BABY WITH SPECIAL NEEDS

OBJECTIVES

Main objective

- By the end of the sessions, the learners will gain knowledge, skills and attitudes necessary to promote neonatal health, prevent illness and be able to diagnose and manage a neonate at risk.
- It is therefore important that the learner gains the necessary knowledge in management and prevention of complications from a neonate at risk.

MODULE CONTENT.

- Low birth weight
- Congenital abnormalities
- Respiratory distress syndrome
- Neonatal asphyxia
- Birth injuries and trauma
- Neonatal jaundice
- Neonatal sepsis
- Hypothermia

MODUL CONTENT

- Hypoglycemia/Baby of diabetic mother
- Ophthalmic neonatorum
- Babies born before arrival-BBA
- Kangaroo mother care
- Neonatal resuscitation
- Warm chain.
- Hemorrhage

OBSTETRIC OPERATIONS AND PROCEDURES.

- Induction of labor
- Caesarean section
- Vacuum extraction
- Amniocentesis
- Macdonald stitch/shirodkar

COMMUNITY MIDWIFERY

- Domiciliary midwifery
- Vital statistics and documentation
- Maternal audit
- Introduction to midwifery care study

DESCRIPTION- NEWBORN AT RISK

- Newborn at risk can be defined as;

➢ any neonate, regardless of birth weight, size or gestational age who has a greater than average chance of morbidity or mortality within the first 28 days of life.

➢ Usually, maternal conditions may predispose a neonate to be at high risk of developing the disorders you are about to cover

➢ Identification of newborns at risk cannot always be made before labour, since the course of labour and birth or how the infant will withstand the stress of labour is not known prior to the actual process.

Classification of high risk infants (weight)

- **Low birth weight infants (LBW)** – an infant whose birth weight is less than 2500gm (5.5 pounds) regardless of gestation age
- **Very low birth weight infant (VLBW)** – an infant with birth weight less than 1500gm
- **Extremely low birth weight (ELBW)** – an infant with birth weight less than 1000gm

Classification of high risk infants (weight

- **Small for date/ gestation (SGA)** – an infant whose rate of intrauterine growth was slowed & whose birth weight falls below the 10th percentile on intrauterine growth curves

Intrauterine growth restriction – infants whose intrauterine growth is restricted

- **Large for gestation age (LGA)** – an infant whose birth weight falls above the 90th percentile on intrauterine growth charts

CLASSIFICATION BY GESTATIONAL AGE

- **Term birth**: delivery occurring between 37 and 42 weeks of gestational age

- **Preterm birth**: delivery occurring before 37 weeks of gestational age

- **Extremely preterm:** - < 28 weeks of gestational age
- **Very preterm** – 28 to 32 weeks of gestational age
- **Moderate to late preterm** – 32 to <37 weeks of gestational age

- **Post-term birth**: delivery occurring after 42 weeks of gestational age

The Premature Infant (Preterm)

Definition

- The preterm baby is born before the end of the 37th gestational

week, regardless of birth weight.

- Or baby born before the 37th completed week of gestation.

Causes of Prematurity

- Unknown- 40% unknown
- **Maternal factors;** malnutrition, chronic diseases (heart diseases, renal disease& liver dse), malaria, Tobacco use
- **Pregnancy related factors;** hypertension, Anemia, abruption placenta or placenta previa, multiple pregnancy, incompetent cervix, PROM, chorioamnionitis & polyhydramnios
- **Fetal factors;** chromosomal abnormalities, intrauterine infections, anatomic abnormalities

others.

- Frequent pregnancies
- Low maternal weight (mothers with a weight < 40kg & a height of < 145cm often give birth to LBW babies
- Teenage pregnancy
- Previous preterm baby
- Cervical incompetence , history of cone biopsy
- Induced premature labor

Physical stress caused by non obstetric surgery may lead to premature labour if the mother has this procedure while pregnant .

Characteristics of the preterm baby

- skull bones are soft ,large fontanels and wide sutures.
- The chest is small and narrow and appears underdeveloped.
- The abdomen is prominent because the liver and spleen are large and

abdominal muscle tone is poor

- Large liver
- Most reflexes are absent
- Plantar creases not visible
- Plentiful lanugo
- Red skin

Characteristics of the preterm baby

- Very small
- Labia are widely separated, not covering the minora resulting in prominent appearance of the clitoris
- Scrotum does not have rugae & testes are not descended
- Pinna soft and flat.
- Feeble cry
- Scanty hair on the head
- Absent eyebrows
- Visible vessels because of thin subcutaneous tissue

Problems of Preterm neonates

- Birth asphyxia
- Hypothermia (term babies keep themselves by active metabolism of brown fat stores, preterms lack brown fat)
- Preterms <34 wks gestation cannot coordinate suckling & swallowing. Therefore unable to feed from the breast
- Preterms < 30wks of gestation may not tolerate any enteral feeds initially because of gut immaturity

Problems of Preterm neonates

- **respiratory distress** (esp <34 wks) coz of immature lungs. There will be impaired gaseous exchange, xtized by tachypnoea, indrawing of the chest, grunting & cyanosis
- **Apnoeic spells/ attacks** – due to immature respiratory control mechanisms. In an apnoeic attack, **the baby stops breathing, develops slow heart rate & turns blue**
- **Infections** – immunocompromised. Do not have sufficient humoral, cellular & mucosal immune mechanisms to protect themselves against bacteria

Problems of Preterm neonates

- Immature vascular bed around the brain ventricles. These delicate vessels may rapture & cause
- **Intraventricular hemorrhage (IVH)**.
- Immature metabolic pathways of infants predispose them to develop **hypoglycemia**, metabolic acidosis & hyperbilirubinemia
- **Blindness** – if given excess O2 coz of damage to the immature retina (retinopathy of prematurity)
- **Organ injury (Brain, Eye, Lung, Intestine, Skin**

Management of a premature

- Maintenance of respiration and good colour
- Provision of warmth
- Prevention of infection
- Ensuring good progress and growth
- Educating the mother to take care of her infant
- Ensuring baby gets adequate nutrition

Maintenance of respiration

Assist to maintain patency of the airway because

- Respiratory centre in the medulla is immature
- The lungs tend to be atelectatic and are not well developed due to inadequate surfactant.
- The diaphragm and chest muscles are weak, hence constantly asphyxiated.
- The infant should be laid with its head to one side and the foot of the cot should be slightly raised to aid with the drainage of mucus
- Observeclosely for signs of respiratory distress and cyanosis

note

- Respiratory distress can be recognised by the rapid, irregular respiration with periods of apnoea, in-drawing of the chest walls and sternal recession and expiratory grunt with cyanosis of body and face.
- Give oxygen in such cases –avoid high concentration.
- prolonged administration of a high concentration of oxygen may lead to the development of fibrous tissue behind the lens, which results in a condition known as retrolental fibroplasia leading to blindness in the newborn

Provision of warmth

- Prevention of heat loss & maintenance of neutral thermal environment is crucial for the infant
- Premature and LBW have **smaller muscle mass & fewer deposits of brown fat** for heat production, lack of insulating subcutaneous fat & have poor reflex control of skin capillaries
- heat regulation centre in premature babies is underdeveloped.
- Small babies weighing less than 1.5 kilograms should ideally be nursed in an incubator with temperature of about 30 degrees Celsius and relative humidity of 65%.
- If there is no incubator available, they should be nursed in warm towels.
- Placed in a heated environment

- A high **humidity atmosphere contributes to body temperature** maintenance by reducing evaporative heat loss
- **Skin to skin (kangaroo) contract** between stable preterm infant & mother maintains body temperature
- Use of cotton wool as a means of keeping infantwarm has been condemned, since it deprives the skinof air and there is danger of infection and overheating of infant.

Protection from infection

- Through, meticulous hand washing
- Personnel with infectious disorders should be barred from the unit
- Ensure early & exclusive breast milk feeding
- Care of the umbilical stump
- Avoid unnecessary interventions e.g. IV lines & needle pricks
- Nursery should be clean
- Control visitors

NUTRITION.

- preterms are at risk of altered nutritional status because of poor nutritional stores & several physical & developmental xtics
- Suckling & swallowing are not coordinated until **32 to 34 wks** of gestation & synchronization occurs after 36 wks.
- **Gag reflex** is also not well developed hence infants highly prone to aspiration

NUTRITION

- Gestation ≥34 wks infants can be breast, bottle or cup fed safely unless otherwise ill
- Those less than 34 wks gestation usually need tube feeding
- Those less than 32 wks should, as a rule be tube fed
- Breast milk is ideal because of its digestibility, nutrients and the immunity it gives to the newborn.
- The practice of withholding feeds or fluid for 24 hours or more before feeding is considered unnecessary

Feeding Schedule

- Neonates >1500gms -**60mls/kg/day**
  - Increase by 20mls/kg every day
- Neonates < 1500gms –**80mls/kg/day**
  - Increase by 20mls/kg every day
- Feeding done 3 hourly
- Breast feeding/EBM (NGT/ Cup feeding) formula milk, Pre-nan

Parenteral nutrition indicated when;

- Severe feed intolerance
- GI abnormality including Necrotizing enterocolitis (NEC)
- Energy conservation

COMPLICATIONS OF A PREMATURE.

