
# NATIONAL OPEN UNIVERSITY OF NIGERIA

## SCHOOL OF HEALTH SCIENCES

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**COURSE TITLE: PRIMARY EMERGENCY OBSTETRIC CARE**

# PHS 424 PRIMARY EMERGENCY OBSTETRIC CARE

**COURSE DEVELOPMENT**

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# PHS 424 PRIMARY EMERGENCY OBSTETRIC CARE

## UNIT 1: Anatomy and Physiology of the Male Reproductive System

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### 1.0 Introduction

Since you have gone through the course guide, you would have acquired a general overview of what this unit is about, how it links specifically to the course. This unit will help you acquire basic understanding of the male reproductive system and its functions. Before we do this, let us have a view of what you should learn in this unit, as indicated in the unit objectives below:

### 2.0 Objectives

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

Draw the diagram of the male reproductive system
Describe each structure of the male reproductive system and the function
List the functions of the male reproductive system.

### 3.0 Main Contents

3.1 Anatomy and physiology of the male reproductive system

**Fig 1. The male reproductive organs and their associated structures.**

**The Scrotum**

This is a pouch of deeply pigmented skin, fibrous and connective tissue and smooth muscle. It is divided into two compartments each of which contains one testis, one epididymis and the testicular end of a spermatic cord. It lies below the symphysis pubis, in front of the upper parts of the thighs and behind the penis.

**Testes**

The testes are the reproductive glands of the male and are the equivalent of the ovaries in the female. They are about 4.5cm long, 2.5cm wide and 3cm thick and are suspended in the scrotum by the spermatic cords. They are surrounded by three layers of tissue.

Tunica vaginalis – This is a double membrane, forming the outer covering of the testes, and is a downgrowth of the abdominal and pelvic peritoneum. During early foetal life, the testes develop in the lumbar region of the abdominal cavity just below the kidneys. They then descend into the scrotum taking with them coverings of peritoneum, blood and lymph vessels, nerves and the deferent duct. The peritoneum eventually surrounds the testes in the scrotum, and become detached from the abdominal peritoneum. Descent of the testes into the scrotum should be complete by the $8^{th}$ month of foetal life.

Tunica albuginea – This is a fibrous covering beneath the tunica vaginalis that surrounds the testes. In growths from septa, dividing the glandular structure of the testes into lobules.

Tunica vasculosa – this consists of a network of capillaries supported by delicate connective tissue.

**Structure of the testes**

In each testis are 200 to 300 lobules, and within each lobule are 1 to 4 convoluted loops composed of germinal epithelial cells, called seminiferous tubules. Between the tubules are groups of interstitial cells that secrete the hormone testosterone after puberty. At the upper pole of the testis the tubules combine to form a single tubule. This tubule, about 6m in its full length, is repeatedly folded and tightly packed into a mass called the epididymis. It leaves the scrotum as the different duct (vas deferens) in the spermatic cord. Blood and lymph vessels pass to the testes in the spermatic cords.

**Functions**

Spermatozoa (sperm) are produced in the seminiferous tubules of the testes and mature as they pass through the long and convoluted epididymis, where they are stored. The hormone controlling sperm production is follicle stimulating hormone from the anterior pituitary. A mature sperm has a head, a body, and a long whip-like tail used for motility. The head is almost completely filled by the nucleus, containing its DNA (deoxyribonucleic acid) it also contains the enzymes required to penetrate the outer layers of the ovum to reach, and fuse with its nucleus. The body of the sperm is packed with mitochondria, to fuel the propelling action of the tail that powers the sperm along the female reproductive tract.

Successful spermatogenesis takes place at a temperature about $3^0$c below normal body temperature. The testes are cooled by their position outside the abdominal cavity, and the thin outer covering of the scrotum has very little insulating fat.

**Spermatic cords**

The spermatic cords suspend the testes in the scrotum. Each cord contains a testicular artery, testicular veins, lymphatics, a deferent duct and testicular nerves which come together to form the cord from their various origins in the abdomen. The cord, which is covered in a sheath of smooth muscle and connective and fibrous tissue, extends through the inguinal canal and is attached to the testis on the posterior wall.

Blood supply, lymph drainage and nerve supply.

Arterial supply – The testicular artery branches from the abdominal aorta, just below the renal arteries.

Venous supply – The testicular vein passes into the abdominal aorta, just below the renal arteries.

Venous supply – The testicular vein passes into the abdominal cavity. The left vein opens into the deft renal vein and the right into the inferior vena cava.

Lymph drainage – This is through lymph nodes around the aorta.

Nerve supply – This is provided by branches from the $10^{th}$ and $11^{th}$ thoracic nerves.

**THE DEFERENT DUCT**

This is 45cm long. It passes upwards from the testis through the inguinal canal and ascends medially towards the posterior wall of the bladder where it is joined by the duct from the seminal vesicle to form the ejaculatory duct.

**SEMINAL VESICLES**

The seminal vesicles are two small fibromuscular pouches lined with columnar epithelium, lying on the posterior aspect of the bladder.

At its lower end each seminal vesicle opens into a short duct, which joins with the corresponding deferent duct to form an ejaculatory duct.

**Functions**

The seminal vesicles contract and expel their stored contents, seminal fluid, during ejaculation. Seminal fluid, which forms 60% of the bulk of the fluid ejaculated at male orgasm, contains nutrients to support the sperm during their journey through the female reproductive tract.

**EJACULATORY DUCTS**

The ejaculatory ducts are two tubes about 2cm long, each formed by the union of the duct from a seminal vesicle and a deferent duct. They pass through the prostate gland and join the prostatic urethra, carrying seminal fluid and spermatozoa to the urethra.

The ejaculatory ducts are composed of the same layers of tissue as the seminal vesicles.

**PROSTATE GLAND**

The prostate gland lies in the pelvic cavity in front of the rectum and behind the symphysis pubis, surrounding the first part of the urethra. It consists of an outer fibrous covering, a layer of smooth muscle and glandular substance composed of columnar epithelial cells.

**Functions**

The prostate gland secretes a thin, milky fluid that makes up about 30% of semen and gives it its milky appearance. It contains a clotting enzyme, which thickens the semen in the vagina increasing the likelihood of semen being retained close to the cervix.

**URETHRA**

The male urethra provides a common pathway for the flow of urine and semen, the combined secretions of the male reproductive organs. It is about 19 to 20cm long and consists of three parts. The prostate urethra originates at the urethral orifice of the bladder and passes through the prostate gland. The membraneous urethra is the shortest and narrowest part and extends from the prostate gland to the bulb of the penis, after passing through the perineal membrane. The spongiose or penile urethra lies within the corpus spongiosum of the penis and terminates at the external urethral orifice in the glands penis.

There are two urethral sphincters. The internal sphincter consists of smooth muscle fibres at the neck of the bladder above the prostate gland. The external sphincter consists of skeletal muscle fibres surrounding the membranous part.

**PENIS**

The penis has a root and a body. The root lies in the perineum and the body surrounds the urethra. It is formed by three cylindrical masses of erectile tissue and smooth muscle. The erectile tissue is supported by fibrous tissue and covered with skin and has a rich blood supply.

The two lateral columns are called the corpora cavernosa and the column between them, containing the urethra, is the corpus spongiosum. At it's tip it is expanded into a triangular structure known as the glans penis. Just above the glans the skin is folded upon itself and form a movable double layer, the foreskin or prepuce. Arterial blood is supplied by deep, dorsal and bulbar arteries of the penis, which are branches from the internal pudendal arteries. A series of veins drain blood to the internal pudendal and internal iliac veins. The penis is supplied by autonomic and somatic nerves. Parasympathetic stimulation leads to filling of the spongy erectile tissue with blood, caused by arteriolar dilatation and vasoconstriction, which increases blood flow into the penis and obstructs outflow. The penis therefore becomes engorged and erect, essential for intercourse.

**EJACULATION**

During ejaculation, which occurs at male orgasm, spermatozoa are expelled from the epididymis and pass through the deferent duct, the ejaculatory duct and the urethra. The semen is propelled by powerful rhythmical contraction of the smooth muscle in the walls of the deferent duct; the muscular contractions are sympathetically mediated. Muscle in the walls of the seminal vesicles and prostate gland also contracts, adding their contents to the fluid passing through the genital ducts. The force generated by these combined processes leads to emission of the semen through the external urethral sphincter.

Sperm comprises only 10% of the final ejaculate, the remainder being made up of seminal and prostatic fluids, which are added to the sperm during male orgasm, as well as mucus produced in the urethra. Semen is slightly alkaline, to neutralize the acidity of the vagina. Between 2 and 5mls of semen are produced in a normal ejaculate, and contain between 40 and 100 million spermatozoa per ml. If not ejaculated, sperm gradually lose their fertility after several months and are reabsorbed by the epididymis.

**Functions of the male reproductive system**

- Production of spermatozoa
- Transmission of spermatozoa to the female

## 4.0 Conclusion

In this unit you have learned about the structures that made up the male reproduction system and their functions.

You should at this point be able to describe the structures and if need be draw and label the male reproductive system.

## 5.0 Summary

This unit has focused on the male reproductive system highlighting on each structure that is the scrotum, the testes, spermatic cords, deferent duct, seminal vesicles, ejaculation ducts, prostate gland, urethra and the penis.

Unit two will explain the female reproductive system.

## 6.0 Tutor Marked Assignment

1. Explain the functions for the testes
2. Describe the prostate gland and state its functions

## 7.0 References and other Resources

Anne W. Allison, G. (2006). Anatomy and Physiology in health and illness, 10th edition, Churchill Livingstone: printed in Spain.

## Unit 2: Anatomy and physiology of the female reproduction system

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### 1.0. Introduction

Having gone through the male reproductive system in the last unit, this unit will describe the organs that make up the female reproductive system as you have read through the course guide with you.

### 2.0 Objectives

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

- describe the main structure of the external genitalia
- explain the structure and function of the vagina
- describe the location, structure and function of the uterus and the uterine tubes
- discuss the process of ovulation and the hormones that control it
- outline the changes that occur in the female at puberty, including the physiology of menstruation
- describe the structure and function of the female breast

### 3.0. Main Content

### 3.1. Anatomy and Physiology of the female reproduction system External genitalia (vulva)

The external genitalia are known collectively as the vulva, and consist of the labia majora and labia minora, the clitoris, the vaginal orifice, the vestibule, the hymen and the vestibular glands (Bartholin's glands).

**Labia Majora**

These are two large folds forming the boundary of the vulva. They are composed of skin, fibrous tissues and fat and contain large numbers of sebaceous glands. Anteriorly the folds join in front of the symphysis pubis, and posteriorly they merge with the skin of the perineum. At puberty, hair grows on the mons pubis and on the lateral surfaces of the labia majora.

**Fig. 2: The external genital of the female**

**LABIA MINORA:** These are two smaller folds of skin between the labia majora containing numerous sebaceous glands. The cleft between the labia minora is the vestibule.
**CLITORIS:** The clitoris corresponds to the penis in the male and contains sensory nerve endings and erectile tissue but it has no reproductive significance.
**HYMEN:** The hymen is a thin layer of mucous membrane that partially occludes the Opening of the vagina, it is normally incomplete to allow for passages of menstrual flow.
**VESTIBULAR GLANDS:** The vestibular gland (Bartholin gland) are situate on each side near the vagina opening. They are about the size of a small pea and have ducts opening into the vestibule immediately lateral to the attachment of the hymen. They secrete mucus that keeps the vulva moist.

**BLOOD SUPPLY, LYMPH DRAINAGE AND NERVE SUPPLY**

1. Arterial supply: This is by branches from the internal pudendal arteries that branch from the internal iliac arteries and by external pudendal arteries that branch from the femoral arteries.
2. **Venons drainage:** This form a large plexus which eventually drain into the internal iliac veins.
3. **Lymph Drainage:** this is through the superficial inguinal nodes
4. **Perineum:** The perineum is the area extending from the base of the labia minora to the anal canal. It is roughly triangular and consists of connective tissue, muscle, and fat, it gives attachment to the muscles of the pelvic floor.

**INTERNAL GENITALIA**

The internal organs of the female reproductive system lie in the pelvic cavity and consist of the vagina, uterus, two uterine tubes and two ovaries.

**VAGINA**

The vagina is a fibro muscular tube lined with stratified squamous epithelium connecting the external and internal organs of reproduction. It runs obliquely upwards and backwards at an angle of about $45^0$ between the bladder in front and rectum and anus behind. In the adult the anterior wall is about 7.5cm long and the posterior wall about 9cm long the differences is due to the angle of insertion of the cervix through the anterior wall.

## STRUCTURE OF THE VAGINA

The vagina has three layers: an outer covering or areolar tissue, a middle layer of smooth muscle and an inner lining of stratified squamous epithelium that forms ridges or rugae. It has no secretory glands but the surface is kept moist by cervical secretion. Between puberty and menopause lactobacillus acidophilus bacteria are normally present which secrete lactic acid, maintaining the pH between 4.9 and 3.5 the acidity inhibits the growth of most other microbes that may enter the vagina from the perineum.

## BLOOD SUPPLY, LYMPH DRAINAGE AND NERVE SUPPLY

1. **Arterial supply:** An arterial plexus is formed round the vagina, derived from the uterine and vaginal arteries which are branches of the internal iliac arteries.
2. **Venous drainage:** a venous plexus situated in the muscular wall drains into the internal iliac veins.
3. **Lymph drainage:** This is through the deep and superficial iliac glands
4. **Nerve supply:** This consist of parasympathetic fibres from the sacral outflow, sympathetic fibres from the lumbar outflow and somatic sensory fibres from the pudendal nerves.

## FUNCTION OF THE VAGINA

The vagina acts as the receptacle for the penis during coitus and provides an elastic passage way through which the baby passes during child birth.

**Fig. 3: The Female reproductive organs in the pelvis**

## UTERUS

The uterus is a hollow muscular pear-shaped organ flattened anteroposteriorly. It Lies in the pelvic cavity between the urinary bladder and the rectum. In most women, it learn forward (ante version) and is bent forward (ante flexion) almost at right angles to the vagina so that it's anterior wall rests partly against the bladder below and forming the

vesicouterine pouch between the two-organs when the body is upright, the uterus lies in an almost horizontal position. It is about 7.5cm long, 5cm wide and it's walls are about 2.5cm thick. It weighs from 30 to 40 grams. The parts of the uterus are the fundus, body and cervix.

**Fundus:** This is the dome-shaped part of the uterus above the openings of the uterine tubes.

**Body:** This is the main part. It is narrowest inferiorly at the internal os where it is continuous with the cervix. Cervix (neck of the uterus) this protrudes through the anterior wall of the vagina, opening into the external os

**STRUCTURE**

The walls of the uterus are composed of three layers of tissue: perimetrium, myometrium and endometrium.

**Perimetrium:** This is peritoneum which is distributed differently on the various surfaces of the uterus, anteriorly it extends over the fundus and the body where it is folded onto the upper surface of the urinary bladder. This fold of peritoneum forms the vesicouterine pouch. Posteriorly the peritoneum extends over the fundus the body and the cervix then it continues on to the rectum to form the recto uterine pouch (of Douglas) laterally, only the fundus is covered because the peritoneum forms a double fold with the uterine tubes in the upper free boder. This double fold is the broad ligament which at it's lateral ends, attaches the uterus to the sides of the pelvis.

Myometrium: This is the thickest layers in the uterine wall. It is a mass of smooth muscle fibres interlaced with alveolar tissue, blood vessels and nerves.

**Endometrium:** This consist of columnar epithelium containing a large number of mucus-secreting tubular glands, it is divided functionally into two-layers.

1. The functional layer is the upper layer and it thickens and becomes rich in blood vessels in the first half of the menstrual cycle. If the ovum is not fertilized and does not implant, this layer is shed during menstruation.
2. The basal layer lies next to the myometrium and is not lost during menstruation. It is the layer from which the fresh functional layer is regenerated during each cycle. The upper two-thirds of the cervical canal is lined with this mucous membrane. Lower down, however the mucosa changes, becoming stratified squamous epithelium which is continuous with the lining of the vagina itself.

**BLOOD SUPPLY, LYMPH DRAINGAGE AND NERVE SUPPLY, BLOOD SUPPLY, ARTERIAL SUPPLY:** This is by the uterine arteries, branches of the internal iliac arteries. They pass up the lateral aspects of the uterus between the two layers of the broad ligaments, they supply the uterus and uterine tubes and join with the ovarian arteries to supply the ovaries.

**VENOUS DRAINAGE:** The veins follow the same route as the arteries and eventually drain into the internal iliac veins.

**LYMPH DRAINAGE:** Deep and superficial lymph vessels drain lymph from the uterus and the uterine tubes to the aortic lymph nodes and groups of nodes associated with the iliac blood vessels.

NERVE SUPPLY: The nerves supplying the uterus and the uterine tubes consist of parasympathetic fibres from the sacral outflow and sympathetic fibres from the lumbar outflow.

**SUPPORTING STRUCTURES:** The uterus is supported in the pelvic cavity by surrounding organs, muscles of the pelvic floor and ligament that suspend it from the wall of the pelvis.

**BROAD LIGAMENTS:** These are formed by a double fold of peritoneum, one on each side of the uterus. They hang down from the uterine tubes as though draped over them and at their lateral ends, they are attached to the sides of the pelvis. The uterine tubes are enclosed in the upper free border and near the lateral ends they penetrate the posterior wall of the broad ligament and open into the peritoneal cavity. The ovaries are attached to the posterior wall one on each side. Blood and lymph and nerves pass to the uterus and uterine tubes between layers of the broad ligament.

**ROUND LIGAMENTS:** These are types of band of fibrous tissues between the two layers of broad ligament, one on each side of the uterus. They pass to the sides of the pelvis then through the inguinal canal to end by fusing with the labia majora.

**UTERO SACRAL LIGAMENTS:** These originate from the posterior walls of the cervix and vagina and extend backwards, one on each side of the rectum to the sacrum.
**TRANSVERSE CERVICAL (CARDINAL LIGAMENTS):** These extend one from each side of the cervix and vagina to the side wall of the pelvis.
**PUBO CERUICAL FASCIA:** This extends forwards from the transverse cervical ligament on each side of the bladder and is attached to the posterior surface of the pubic bones.

**FUNCTIONS OF THE UTERUS**
After puberty the endometrium of the uterus goes through regular monthly cycle of changes, the menstrual cycle under the control of hypothalamic and anterior pituitary hormones. The purpose of the cycle is to prepare the uterus to receive, nourish, and protect a fertilized ovum. The cycle is usually regular, lasting between 26 and 30 days. If the ovum is not fertilized a new cycle begins with a short period of bleeding (menstruation).

If the ovum is fertilized the zygote embeds itself in the uttering wall. The uterine muscle grows to accommodate the developing baby which is called the "Embryo" during its first 8 weeks and a fetus for the remainder of the pregnancy, uterine secretion nourish the ovum before it plants in the endometrium and after implantation the rapidly

expanding ball of cell is nourished by the endometrial cells themselves. This is sufficient for only the first few weeks and the placenta is the organ that takes over thereafter. The placenta which is attached to the fetus by the umbilical cord, is firmly attached to the wall of the uterus and provides the route by which the growing baby receives oxygen and nutrients and get rid of it's wastes. During pregnancy which normally last about 40 weeks the muscular wall of the uterus are prevented from contracting and expelling the baby early by high level of the hormone progesterone secreted by the placenta. At the end of pregnancy the hormone oestrogen which increases uttering contractility, becomes the predominant sex hormone in the blood additionally, oxytocin is released from the posterior pituitary and also stimulates the uterine muscle. Control of oxygen release is by positive feedback. During labour, the uterus forcefully expels the baby by means of powerful rhythmical contraction.

**UTERINE TUBES**

The uterine (fallopian) tubes are about 10cm long and extend from the sides of the uterus between the body and the fundus. They lie in the upper free border of the broad ligament and their trumpet-shaped lateral ends penetrate the posterior wall, opening into the peritoneal cavity close to the ovaries. The end of each tube has finger like projections called fimbriae. The longest of these is the ovarian fimbria, which is in close association with the ovary.

**STRUCTURES**

The uterine tubes have an outer covering of peritoneum (broad-ligament), a middle layer of smooth muscle and are lined with ciliated epithelium. Blood supply, lymph drainage and nerve supply. These are as for the uterus.

**FUNCTIONS**

The uterine tubes move the ovum from the ovary to the uterus by peristalsis and ciliary movement. The mucus secreted by the mucosa provides ideal conditions for movement of ova and spermatozoa. Fertilization of the ovum usually takes place in the uterine tube, and the zygote is propelled into the uterus for implantation.

