



NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: NSS 324

COURSE TITLE: MATERNAL AND CHILD HEALTH NURSING II

NSS 324

MATERNAL AND CHILD HEALTH NURSING II

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National Open University of Nigeria 2008

First Printed 2008

ISBN:

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Printed by.....

For

National Open University of Nigeria

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Introduction

NSS 324: Maternal and Child Health Nursing II is a three (3) 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 concluding part of the course. It will focus on growth and development of the neonate/infant, infant feeding methods and practices, common childhood infections and management of congenital abnormalities. The course will also encourage the learners to put in their best in

presence of many challenges that are facing nurses and midwives in the course of their profession practice such as inadequacy of staff, facilities and motivation in the developing countries.

At the end of the course, the learner is expected to demonstrate clear understanding of maternal and child care and develop specialized knowledge and skills for midwifery practice and issues challenging reproductive health services in the society. The learner will be able to explain her/his role, being the person alongside and supporting women at child birth. The learner will be knowledgeable in recognizing deviation from normal and act promptly to alleviate the suffering of women in pain or discomfort and be able to apply it in true-life situation. This course guide provides what to expect in the course, and how to work through the course material as a distance learner who has to study on his/her own. Tutorial sessions are also linked up with the course to provide the needed support you required.

What You Will Learn In This Course

Today, Nigeria has a population of 140 million people. Despite the Federal Government's efforts to reduce maternal mortality rate through safe motherhood programme the death rate related to child birth is still on the increase. The latest figure by the ministry of statistics estimated maternal mortality rate to be about 800 per 100,000 live births .This figure is alarming and it is a great challenge to health services especially maternal and child care. The significance of this course, Maternal and Child Care [MCH] is to help you see the germane role of maternal and child care as a means of providing health services to the populace.

Course Aim

This course is designed to provide adequate knowledge of maternal and child care to Nurses and Midwives. It is believed that at the end of the course students will be better equipped to improve their competence, confidence and job satisfaction.

They will be able to render quality care to their patients, this you can achieve by independent judgment and providing appropriate maternal and child care.

Course Objectives

To achieve the aims set out above, the course sets the overall objective. In addition, each unit has specific objectives stated at the beginning of a unit. Learners are advised to read them carefully before going through the unit. You will have to refer to them during the course of your study to monitor your progress. You are encouraged to always refer to the Unit objectives after completing a Unit. This is the way you can be certain that you have done what was required of you in the unit.

The wider objectives of the course are set below. By meeting these objectives, you should have achieved the aims of the course as a whole.

On successful completion of the course, you should be able to:

- Describe the structures and functions of the female and male reproductive Organs.
- Clarify sex determination of male and female traits.
- Describe the physical and psychological reproductive changes that take place during puberty and pregnancy as well as at menopause
- Give optimal care to woman during childbirth.
- Teach positive health practice
- Appreciate the importance of good history taking during admission assessment
- Identify common discomforts associated with childbirth.
- Describe the developmental tasks that indicate family adaptation to pregnancy
- State the benefit of encouraging father's participation in childbirth.
- Describe assessment and nursing intervention for women diagnosed with

complications associated with childbirth

- Discuss the key factors that might influence an individual's preferences for various contraceptive methods
- Identify the most common sexually transmitted diseases including modes of transmission, treatment and prevention

Working Through This Course

To complete this course, you are required to study through the units, the recommended textbooks and other relevant materials. Each unit contains some self assessment exercises and tutor marked assignments and at some point in this course, you are required to submit the tutor marked assignments. This will be followed by an end of term examination.

Course Materials

The following are the components of this course:

1. The course guide
2. Study Units
3. Textbooks
4. Assignment file
5. Presentation schedule

Study Units

This course is made up 9 study units in 2 modules. These are:

Module 1 The Newborn

- | | |
|--------|---------------------------|
| Unit 1 | Physiology of the new |
| Unit 2 | Care of the newborn |
| Unit 3 | Assessment of the newborn |
| Unit 4 | Bathing the newborn |

Unit 5 Growth and development of the Child

Module 2 Infant feeding

Unit 6 Infant feeding

Unit 7 Breast Feeding

Unit 8 Complementary Feeding

Module 3 Discharges and Follow-Up

Unit 9 Discharges and Follow-Up

Each unit contains self assessment exercise and tutor marked assignments of which the learners are required to attempt. Expectedly, it is believed that the exercise will help you to achieve the stated objective.

Recommended Textbooks for This Course

Cox, C.L. 1995. Health and Human Needs. In H. B. M. Heath (ed.) *Potters and Perry's Foundations in Nursing Theory and Practice*. Italy : Mosby, an imprint of Times Mirror International

Ewles and Simnett (1985) *Health Education and Patient Teaching in Watsons Medical Surgical Nursing and Related Physiology* Pg. 23

Kozier, B., Erb, G., Berman, A.U. & Burke, K. (eds.) 2000. *Health, Wellness and Illness. Fundamental of Nursing: Concepts Process and Practice* (6th edition). New Jersey: Prentice Hall, Inc.

Lucas A. O and Guiles H. M (1984) *Preventive medicine for the Tropics*, Kent , Hodder and Stoughton Ltd.

Lucas and Guiles (1989) *A short textbook of preventive Medicine for the Tropics*, 2nd Edition, ELBS.

Santhosh, M. (2000) *Primary Health Nursing (PHN)* Indira Gandhi National Open University, New Delhi, Berny Art Press.

Assignment File

The assignment file will contain the Tutor Marked Assignment (TMA) which will constitute part of the continuous assessment (CA) of the course. There are 15 assignments in this course with each unit having an activity/exercise for you to do to facilitate your learning as an individual.

Presentation Schedule

This presentation schedule in this course provides with important dates for completion of each unit and tutor marked assignment. Please try to meet the deadlines.

Assessment

There are two aspects to the assessment of the course. These are the Tutor marked assignment and written examination. In tackling the assignments, you are expected to apply information, knowledge and strategies gathered during the course. The assignments must be turned in to your tutor for formal assessment in accordance with the stated presentation schedules. The works you submit to your tutor for assessment will count for 40% of your total course work.

At the end of the course you will need to sit for a final written examination of three hour's duration. This examination will also count for 60% of your total course mark.

Tutor Marked Assignment (TMA)

There are 9 Tutor-marked assignments in the course. You will be given the four (4) to be submitted for assessment from the Study Centre. You are advised in your own interest to attempt and submit the assignments given at the stipulated time in study centre. You will be able to complete the assignments from the information and materials contained in your reading and study units. There is other self activity contained in the instructional material to facilitate your studies. Try to attempt it

all. Feel free to consult any of the references to provide you with broader view and a deeper understanding of the course. Extensions will only be granted for submission after deadline on exceptional cases.

Final Examination and Grading

The final examination of NSS 324 will be of 3 hours duration and have a value of 60% of the total course grade. The examination will consist of questions which have bearings with the attempted self assessment exercises and tutor marked assignments that you have previously encountered. Furthermore, all areas of the course will be evaluated. Make sure you give enough time to revise the entire course.