- Cyanotic attacks
- Cerebral hemorrhage
- Heart failure and pulmonary edema

Jaundice

- Anemia
- Infection
- Poor mental and intellectual development in later years
- Respiratory Distress Syndrome

The Small for Gestational Age Infant

- The small for gestational age (SGA) infant who appears small for their age, may be full term or preterm, but the baby is undernourished, undersized & therefore, LBW

characteristic of small for Gestational Age

- Plantar creases are well defined from toes to heel
- Moro and traction reflexes present
- Pinna of ear has cartilaginous ridges and firm
- Born at term
- Eyes wide open (worried look
- Skin dry and wrinkled
- Skull bones firm

CAUSES

- Maternal diseases such as hypertensive disorders
- Placental transfer of inappropriate substances which have erotogenic effects such as nicotine, alcohol, cocaine or infective agents
- Extremes of maternal age, that is those at either end of the childbearing spectrum, for example, very young or old parent
- Socio-economic factors, including poor nutrition of the mother during pregnancy
- Parity and number of fetuses in utero all impinge on the normal growth pattern

Problems of SGA neonates

- Asphyxia
- **in-utero undernutrition** they have small placenta
- **Hypothermia** - since they are chronically undernourished in utero, they also lack adequate brown fat stores
- **Hypoglycemia** coz of insufficient energy stores
- **Infections** – ill effects of chronic intrauterine stress
- More likely to have malformations

Summary of problems LBW

- Hypoxia
- Hypovolemia/ Hypervolemia
- Hypoglycemia/ Hyperglycemia
- Hypokalemia/ hyperkalemia
- H+ [acidosis]
- Hypothermia/ hyperthermia

management

General principles for the care of LBW neonates include;

- All neonates weighing ≤ 2000gms should be admitted in the NBU
- Respiratory support
- Provide adequate warmth (temperature regulation)
- Adequate feeding (nutrition & fluids)
- Prevent infections

The Post Term Infant

- A post term infant is a baby born after 294 days, that is, 40 weeks of gestation.
- Accurate dating and calculation of the gestation period is important.
- The main characteristic features of a post term infant include:

characteristic features of a post term

- Skin is loose, dry and desquamating (peeling off)
- Skull bones are hard and firm
- Small fontanelles and narrow sutures
- Nails are overgrown hence long
- Minimal subcutaneous fat of the skin – loose dry skin which peels off.
- Absence of lanugo and vernix
- Meconium staining on the skin
- Birth weight of 4kg or more in 10% of prolonged pregnancies.
- 1% of post mature newborns weigh 4.5kg
- Meconium aspiration syndrome.
- Placenta insufficiency – malnutrition – intra-uterine growth retardation

This infant is at risk of developing complications because

- The placenta starts diminishing in its functions and hence the foetus may not get enough nutrients and oxygen leadind to asphyxia in utero and passing of meconium which will affect the infant’s life.
- Since the bones of the skull are firm, moulding is not effective and this may lead to a difficult delivery

Complications of post term

- **Fetal distress**
- **MAS**
- **Fetal trauma**
  brachial plexus injuries, clavicle fracture
- **Increased perinatal mortality**
- **Dysmaturity syndrome**

Meconium Aspiration Syndrome (MAS).

Definition:

-This respiratory disorder is caused by meconium aspiration by the fetus in utero or by the newborn during labor and delivery.

- MAS is often a sign that the neonate has suffered asphyxia before or during birth.

- The mortality rate can be as high as 50% and survivors may suffer long-term complications related to neurological damage..

Causes and Pathophysiology:

1. Fetalis hypoxia; e.g. cord prolapse that comes around the neck of the fetus many days before delivery.

2. Babies born breech presentation.

In both cases;

-----intrauterine hypoxia----vagal nerve stimulation --- relaxation of the sphincter muscle --------releasing of the first stool (meconium) in the intrauterine life and becomes mixed with the amniotic fluid, with the first breath the baby can inhale meconium.

The aspirated meconium can cause ***airway obstruction*** clinical manifestations of RDS, and ***an intense inflammatory reaction.***

- **Management of MAS:**

  Suctioning of the oropharynx by obstetricians **before** delivery of the shoulders.

  Immediate insertion of an ET tube and tracheal suctioning **before** ambu agging (Maintain a neutral thermal environment).

  Gastric lavage, and emptying of the stomach contents to **avoid further aspiration**.

Postural drainage and chest vibration followed by frequent suctioning.

Pulmonary toilet to remove residual meconuim if intubated.

Antibiotic coverage .

Oxygenation (maintain a high saturation > 95%)

Mechanical ventilation to avoid hypercapnia & respiratory acidosis.

1. NEONATAL HYPOGLYCAEMIA

Description,

- An acquired metabolic disorder characterized by abnormally low blood sugar such that for term babies, glucose levels are below 2.0mmols/L.
- the variation of the cut off values is because normal term infant uses compensatory mechanisms and alternative fuels such as ketone bodies, lactate or fatty acids to replace glucose

PREDISPOSING FACTORS

REFERS TO NEONATES AT RISK OF HYPOGLYCAEMIA.

- Low birth weight
  - This is because these babies have lower glycogen stores hence cannot mobilize enough glucose.
  - Simultaneously, have immature hormonal and enzyme responses and sometimes cannot feed orally at an early stage
- Severely asphyxiated
  - The low oxygen supply upsets the metabolism of carbohydrates hence excessive catabolism of glycogen, leading to exhaustion of the stores
- Idiopathic respiratory distress
  - Due to inadequate oxygen supply hence exhaustion of the glycogen stores

- Severe jaundice: toxicity of the high levels of unconjugated bilirubin inhibits feeding hence high use of glucose
- Intracranial injury: due to inadequate oxygen supply
- Severe infection: inhibition of feeding
- Hypothermia: excessive use of glucose to produce heat for survival
- Uncontrolled maternal medical condition; becoz the neonate's pancrease produces large amounts of insulin in the 1st week as it was during intrauterine stage

CLINICAL FEATURES OF N. HYPOGLYCEMIA

1. Lethargy & poor feeding- due to inadequate glucose supply to the tissues
2. Abnormal respiratory pattern- characterized by episodes of shallow breathing and apnoea which finally leads to cyanosis as condition deteriorates. All this is due to reduced oxygen and glucose supply to the brain cells
3. Hypotonicity (limpness) & hypothermia; becoz of insufficient supply of O2 & glucose to the muscles
4. Irritability: which ranges from jitteriness(extreme nervousness & anxiety), later twitching- angles of mouth & eyes as well as extremeties and eventually seizures/convulsions. It is brought about by neuroglycopenia (insufficient to reduce glucose supply in the nerve cell)- intracranial haemorrhage
5. Coma- it is a life threatening feature characterized by lack of sensation, abnormal heart & lungs function.

   Occurs due to either delay or omission of appropriate measures. Death occurs within 24 hrs if condition is neglected

DIAGNOSTIC FACTORS

- Hx- of maternal diabetes, either gestational or chronic diabetes.
- Physical examination findings- features of irritability, limpness, lethargy e.t.c
- Lab tests-Abnormal lab results e.g. low blood sugars e.t.c.

SPECIFIC MANAGEMENT- N. HYPOGLYCEMIA

PRINCIPLES OF MANAGEMENT OF NEONATAL HYPOGLYCAEMIA:

- Adequate temperature control- keep the neonate warm
- Encourage early feeding- should be fed within 1 hour after delivery
- Encourage frequent feeding, at least every 3 hourly
- Blood glucose should be checked immediately before the second feed and then 4- 6 hrly.
- Observe high standards of hygiene to prevent infections.
- Inform the DR concerning the condition
- Admit the baby in the NBU and manage as follows:

If the Blood glucose less than 1.1 Mmol /L;

- Give a bolus of 2 ml/kg body weight of 10% glucose IV slowly over five minutes
- If an IV line cannot be established quickly, give 2 ml/kg body weight of 10% glucose by Nasogastric tube
- Infuse 10% glucose at the daily maintenance volume according to the baby's age
- Assess the blood glucose 30 minutes after the bolus of glucose administration &;
  - If the blood glucose is less than 1.1mmol/L, repeat the bolus of glucose (above) and continue the infusion then assess blood glucose again after 30 minutes

- If the blood glucose is between 1.1mmol/L and 2.6mmol/L, continue the infusion and repeat the blood glucose testing every three hours until the blood glucose is 2.6mmol/L or more on two consecutive tests
- Allow the baby to breastfeed.
- As the baby’s ability to feed improves, slowly decrease (over a three-day period) the volume of IV glucose while increasing the volume of oral feeds.
- Do not discontinue the glucose infusion abruptly

If the Blood glucose is between 1.1 -2.6 Mmol/L;

- If the blood glucose is between 1.1mmol/L and 2.6mmol/L, allow the baby to breastfeed and repeat the blood glucose testing every three hours until the blood glucose is 2.6mmol/L or more on two consecutive tests
- Once the blood glucose is 2.6mmol/L or more for two consecutive tests;
  - If the baby cannot breastfeed, give expressed breast milk using an alternative feeding method

Frequency of blood glucose measurements after blood glucose returns to normal

- If the baby is receiving IV fluid for any reason, continue blood glucose testing every 12 hours for as long as the baby requires IV fluid.
- If the blood glucose is less than 2.6mmol/L treat as described above
- If the baby no longer requires or is not receiving IV fluid, assess blood glucose every 12 hours for 24 hours (two more tests):
  - If the blood glucose remains normal, discontinue testing

PROGNOSIS

- Good: with early diagnosis & immediate + proper mgt
- Poor/fatal or leads to high morbidity rate, where the infant is a light or small for gestational age & proper mgt is delayed, becoz there’s already some degree of cerebral damage= death or severe mental retardation and other associated conditions

PREVENTION

1. Routine screening of the prenatals in order to identify the risk factors
2. Adequate temperature control at birth and thereafter(keep infant warm to prevent hypothermia)
3. Early feeding- using milk within 1st 1 hour for normal neonates and within 15 minutes of birth for those whose mother is diabetic. The milk has got fat content which spares enough glucose required for the normal cerebral functions hence less chances of brain damage
4. Frequent feeding thereafter atleast 3 hourly to maintain glucose concentration in the circulation hence normal body function
5. Accurate screening & follow-up of the neonates whose mothers are diabetic during the 1st one week of birth

2. HYPERGLYCAEMIA

- Definition: Hyperglycemia is a serum glucose concentration > 8.3 mmol/L).
- The **most common cause** of neonatal hyperglycemia is
  - Iatrogenic
- Iatrogenic causes usually involve too-rapid IV infusions of dextrose during the first few days of life in very low-birth-weight infants (< 1.5 kg)
- Hyperglycaemia is much less of a clinical problem than hypoglycaemia & mostly occurs in pre-terms & severely growth restricted infants

- Symptoms and signs are those of the underlying disorder;
- Diagnosis is by serum glucose testing.
- Additional laboratory findings may include glycosuria and marked serum hyperosmolarity.

