk varies with dietary intake. Increase intake is necessary during lactation. Vitamin C is necessary for collagen synthesis.

Iron – 42% of human Iron is utilized while only 4% of cow's is absorbed the high vitamin C & lactose in human which facilitate absorption.

Zinc – More in cow's than human but more available in human milk deficiency may result in failure to thrive and typical skin lesions.

Others Human milk has low levels of (i) Calcium (ii) Phosphorus (iii) Sodium (iv) Potassium than cows milk.

Copper, cobalt and selenium are present at higher levels

Human milk is easily digestible and absorbed with less strain on the kidneys than unmodified cow's milk. (A baby fed on pure cow milk is prone to dehydration due to hypernatraemia (excess sodium)). Baby on breast milk does not need additional water under normal condition. Baby should be breast fed for as long as he desires.

Composition Table

	Colostrum	Breast Milk	Formula
Protein	8.5%	1.5%	Depends on the type
CHO	3.5%	7%	

Fat	2.5%		
Minerals	0.4%	3.5%	
		0.2%	
Water	85.1%	87.8%	
Caloric value	73/100mls	70/100mls	
Per 100mls		= 280 joules	

Colour – of Breast milk is – Bluish white

Reaction – alkaline

4.2 2..2 Nutritional Requirements for the Baby

1st day – 30mls/kg body weight/day

2nd day – 40mls/kg body weight/day

3rd day 60mls/kg body weight/day

Subsequently it depends on the tolerance of the baby – size and eagerness to feed sulking enhances and stimulates maternal instinct.

Breast milk contains Anti-infective factors

- leucocytes
- Secretory IgA and interferon
- Immunoglobulins IgA, IgG, IgM, and IgD are all found in human milk, the most important is the IgA – Both synthesized and stored in the liver. It coats the intestinal epithelium and protects the mucosal surface against entry of pathogenic bacteria and entero-viruses.

4.2.2.3 Advantages of breast feeding

To the baby

- Right amount of protein. Provides all nutrients adapted to infant's digestion and nutritional requirement.
- Fresh and clean, easily digested.
- Contains valuable antibodies
- Promote mother – child bonding – love & security.
- Less incidence of cot death.
- Baby is less prone to obesity
- Gives physical psychological and emotional satisfaction.
- Reduces incidence of allergies

To the mother

- Aids involution of the uterus.
- Convenient and readily available, portable, cost effective, no preparation involved.
- At correct temperature.
- Saves time
- Portable, cost effective, no preparation.
- Reduces incidence of concern of the breast.
- Physical Psychological & Emotional satisfaction

Disadvantages of breastfeeding

There are actually no absolute disadvantages with breastfeeding.

- Only the mother can nurse the newborn
 - Expressed breast milk (EBM) is time consuming for working class mothers.
1. Mother must be careful with her diet and medication

Some difficulties with Breast feeding**Maternal**

1. Poor Lactation
2. Breast & Nipple problems.
3. Maternal diseases
4. Emotional crises
5. Pregnancy
6. Husband's refusal.
7. Mother on drugs: Anticoagulant Anthithyroid, disorders TB & Ca-cytotoxic drugs.

In Baby

1. Severe asphyxia
2. Preterm baby
3. Congenital deformities
4. Severe jaundice.
5. Absent of suckling & swallowing reflexes.
6. Vomiting in the Newborn.

Complications of breast Feeding

1. Sore Nipple:

Cracked nipple

Breast Engorgement

Mastitis

Breast abscess

4.2.2.4 Essentials for successful Lactation

1. Mentally & Physically healthy mother.
2. Adequate intake of balanced diet 3,500cal/day
3. Well developed breast and nipple prominent for the baby to grasp .Hormone balance relating to lactation should be normal.
4. Frequent suckling on the breast. Mother must genuinely want to breastfeed.
5. Complete emptying of the breast at feeding time.
6. Adequate blood supply to the breast. Child's mouth free from deformities.
7. Patent ducts

Suppression of lactation

For some reasons lactation may need to be suppressed e.g. dead fetus, puerperal psychosis, HIV/AIDS infection.

1. Stop breast feeding
2. Firm support to the breast.
3. Do not express.
4. Reduction of fluid intake
5. Give analgesics.
6. Use of drugs e.g. stilbestrol 5mg tds. Ablactone 1ml i.m, Bromocriptin 5mg tds. Hexoestrol 45mgs in divided dose of 15mg daily or 45mg stat after still birth or abortion.

4.2.3 Activity

In the infant welfare clinic during your posting assist a primigravida to initiate breast feeding. Share your experience in the discussion forum

4.2.4 SAQ 4.2 (Tests Learning Outcome 4.2)

List the principles to promote exclusive breast feeding in health facilities

Principles and steps to successful breast feeding

Every facility providing maternity services and care for newborn infants should:

1. Have a written breast-feeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breast feeding.
4. Help mothers how to breast feed, and how to maintain lactation even if they should be separated from their infants.
5. Show mothers how to breast feed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in-allow mothers and infants to remain together -24 hours a day.
8. Encourage breast feeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breast feeding infants.

10 Foster the establishment of breast-feeding support groups and refer mothers to them on discharge from the hospital or clinic .