Course Marking Scheme

The following table includes the course marking scheme

Table 1

Assessment	Marks
4 Assignments	4 assignments Total = $10\% \times 4 = 40\%$
Final examination	60% of overall course marks
Total	100% of course marks

Course Overview

This table indicates the units, the number of weeks required to complete the assignments.

Unit	Title of Work	Week Activity	Assessment
	Course Guide	Week 1	
Module 1	The Newborn		
Unit 1	Physiology of the Newborn	Week 2	
Unit 2	Care of the Newborn	Week 3	
Unit 3	Assessment of the newborn care	Week 4	
Unit 4	Bathing the newborn	Week 5	
Unit 5	Growth and development of the Child	Week 6	
Module 2	Infant feeding		
Unit 6	Infant feeding	Week 7	
Unit 7	Breast Feeding	Week 8	
Unit 8	Complementary feeding promotion	Week 9	
Module 3	Discharges and Follow-Up		
Unit 9	Discharges and Follow-Up	Week 10	

How To Get The Most Out Of The Course

In distance learning, the study units replace the university lecture. This is one of the greatest advantages of distance learning. You can read and work through specially designed study materials at your own pace and at time and place that suit you best. Think of it as reading the lecture notes instead of listening to a lecturer. In the same way that a lecturer might set you some reading task, the study units tell you when to read your other material. Just as a lecturer might give you an in-class exercise, your study units provide exercise for you to do at appropriate points.

The following are practical strategies for working through the course:

- Read the course guide thoroughly.
- Organize a study schedule.
- Stick to your own created study schedule.
- Read the introduction and objectives very well.
- Assemble your study materials.
- Work through the unit.
- Keep in mind that you will learn a lot by doing all your assignment carefully.
- Review the stated objectives.
- Don't proceed to the next unit until you are sure you have understood the previous unit.
- Keep to your schedules of studying and assignments.
- Review the course and prepare yourself for the final examination.

Tutors and Tutorials

There are 8 hours of effective tutorial provided in support of this course. Details will be communicated to you together with the name and phone number of your tutor through the study centre.

Your tutor will mark and comment on your assignments, keep a close watch on your progress and any difficulties you might encounter and also provide assistance to you during the course. You must ensure that you submit your assignment as and at when due. You will get a feedback from your tutor as soon as possible to the assignments.

Do not hesitate to contact your tutor or study centre on phone or email in case of any of the following circumstances:

- You do not understand any part of the study units or the assigned reading
- You have difficulty with the self test or exercises.
- You have questions or problems with an assignment, tutors comments or grading of an assignment.

You are encouraged to attend the tutorials to allow for face to face contact with your tutor and ask questions which you needed answers immediately. It is also an opportunity to discuss any grey area with your tutor. You can equally prepare questions to the tutorial class for meaningful interactions. You are sure to gain a lot from actively participating in the discussion.

Best of Luck

NSS 324: MATERNAL AND CHILD HEALTH NURSING II

MODULE 1 – The Newborn

Unit I – Physiology of the newborn

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Normal infant
 - 3.2 Physiology of the newborn
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Teacher's marked assignment
- 7.0 Reference/further reading

1.0 Introduction

You are welcome to the second segment of Maternal and Child Health (MCH). In NSS 323 :Maternal and Child Health I, we have acquired enough knowledge and skills in the process of conception, care during pregnancy and the delivery of normal, term and healthy baby. In this maternal and child health (MCH) II, we shall learn how to help the baby adjust to extra uterine life. So this course shall take us through physiology of the newborn, assessment and care of the infant. Abnormal conditions of the newborn including chromosomal problems will be discussed.

You must appreciate that during the intra uterine life the fetus lived a dependent life. His needs for sustenance were met, (within little or no effort) by the mother for example food, shelter, etc. The newborn's survival and maintenance of well being is dependent on his ability to adapt to an extra uterine environment. To this the baby has to make major adaptation in virtually every organ system in the body e.g. cardiopulmonary, respiratory and other physiological adjustment to replace placental functions. The birth process is a strenuous events and separation from the placenta (the life support system) plays tremendous role in the process of gaseous exchange. This adaptation is very crucial to the baby's subsequent wellbeing. The midwife must therefore understand and facilitate the adaptive process.

The main physiological adjustments include Respiratory, Cardiovascular and Thermal adaptation.

2.0 Objectives

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

- Have a clear understanding of the physiology of the newborn.
- Be knowledgeable in the transition from fetal to neonatal life.
- Define appropriate environment for the newborn infant
- Appreciate the importance of providing evidence based care to the neonate.
- Describe the behaviour of the baby during the first weeks of life.

3.0 Main Content

3.1 Normal Infant

Definition

A normal infant is a healthy baby, born at or near term weighing 2.5 – 3.5kg, it presents by the vertex and delivery lasts for 12 hours with no congenital abnormality.

3.2 Physiology of the Newborn

Introduction:

3.2.1. 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.

3.2.2. 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.

3.2.3. 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 ($21 - 26^{\circ}\text{C}$) and water at $36.7^{\circ}\text{C} - 37.7^{\circ}\text{C}$ in cold weather.

3.2.4. 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 ($2.2 - 4.4\text{mmol/l}$) 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 regurgitations

3.2.5. 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.

3.2.6. 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.

3.2.7. 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.

3.2.8. 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.

3.2.9 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, Lysosymes and IgA.

3.2.10 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 1 year. From the 4th day a steady weight gain 150-200g per week may occur.

Length

Normal length is 50-52cm. it is a better guard to maturity and skeletal development of the baby than weight. A length of 45cm is regarded too short as seen in preterm baby. The length is measured from the crown to the heel with the baby laid flat or turned upside down. A tape rule or long plastic ruler can be used to take measurement.

Head Circumference

The average occipito-frontal circumference is 34-35cm. Moulding and caput may alter the normal size of the head. An increase of 1-2cm is expected in the first month of life. Biparietal diameter of 9.5cm is used for basic growth.

Fontanelle

Only the anterior and posterior fontanelles are present at birth. There are 6 fontanelles present at early fetal life, others are found between the temporal, parietal and frontal bones and parietal, occipital and wing of the sphenoid bones. These are normally closed before term. The posterior one closes at 6 weeks while the anterior one closes at about 18-24 months. It is a good assessment of baby's health.

Sutures: Membranous line that separate the bones of the vault.

Ossifies gradually few weeks after birth. Increase in the width of the sutures indicates increased intracranial pressure.

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.

3.2.11 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 etc. Different cries can not 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 may quiet him. Later the baby may scream for colic pain, caused by air swallowing. 30 mls of water is good to quench thirst after crying for some time. 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.

3.2.12 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.

3.2.13 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 Psuedomenstruation for the same reason. At birth, both sexes have nodule of breast tissue grounded in the nipple on the chest wall.

4.0 Conclusion

The knowledge of the transitional events which occur at birth and the exchanges to the neonatal physiology can help the midwife to recognize normal and abnormal events at birth and apply appropriate management. She is able to provide thoughtful and reasoned practice and justify all her actions. The midwife is in control of the neonate environment. Therefore her action prior to labour and delivery determines the well-being of the baby. She needs to pay attention to the temperature of the delivery room and all items that can affect the baby's well-being. Special attention must be paid to the maintenance of normal and infection free environment.