Neonatal jaundice

Define

Causes of jaundice

Bilirubin physiology

Types

Management

- Jaundice is the yellow discoloration of skin & mucous membranes as a result of raised bilirubin levels(hyperbilirubinemia), occurring in the first 28 days of life.

Classification;-

Physiological jaundice or

Pathological jaundice

- Visible form of bilirubinemia on;-
- Adult sclera >2mg.dl
- Newborn skin > 5mg/dl
- Occurs in 60% of term & 80% of preterm neonates

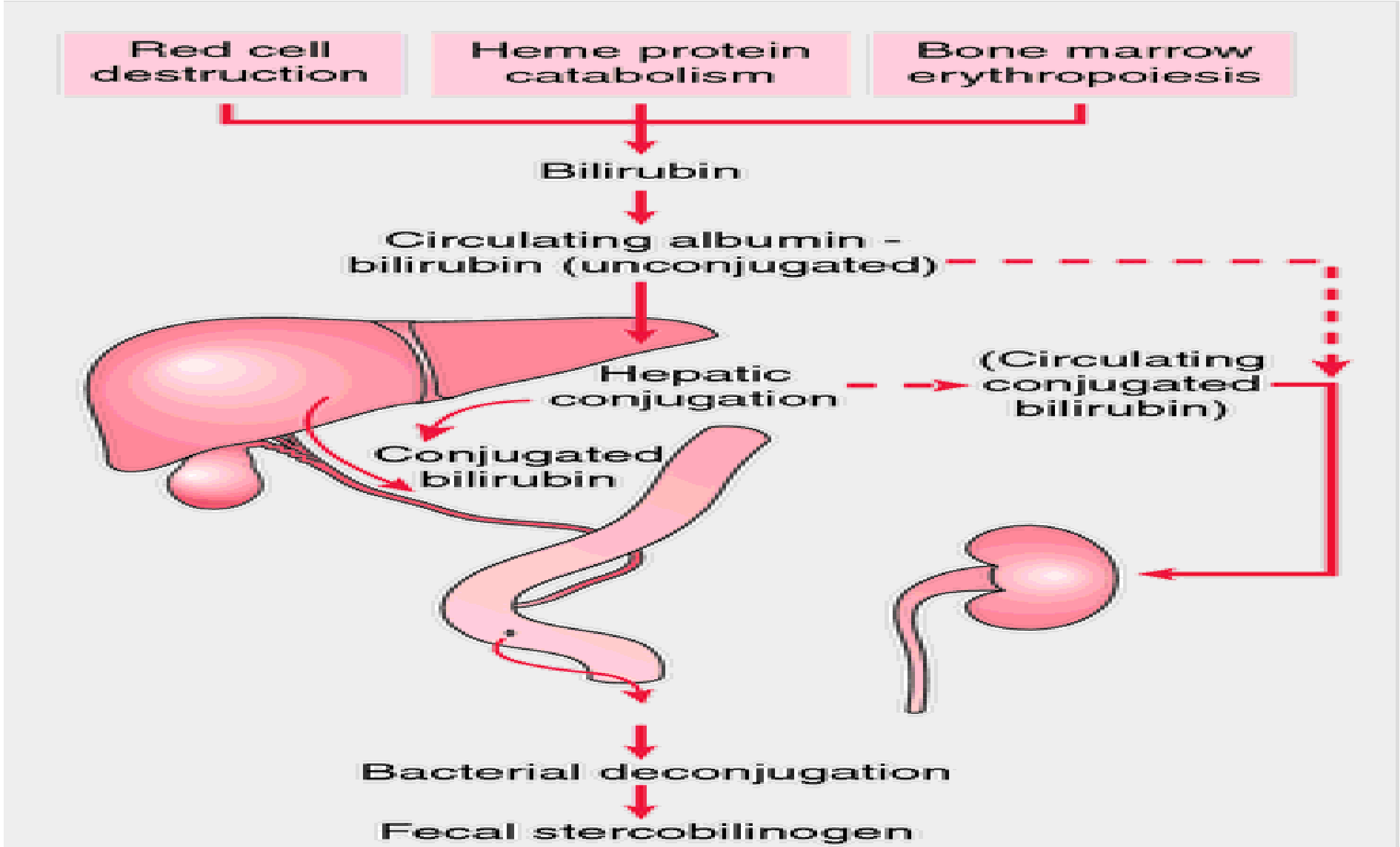
Bilirubin Physiology

- ***Source of production :*** Ageing, immature or malformed red cells are removed from the circulation & broken down in the **reticuloendothelial system** (liver, spleen & macrophages). Hemoglobin from these cells is broken down to the by-products of **haem, globin & iron**

- **Heam** is converted to biliverdin & then to unconjugated bilirubin
- **Globin** is broken down into amino acids, which are used by the body to make proteins
- **Iron** is stored in the body or used for new red cells
- ¾ of bilirubin comes from hemoglobin catabolism.
- 1 gm of hemoglobin results in the production of 34mg of bilirubin.
- A normal term new born produces about
- 6-10mg/kg/day

Three stages are involved in the process of bilirubin conjugation;

- a)Transport
- b)Conjugation &
- c)Excretion


Red cell destruction
Heme protein catabolism
Bone marrow erythropoiesis
Bilirubin
Circulating albumin – bilirubin (unconjugated)
Hepatic conjugation
(Circulating conjugated bilirubin)
Conjugated bilirubin
Bacterial deconjugation
Fecal stercobilinogen

a) Transportation of bilirubin

- Unconjugated or fat soluble bilirubin is transported to the liver bound to **albumin**. If not attached to albumin, this unbound or ‘free’ bilirubin can be deposited in extravascular fatty & nerve tissues (skin & brain). Skin deposits of unconjugated or fat soluble bilirubin causes jaundice, while brain deposits can cause bilirubin toxicity or **kernicterus**

b) Conjugation

- Once in the liver, unconjugated bilirubin is detached from albumin, combined with glucose & glucoronic acid & conjugation occurs in the presence of oxygen & the enzyme *Uridine diphosphoglucoronyl transferase (UDP-GT)*. The conjugated bilirubin is now water soluble & available for excretion

c) Excretion

- Conjugated bilirubin is excreted via the biliary system into the small intestine where normal bacteria change the conjugated bilirubin into **urobilinogen**. This is then oxidized into orange colored **urobilin**. Most is excreted in the feaces, with a small amount excreted in urine

- Two main forms of bilirubin are present in the body;
- **Unconjugated bilirubin** is fat soluble & cannot be excreted easily either in bile or urine. Neonatal jaundice can result from increased levels of this fat soluble bilirubin that cannot be excreted and is instead deposited in fatty tissue
- **Conjugated bilirubin** has been made water soluble in the liver & can be excreted in feces & urine. Neonatal jaundice can also result from increased levels of this water soluble bilirubin if excretion is prevented, e.g. by an obstruction

Assement of jaundice

- Clinical jaundice first becomes obvious in the face followed by a downward progression as it increases in intensity.
- Assessment of jaundice should be done in natural light.
- The finger is pressed on the baby’s skin, preferably over a bony part, till it blanches. The underlying skin is noted for yellow color. Confirm bilirubin level by lab

a) Physiological jaundice

- Also known as icterus neonatorum
- Neonatal physiological jaundice occurs when unconjugated (fat soluble) bilirubin is deposited in the skin instead of being taken to the liver for processing into conjugated (water soluble) bilirubin that can be excreted in feces or urine.

- It is a normal transitional state affecting up to 60% of term & 80% of premature babies who have a progressive rise in unconjugated bilirubin level & jaundice on day 3.
- Physiological jaundice **never appears before 24 hours of life,** usually fades by 1 week of age & bilirubin levels don't exceed 12-13mg/dL (200-215 umol/L).
- Lasts 5th to 7th day
- Managed with phototherapy if levels rise significantly >5mg/dl/day

- In many newborns **a temporary discrepancy exists** between red cells breakdown and their ability to transport, conjugate & excrete the resulting bilirubin.
- Physiological jaundice results from increased red cell breakdown at a time of newborn immaturity

Why does physiological Jaundice develop?