Unit 3: Discharges and Follow up

Content

4.3.0 Introduction

4.3.1 Learning objectives

4.3.2 Discharge and follow up

4.3.2.1 Evaluation on discharge

4.3.2.2 Home visiting

4.3.2.3 Family adjustment

4.3.2.4 Child health clinic

4.3.2.5 Referral and follow up

Conclusion& Summary

4.3.3 Activity

4.3.4 Self Assessment Questions(SAQ) for Unit 3

4.3.4.1 Self Assessment Questions(SAA) for Unit 3

4.3.0 Introduction

It is generally assumed that women knows how to suckle and take care of a child but this is very wrong. It must NEVER BE ASSUMED that the mother is capable of taking care of the baby immediately after delivery. The baby must be followed up to see their interaction in the natural setting. Follow-up/home visit serve as a good opportunity for the midwife/health visitor assess the home, family members and to facilitate parent-child interaction and attachment. Father should be encouraged to participate in the care of the baby. The baby can also be assessed and necessary corrections about care of the baby are given. The midwife must also see how the family adjusts to their new situation and roles. The mother must be made to see the importance of visiting the clinic with her baby either well or sick. The importance of immunization must be emphasized and referral must be done as desirable.This unit will discuss these highly important aspects of child care.

4.3.1 Objectives

At the end of the lesson you will be able:

- Evaluate if the baby is thriving.
- Assess other members of the family.
- Evaluate if the mother is coping with the new role.

4.3.2 Discharge and follow up

4.3.2.1 Evaluation on discharge

Evaluation of the child is essential to ascertain the health of the child before discharge or leaving the Hospital. There are various approaches of such evaluation.

1. Physical examination of the baby. This is similar to that which was carried out one hour after birth.
2. Attention is paid to feeding pattern bowel elimination and bladder.
3. Vital signs are checked – temperature, pulse and respiration (TPR) apex beats etc. Any abnormalities are noted.
4. General state of health of the baby is assessed – activities, cry, sleep etc.

Cord should be inspected for dryness or infections. If everything is alright then the baby is fit to leave the Hospital.

4.3.2.2 Home visiting

After the child has been discharged home, the child must be followed up for the first 10days (Health visitors) to see the mother and baby in their natural habit.

To see the state of health of the two of them, and how the mother is coping with the care of the baby. During the visit the child is observed for any signs of infection especially the cord if infected. Eyes and ears are examined for discharges. The mother is questioned on the feeding, bowel and bladder movement and sleeping pattern, activities of the child and any other problems are noted. Mother is supervised on care of the baby.

The other siblings are also assessed. The home environment, personal and environmental hygiene, toilet water, light systems are checked. Health education and counseling are given when necessary.

4.3.2.3 Family adjustment

The presence of a newborn in the home necessitates great adjustment in the family. Areas of adjustment include:

1. Home: The environment must be clean, no over crowing, good water and light supply. The house must provide comfort and safety, adequate ventilation warmth, fresh air without draught.
2. Facilities: The infant should have a bed to him if possible or sleep with the mother in a side enough bed to avoid lying over the baby. The mattress of the bed should be firm but not hard, with water proof cover. Beddings should be cotton, no need for pillow as baby can get suffocated if he rolls over it. The baby's bed must have a drawer. The mother must take intelligent interest and assume responsibility for monitoring, maintenance of the health of the family.

The role of the father includes, apart from providing for the maintenance of the family, he must assist the mother in the care of the newborn and the siblings. His well being is also very important.

Midwife's role: Another essential part of your role is teaching the new family, assessing their knowledge deficit and level of understanding about child care. The midwife should help them get started in a new healthy and rewarding life together. She should help them resolve their anxieties. She should function as calm, reassuring supportive person ready to assist the family and promote parent-child relationship.

Each newborn is distinctive and the midwife has the gratifying task of introducing them to this. Total care must be delegated to the parent as soon as possible.

4.3.2.4 Child Health Clinic

All newborn should register in child health clinic nearest to their home, with their environment. Assessment and monitoring should continue on a regular basis at the child health clinic. All infants should visit, well or ill. The well children should visit clinic for:

- i. Immunizations
- ii. Monitoring of growth
- iii. Health education of the mother, through regular visit to the clinic.

Chronic illness and potential ones could be detected on time and treatment given e.g. under weight, worm infestation, anaemia, malaria, vitamin deficiency and skin problems are detected. Healthy infant should visit the clinic monthly for the first 6 months to get his vaccinations and growth assessed by weight and general assessment.

4.3.2.5 Referral and follow up

All babies with problems should be referred to specialist in the particular problems for early and proper management and follow up.

Such cases include:

1. Congenital abnormalities that will require surgery.
2. Congenital metabolic problems that require pediatrician's follow up.
3. Babies with Down's syndrome and cases of mental problems.
4. Ignorant mother should also be referred to nutrition unit where she would be taught.
5. Social problems, to the social welfare unit or Public Health unit

Summary Conclusion

It is the responsibility of the midwife to ensure that a child is discharged home physically and psychologically fit. She must ensure that both the mother and the child are coping well at home. In situations where she cannot make home visit the community health department is involved to make sure that the woman, the baby and the family as whole are adjusting well. Her visit is a holistic one, in which she sees to the welfare of the whole family. She evaluates if the mother is doing the right thing in the care of the baby.