5.0 Summary

In this unit, we have discussed that a normal infant is a baby born at term, and of average weight of 2.5 – 3.5kg delivered normally by vertex presentation and without birth injuries or complications, with Apgar score of 8-10 in I minute. For the newborn to survive, he needs to make major adjustment in his respiratory, circulatory and heat regulatory systems. All other systems in the body have to adapt as soon as the baby is separated from the placenta the life support system. As soon as the baby is delivered he start to live an independent life and except there is proper adaptation in all the organs the subsequent wellbeing can be jeopardised. It is important to understand the language of the neonate through physiology and his behaviour in order to meet his needs.

6.0 Tutor marked Assignment

Explain briefly the physiological adaptation the neonate has to make at birth in the following:

- i. Respiratory system
- ii. Circulatory system
- iii. Thermal regulatory system

7. References

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Unit 2: Care of the Newborn

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- 7.0 Reference/further reading

1.0 Introduction

The unit I explained the psychological adaptation the newborn has to make in his transition to extra uterine life. This unit will discuss the care of the newborn maintenance of healthy and safe environment and promotion of growth and development. The newborn babies should be viewed as an individual in their own right and the midwife should allocate the same attention to their assessment and care as those of the mothers. This requires in-depth knowledge of the neonatal physiological and psychological development, this has been discussed at length in unit one. Baby has his own individual needs that the midwife must provide. It is important to involve the mother in the care as participatory care enhances confidence in the mother about the care of the baby after discharge from the maternity unit. This unit will also talk on bonding relationship between parents and child.

2.0 Objective

At the end of this lesson, you will be competent to

- Discuss the care of the baby
- Apply measures to ensure security and safety of the neonate

- Highlight the role of the midwife in promoting confidence and competence in the parents
- Encourage parent-infant interaction.
- Give immediate care to the baby at birth and subsequently.
- Educate mothers about their baby's needs and how to meet them.

3.0 Main Content

3.1 Care of the Newborn

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.

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.

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 CORE (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

3.3 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.

1. 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.

2. 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, wooly 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.

3. 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.

4. 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.

5. 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° – 37.5°

Respiration – Rate and type are most important during the first 48 hours 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 off 5-7 days after birth.

Behaviour – Activities, sleep, feeding patterns are observed

6. 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 her self and the baby.

4.0 Conclusion

The care the baby receives at the time of birth has impact on survival and subsequent health. Accurate assessment at birth forms the basis for further management, so the midwife must be competent in Apgar scoring so that appropriate action can be taken to establish normal respiration. The midwife has to take the lead in providing continuity of care of the newborn. She must promote health and family teaching and meet the needs of both the mother and the baby. The midwife must be calm and confident in providing the basic care to the newborn.

5.0 Summary

This unit discussed the care of the newborn. The care has been classified into immediate and subsequent care. The immediate care starts at the time of delivery which is part of the second stage management. The first assessment at this period is crucial to further management of the baby. A good Apgar score (8-10) does not require vigorous resuscitation; baby is only stimulated to establish normal respiration.

Subsequent care is based on principles that guide the midwife in her actions in order to ensure efficient and effective care.

6.0 Tutor marked assignment

Using a well structured table, illustrate assessment of the newborn at birth by Apgar Scoring.

7. References/further reading.

- London M.L., Ladewig P.W., Ball J.W and Bindler R.C. (2003), maternal and child nursing care. 2nd ed, Pearson, London.
- Franser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.
- Myles M.F. (1985) Textbook For Midwives 10th edition Churchill Livingstone Edinburgh
- A Manual of Neonatal Intensive Care: NRC Robertson (1988) 2nd edition ELBS, Low Priced Edition.

Unit 3: Assessment of the newborn

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- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Assessment of the newborn
 - 3.2 Preparation
 - 3.3 Method
 - 3.4 Characteristics of Infant Stools
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1.0 Introduction

In the previous unit we discuss care of the newborn. This unit will focus on physiology applied to examination of the newborn. It forms the basis for subsequent care. The midwife must take interest in care and thorough assessment of the newborn and her discovery helps the pediatrician in the management of the baby. She is the first to discover anomalies in the newborn.

The midwife requires in-depth knowledge of neonatal physiological and psychological development to accurately make a good judgment of the baby's condition. Rather than relying on verbal responses as in adult, the midwife communicate with the infant via sight, touch, and learning she needs focused activities in order to absorb all of the information provided by the baby's responses and behaviour.. Assessment must be methodical starting from head to toe. It should include physical and psychological behaviours.

2.0 Objective

By the time we end this discussion you will be competent to:

- Carry out systematic physical examination of the newborn at birth and subsequent daily examinations.
- Examine neurological responses of the neonate to external stimuli.
- Diagnose the needs of the baby through cry.
- Educate the mother on continuing assessment of the infant to detect deviation from normal.
- Recognize deviation from normal.

3.0 Main Content

3.1 Examination of the Newborn

The examination of the newborn is aimed at discovering congenital malformations, evidence of injuries and any other abnormalities.

3.2 Preparation

1. Warm room of not less than 20⁰C temperature.
2. All equipment needed must be ready.
3. Explain procedure to the mother (if possible).
4. Wash hand and dry with towel
5. Close nearby window
6. Ensure adequate light

3.3 Method

Complete assessment is postponed until the condition is stable about one hour after birth. The examination is done methodically from head to toes. Baby must not be exposed for too long. The Nurse must use slow gentle movement while talking softly to the baby. Particular attention must be paid to the baby's respiration and colour. Begin by using technique that require the baby to be in a quiet state – Observation of general appearance, measurement of vital signs , observation of respiratory effort, auscultation of the heart, lungs and bowel sound, then this is followed by complete palpitation of the rest of the

body. Physical examination ends with the measurement of the length, head and chest circumference, then followed by weighing.

Expose only the area to be examined at a time; this is to prevent the baby from getting chilled

3.3.1 Head to Toe Physical Examination

Head: The head is examined for presence of any swellings e.g. caput succedaneum cephalhaematoma, depressed suture, excessive moulding, abrasions, bruises etc. Head circumference is measured with a tape rule – 34-35cm. Fontanelles for depression or elevation.

Hair: Texture, colour

Eye: Presence of eye balls, that the lens is clear, subconjunctival haemorrhage, Nystagmus, Strabismus colour of iris.

Nose: Septum, congestion etc milia

Mouth: If midline and symmetrical, presence of Cleft Palate, Hare lip, tongue tie, occult cleft palate and false teeth.

Ear: If ear Pinna recoils rapidly size, presence of hole and situation – upper level to the same level with the angle of the eye.

Neck: Normal in length, swelling e.g. goiter (very rare) Ensure rotation and flexion of the neck.

Chest: Round, symmetrical, slightly smaller than head, no fractured clavicle no crepitation.

Upper limbs

Length: if short or long, equality Fingers for completion, extra digits webbed fingers, Nails and texture & level pink nail beds.