**OVARIES**

The ovaries are the female gonads (glands producing sex hormones and the ova), and they lie in shallow fossa on the lateral walls of the pelvis. They are 2.5 to 3.5cm long, 2cm wide and 1cm thick. Each is attached to the upper part of the uterus by the ovarian ligament and to the back of the broad ligament by a broad band of tissue, the mesovarium. Blood vessels and nerves pass to the ovary through the mesovarium.

**STRUCTURE OF THE OVARIES**

The ovaries have two layers of tissue

**Medulla:** This lies in the centre and consists of fibrous tissue, blood vessels and nerves.

**CORTEX:**

This surrounds the medulla. It has a framework of connective tissue, or stroma, covered by germinal epithelium. It contains ovarian follicles in various stages of maturity, each of which contains an ovum. Before puberty the ovaries are inactive but the stroma already contains immature (primodial) follicles, which the female has from birth. During the child baring years, about every 28 days, one ovarian follicle (Graafian follicle) matures, ruptures and releases its ovum into the peritoneal cavity. This is called ovulation and it occurs during most menstrual cycles.

Blood supply, lymph drainage and nerve supply

- **Arterial supply:** This is by the ovarian arteries, which branch from the abdominal aorta just below the renal arteries.
- **Venous drainage:** This is into a plexus of veins behind the uterus from which the ovarian veins arise. The right ovarian vein opens into the inferior vena cava and the left into the renal vein
- **Lymph drainage:** This is to the lateral aortic and preaortic lymph nodes. The lymph vessels follow the same route as the arteries.
- **Nerve supply:** The ovaries are supplied by parasympathetic nerves from the sacral outflow and sympathetic nerves from the lumbar outflow

**FUNCTIONS**

Maturation of the follicle is stimulated by follicle stimulating hormone (FSH) from the anterior pituitary, and oestrogen secreted by the follicle lining cells. Ovulation is triggered by a surge of luteinizing hormone (LH) from the anterior pituitary, which occurs a few hours before ovulation. After ovulation, the follicle lining cells develop into the corpus luteum (yellow body) under the influence of LH from the anterior pituitary. The corpus luteum produces the hormone progesterone and some oestrogen. If the ovum is fertilized it embeds itself in the wall of the uterus where it grows and develops and produces the hormone human chorionic gonadotrophin (hCG), which stimulates the corpus luteum to continue secreting progesterone and oestrogen for the first 3 months of pregnancy after which time this function is continued by the placenta. If the ovum is not fertilized the corpus luteum degenerates and a new cycle begins with menstruation. At the site of the degenerated corpus luteum an inactive mass of fibrous tissue forms, called the corpus albicans. Sometimes more than one follicle matures at a time releasing two or more ova in the same cycle. When this happens and the ova are fertilized the result is a multiple pregnancy.

## 3.3. THE MENSTRUAL CYCLE

This is a series of events, occurring regularly in females every 26-30 days throughout the childbearing period of about 36 years. The cycle consist of series of changes taking place concurrently in the ovaries and uterine walls, stimulated by changes in blood concentrations of hormones. Hormones secreted in the cycle are regulated by negative feedback mechanism.

The hypothalamus secretes luteinizing hormones releasing hormones (LHRH) which stimulates the anterior pituitary to secrete.

Follicle stimulation hormones (FSH) which promotes the maturation of ovarian follicles and the secretion of estrogen leading to ovulation.

Lutenizing hormone (LH) which triggers ovulation, stimulates the development of the corpus luteum and the secretion of progesterone.

The hypothalamus responds to changes in the blood levels of oestrogen and progesterone. It is switched off by high levels and stimulated when they are low. The average length of the menstrual cycle is about 28 days. By convention the days of the cycle are numbered from the beginning of the menstrual phase of the menstrual cycles which usually lasts about 4 days. This is followed by the proliferative phase (about 10 days) then by the secretary phase about (14 days).

Diagram

**Fig 4: Summary of one female menstrual cycle**

**MENSTRUL PHASE**

When the ovum is not fertilized the corpus luteum starts to degenerate in the event of pregnancy. The corpus luteum is supported by human chorionic gonadotrophin (HCG) secreted by the developing embryo, progesterone and oestrogen levels therefore fall, and the functional layer of the endometrium, which is dependent on high levels therefore fall, and the functional layer of the endometrium, which is dependent on high levels of these ovarian hormones, is shed in menstruation. The menstrual flow consist of the secretions from endometrial glands, endometrial cells, blood from the broken down capillaries and the unfertilized ovum.

High circulating levels of ovarian progesterone and oestrogen inhibit the anterior pituitary, blocking the release of FSH and LH, and should pregnancy occur then rising oestrogen and progesterone levels. Therefore prevent the maturation and release of another ovum.

After degeneration of the corpus luteum, however, falling level of oestrogen and progesterone lead to resumed anterior pituitary activity, rising FSH level and the initiation of the next cycle.

**PROLIFERATIVE PHASE**

At this stage an ovarian follicle, stimulated by FSH, is growing towards maturity and is producing oestrogen, which stimulates proliferation for the functional layers of the endometrium in preparation for the reception of a fertilized ovum. The endometrium thickens, becoming very vascular and rich in mucus – secreting glands. This phase ends when ovulation occurs and oestrogen production by the follicle declines.

## 3.2 The Breast

The breast or mammary gland are accessory glands of the female reproductive system. They exist also in the male, but in only a rudimentary form in the female, the breast are small and immature until puberty. There after they grow and develop under the influence of oestrogen and progesterone during pregnancy these hormones stimulate further growth. After the baby is born the hormone prolactin from the anterior pituitary stimulates the production of milk and oxytocin from the posterior pituitary stimulates the release of milk in response to the stimulation of the nipple by the sucking baby, by a positive feedback mechanism.

**STRUCTURE**

The mammary gland consists of glandular tissue, fibrous tissue and fatty tissue, each breast consist of about 20 lobes of tissue, each lobe being made up of a number of lobules that radiate around the nipple. The lobules consist of a cluster alveoli that open into small ducts and these unite to form large excretory ducts called LACTIFEROUS DUCTS. The lactiferous ducts converge towards the centre of the breasts where they form dilation or reservoirs for milk, leading from each dilation or lactiferous sinus is a narrow duct that open onto the surface at the nipple, fibrous tissue supports the glandular tissue and duct of fat covers the surface of the gland and is also found between the lobes.

**Fig. 5: Structure of the breast**

**The nipple:** Is a small conical eminence at the centre of the breast surrounded by a pigmented area, the areola on the surface of the areola are numerous sebaceous glands (Montgomery's tubercles) which lubricate the nipple during lactation.

## BLOOD SUPPLY, LYMPH DRAINAGE, AND NERVE SUPPLY

**Arterial supply:** The breast are supplied with blood from the thoracic branches of the axillary arteries and from internal mammary and inter costal arteries.

**Venous drainage:** This is formed by an anastomotic circle round the base of the nipple from which branches carry the venous blood to the circumference and end in the axillary and mammary veins.

**Lymph drainage:** this is mainly into the superficial axillary lymph vessel and nodes. Lymph may drain through the internal mammary node if the superficial route is obstructed.

**Nerve supply:** The breasts are supplied by branches from the $4^{th}$ $5^{th}$ and $6^{th}$ thoracic nerves which contain sympathetic fibres there are numerous somatic sensory nerve endings in the breast, especially around the nipple when these touch receptors are stimulated by sucking impulses pass to the hypothalamus and the flow of the hormone oxytocin is increased, promoting the release of milk.

## Functions

The mammary gland are only active during late pregnancy and after child birth when they produce milk, lactation is stimulated by the hormone prolactin.

## SECRETORY PHASE

Immediately after ovulation, the cells lining the ovarian follicle are stimulated by LH and develop into the corpus luteum, which produces progesterone and some oestrogen. Under the influence of progesterone, the endometrium becomes oedematous and the secretory glands produce increased amount of watery mucus. This is believe to assist the passage of the spermatozoa through the uterus to the uterine tube where the ovum is usually fertilized. There is a similar increase in the secretion of watery mucus by the glands of the uterine tubes and by cervical glands that lubricate the vagina.

The ovum may survive in a fertilizable form for a very short time after ovulation, probably as little as 8 hours. The spermatozoa deposited in the vagina during intercourse, may be capable of fertilizing the ovum for only about 24hours although they can survive for several days. This means that the period in each cycle during which fertilization can occur is relatively short. Observable change in woman's body occurs around the time of ovulation. Cervical mucus, normally thick and dry, becomes thin, elastic and watery, and body temperature rises by a small but measurable amount immediately followed ovulation. Some women experience abdominal discomfort in the middle of the cycle, thought to correspond to rupture of the follicle and release of its content into the abdominal cavity.

If the ovum is not fertilized, menstruation occurs and a new cycle begins.

If ovum is fertilized there is breakdown of the endometrium and no menstruation. The fertilized ovum (zygote) travels through the uterine tube to the uterus where it become embedded in the wall and produces human chorionic gonadotrophin (HCG), which is similar to anterior pituitary lutenising hormones. The hormone keeps the corpus luteum intact enabling it to continue secreting progesterone and oestrogen for the first 3 to 4 month of the pregnancy, inhibiting the maturation of further ovarian follicles. During that time the placenta develops and produces oestrogen progesterone and gonadotrophins.

**THE FUNCTIONS OF THE FEMALE REPRODUCTIVE SYSTEM ARE:**

Formation of ova

Reception of spermatozoa

Provision of suitable environment for fertilization and fetal development

Parturition (child birth)

Lactation, the production of breast milk, which provides complete nourishment for the body in its early life

## 4.0 Conclusion

In this unit, you have learnt about the female reproductive system that is the external and internal genitalia, the breast and the menstrual cycle. The understanding of the female reproductive system will enable you to help women in their psychological and physiological needs.

## 5.0 Summary

This unit has been able to address the female reproductive system in it's entity so that in understanding what makes up the woman, you will be able to help medically when the need arises.

## 6.0 TMA

1. List the structures that make up the external genitalia and explain the clitoris
2. With the aid of a well labeled diagram describe the female breast.

## 7.0 References and other resources

Anne W. Allison, G. (2006). Anatomy and Physiology in health and illness, 10th edition, Churchill Livingstone: printed in Spain.

**UNIT 3 PRENATAL CARE**

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## 1.0 Introduction

In this unit, there is the need for you to know what prenatal care entails, that is the care we give to the treatable health problems in the mother that can affect the baby's health, characteristics of the baby including size, age and placement in the uterus etc so that it can be treated, corrected or cured and allow the health care staff to be better prepared to help the mother and child.

## 2.0 Objectives

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

- Define what prenatal care is
- Mention the aim of prenatal care
- Highlight the components of prenatal care
- Describe the method of prenatal care
- Discuss prenatal diagnosis, reasons for it and factors affecting proper prenatal care.

## 3.0 Main contents

### 3.1 Definition of prenatal care

Prenatal care can be defined as a medical and nursing care recommended for women before and during pregnancy.

### 3.2 Aim

The aim of good prenatal care is to reduce maternal death rates and miscarriages as well as birth defects. Low birth weight and other preventable infant problems. Through recommendation on adequate nutrition, exercise, vitamin intake etc and to direct the woman to appropriate specialists or hospital if necessary.

### 3.3 Components of prenatal care

Prenatal care generally consists of:

(a) Monthly visits during the first two trimesters 1-28 weeks
(b) Biweekly visit from $28^{th}$ week to $36^{th}$ week of pregnancy
(c) Weekly after $36^{th}$ week till delivery ($28\text{-}40^{th}$ week)
(d) Assessment of parental needs and family dynamic

### 3.4 Method of Prenatal test

The commonest and basic prenatal test are:

(1) Physical examination
(2) Ultrasound

And the aforementioned methods are non-invasive. However, there are other methods of prenantal tests which are more invasive but rarely done. They include: Pre implantation genetic diagnosis.

- Chronic villus sampling
- Embryoscopy or fetoscopy (used to sample blood or tissue from the embryo or tissue.)
- percutaneous umbilical cord blood sampling.

#### 3.4.1 Prenatal Assessment of the pregnant women

This entails general observation of the woman, palpation and auscultation of the fetus.

It also comprises of the following:

History taking from the mother comprising of social hx, medical history and obstetric hx
Checking mother's blood pressure
Mother's height and weight
Pelvis examination
Doppler fetal heart rate monitoring
Mothers blood and urine tests

#### 3.4.2 Ultrasound

Obstetric ultrasound are most commonly performed during the second trimester at approximately week 20. Ultrasounds are used to:

Check for multiple fetuses
Determine the sex of the fetus
Assess possible risk to the pregnancy i.e. ectopic pregnancy
Check for fetal malformation i.e. spinal bifida
Detect intra uterine growth retardation
Check the aminiotic fluid and umbilical cord for possible problems.

Determine due date which is based on measurements and relative developmental progress.

### 3.5 Prenatal diagnosis

Prenatal testing is testing for diseases or conditions in mother that are deliterous to the fetus. And at the same time it is testing for diseases or conditions in fetus that can affect the mother and the fetus before, during and after birth.

Such diseases and condition in mother include.

- Eclampsia and preeclampsiac
- Low pcv
- Inadequate pelvis

Such diseases and conditions in fetus may include:

- Hydrocephalus
- Down syndrome
- Over weight leading to cephalopelvic disproportion
- Neutral tube defects
- Cleft palate
- Spina bifida
- Sickle cell anaemia
- Cystic fibrosis
- Fragile x – syndrome and
- Other chromosome abnormalities
- Sex of the fetus is also detected through prenatal testing
- Ectopic pregnancy

### 3.6 Reasons for prenatal diagnosis

There are three main purpose of prenatal diagnosis viz:

1. To enable timely medical or surgical treatment of a condition before or after birth.
2. To give the parents the chance of sustainability of the fetus.
3. To give parents chance to prepare

Psychologically, socially, financially and medically for a baby with a health problem or disability, or even for the likelihood of a stillbirth (in unpreventable situations).

### 3.7 Risk factors warranting prenatal testing for pregnant women

This include reasons a patient might consider her risk of birth defects and or other associated problems. Viz:

Women below the age of 18

Women over the age of 35

Women who have previously had premature babies or babies with a birth defects, especially heart or genetic problems.

High blood pressure

Diabetes

Asthma

Epilepsy

Previous miscarriages
Multiple pregnancy (twin)
Family or ethnic backgrounds prone to genetic disorders or whose partners have these.

## 3.8 Factors affecting proper prenatal care

These are factors which may be social, psychologic or medical but can hinder a successful prenatal care they include:

Ignorance of pregnant woman
Health workers image perception by the public
Fear of some diagnostic procedures i.e. pelvic examination
Self image perception by some pregnant women
Nearness to health facility
Financial implications
Fear of what the result may be

## 3.9 Ways of improving prenatal care

By creating awareness on the need for prenatal care
Health workers cordial and friendly relationship to their patient and client in a supportive manner
Proper explanation of diagnostic procedures to clients before starting them (informed consent).
Establishment of more prenatal care centre in strategic places to increase accessibility.
Provision of instruments and requirements in diagnostic and prenatal care centre
Information about testing options and results should be given in a directive and supportive way.

## 4.0 Conclusion

In this unit you have learned about prenatal care, its components, benefits and factors hindering proper prenatal care.
You can now explain what prenatal care is all about, when in urgent need of prenatal care diagnostic procedures in prenatal care and mention prenatal diseases and conditions.

## 5.0 Summary

This unit has focused on prenatal care, component of care, prenatal diagnostic tests, diagnosis and reasons for the diagnosis. Factors affecting prenatal care and possible ways of preventing the factors.

## 6.0 Tutor Marked Assignment

1. What is prenatal care
2. State the components of prenatal care

3. Highlight 6 factors warranting pregnant women for prenatal tests.

## 7.0 References for further study

Pre-Care - Sheiner, E. Hallak, M. Tuizer, I. Mazor M. Shoham – Vardi I. (September, 2001). Lack of prenatal care in two different societies living in the same region and sharing the same medical facilities". J. Obstet. Gynaecol.. 21. (5):- 453-8. Doi:10.1080/01443610120071974.PMID.12521796.http//informa heathcare.com/doi/abs/10.1080/0144361012007974

Ojo, O. AQ & Briggs, E. B. (2009) A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

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Unit 4 Abnormal prenatal conditions
(1) (Intra uterine growth retardation)
(2) Intra Uterine death of the foetus
(3) Hyperemesis gravidarum

**TABLE OF CONTENT**



**1.0** Introduction

In this unit, you are going to discuss three out of the abnormal prenatal conditions in pregnancy which are intra uterine growth retardation, intra uterine death of the foetus, hyperemesis gravidarum so that the knowledge can be sued to help cater for such women in the clinic.

**2.0** Objectives

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

- Define IUGR, know the causes, diagnosis, management and prognosis

- Define intra uterine death of the foetus, signs, causes, management and it's complications
- Define hyperemesis gravidarum, the management, danger signs and prevention of such danger signs.

## 3.0 Main Content

### 3.1 Definition of IUGR

This is a condition resulting in the birth of a baby whose birth weight is abnormally low in relation to its gestational age i.e. small for dates baby or dysmaturity etc.

### 3.1.2 Causes of IUGR

Causes is not always known but sometimes it is associated with maternal conditions which predispose to placenta insufficiency. These conditions include:

- Severe hypertensive vascular disorders
- Antepartum haemorrhage
- Pre-eclampsia
- Eclampsia
- Chronic nephritis
- Untreated severe anaemia in pregnancy
- Infection
- Malnutrition
- Multiple pregnancy
- Socio-economic conditions

### 3.1.3 Diagnosis of IUGR

Absence of progressive increase in uterine size as judged by fundal height measurements.

Failure of the mother to gain weight or actual weight loss

Diminution of the amount of liquor amnii

Reduced foetal activity – the patient usually complains that foetal movements are not as frequent as before

Ultrasound scan can be done

Abdominal circumference measurement

Biochemical tests can be done such as urinary oestriols and human placental lactogen

### 3.1.4 Management of IUGR

All suspected cases should be referred to a physician in big urban hospital centres with facilities for dealing with such cases:

All cases are admitted into the hospital for investigation, observation and appropriate treatment while investigations are in progress one will be expected to:

Measure fundal height

Record maternal weight

Check foetal heart sounds
Clinically estimate the amount of liquor amnii
Assess foetal activity as judged by the number of foetal movements in any given period. The mother may be encouraged to do the count.
Record maternal pulse rate and blood pressure 4 hourly
Test patients urine twice daily for albumin, sugar and acetone.
Check of oedema

### 3.1.5 Prognosis of IUGR

Babies delivered after established intra-uterine growth retardation have been shown to have a tendency to develop:

Recurrent hypoxic attacks
Hypoglycaemia
Hyperbilirubinaemia
It is therefore, important that steps should be taken to avert these complications by avoiding a prolonged and stressful labour.

- By aspiration of the baby's respiratory passage and administration of oxygen.
- Mother should be given vitamin K during the first stage of labour and the baby immediately after birth.
- Facilities should be available for exchange blood transfusion as well as intravenous infusion of glucose.
- Baby should be nursed in the intensive baby unit.

### 3.1.6 Postnatal findings in IUGR

- Low birth weight – lower birth weight than expected for the period of gestation.
- Tendency to recurrent hypoxia
- Abnorman growth curve later in life
- Possibility of mental retardation later in life.

## 3.2 Definition of Intra-uterine death

Intra uterine death refers to the death of the foetus occurring after the $28^{th}$ week of gestation resulting in a macerated stillbirth.

### 3.2.1 Signs of IUD

Failure of the pregnancy to progress as evidenced by lack of increase in the size of the uterus
Breasts may feel less heavy
Absence of foetal movements (the mother may be the first to complain about this)
Absence of foetal heart sounds
A negative pregnancy test

### 3.2.2 Causes of Intra uterine death of the foetus

Severe anaemia in pregnancy – this cause maternal and foetal hypoxia and eventually results in foetal death.
Severe attack of malaria or any other cause of hyperpyrexia such as typhoid fever and pyelonephritis.
Dysentaries e.g. amoebic or bacillary dysentery
Severe virus infections
Syphilis
Placental insufficiency resulting from eclampsia, chronic nephritis, post maturity etc.
Diabetes mellitus
Congenital foetal abnormalities
Rhesus incompatibility
True knots in the cord
Intra – uterine deaths occurring just before delivery are usually caused by accidents in labour such as cord prolapsed, delay in second stage of labour, or a generally prolonged and obstructed labour. Such intra – uterine deaths lead to the delivery of a fresh stillborn baby with no signs of maceration.

### 3.2.3 Management of IUD

- All cases must be referred to the doctor
- Nothing is done until confirmatory x-ray diagnosis is made
- In the hospital the patient is given medical induction of labour in the form of oil, enema and bath followed by pitocin infusion.
- If medical induction fails at first, the doctor waits a few days and then tries again. In many cases, spontaneous labour occurs two or three weeks after foetal death.