- Increased bilirubin load (incres RBC brkdwn)
- Decreased trasport of bilirubin to the liver (deficient albumin)
- Defective conjugation (reduced levels of UDP-GT enzyme levels)
- Decreased excretion
- Increased entero-hepatic reabsorption

Increased enterohepatic reabsorption

- This process is increased as the newborn bowel lacks the **normal enteric bacteria** that breaks down conjugated bilirubin to urobilinogen (hindering excretion).
- The newborns gut is sterile & less motile.
- Feeding stimulates peristalsis & produces rapid passage of meconium hence reducing amount of reabsorption of unconjugated bilirubin

Characteristic of physiological jaundice

- Appears after 24 hours
- Maximum intensity seen on 4-5th day in term & 7th day in preterm neonates
- Mainly occurs in the skin & eyes
- Baby looks & feeds well
- Serum levels do not exceed 15mg/dl
- Clinically undetectable after 14 days
- Disappears without any treatment

Management of physiological jaundice.

- No treatment is required but baby should be observed closely for signs of worsening jaundice
- Early frequent breast feeding – breast feeding ensures glucose supply to the liver, increases bowel motility & normal bowel flora.
- Associated with decreased milk intake related to fewer calories consumed by infant before mother’s milk is well established
- Mother advised to expose the baby in the sunlight
- Phototherapy

Breastfeeding associated jaundice

- Onset is 2nd to 4th day with peak 3rd to 5th day
- Managed by increasing breast feeding

Pathological jaundice

- Pathological jaundice in newborns usually **appears within 24 hours of birth.**
- Increase of serum bilirubin> 5mg/dl/day
- Serum bilirubin > 15mg/dl
- Clinical jaundice is persistent after 14 days
- Stool clay/ white colored or urine staining clothes
- Direct bilirubin >2mg/dl at any time

causes

- **Appearing within 24 hours of age**
- Hemolytic disease of the newborn; Rh, ABO incompartibilities
- Infections: TORCH, malaria, bacterial
- Enzyme deficiencies – (G6PD deficiency leads to increased hemolysis of RBCs)
- **Appearing between 24- 72 hours of life**
- Physiological
- Sepsis neonatorum
- Polycythemia
- Concealed hemorrhage: cephalhematoma, SAH, IVH
- Increased enterohepatic circulation
- Drugs that compete with bilirubin for albumin binding sites e.g. asprin, ampicillin, sulphonamides

diagnosis

- Review the maternal & perinatal hx
- Family hx of jaundice
- Previous siblings with jaundice
- Maternal illness during pregnancy
- Hx of malaria traumatic delivery, delayed cord clamping
- Physical examination

- Laboratory tests
- Total & direct bilirubin
- Blood group & Rh for mother & baby
- Hematocrit
- Direct Coomb’s test on infant
- Septic screen
- Liver & thyroid function tests

management

- **Rationale:** reduce level of serum bilirubin & prevent bilirubin CNS toxicity
- Keep baby warm
- Continue breastfeeding or give EBM
- Administer antibiotics when indicated
- Prevention of hyperbilirubinemia
- Early feeding
- Adequate hydration
- Reduction of bilirubin
- Phototherapy
- Exchange transfusion
- Natural light (leads to hyperthermia commonly

phototherapy

- Is the primary treatment for unconjugated hyperbilirubinemia
- This involves exposure of the naked baby to blue, cool white or green light of wavelength 450-460nm.
- The light waves convert the bilirubin to water soluble nontoxic forms which are then easily excreted.
- Reduces the risk of **bilirubin-induced neurotoxicity**, because water-soluble photoisomers do not cross the BBB

- **Bilirubin 450-460nm Photoisomers of Bilirubin**
- **(Insoluble) Light (Soluble**

phototherapy

- Place baby naked in an incubator/ cot
- External genitalia may be covered while giving phototherapy
- Fix eye shields
- The energy delivered to the infant's skin decreases with increasing distance between the infant & the light source.
- Baby placed at 45cm from light
- 3 hourly feeding must be continued
- Turn baby 2hourly or after every feed
- Monitor temp 2-4 hourly
- Weigh the baby on alternate days
- Monitor serum bilirubin daily
- Discontinue phototherapy if the serum bilirubin values are <10mg/d

Advantages of phototherapy

- It is noninvasive
- Effective
- Inexpensive
- Easy to use

phototherapy

- Is the primary treatment for unconjugated hyperbilirubinemia
- This involves exposure of the naked baby to blue, cool white or green light of wavelength 450-460nm.
- The light waves convert the bilirubin to water soluble nontoxic forms which are then easily excreted.
- Reduces the risk of **bilirubin-induced neurotoxicity**, because water-soluble photoisomers do not cross the BBB

Side effects of phototherapy

- Hyperthermia
- Increased fluid loss
- Dehydration
- Damage to the retina by the high light intensity
- Lethargy or irritability
- Loose stools
- Skin rashes/ skin burns
- Increased insensible water loss: provide more frequent extra breast feeding

- Isolation & lack of usual sensory experiences, including visual deprivation
- A decrease in calcium levels leading to hypocalcemia

Care during phototherapy

- Monitor baby's temperature – observe for hypothermia/ hyperthermia
- Eyes – shields or patches must cover the eyes without occluding the nose, & not be too tight or cause eye discharge or weeping
- Skin – cleaned with warm water & observed for rashes, dryness & excoriation
- Position under phototherapy to expose all body surface areas to the light

Care during phototherapy

- Weigh the infant daily
- Monitor fluid administration, urine output
- Hydration – fluid intake & output are monitored & feeding is continued. Consider IVF for ill or dehydrated babies
- Neurobehavioral states – need for interaction with nurse, parents & other caregivers
- Monitor calcium levels – symptoms for hypocalcemia include; jitteriness, irritability, rash, loose stools, fever, dehydration & convulsions (common in preterm babies)
- Parent support

Exchange transfusion

Indications:

- If intensive phototherapy has failed to reduce bilirubin levels to a safe range
- The infant has signs of kernicterus (lethargy, decreased feeding, hypotonia, a high-pitched cry, opisthotonous, setting sun sign, fever, seizures)
- Signs of congestive cardiac failure

Lab investigations prior to procedure

- Electrolytes
- Bilirubin
- Serum glucose
- Hematocrit
- Blood is removed & replaced at 5ml/kg, removal & infusion rate should not exceed 5ml/kg/min

Nursing interventions

- Ensure consent has been obtained for exchange transfusion
- Prepare infant & family for exchange transfusion
- Infant is kept NPO for 3-4 hrs before procedure or gastric contents are aspirated with NG tube before the procedure
- Vital observations monitoring; immediately before beginning the procedure, every 5 min for the first 15 min, then every 15min for the remainder of the procedure
- Monitor blood glucose level every hour for 2 hours after procedure

- Document amount of blood withdrawn & amount infused
- Monitor vitals every ¼ hourly for the first hour, then every ½ hourly for 1 hour & then every hour for 2 hours after the procedure.
- Blood is then taken for; electrolytes, bilirubin, serum glucose & hematocrit
- Weigh the infant daily
- Observe the umbilical site for signs of bleeding

Complications of jaundice

- **Kernicterus –** bilirubin brain damage

Identified by;

- lethargy & poor feeding
- poor or absent moro reflex
- Opisthotonous
- convulsions

ABO incompatibility

- ABO Incompatibility can occur if the mother and the baby have different blood types.
- when the mother has type O blood and the baby has type A, B, or AB blood.
- People with type O blood produce anti-A and anti-B antibodies.
- Individuals with type O blood develop antibodies throughout life from exposure to nutrition, diet, some infections & transfusions

ABO incompatibility…

- The anti-A and anti-B antibodies formed are igG antibodies
- igG can cross the placenta and attach to fetal red cells and destroy them

ABO incompatibility…

- When a type O blood mom is pregnant with a type A, B, or AB blood baby, there is a chance that the anti-A or anti-B antibodies will pass through the placenta during pregnancy or birth and cause ABO Incompatibility.

ABO incompatibility.

- Like the antibodies produced in Rh Disease, the antibodies with ABO incompatibility attack the baby's red blood cells once they pass through the placenta.
- These antibodies can cause the rapid breakdown of the baby's red blood cells.

ABO incompatibility

- Bilirubin is produced when the body breaks down red blood cells and this rapid breakdown of the baby's red blood cells causes a quick build up of bilirubin, resulting in jaundice and sometimes anemia.
- Diagnosis is done by direct coombs test to identify maternal antibodies on foetal RBCs

ABO incompatibility

- ABO usually causes mild haemolysis
- Management depends on the degree of jaundice

Rhesus Isoimmunisation

Introduction

- Also called RhD incompatibility
- The D antigen is found on RBCs
- RBCs with antigen D (rhesus positive)
- RBCs without antigen D (rhesus negative)