This unit has highlighted the importance of evaluating the child before discharged from the health institution, the need for home visit to see the state of health of the baby and all other family members and their environment. How the family is adjusting to the presence of the new

born. The parents should be encouraged to visit the clinic for growth monitoring and immunizations. All infant with problem are to be referred appropriately.

4.3.3 Activity

Perform evaluation before discharge for 3 babies of primigravida and 3 babies of multigravida mothers. Write report on your assessment and put on discussion forum

4.3.4 Self Assessment Question (SAQ) for Unit 3

Describe briefly

1. Importance of evaluation before the neonates is discharged from the hospital.
2. Family adjustment

4.3.4.1 Self Assessment Answer (SAA) for Unit 3

Evaluation of the child is essential to ascertain the health of the child before discharge or leaving the Hospital. There are various approaches of such evaluation.

1. Physical examination of the baby. This is similar to that which was carried out one hour after birth.
2. Attention is paid to feeding pattern bowel elimination and bladder.
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Module 5: Growth and development**Source:****Introduction****Learning Outcomes for module 5**

At the end of this module you should be able to:

- Discuss the theories of development
- Explain the growth and development of the child

Content

Unit 1.Theories of development

Unit 2. Growth and development

Unit 1. Theories of development

5.1.0 Introduction

5.1.1 Learning Objectives for Unit 1

5.1.2 Developmental theories

5.1.2.1 Erikson (1902-1994)

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5.1.2.3 Review other relevant theories

5.1.3 Activity

5.1.4 Self -Assessment Question (SAQ) 5.1 (Tests Learning outcome 5.1

5.1.4.1 5.1.4 Self Assessment Answer (SAA)

5.1.0 Introduction**5. 1.1 Learning Outcomes for unit 1**

At the end of this unit, you should be able to:

- a. Discuss theories of development.
- b. Apply the developmental theories in child grow monitoring.

5. 1.2 Developmental theories**5. 1.2.1 Erikson (1902-1994)**

Erik Erickson's theory of social-emotional development is based on how people learn to interact with others based on their personal experiences. Erikson focused his attention on the young child and the way relationships with other people influence each child's personality and behavior. Erikson's theory of the young child's social and emotional development offers early care and care giver information on proper ways to nurture and guide young children. As children care giver you may work with children during the first four (4) social - emotional stages as defined by Erikson.

Erikson's First Four Stages of Social-Emotional Development

Stage	Approximate Age	Description
Basic trust vs. basic mistrust An infant needs consistent caregivers who provide for their basic needs in a nurturing and caring environment	Birth to 12-18months	Infants need loving and trusting relationships with parents and other caregivers to develop a sense of trust. Infants who do not receive consistent and nurturing care are at risk for developing a sense of mistrust of others
Autonomy vs. Shame/Doubt Toddlers need caring adults who provide a supervised, safe, environment that provides the child with opportunities to learn new physical skills.	18 months to 3 years	During this stage the child becomes more independent, learning to walk, run, climb, build, draw and talk. Toilet learning is a key skill for this stage. Children who are supported and supervised by adults as they develop new skills and independence feel responsible and capable. Children who receive negative messages from parents and caregivers may begin to doubt their abilities and lose self-confidence

<p>Initiative vs. Guilt Preschool children need a safe environment that encourages making choices.</p>	3 to 6 years	At this age children become more independent, assertive and take more initiative. Teachers and other adults need to provide an environment that supports the child's efforts but also helps guide their activities to prevent "unhappy" endings that may create feelings of guilt.
<p>Industry vs. Inferiority School age children need an environment with encouraging adults that provides opportunities to develop and create their own ideas</p>	6 to 12 years	School age children are learning to develop more complex social and academic skills. Children who experience success discover that being productive is satisfying. On the other hand, children who fail in school or other settings may begin to feel inferior and inadequate. Adult guidance that deemphasizes mistakes and focuses on problem solving

Erickson's theory helps child care giver identify the types of teacher –child interactions required for healthy social and emotional development. Erickson's theory helps people who work with young children understand the importance of providing specific types of interactions and environments to ensure positive social- emotional development for young children

5. 1.2.2. Piaget

Jean Piaget (1896 -1980) was a theorist who studied the cognitive development of young children. Piaget made major contributions in understanding how children learn. Piaget's theory is based on his belief that children do not learn and understand information that is "presented" to them by another person. Instead Piaget believed that individuals learn by creating new knowledge through active experiences. Piaget's theory is the foundation for the concept of child centered learning.