### 3.2.4 Complications of IUD

- Profuse haemorrhage from hypofibrinogenaemia (this usually does not occur until four weeks or more after foetal death and is not very common).

### 3.3.1 Definition of Hyperemesis gravidarum

This is excessive vomiting in pregnancy during the first trimester (first 3 months) the patient may vomit throughout the day and usually cannot eat or retain her food.

### 3.3.2 Management of hyperemesis gravidarum

- Reassurance
- Advice on rest and diet
- Replacement of lost fluid and electrolytes e.g intravenous infusion of 5% dextrose/saline.
- Prevention of anaemia

If condition improves

- Teach patient how to prepare oral rehydration solution (ORS)

- Encourage her to take some to replace lost fluid

### 3.3.3 Danger signs of pregnancy

- Early recognition of danger signs/sign of advance labour
- Health promotion and education/counseling
- Inform and educate the women with health messages and counseling appropriate to individual needs, concerns circumstances, gestational age and most prevalent health issues.
- Support women in making decision and solving actual or anticipated problems.
- Involve partner and family in supporting and adopting healthy practices.

## 4.0 Conclusion

In this unit, you have been able to learn about intra uterine growth retardation, intra uterine death of the foetus and hyperemesis grandanium, what they are, causes and their management in other to have the knowledge and be able to prevent and manage them effectively.

## 5.0 Summary

You have been able to study some of the abnormal prenatal conditions in order to guide against its occurrence and so in the next unit you will go through and learn about high risk pregnancy.

## 6.0 TMA

1. List causes of IUGR
2. How can you diagnose IUGR
3. List the prognosis of IUGR

## 7.0 References

Ojo, O. A. & Briggs, E. B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

Diane, M.F. & Cooper, M. A. (2003). Myles Textbook for Midwives, fourteenth edition, Printed in China.

# UNIT 5 PREGNANCY

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3.5 Psychological changes due to pregnancy
3.6 Physiological changes during pregnancy
3.7 Minor disorders of pregnancy
4.0 Conclusion
5.0 Summary
6.0 TMA
**7.0** References and other Resources

1.0 Introduction

In this unit, pregnancy will be discussed as you have read from the course guide. What it means to be pregnant, the signs and symptoms, Antenatal assessment, psychological changes and physiological changes during pregnancy will also be discussed, the minor disorders of pregnancy will also be discussed.

**2.0 Objectives**

At the end of this unit, you should be able to:
Explain what pregnancy is
List the signs and symptoms of pregnancy
Know the differential diagnosis of pregnancy
Explain the antenatal assessment of pregnant woman
Describe the psychological and physiological changes during pregnancy
List the minor disorders of pregnancy

3.0 Main Content

3.1 What pregnancy is

It is a period during which a woman carries a developing foetus normally in the uterus.

Pregnancy occur, when menstruation ceases and return some weeks or months after delivery. The hormones, progesterone and oestrogen, are produced in large quantity. These hormones exert some action on the various systems of the patient. The most outstanding of these changes is the growth which occurs in the uterus.

### 3.2 Signs and symptoms of pregnancy

There are 3 types of signs that pregnancy presents but only one can be taken as positive, they are:

| **Sign**<br>**Possible (presumptive) signs** | **Time of occurrence (gestational age)** | **Differential diagnosis** |
|---|---|---|
| Early breast changes (unreliable in multigravida | 3-4 weeks + | Contraceptive pills |
| Amernorrhoea | 4 weeks + | Hormonal imbalance, emotional stress, illness |
| Morning sickness | 4-14 weeks | Gastrointestinal disorders<br>Pyrexial illness<br>Cerebral irritation etc |
| Bladder irritability | 6-12 weeks | Urinary tract infection |
| Quickening | 16-20 weeks + | Pelvic tumour<br>Intestinal movement, wind |
| Probable signs<br>Presence of human chorionic gonadotrophin (HCG) in: | | |
| Blood | 9-10 days | Hydatidiform mole |
| Urine | 14 days | Choriocarcinoma |
| Softnened isthmus (Hegar's sign) | 6-12 weeks | |
| Blueing of vagina (chadwick signs) | 8 weeks | |
| Pulsation of fornices (osiander's sign) | 8 weeks | |
| Uterine growth | 8 weeks + | Pelvic congestion |
| Changes in skin pigmentation | 8 weeks + | Tumours |
| Uterine soufflé | 8 weeks + | |
| | 12-16 weeks | Increased blood flow to uterus as in large uterine myomas or ovarian tumours |
| Braxton Hicks contractions | 16 weeks | |
| Ballottement of foetus | 16-28 weeks | |
| Positive signs<br>Visualization of gestational sac by: | | |
| Transvaginal ultrasound | 4-5 weeks | No alternative diagnosis |
| Transabdominal ultrasound | 5-5 weeks | |
| Visualization of heart pulsation by Transvaginal ultrasound | 5 weeks | |
| Transabdominal ultrasound | 6 weeks | |
| Foetal heart sound by: | | |
| Doppler | 11-12 weeks | |
| Foetal stethoscope | 20 weeks + | |
| Foetal movements | | No alternative diagnosis |
| Palpable | 22 weeks + | |
| Visible | Late pregnancy | |
| Foetal hearts palpated | 24 weeks + | |

| | | |
|---|---|---|
| Visualization of fetus by X-ray | 16 weeks + | |

### 3.3 Differential diagnosis of pregnancy

Some of the pregnancy signs and symptoms may be found in conditions not associated with pregnancy. The following are a few examples:

1. Amenorrhoea may occur in chronic general illness such as tuberculosis. Emotional upset and a change in environment have been known to cause amenorrhoea.
2. Morning sickness may be due to gastritis
3. Enlarged abdomen – Abdominal enlargement may be associated with tumours such as in ovarian cyst or fibroids or ascites and an increase in abdominal fat.
4. Foetal movement – Flatulence may be mistaken for foetal movements.
5. Pseudocyesis – in this condition, amenorrhoea and other symptoms suggesting pregnancy may be volunteered by the patient who is anxious to have a child. The abdomen may be enlarged but the patient is not pregnant because the signs on which diagnosis of pregnancy can be made are absent.

### 3.4 Antenatal care of the pregnant woman

Antenatal care refers to the care that is given to pregnant woman from the time conception is confirmed until the beginning of labour. The pregnant woman receive advice, supervision and attention to ensure:

(a) good health and, where applicable, early detection and treatment of abnormalities which may affect here health of that of her baby.

(b) a pleasant child-bearing experience and adequate preparation for labour and lactation.

(c) a live healthy baby at the end of pregnancy.

It is unfortunate that in developing countries majority of women have little or no antenatal care and so it is the health workers responsibility to make sure that women, husbands and relatives understand the necessity for, and value of early antenatal care.

An effective and thorough antenatal care requires the close cooperation of all the medical and paramedical personnel, and must take into consideration the general health, mental outlook, social and economic background of the patient as well as here obstetric condition. Patient should be encouraged to attend the antenatal clinic early either at a health centre, maternity home or in a hospital and the care should be efficient and should provide health education for the patient about her physical well being so as to maintain herself through pregnancy. Such can be on personal hygiene, rest, exercise and recreation, personal cleanliness, clothes, bowels and bladder, habits, nutrition, care of the breast, fluid intake etc.

**Aims of antenatal care**

The aim is to monitor the progress of pregnancy in order to support maternal health and normal foetal development. This is achieved by:

developing a partnership with the woman

providing a holistic approach to the woman's case that meets her individual needs.

Promoting an awareness of the public health issues for the woman and her family.

Exchanging information with the woman and her family and enabling them to make informed choices about pregnancy and birth.

Being an advocate for the woman and her family during her pregnancy supporting her right to choose care that appropriate for her own needs and those of her family.

Recognize complications of pregnancy and appropriately referring women within the multidisciplinary team.

Facilitating the woman and her family in their preparation to meet the demands of births and making a birth plan.

Facilitating the woman to make an informed choice about methods of infant feeding and giving appropriate and sensitive advice to support her decision

Offering education for parenthood and sensitive within a planned programme or on an individual basis.

Working in partnership with other pertinent organizations.

The next care a pregnant woman receives at the antenatal clinic is supervision, at the first time in the clinic, it is essential to make a good assessment of her general health, her mental outlook and obstetrical history to enable her plan for the proper management of the patient. The assessment is usually in the form of history taking, general examination of the patient and some laboratory investigations.

History taking – this should take the form of a friendly discussion with the patient, aimed at assessing her emotionally, socially medically and obstetrically. In order to obtain the required information, the midwife should try to gin the patient's confidence and make her feel at home by explaining to her why some of the questions, which may seem irrelevant to her pregnancy, are asked.

**Social history**

The social aspect of history taking provides facts for tracing the patient should she default from the clinic, as such, her full name and address are obtained. Her socio-economic status could also be assessed by finding out her occupation and that of her husband. If her work is of a strenuous nature, which may predispose to abortion and premature labour, she will be advised on adequate rest and the need for maternity leave. Find out about her age, marital status and her religions to avoid unnecessary conflicts of ideas in her management.

**Medical history**

This provides an idea of the patient's general health, there are some medical conditions which affect pregnancy adversely and some are aggravated by pregnancy. A few of these are anaemia, diabetes, hypertension, kidney and heart diseases, syphilis, pulmonary and bone tuberculosis and accidents involving the pelvis.

**Arms:** Check for pallor which can be a sign of anaemia. The hand may be oedematous.
**Vulva –** This is inspected for abnormal vaginal discharges, presence of warts, ulcers, varicose veins and oedema. If any of these is present, the patient is referred to a doctor for advice and treatment.
**The Legs** – Some leg deformities and the size of the patient's feet may give an idea of the pelvic size and shape. Pre-tibial oedema and varicose veins should be looked for.
**Examination of the woman** – Patient should be exposed as little as possible and the health worker must be gentle. Inspection, palpation and auscultation are the three ways used in obtaining the required information.
Inspection – The shape and size of the uterus are noted with a longitudinal lie and head presentation, the uterus is ovoid in shape. A big round uterus with full flanks may be due to multiple pregnancies, transverse lie, hydraminous or obesity. The presence of a scar in the abdomen must be questioned to exclude a previous operation on the uterus, foetal movements, skin pigmentation, striae gravidarum, the tone of the abdominal wall muscles and obliquity of the uterus must be noted.

Palpation – Palpation can be defined as the examination of the pregnant woman by touch or pressure of the hand over the part.

The hand is placed just below the xiplusternum in order to determine the height of the fundus and she presses gently, she moves her hand down the abdomen until she feels the curved upper border of the fundus noting the number of finger breadth that can be accommodated between the two fingers.

The height of the fundus correlates well with gestational age, especially during the earlier weeks of pregnancy.

Clinically assessing the uterine size to compare it with gestation does not always produce an accurate result of the size and number of fetuses and the amount of amniotic fluid vary.

Abdominal palpation can be described under the following:

Pelvic palpation

Lateral palpation

1. **Pelvic Palpation:** The midwife should ask the woman to band her knees slightly in order to relax the abdominal muscles and also suggest that she breath steadily, relaxation may be helpful if sights out slowly**.**

During the pelvic palpation, the lower region of the abdomen i.e. symphysis pubsis is grasped snugly between the palms of the hands with the finges held close together and pointing downwards and inwards

If head is presenting, hand mass with a distinctive round smooth surface will be felt.

2. **Lateral palpation:** This is used to locate the fetal back in order to determine position. The hands are placed on either side of the uterus at the level of the umbilicus. Gentle pressure is applied with alternate hands in order to detect which side of the uterus offers the greater resistance.

Auscultation – Finally, the foetal heart sounds are listened to either with a binaural stethoscope or the pinard foetal stethoscope. The foetal heart are faster than the maternal pulse rate and should not be confused with the uterine soufflés which are the same rate as the maternal pulse. Foetal heart sounds are usually heard at a point over the foetal back but it is not unusual to hear these at more than one point in such cases, the stethoscope should be moved round till the point of maximum intensity is reached.

### 3.5 Psychological changes due to pregnancy

This depends on whether the pregnancy is wanted or not. In addition, these changes are influenced by the general outlook of the woman. A woman's psychological or emotional tendencies and general outlook to life may affect her mental reaction to pregnancy.

Some of the causes of adverse emotional reaction to pregnancy include:

Poor socio-economic status i.e lack of financial support.

Poor relationship with the husbands

Unmarried pregnant mother

Anxiety over normalcy of the body

Poor environmental or living conditions

Fear of the unknown based on superstitions

Severe degrees of psychological changes observed in a pregnant woman should be reported to a doctor.

### 3.6 Physiological changes in pregnancy

When pregnancy occurs, menstruation ceases and returns some weeks or months after delivery. The hormones, progesterone and oestrogen, are produced in large quantity. These hormones exert some action on the various systems of the patient. The most outstanding of these changes is the growth which occurs in the uterus.

The pregnant uterus – The uterus will have increased so much in size that at the end of pregnancy, it measures approximately 30cm by 22.5cm by 20cm and weighs one kilogram. During pregnancy, the uterus becomes an abdominal organ and the abdominal girth at term is between 90 and 100cm.

The Vagina - the vagina grows slightly during pregnancy and it's lumen enlarges. It also becomes very vascular and has a violet colour. The vaginal secretion is increased and it becomes more acidic.

**The Vulva**- the labia minora become pigmented during pregnancy and appear violet in colour. The pigmentation is due to increased vascularity.

The fallopian tubes – The fallopian tubes are lifted out of the pelvis as the uterus grows.

**The Ovaries**

This become dormant during pregnancy and produce no ova.

**The Respiratory system**

The basal metabolic rate is increased during pregnancy. The volume of tidal air which enters and leaves the lungs during normal respiration becomes slightly increased.

**Urinary system**
The uterus presses on the bladder in early and late pregnancy and increases the frequency of micturition.

**Digestive system**
Nausea and morning sickness occur during the first three months of pregnancy in about 50% of pregnant women. The plain muscles in the stomach and intestines are also affected by the hormone progesterone. Indigestion, heart burn and constipation are, therefore, very common in pregnancy.

**Skeletal system**
The gait of the patient changes as the balance of the body is altered by the weight of the uterus. The joints show an increased range of movements due to relaxing effect of the hormones on the ligaments.

**Nervous system**
Emotional instability is common in pregnancy. Anxiety, fear and even depression have been manifested during pregnancy.

**Skin Changes**
The skin of the abdomen stretches to accommodate the uterus and the extra fat deposits on the patient and thus small tears occur in the deeper layers of the skin. The scar from these tears are seen as irregular marks called striae gravidarum, similar scars may occur on breast and thighs.

**The breasts**
Some enlargement of the breasts is noticed as early as the fourth to sixth week of pregnancy. The increase is due to the growth of the glandular tissue and the ducts of the breast as a result of their stimulation by oestrogen and progesterone. The blood supply to the breasts is also increased, therefore dilated blood vessels, especially the veins are visible on the breasts. The nipples become prominent, the areola surrounding the nipple darkens and is called the primary areola.

**The Cardio vascular system**
The heart has a greater output during pregnancy so there is slight hypertrophy of the heart muscle.

The hormone progesterone causes relaxation of the plain muscles in the blood vessels. There is a tendency of sluggish circulation and varicosity of the veins.

A slight fall in blood pressure is known to occur during the second trimester, blood pressure is back to normal by about the $30^{th}$ week of pregnancy.

The total blood volume is increase.

The white blood count is increased during pregnancy. There is also an increase in the number of platelets and the level of fibrinogen.

### 3.7 Minor disorders of pregnancy

These refer to minor ailments of pregnancy experienced by most pregnant women, though they do not endanger life, but they can be very troublesome as to make the patients life miserable and may even distress her more than some serious disorders of pregnancy so the disorders should not be ignored but the patient should be reassured and advise the patient on a simple remedy to alleviate her symptoms.

- Morning sickness

The patient feels nauseated on rising in the morning; she may vomit or have nausea with excessive salivation.

Treatment – Patient should take easily digestible food, avoid starvation and dehydration, eat food rich in vitamins and mineral salt and adequate fluid intake.

- heartburn is a burning sensation in the mediasternum due to the effect of hydrochloric acid on the oesophagus. The cardiac sphinceter of the stomach is relaxed as a result of the effect of progesterone on plain muscles, there is a reflux of the stomach contents into the oesophagus especially when the patient adopts a recumbent position.

Rx

Patient reassured and advised to sit up for some time after meals and sleep with an extra pillow at night. Sucking of peppermint prescribed in some stubborn cases.

**Constipation**

This is a common complaint because of the relaxing effect of progesterone on the plain muscles of the intestinal wall.

Rx – Adequate intake of fluid, fruits and vegetables should prevent this.

**Varicose veins and hemorrhoids**

These are engorged superficial veins on the legs, the vulva and the anus. The anal ones are known as hemorrhoids. They are harmless at times though unsightly. If they are painful, oedematous and tend to ulcerate, medical advice must be sought immediately. The aectiology of varicose veins is the same as for constipation that is the effect of progesterone on plain muscles. Prolonged standing tends to worsen varicose veins.

Rx – Patient is advised to avoid standing for long periods.

- Affected leg could be bandaged with crepe bandage from below upwards before getting out of bed in the morning and the bandage must be removed at night.
- The leg should be elevated when the patient is resting or sitting and there should be free movement of the ankles to encourage good circulation of blood. Hemorrhoids are varicose veins in the anal canal. They may cause bleeding and sometimes they prolapsed and become external. Severe case should be referred to the doctor. Constipation should be avoided.

**Fainting and giddiness**

This could occur as a result of anaemia, cardiac impairment, sudden change in posture e.g. from lying to sitting position or standing for long periods in the sun, crowded and stuffy rooms could also predispose to fainting. A more serious cause of fainting is ruptured ectopic gestation.

Rx – obtain detailed history of fainting attack
-exclude signs of vaginal bleeding and shock
-after recovery advice the patient to avoid crowds, fatigue and excitement

**Glossitis and gingivitis**

This occur as a result of inadequate vitamin (especially vitamin B) and calcium intake as well as poor oral hygiene and is fairly common amongst pregnant women of low income class. They become underfed as well as malnourished and anaemia may occur.

Rx – Routine administration of Vitamin B complex
- encourage patient to eat food and fruits rich in vitamin B and Calcium, green vegetables, eggs and cheese.
- Improvement in oral hygiene.

**Itching**

This could be caused by striae gravidarum, poor personal hygiene, heat rash and minor skin diseases.

Rx
Regular daily baths and generous application of calamine lotion or talcum powder could be soothing to the skin.

**Backache and joint pains**

These are more common in tired multiparous women with bad posture.

Rx – Rest and assumption of a good posture and use of flat shoes may ease the pain.
- Patient should be reassured and encouraged to rest.

**Frequency of micturition**

During the first 12 weeks of pregnancy, before the uterus rises out of the pelvis, there is slightly increased pressure on the bladder. The same applies in late pregnancy when the foetal head sinks into the pelvis. The patients sleep is disturbed.

Rx – patient should be encouraged to sleep in the afternoon to make up for the poor night sleep.
Reassure the patient

**Insomnia**

This can occur anytime but it is more usual in late pregnancy.

Rx – Tell her to have a warm bath last thing at night
-a drink of a warm beverage

- sleep in a cool airy room.

**Cramp**

Cramp of the legs is quite common which can be attributed to deficiency in Vitamin B, calcium and chlorides

Rx- Extra amount of these substances are sometimes prescribed.

## 4.0 Conclusion

In this unit, you have been able to go through pregnancy, its signs and symptoms, the antenatal assessment of a pregnant woman, psychological and physiological changes that occur in pregnancy and some minor disorders women go through during pregnancy which one cannot ignore as it can be detrimental to the woman's health. With this knowledge, you will be able to assist the pregnant women through pregnancy, labour and successful outcome of delivery.

## 5.0 Summary

In this unit, the concept of pregnancy was discussed, i.e. how to assess a pregnant woman during pregnancy, some minor disorders which should not be ignored as they can be detrimental to the woman's health and in the next unit you shall go through abnormal prenatal conditions that one needs to avoid in pregnancy to ensure life births.

## 6.0 TMA

1. List the positive signs of pregnancy
2. Explain the physiological changes that occur in the uterus and breast of the pregnant woman.
3. List the minor disorder of pregnancy.

## 7.0 References and other resources

Ojo, O. A. & Briggs, E. B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

Diane, M. F. & Cooper, M. A. (2003). Myles Textbook for Midwives, fourteenth edition, Printed in China.

**UNIT 6 HIGH RISK PREGNANCY**

**TABLE OF CONTENT**



## 1.0 Introduction

In this unit, as read in the course guide to you, you will learn about high risk pregnancy, what it is, those women who are in the category and how they can be managed through pregnancy and labour so that they can have safe delivery of healthy baby and also be in good health.