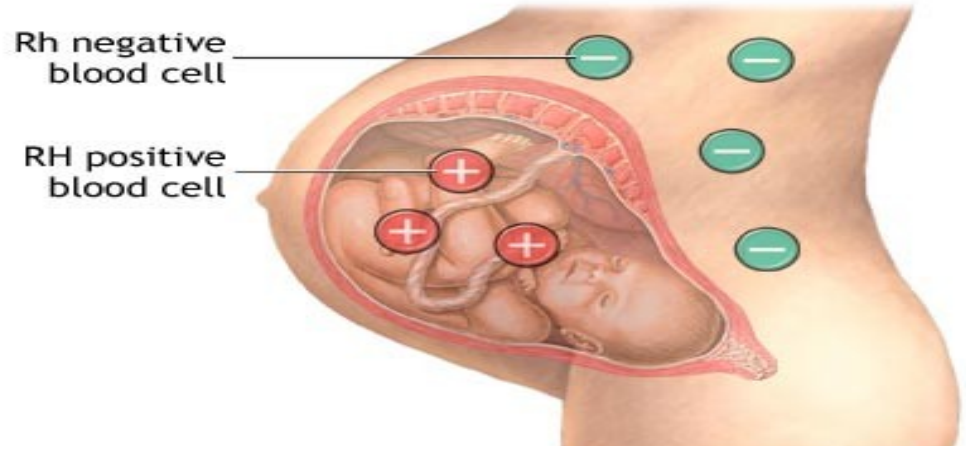
Introduction

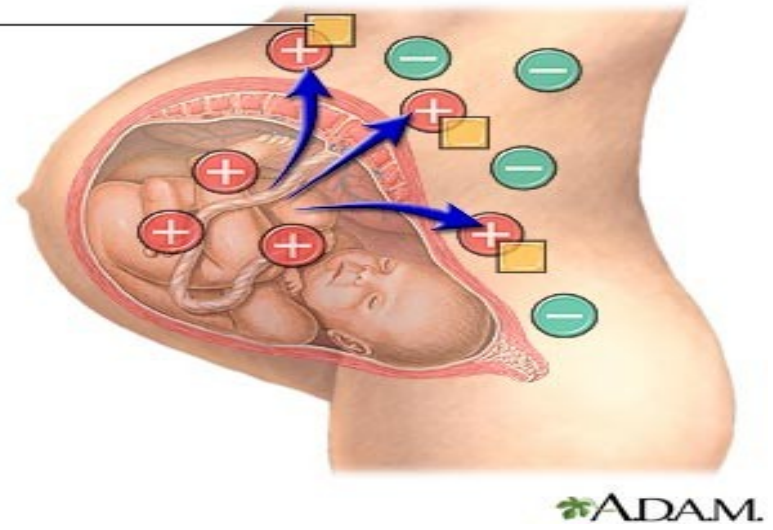
- Rhesus disease occur when a woman with Rh-negative blood is pregnant with Rh positive fetus
- Rhesus disease does not affect a first pregnancy
- Mother must have exposure to Rh-positive fetal cells in previous pregnancy
- Then she develops antibodies against the rhesus antigen

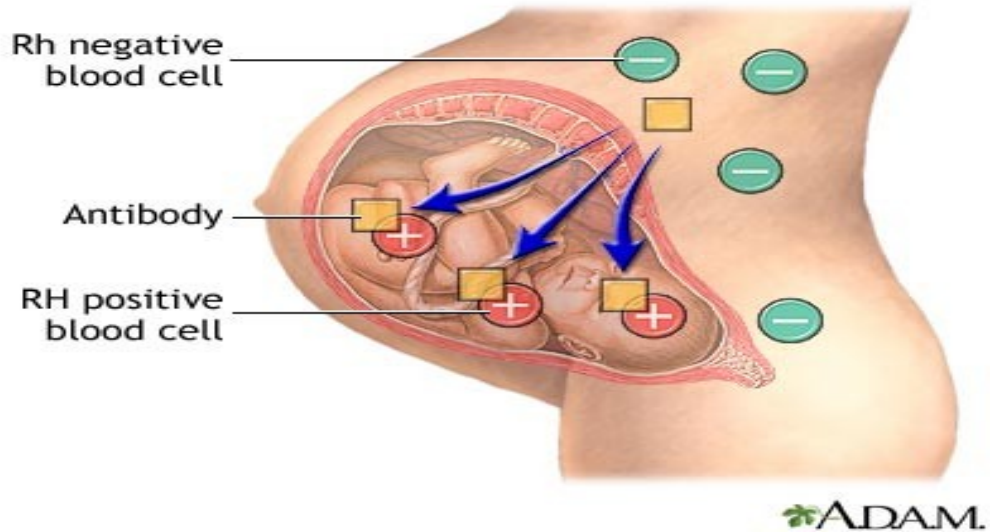
Introduction

- The ig G antibodies can cross from the mother to the fetus through the plcenta

Rh-Isoimmunization







Events that facilitate rhesus disease

- Miscarriage
- Termination of pregnancy (abortion)
- APH
- Invasive prenatal testing e.g. amniocentesis , cordocentesis,chorionic villus sampling,fetal blood sampling
- delivery

Events that trigger isoimmunization

- Ectopic pregnancy
- External cephalic version
- Fetal death in utero or stillbirth
- Abdominal trauma

Prevention of Rhesus disease

- Screening women for the rhesus factor and antibodies
- Administration of anti-D immunoglobulins to non-sensitized women within 72 hours of birth or any other sensitizing event
- Anti-D ig destroys any fetal cells in the mothers blood before her immune system produces antibodies

Prevention of Rhesus disease

- Rh-negative women screened for Rh antibodies (indirect coomb's test)
- A negative test shows an absence of antibodies or no sensitization
- After birth, fetal blood checked for the presence of maternal antibodies on fetal red blood cells (direct coomb's test)
- A negative test shows absence of antibodies or no sensitization

NB: anti D ig NOT given to women who are already sensitized

Prevention of Rhesus disease cont'

- Where feasible, administration of anti-D at 28 & 34 weeks gestation is recommended

Effects of Rh D isoimmunization

- Destruction of fetal RBCs (hemolytic anemia)
- Oedema
- Congestive Cardiac failure
- Jaundice with kernicterus
- Haemorrhagic disease of the newborn
- Hydrops fetalis due to excessive haemolysis

Management of RhD isoimmunization

- Exchange blood transfusion
- Phototherapy to reduce bilirubin levels

VITAL STATISTICS IN MIDWIFERY

VITAL STATISTICS

DEFINITION.

- Refers to the systematic collection of numerical figures, related to life and death events then they are summarized and studied.

SPECIFIC OBSTETRICAL STATISTICS.

- Refers to those of special interest in obstetric, they include:-

1. **BIRTH RATE**.

- Rate: - Refers to relation of the collected figures to a specific number within the population. The specific no. is generally 1,000 newborn infants, so birth rate is calculated as:

$$\frac{\textit{Number of births i.e. live \&dead}}{\textit{Number of women in child bearing age}} \times 1{,}000$$

- Therefore, accurate records of birth notifications and registration are important tools for correct birth rate.
- The findings help to estimate the population growth together with other relevant statistics.

2. STILLBIRTH RATE.

- Calculated through accounting for total number of stillbirths i.e. both fresh and macerated in a year. Compared to the number of total births/deliveries (live &dead) relate to a group of 1,000 of those births.
- NB: - Birth/ delivery is that which occurs as from 24th week of pregnancy.
- **FORMULA:**

$$\frac{\textit{Total number of stillbirths (fresh \& macerated)}}{\textit{Total number of deliveries (live \& still)}} \times 1{,}000$$

- The findings help to assess the antenatal care and delivery system performance. Take into account when exactly death occurred in terms of whether before arrival to health facility, already admitted but not in labour or in the course of labour.

3. PERINATAL DEATH RATE

- Around birth period &1st week after birth.

Definition of Perinatal Death

- The definition of a perinatal death is: "*The definition of a foetus weighing at least 500 grams (or 22 weeks gestation), plus the number of early neonatal deaths (up to 7 days)*
- It's a good indicator of the country's socio-economic status, quality of perinatal care and extent to which patients/clients use these services (perinatal services-prenatal & delivery)
- Perinatal death refers to both stillbirths and early neonatal death.

- Its significance is to evaluate the performance of relevant disciplines i.e. midwives and obstetrician as well as the responsibility of the mother i.e. whether has played her role accurately.
- However, others, such as socio-economic factors have to be considered as well.
- Mortality rate is expressed as number of stillbirth and early neonatal deaths per 1,000 total birth (live & still)
- **FORMULA**:

  $$\frac{\textit{No. of stillbirths + Early neonatal deaths}}{\textit{Total no. of births (live \& still)}} \times 1{,}000$$

- ~~The perinatal mortality rate is currently at **29 deaths**~~ per 1,000 total births (KDHS, 2014)

4. NEONATAL DEATH RATE.

- It's expressed as total number of both early and late neonatal deaths per 1,000 live births.
- **FORMULA**:

$$\frac{\textit{Early + Late neonatal death}\ \textit{(no. of deaths among babies below 28 days)}}{\textit{Total no. of live births/delivery}} \times 1{,}000$$

NEONATAL DEATH:

- It’s demise of newborn within the first 28days of extra-uterine life OR Death of a baby during the neonatal period.

CLASSIFICATION.

- Early neonatal death: Demise that occurs to a neonate within the first week or 0-7days of birth.
- Late neonatal death: Demise occurring after the first week, but within the neonatal period **OR** Death of a baby that occurs as from the 8^{th}- 28^{th} day after birth.
- Neonatal mortality rate is currently at 22 deaths per 1,000 live births (KDHS, 2014).

5. POST NEONATAL DEATH RATE.

- Expressed as number of deaths after the neonatal period per 1,000 live births.
- **FORMULA**:

$$\frac{\textit{No. of post neonatal deaths i.e. before 1year old} \times 1{,}000}{\textit{Total No. of live births}}$$

- Post-neonatal death refers to demise of a baby after the neonatal stage but within the first year after birth or before the first birthday anniversally.

