



**South East Asia Regional
NEONATAL - PERINATAL DATABASE
World Health Organization (South-East Asia Region)**

Working Definitions

I GENERAL

INTRAMURAL BABY

A baby born within premises of your center

EXTRAMURAL BABY

Baby not born within premises of your center

FETUS

Fetus is a product of conception, irrespective of the duration of pregnancy, which is not completely expelled or extracted from its mother

BIRTH

Birth is the process of complete expulsion or extraction of a product of conception from its mother.

LIVE BIRTH

A live birth is complete expulsion or extraction from its mother of a product of conception, irrespective of duration of pregnancy, which after separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movements of voluntary muscles. This is irrespective of whether the umbilical cord has been cut or the placenta is attached. [Include all live births ≥ 500 grams birth weight or ≥ 22 weeks of gestation or a crown heel length of ≥ 25 cm]

STILL BIRTH

Death of a fetus having birth weight ≥ 500 g (or gestation ≥ 22 weeks or crown heel length ≥ 25 cm) or more.

BIRTH WEIGHT

Birth weight is the first weight (recorded in grams) of a live or dead product of conception, taken after complete expulsion or extraction from its mother. This weight should be measured within 24 hours of birth; preferably within its first hour of live itself before significant postnatal weight loss has occurred.

LOW BIRTH WEIGHT (LBW)

Birth weight of less than 2500 gm

VERY LOW BIRTH WEIGHT (VLBW)

Birth weight of less than 1500 gm

EXTREMEY LOW BIRTH WEIGHT (ELBW)

Birth weight of less than 1000 gm

GESTATIONAL AGE (best estimate)

The duration of gestation is measured from the first day of the last normal menstrual period. Gestational age is expressed in completed days or completed weeks. PLEASE PROVIDE THE BEST ESTIMATE OF GESTATION. IT MEANS THAT, IN YOUR JUDGEMENT, BASED ON ALL THE HISTORICAL, ULTRASOUND AND BABY EXAMINATION DATA, THE ESTIMATE AS ENTERED IN THE DATABASE IS MOST ACURATE.

PRETERM

Gestational age of less than 37 completed weeks (i.e. less than 259 days)

TERM

Gestational age of 37 to less than 42 completed weeks (i.e. 259 to 293 days)

POST TERM

Gestational age of 42 completed weeks or more (i.e. 294 days or more).

PERINATAL PERIOD

Commences from 22 weeks (154 days) of gestation (the time when the birth weight is 500 g), and ends at 7 completed days after birth.

NEONATAL PERIOD

It refers to the period of *less than 28 days* after birth. Early neonatal period refers to the period before 7 days of age. Late neonatal period refers to the period from completion of 7 days upto 28 days of life.

MATERNAL DEATH

A maternal death is the death of a woman known to be pregnant within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy from any cause related to or aggravated by the pregnancy or its management, but not from accident or incidental causes.

PROLONGED RUPTURE OF MEMBRANES

Rupture of membranes or leaking for ≥ 18 hours.

ANTEPARTUM HEMORRHAGE

Bleeding per vaginum after 20 weeks of gestation

SEVERE MATERNAL ANEMIA

Hemoglobin of less than 7g/dl

FETAL BRADYCARDIA

Fetal heart rate of less than 120 per minute

FETAL TACHYCARDIA

Fetal heart rate of more than 160 per minute

II NEONATAL DETAILS

BIRTH ASPHYXIA

Definition I (For extramural babies)

Moderate birth asphyxia: Slow gasping breathing at 1-minute of age.

Severe birth asphyxia: No breathing at 1-minute of age.

Definition II (For intramural babies)

Birth asphyxia: Apgar score of less than 7 at 1 minute of age

Moderate birth asphyxia: Apgar score between 4 to 6 at 1-minute of age

Severe birth asphyxia: Apgar score of 3 or less at 1-minute of age.

RESPIRATORY DISTRESS

Presence of at least 2 of the following criteria:

1. Respiratory rate > 60 /minute
2. Chest indrawing
3. Expiratory grunt/groaning

(Note: the baby should be evaluated in between the feeds and in a quiet state. Respiratory rate should be recorded for at least 1 minute.

TRANSIENT TECHYPNEA/DELAYED ADAPTATION

Respiratory distress in a term or preterm neonate starting within 6 hours after birth, often requiring supplemental oxygen, but recovering spontaneously within 3-4 days and showing characteristic x-ray changes (linear streaking at hila and interlobar fluid).

HYALINE MEMBRANE DISEASE

(A) Presence of all of the following three criteria

- Pre-term neonate
- Respiratory distress having onset within 6 hours of birth
- Amniotic fluid L/S ratio of < 1.5 , or negative gastric aspirate shake test, or skiagram of chest showing poor expansion with air bronchogram/ reticulo-granular pattern/ ground glass opacity.

(B) Autopsy evidence of HMD.

MECONIUM ASPIRATION SYNDROME

Presence of two of the following:

- Meconium staining of liquor or staining of nails or umbilical cord or skin.
- Respiratory distress soon after birth, within one hour of birth
- Radiological evidence of aspiration pneumonitis (atelectasis and/or hyperinflation).