Abdomen: Protrudes but no distension.

Observe for exomphalos, absence of abdominal wall, umbilical cord has 2 arteries and 1 vein. Bowel sound if present and no palpable mass.

External Genitalia

Male: Undescended testicles, Epispadias or hypospadias

Female: Urethral opening in the perineum, Imperforate vagina etc labia majora should covers labia minoral and clitoris.

Anus: Imperforate Anus present and patent.

Lower Limbs: Short, Long, equality, club feet talipes – Equino varus or calcaneo valgus should move the limbs freely.

Hips: For dislocation.

Spine: Straight at midline, no visible defects:

Encephalocele, Meningocele, swelling dimples, hairy patches may signify occult spinal bifida/defect, no true spinal bifida.

Cord: For oozing of blood. Another clamp or ligature may be applied if necessary.

Measure: Length, circumference, weight if possible and record all findings, report any abnormalities.

Neurological Tests: Note all positive or negative responses

3.3.2 Neurological Test

The nervous system is immature at birth compared with other systems of the body both anatomically and physiologically so there is minimal control of the cerebral cortex, most reflexes are mainly brain stem and spinal controlled. The immaturity of the brain makes it vulnerable to hypoxia, biochemical imbalance, infection and hemorrhage temperature instability and uncoordinated muscle movements. Nevertheless the newborn has wide range of reflex activities at different ages which can be used as indexes of the normality and integrity of the neurological and skeleton muscular systems.

1. Moro Reflex

This is the response to a sudden stimulus. It may be incomplete in preterm and absent in babies with intracranial damage. It is present in the first weeks of life. This is tested by holding the baby at an angle of 45° and drop 1-2cm. The baby responds by abducting and extending his arms with the fingers opened, then the arms embrace the chest. Presence of this reflex beyond the age of 6 months indicates mental retardation.

2. Rooting Reflex

When the cheek or side of the mouth is stroked, the baby responds by turning towards the side of the stimulus by opening the mouth ready to suckle. This is absent in preterm baby.

3. Sucking and swallowing Reflex

Well developed at birth in normal baby. It is very essential for safe feeding and adequate nutrition. When a finger is inserted into the baby's mouth he suckles.

4. Gag, cough and sneeze Reflexes

This is in response to obstruction of the air ways and helps to clear the air ways. This is absent in severe asphyxia

5. Grasp Reflex

The palmar grasp is elicited by placing a finger or pencil in the baby's palm, he grasp it firmly. A similar response can be demonstrated by stroking the base of the toes. (Babinski ,Plantal Grasp). The neonate fan and hyperextend the toes and dorsiflex the big toe

6. Walking and stepping Reflexes:

When the Newborn is supported upright with his feet touching a flat surface the baby makes stepping effort. It is present in term normal baby until 6 weeks.

7. Traction Reflex

A full term baby will resist traction in sitting position. Preterm baby will not resist. When held in upright sitting position by the traction on the wrist, the head rises upright before falling back on the cheek.

8. Asymmetrical tonic neck reflex:

When in supine position and the neck is turned to one side. The limbs on that side extend while those on the other side flex.

Sterile Reflex

Similar to Moro reflex, is a response to any loud noise the baby react by adduction of arms and flexion of the elbows. Unlike in Moro's reflect, hands remain clenched. Absence of this reflex may indicate hearing impairment.

These reflexes can also aid mother – child bonding as mother views it as communication by her baby. If every thing is alright he can then have the first bath.

3.3 Characteristics of Infant Stools

1.	In relation to gross underfeeding	Small dark greenish with mucus (brownish yellow)
2.	Meconium	Greenish – brown
3.	Too much sugar	Greenish yellow frothy loose (colour sore buttocks, sour odour)
4.	Breast fed	Yellow semi-fluid.
5.	Over feeding	Greenish – yellow, loose, small cards (sore buttocks)
6.	Too much fat	Pale, greasy, bulky (offensive colour) often with vomiting.
7.	Gastro enteritis	Yellowish or green, watery
8.	Malaenia	Black
9.	Fed on cow's milk	Pale yellow, firm (slightly offensive odour).
10.	Too much protein	Pasty, greenish tough curds, mucus
11.	Cow's milk	Firm, pale, slightly offensive

4.0 Conclusion

The midwife should take the lead in the examination of the newborn rather than Doctor. She is the first in contact with the baby and the medical personal is to detect abnormalities. Midwife's initial examination includes a physiological assessment of the newborn, using the senses of hearing vision, touch supported by the initiative knowledge obtained from experience. The ideal time for the first examination will be taken with the first hour of birth, while subsequent one will depend on the finding of the initial

examination. All finding whether normal or abnormal must be accurately recorded in the mother's note and provide the mother with the outcome of the examination.

5.0 Summary

Cry is the main method of communication for baby to alert the carrier to pain, hunger, discomfort or suffering. The skeletal neurological systems are interlinked and these examinations of the baby reveal this. Mental status can be assess through level of consciousness cry, and responses to stimuli activities, posture, reflexes such as sucking, rooting,etc. Active response to these indicate normalcy while floppy tone, drowsy and passive response indicate abnormalities.

Examination of the newborn is done with the aim of discovering congenital malformations, evidence of injuries and any other anomalies in the baby. Examination must be delayed until the babies condition is stable 1-6 hours after birth. Examination must begin with procedures that keep the baby quiet i.e. observation.

6.0 Tutor Marked Assignment

Explain how you would conduct a head to toe assessment of a newborn infant.

7. References/Further Readings

- Fraser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.
- Ojo A.O and Briggs E.B. (2006). A Texbook for Midwives in the Tropics. 2nd ed. Yaypec, New Delhi.
- Myles M.F. (1985) Textbook For Midwives 10th edition Churchill Livingstone Edinburgh

Unit 4: Bathing the Newborn

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 - 3.2 Equipment
 - 3.3 Treatment of the cord
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1.0 Introduction

In unit 3, it was emphasized that the midwife is the first to assess the newborn's physical and behavioural conditions and pick any deviation from normal. If everything is okay the baby can then have the first toileting some authority condemn the idea of immersing the neonate in water believing that the baby will catch a chill. However, in the topics our mothers believe the baby will have permanent bad body odour if he is not thoroughly scrubbed at birth. Some institutions oil the babies' body to remove vernix caseosa and blood stains. This unit will describe bathing of the newborn.

2.0 Objective

At the end of this lesson students will be able to:

- Provide an enabling environment for baby bathing.
- Successfully demonstrate the correct method of bathing neonate.
- Educate mother on the correct use of soap and powder for the babies.
- Demonstrate care of the cord
- Conduct daily observation of the neonate.

3.0 Main Content

3.1 Baby Bathing

Baby bathing should be delayed till an hour or more after birth. This is to enable baby rest over the exhaustion of labour, adjust, and stabilizes his temp. Bathing time should be the happiest time for the mother and baby. It is a bonding procedure. Usually bathing takes place morning and/or evening but can be done any time of the day. Baby usually sleeps well after his bath. Baby needs bath when he starts to crawl, at about bed time. Baby should be bathed in a warm room without direct draught to the baby to prevent heat loss or chill.