6. INFANT DEATH(MORTALITY) RATE(IMR)

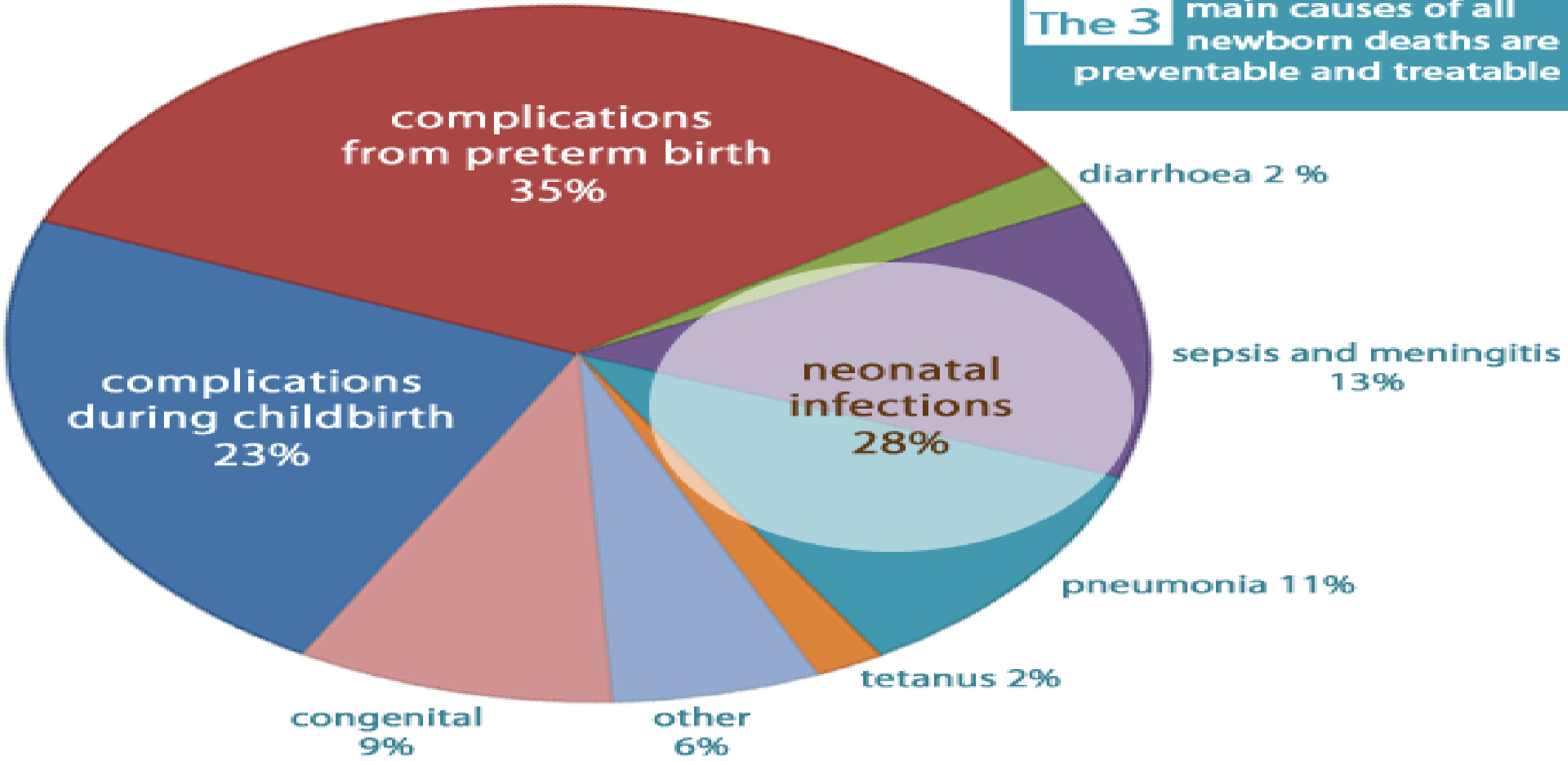
- It's expressed as total number of neonatal and post-neonatal deaths per 1,000 live births.
- **FORMULA**:

$$\frac{\textit{Neonatal + Post neonatal deaths (same year)}}{\textit{Total No. of live births}} \times 1000$$

- The result (rate) is among the best tools of evaluating the nation's health hence helps in estimating the future population with certainty.

- Currently IMR is on the **increase** due to multiple factors such as, HIV/AIDS Pandemic, vector borne disease and low socio-economic and westernization status among others.
- Therefore the respective health care disciplines have to protect the fetus prenatally, intrapartumly and the infant postnatally in collaboration with other key sectors (stakeholders), if our future population is to be healthy.
- The specific aim is to lay down a firm foundation for the baby's health.

The 3 main causes of all newborn deaths are preventable and treatable



Source: Liu L, Johnson H, Cousens S et al. 2012. Global, regional and national causes of child mortality: an updated systematic analysis. Lancet 379(9832):2151–61.

KDHS 2013/2014 REPORT!

- The infant mortality rate is 39 deaths per 1,000 live births, and under-5 mortality is 52 deaths per 1,000 live births.
- At these levels, currently, about one in every 26 Kenyan children dies before reaching age 1, and about one in every 19 does not survive to his or her fifth birthday.

KDHS 2014; IMPORTANT TO NOTE;

- A child born in the Nyanza region is almost twice as likely to die before age 5 as a child born in the Central region.
- Nairobi has the second highest under-5 mortality rate, following Nyanza (72 deaths per 1,000 live births).
- Male children are more likely than female children to die during their first year of life (44 deaths versus 37 deaths per 1,000 live births)

7. MATERNAL DEATH (MATERNAL MORTALITY RATE- MMR)

Definiton

- *Death of a woman while pregnant or within 42 days (6weeks) of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to/or worsened by the pregnancy or its management but not from accidental or incidental causes.*
- Maternal deaths account for 14% of all deaths to women age 15-49 Years
- According to KDHS (2008/2009), MMR was at 488/100,000 live births.
- The target was to reduce this rate to 200 deaths per 100,000 live births by 2030
- KDHS (2013/2014) reports of maternal mortality ratio of **362** deaths per 100,000 live births

GLOBAL CAUSES OF MATERNAL DEATH.

- Hemorrhage: - APH, PPH, abortion and from ectopic pregnancy. Accounts for 42%.
- Infections: - Puerperal sepsis, thrombosis, pulmonary embolism and aggravated maternal chronic medical condition or when a new medical condition occurs in pregnancy.
- Pregnancy induced conditions, mostly HTN disorder.
- Labour related complications e.g Obstructed labour

- Incidental Causes:- Natural and created calamities.
- **WHO 2002,** launched an initiative referred to as making pregnancy safe (MPS) which has 3 (three) targets namely;-
  - Primary management of unwanted pregnancy and safe abortion.
  - Skilled care during pregnancy and delivery.
  - Access to accurate referral system when complications arise.

Purpose of maternal & perinatal death review

- To raise awareness among health professionals, administrators, programme managers, policy makers and community members about these factors in the facilities & the communities, which, if they had been managed, the death may have not occurred
- To stimulate action to address these avoidable factors & so prevent further maternal & perinatal deaths

SAFE MOTHERHOOD

- Refers to empowerment of women of reproductive age (15-49 yrs) to have quality services hence a healthy pregnancy, safe delivery and healthy neonate.
- Therefore safe motherhood is the model in which maternal morbidity and mortality as well as fetal and neonatal deaths and morbidity are expected to be reduced due to the following integrated services which serves as Pillar.
- These **pillars** represent important factors namely;-

➢ **Family Planning**: The individuals or couples have the right information. This helps them make informed decisions in terms of planning on the timing, number and spacing of the pregnancies.

- **Focused Antenatal Care:** Aimed at early detection and treatment of complications as well as preventing them where possible.
- **Clean and safe deliveries**: By ensuring that all birth attendants have knowledge, skills, positive attitude and equipment's needed to perform clean and safe delivery. Simultaneously provides postpartum care to the mother and the baby.
- Prevention of mother to child transmission of HIV/AIDS during pregnancy, child birth or through breastfeeding, by taking the most appropriate precautions.
- **Neonatal Care**: The goal is to offer optimal care to prevent complications that may arise after birth.

- To realize the above services, the following are the **Foundations of the Model**. They are at 4 (four) levels namely:-

1. SKILLED ATTENDANTS AND ENABLING ENVIRONMENT TO PROVIDE QUALITY CARE.

- A skilled attendant is a health professional with midwifery skills. They have been trained to proficiency in the skills needed to manage normal deliveries, postnatal period and diagnose or refer obstetric complications- **does not include traditional birth attendants (TBAs)**

The skilled attendant also has;-

- Effective interpersonal communication skills. This creates an enabling environment for collaboration with other key parties in the planning and implementation of safe motherhood.
- Ensures privacy and confidentiality.
- Woman friendly services as per local social-culture context increases women's confidence and they get involved in the care they receive.
- Quality improvement of clients and RH: It's a process which goes hand in hand with adherence to improved standards and guidelines to satisfy clients needs in a culturally acceptable means.

2. SUPPORTIVE HEALTH SYSTEMS.

- Effective communication between health care providers is essential for management of obstetric emergencies for ensuring continuity of care.
- A functional referral system is very important in terms of 24hour access to means of transport, office, telephone, good record keeping to facilitate in writing of a detailed referral notes.
- Referral system is further strengthened by active supportive supervision, regular feedback on cases, continuing education and in service update sessions.
- Upward consultation facilitates development of professional trust and confidence. “Upward consultation: - between health centers, dispensaries and hospitals.

3. COMMUNITY ACTION PARTNERSHIPS.

- This cannot be underestimated. This refers to community mobilization, particularly women, their family (particularly the spouse) and local leaders as well as health care providers of every level, e.g. TBAs.
- Appropriate supervision of TBA activities is imperative to prevent delays in women seeking and receiving treatment in regard to obstetric emergencies.