Piaget's Theory of Cognitive Development Stages

<p>Formal Operational (12 years – adult) Stage 4 The adolescent can reason in more abstract ways. Thoughts are more idealistic, logical and systematic</p>
<p>Concrete Operational (7-12 years) Stage 3 The child can reason logically about concrete objects and events and classify objects</p>
<p>Preoperational (2-6 years) Stage 2 The child uses symbols (words and pictures) to represent objects but does not reason logically.</p>

Child can pretend and is very egocentric.
.
Sensorimotor (0-2 years) Stage 1
The infant explores through direct sensory and motor contact. Putting objects into their mouth. Separation anxiety and object permanence develop during this stage

Sensorimotor (0-2 years) Stage 1

The infant explores through direct sensory and motor contact. Putting objects into their mouth. Separation anxiety and object permanence develop during this stage

Major Contributions of Piaget:

- Children learn through actively exploring their environment through their senses, vision, hearing, and touch.
- Until the time between the ages of 8-12 months of age the infant does not understand that objects exist even if they cannot be seen. You may observe this characteristic in infants who experience separation anxiety. When they are unable to see their parent they do not understand they will return.
- Young children from 3 to 7 years of age may be egocentric which means they only see things from their point of view and do not understand that other people may have different ideas.
- Teachers need to provide concrete, hands-on materials that enable young children to learn through exploration and active learning.
- Children from 7 to 11 years of age are able to make rational judgments about concrete and observable events. Teachers need to provide opportunities to ask questions and have the children explain the information back.

Major Contributions of Piaget to child development:

- Children learn through actively exploring their environment through their senses, vision, hearing, and touch.
- Until the time between the ages of 8-12 months of age the infant does not understand that objects exist even if they cannot be seen. You may observe this characteristic in infants who experience separation anxiety. When they are unable to see their parent they do not understand they will return.
- Young children from 3 to 7 years of age may be egocentric which means they only see things from their point of view and do not understand that other people may have different ideas.
- Teachers need to provide concrete, hands-on materials that enable young children to learn through exploration and active learning.
- Children from 7 to 11 years of age are able to make rational judgments about concrete and observable events. Teachers need to provide opportunities to ask questions and have the children explain the information back.

Developmental Milestone

Age	Milestone
At birth	
4 to 6 weeks	Social Smile
3 months	Head holding
5 to 6 months	Reaches out for a bright object and gets it
6 months	Sits with support
6 to 7 months	Transfers object from one hand to the other
6 to 7 months	Starts imitating a cough
7 months	Sits without support
8 to 10 months	Crawls
9 months	Stands holding furniture
10 to 11 months	Creeps
12 months	Walks holding furniture
24 months	Takes some clothes off
2 years	Dry by day
3 years	Dry by night
3 to 4 years	Dresses self fully
5 th Year	Initiation for education & schooling
5 th Year	Formal education & schooling

5.1.2.3 Review other relevant theories

5.1.3 Activity

5.1.4 SAQ 5.1 (Tests Learning outcome 5.1)

Unit 2. Growth and development Content

5.2.0 Introduction

5.2.1 Learning Outcomes for unit 2

5.2.2 Importance of study of growth and development of the child

5.2.2.1 General Principle of Development

5.2.2.2 Development of the Child

5.2.2.3 Genetic Influence on human Development

5.2.2.4 Understanding Language

5.2.2.5 Growth & Development of Infant From Birth – 1 year

5.2.2.6 Positive Factors in child Growth & Development

5.2.2.7 Development of teeth

5.2.2.8 Child Growth Curve

5.2.0 Introduction

The period of growth & Development extends through life cycle, but the period of principal changes is from conception to the end of adolescence. It is important for the Nurses to understand the total life cycle of individuals in order to understand the behaviour of children and their mothers. This unit shall discuss the principles of growth and development

5. 2.1 Learning Objectives for unit 2

At the end of this unit, you should be able to:

- c. Understand the important of growth and development monitoring of a child.
- d. Explain the principles of development.
- e. identify the factors that influence growth and development
- f. recognise and manage a child with developmental challenges

5.2.2 Importance of study and terms of growth and development of the child

The Nurses must know what to expect of a particular child at any given age and at what age certain kinds of behaviour are likely to emerge in more mature and natural forms. This knowledge is used to observe and to judge each child in term of the norms for level of specific development.

In order for the Nurse to formulate plan for total care for each child she must understand the stages of growth and development. It also helps the Nurse to understand the reason for particular condition and illnesses which occur in various age groups. She can then teach the mothers how to observe and use the knowledge to help the child achieve optimal growth and development. She can recognize abnormal behaviors, mental & physical handicaps and refer on time.

All children go through a normal sequence of growth, but not at the same rate but there is coronation between physical growth, mental, emotional and sexual development.

It is dangerous to force a child into a standard pattern of growth or task. Growth is not due to one factor but combination of many factors all interdependent – heredity, Racial, national, characteristics sex and environmental.

1. Growth: Can be described as an increase in size (weight & height) which facilitates a more effective functioning.

2 Development: Increase in complexity which demands improvement in skill and functional capacity – ability to provide progressively for greater – capacity in functioning.

Development can be achieved through three main processes Maturation, Adaptation and learning.

Maturation: This is a qualitative change not induced by learning or experience but it comes about as a result of mere passage of time. It is simply a process of ripening.

Adaptation: This is the result of body's accommodation or adjustment to meet its environmental needs.

Learning: Acquiring of knowledge through experience. A relative permanent change in behaviour resulting from experience, experimentation and training.

This change is induced by interaction with the environment. The ability to learn is highly dependent upon the unborn capacity for mental development.