## 2.0 Objective

At the end of this unit you should be able to:
Define high risk pregnancy
Know those classified as high risk
Explain their management

## 3.0 Main Content

**3.1** Definition of high risk pregnancy

A high risk pregnancy can be defined as a pregnancy in which the outcome is bound to be poor for the mother and the foetus.

3.2 High risk women

These are women whose conditions(s) place them in a risky state during pregnancy, labour or after delivery.

The following conditions should place any pregnant woman in the category of high risk.

1. Cardiac disease
2. hypertension
3. renal disease
4. Diabetes mellitus
5. Pulmonary tuberculosis
6. Anaemia
7. Abnormal haemoglobin e.g. Hb, SS and Hb, SC

8. Pre Eclampsia
9. Eclampsia
10. Short maternal stature – contracted pelvis
11. Multiple pregnancy
12. Abnormal lie of the foetus in late pregnancy
13. Antepartum haemorrhage
14. Old age pregnant woman e.g. 30 or above
15. Primigravida
16. Teenage pregnancy especially below 17 years
17. Previous history of

- Recurrent abortion, still births and neonatal deaths
- Caesarean section
- Post partum haemorrhage
- Retained placenta
- Rupture of the uterus
- Prolonged labour/obstructed labour
- Multiparity e.g. five or more deliveries

Other conditions include:

(i) Premature rupture of membrane
(ii) Premature onset of labour
(iii) Postmaturity
(iv) Intra-uterine growth retardation

### 3.3 Special test for assessing high risk pregnancies

Although there are various diagnostic tests that can confirm a pregnancy to be high risk; the test will depend on the condition of the woman and the suspected condition of the foetus. Some of the diagnostic test includes:

1. Physical examination and urine testing

Physical examination which include palpation, observation, auscultation and inspection: this method may be used to diagnose conditions like:

- Intra-uterine growth retardation (when there is pedal oedema, hypertension and proteinuria).
- Abnormal lie of the foetus and multiple pregnancy can be detected during palpation.
- Diabetes mellitus and renal disease can be diagnosed through urine testing.
- Cephalopelvic disproportion can be detected through observation and pelvis examination.

2. History taking

This can be used to detect past medical, social and other predisposing factors. Conditions that can be detected through history taking may include:

- Prolonged labour
- Recurrent abortions
- Old age pregnancy

- Previous case of antepartum haemorrhage
- Caesarean section
- Multiparity

**3. Oestriol estimation test**

Since oestriol is an end product of the metabolism of oestrogen. In the presence of placental insufficiency, the level oestriol excretion in the urine is low less than 5mg/litre on the other hand, if placental function is good, urinary oestriol is of the order of about 10-12 mg/litre. Measurement of urinary oestriol is therefore, an indirect method of assessing placental function.

**4. Non-stress test**

In the non-stress test the reaction of the foetal heart in response to foetal movements is observed. If in response to foetal movements, the foetal heart rate increases it is presumed to be a sign of foetal well-being and good placental function.

Other test may include:

5. Lecithin/sphingomyelin ratio
6. Oxytocin challenge test

### 3.4 The management of labour in high risk pregnancy

The management of high risk cases should be in a well-equipped and adequately staffed hospital. At the same time, it should be noted that all high risk pregnancies should be transferred or referred before labour to avoid complications.

**Management/during labour**

(a) Constant quarter – hourly chart of foetal heart rate should be kept.
(b) Strength and frequency of uterine contractions.
(c) Patient pulse should be checked and recorded quarter hourly.
(d) Blood pressure should also be checked quarter – hourly and recorded.
(e) Intake and output chart should be scruptiously kept to ascertain renal function
(f) All urine specimens should be tested for sugar, albumin and acetone
(g) Any untoward development should be reported to the physician.
(h) Preparation for intravenous infusions, blood transfusion forceps delivery, vacuum extraction or caesarean section should be made in all high risk cases in labour.
(i) Lastly, all events and nursing intervention from the onset of labour should be adequate and clearly recorded and report should be made to appropriate authority for necessary action i.e head nurse.

## 4.0 Conclusion

In this unit, high risk patients were discussed as to who they are and their management during labour through delivery.

## 5.0 Summary

This unit has been able to explain about high risk mothers, special tests to diagnose those who are affected and their management and in the next unit conditions complicating pregnancy will be discussed.

## 6.0 Tutors Marked Assignment

1. What do you understand by high risk pregnancy?
2. List 10 types of high risk women
3. Explain the management of high risk women in labour

## 7.0 References:

Ojo, O. A. & Briggs, E.B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

Diane, M. F. & Cooper, M.A. (2003), Myles Textbook for Midwives, fourteenth edition, Printed in China.

# MODULE TWO

# COURSE MATERIAL

## PHS 424 PRIMARY EMERGENCY OBSTETRIC CARE

**COURSE DEVELOPMENT**

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**Unit 7:**Conditions Complicating Pregnancy

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### 1.0 Introduction

In this unit, you are going to study about some of the conditions which may complicate pregnancy such as anaemia, malaria, hypertension in pregnancy and also pre-clampsia and eclampsia which can contribute to increase maternal mortality.

### 2.0. Objectives

At the end of this unit, you should be able to
define the conditions complicating pregnancy explain
all you know about anaemia in pregnancy explain all
you know about malaria in pregnancy explain all you
know about hypertension in pregnancy explain all you
know about pre clampsia
explain all you know about eclampsia

### 3.0. Main content

### 3.1. Definition of conditions complicating pregnancy

These are some medical conditions that happen because pregnancy has lowered the acquired immunity of the body or due to the physiological changes that take place in some system or organs of the body such as the heart, lungs, etc.

### 3.2. Anaemia in pregnancy

3.2.1. Definition

Anaemia in pregnancy is a condition in which there is reduction below normal in the quality and quantity of the red blood cells resulting in the decreased oxygen carrying capital of the haemoglobin in the blood.

### 3.2.2. Diagnosis of anaemia

- Screening of patient for anaemia
- Social and dietary history taken including date of last menstrual period
- Examine the conjunctival, tongue, lips, palms of the hands, nail beds and soles of the feet for pallor
- Blood specimen is obtained for sickling cellos, malaria parasite (MP) and haemoglobin

### 3.2.3. Estimation and packed cell blood volume

- Stool is examined for ova of worms and parasites
- Urine specimen for culture and sensitivity
- In severe anaemia, observe for signs of heart failure. Such as breathlessness, cough, oedema of ankles etc.
- Chest x-ray examination to rule out pulmonary tuberculosis especially in unbooked patients

### 3.2.4. Degrees of anaemia

We have mild moderate and severe

1. Mild anaemia: The haemoglobin level is below 10.4-11 gm:
   Management – manage as an outpatient
   - Dietary advice is given on sources of iron
   - Iron supplements e.g. ferrous sulphate 200mg thrice daily plus folic acid tablet 5mg daily
   - Treatment of malaria and worm infestation if identified during investigation of blood and stool.
2. Moderate anaemia – The haemoglobin level is 8.1gm. management – higher doses of iron supplement of ferrous sulphate 200mg thrice daily, folic 5 acid mg daily throughout pregnancy is givem.
   - Advice on foods rich in iron, protein, and vitamin C
   - Treatment of malaria and worm infestation if present after investigation
   - Check haemoglobin at every visit for the rest of the pregnancy
3. Severe anaemia – This is when the haemoglobin level is below 8gm.

### 3.2.5. Hospital Management of severe anaemia

- Admit for rest
- Avoid giving of sedatives
- Prop patient up in bed to allow for easy breathing and prevent congestion of the lungs
- Monitor maternal and foetal heart rates closely
- check temperature 4 hourly, pulse and foetal heart rate half hourly
- monitor intake and output charts
- record any abnormal variations
- give high protein diet rich in green vegetables and vitamin C
- give fresh fruits and nourishing drinks to augument the diet

3.2.6 **Management in labour**

- Maintain strict asepsis
- Give antibiotics if membranes have ruptured for more than 12 hours
- Watch for signs of heart failure
- Prevent delayed labour
- Give episiotomy to shorten the second stage
- Give syntometrine intramuscularly after delivery of the baby
- Deliver the placenta by controlled cord traction
- Examine intake and output chart in the first 48 hours post partum

3.2.7 **Follow up**

Re-check haemoglobin 48 hours post delivery

- Advice on nutrition
- Continue with iron therapy if still pale
- Explain the importance of keeping post-natal appointment

3.2.8. **Advice on discharge**

Give information on food rich in iron, protein and vitamins

- Advice on use of iron supplements to argument diet
- Educate on taking of iron drugs after meals with fruits juices or vitamin C to enhance absorption
- Remind her of family planning
- Advice on keeping of aseptic techniques in order to avoid infection

3.2.9. **Prevention**

- Identification of risk factors for haemorrhage and managing them appropriately
- Use of iron supplements for all pregnant women throughout pregnancy
- Identification and treatment of malaria and worm infestations
- Prophylactic treatment of malaria and worm infestation
- Educate on nutrition
- Check for other signs of infections or diseases e.g. urinary tract infections and pulmonary tuberculosis
- Check haemoglobin
- Emphasizes personal and environmental hygiene
- Advice on sleeping under treated nets to prevent mosquito bite
- Advice on child spacing after delivery

## 3.3 Malaria in pregnancy

### 3.3.1. Definition of malaria in pregnancy

Malaria is a febrile condition in pregnancy by malaria parasites. It is a common complication in the tropical environment and one of the major causes of high maternal and neonatal morbidity and mortality rates in the tropics.

### 3.3.2. Mode of transmission

When infected female mosquito bites a person, it drops the parasites into the blood, these parasites reproduce in the human blood. When mosquito bites infected person, it carries the parasites in it's stomach and goes on to bite and infect it's new victim.

### 3.3.3. Signs and symptoms of malaria

- High grade fever
- Shivering, chills and rigors
- Headaches
- Muscle pains
- General body and joint pains
- Gastro intestinal disturbance such as nausea and vomiting
- Loss of appetite
- Lethargy, weakness
- False labour pain

In severe infestation

- Pallor due to anaemia
- Jaundice due to excessive destruction of the red blood cells
- Dehydration
- Patient is ill-looking
- Vomiting

### 3.3.4 Management

- Reassure the patient and her relatives
- Take history
- Assess or observe general appearance, if looking ill, pale, weak or lethargic
- Assess patient for pyrexia (temperature 38°C or more), vomiting, joint or abdominal pains and uterine contractions
- Check for signs of dehydration (dry lips, skin and furcoated tongue) and anaemia
- Take and record temperature, pulse, respiration and blood pressure
- Palpate abdomen and check foetal heart, rate or tone
- Expose to fan or tepid sponge, the patient
- Obtain urine specimen and test for glucose, protein and acetone
- Take blood sample for packed cell volume (PCVC), haemoglobin estimation, full blood count and malaria parasites

### 3.3.5. Treatment of malaria in pregnancy

- Anti-pyretic/analgesic e.g. paracetamol 1gm (2 tabs) tds x 3 days
- Chloroquine

Day 1**:**4 tabs (600mg) of chloroquine phosphate
Day 2:4 tabs (600mg) of chloroquine phosphate
Day 3:2 tabs (300mg) of chloroquine phosphate

If patient does not tolerate chloroquine, give artemisine/Artesunate based combination drug e.g. sulfadoxine phyrimethamine (SP).
The world health organization (WHO) recommends that all pregnant women should receive doses of Intermittent preventive treatment (IPT) after quickening, during routinely scheduled ante natal visits, 3 dose after quickening is recommended at 4 weekly (monthly intervals).

### 3.3.6. Effects of malaria on

**Pregnant women –** all women in malaria endemic areas are at risk

- Maternal death
- Anaemia in pregnancy

**Unborn babies**

- Placental insufficiency
- Spontaneous abortion increases
- Preterm delivery
- Low birth weight
- Neonatal mortality
- Still birth

**Family**

- Poor family relationship
- Decreased income for the family

### 3.3.7. Prevention and control of malaria in pregnancy

- Focus antenatal care (four visits) with health education
- Give health education about prevention of malaria
- Use of insecticides treated nets (ITNS)
- All pregnant women should sleep under ITNS

## 3.4 Hypertensive disorders of pregnancy

**3.4.1. Definition of hypertensive disorders of pregnancy** This is the term used for all hypertensive conditions occurring during pregnancy. These conditions include chronic hypertension/essential hypertension, chronic hypertension with super-imposed pre-eclampia and eclampsia.

**3.4.2** A rise in blood pressure above the normal level i.e. blood pressure reading of 140/90 mmhg after 20 weeks of pregnancy-frontal headache – heart bumproteinuria, oedema.

### 3.4.3. Effect of hypertension on pregnancy

- Cause increase in maternal morbidity
- pre eclampsia may set in
- Cerebral haemorrhage may set in
- Acute renal failure
- Incidence of abortion is high
- Intra uterine death of the foetus
- Premature onset of labour

### 3.4.4. Management of hypertension in pregnancy

- Bed rest is essential – adequate rest during the day and a good sleep at night must be ensured.
- Nurse patient on the left lateral position to improve blood flow to the placental sites.
- Monitor blood pressure 4 hourly (day and night)
- Test urine for protein
- Assess oedema daily
- Evaluate weight and patella reflexes daily
- Monitor foetal movements
- Ensure and maintain quiet environment in case of seizures
- Make available oxygen, suction machine, pads for bed rails
- Observe patient closely and document your findings
- Administer prescribed Anti-hypertensive and sedative

**Obstetric Management**

Patients with hypertension in pregnancy are not allowed to carry their pregnancies beyond term. In the mild to moderate cases, labour is induced by artificial rupture of membranes at about 38-40 weeks. In severe cases, labour is induced at about 36 weeks and if progress is slow, labour is terminated by caesarean section to avoid eclampsia.

**Complications** of hypertension in pregnancy

- Severe pre-eclampsia and eclampsia
- Hepatitis, jaundice
- Pulmonary oedema
- Acute and chronic renal failure
- Abruptio placenta
- Perinatal morbidity and mortality
- Maternal death

## 3.5. Pre-Eclampsia

### 3.5.1. Definition of pre-eclampsia

This is a condtion occurring after the $28^{th}$ week of gestation, characterized by the presence of any of the following signs:

- Oedema or excessive gain in weight
- Hypertension
- Albuminuria

  Of these signs, albuminuria is usually the last to occur and it's occurrence may mean a worsening of the condition because of impaired renal function.

### 3.5.2. Types – we have mild, moderate and severe type

### 3.5.3. Causes of pre-eclampsia

Pre-eclampsia is more commonly seen in the following types of patients-

- Primigravida – very young and elderly
- Any patient with overdistension of the abdomen, as in a multiple pregnancy and hydraminous

- In patient with severe hypertension in pregnancy
- A diabetic patient
- A patient suffering from chronic nephritis
- A patient with hydatidiform mole

### 3.5.4. Signs and symptoms of pre-eclampsia

- Sudden sharp rise in the blood pressure
- Increasing oedema and albuminuria
- Diminished urinary output
- Severe headache, usually frontal
- Visual disturbance e.g. dimness or blurring of vision, flashes of light
- Epigastric pain
- Vomiting
- Drowsiness

### 3.5.5. Management of Pre-eclampsia

- of investigation and foetal well-being.
  In moderate and severe type,
- Admit for rest
- Reassure patient and relatives
- Nurse patient on the left lateral position to improve blood flow to the placenta
- Check blood pressure 4 hourly
- Check urine, oedema and reflexes daily
- Ensure adequate normal diet and copious fluid intake
- Give magnesium sulphate 10mg intramuscularly to prevent convulsions
- Refer if her condition does not improve or get worse within 24 to 48 hours

3.5.6 Complications of severe preeclampsia
-Eclampsia
-Hepatitis
-Pulmonary oedema
-Acute and chronic renal failure
-Prenatal morbidity and mortality
-Maternal death

## 3.6 Eclampsia

### 3.6.1. Definition of Eclampsia

Eclampsia is a condition characterized by repeated fits which may endanger the patient's life if nothing is done in good time.

### 3.6.2 Stages of an Eclamptic fit

1. Premonitory stage – In this stage, the patient may fall unconscious, she rolls her eyes and the head is drawn to one side.

2. **Tonic stage** – The patient becomes rigid because there is generalized contraction of the muscles of the body. The teeth and fists are clenched, eyes staring, the feet are inverted with the toes flexed.
3. **Clonic stage:** This is a stage during which the muscles relax and contract alternatively. There is a great deal of jerky body movement and the patient can easily be thrown out of bed if not supervised
4. **Coma :** The patient soon goes into come after the clonic stage. She becomes deeply unconscious and her breathing is stertorous

### 3.6.3. Management of Eclamptic fit

- Immediate treatment of an eclamptic seizure
- Stabilize patient by controlling an preventing further convulsions
- Do not attempt to shorten or abort initial seizure
- Place the patient in the recovery position – left lateral and tilt head
- Secure and maintain clear airways – insert plastic airways into the mouth
- Give oxygen via a face mask
- Prevent aspiration/injury by regular suctioning, use of guard rail, padded tongue blade/spatula
- Monitor heart rate and respiration quarter hourly
- Control hypertension – give anti-hypertensive to reduce the blood pressure
- Oral hygiene
- Care of the bladder
- Care of the bowels
- Bed bathing
- Diet

### 3.6.4 Principles of treatment of Eclampsia

- Protect the maternal airways
- Control convulsions
- Prevent further convulsions
- Treat severe hypertension
- Monitor fluid balance
- Deliver the woman safely as soon as possible
- Treat any complications that may arise

### 3.6.5. Complications of Eclampsia

- Abruptio placenta
- Neurological deficit
- Aspiration Pneumonia
- Pulmonary oedema
- Cardio pulmonary arrest
- Acute renal failure
- Maternal and perinatal death

## 4.0 Conclusion

In this unit, you have been able to learn what diseases complicating pregnancy are such as anaemia, malaria, hypertension in pregnancy, pre-eclampsia and eclampsia and how this can have effect on the pregnant woman and the foetus so that you will be able to cater for such when you see them around you.

## 5.0 Summary

You have been able to study anaemia, malaria and hypertension in pregnancy, pre-eclampsia and Eclampsia and how it can contribute to raise maternal, child mortality rate so that you can contribute in preventing or treating those cases to reduce maternal, child mortality rate in the country. In the next unit, abortion will be discussed.

## 6.0 T.M.A

1. Define Anaemia in pregnancy
2. List the effect of malaria on the mother and the unborn baby
3. List the effect of hypertension on pregnancy
4. List 6 signs and symptoms of pre-eclampsia
5. Define Eclampsia
6. List the principles of treatment of Eclampsia

## 7.0 References of other resources

Ojo, O. A. & Briggs, E.B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

Adesokan, F. O. (2009) Reproductive health for all, 1st edition, Excels production: Akure.

## UNIT 8 ABORTION

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### 1.0 Introduction

In this unit, you will go through what abortion is as it is the most common cause of bleeding in early pregnancy and in understanding the causes, and managements, you will be able to be of help to women who may need the care.

### 2.0 Objective

At the end of this unit, you will be able to:
Define abortion
Classify abortion
List the complications of abortion
Manage the cases of abortion

### 3.0 Main Content

### 3.1 Definition of abortion

Abortion can be defined as the death or expulsion of product of conception either spontaneously or by induction before $28^{th}$ week of pregnancy.
The term abortion may be used interchangeably with miscarriage especially when it is spontaneous in occurrence.

### 3.2 Incidence

Between 10% - 60% of all pregnancies terminate through induced abortion (i.e. legally or illegally). While about 10%-15% of pregnancies terminate through

spontaneous miscarriage. Any miscarriage that occur within the first 12 weeks of pregnancy are classed as early miscarriage; while those occurring after the 13th week but not later than 28th week of pregnancy are classed as late miscarriage.

### 3.3 Aetiology

The causes of miscarriage in most instances remain unknown, but may include the following:

1. Fetal causes:

* Chromosomal abnormalities – 50% of miscarriages are due to chromosome abnormalities of the conceptus
* Foetal maltormation or abnormality of the foetus
* Genetic and structural abnormalities

2. Maternal causes

* Maternal age – the risk of miscarriage increases with increase in maternal age.
* Structural abnormalities of the genital tract – these include retroversion of uterus, bicornuate uterus and fibroids.
* Infections – these include rubella, malaria, Chlamydia, pyelonephritis and some other infections like gonorrhea.
* Maternal disease – these disease include diabetic mellitus, hypertension, renal diseases and thyroid dysfunction and tuberculosis.
* Poor nutrition – these can lead to severe anaemia and consequently into fetal growth retardation
* Effect of drugs such as quinine, Anaesthetic gases and drugs used for malignancy (cancer).
* Psychological factors – these include any extreme emotional imbalance e.g. news of death of loved ones
* Life style – These are also environmental factors such as excessive consumption of alcohol and coffee along with cigarette smoking.
* ABO incompatibility between mother and the foetus may also result in abortion.