4. EQUITY FOR ALL/REPRODUCTIVE RIGHTS.

- Women's health is basically the nation's health. Therefore, uniquities for any reason have to be dealt with in the best way possible, so enabling policies based on strong political support and national ownership are vital to attract resources for maternal and newborns health. It's equally important to ensure that the resources reach groups/communities with the highest maternal mortality.
- However it's injustice not to point out that most maternal and perinatal deaths are unavoidable. Nevertheless, maternal and newborn health must be given its due rights, as women are entitled to enjoy a safe pregnancy and childbirth.

CLASSIFICATION – MATERNAL DEATHS.

A. True or Direct Obstetrical Death.

- Its demise resulting from obvious obstetrical complications occurring during either during pregnancy, labour, or in puerperium.
- Contributing factors could be unnecessary intervention (over-indulgence), omissions, incorrect treatment or late diagnosis. Therefore number one cause of death in pregnancy.

B. Indirect Obstetrical Death.

- Refers to demise due to either a chronic condition or a demise that develops prenatally, but not related to pregnancy state. Physiological change worsens the state of the condition
- Therefore number one cause of death is the condition or the new demise, pregnancy is only secondary.

C. **Coincidental/ Incidental/ Fortuitous Death.**

- That which results from other caused factors, not related to obstetric in any way but occurring either during pregnancy, labor or puerperium.
- E.g. Natural catastrophes-land slide, famine.
- Aircraft accidents.
- Assault- war

D. Later (late) death.

- Demise caused by either direct or indirect obstetrical factor. Death occurs after puerperium but within the 1st year of abortion or delivery.

CONCLUSION.

- The rates have generally decreased currently compared to 20-30 years ago.
- This is due to;-
  - Great advancement in the field of medicine in terms of chemotherapeutic agents, specialized personnel and life support machines/facilities.
  - Better standards of living- hygiene, housing and means of communication.
  - Increase of literally rate- Has helped communities to modify or even abandon, certain beliefs and practices that are not maternal/neonatal health friendly.

- Availability of health facilities within reach.
- However there is still room for improvement since HIV/AIDS menace and low socio-economic status are contributory to rise in various death rates.

RECOMMENDATION.

- The aim is to gradually reduce death rates through intersectional collaboration efforts. Ensure Millennium Development Goals 3, 4, 5 and 6 are closely followed up;
  - 3) Promote gender equity & empower women
  - 4) Reduce child mortality,
  - 5) Improve maternal health
  - 6) Combat HIV/AIDS, malaria and other diseases.
- System behavior change in HIV/AIDS through change of attitude.
- Control/eradicate corruption which leads to inequitable distribution of resources hence poor socio-economic status.

- Improve infrastructure and communication network.
- Well equipped government health facilities in terms of infrastructure, motivated personnel and conducive environment which favors rendering of services round the clock.
- Control the licensing of private health facilities to avoid substandard services.
- Ensure accessibility of health services payment organization to all e.g. NHIF.
- Standardization of professional bills- private facilities hence are accessible/affordable to common citizen/non-citizen.
- Availability of affordable drugs for HIV/AIDS, opportunistic infection control.

- Introduction of community midwifery services- more of long term goal. Currently empower the TBA through extensive training hence control death rates.
- Tough penalties for those who transmit HIV/AIDS virus knowingly- perhaps will curb the rate of infection hence death rate.
- Maternal mortality rate is expressed as total number of deaths i.e. prenatally, intrapartum and in puerpenium per **100,000** total births.

- ***FORMULA OF DETERMINING MMR:***

$$\frac{\textit{prenatal+ intrapartum+ puerperium deaths}}{\textit{Total no. of births (live/dead)}} \times 100{,}000$$

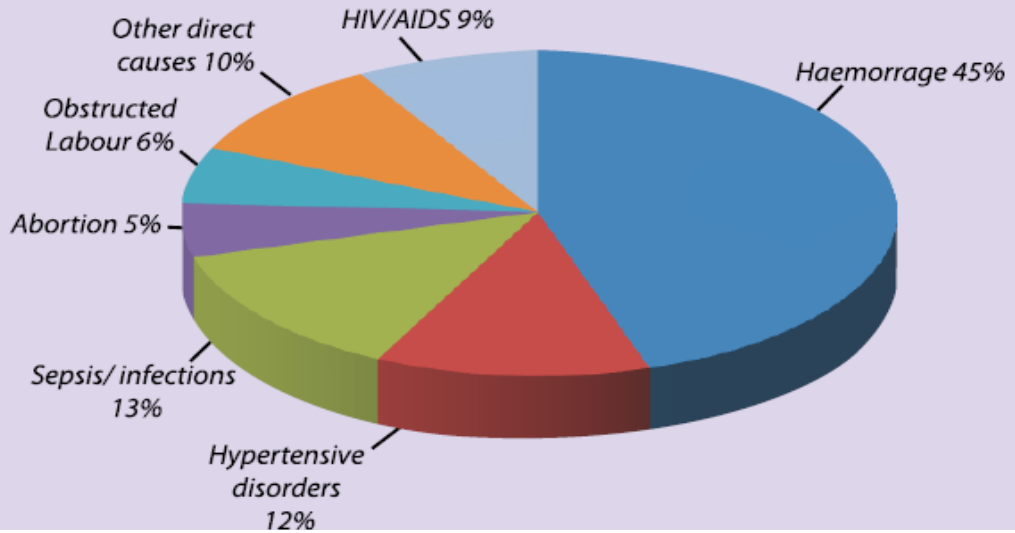
MAJOR CAUSES OF OBSTETRIC DEATHS.

- Non-pregnancy related infections- criminal abortion, systematic diseases e.g. malaria.
- Complications of hypersensitive disorders prenatally.
- Obstetric hemorrhage.
- Pregnancy related sepsis.
- Pre-existing medical conditions e.g. cardiac diseases, HIV opportunistic infections, cancer, renal diseases etc.

Causes of Maternal Mortality in the African Region

deaths that occurred in 2005 globally, 99 percent (533,000) occurred in developing countries with Sub-Saharan Africa having the highest MMR at 900 maternal deaths per 100,000 live births. The adult lifetime risk of maternal deaths is highest in Africa (1:26), followed by Oceania (1:62), and Asia (1:62); compared with developed countries, where the risk is 1: 7300 (WHO, 2007). Major causes of maternal mortality in SSA are depicted below.

Figure 1: Causes of Maternal Mortality in the African Region



FACTORS INFLUENCING MMR.

- Prenatal care; - attendance failure, quality of care given, late booking- because of possibility of unforeseen problems.
- Parity; - usually high among primigravidae due to backstreet (illegal) abortion. Higher among grand multiparous above chances of medical complications and obstetric hemorrhage.
- Age;-below 15years- poor ANC attendant, above 40 years, presence of medical condition and ignorance.
- Socio – economic factors; - Perhaps due to ignorance and stress hence under utilization of prenatal services

END

EFFECTS OF MATERNAL DRUG ABUSE/USE DURING PREGNANCY ON THE NEWBORN

DESCRIPTION:

- The incidence of drug use within the population has a large geographical variation. As a result, the incidence of drug withdrawal symptoms among neonates & infants also has a high incidence
- Opiates & other drugs cross the placenta & the fetus during pregnancy is likely to be exposed to the same peaks & troughs of drug exposure that the mother is. Withdrawal may be manifested b4 birth

ASSIGNMENT: Pharmacological drugs that can easily cross the placenta barrier & their effects on the fetus.

- The increased incidence of fetal compromise may be related to drug withdrawal during labour but the effects of the drugs & withdrawal on the fetus & newborn are related to the timings of drug doses
- Infants born to mothers who have used illicit drugs during pregnancy are at risk of withdrawal symptoms.

- The common substances abused by pregnant women are:-
  - CNS depressants: alcohol, sedatives, anxiolytics, and hypnotics
  - Stimulants: cocaine and amphetamines
  - Opiates & narcotics
  - Hallucinogens
- Intoxication and withdrawal represent the most common substance-related disorders.
- *Intoxication*, defined as the development of a reversible substance-specific syndrome during or after substance use, becomes a clinical problem when significant maladaptive patterns of behavior leads to distress and impairment.

- *Withdrawal*, another substance-specific syndrome, occurs when the chronic intake of a substance is abruptly discontinued.
- ***Substance abuse*** is there4 a maladaptive pattern of use that results in clinically significant functional impairment without satisfying the criteria for substance dependence.
- Abuse is indicated by any one of the following:
  - failure to fulfill reasonable obligations, drug use in dangerous situations eg pregnancy and continued use despite recurrent legal, social, and psychological problems associated with the substance

- The effects of substance abuse during pregnancy may be classified into three categories:
  - Effects of the illicit substance(s) on the mother
  - Effects on the course of pregnancy and delivery
  - Effects on the fetus, newborn, and developing child
- **<u>Maternal complications of drug abuse include:</u>**
  - Respiratory complications (infections)
  - Cardiovascular, including hypertension and endocarditis
  - Neurologic, with seizures, cerebrovascular accidents, and psychoses
  - Infectious, such as STIs and HIV
  - Renal and gastrointestinal, including acute tubular necrosis and hepatitis; and/or metabolic, such as malnutrition and vitamin deficiencies- Which can lead to end- organ failure

Obstetric and fetal complications associated with maternal substance abuse include:

- Placenta praevia
- Abruptio placentae
- Premature rupture of membranes
- Spontaneous abortion
- Intrauterine growth retardation
- Premature delivery
- Birth defects
- Neonatal and long-term developmental effects
- Poor attendance for antenatal care

Neonatal effects of substance abuse:

NB// These depend on the specific substance abused by the mother but generally include:

- congenital anomalies
- neonatal medical complications such as sudden infant death syndrome (SIDS), neonatal abstinence syndrome (NAS), and respiratory distress syndrome.
- Neurobehavioral changes

What is neonatal abstinence syndrome (NAS)?