In contrast, learning is externally oriented while maturation is internally oriented. The change in behaviour in a child follows pattern of stages: sitting, crawling, and standing, walking and running. Maturation and learning are interrelated. Child Development includes:

- 1. Physical Development:** This deals with physical and physiological characteristics of an individual.
- 2. Social Development:** Deals with the development of the awareness of one in relation to others and interactional style of the child at home, in the school and among his age group i.e. peer group.

3. **Emotional Development:** This deals with the development of affection and cognition of the child.

The individual is an entity, a whole: any malfunction in one area may therefore affect the other areas e.g. a physical defect may cause social or emotional problems.

5.2.2.1 General Principle of Development

1. Principle of the Direction of Growth

- a. Cephalo –Caudal: Follows the spine downwards Growth proceeds from the head to the other part of the body. E.g. the brain attains 70% of it's growth by the age of 2 years – parent should provide adequate stimulation from infancy. To stimulate visual perception, toys of bright objects should be presented to the baby from the first week of life.
- b. Proximo-distal: States that growth proceeds out from the central axis of the body e.g. the trunk develops before the buds (i.e. arms and legs). As the child matures general movement becomes specific, for example he uses the whole hand first before picking up small object with pincer grasp (i.e. between thumb and forefinger). Child should be given opportunity for learning by either experience or instruction when he is ready to acquire the skill or by direct experience through instruction from others.

2. Principle of Differentiation: This stipulates that growth proceeds from simple to complex, from homogeneous to heterogeneous and from general to specific e.g. fertilization starts from a single cell to trillions of cells that form human body.

3. Principle of Asynchronous Growth: This emphasizes that development shifts from one part to another at different times. That means the various parts of the body do not grow simultaneously. When focus of growth is on one particular part the other parts rest. e.g. at conception placental develops before the fetus.

4. Principle of Discontinuity of Growth rate states that the rate of growth changes at different periods e.g. there is accelerated growth from birth to 2 years, then slows down until 10 years when adolescent growth takes over.
5. Principle of complexity of Growth: Growth is a complex process and interwoven e.g. physical impairment is likely to cause emotional and social problems.
6. Principle of uniqueness of the individual: Each individual is a unique entity with its quality. **NO** two people are exactly the same even identical twins are not exactly the same.
7. Principle of the modifiability of the Rate pattern of Growth. This states that growth although is innate, and the urge to grow is very strong, some factors can modify growth.
 - a. Genetic Accident: Genetic abnormality can cause genetic impairment such as albinism and mental retardation.
 - b. Interference with fetal Development: Accident or falls during pregnancy may result in fetal abnormalities. Diseases such as German measles or high fever exposure to radiation before 34 weeks. Poor nutrition slows down rate of growth and poor brain development.

- c. Environmental Influence: If a child develops where there is a poor or no mental stimulation it will lead to retarded intellectual development. The first 6 years of life is critical in the development of intellect. Parent should therefore provide necessary stimulation for their children.
- d. Emotional Growth of the child: If a child is raised in an emotionally tense environment where there is frequent marital disorder, display of hostility and aggression, the child could develop emotional problems. He could be aggressive or withdrawn. Separation of child from the mother before five years could affect the child's emotional development.

5.2.2.2 Development of the Child

Development of the child can be divided into two: Pre and Post natal periods. The first 8 weeks is the most critical period in life because most organs, nervous system, blood and heart are formed. At this stage any chemical changes in the mother's blood stream caused by virus or drugs can lead to mal-development and can affect any organ in the process of being formed.

From here the fetus starts to grow and develop in the woman at various stages until viable (24 weeks).

5.2.2.3 Genetic Influence on human Development

This affects the unique characteristics of individuals e.g. sex, Genotype (internal) and Phenotype (external e.g. colour).

Development can be influenced by External fetal environment e.g. Amniotic fluids, nutrient (protein) hormones, oxygen, chemicals and other substances from the mother's blood stream.

Some factors that can cause damage in the development of the fetus are poor diet, drugs, radiation, and age of mother, infectious diseases, Rhesus blood factors, and emotional status and birth complications.

5.2.2.4 Understanding Language

Children learn to understand language before they speak. Language development starts with the cry at birth.

At 12 months – Baby can use 3-4 words.

At 18 months – 3-4 year his vocabulary increase rapidly.

At 2 years –Baby can use 272 – 300 words.

At 3 years – 800, 1,000 words, 80% legible.

5.2.2.5 Growth & Development of Infant From Birth – 1 year

1 month

Weight gain – steady weight gain.

Height – Increase of 2.5cm is expected in the first 6 month.

May lift head up intermittently, cannot hold head up; can turn head side to side. Posture at birth is face down and can lie on its stomach.

Stare indefinitely at his surrounding notices face and bright objects. Smiles indefinitely and cries when hungry or uncomfortable.

2 months

Posterior fontanelle closes, raises his chest up with arms, can hold head erect in mid-position. Can follow a moving light or object with is eyes. Begins social behaviour – smile in response to another's smile. Learnt that he gets something from cry, sound of cry varies with the reason for crying .e.g. sleep, pain, hunger etc.

