**High risk newborn baby**

**Learning objectives**

* To know the definition of high risk baby
* To know the classification and risk factors of high risk newborn
* To know the definition of premature baby
* To know the causes ,characteristics and major problem with preterm baby
* To understand the nurse role toward high risk newborn

**high-risk newborn:** defined as a newborn, regardless of gestational age or birth weight, who has a greater-than-average chance of morbidity or mortality

**Classification of high-risk newborns:** according to:

* **Birth weight.**
* Low-birth-weight (LBW): an infant whose birth weight is less than 2500 g, regardless of gestational age.
* Very low-birth-weight (VLBW) infant :an infant whose birth weight is less than 1500g.
* Extremely-low-birth-weight (ELBW) infant: an infant whose birth-weight is less than1000g
* **Gestational age**
* Premature (preterm) infant: an infant born before completion of 37 weeks of gestation, regardless of birth weight.
* Full-term infant: an infant born between the beginning of the 38 weeks and the completion of the 42 weeks of gestation, regardless of birth weight.
* Postmature (postterm) infant: an infant born after 42 weeks of gestational age ,regardless of birth weight.
* **according to mortality**
* Live birth: birth in which the neonate manifests any heartbeat, breathes, or displays voluntary movement, regardless of gestational age.
* Fetal death: death of the fetus after 20 weeks of gestation and before delivery, with absence of any signs of life after birth.
* Neonatal death: death that occurs in the first 27 days of life; early neonatal death occurs in the first weeks of life ; late neonatal death occurs at 7-27 days.

# Prematurity:

Other terms often used for prematurity are preterm and "preemie .A baby born before 37 weeks of pregnancy is considered premature. Many premature babies also weigh less than 2,500 grams

Causes and risk factors of prematurity?

* Etiology of preterm birth:

1. Primary causes Unknown

2. Maternal factors:

* Malnutrition.
* Chronic disease: heart, renal, diabetes.
* Infection disease

3. Factors related to pregnancy

* Hypertension.
* Placenta problems e,g placenta previa.
* Incompetent cervix.
* Premature rupture of membranes or chorioasmniotis.

4. Fetal factors:

* Chromosomal abnormalities.
* Intrauterine infection.

**Characteristics of a premature baby?**

* Small and appear scrawny.
* Large head in relation to the body.
* The skin is bright pink( translucent, edematous).
* The fine lanugo hair is abundant over the body
* The ear cartilage is soft and pliable .
* The sole and palms have minimal creases
* The bones of skull and the ribs feel soft, and the eyes maybe closed
* Male infants have few scrotal rugae, and the testes are undescended, the labia and clitoris are prominent in females
* Inactive and listless.
* Reflex activity is only partially developed:
* Sucking is absent, weak, or ineffective.
* Swallow, gag, and cough reflexes are absent or weak.
* little body fat
* thin, shiny, pink or red skin, able to see vein
* weak cry and body tone

**Problems with premature babies:**

* Temperature instability (hypothermia)due to
* Skin immaturity
* Decrease metabolic rate
* Immature brain (hypothalamus)
* Fluid and electrolyte imbalances related
* Kidney immature
* Sweating gland immature
* Respiratory Problems:

[1-Respiratory Distress Syndrome](http://www.childrenshospital.org/az/Site1115/mainpageS1115P0.html) (RDS):

* [hyaline membrane immature](http://www.childrenshospital.org/az/Site1115/mainpageS1115P0.html)
* [lung immature](http://www.childrenshospital.org/az/Site1115/mainpageS1115P0.html)
* due to lack of surfactant in the lung

2-Apnea: stopping breathing

* + Incomplete lung development
  + Brain immature
* Cardiovascular problem
  + [patent Ductus Arteriosus (PDA)](http://www.childrenshospital.org/az/Site507/mainpageS507P0.html) :abnormal opening between aorta and pulmonary artery
* Blood and Metabolic:
  1. [Anemia](http://www.childrenshospital.org/az/Site577/mainpageS577P0.html)
  2. [jaundice](http://www.childrenshospital.org/az/Site1191/mainpageS1191P0.html)
* immaturity of liver
* over destruction of RBC
* Gastrointestinal:
  + difficulty feeding - many are unable to coordinate suck and swallow before 35 weeks gestation
  + poor digestion
* Neurologic:
  1. [Intraventricular hemorrhage](http://www.childrenshospital.org/az/Site1185/mainpageS1185P0.html) - bleeding in the brain
  2. poor muscle tone
  3. [seizures](http://www.childrenshospital.org/az/Site1967/mainpageS1967P0.html) - may be due to bleeding in the brain
* Infections - premature infants are more susceptible to infection and may require antibiotics