- Refers to a group of problems that occur in a newborn who was exposed to addictive opiate & narcotic drugs in utero.
- These substances cross the placenta barrier and the fetus becomes addicted along with the mother.
- This disorder may be associated with long term problems to the baby.

CLINICAL FEATURES OF NEONATAL DRUG WITHDRAWAL

- These symptoms usually begin 1-3 days after birth but may take up to a week to appear.
- The withdrawal symptoms most frequently seen in neonates are:
  - Jitteriness/ restlessness
  - Tremor & Irritability
  - Constant/persistent high pitched crying
  - Infants often fail to settle btwn feeds (disorganized sucking)
  - Hyperactivity
  - Frequent yawning (irrespective of adequate periods of feeding), sneezing & vomiting
  - Sweating, pyrexia (may also be in the absence of an infection) & convulsions
  - Respiratory distress
  - Diarrhoea & an irritant nappy rash
  - Episodes of high temp in the absence of an infection

SPECIFIC MGT OF NEONATAL ABSTINENCE SYNDROME:

- Divided into general care given to these infants & pharmacological rx
- Keep the infant with the mother to enhance bonding
- Encourage breastfeeding as long as there's no evidence of HIV or ongoing drug use by the mother esp. cocaine and heroine
- A quiet envt with reduced light and noise is helpful in keeping stimuli to a minimum
- Feeds should be given frequently

- Build up a good working relationship with the mother
- Communication should be clear and non judgmental
- Explain the baby's presenting signs and emphasize that the behavior is not a rejection of their parents
- Encourage parents to take active part in the care of their baby
- Emphasize the possible effects of breast feeding, which would be harmful especially with cocaine and heroine.

DOMICILLIARY SERVICES

DOMICILIARY SERVICES

- Also referred to as: - **POSTNATAL HOME VISIT.**

DESCRIPTION:

- It's the care given **to the normal puerperal mother** and her newborn (neonate) at her home environment after discharge from a health institution (facility).
- Before discharge, they are carefully assessed to ensure no unforeseen complications with the domestic arrangements.
- So discuss with the couple in order to gain consent for the services.

OBJECTIVES.

- To offer routine post-natal care to mother and neonate: - hence monitor their recovery and developments i.e. physically and psychologically.
- To assess realities of motherhood in terms of:- Development of independent skills of caring for herself and her baby in a home environment and her attitude towards the baby.
- To assess the reaction of other family members as each comes to term with their altered roles.
- To offer an opportunity for the parents to express any anxieties about the baby, other children or their own relationship e.g. sexuality.
- Then give unstinting (general) support and encouragement.

- To share relevant health messages such as diet using locally available and affordable foods, hygiene and family planning.

NB:- *Family planning awareness only, but let the couple decide on the best methods.*

- Strive to maintain optimal health whereby for any noted health problem, work with the family for the best solution.

PERIOD (DURATION).

- Minimum- 10 consecutive days i.e. on daily basis.
- Maximim-28 consecutive days, frequency as earlier stated.
- Specific time- best in the mornings, for a period of one 1hour. Actual timing organize the mother(client)

REQUIREMENTS.

- Refers to items (articles) which comprise the post-natal home visiting kit. They include:-

- Sphygmomanometer (BP machine).
- Stethoscope.
- Rectal thermometer.
- Tape measure/ Ruler.
- Spirit swabs.
- Clean gauze and wool swabs.
- Piece of soap and towel.
- Recording charts- both mother /neonate.
- Baby's weighing scale-carried along on alternate visits.

HOME VISIT.

- In the clients home the midwife is a guest hence must behave appropriately.
- So in order to work smoothly with a particular family, bear the following factors:-

➢ Must rely on tact and persuasion in order to communicate and provide the care effectively. In other words;-The midwife has no authority to insist that things be done a particular way.

➢ Have to work very hard to win the confidence of the family, by showing them that you have their interests at heart.

- Must tactfully and sensitively convey the advice and health education to the situation you will find e.g. if you had earlier shared on prevention of home accidents, then you find potato peels all over, you don’t show anger or comment carelessly i.e. you are giving up because she seems not to have learned from the talk.
- Eventually the midwife must be accommodative, adaptable and prepared to improvise in order to provide the highest standards of care.

DAY OF DISCHARGE FROM HEALTH INSTITUION.

- Perform a thorough examination to both mother and neonate in order to serve as guideline for the future progress.
- 2 or 3 of you (midwives) escorts the mother on discharge to her home in order to be familiar with the locality and to assess the situation, or in this era of mobile phones- can ask for the direction then exchange Tel. nos.
- Then remind her of the learned health messages and organize on the time and day of visit, as appropriate.

VISITS ACTIVITIES.

- Wait to be welcomed in the house after you knock the door gently.
- Establish rapport.
- Enquire on the routine care starting with the mother: mother maintain privacy as appropriate.
- Lastly attend to the baby-Supervise the feeding of the baby at least once every 2days.
- ***NB: -*** The environment should be conducive. Depending on the weather, may undress baby completely or just remove the top clothings.
- Generally advise as appropriate, and emphasize on diets and adequate rest. Record your findings on the chart daily and interpret.

- Allow time for questions, clarification, expression of worries and concerns. Then respond to them as fairly as possible and refer as appropriate.

CONCLUSION.

- On completion of mandatory visits, summarize the events and file the chart with the other clients' records in the institution records department.
- In case a problem is noted in the course of the care, a management plan is worked out together with the family.
- The patient (unwell family member) is referred to a health facility of their choice. Thereafter follow up care is carried out as per need.

END

OBSTETRIC OPERATION AND PROCEDURES

Induction of labour

VDefinition:-

- Induction of labour is the artificial initiation of uterine contractions prior to their spontaneous onset leading to progressive dilatation and delivery of the baby.

VIncidence:-

Variable (15-20)%.

vIndication:-

- The purpose of an induction is to achieve benefit to the health of the mother and or baby when their suspected or confirmed risk to mother and or baby.

1-Maternal diseases :-

- Diabetes.
- Hypertention \ renal diseases.
- cardiac disease.

2-pregnancy – related conditions:-

- pre eclampsia.
- intra hepatic choleostasis of pregnancy.
- APH at term.
- placental abruption.

3-fetal indication:-

- intra uterine growth restricted.
- oligohydramnious.
- Iso immunization.

4- Pregnancy passing 41 weeks.

5- Pre-labour spontaneous rupture of membrane (PLROM).

6- Maternal request.

*Assessment before induction commence:-

The obstetrician should assess the balance between the risk associated with allowing the pregnancy to continue and those associated with interrupting it:

1-confirmation of gestational age:

to avoid risk of iatrogenic prematurity.

- History – LMP.
- Examination.
- U\S Scan.

2-Are there mechanical impedance to delivery?.

- **Disproportion.**
- **Pelvic tumour.**
- **Placenta previa.**

3- What is the condition of cervix assisted by bishop score (1964).

Bishop score

	factors				
SCORE	DILATATION CM	EFFACEMENT %	STATION (3+ - 3-)	CERVICAL CONSISTENCY	CERVICAL POSITION
0	closed	0-30%	3-	firm	posterior
1	1-2	40-50%	2-	medium	Mid position
2	3-4	60-70%	1-	soft	anterior
3	5 ≤	80% ≤	2+,1+	–	–

*Methods of induction:-

1-Medical :-

- Prostaglandin.
- Oxytocin.

2-Surgical :-

- Membrane sweeping.
- Amniotomy.

3-Combination

4-Agents currently researched :-

- Nitric oxide donors.
- Anti progestogens (Ru-486).
- Inter-leukin-8.
- Relaxin.

1- Medical methods:-

v If the cervix is unfavorable (un-ripe):-

q prostaglandin:

F local vaginal administration:-

w tablet (0.5 mg).

w pessary (3 mg).

w gelly (1 mg).

F side effect of prostaglandin:-

w Gastro intestinal upset.

w Uterine hyper stimulation (rare):-

defined as six or more contractions in 10 minutes or a single contraction lasting > 2 minutes.

vIf cervix is favourable (ripe):-

q oxytocin:

- its octa peptide hormone secreted from para ventricular and supra optic nuclei of hypothalamus, stored in posterior pituitary and released in pulsatile manner.
- Oxytocin is administered in synthetic form pitocin or syntocinon used by continous I.V infusion (pump or drip) after amniotomy to stimulate uterine contraction, also used to augment and accelerate labour.

- The usual dose is 5 IU\500 ml normal saline.

  rate to be increased every 30 minute until satisfactory contraction are established.

  not exceeding 60 Drops\min or 32 m Unit \ minute.

- **side effects:-**

  - uterine hyperstimulation.
  - poor uterine contraction.
  - Anti diuretic effect.
  - rupture of uterus.
  - Neonatal hyperbilirubinemia.

2-Surgical methods:-

A-membrane sweeping:-

increased likelihood of spontaneous labour within 48 hours due to local release of prostaglandin.

B-Amniotomy (AROM):-

- Fore-water amniotomy:-
  - Amniohook.
  - Toothed forceps.
- Hind-water amniotomy:-
  - Drew-somyth catheter.

F The success of amniotomy is dependent upon the state of cervix, the parity of woman and the station of presenting part at time of intervention.

rComplications:-

W failure to induce effective contractions.

W bleeding c damage to the cervix.

W placental separation due to sudden reduction of the volume of liquor.

W infections.

W amniotic fluid embolism.

3-combined surgical and medical induction:-

Surgical amniotomy followed by oxytocin use.