3 months

Hold hands up in front of him and plays with fingers and hands. Hold head erect and steady. Lies on his back. Shows awareness of presence of people. Laugh aloud and shows pleasure in making sounds. Cries less, smiles in response to mother's face.

4-5 months

Increasing aware of his surroundings, Gasps object with the whole hand and carries it to mouth (Proximodistal principle) can hold head steadily. Can sit without support. Drools with saliva running down his mouth. Becomes more talkative and respond to name, recognizing strange look and places.

6 – 7 months

Teeth starts to appear (lower 2 incisor) grasp with flexion of fingers. Hold leg and put in the mouth. Balances well by leaning forward slightly on one or both hands. Moves backwards in a sitting position by using his hands to push. Begins to make sound like Ba, Da, Ma, Ta Bounces actively when held in upright position.

There is emotional instability by changing from laughing to crying and visa versa. Doubles birth weight. There is indiscriminate social attachment. Not attached to any particular person.

8-9 months

Sit alone steadily. Stand with help at 8 months holding furniture by 9 months. There is perfect co-ordination of hand and eyes. Shows first fear reaction to strangers. Greets strangers by turning away and crying and may not stop crying until he sees familiar face. Affection or love of family group appears, increase interest in activities. Can put nipple in and out of the mouth at will, crawl with the trunks above the floor stand supported. May triple the birth weight.

10-12 months

Stands by holding on to something, as support. Stand alone unsupported. Walk with help, can hold crayon or pencil, to make strokes and marks on a piece of paper. Participates in dressing/

can say two words – *Mama, Dada, Baba, and Tata*, knows his own name. Recognizes meaning of “NO”, egocentric, concern only with himself, can climb stairs steps by 13 months.

13-15 months can walk alone.

This is however not strictly by all children Nigerian children have been found to be faster in locomotion – sit unsupported by 5-6 months and walk by 10 months. Generally African children are trained by siblings and parents. After 1 year of age the weight and height do not give accurate information about growth because of several factors. Boys are heavier and taller than girls, but girls mature at more rapid rate. Genetic factors have much to do with body build e.g. effect of nutrition on weight and height.

5.2.2.6 Positive Factors in child Growth & Development

Definitions

Growth and development depend on combination of many factors, all interdependent.

Heredity and constitution make up.

Fetus develops from genetic inheritance from both parents.

Members of families bear physical resemblances and there is high degree of correlation of stature with weight among siblings. Some children are small not due to endocrine or nutritional disturbance, but due to their genetic constitution. Racial and National characteristics have a great role to play in different growth potentials. Some races are noted to be big e.g. Scandinavian while Asians are generally smallish.

Prenatal environment; has great influence on their growth e.g. nutrition during pregnancy, health, number of fetus. After delivery the factors that influence development is more of environment than genetic.

Sex: Male infant is usually longer and heavier than female infant. For positive growth and development the infant has to be physically and neurologically normal.

Environmental Factors

Adequate Nutrition & Feeding

- Nutritional need of the child has to be met.
- Child requires greater nutrition than adult. This is related to both quantity and quality. Supply of protein, fat, CHO, minerals, vitamins and water

Save and Desirable environment: Children develop better in good living condition and with good food.

Socio economic status of the parents; Children of parents of lower socio economic groups will be less favourable than those of middle or upper group. Parents in poor financial state lack money to maintain health and diet.

Psychologically – The child needs appropriate stimulation to grow and develop. The child needs love and attention. Good parenting, appropriate learning experience, (toils good colour and environment, play, schooling).

Exercise

Exercises promote physiological activities and stimulate muscular development. Fresh air, moderate sunshine favour health and growth, prolong exposure to sunshine may cause serious consequence on the child.

Ordinal Position in the family: This is significant as child learns from older sibling, this is an advantage which the first child lacked. The last child may be slow in development because he is given little encouragement to express himself. He is the baby and petted by family members. The lone child is likely to develop more rapidly along intellectual line because he is constantly with adult. He is mentally stimulated by their companionship. Like the last born he may be slow in motor development because he has so much done for him.

Internal environment: A child of high intelligence is better developed than less gifted child. Intelligence influence mental and social development.

Hormonal Balance: Normal secretion of the endocrine glands promotes normal growth of the body.

Emotion: – Emotional disturbance influence growth – disturbed child will neither sleep nor eat well.

Intelligence: Can be defined as the ability to adjust to new situations, to think abstractly or to profit from experience.

Meaning of the Intelligence quotient (IQ) – Ratio between the child's chronologic age and his mental age as gained from an intelligence test.

$$\frac{\text{Mental Age}}{\text{Chronologic age}} \times 100 = I.Q$$

Mental maturity is usually reached between 16-21 years. An I.Q. between 90-109 is considered normal or average.

I.Q may range below or above this point. Children with I.Q of 140 or over are called gifted children while those below the average represent retardation of varying degrees.

5.2.2.7 Development of teeth

Infant is usually born without teeth. Already he has 20 deciduous (primary) teeth in his mandible and maxilla which begins to calcify in-utero.

Eruption of primary teeth begins at about 6-7 months. For some it brings no discomfort but for some it is a painful experience. The claim that teething causes high fever, diarrhea or other serious upset is not justified. Baby with these symptoms should be investigated and treated.