3.2 Equipment

1. A plastic Apron ,
2. A plastic bath.
3. 2 jugs for hot & cold water
4. A low chair without arm.
5. A bowl for baby's toilet articles.
6. A soap dish with non-perfumed, non-deodorant toilet baby soap is recommended.
7. Two small face towels.
8. A jar of cotton wool balls.
9. A jar of cream/Petroleum jelly.
10. Talcum powder
11. Clothing's – arrange in order of use.
12. Baby's face towels and bath towels (warm)

3.2.1 Preparation

1. Have the room warm.
2. Windows and doors closed.
3. Get everything ready before you start.
4. Always put cold water first before hot.
5. Test the temperature with thermometer or elbow joint (inner side of the wrist).
6. Never add hot water while baby is in the bath.

3.2.2 Procedures

1. Undress the baby and let him kick for a while
2. Clean buttocks if soiled.
3. Wrap the bath towel round the arms & chest
4. Wash the face with small face towel without soap by washing one side at a time to avoid covering the nose & mouth. Dry the face gently & thoroughly. While holding the baby in the left elbow and the head in the left hand, wet & soap the head, wash thoroughly, rinse well and dry. Mind the creases, behind the ear. Expose the body and wash with face cloth, remember all the creases. Hold the baby securely because the body is slippery. Place your left hand under the shoulder to grasp the left hand at the upper arm while the right hand under the buttocks holds the left thigh. Immerse into the bath of water keeping the head well off the water. Rinse off the soap. Raise him out of water in the same manner holding the far away arm and leg. Put the baby on your lap face down. Rinse again if necessary. Dry his body gently by mopping movement. Dry all skin folds thoroughly. Put some talcum powder on your hand and rub it gently on the skin and apply cream on the buttocks. Dress the baby up, put on the napkin. Put baby in a clean pre-warm cot. Also inspect the skin for abnormalities during bathing.

Baby lotions, powders and oils with scent are not recommended. Lotions with perfumed may have other toxic chemicals in their ingredients that may cause a reaction in infant. Baby oils clog the pores of the neonate's skin; cases of pneumonia and infants death have been associated with the inhalation of baby powder. So the use of these things should be with caution if not discouraged completely. Shampoo is better on the hair at birth than soap.

3.3 Treatment of the cord

Requirement

1. A galipot with hibitane spirit
2. Ligatures or clamps.
3. Dry swabs in galipot, receiver for dirty swabs.

Clean the cord and leave exposed to allow cord to dry by dry gangrene. Treat daily by cleaning and apply a ligature below the former on alternate days.

Methods of ligating the cord

1. Hollister's clamp
2. Mersilk suture

Cord should be clamped and cleaned with methylated spirit. No dressing and binder is necessary. If Hollister's clamp is used, it is not removed until cord falls off.

4.0 Conclusion

Baby can have the first bath after the physical examination and the condition satisfactory to do so. However, first toileting is not compulsory, baby can be cleaned with oil to remove vernix from the body especially the premature and sick babies. Now having the bath on time does not make the baby to have bad body odour as every one has unique characteristic odour peculiar to individuals.

5.0 Summary

This unit has explained that if the baby needs to have the first toileting, it should be delayed till when the baby has overcome the exhaustion of labour. The temperature of the room and water must not be lower than body temperature that baby will not catch a chill. Before starting the procedure all items for bathing including the dress baby will wear must be got ready. Care of the cord follows baby bathing immediately.

6.0 Tutor Marked Assignment

- Enumerate the conditions to be fulfilled before bathing a baby.
- Identify two methods of ligating the cord and describe one of them.

7.0 References

- Franser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.
- London M.L., Ladewing P.W., Ball J.W and Bindler R.C. (2003), Maternal and Child Nursing Care. 2nd ed, Pearson, London.
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Unit 5: Growth and development of the Child

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1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Importance of study of growth and development of the child

3.2 Understanding Language

3.3 Growth & Development of Infant from Birth – 1 year

3.4 Positive Factors in child Growth & Development

3.5 Child growth curve

4.0 Conclusion

5.0 Summary

6.0 Teacher's marked assignment

7.0 References

1.0 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

2.0 Objectives

At the end of the lesson you will be able to

- Describe the normal sequence of growth of a child
Calculate Intelligence Quotient (IQ) of the child.
- Explain the general principle of development
- Enumerate factors that influence Growth and Development
- Accurately do an assessment of the child at any age of development
Become skilled in applying the principle of Growth and Development in the care of children.

3.0 Main Content

3.1 Importance of study 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 correlation 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.

3.1.1 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 development occurs before the fetus.
4. Principle of Discontinuity of Growth rate starts 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.

3.1.2 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).

3.1.3 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 substance 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.

3.2 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.

3.3 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, Grasps 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.

3.4 Positive Factors in child Growth & Development

Definitions

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

3.4.1 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.

3.4.2 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

Safe 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.

3.4.3 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.

3.4.4 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	

3.5 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 loosing 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.

4.0 Conclusion

The knowledge of growth and development is essential for efficient assessment of infants in the formulation of care plan for individual child. The Nurse need the knowledge to be able to educate mothers on pattern of growth and how to recognize deviation from normal, through this a lot of anxiety can be alleviated.

5.0 Summary

In this unit the importance of knowledge of growth and development of the child has been highlighted. Growth is increase in size while development refers to progressive increase in skill and capacity function. Growth follows a sequence principle in all human. Development can be achieved through maturation, adaptation and learning.

6.0 Teacher's marked assignment

Why is it important for the nurse to study growth and development of the child?

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Module 2

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1.0 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.

Physiology of lactation actually starts at puberty through pregnancy. 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.

The anatomy and physiology of the breast, milk production, and lactation have been discussed fully in MCH I unit IV. This unit will highlight the principles of lactation and breast feeding.

2.0 Objectives

At the end of the lesson you will be knowledgeable:

- About infant feeding.
- How to promote breast feeding.
- Support mother who desire to breast feed.
- Educate women on principles of successful breast feeding.
- Prepare expectant mothers for successful lactation.
- Encourage mothers to give colostrums to their babies

3.0 Main Content

3.1 Breast feeding

Breast feeding is the ideal way of feeding infant during the first 2 years of life. The mother's milk not only provides all the nutrients needed for the rapid growth of the child but also protect against infections; colostrums produced during the first few days of lactation is particularly beneficial in preventing infections. Production of breast milk depends on the mother's health, psyche and breast feeding reflexes. Local conditions of the breast can lead to breast feeding failure and subsequently malnutrition in the infant. It is very important that mothers develop confidence for breast feeding to be successful especially young and anxious mothers. Mothers must take adequate diet because malnourished mother will develop lactation failure.

In developing countries most women are willing to breast feed because of the importance attached to it in the society, so it is regarded as fulfillment of motherhood. It is very important that midwives understand the benefit of human milk because this will enhance supportive role. Infant should breast feed exclusively for 4-6months before introducing supplementary feed.