### 3.4 Classification of abortion

Abortion is broadly classified into two types: spontaneous and induced abortion. Spontaneous abortion may lead into threatened abortion, threatened may lead to missed, inevitable or it may go to term (where a viable infant is born). When it is inevitable abortion, it may lead to complete then to habitual abortion or it may lead to incomplete and subsequently a septic abortion. Missed abortion leads to blood mole and then to carneous mole.

While at the other side, when it is induced abortion, it depends on whether it is therapeutic or criminal abortion. When it is therapeutic, it seldomly lead to septic abortion. But when it is a criminal abortion, it may be complete or incomplete, however in both cases they often lead to septic abortion. This classification can be illustrated by the diagram below.

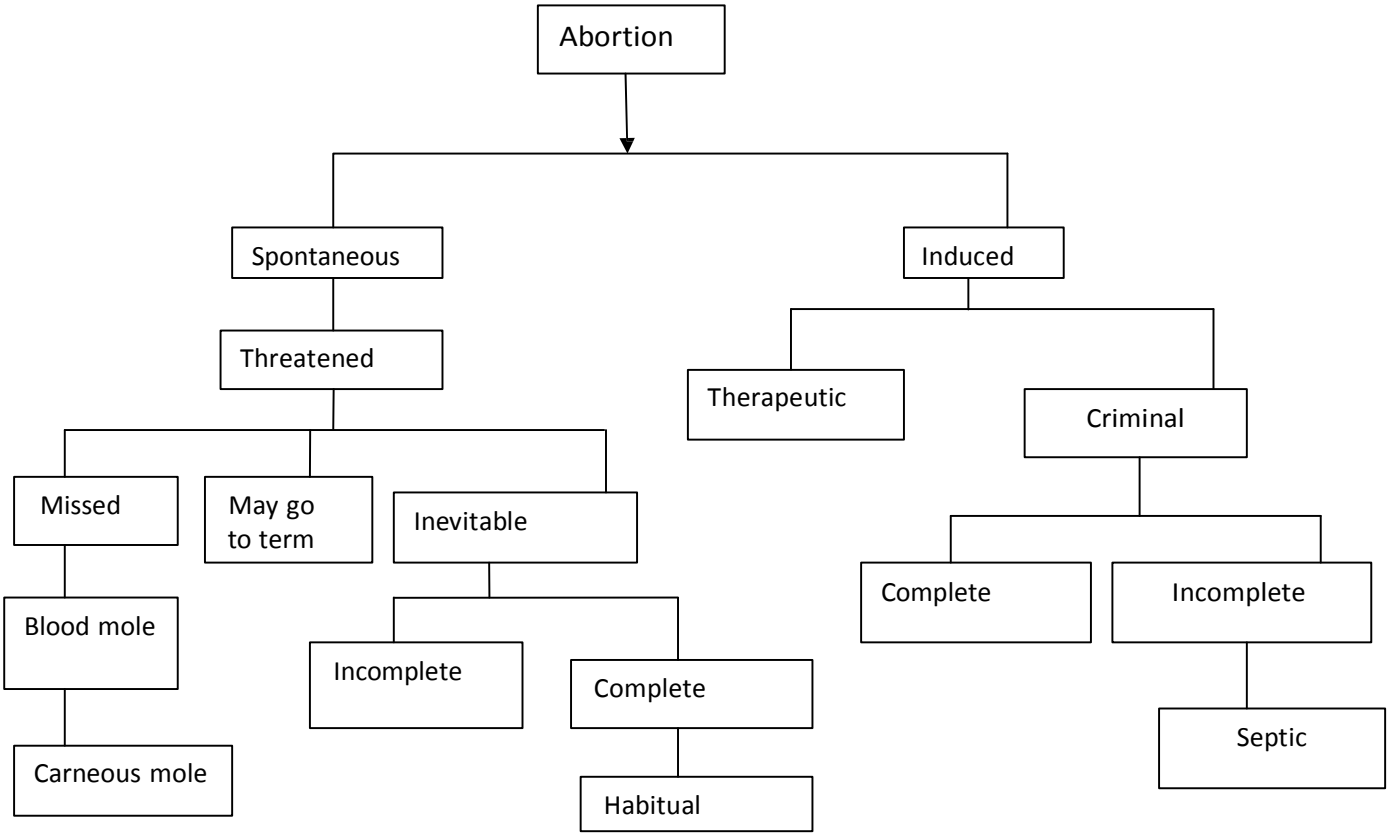


Diagram showing the classification of abortion

**3.5.0** Spontaneous miscarriage

Spontaneous miscarriage is defined as the involuntary loss of the products of conception prior to 28$^{th}$ week of gestation.

The cause of spontaneous miscarriage can either be maternal or foetal as discussed above. Hence, we shall go into the classification of spontaneous abortion.

**3.5.1 Classification of spontaneous abortion**

The classes of spontaneous abortion are:

(a) Threatened abortion
(b) Inevitable
- Complete
(c) Habitual or recurrent abortion
(d) Missed abortion
(e) Blood and carneous mole

**(a) Threatened abortion**

In threatened abortion, the disturbance to the pregnancy is so slight that the pregnancy may continue to term with good management. In a threatened abortion, the blood loss may be scanty, with or without low back pain.

The pain may resemble dysmenorrhoea (Moulder 2001). On the other hand, the damage may be progressive resulting in massive separation of placenta and dilation of the

cervix. In this situation, the miscarriage (abortion) may result in either of these two forms: missed or inevitable abortion.

(b) Inevitable abortion

This abortion occur when the pregnancy cannot continue after its interruption. It occur when the contraction fail to subside. Bleeding becomes bright red and increases in amount and some clots may even be expelled. Inevitable abortion may end up as one or any of the following:

- Complete abortion – In which case the whole product of conception is expelled. After that, pain and vaginal bleeding decrease. The cervix reforms and the uterus becomes smaller in size. Complete abortion is more common before the $8^{th}$ week of pregnancy.
- Incomplete abortion – In this case, part of the product of conception, usually the foetus is expelled but the placenta and membranes are retained. The bleeding continues and may become profuse. There is pain as well as backache, the cervical OS is usually open and the uterus remains bulky because there is no efficient contraction and retraction of the uterus due to the presence of the retained products.

(c) Habitual abortion

The term habitual abortion is used when a patient has had three or more consecutive spontaneous abortions. Often the cause of such abortion is not known but some have been attributed to incompetence of cervical OS resulting from previous trauma to the cervix. However, investigation should be carried out to exclude maternal diseases such as diabetes mellitus, Nephritis, and tuberculosis. Local lesions such as cervical erosions, fibroid and uterine displacement.

**Clinical Features of habitual abortion**

1. The abortion occurs in late second trimester usually between $22^{nd}$ and $24^{th}$ week of pregnancy.
2. There may be no previous warning i.e. vaginal bleeding: the membranes may rupture suddenly followed by expulsion of the products of conception.
3. The abortous looks fresh

**(d) Missed abortion**

This is a probable outcome of threatened abortion where the foetus dies and is retained in utero. In this case, the signs of threatened abortion subside except for some brownish discharge which is not associated with pain. The uterus fails to grow, the breast become soft and other signs of pregnancy disappear. However, the dead foetus may be retained for varying periods of time usually 30 weeks which its prolonged retention may occasionally lead to profuse vaginal bleeding.

(e) Blood and carneous mole

Blood mole may arise in cases of missed abortion in which the decidual capillaries remains intact and permits the zygote to be surrounded by layers of blood. When fluid is extracted from the blood the fleshy, firm, hard mass obtained is known as carneous mole.

**3.6.0 Induced abortion**

This is an abortion brought about by human interference either by therapeutic or criminal method.

The amendments of the abortion Act 1967 came into force in 1991; there made the termination of pregnancy legal in certain circumstances.

**3.6.1 Circumstances for induced abortion in UK**

(a) If the continuity of the pregnancy will have greater risk for mothers physical or mental health

(b) If the pregnancy will be detrimental on the health and well being of the existing children in the family.

(c) If there is a substantial risk that the child when born would suffer from multiple mental or physical abnormalities

**3.6.2 Classification of induced abortion**

Induced abortion can be classified into two:

(a) Therapeutic (b) criminal abortion

**(a) Therapeutic abortion**

Therapeutic abortion is evacuation of the uterus done by a qualified medical practitioner in the interest of the mothers life or her total well being. The indications are usually medical conditions that may threaten the mothers life or cause gross foetal abnormalities. The condition may include: cardiac disease, chronic nephritis and german measles. However no matter what both the husband and wife must give and sign consent form before inducing abortion.

(b) **Criminal abortion**

Criminal abortion is illegally procured. Such abortions are often done by unqualified persons having little regard for the consequences. Risks of sepsis, uterine perforation, cervical laceration and haemorrhage are associated with criminal abortion. Criminal abortions are largely responsible for a high percentage of infertility and maternal morbidity.

(c) **Septic abortion**

This is usually a sequel of incomplete abortion, often criminally induced in which there is invasion of pathogenic organism. The patient is anaemic, ill with a high temperature, rapid pulse, headache, vomiting, lower abdominal pain, the lochia are profuse and offensive and there may also be shock. The patient becomes jaundiced and looks toxic, especially when the condition is complicated by septicaemia.

**3.7 Complications of abortion**

These may include:

- Haemorrhage
- Infection
- Perforated uterus
- Damage of vulva, uterus and neighbouring organs

- Infertility
- Vesico and recto vaginal fistulae
- Risk of breast cancer
- Emotional imbalance
- Shock
- Allergic reaction to drugs or instruments used during abortion especially in induced abortion.
- Scaring and or fibroid of uterus lining
- Tearing of the cervix.

### 3.8 Management of complications of abortion

The proper management of the complications of abortion primarily depend on the cause and type of the abortion. But generally, abortion and complications of abortion can be effectively managed by the following steps.

- Admit patient into a separate room
- Observation of patient and proper examination
- Haemorrhage should be controlled if there is any. Also this can be done by administration of Ergometrine 0.5mg intramuscularly
- Replace loss blood and other body fluid.
- Regulate and monitor infusion and transfusion line.
- Patient should be placed on complete bed rest
- Patient should be treated for shock if there is any sign of shock
- Blood loss should be adequately inspected for colour, quantity and tissues or cloth that may be present
- Specimen should be collected, filled (name, age, sex, bed number of patient and send to the laboratory and the rest of the blood should be disinfected and adequately discarded.
- The patient should be reassured to relief her anxiety.
- Vital signs should be monitored four hourly for the first 72 hours and later twice a day to monitor progress in health status.
- An analgesic and sometimes with mild sedative may be administered to relief pain and keep the patient calm.
- In some cases (especially in incomplete abortion) dilation and curettage may be required which should be done under aseptic technique.
- Ultrasonic scan should be done to ascertain if there is any retain tissue or the tissue is empty.
- Proper and adequate nutrition should be encouraged
- Patient should be assisted in physical care which includes oral toilet, assisted bathroom bath, hair care and perineal care.
- On discharge, she

  Should be advised to abstain from sex for at least one month

  Should be advised not to lift any heavy object

  Should adhere strictly to her drugs usage

  Should report to the hospital if there is any untoward changes

Should be health educated on personal hygiene especially perineal care
Should be taught how to do hot sit bath if need be
Should be enlightened on ways of preventing reoccurrence of such abortion.

**4.0 Conclusion**

In this unit, you have been able to go through what abortion is, the incidence, classification, causes, complications and management of abortion.

**5.0 Summary**

This unit has been able to enlighten you on what abortion is, its causes, classification, complication and management of abortion in the next unit, we shall go through antepartum haemorrhage, it's causes and management.

**6.0 TMA**

1. Define abortion
2. With the aid of a diagram, classify abortion\
3. List the complications of abortion

**7.0** References

Ojo, O. A. & Briggs, E. B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

Diane, M. F. & Cooper, M. A (2003). Myles textbook for Midwives, fourteenth edition, Printed in China.

## Unit 9: ANTEPARTUM HAEMORRHAGE (APH)

### TABLE OF CONTENTS



**1.0 Introduction**

In this unit, you will go through what ante-partum haemorrhage is, differential diagnosis, classification and management of APH as it is an abnormal bleeding in pregnancy that should be prevented by all means in other to safeguard the safe delivery of a healthy living baby.

## 2.0 Introduction

At the end of this unit, you should be able to:
Define antepartum haemorrhage
Know the differential diagnosis of APH
Classify APH
Explain the management of APH

## 3.0 Main Content

**3.1** Antepartum Haemorrhage is the bleeding from the vagina during the second half of pregnancy, earlier labour commences or it can also be specify as the bleeding from the vagina after 28 weeks of pregnancy and before the birth of the baby. The bleeding is often due to premature separation of the placenta.

### 3.2 Classification of APH

Antepartum haemorrhage is classified according to the site of the placenta.

1. Accidental Antepartum haemorrhage is bleeding from premature separation of a placenta situated in the upper uterine segment.
2. APH due to placenta praevia or unavoidable APH is bleeding from a placenta situated partially or wholly in the lower uterine segment.
3. Unclassified APH – In this group of patients, there is neither evidence of placenta praevia nor of accidental haemorrhage. The cause of the bleeding may not be determined even after delivery. Usually such bleeding may be due to incidental findings such as cervical erosion and rarely, carcinoma of the cervix.

### 3.3 Differential diagnosis of APH

- Obstetric
  Obstetric
  Placenta
  Bloody show
  Placenta abrupt
  Placenta praevia
  Vasa praevia
  Uterus
  Uterine rupture

-Non-obstetric
  Bleeding from the lower genital tract
  Cervical bleeding – cervicitus, cervical neoplasm, cervical polyp
  Bleeding from the vagina itself – trauma neoplasm
  Bleeding that may be confused with vaginal bleeding
  Gastro intestinal bleed-haemorrhoids, inflammatory bowel disease.

Urinary tract bleed –urinary tract infection

**3.4 Causes of APH**

- Premature separation of the placenta
- Pregnancy induced hypertension

**3.5 Signs and symptoms of APH**

- Bleeding pervagina
- Severe hypertension
- Pain due to uterine contraction
- There may be shock

3.6 Effect of APH on the foetus and the mother

Effect on the foetus

Foetal mortality and morbidity are increased as a result of severe vaginal bleeding in pregnancy. Stillbirth or neonatal death may occur.

Premature placental separation and consequent hypoxia may result in severe neurological damage in the baby. Manolits et all in Myles (2003).

**Effect on the mother**

There may be shock and disseminated intravascular coagulation if bleeding is severe. Mother may die.

**3.7 Management of APH**

The management depends on:

The amount of bleeding

The condition of mother and foetus

The location of the placenta

The stage of the pregnancy

**Conservative management**

This is appropriate if bleeding is slight and the mother and foetus are well.

Admit the woman until the bleeding stops

Do a speculum examination to rule out incidental causes

Do ultrasound scans repeatedly at intervals in order to observe the position of the placenta in relation to the cervical os as the lower segment grows

Monitor foetal growth

Decide about how and when the woman will be delivered.

During delivery, try to prevent the occurrence of post partum haemorrhage.

**Active Management**

Severe vaginal bleeding will necessitate immediate delivery by caesarean section regardless for the location of the placenta and this should take place in a unit with facilities for the appropriate care of the newborn, especially if the baby will be preterm.

- Take blood for a full blood count, cross matching and clotting studies

- Intravenous infusion should be set up.
- Get ready several units of blood (which can be needed to be transfused quickly).
- Get consent from signed for an emergency caesarean section
  This management aims to prevent severe haemorrhage and possible maternal death.

## 4.0 Conclusion

In this unit, you have gone through what Antepartum haemorrhage is the types, causes, symptoms and management so as to enable you prevent it's occurrence.

## 5.0 Summary

You have been able to go through what Antepartum haemorrhage is in this unit, the causes, symptoms and management so that you will be knowledgeable and be ablt to manage such issue when it arise. In the next unit you will learn about labour.

## 6.0 TMA

1. Define Antepartum haemorrhage
2. List the causes of APH
3. Explain the active management of APH

## 7.0 References and other resources

Antepartumhae- Patient.co.uk???patientplus???Antepartumhaemorrhage.last update.5.May.2009

Ojo, O.A. & Briggs, E.B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

**PHS 424** **Primary Emergency Obstetric Care**

**UNIT 10: LABOUR**

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## 1.0 Introduction

In this unit as read in the course guide given to you, you will read through what labour is as a pregnant woman must go through labour successfully to have a safe delivery, knowing fully well that you have studied what pregnancy is, the care of pregnant women, it is necessary to learn how a pregnant woman will deliver safely.

## 2.0 Objectives

At the end of this unit, you will be able to:
Define labour
Know the causes of onset of labour
List the premonitory signs of labour
Describe the course of labour
Explain the stages of labour
Mention the physiological changes that occur during labour
Manage the stages of labour

## 3.0 Main Content

### 3.1 Definition of labour

Labour is the process by which the uterus empties its contents after the $28^{th}$ week of pregnancy. It entails the contraction and retraction of the uttering muscle fibres, the

dilation of the cervical os and the expulsion of the baby, liquor amnii, placenta and membranes.

### 3.2 The causes of Onset of labour

What initiates labour is not known, but many theories have been offered, some of them are:

1. Labour starts at term because of the overstretching and over distension of the uterus.
2. The placental efficiency is diminished towards terms resulting in reduction in the level of oestrogen and progesterone. The uterus become sensitive to the effect of oxytocin from the posterior pituitary glands and the patient goes into labour.
3. There is an increased contractibility of the uterus towards terms. Contractions increase and may bring about the onset of labour.
4. The onset of labour has also been associated with hyperpyrexia cyanosis and emotional upset.

### 3.3 Premonitory signs of labour

The presence of certain signs and symptoms often referred to as premonitory signs predict the approach of labour. They are:

A drop in fundal height occurs and the uterus looks almost pendulous ad the foetus sinks into the lower uterine segment which should be completely formed by the end of pregnancy. The signs are referred to as lightening and may occur two weeks before term.

Frequent maturation which occur because the foetal head presses on the bladder which is closely related to the lower uterine segment.

Patient may experience backache or pain on walking due to relaxation of the pelvic joints.

The cervix is soft, almost effaced and the cervix admits one or two finger tips. The pelvic floor and perineal muscles are relaxed.

Most patient tend to loose weight towards the end of pregnancy. This is believed to be a result of the reduction in the amount of liquor amnii at term.

False Labour – This consist of erratic, irregular uterine contractions which could be painful. The contractions appear stronger when the patient is in bed and weaker when she is up and about. They do not effect cervical dilation.

True Labour – This commences with uncomfortable contractions, slight at first, but increasing in severity and frequency later. They occur at regular interval. The cervix dilates as a result of the contractions.

### 3.4 The course of labour

The course of labour is influenced by the following factors:

Muscular activity of the uterus, the diaphragm, thoracic and abdominal muscles

The size, shape and the resistance of the birth canal including th bony pelvis, cervix uteri, vagina and the pelvic floor.

The size, lie and presentation of the foetus as well as the placenta and membranes.

The general health of the mother and her fortitude.

If these factors are favourable, the progress of labour should be normal and the process should be accomplished within 24 hours.

### 3.5 Stages of Labour

Though a continuous process, labour is divided into three stages for descriptive purposes.

1. The 1st stage of labour which is the period from the onset of regular uterine contractions to full dilation of the cervical os. It last 12-14 hours in primigravidae and 6-12 hours in multigravidae. The first stage of labour comprises:

- Painful uterine contractions
- Progressive dilation of the cervix
- Rupture of the membranes

2. The 2nd stage of labour starts from the full dilation of the cervical os to the complete expulsion of the body.
   It lasts about one hour in a primigravida and 5-30 minutes in a multigravida. Strong uterine contractions, descent of the head through the pelvis and the birth of the child are the features of the second stage of labour.
3. The 3rd stage of labour entails complete expulsion of the placenta and membranes usually within 5-15 minutes of the birth of the infant. The other feature of the 3rd stage, apart from the detachment and expulsion of the placenta, is the control of bleeding.
   Normal labour is that which starts spontaneously at term with the foetus presenting by the vertex and the process is accomplished within 24 hours by unaided maternal effort without any serious injury to the mother of infant.