Development of Teeth

	Eruption	Shedding
Central incisor	6-7 months	6-7½ years
First permanent molar	6-7 years	10½ years
Second baby molar	(Lower) 20 month	11 years.
Lateral	9-13 months	
Canines	16-20 months	
First Molars	13-19 months	
2 nd Molars	25-33 months	

5.2.2.8 Child Growth Curve

The growth curve tells us if the child is growing or not. A child who is growing is usually healthy. So in the process of monitoring health we monitor growth and vice versa. Healthy children should always visit clinics for growth monitoring. The child should be seen every month for the first 6 months, then six monthly. Weight and height are assessed periodically. The weight of the child increases each month. A chart should be used, the weight, indicated by a dots and all the dots are joined together to form a growth curve. If the growth curve is rising the child is growing and he is healthy but if it remains flat it means the child is not gaining weight well. If falling it means is losing weight.

The upper line shows the weight of a child that is well fed and healthy child. The lower line shows a malnourished child and under weight. The line between these is called the road to health. Children should be on the road to health. The best way to assess the child's health is by measuring the arm circumference. During the first year the arm circumference grows rapidly but from 1-5 years it remains stable. But if arm circumference is less than 14cm during this time the child is malnourished. Arm circumference is used because the age does not have to be known. A tape measure is used to measure the child's upper left arm. A coloured string can be used as well, then the length is measured on a ruler.

5.2.3 Activity

Visit the infant welfare clinic and familiarize yourself with the growth curve of 4 babies, compare and discuss with their parents. Discuss your findings on the discussion forum

5.2.4 Self-Assessment Questions (SAQs) for unit 2

Describe how to measure intelligence Quotient in a child

SAQ 5.2 4.1 5.2.4 Self-Assessment Answer (SAAs) for unit 2

Intelligence

Intelligence can be defined as the ability to adjust to new situations, to think abstractly or to profit from experience.

- Meaning of the Intelligence quotient (IQ) – Ratio between the child’s chronologic age and his mental age as gained from an intelligence test.
- $$\frac{\text{Mental Age}}{\text{Chronologic age}} \times 100 = I.Q$$
- Mental maturity is usually reached between 16-21 years. An I.Q. between 90-109 is considered normal or average.
- I.Q may range below or above this point. Children with I.Q of 140 or over are called gifted children while those below the average represent retardation of varying degrees

5.2.4.1 Self Assessment Answer(SAA)

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Module 6 Childhood diseases

Introduction

Module Objectives:

At the end of this module you will be able to:

- Explain the common health problems of the neonate
- Discuss the Integrated management of childhood diseases

Content

Unit 1

- Common Health Problems of Neonate
- Integrated management of Childhood diseases (IMCI)

6.1.0 Introduction

Introduction

Every day, millions of parents seek health care for their sick children, taking them to hospitals, health centres, pharmacists, doctors and traditional healers. Surveys reveal that many sick children are not properly assessed and treated by these health care providers, and that their parents are poorly advised. At first-level health facilities in low-income countries, diagnostic supports such as radiology and laboratory services are minimal or non-existent, and drugs and equipment are often scarce. Limited supplies and equipment, combined with an irregular flow of patients, leave health workers at this level with few opportunities to practice complicated clinical procedures. Instead, they often rely on history and signs and symptoms to determine a course of management that makes the best use of the available resources.

These factors make providing quality care to sick children a serious challenge. WHO and UNICEF have addressed this challenge by developing a strategy called the Integrated Management of Childhood Illness (IMCI)

6.1.1 Unit Objectives

At the end of the unit you will be able to:

- i. Explain the common childhood illness
- ii. Discuss the concept integrated Management of Childhood disease(imci)

6.1.2 Childhood diseases

6.1.2.1 Common Childhood diseases

6.1.2.2 Integrated management of Childhood diseases

6.1.2.2.1 What is IMCI?

6.1.2.2.2 Objectives of IMCI

6.1.2.2.3 Components of IMCI

6.1.2.2.4 Features of IMCI

6.1.2.2.5 Why is IMCI better than single-condition approaches?

6.1.2.2.6 Implementation IMCI

6.1.2.2.7 Evaluation of IMCI strategy

6.1.3 Activity

6.1.4 Self Assessment Questions (SAQ)

6.1.4.1 Self Assessment Answer (SAA)

6.1.2 Childhood diseases

6.1.2.1 Common childhood diseases

The neonate can have following problems after birth.

- **Hyperbilirubinaemia:** Hyperbilirubinaemia may occur due to physiological jaundice and Rh or ABO incompatibility.
- **Neonatal hypoglycaemia:** This condition of low blood glucose (less than 30 mg/100 ml.) Commonly occurring during the first 48 hours of life, is a hazardous state that must be recognised and dealt with at once. Early feeding of babies has reduced the incidence of hypoglycaemia.
- **Hypothermia:** The normal baby's temperature may fall to 35.5°C or less within one hour of birth, unless precautions are taken to avoid chilling, the new born may go into hypothermia with the temperature falling below 35.5°C.