Successful breast-feeding depends on three reflexes – rooting and sucking and swallowing reflexes and two maternal reflexes – prolacting and let-down reflexes.

3.2 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:

3.2.1 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

3.2.2 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.

3.2.3 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.

3.2.4 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 21mg/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

3.2 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 suckling 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.

3.3 Advantages

3.3.1 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

3.3.2 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

3.4 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

3.5 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, Bromocryptin 5mg tds. Hexoestrol 45mgs in divided dose of 15mg daily or 45mg stat after still birth or abortion.

4.0 Conclusion

In-depth knowledge about the physiology of lactation is crucial in order to teach mothers the fundamentals of supply and demand and the rate of breast milk production. Midwives should have positive attitude about breast feeding so that she can promote and encourage mothers to practice breast feeding. She must not assume that breast feeding is natural so mothers do not need help. Most mothers need help to breast feed successfully even when they have done it before.

5.0 Summary

This unit has enlightened us on the importance of breast milk as the ideal feed for the infant for growth and development, adequate nutrition in the right proportion. The advantages of breast milk are as follow: clean, cheap, protective against infections, aids bonding process between mother and child, serve as family planning for some women. Factors that aid successful lactation are good anatomical structure of the breast early introduction to breast feeding health education. It is worth noting that women in developing countries are willing to breast feed if given proper counseling.

6.0 Teacher's marked assignment

Breast milk is considered to be the best for infant feeding. Discuss

7. References/further reading

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Unit 7: Breast Feeding

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1.0 Introduction

During the Innocenti Declaration of 1989, the WHO and UNICEF produced a joint statement on protecting, promoting and supporting Breast feeding and in June 1991 the Baby-Friendly Hospital Initiative (BFHI) was launched to intensify the Innocenti declaration. During when the "Ten steps to successful Brest feeding was designed as a standard for auditing breast feeding programmes.

2.0 Objective

At the end of this lesson you will be able to do the following.

- Encourage breastfeeding.
- Demonstrate the correct method of breast feeding to mother.
- Prevent common problems associated with breastfeeding
- Reduce infant mortality and morbidity related to breast feeding.

- Support actively, mothers that are willing to breast feed.

3.0 Main Content

3.1 Breast feeding

Breast-feeding is the best method of feeding an infant. It is no equal with any other means for the healthy growth and development of infants. In addition it has unique biological and emotional influence on the health of both mother and child. All health workers serving in health care facilities should make every effort to promote, protect and support breast feeding and provide expectant mother all necessary information regarding breast feeding.

3.1.1 Ten 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

Promotion of successful breastfeeding

Antenatal:

1. Good history on first visit, of breast feeding .
2. Examination of nipple and give necessary advice.
3. Wearing of rooming, cupped brassiere to give room for growth of the breast.
4. Maintain general hygiene of the mother.
5. Health Education- Advantage of breastfeeding. Balanced diet etc.
6. Correct abnormalities e.g. Flat or inverted nipple at ANC.

In Puerperium:

1. Mother must be in good emotional state.
2. Must be willing & happy to breast feed.
3. Diet increase protein.
4. Fluids at least 1.5 liters per day and more on hot weather.
5. Rest & Sleep.
6. Exercises.
7. Good support to the breast – big ,well fitting brassiere.

3.2 Initiation of Breast Feeding

The best time to initiate breast-feeding is during the time when the baby is awake and alert. Baby can be put to breast during the third stage before the placenta is delivered; this is if the conditions of both the mother and baby favour it. But it is always good to initiate breast feeding as soon as possible. The mother is encouraged to wash her hands before touching breast. Breast feeding should be on “demand” baby must feed on both breasts one after the other and the breast emptied at each feed. Mother can vary her position when feeding, to prevent sore nipple. The little finger is inserted into the corner of the mouth to withdraw the nipple.

3.3 Technique of breast feeding

Breast feeding is clearly the natural way of feeding the baby. Most mothers are willing to breastfeed and should be given necessary guideline and support to do so. The first feed may not prove too convenient for both the mother and the baby especially the Primip. If it starts naturally with less strain both will begin the learning process in a happy and successful way. Early breast feeding contributes to the success of breast feeding.

3.3.1 Positioning

There are two major positions the mother can adopt while breast feeding.

1. **Lying on her side:** This position is good especially if the mother cannot sit up in puerperium e.g. C/S, painful puerperium. It maybe the only position the mother can tolerate. Some mothers find this position more comfortable, restful especially at night.
2. **Sitting up:** It is important that her back is upright at right angle to her lap. Pillow can be used to support her back. She may need to cross her leg with the leg she put the baby on top.

What ever position is used the most important thing is to make sure the baby's nostrils are not covered by the breast and baby can be adjusted conveniently. Baby should also be well positioned; the baby must be supported across the shoulders so as to maintain slight extension of the neck. The baby's head should be supported in the crook of the mother's arm. For the baby to suck properly the baby must grasp the nipple correctly. After feeding on one breast baby must be held upright to wind. Baby should feed on both breasts at each feeding time. Baby must not be allowed to sleep with the nipple in the mouth lest sore nipples will result, but should be gently stimulated into wakefulness during breastfeeding.

3.4 Regulating feeding time

Emphasis is on breastfeeding on demand. This is a situation when baby is fed whenever he cries for food. This invariably turns out to be about two hourly. Baby does not distinguish between night and day so baby should be fed at night if he demands for it. As baby grows older he sleeps more in the night so does not wake for feed too often.

3.5 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.
7. Artificial feeding.

3.6 Contraindication to breastfeeding

- 1Drug
- 2 Cancer
- 3Breast Surgery
- 4 Breast injuries
- 5 HIV Infections.

3.7 Complications of breast Feeding

1. Sore Nipple:
2. Cracked nipple
3. Breast Engorgement

4. Mastitis
5. Breast abscess

4.0 Conclusion

All health centers should implement the health and social measures required to protect promote and support breast feeding. Mothers must be well informed about the benefits of breast feeding and be encouraged to make an informed choice of this. She should be counseled on problems that may arise from breast feeding and how to deal with them.

Each health worker has a part to play in achieving the said goal of the baby friendly Hospital Initiative and must be committed to this by forming pressure group to achieve the set goals.

5.0 Summary

Baby friendly Hospital Initiative: The aim is to give renewed emphasis to breast – feeding protection, promotion and supporting breast feeding through well – programme actions with set objectives and indicators at each maternity centre. Mother must feed her infant on breast milk only. No water, artificial feed is given to the baby. By this, complications resulting from breast feeding are reduced to the barest minimum. Baby is introduced to breast milk as early as possible.