### 3.6 Physiological changes of labour

- Contractions and retraction of the uterine muscle fibres – uterine contraction in labour are regular, intermittent and painful. The pain felt by the mother is associated with a certain degree of ischemia produced by the retraction of the muscles fibres, the pressure on the nerve endings and the resistance of the cervix and soft tissues of the birth canal. Though there is tightening of the abdomen during the contractions, the pain is felt most at the back, around the waist and down the thighs. It occurs a few seconds after the onset of a contraction, starting like a dull ache. It occurs a few seconds after the onset of a intense till it reaches a peak at the height of a uterine contraction after which it wears off gradually as the uterus relaxes. At the onset of labour contrcactions occur about once in fifteen minutes as labour progresses the intervals between contractions reduce gradually so that towards the end of the 1st stage the contractions occur once in two to three minutes.
- The dilation of the cervical OS – the cervical Os dilates as a result of the upward pull on the cervix and the lower uterine segment by the upper uterine segment, and the downward pressure of the foetus on the cervical canal. In normal cases, the foetal head fits snugly into the cervical canal. This contact stimulates the cervical nerves and good uterine contractions are produced. The contraction cause more pull on the cervix and further push the foetus downwards.
- Expulsion of the foetus – when the cervical OS is fully dilated, the genital tract becomes one continuous canal. The foetus descends into the vagina and stretches it

and thereby stimulates further good uterine contractions. These contractions are more intense and frequent than the contractions of the first stage. As the descending head reaches and presses on the rectum, the patient bears down with the contractions. Thus the contractions of the stage stage are expulsive in character if the forewaters is not yet ruptured, it will be ruptured at full dilation of the cervical OS. The uterine contractions and the bearing down efforts of the patient bring about further descent of the foetus. When the foetus reaches the levatores ani at the lowest third of the vagina, the muscles contract and direct the leading part of the foetus forward into the anteroposterior diameter of the pelvic outlet, this is often referred to as internal rotation. Further descent of the foetus is aided by the swing door action of the pelvic floor. The anterior segment of the pelvic floor muscles is drawn upwards while the posterior segment is pushed down in front of the presenting part. When the head reaches the anal canal, it presses on the anus which becomes flattened out. The perineal body is also flattened out as the head presses on it, thus the perineum becomes thinner and longer as the presenting part passes over it. There is gaping of the vagina as the foetus approaches the end of its journey and some of the rugae on the vaginal wall are ironed out. The head advances and recedes with the uterine contractions until the occiput escapes under the pubic arch and the biparetal diameter distends the vulva. It is then said to be crowned and it does not recede at the end of contractions. The head is delivered by extending movements of the neck and the body usually follows by lateral flexion.

- **Separation and delivery of the placenta**

The size of the uterus decreases with the birth of the baby and there is retraction of the placental site. This results in the separation of some portion of the placenta. Bleeding occurs at the area of separation and blood collects behind the placenta and forms a retroplacental clot. Uterine contractions occurring after the birth of the baby complete the separation of the placenta from the deciduas. Gravity makes the placenta descend into the lower uterine segment. The empty upper segment contracts more effectively into a hard round mobile mass. It is also pushed upwards by the placenta, lying now in the lower uterine segment. The umbilical cord may elongate at the vulva and the placenta may be seen in the vagina as it descends.

**Control of bleeding**

Bleeding from the torn blood sinuses is controlled even as the placenta is separating.
Contraction and retraction of the uterine muscle fibres prevent bleeding from the sinuses. The oblique fibres of the uterus are believed to play the most important role in constricting the uterine sinuses and arresting bleeding.

## 3.7 Management of Labour

During the management of labour you must be conscious of the fact that you are dealing with two lives and you must do your utmost to preserve it in good condition.
In managing labour, one must be skillful, be understanding and patient and should be able to do the following:
Satisfy both the physical and psychological needs of the patient, given general comfort, relieve pain, provide adequate and appropriate nourishment for the patient.

Ensure mental relaxation and eliminate fear by creating a serene and friendly atmosphere in the labour ward.

Reassure the patient and where her condition permits, hold useful discussions to keep her mind occupied.

Make careful vigilant observations and keep accurate records on both maternal and foetal conditions to detect early deviations from the normal.

Cope with abnormality and emergency efficiently – give life saving first aid treatment and then know when to call for help.

Maintain good aseptic and antiseptic techniques throughout labour in order to prevent infection.

4.0 Conclusion

5.0 Summary

6.0 TMA

1. Define Labour
2. Mention the causes of onset of labour
3. Describe the stages of labour

7.0 References & other resources

Ojo, O.A. & Briggs, E.B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

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### 1.0 Introduction

Reading through the course guide, you will find out that Episiotomy is one of what you should learn in this course, so all what you are supposed to know about Episiotomy will be learnt.

### 2.0 Objectives

At the end of this unit, you should be able to:
Define what Episiotomy is
State the indications for Episiotomy
Describe the types of Episiotomy
List the benefits of Episiotomy
Discuss the repair of Episiotomy and aftercare
Mention the complications of Episiotomy

### 3.0 Main Content

### 3.1 Definition of Episiotomy

Episiotomy is the surgical enlargement of the vaginal orifice by an incision of the perineum during delivery.

3.2 Types of Episiotomy

1. Midline episiotomy – This is the simplest type of episiotomy. A midline incision is made through the fourchette and perineal body and stops just before the anal sphincter.

   **Advantages** – It does not cut across the path of blood vessels and so there is very little bleeding. It is easy to suture.

**Disadvantages –** It may extend to involve the anal canal.

2. J-Shaped episiotomy – this is a modification of the postero-lateral episiotomy. A middle incision is made and carried on to a point 2.5cm above the anal orifice. From this point the incision is directed posterior laterally in order to avoid the anal sphincter and canal.

3. Medio – Lateral episiotomy – In this type, a lateral incision is made across the labia majora. It involves cutting across the part of the blood vessels and damage to the Bartholin's gland. Suturing may not be easy due to difficulty of obtaining good apposition of tissues. Therefore, a lateral episiotomy is not recommended in modern obstetrics.

### 3.3 Indications for Episiotomy

- When perineum threatens to tear
- Delay in second stage of labour due to soft tissue resistance
- Breech delivery
- Fetal distress
- Preterm labour
- Macrosomic baby

### 3.4 Benefits of Episiotomy

- Reduction in likelihood of third degree perineal tear
- Preserves pelvic floor relaxation so as to improve its sexual function and reduced risk of urinary and fecal incontinence.
- Episiotomy is easier to repair and heals better that laceration.
- For neonate, it reduces birth trauma

### 3.5 Repair of Episiotomy

An Episiotomy should be repaired as soon as possible to reduce the risk of wound sepsis and poor union which often occur when patient have to wait hours before repair of an Episiotomy.

In repairing episiotomy, materials needed for the suturing should be arranged before the commencement of suturing and aseptic technique should be adherently followed as this will prevent subsequent complications (i.e septicaemia). A good source of light is essential, patient is put in lithotomy or dosal position with legs well fexed and abducted which allow for clear view of the wound.

The vulva and the wound are thoroughly cleaned with hibitane 1,2000 or any available antiseptic lotion other aseptic precautions such as the wearing of mask, cap, sterile gown and gloves are observed. A gauze roll or tampon is inserted into the vagina to absorb blood and thereby keep a clear operation field.

The suturing (with vicryl is better than chromic catgut) should start from the apex and the vaginal musosa should be closed as continuous suture which should end at hymen ring.

The muscle layer are interposed with 3 or 4 uninterrupted suture.

The perineal skin is closed with subcuticular suture with no tension. (Technique of repair transfer here)

**Technique of repair**

The repair of episiotomy starts from the apex of the vagina wound. Number 0 or 1 chronic catgut mounted on a half curved, round bodied needle is used. Continuous or interrupted stitches are inserted starting from the apex to the fourchette and bringing the two edges of the wound together. The skin may be stutured with number 0 or 1 catgut or mersilk on a cutting needle. Care is taken to secure a proper alignment of the skin. The sutures should not be too tight otherwise oedema will form and prevent healing. At the end of the procedure, the gauze roll is removed, the anal canal and two fingers of the other hand in the vagina to ensure that no damage has been done to the rectum. If non-absorbable sutures were used for the skin the number of stitches inserted should be written down on the patient's notes for cross checking when the sutures are removed.

### 3.6 Aftercare of episiotomy

- Analgesics to reduce pain

Sitz bath in salty tap water

Antibiotic should be given but not routinely as it may bring about anaemia.

If pain is severe, check site for haematoma.

### 3.7 Complications of episiotomy

- Haematoma
- Dehiscence
- Infection
- Damage to anal sphincter or rectum
- Assymmetry or narrowing or introitus
- Haemorrhage
- Sexual dysfunction

## 4.0 Conclusion

In this unit, you have been able to learn about what episiotomy is, the indications, types, repair, techniques of repair, care after repair and its complications.

## 5.0 Summary

This unit has been able to explain why episiotomy may sometimes be carried our during delivery so as to enlarge the vaginal introitus and make the delivery easy so as to prevent $2^{nd}$ or $3^{rd}$ degree tear which may lead to complications such as Visico Vaginal Fistula or Recto Vaginal Fistula perineal laceration will be discussed in the next unit.

6.0 TMA

- Define episiotomy

- Describe the 3 types of episiotomy
- List the indications for episiotomy
- List 3 benefits of episiotomy
- List 5 complications of episiotomy

**7.0 References and other resources**

Ojo, O. A. & Briggs, E. B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

Training manual on life saving skills (LSS) for nurses /midwives by WHO

# COURSE MATERIAL

## PHS 424 PRIMARY EMERGENCY OBSTETRIC CARE

**COURSE DEVELOPMENT**

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**Unit 12: Perineal Laceration**

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## 1.0 Introduction

Perineal laceration is part of what you are supposed to learn as read in your course guide and is a tear that occur during the second stage of labour, health practitioner should not consider this occurrence as a poor reflection on her skill because it is always better to repair a laceration than uterine prolapsed caused by overstretched pelvic floor. Let us read from the note what perineal laceration is all about.

## 2.0 Objectives

At the end of this unit, you should be able to:
Define perineal laceration
List the causes of pernieal laceration
Know signs to indicate that the perineum is liable to tear
Describe the management and prevention of perinneal laceration

## 3.0 Main Content

3.1 Definition of perineal laceration

Perineal laceration is an unintentional tear of the perineum which occurs during the second stage of labour.

### 3.2 Types of perineal laceration

1. First degree perineal laceration involves the skin and the fourchette only. The muscles may be exposed but are not torn.
2. Second degree perineal laceration: This involves the skin, fourchette, posterior vaginal wall and the pelvic floor muscles are torn. It may extend to the anus but not the anal sphincter.

3. Third degree perineal laceration: this is an extensive laceration involving the fourchette and vaginal wall, pelvic floor muscles, anal sphincter, anal canal, in bad cases, the rectum.

### 3.3 Causes of laceration

* Occipito-posterior position
* Face to pubes delivery
* Face presentation
* A rigid and scarred perineum
* A large baby (cephalopelvic disproportion)
* Uncooperative mother

### 3.4 Signs of laceration

* Cracking or tearing of the fourchette before the head is crowned
* Trickling of blood from the vagina
* Excessive thinning and stretching of the perineum
* Oedematous and rigid perineum

### 3.5 Management /repair of laceration

* The principles of repair are the same as for the repair of an episiotomy
* The suture line should be kept dry and clean
* Encourage on sitz bath with normal saline at least twice a day
* The perineum should be inspected daily for oedema or signs of infection.
* Mild analgesics may be given to relieve pain.

**Repair of laceration**

Non-absorbable sutures are used as in episiotomy and should be removed on the sixth or seventh day.

Number of sutures removed should be checked against the number inserted at the time of repair

Union of sutures line and healing of the wound should be noted after removal of sutures

If the union is poor but no infection, sitz baths of normal saline are continued.

Septic wounds are dressed with eusol after sitz bath

Secondary suturing may be necessary when wound is clean (in malunion wound).

### 3.6 Prevention of laceration

* Instruct the patient on what to do before the onset of second stage of labour so as to enhance cooperation.
* During bearing down effort, the perineum should be allowed to stretch but the advancing head may be prevented from sudden expulsion.
* The midwife should await the rotations of the shoulders before attempts to deliver them.
* A timely episiotomy is the best way of preventing a perineal laceration.
* Avoidance of full bladder.

## 4.0 Conclusion

In this unit, you have been able to learn what laceration is, types, causes and signs of laceration. You have also learnt about the management and prevention of laceration.

## 5.0 Summary

This unit has focused on what laceration is, the types, causes, signs, management and prevention. This will enhance a better performance in the health care services we render to our client. In the next unit we shall learn about post partum haemorrhage, one of the causes of maternal mortality.

## 6.0 TMA

1. Define laceration
2. What are the causes of laceration
3. What are the signs of perineal laceration

## 7.0 References & other resources

Ojo, O. A. & Briggs, E.B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

# Unit 13 Post Partum Haemorrhage

## Table of Content

## 1.0 Introduction

In this unit, you will go through what post partum haemorrhage is, the types and its description and complications. It is necessary to learn about this because it is one of the causes of maternal mortality and you have to be able to know how to prevent this in other to reduce maternal mortality.

## 2.0 Objective

At the end of this unit, you should be able to:
Define post partum haemorrhage
Mention and describe the types of PPH
List the complications of PPH

## 3.0 Main Content

### 3.1 Definition of PPH

This is excessive bleeding from the genital tract at any time following the birth of the baby up to six weeks after delivery or blood loss of 500mls or more which is detriment to the life of the woman. PPH is the most important single cause of maternal death in the world.

### 3.2 Types and description

#### 3.2.1 Primary Post Partum haemorrhage

This is excessive bleeding from the genital tract occurring during the third stage of labour or within 24 hours of delivery.

#### 3.2.2 Causes of Primary PPH

- Atony of the uterus
- Retained placenta
- Morbidly adherent placenta
- Trauma/Lacerations of the genital tract, cervical, vaginal or perineal lacerations.
- Ruptured uterus
- Blood coagulation disorder e.g. hypofibrinogenaemia

#### 3.2.3 Signs and symptoms of Primary PPH

- Bleeding per vagina
- Sweating and restlessness
- Pallor
- Rapid and thread pulse
- Low blood pressure
- Poor uterine contraction

### 3.3 Secondary post partum haemorrhage

This is blood loss after the first 24 hours and within six weeks of delivery

### 3.3.1 Causes of Secondary PPH

* Retained products of conception/retained Placental
* Infection
* Un-identified/silent uterine rupture
* Dilation and curettage

### 3.3.2 Clinical features

* Bleeding per vaginam
* Fever - 38°C and above
* General feeling of unwell
* Uterine sub-involution
* Offensive vaginal discharge

### 3.4 Predisposing factors to PPH

* Maternal aneamia
* Multiple pregnancy
* High multiparity resulting in uterine scar tissue
* Ante partum haemorrhage
* Poor management of third stage of labour
* Early detection and treatment of anemia in pregnancy
* Avoidance of trauma throughout the period of pregnancy
* Early detection and prompt management
* Referral of at risk conditions.
* Prevention and management of diseases complicating pregnancy especially anaemia and malaria in this condition
* Early detection and treatment of anemia in pregnancy
* Avoidance of trauma throughout the period of pregnancy
* Active and good management of third stage of labour
* Early detection and prompt management
* Referral of at risk conditions
* Prevention and management of diseases complicating pregnancy especially anaemia and malaria in this condition
* Adequate nutrition and rest
* Prompt management of hypofibrinogenaemia
* Early referral

### 3.9 Complications of PPH

* Susceptibility of infection in the puerperium
* There may be failure of lactation
* There may be loss of hair on the head, pubic region as well as atrophy of the breasts.

## 4.0 Conclusion

In this unit, you have been able to study what post partum haemorrhage is, the type, causes, signs and symptoms, management and prevention so that you are equipped medically to cope with the management and reduce maternal mortality.

## 5.0 Summary

This unit has been able to give you insight into what post partum haemorrhage entails and be able to manage it wherever you see the case so as to reduce maternal mortality rate to the barest minimum in the next unit, we will learn how to manage the post partum period.

## 6.0 TMA

1. What is PPH
2. Explain the types of PPH
3. How can you prevent PPH

## 7.0 References and other resources

Ojo, O.A. & Briggs, E.B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Ltd.

S.E. Naik, V. A., Bellad- MD, et al. Oral Misoprostol in preventing . Post partum, haemorrhage in resource poor. Communities- a randomized controlled trial. The Lancet.2006; 2006; 368:1248-53.

**Unit 14: Management of Post Partum Period**

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## 1.0 Introduction

In this unit, you will learn about the management of post partum period, the uterus is still very large and mobile, the genital tract greatly distended, bruised and lacerated but within the period of six to eight weeks called the post partum, period, the bruises heal and the genital organs and any other organ return to their pre-gravid state, the process readjustment is called involutions and you need to know this process in other to help the woman to adjust to this time in her life.

## 2.0 Objective

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

- Define post natal care
- Explain the management of post natal period
- Highlight the care of the new born
- Manage breast feeding
- Know what to do during the post natal visits

## 3.0 Main Content

3.1 Definition of post partum period

This is the care given to the mother from the time of completion of delivery of placenta up to 6 weeks. It is the period of adjustment when the organs altered during pregnancy return to their pregravid state.

### 3.2 Management of post-natal period

### 3.2.1 Immediate post partum care

The first one hour after delivery should be spent in the labour room by the mother and baby to ensure adequate rest and to detect and manage immediate abnormalities such as post partum hemorrhage, shock, or sudden collapse.

### 3.2.2 Nursing management

- Establish mother baby contact
- Create rapport
- Check vital signs i.e. temperature, pulse, respiration and blood pressure
- If the blood pressure is high post partum, give sedative such as valium 5mg intramuscularly or orally to prevent development of post partum Eclampsia.
- Palpate uterus for consistency and expel blood clots to ensure that uterus remains well contracted.
- Apply perineal pad
- Measure fundal height with tape measure
- Check lochia, note colour, quantity and odour
- Check vulva for haematoma, laceration and bleeding
- Encourage patient to pass urine
- Give bedpan to empty bladder
- Monitor intake and output and record on chart
- Clean mother up and change sanitary pad
- Offer mother a warm nourishing drink or food
- Allow mother to rest
- In case of caesarean section, in addition to the above nursing care, inspect abdominal wound for bleeding
- Check vital signs more frequently.

## 3.3 Care of the new born

A newborn is a neonate within the first 28 days of life.

**Immediate care**

- Establish respiration
- As soon as the baby' s head is born, wipe the eyes, the mouth and nose with clear dry gauze.
- Carefully suction the nostrils and mouth with mucous extractor to clear the airways of mucus and liquor amnii, these interruption and handling of the baby will stimulate crying, increase the heart beat and thus initiate and establish respiration of the baby.
- Assess Apgar score at 1 and 5 minutes after birth
- Shorten the cord and ligate, clean with methylated spirit and expose
- Dry baby's skin of liquor amnii with clean cloth or towel.
- Applying identification brackets on baby's left wrist
- Prevent hypothermia – keep baby warm with mother's wrapper, towel or shawl or give baby to the mother or place the baby skin to skin with the mother, and cover the baby's head, then cover them both to prevent loss of body heat, this will aid initiation of breast feeding.
- Initiate nutrition to prevent hyperglycaemia –early initiation of lactation helps in the nutrition of the baby and also helps the mother in the control of haemorrhage, aids involution of the uterus and promotes mother-baby bonding.
- Immunize baby with B.C.G 0.05 intradermal (right upper arm) OPV 3 drops orally (sublingually) and HBV, 0.5cc intramuscularly.

- Weigh and measure baby
- Check vital signs – temperature, apex beat and respiration
- Record findings

**Subsequent care** – (in the first 10 days)

- Assess baby's weight
- Measure the head circumference and length of the baby
- Examine baby from head to toe and record findings
- Give appointment for a return visit in 6 weeks
- Advise mother to report if there is any difficulty or change in baby's condition
- Advice on care of the baby and the following:-
- Exclusive breast feeding for 6 months without water
- Prevention of infection
- Personal and environmental hygiene

### 3.4 Management of breast feeding

Breast feeding is fundamental to the growth, development and health of children. It is also important for the health of mothers and forms the foundation for a healthy future among other societal benefits.