- Sepsis: Within few hours of birth, staphylococci generate colonies on the baby's skin and in the nasal passages: the umbilicus becomes infected, more readily than nostrils and skin folds such as axilla and groin. Any person suffering from respiratory infection or diarrhea, or one who has any septic focus should not be allowed to come in contact with babies
- Eye infections: The baby's eyes may be infected during his passage through the birth canal, or later by the mother's hands. A number of cases of neonatal conjunctivitis are due to the B-Proteus and staphylococci which produces a yellow discharge. Pneumococci and streptococci are sometimes found but gonococcal infection is the most dreaded infection.
- Oral thrush: Oral thrush is characterized by white patches in the mouth. The causal organism is the *Candida albicans* which is present in the vagina of some women.

6.1.2.2 Integrated Management of Childhood Illness (IMCI)

6.1.2.2.1 What is IMCI?

IMCI is an integrated approach to child health that focuses on the well-being of the whole child. IMCI aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. IMCI includes both preventive and curative elements that are implemented by families and communities as well as by health facilities.

The strategy includes three main components:

Improving case management skills of health-care staff

Improving overall health systems

Improving family and community health practices.

In health facilities, the IMCI strategy promotes the accurate identification of childhood illnesses in outpatient settings, ensures appropriate combined treatment of all major illnesses, strengthens the counselling of caretakers, and speeds up the referral of severely ill children. In the home setting, it promotes appropriate care seeking behaviours, improved nutrition and preventative care, and the correct implementation of prescribed care.

6.1.2.2.2 Objectives of IMCI

Reduce deaths and frequency and severity of illness and disability

Contribute to improved growth and development

6.1.2.2.3 Components of IMCI

Improve case management skills of health care staff

Improve overall health systems

Improve family and community health practices

The IMCI ensures the combined treatment of major childhood illnesses emphasizing prevention of disease through immunization and improved nutrition

6.1.2.2.4 Features of IMCI

Not necessarily dependent on the use of sophisticated and expensive instruments

A more integrated approach to managing sick children

Move beyond addressing single diseases to addressing overall health and well being of the child

Careful and systematic assessment of common symptoms and specific clinical signs to guide rational and effective actions

Integrates management of the most common childhood problems (pneumonia, diarrhea, measles, malaria, dengue, malnutrition, anemia, ear problems)

Includes preventive interventions

Adjusts curative interventions to the capacity and functions of the health system

Involves family members and community in the health care process

6.1.2.2.5 Why is IMCI better than single-condition approaches?

Children brought for medical treatment in the developing world are often suffering from more than one condition, making a single diagnosis impossible. IMCI is an integrated strategy, which takes into account the variety of factors that put children at serious risk. It ensures the combined treatment of the major childhood illnesses, emphasizing prevention of disease through immunization and improved nutrition.

6.1.2.2.6 Implementation IMCI

Introducing and implementing the IMCI strategy in a country is a phased process that requires a great deal of coordination among existing health programmes and services. It involves working closely with local governments and ministries of health to plan and adapt the principles of the approach to local circumstances. The main steps are:

Adopting an integrated approach to child health and development in the national health policy.

Adapting the standard IMCI clinical guidelines to the country's needs, available drugs, policies, and to the local foods and language used by the population.

Upgrading care in local clinics by training health workers in new methods

To examine and treat children, and to effectively counsel parents.

Making upgraded care possible by ensuring that enough of the right low-cost medicines and simple equipment are available.

Strengthening care in hospitals for those children too sick to be treated in an outpatient clinic.

Developing support mechanisms within communities for preventing disease, for helping families to care for sick children, and for getting children to clinics or hospitals when needed.

IMCI has already been introduced in more than 75 countries around the world.

6.1.2.2.7 Evaluation of IMCI strategy

MCA has undertaken a Multi-Country Evaluation (MCE) to evaluate the impact, cost and effectiveness of the IMCI strategy. The results of the MCE support planning and advocacy for child health interventions by ministries of health in developing countries, and by national and international partners in development. The MCE was conducted in Brazil, Bangladesh, Peru, Uganda and the United Republic of Tanzania.

The results of the MCE indicate that:

IMCI improves health worker performance and their quality of care;

IMCI can reduce under-five mortality and improve nutritional status, if implemented well;

IMCI is worth the investment, as it costs up to six times less per child correctly managed than current care;

Child survival programmes require more attention to activities that improve family and community behaviour;

The implementation of child survival interventions needs to be complemented by activities that strengthen system support;

A significant reduction in under-five mortality will not be attained unless large-scale intervention coverage is achieved.

6.1.3 Activity

During your MCH posting visit the Infant Welfare Clinic and identify the most common childhood disease in your area of posting. Compare with mates in other areas on the discussion forum

6.1.4 Self Assessment Question(SAQ) for Unit 1

Discuss how IMCI can be evaluated in a health centre in your state

6.1.4.1 Self Assessment Answer(SAA) for Unit 1

MCA has undertaken a Multi-Country Evaluation (MCE) to evaluate the impact, cost and effectiveness of the IMCI strategy. The results of the MCE support planning and advocacy for

child health interventions by ministries of health in developing countries, and by national and international partners in development. The MCE was conducted in Brazil, Bangladesh, Peru, Uganda and the United Republic of Tanzania.

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