6.0 Teacher's marked assignment

Explain the ten steps to successful breastfeeding

7.0 References/further reading

- Franser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.
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Unit 8: Complimentary feeding

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7.0 References/further reading

1.0 Introduction

The current recommendation is for all babies to be exclusively breast fed for 6 months as has been highlighted in previous unit (unit II). But conditions warrant mothers to give other forms of feeds other than the breast milk, such as for example many mothers need to return to work or for some health reasons e.g., HIV/AIDS infected mother or mentally ill mother. Some times mothers decide not to breast feed for non-beneficial reasons. Artificial feeding is no doubt interfering with breast feeding process. Complimentary feed is necessary at certain age when breast milk alone cannot meet the infant's needs for food, hence the traditional weaning diet. The most common method of artificial feeding of normal infant is via the bottle, others include cup and spoon. Baby on artificial feed is more exposed to childhood infections than breastfed baby. The intestinal tract of the infant is developed sufficiently to digest breast milk which is not the case with infant formulae which needs to be properly processed for the baby to digest it well.

2.0 Objectives

At the end of the lesson you will be able to;

- Give artificial feed only on the account of ill health and drug therapy.
- Appreciate the fact that artificial milk is no equal with breast milk.
- See artificial feeding as risk behaviour.
- Educate mother on the correct method of artificial feeding.
- Ensure good time to introduce complementary diet.
- Supervise mother and babies on complementary feed demonstrate the proper method of preparing feed.

3.0 Main Content

3.1 Artificial feeding / Complimentary feeding

Feeding of infant with milk other than one from the mother's breast – infant formula.

There are two major groups of women who artificially feed their babies.

- 1. First Group:** Comprises of mothers who have chosen to feed artificially.
- 2. Second Group:** are those who want to breastfeed but could not do so due to one reason or the other like.
 - i. Contraindications
 - ii. Unresolved breast feeding problems.

Those that choose not to breast feed are mainly for social and psychological reasons:

Wet mothers: - These are a group of women who donate their breast milk to feed other infants. Midwife must ensure that the mother has made an informed choice, to use infant formula, and then give her all the necessary support.

If prepared under the right condition formula milk provides a safe alternative to breast feeding. Formula are prepared mainly from cow's milk other sources are buffalo, goat etc. and non-cow's milk-soya base. The use of Soya beans milk formulae only should be discouraged as this can only provide vegetable fats and amino Acid.

The new cow's milk formulae have been modified so that the problems of hypocalcaemia, hyper-hypernatraemia, dehydration etc. which are associated with cows milk formulae has been reduced to a minimal level.

3.2 Supplementary/Complementary Feeding

Supplementary feeds—are feeds given in place of breast milk. Complementary feeds – food given in addition to breastfeed

Components of Cow's milk

Protein: It has more protein and minerals, less lactose (Sugar) though this is usually added artificially.

Protein – 90% caseinogens, 10% lactalbumin composition of amino acid is different from that of human milk.

Fat – about same amount of that in human milk, but easily digested and absorbed in human than cow's milk.

Mineral – almost twice the quantity in humans.

Sodium – three times the quantity in human milk.

3.2.2 Preparing the mother for artificial feeding

- Adequate education
- Method of feeding
- Sterilization of equipment.
- General cleanliness
- Financial implication
- Preparation of feed

3.2.3 Advantages of artificial feeding

1. Baby can be fed by someone other than the mother.
2. Amount of intake can be known.
3. It is appropriate method when mother is on medication that are contraindicated to breastfeeding e.g. diamorphine, or anticancer drugs.
4. Not affected by mother's diet or medication.
5. Infant feed less frequently.
6. Reduces risk of acquired HIV infection in HIV positive mother, hepatitis B, C virus.

3.2.4 Disadvantages

1. Does not supply antibodies.
2. It is costly.
3. Takes time to prepare
4. Requires cleanliness of hands/utensils
5. Requires adequate storing facilities.
6. Can be contaminated.

3.2.5 Care of the utensils/sterilization

All the feeding utensils must be thoroughly washed with mild soap and water, using brush. Attention must be paid to corners of the bottles and cup. Rinse off the soap thoroughly with clean cold water. Dilute sterilizing lotion according to specification, use a big container immerses the utensils in the lotion completely getting rid of air bubbles. Leave for the specified period (e.g. Milton solution 1:80). Do not rinse before use. Change lotion every day.

3.2.6 Boiling method

Boil the clean utensils in clean water for about 15 minutes, cool down before use. Do not rinse before use.

After use wash the utensils thoroughly and soak in cold water in a big bowl. Re sterilize before use.

Babies on artificial milk (formula) need extra water to prevent dehydration.

3.3 Weaning/Complementary feeding

This is the process by which the infant gradually becomes accustomed to the full adult diet. During this period the infant's diet changes from pure milk to one based on regular family meals. It should progress from Semi-Solid to solid diet. Milk should be given as a supplement to the infant as long as possible. Breast milk should not be stopped,

which occurs in some cultures or when pregnancy occurs or the child is taken away completely from the mother.

The beginning of weaning is the beginning of great change to the mother and baby. Their close contact begins to weaken. Weaning is a dangerous time for infant because the baby stands the risk of malnutrition and infections. The mother therefore needs to be careful.

3.3.1 Dangers associated with weaning

1. Malnutrition is common during this period because of ignorance of diet. Poor social economic factors, poor knowledge of preparation from locally available food stuff.
2. There is higher rate of infection e.g. diarrhea diseases than any other period in life; because the infant changes from pure sterile milk to prepared and stored food and feeding under unhygienic ways.

3.3.2 Time to begin weaning

Weaning starts at different times in different communities. Additional foods may start as early as few weeks or 4-6 months to reduce number of breast feed and introduce semi-solid food. Generally weaning starts much earlier in urban cities than rural areas. Breastfeeding should not be stopped drastically as some mothers think and the food thickened gradually as the baby grows old, until the baby is able to tolerate full adult meals. At this time mother needs a lot of support from health workers as culture and tradition may hinder the mother from giving adequate nutrients to the infant. The infant who needs high protein is often given less due to culture. As intelligent, educated and devoted mothers who know the right thing to do start from 4-6 months and complete the weaning by 9-12 months, the ignorant mothers especially from poor socio economic background may wait till 6-8 months before starting. Ignorant mothers should be helped to planning the diet as there are many fruits and vegetables in the market which they do not know are good for their children. Some times it is due to diverse cultures, beliefs, taboos and superstition that the children are not given these foods.

Make sure weaning foods are safe and clean by:

1. Use freshly cooked peeled and clean food.
2. Wash hands before handling food.
3. Wash feeding utensils, boil if possible dry in the sun order.
4. Cover food all the time.
5. Boil gruel to destroy bacteria.

3.3.3 Guidelines for weaning

The child needs to be trained to chew

1. First give 1-2 teaspoonfuls of cereals gruel e.g. maize; Rice, boiled or mashed tuber (Yam, Potatoes) or fresh peeled mashed fruits (banana).
2. Give the food after the breast feed. If he refuses, you can try a little before breast feed when he is hungry.
3. Wait a few days until the child is used to a food before introducing a new one.
4. Cup and spoon is best because it is easy to clean and safer than hand feeding.
5. Increase the amount within about 2 weeks of basic.
6. Child may refuse food, do not force infant instead pet to accept the food.
7. Do not worry if he spits the food out, keep trying until he gets used to the texture and spoon once he tolerate the food give freely.
8. The feed should be given once daily, gradually increase 2-4 times a day.