**Advice the patient to**

- Maintain breast hygiene before and after delivery
- Express colostrums during subsequent pregnancies in the last 4-6 weeks of pregnancy to clear the ducts of epithelia debris
- Complete emptying of the breast during feeding of the baby to prevent breast engorgement
- Make breast feeding sole source of baby's feeding up to six months of life
- Breast feed baby on demand
- Do not give baby water or artificial feeds
- Breast feed both during the day and at night allowing a long time at each breast each time for six months
- Do not restrict fluid intake

### 3.5 Post natal visits

First visit 7-10 days after delivery and the second visit is at 6 weeks after delivery.
During the visits

**First visit**

- Welcome the mother
- Review health status of mother
- Check temperature, pulse, respiration and blood pressure,
- Estimate fundal height and check for progressive involution of the uterus and discharge of lochia
- Examine the breast for lactation, engorgement, sore or cracked nipples, assess milk flow, check nutrition and bowel movement.
- Check for signs of anaemia
- Review baby's health status
- Check for pattern of feeding

- Assess bowel movement and micturition
- Inquire from mother, baby's sleeping and crying patterns
- Check umbilical stump for healing and dryness
- Check (if female) circumcision, or ear piercing
- Check for scarification (for both male and female babies)
- Observe circumcision site (if male) for healing or sign of infection, if penile foreskin has not been removed, circumcise
- Give necessary information and advice on subsequent care

**Second visit at 6 weeks appointment**

- Welcome mother and child to the clinic
- Ask of her state of health, that of the baby and the family as a whole
- Check vital signs and record
- Ask questions about any pressing concerns.
- Assess nutritional status of mother and baby by checking for anaemia and baby's feeding patterns
- Assess mother's weight
- Examine from head to toe (mother)
- Estimate fundal height for progressive involvement of the uterus
- Examine baby from head to toe
- Check baby's weight
- Check umbilical stump
- Give necessary immunization
- Remind on exclusive breast feeding and family planning
- Remind on personal and environmental hygiene

## 4.0 Conclusion

In this unit, you have learnt about the management of normal puerperium when organs altered by pregnancy return to their pre-pregnancy state which lasts six to eight weeks after delivery of the placenta. In the next unit you will go through emergency obstetric care so as to know what to do when such emergencies like shock, hameorrhage etc occur. In the next unit, we will go through how to give emergency obstetric care.

## 5.0 Summary

This unit has been able to highlight on management of normal puerperium, what to do to help the woman adjust to the changes taking place for her to return to pre-pregnant state.

## 6.0 T.M.A

1. What is post natal care
2. What are you supposed to check during the second post natal visit

## 7.0 References

Adesokan, F.O. (2009) Reproductive health for all, 1st edition, Excels Production: Akure.

**Unit 15 Emergency obstetric care**

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## 1.0 Introduction

In this unit, you shall be going through what emergency obstetric care is, life saving component of care as you can see in your course guide and it is the main focus of this course so that you can be adequately prepared to perform emergency obstetric care without delay to safe life.

## 2.0 Objectives

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

- define emergency obstetric care
- explain life saving component of care
- know how to reduce life threatening delays
- know the standard for basic and comprehensive emergency obstetric care

## 3.0 Main content

### 3.1 Definition of EOC

Emergency obstetric care is a type of intensive urgent skilful care which requires that all women and new born with complications should have rapid access to well-functioning facilities whether that is a mobile health unit, a district hospital or an upgraded maternity centre to save lives of mother and/or baby to prevent complications.

3.2 Types of EOC

3.2.1 Basic emergency obstetric and new born care – This is provided in health centres, large or small and includes the capabilities for:

- Administration of antibiotics, oxytocics and anticonvulsants
- Removal of retained products following miscarriage or abortion
- Assisted vaginal delivery preferably with vacuum extractor,

- Newborn care

It is performed in a health centre without the need for an operating theatre.

**3.2.2** Comprehensive emergency obstetric and newborn care, typically performed in district hospitals required an operating theatre includes all basic functions above, plus caesarean section, safe blood transfusion and care to sick and low birth weight newborn including resuscitation. Guidelines jointly issued in 1997 by WHO, UNFPA and UNICEF recommend that for every 500,000 people there should be four facilities offering basic and one facility offering comprehensive essential obstetric car. These guidelines are being revised in 2007 to allow flexibility in the implementation and to add new features.

3.2.3. Obstetric conditions that require emergency care include:

- Shock and post-partum hemorrhage
- Sepsis (puerperal sepsis)
- Obstructed labour
- Eclampsia
- Foetal distress
- Maternal distress

**3.2.4 Management of obstetric emergencies**

Take life saving actions such as:

- Treat for shock if present
- Cardio pulmonary resuscitation (CPR) including hydration
- Manual removal of placenta (if still in situ)
- Bi-manual compression of the uterus
- Suture lacerations and episiotomy
- Active resuscitation of the newborn
- Initiation of anti biotics treatment in case of sepsis
- Refer patient early to the nearest hospital

**3.2.5 Materials for emergency obstetric care**

- Suction machine with nasal tubes (various sizes) mucus extractor, bulb syringe
- Ambu bag (baby and adult)
- Manual vacuum extractor with its various sizes
- Canulae
- Cuscos vaginal speculum
- Artery forceps
- Vulsellum forceps
- Catgut of various sizes
- Episiotomy scissors
- Straight scissors
- Needle holder
- Vacuum extractor
- Intravenous fluids (dextrose saline, dextrose plain, normal saline etc.)
- Cannulae (various sizes)

- Gloves

- Obstetric forceps
- Blood giving set
- Folley's catheter
- Tape measure
- Sphygomanometer and stethoscope
- Pinard's stethoscope
- Blade
- Hot water bottle
- Kocker's forceps
- Cord scissors
- Oxygen cylinder
- Endo-tracheal tube (various sizes)
- Face-mask (adult and baby for oxygen administration)
- Tournquet
- Syringes and needles
- Intravenous giving set
- Scalp vein needle
- Plaster
- Calibrated small jug
- Receiver/kidney dishes
- Gauze
- Cotton wool

**DRUGS**

Ergometrine
Hydrocortisone
Water for injection
Promethazine
Fortwin
Naloxone
Methylated spirit
Lignocaine
Antibiotics
Antiseptics
Diazepam
Haematinics

### 3.3. Life saving component of care

- To manage obstetric complications, a facility must have at least two skilled attendants covering 24 hours a day and seven day a week, assisted by trained support staff.
- To manage complications requiring surgery, the facilities must have a functional operating theatre, more support staff and must be able to administer blood transfusions and anesthesia.

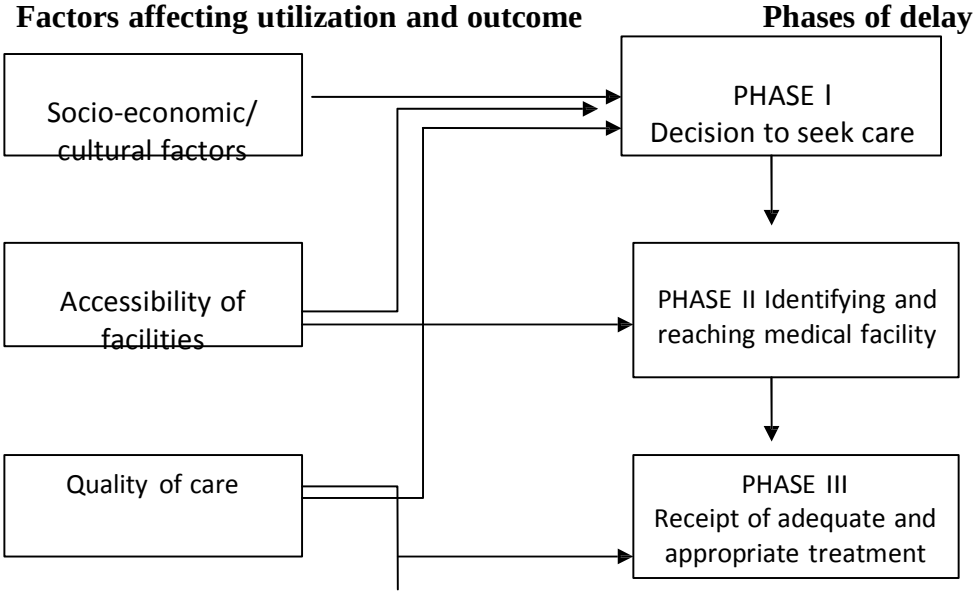
The existing facilities (district hospitals and health centres) can often, with just a few changes, be upgraded to provide emergency obstetric and new born care.

### 3.4 Reducing life threatening delays

Timing proves to be critical in preventing maternal death and disability:

Although post-partum haemorrage can kill a woman in under two hours, for most other complications, a woman has between 6 and 12 hours or more to get life-saving other complications, a woman has between 6 and 12 hours or more to get life-saving emergency care. Similarly, most perinatal deaths occur during labour and delivery, or within the first 48 hours thereafter.

The three delays model (See below) has proved to be a useful tool to identify the points at which delays can occur in the management of obstetric complications, and to design programmes to address these delays.




### 3.5. Standards for basic and comprehensive emergency obstetric care

For a facility to meet these standards, all six or eight functions must be performed regularly and assessed every three to six months.

It is recommended that for every 500,000 people there should be at least four facilities offering Basic EMOC and one facility offering comprehensive EMOC (appropriately distributed).

## 4.0 Conclusion

In this unit, you have been able to study what emergency obstetric care is, the components of care, how to reduce delays in saving life and the standard required for basic and comprehensive emergency obstetric care. This is very important as it is the central focus of this course that all other units rotates.

## 5.0 Summary

This unit has been able to prepare us to perform emergency obstetric care in other to help reduce maternal and child morbidity and mortality rate in the next unit, we will study sepsis and it's prevention.

## 6.0. T.M.A.

1. What do we mean by emergency obstetric care
2. Describe the phases of delay and factors affecting utilization and outcome

## 7.0 References and other resources

Adesokan, F. O. (2009) Reproductive health for all, 1st edition, Excels Production: Akure

http://www.unfpa.org/publications.

**UNIT 16: SEPSIS**

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## 1.0 Introduction

In this unit, you will learn about sepsis which is a serious infection usually caused by bacteria and can be frightening because it can lead to serious complications that affects some organs of the body and it can affect people of any age.

## 2.0 Objectives

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

- Define and list the causes of sepsis
- Discuss the predisposing factors to sepsis
- Mention the clinical presentation of sepsis
- Manage case of sepsis
- Discuss the prevention and complication of sepsis

## 3.0 Main Content

### 3.1 Definition of sepsis

Sepsis is a serious infection usually caused by bacteria which can originate in many body parts such as the lungs, intestines, urinary tract or skin that make toxins that causes the immune system to attack the body's own organs and tissues.\

Sepsis can affect people of any age, but is more common in:

- Infants under 3 months, whose immune system haven't developed enough to fight off overwhelming infections.
- The elderly
- People with chronic medical conditions
- Those whose immune systems are compromised from conditions such as HIV.

### 3.2. Causes of sepsis

The micro-organism most commonly associated with early-onset of infection include: group 3 streptococci. Escherichia coli, haemophilus influenza and listeria moncytogenes. These associated with late-onset include: coagulase-negative staphylococci, staphylococcus aureus, E. coli, klebsiella, Pseudomonas. Enterobacter, candida and anaerobes.

However, causes of sepsis can be grouped thus:
+Germs normally found in the lower genital tract or bowel
+Germs from the nose, mouth, or hands of health care provider
+Germs from blood and other body fluids
- Unsterile needles and syringes
- Scarifications
- Retained products of conception e.g. placenta tissue or membranes. Formites- instruments, clothes, medicine or herbs.

3.3 Predisposing factors to sepsis
- Neglecting the importance of hand washing
- Too frequent vaginal examination
- Invasive procedures i.e. neonatal resuscitation episiotomy
- Prematurity
- Maternal vaginal colonization with group B streptococci (GBS)
- Chorioamnionitis
- Poor umbilical cord care
- Male sex that is, coitus between the males

Other causes may include:
- Poor or no antenatal care
- Poor maternal nutrition
- Low socio-economic status
- Recurrent abortion
- Congenital anomalies
- Difficult or unclean delivery
- Retained tissue of placenta, membranes or abortion
- Maternal substance abuse
- Low birth weight
- Birth asphyxia

**3.4 Clinical presentation of sepsis**

The clinical presentation of sepsis may defer depending on the causative organism. However, the common presentations are:
- Fever
- Lethargic, irritable
- Subnormal temperature
- Inability to feed
- Reduced activity or functioning
- Vomiting
- Week and fast pulse (above 90b/min)
- Seizures
- Low blood pressure
- Apnoea
- Abdominal distension
- Jaundice

- Abnormal bleeding i.e. bleeding from the gums
- Pustules
- Spleenomegally
- Hepatomegally

**3.5. Management of sepsis**

Adequate and effective management of sepsis and any septic condition is based primarily on the nature of the causative organism (pathogene), virulence, resistance, gram + or gram – and its communicability

**Diagnosis of sepsis**

- Take a history of any of the above predisposing factors and clinical presentation
- Thorough physical examination as this will help to identify infected parts and organs i.e. liver
- Blood sample should be taken for full blood count and blood culture
- Cerebrospinal fluid may also be collected for laboratory examination especially in baby at age older than 72 hours
- Chest x-ray may be indicated especially in infections involving the respiratory tract
- Identify the manifestations (i.e shock, fever, cold, vomiting, seizure, haemorrhage, jaundice etc) and treat symptomatically.
  Choice of antibiotic (broad or narrow spectrum) will depend on whether it is early or late onset of sepsis, the history obtain, part of body organ involved and the nature of the organism.
- Empirical antibiotics should commence immediately after all samples have been taken for culture and sensitivity
- The antibiotics of choice should contain an ampicilin a beta-lactamase inhibitor and an aminoglycoside e.g. ampicillin/sulbactam + gentamycin
- In meningitis confirmed with positive CSF results, a combination of a 3$^{rd}$ generation cephalosporin and an aminoglycoside is recommended.
- Antibiotics may be administered parentally by I.M route especially in newborn baby or by I.V. route depending on the severity of the infection.
- Fluid replacement and appropriate support for organ dysfunction (this may include hemodialysis in kidney failure, mechanical ventilation in pulmonary dysfunction, transfusion of blood products and drug and fluid therapy for circulatory failure).
- Ensuring adequate nutrition, preferably by enteral feeding but if necessary by parental nutrition which is important during prolonged illness.

1.6. Prevention of sepsis

- Sterile procedure should be adequately followed during examination i.e. vaginal examination.
- Total sterility must be practiced in any invasive procedure.
- Proper sterilization of equipment will help to render equipments microorganism- free
- Regular hand washing before and after each procedure to minimize the risk of transmission of pathogenic organisms
- Proper environmental hygiene. This help to reduce the rate of sepsis possibility

- Prompt and proper care for wound i.e. dressing
- Women should be educated on perineal care to prevent neonatal sepsis especially pregnant women
- Adequate nutrition to boost immunity and prevent anaemia
- Prophylactic antibiotics can be administered in invasive procedure (i.e. surgery) as this will help to prevent post-operative infection
- Feaces and vomitus of infected individual should be disinfected before disposal, and the disposal should be done in a proper manner
- Isolation or barrier – nursing of infected person will help to reduce the spread of organism.

**1.7 Complication of sepsis**

1. Septicaemia
2. Anaemiea
3. Malnutrition
4. Tissue gangrene
5. Can lead to bone disease such as osteomalacia
6. Inadequate tissue perfusion and necrosis
7. When it affect the extremities, amputation may be necessary
8. Death

**Late symptoms**

- Acute lung injury or acute respiratory distress syndrome
- Encephalopathy agitation, coma, confusion
- Oliguria and anuria
- Electrolyte abnormalities
- Heart failure

**4.0 Conclusion**

In this unit, you have learned about what sepsis is, the causes, the clinical presentation, management and prevention.

You should at this point be able to recognize a client with sepsis and even be able to manage wherever you come across anybody with the condition.

**5.0 Summary**

This unit has focused on sepsis which is a serious infection, the bacteria and the toxins they create cause changes in a person's body temperature, heart rate and blood pressure, and can result in dysfunction of the body's organs. You will learn about maternal mortality in the next unit.

6.0 T.M.A.

- Define sepsis
- Mention the clinical presentation of sepsis
- How can you prevent sepsis

## 7.0 References of other resources

Training manual on life saving skills (LSS) for nurse/midwives by W.H.O.

Levy, M.M, Fink M.P, Marshall J.C. et al. (April 2003) "2001: SCCM/ESICM/ACCP/TS/Sis. International sepsis. Definitions. Conference". Crit. Care-med-31(4)1250-6. Core/template-journal/iwwgateway/media/landingpage.htm? ISSN=0090-3493 & volume=31 & issue=4 and page=1250

# MODULE FOUR

# COURSE MATERIAL

## PHS 424 PRIMARY EMERGENCY OBSTETRIC CARE

**COURSE DEVELOPMENT**

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Unit 17: Maternal mortality

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## 1.0. Introduction

As you have read through the course guide, maternal mortality is one of the aspect of the course you are to learn about because with the knowledge acquired, you will be able to render assistance needed to women during delivery which can cause a reduction in maternal and child deaths and related complications.

## 2.0. Objectives

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

- define maternal mortality
- state the causes of mortality
- know the maternal mortality ratio
- explain the causes of maternal mortality
- State the prevention of maternal mortality

## 3.1. Definition of maternal mortality

1. Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accident or incidental causes (WHO)

## 3.2. Classification of maternal death

Generally, maternal mortality (death) can be classified into two distinct categories viz:

**Direct maternal death:** This result from complications of pregnancy, delivery or their obstetrical managements.

**Indirect maternal death:** This is pregnancy-related death in a patient with pre-existing or newly developed health problem.

Other fatalities but unrelated to pregnancy are termed accidental, incidental or non-obstetrical maternal death e.g. Death secondary to violence against women which may be connected to socio-economic and cultural environment.

## 3.3 Maternal mortality ratio (MMR)

Maternal mortality ration (MMR) is the number of death per 100,000 live births. MMR is used as a measure of the quality of a health care system.\

As was stated by WHO in 2005, over 90% of maternal deaths occur in developing countries and 45% of post partum deaths occur within 24 hours. Furthermore, these are the countries with the leading MMR rate according to WHO, UNICEF and UNFPA in 2003.

| | | |
|---|---|---|
| Sierra Leone | - | 2,000 |
| Afghanistan | - | 1,900 |
| Malawi | - | 1,800 |
| Angola | - | 1,700 |
| Niger | - | 1,600 |
| Tanzania | - | 1,500 |
| Rwanda | - | 1,400 |
| Mali | - | 1,200 |
| Chad | - | 1,000 |
| Burkina Faso | - | 1,000 |

Countries with the lowest MMR in 2005 according to WHO include:

| | | |
|---|---|---|
| Iceland | - | 0 per 100,000 |
| Austria | - | 4 per 100,000 |
| United States | - | 11 per 100,000 |

The world average per 100,000 was 400 in the developed region was 20, and for developing regions was 440.

## 3.4. Causes of Maternal Mortality

The causes of MM can be classified as

(a) Direct causes i.e. complications of pregnancy, delivery and their management
(b) Indirect causes i.e. pregnancy – related death in a patient with pre-existing or newly developed health problem.
(c) Accidental, incidental or non-obstetrical cause include: accident leading to death.

However, these causes could be identified in four ways:

1. Health services factors
2. Reproductive health causes
3. Obstetric complications
4. Socio-economic causes

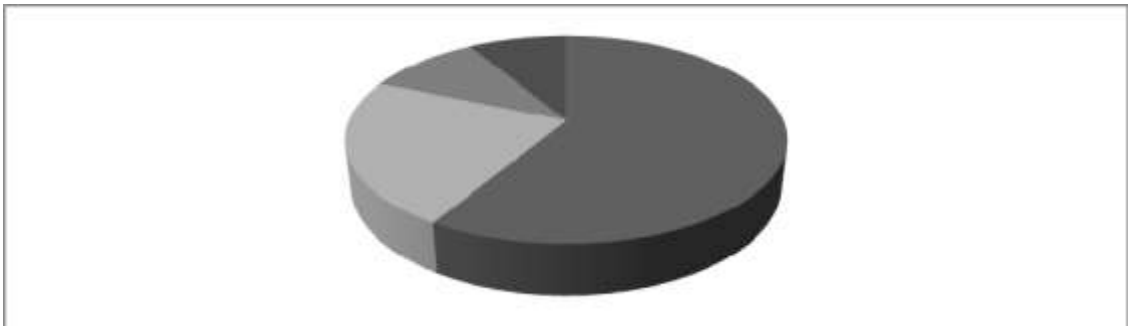


Fig. 1

1. Health services factors: These factors are caused by health workers and its organizing body. They include:

- Inadequate trained personnel
- Poor medical care
- Lack of access to maternity services
- Lack of essential drugs and instruments
- Deficient transportation
- Poor referral system

2. Reproductive health causes
   Studies have shown the risk of maternal mortality in these categories of women

(a) Women too young to be pregnant less than 18 years)
(b) Women too old to be pregnant more than 35 years
(c) Women who have given birth to too many children
(d) Women giving birth to babies too frequently
(e) Women that are too sick, i.e. eclamptic, diabetes mellitus, haemophilic.

3. Obstetric causes: This include sepsis, toxaemia, Eclampsia, unsafe abortion, obstructed labour, malaria, anaemia, multiple pregnancy, ectopic gestation, haemorrhage etc.