**How can I prevent prematurity?**

* Identifying mothers at risk for preterm labor
* Prenatal education of the symptoms of preterm labor
* Avoiding heavy or repetitive work or standing for long periods of time which can increase the risk of preterm labor
* Early identification and treatment of preterm labor

**Care of premature babies may also include:**

* Thermal care (drying, warming, skin-to-skin and delayed bathing)
* Hygienic cord and skin care
* Early initiation, exclusive breastfeedingmonitoring of temperature, blood pressure, heart and breathing rates and oxygen levels
* giving extra oxygen by a mask or with a breathing machine
* intravenous (IV) fluids - when feedings cannot be given, or for medications
* medications and other treatments for complications, such as antibiotics
* kangaroo care - a method of caring for premature babies using skin-to-skin contact with the parent to provide contact and aid parent-infant attachment

**Postterm infant**

*A postmature newborn is delivered after more than 42 weeks in the uterus.*

* Causes: Unknown.
* Characteristics:

1. absent of lanugo.
2. Little if any vernix caseosa.
3. Abundant scalp hair.
4. Long fingernails.
5. Dry, loose, peeling skin
6. Overgrown nails
7. Abundant scalp hair
8. Visible creases on palms and soles of feet
9. Minimal fat deposits
10. Green, brown, or yellow coloring of skin from meconium staining (the first stool passed during pregnancy into the amniotic fluid)
11. More alert and "wide-eyed"

**Special care of the postmature baby may include:**

* Checking for respiratory problems related to meconium (baby's first bowel movement) aspiration.
* Blood tests for hypoglycemia (low blood sugar).
* Assisting with surfactant lavages during delivery to prevent meconium aspiration.

**Assessment and Management of Newborn Complications**

* Suctioning meconium from the neonate’s mouth and nares before the first breath.
* Using mechanical ventilation if necessary.
* Administering oxygen as prescribed.
* Administering intravenous fluids.
* Preparing and/or assisting with blood exchange transfusion if hematocrit is high.
* Providing thermoregulation in an incubator to avoid cold stress.
* Providing early feedings to avoid hypoglycemia.
* Identifying and treating any birth injuries.

**Nursing interventions for hypoglycemia include:**

* Obtaining blood per heel stick for glucose monitoring.
* Frequent oral and/or gavage feedings or continuos parenteral nutrition is
* provided early after birth to treat hypoglycemia (untreated hypoglycemia can
* lead to seizures, brain damage, and death).

**Nursing assessments during phototherapy include:**

* Monitoring elimination and weighing daily, watching for signs of dehydration.
* Checking axillary temperature every 4 hr during phototherapy because temperature may become elevated.
* Frequent change position
* Cover eye and gentle area
* Frequent check of bilirubin level

**Nursing interventions for hyperbilirubinemia include:**

* Know the cause of hyperbilirubinemia
* Feeding early and frequently
* Maintaining adequate fluid intake to prevent dehydration.
* Explaining hyperbilirubinemia, causes, diagnostic tests, and treatment to parents.
* Setting up phototherapy if prescribed.
* Maintaining eye mask over the newborn’s eyes for protection of
* corneas and retinas.
* Keeping the newborn undressed
* Cover the genitalia to prevent possible testicular damage from heat and light waves.
* Removing the newborn from phototherapy every 4 hr and
* unmasking the newborn’s eyes and checking for signs of inflammation or injury.
* Repositioning the newborn every 2 hr to expose all of the body surfaces to the phototherapy lights and prevent pressure sores.
* Turning off phototherapy lights before drawing blood for testing.
* Administering an exchange transfusion for infants at risk for kernicterus.

**Nursing interventions for neonatal infections/sepsis include:**

* Obtaining specimens (blood, urine, and stool) to assist in identifying the causative organism.
* Initiating and maintaining IV therapy as prescribed to administer electrolyte replacements, fluids, and medications.
* Administering medications as
* Initiating and maintaining respiratory support as needed.
* Providing newborn care to maintain temperature.
* Maintaining standard precautions.
* Cleaning and sterilizing all equipment to be used.
* Providing family education on infection control, which includes:
* Instructing the family on the use of clean bottles and nipples for each feeding.
* Not storing leftover formula.
* Supervising handwashing.
* Providing emotional support to the family