3.3.4 Advice on weaning diet

1. The meal should provide recommended intake of all nutrients.
2. Small food at frequent intervals.
3. A child of 1-3 years take 200-300mls at a time, so in order to get sufficient energy and nutrients the meals must have high concentration and to be given at frequent intervals.
4. 6 months and above, 4-6 times a day plus breast milk. Gradually decrease to 3 times for 2-3 years. Initially most children like simple basic mixes but multi-mixes are always preferable.

Mixtures

The food suitable for infants and young children varies from one place to another, depending on availability, cost, culture, food preference etc. A meal is usually made from several foods, each of which supplies energy but different nutrients, all of which combine together in a meal. The food must be added in the right proportion to give adequate balance in nutrient. Food chosen must be easily available in the locality, cheap, preparation must be simple easy and cheap.

The simplest recipe for weaning is one with two ingredients. Basic mix is a cereal or root mixed with legume e.g. wheat Rice, maize, potatoes, yams, cocoyam banana, plantain, cassava produce. However to make a complete meal other food must be added – multi-mix.

A multi-mix: has four basic ingredients

1. A staple main ingredient e.g. cereal.
2. A protein supplement (Plant or animal) e.g. beans groundnut, milk, meat, chicken, fish eggs etc.
3. A vitamin and mineral supplement e.g. vegetable and fruits.
4. An energy supplement e.g. fat, oil, sugar to increase energy concentration of the mix.

When these four groups are used they form a complete meal.

3.3.5 Steps in preparation

1. Decide how much energy, protein and any other important nutrient the meal should provide, depending on the age of the child.
2. Choose the staple, preferably a cereal.
3. Choose one or more protein supplement.
4. Decide on proportion of staple & protein.
5. Calculate the energy value of the basic mix.
6. Choose the vitamin and mineral supplement.
7. Choose energy supplement to increase the energy to the required level.

8. Decide which flavoring will make the food taste good and acceptable to the child; avoid highly spicy and hot food.
9. Choose method of preparation and cooking which are simple and can preserve most important nutrients.

3.3.6 Method of introduction

The first reaction to his first solid food is to make sucking movements with his tongue, which causes the food to be pushed out of his mouth. He also has to learn to transfer the food from the front of the mouth to the pharynx. Introduction to solid food should be a pleasant experience. The infant must be well held securely with his head and shoulder raised more than in bottle feeding.

A bib is necessary: food should be smooth and thin. A small spoon should be used. Place the food on the back of the infant's tongue.

Do not apply pressure as this will cause him to gag.

Do not hurry over the feeding nor linger for too long.

Do not mix medication with meal.

Do not restrict his hand, he should be allowed to touch the spoon if he wants to, as this is one of the method of learning. Mother must be calm, patient, gentle and pleasant in approach to the infant rather than scolding or forcing. After feeding, the infant must be kept clean.

Reaction to weaning

Mother and child may be anxious, mother may be depressed.

Colour and consistency of stools will change, due to different kinds of ingredients, but this normalizes itself.

3.7 Factors affecting child's appetite

1. Infections
2. Cold and stuffy nose
3. Less activities
4. Constipation
5. Upset- the child also has feelings so give a bit of coaxing and petting.

TABLE OF DIET OF A CHILD, AGE 0-12 MONTHS

AGE	DIET	METHOD OF FEEDING	AGE	DIET	METHOD OF FEEDING
0-1day	Breast milk (colostrum) OR 15mls Glucose or sterile water	Directly on breast cup OR & Spoon	6-8months	Breast feed or Infant fomula Beatten egg, milk, green leavy vegetable. Well cooked cereal – Pap and egg toast cerealac, similac + cereal, mashed banana, Fruit juice – Orange Hard biscuits	4 times daily Cup & Spoon
1-7days	Breast milk OR Artificial milk15mls per bd/kg – Baby may demand more.	On demand or 3hrly x 8 times a day.			
7 day- 1 months	Breast milk Or Artificial m – Increase at rate of 10- 15mls/bd/kg to every increase of 5kg wt or to the child's appetite. Multivitamin drops according to dosage on the bottle.	Directly on beast cup and spoon or Feeding bottle, 6-8hrly or On demand. Dropper or with spoon.	9-10 months	Breast or Artificial milk plain soup without pepper soft solid food – Eko (agidi), semovita, amala Tuwo, mashed yams, bread with milk Pap + Soya milk, akara moinmoin Paw- paw, banana mixed meat liver, fish	3 times a day Plate & spoon
1-3 months	Breast Milk Or	On breast Cup & Spoon	10-12 month	Breast or Artificial meal whole egg (soft cooked) mashed vegetable,	Plate or Bowl & Spoon

	Fomula 25-30mls/bd/kg multivitamin or fruit juice (at the end of 2 nd month)			meat, fish liver. Amala, eba, semovita, tuwo and all kinds of diet in the family with less pepper. All fruits in moderation. Give fluids liberally.	
4-6 months	Breast milk or fomula and weaning diet – Pap, custard, banana cereals, mixed meat, milk.	Breast Bowl and spoon			

4.0 Conclusion

Complimentary feed provides for alternative means of meeting the infant's nutritional needs especially when the needs for growth and development cannot be met by the mother's breast milk. Complimentary feed can be used to augment breast milk. As much as possible, mothers should be encouraged and prepared for breast feeding of their infants. Complimentary feed is necessary from age 4-6 and this should be done by ensuring the child has adequate nutrients in the feeds.

5.0 Summary

Complementary feeding is feed given in place of breast milk, while supplementary feeding is feed in addition to breast milk by 4-6 months when the mother's breast milk becomes inadequate to meet the needs for proper growth and development of the neonate so complementary feeding becomes imperative. During this period the child is initiated into the family menu. Mothers who choose to feed their infants artificially must be properly prepared for the task of maintaining adequate nutrients and proper hygiene.

Weaning diet must be gradually introduced to the child and this requires great patience and understanding. The initial attempt may be difficult for both of them. The infant is more vulnerable to infections this time so mothers must be careful to handle feeds with optimal cleanliness. One feed should be introduced at a time and infant must be encouraged rather than being forced to take the meal.

6.0 Tutor Marked Assignment

1. Enumerate 4 advantages and disadvantages each of the infant's formula and breast milk. Explain the steps in preparing weaning diet

7. References

- Franser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.
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1.0 Introduction

It is never 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 refer when necessary at appropriate time.

This unit will discuss these highly important aspects of child care.

2.0 Objectives

At the end of the lesson you will be able:

- Determine if the breast milk is meeting the infant's nutritional needs.
- Assess the health status of the neonate
- Evaluate if the baby is thriving.
- Assess other members of the family.
- Evaluate if the mother is coping with the new role.

3.0 Main Content

3.1 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.

3.2 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.

3.3 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.

3.4 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.

3.5 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

4.0 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.

5.0 Summary

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.

6.0 Tutor marked assignment

Describe briefly

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

7.0 References/ further reading

- Franser M.D, Cooper M.A and Nolte AGW. (2006) Myles Textbook for Midwives African Edition. Elsevier Limited. London.
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