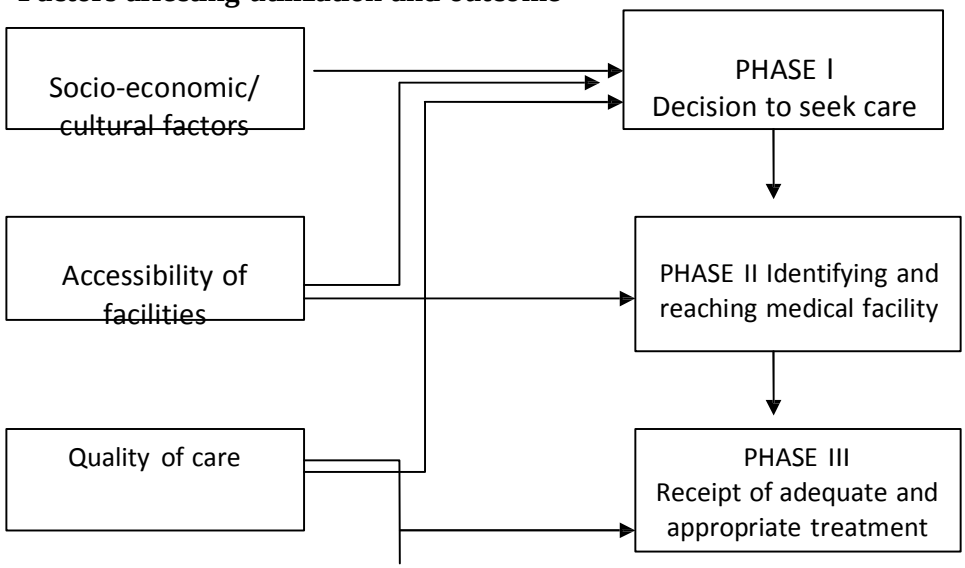
4. Socio-economic causes: This factor include low status of women, poor nutrition in childhood, poverty, ignorance and illiteracy, religious beliefs and harmful traditional practices.

**Other causes identified in Nigeria include:**

a. High prevalence of malaria
b. Adolescent pregnancy - 11-19% of total birth
c. Unsafe abortion, 610,000 annually
d. High rate of malnutrition 16%
e. HIV and AIDs pandemic 5.4-9%

### 3.5. Delays

**Factors affecting utilization and outcome**




The first two 'delays' (delay in deciding to seek care and delay in reaching appropriate care) relate directly to the issue of access to care, encompassing factors in the family and the community, including transportation.

The third 'delay' (delay in receiving care at health facilities relates to factors in the health facility, including quality of care. The three delays should be addressed in other to allow the success of safe motherhood programme.

In practice, it is crucial to address the third delay first, for it would be useless to facilitate access to a health facility if it was not available, well staffed, well equipped and providing good quality care.

### 3.6. Prevention of maternal mortality

The prevention and reduction in maternal mortality can only be achieved through the collaborative effort of national and international government, civil society organizations and health workers. In a nutshell, all heads must be on deck

1. Improved material health care such as antenatal care, compliance with prescribed drug usage during and after pregnancy. Proper referral system and early detection of pregnancy related health problems

2. Education: this is paramount especially girl child education to create awareness programmes on complications of pregnancy and unsafe abortions.

3. Family planning: This can help to check women having too many children, too frequent children unwanted pregnancy leading to unsafe abortion which contribute about 610,000 maternal death in Nigeria

4. Improved socio-economic status by women empowerment and employment. Help in decision making and socially-free from superimpose dictation life especially from their husband.

5. Reduction in teenage pregnancy

6. HIV and AIDs awareness

7. Eradication of Religious and cultural believes that are detrimental to maternal health

8. Upgrading of obstetricians and other related health workers

9. Continuous monitoring of obstetric centres.

**4.0 Conclusion**

It is evident that you have learned about maternal mortality in this unit. The causes, rate, and possible preventions. You should be able to discuss at length on any of the aforementioned aspects of maternal mortality and be ready to assist women in the clinic safely in order to reduce maternal mortality rate.

**1.0 Summary**

This unit has vividly justifies and clarify what maternal mortality is, its rate in the world, causes and the possible preventions. In the next unit dehydration and its causes will be discussed.

**2.0 T.M.A.**

1. Define maternal mortality
2. Mention 3 causes of maternal mortality
3. Explain in your own words what to do to prevent maternal mortality.

**7.0 References of other resources**

Ojo, O. A. & Briggs, E. B. (2009). A textbook for midwives in the tropics, 2nd Edition, Ibadan: Bounty press Limited.

Other resources:- Paper presentation by Mrs. Kehinde Osinawo (2006) at the conference of heads of schools of Nursing, Psychiatry and midwifery.

**Unit 18 Dehydration**

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## 1.0 Introduction

## 2.0 Objectives

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

1. Define dehydration
2. Mention types of dehydration
3. List causes of dehydration
4. List symptoms of dehydration
5. Explain the treatment, prognosis and prevention of dehydration

## 3.0 Main Content

### 3.1 Definition of dehydration

Dehydration (hypohydration) is defined as excessive loss of body fluid. However in a physiological term, it entails a deficiency of fluid within an organism.

### 3.2 Types of dehydration

There are three main types of dehydration viz:

(a) Hypotonic dehydration: This is a form of dehydration in which there is primarily loss of electrolytes especially sodium, the chief electrolyte of extra cellular fluid.
(b) Hypertonic dehydration: In this form of dehydration, the mostly loss content is water with little or no electrolyte.
(c) Isotonic dehydration: This is the most common type of dehydration seen in humans, in this form of dehydration, there is equal loss of water and electrolytes.

**N.B:** It is important to understand (physiologically speaking) that dehydration despite the name does not simply means loss of water, as water and solutes (mainly sodium) are usually lost in roughly equal quantities to how they exist in blood plasma.

### 3.3 Causes of Dehydration

#### 3.3.1 Medical Causes of dehydration

Dehydration can be caused by a wide range of disease and conditions that impair homeostasis in the body. These include:

Diarrhoea
Vomitting

Burns
Lacrimation
Blood loss due to physical trauma (external or internal)
Cholera
Yellow fever
Gastroeneteritis
Hyperthermia
Use of stimulants such as caffeine, amphetamine etc.

### 3.3.2 Other causes of dehydration

These may include activities or lifestyle that troubles homeostasis. These include:

Excessive consumption of alcoholic beverages
Prolonged physical activity with sweating without consuming adequate water, especially in hot and or dry environment.
Malnutrition
Fasting
Inability to swallow (dysphagia)
Severe hyperglycemia especially in diabetes mellitus
Glycosuria
Uremia

## 3.4 Symptoms of dehydration

Symptoms of dehydration depend on the extent to which the individual is been dehydrated. It may be mild, moderate or severe.
In mild cases of dehydration, symptoms may include:

Thirst
Headaches
Muscles cramps
Decreased blood pressure
Dizziness
Decreased urine
Dry mouth

Moderate dehydration may present by:

Rapid heart rate
Constipation
Loss of appetite
Fainting when standing up
Dry skin
Restlessness

Severe dehydration may present by:

All signs and symptoms of mild and moderate dehydration
Sunken eye

Fatigue
Loss of function
Elevated temperature
Flushing
Insomnia
Increase respiration
Decreased skin turgor
Dim vision
Delirium may begin

3.5 Treatment of dehydration

The treatment of a minor dehydration is by drinking water and stopping fluid loss.

In moderate cases, it can be corrected by replenishment of necessary water and electrolytes through:

(a) Oral rehydration therapy
(b) Intravenous infusion

In severe cases, where it might have involve fainting or unconsciousness or other severely inhibiting symptom is present, emergency attention is required. Fluids containing a proper balance of replacement electrolytes are given orally or intravenously with continuing assessment of electrolyte status.

**3.6 Prognosis of dehydration**

Untreated dehydration generally results in

(a) Delirium (b) Unconsciousness (c) Inflammation of the tongue (glossitis) and in extreme cases death.

**3.7 Prevention of dehydration**

Dehydration is best prevented by drinking sufficient water

During high perspiration, consumption of water must be roughly concurrent with the loss

Reduction of perspiration during heat or hot period through rest, staying in a cooler environment.

During sport events such as marathons and during strenuous exercise, water stops and water breaks should be provided.

**4.0** Conclusion

You've learned in this unit about dehydration, types and causes, symptoms and treatment. In other words you should be able to describe what dehydration is, causes, symptoms and treatment.

**5.0** Summary

The focus of this unit is dehydration, types, causes, symptoms of dehydration and treatment, prognosis of dehydration and prevention of dehydration the next unit will highlight what hydration and rehydration is.

**6.0 T.M.A**

1. Define dehydration
2. List 9 signs and symptoms of dehydration
3. Mention 2 ways of treating dehydration

**7.0 References**

http//en.wikipedia.org/wiki/Rehydration
http://wikipedia.org/wiki/dehydration

**Unit 19 Hydration & Rehydration**

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1.0 Introduction

In this unit, you will go through what hydration and rehydration is, methods of rehydration where you will learn about preparation of oral rehydration solution and the conditions necessitating it's use so as to enable you to prevent or correct fluid, electrolyte, and acid base imbalances include dietary modification and modification of fluid intake.

2.0 Objectives

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

- Define hydration
- Define rehydration
- Mention methods of rehydration
- Prepare oral rehydration solution
- Mention conditions requiring the use of oral rehydration therapy

3.0 Main content

3.1 Definition of hydration

Hydration is the process of giving water and salts to replace what has been lost in the process of dehydration.

3.2 Definition of rehydration

Rehydration is the replenishment of water, or water and electrolytes, lost through dehydration.

**3.3 Methods of rehydration**

In humans, methods of rehydration include orally through rehydration therapy or intravenous therapy.

(a) Oral rehydration is less painful, less invasive, less expensive, and easier to provide, it is the treatment of choice for mild dehydration.

(b) Intravenous rehydration is the initial treatment of choice for severe dehydration as it can cause permanent injury or even death, solutions used for intravenous rehydration must be isotonic or hypotonic.

(c) Subcutaneous rehydration – it is not normally used in emergency because it is a very slow method.

### 3.4 Preparation of ORS

The World Health Organisation (WHO) designed this scheme to save children against the major killer disease called diarrhea which normally lead to severe dehydration.

The scheme is an improved, simple and cheap method for the treatment and prevention of diarrhea. The skill involved in carrying out the procedure is very simple and any cadre of health worker and mothers can acquire it.

**AIMS OF ORT –** To reduce mortality due to diarrhea among children to the barest minimum.

**Requirements**

A clean teaspoon

Salt, container to measure (soft drink or beer bottle)

**Procedure:**

Wash your hands and all the utensils thoroughly with soap and water

Measure 1000cc (1 litre) of drinking water.

Pour the water in the bottle(s) into mixing container

Add 5 cubes of sugar or ten level teaspoons of granulated sugar and one level teaspoon of salt

Mix the solution well with your clean spoon and taste the mixture.

It should have nice taste, it should not be too salty or have any unpleasant taste due to unclean bottle or bowl.

Cover the bowl with clean lid

Give the solution according to the age, weight and the level of dehydration experienced by the child.

Teach the mother how to give the fluid, using a cup and small spoon.

**Note:-** Do not boil the solution, boil clean water and allow it to cool before adding salt and water. Fresh solutions should be prepared every 2 hours.

### 3.5 Conditions necessitating ORS

Persistent, frequent, large amount of watery stool

Persistent vomiting

Persistent feeling of thirst

Dark urine

Sunken eyes

Unusual weakness, irritability, drowsiness

Loss of skin elasticity

Depressed anterior fontanelles etc.

## 3.6 List of Intravenous rehydration solutions

A relatively common form of therapy for handling fluid disturbances is the use of various solutions infused intravenously. The physicians is responsible for prescribing the kind and amount of solution to be used. The clinician is responsible for initiating, monitoring and discontinuing the therapy, one should understand the client's need for intravenous therapy, the type of solution being used, its desired effect and untoward reactions that may occur. Some of the solutions are:

**Parenteral electrolyte solutions**

Solutions of electrolytes are given intravenously to meet normal fluid and electrolyte requirements or to replenish substantial deficits or continuing losses, when the patient is nauseated or vomiting and is unable to tale adequate amounts by mouth.

The nature and severity of the electrolyte imbalance must be assessed from the history and clinical and bio chemical examination of each individual. Sodium, Potassium, chloride, magnesium, phosphate and water depletion can occur singly and in combination with or without disturbances of acid base balance.

Sodium chloride in isotonic solution provides the most important extracellular ions in near physiological concentrations and is indicated in sodium depletion which may arise from conditions such as gastroenteritis, diabetic ketoacidosis, and ascites.

Sodium chloride and glucose solutions are indicated when there is combined water and sodium depletion. A mixture of isotonic sodium chloride and 5% glucose allow some of the water to enter body cells which suffer most from dehydration while the sodium salt with a volume of water determined by the normal plasma sodium remains extracellular.

Glucose solutions (5%) are mainly used to replace water deficits and should be given alone when there is no significant loss of electrolytes. Average water requirement in a healthy adult are 1.5 to 2.5 litres daily and this is needed to balance unavoidable losses of water through the skin and lungs and to provide sufficient for urinary excretion.

Sodium hydrogen carbonate (Sodium bicarbonate) is used to control severe metabolic acidosis (as in renal failure).

Intravenous potassium chloride in sodium chloride infusion is the initial treatment for the correction of severe hypokalaemia when sufficient potassium cannot be taken by mouth.

## 4.0 Conclusion

In this unit, you have been able to study what hydration and rehydration means methods of rehydration and preparation of ORT as a method, conditions requiring its use and the list of intravenous rehydration solutions that can be used in some conditions.

## 5.0 Summary

You have been able to go through the study of hydration and rehydration which will enable you cater for people with dehydration and thereby save life to reduce morbidity and mortality rate. The next unit will discuss interpersonal communication which when learnt will enable us have good rapport with clients.

## 6.0 TMA

1. Define hydration
2. Define Rehydration
3. List conditions that requires the use of oral rehydration therapy

## 7.0 References and other resources

http//en.wikipedia.org/wiki/Rehydration.

http://wikioedia.org/wiki/dehydration.

Chris, C. O. (2008) The complete drug formulary. 2008-2009 edition, Lindox Products, Lagos. Nigeria.

Taylor, Lillis, Lemone (1998). Fundamentals of Nursing, Lippincott Company.

Other resources – unpublished Peadiatric lecture note by Ipinjolu (2009).

**Unit 20: Interpersonal Communications**

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## 1.0 Introduction

Communication is a very important method used to express one's ideas, feeling and emotion wherever one gets to. It is an act used in health care delivery to pass across information, health education and advice to clients in other for them to be knowledgeable so as to effect changes in their individual health behavior to ensure a healthy living.

## 2.0 Objectives

At the end of this unit, you should be able to:
Define interpersonal communication
Identify health activities requiring IPC
Identify verbal/non verbal communication skills
Explain their effects on the clients.

## 3.0 Main Contents

### 3.1 Definition of Interpersonal Communications

Interpersonal Communication is the face to face, verbal and non-verbal exchange of information between two or more persons.

### 3.2 Health Activities requiring IPC

- Community needs assessment
- Ante-natal/post-natal health education at the clinic level
- Counselling in private homes or clinics
- Meetings and discussion groups

1. Verbal communication is the face to face exchange of information, ideas or feelings through a loud voice.
2. Verbal Communication may be influenced by emotions such as
   Anger
   Boredom
   Happiness

Frustration
Disgust
Disinterest
Impatient
Disapproval

3. face to face exchange of information ideas or feelings through non-audible means.
4. Non-verbal communication includes:

Facial expression
Hand gestures
Leg/foot gestures
Eye gestures e.g rolling eyes
Body posture/position
Finger drumming
Toe/foot tapping
Folded arm

**3.3 IPC Skills**

Verbal communication skills – Clear
Clarify Listen
Encourage
Acknowledge
Repeat/reflect
Non verbal communication skills – Roles
Relax
Open up
Lean forward
Eye contact
Sit squarely and smile as appropriate

**3.4 Effects of IPC on clients**

**A.** Non-verbal negative effect on the clients – It can be a barrier to health care delivery
- Clients can be frightened away from the clinic
- Clients will lose confidence and trust on the care

B. Non-verbal positive effect on the clients – It can be a motivator enabling care by creating trust, confidence on the client's part

**3.5 Ways to enhance and improve health care provider's interaction with the clients**

* One should be aware of the non-verbal responses whilst interaction with the clients
* Plan and arrange schedules to avoid tension
* Practice positive non-verbal clues
* Avoid distraction when attending to client
* Don't allow interruption by other while attending to clients
* Don't put words into client mouth

* Make use of some behaviours in interacting with the clients such as - shake hands (if appropriate) with smile
- Speak in the person's language and at the person's level
- Use simple language
- Allow the client to finish her thoughts
- Make eye contact
- Don't discuss with other clients
- Choose a private place to discuss
- Ask other client to give you time

## 4.0 Conclusion

In this unit, you have been able to learn what interpersonal communication is, the activities requiring IPC and the effects of such on the clients for effective health care delivery.

## 5.0 Summary

This unit has focused on what interpersonal communication is and the skills involved. In the next unit, you will learn about counseling and the processes involved for effective counseling.

## 6.0 T.M.A.

1. What is Interpersonal Communication?
2. In your on words explain how you can enhance and improve health care providers interaction with clients.

## 7.0 References and other resources

Training manual of life saving skills (LSS) for nurses/midwives by WHO

Adesokan, F. O. (2009) Reproductive health for all, 1st edition, Excels production: Akure.

**Unit 21: Counselling**

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## 1.0 Introduction

Health providers come into contact with the public, clients and their families everyday. They are expected to motivate, educate and counsel member of the community.
The most intimate of these interactions is Counselling, the interpersonal skills a health care provider brings to communicating with and counseling her clients make up the quality of care she provides for her clients.

## 2.0 Objectives

At the end of this unit, you should be able to:
Define Counselling
State types of Counselling
Know the skills and techniques of Counselling
Explain the key components of Counselling Process
List the qualities of a good Counsellor

3.0 Main Content

3.1 Definition of Counselling – It is a person to person interaction in which the provider gives adequate information which will enable a client to make an informed decision about her health. Counselling helps the client to understand her feelings and deal with her specific personal concerns, effective Counselling empower a client to make her own decision.

## 3.2 Importance of Counselling

* It allows a client to be better informed about any issue
* It enables individuals to take voluntary decisions without being forces.
* It allows better interaction between service providers, TBA and other health workers and clients.

* It allows clients to ask question and receive answers that will educate, correct misconceptions, dispel rumours and myths.
* It enables clients to be assisted by the counselor, to understand his/her needs and feelings about a situation and plan for the future.

**3.3 Types of Counselling**

* Individual Counselling (one-to-one basis)
* Group counseling (at a meeting or any gathering)
* Family counseling (at clients home)

**3.4 Skills and Techniques of Counselling**

* Being a good listener
* Skill in talking but also in using other methods to express oneself without talking
* Praising and encouraging the client
* Observing the client and interpreting what is said
* Screening the client to know what to do
* Being able to provide assistance to clients to make decision
* Explaining in the language the client will understand
* Being relaxed when counseling a client
* Able to sit comfortably with friendly smile
* Using eye contact to get the clients message
* Clarifying points to be sure the client understands
* Repeating oneself until the client understands what is being said

**3.5 Key Components of Counselling process**

G - Greet the client politely and warmly
A - Ask about herself, her family and her feelings
T - Tell her what is going to happen during her visits and about her specific issues concerning the condition
H - Help her to be comfortable & understand her condition
E - Explain again for her comprehension
R - Return visit/referral

**ROLES AND CLEAR**

R - Relax
O - Open up
L - Lean forward
E - Eye contact
S - Sit Squarely, smile where necessary
C - Clarify
L - Listen
E - Encourage
A - Acknowledge
R - Reflect and repeat

### 3.6 Qualities of a good counselor

* Must be a good listener
* Possess knowledge of the subject matter
* Possess knowledge on cultural values and its influence on individual
* Being non-judgmental
* Aware of her own values, attitudes, emotion and limitation
* Respectful and tolerant
* Honest and truthful
* Recognize the worth of each client
* Must have understanding about reproductive health
* Must be observant
* Must be able to communicate clearly
* Must not ask embarrassing questions

## 4.0 Conclusion

In this unit, you have been able to learn what Counseling is and the process of counseling the client which is an important aspect of patients care.

## 5.0 Summary

This unit has focused on what counseling is, the types of counseling, skills and techniques, key components of counseling process and the quality of a good counselor which a health worker must possess for effective health service delivery.

## 6.0 T.M.A

1. Define what Counselling is?
2. List 10 Counselling skills and techniques
3. State 6 qualities of a good counselor

## 7.0 References and other resources

Training manual of life saving skills (LSS) for nurses/midwives by WHO

Adesokan, F. O. (2009) Reproductive health for all, 1st edition, Excels production: Akure.