PNEUMONIA

In a neonate with respiratory distress, pneumonia is diagnosed in the presence of a positive blood culture or if any two of the following are present.

- Existing or predisposing factors: maternal fever, foul smelling liquor, prolonged rupture of membranes (> 18 hours) or gastric polymorphs more than 5 per high power field.
- Clinical picture of septicemia (poor feeding, lethargy, poor reflexes, hypo, hyperthermia, abdominal distension etc.)
- X-ray picture suggestive of pneumonia.
- Positive septic screen (see septicemia)

SEPTICEMIA (SYSTEMIC BACTERIAL INFECTION):

CULTURE NEGATIVE (CLINICAL)

In an infant having clinical picture suggestive of septicemia, the presence of any one of the following criteria is enough for assigning probable diagnosis of infection:

- Existence of predisposing factors: maternal fever or foul smelling liquor or prolonged rupture of membranes (>18 hrs) or gastric polymorphs (>5 per high power field).
- Positive septic screen (two of the four parameters (namely, TLC (<5000/mm, band to total polymorph ratio of > 0.2, absolute neutrophil count less than 1800 / cmm, C-reactive protein >1mg/dl and micro ESR>10 mm 1st hour).
- Radiological evidences of pneumonia.

CULTURE POSITIVE SEPSIS

In an infant having clinical picture suggestive of septicemia, pneumonia or meningitis along with either of the following.

- Isolation of pathogens from blood or CSF or urine or abscess(es)
- Pathological evidence of sepsis on autopsy.

EARLY/ LATE ONSET SEPSIS (Pneumonia, septicemia, Meningitis, NEC, UTI etc.)

Early onset: Onset <72 hours.

Late onset: Onset >72 hours.

MENINGITIS

In the setting of septicemia, if CSF culture is positive; or CSF microscopy and biochemistry are suggestive of meningitis.

NECROTISING ENTEROCOLITIS (NEC)

In a baby at risk for NEC (pre-maturity, sepsis, umbilical venous/arterial catheterization, birth asphyxia, extreme pre-maturity, formula feeding) presence of any two of the following:

- Pre feed gastric aspirate of >50% of previous feed or abdominal distension.
- Bloody stools or occult blood in the stools.
- Radiological evidence of pneumatosis intestinalis/portal air/free air under the diaphragm.

HYPERBILIRUBINEMIA

Total serum bilirubin level needing phototherapy and/or exchange transfusion

HYPOTHERMIA

Skin temperature <36°C

HYPOGLYCEMIA

Whole blood glucose of less than 45mg/dL

HYPOCALCEMIA

Any one of the following:

- Serum total calcium <7 mg/dl. or
- Serum ionized calcium <4 mg/dl.
- Q_oT_c >0.2 seconds on ECG which normalizes after calcium therapy.

INTRAVENTRICULAR HEMORRHAGE (IVH)

CLINICALLY SUSPECT if at least 3 clinical criteria in a pre-term infant in whom hypoglycemia and pyogenic meningitis have been excluded:

- Onset of symptoms within 0-72 hours of age
- Apneic attacks or seizures
- Sudden pallor or falling hematocrit
- Gross hypotonia
- Flat or bulging fontanel

CONFIRMED if corroborated by ultrasound or CT or autopsy findings

ANEMIA

Hemoglobin <13 g/dl or PCV <40 percent

Vitamin K Deficiency Bleeding

Bleeding from any site especially from the gastrointestinal tract

Onset 2nd to 5th day of postnatal life

Prolonged pro-thrombin time and thrombin time, with normal platelet count.

APNEIC SPELL

Period of respiratory arrest of a duration of more than 20 seconds: or of less than 20 seconds if accompanied by bradycardia (<100/minute) and/or cyanosis.

POLYCYTHEMIA

Capillary hematocrit of more than 70% or venous hematocrit more than 65% after 24 hours of age

MAJOR CONGENITAL MALFORMATION

A malformation that is life threatening or requires surgical correction.

CHRONIC LUNG DISEASE

Oxygen requirement at 36 weeks post-menstrual age

III. CAUSES OF NEONATAL DEATH

(This entry should be verified by the PI)

Important Note:

You will be first asked the cause(s) of death and you would choose from the following 11 causes of death. You may assign more than one cause of death at this stage.

You will then be asked to identify the single most important cause of death. Here you will choose only one cause. This is the primary or underlying cause of death which is defined as disease or injury, which initiated the train of morbid events leading directly to death. You will exercise your judgement to assign this cause keeping in mind this definition

1. **Perinatal asphyxia:** Death of a neonate in the setting of and with features of perinatal hypoxia and / or birth asphyxia followed by manifestations of or hypoxic ischemic injury of brain (hypoxic ischemic encephalopathy) or other organs.
 2. **Birth trauma:** Death due to birth trauma.
 3. **Extreme prematurity:** Extreme prematurity as a cause of death is assigned to infants having birth weight of less than 1000 gm
 4. **Hyaline membrane disease:** Death in a neonate attributable to hyaline membrane disease
 5. **Intraventricular hemorrhage:** Death in a neonate attributable to intraventricular hemorrhage
 6. **Pneumonia/Septicemia/Meningitis:** Death in a neonate attributable to pneumonia or septicemia or meningitis
 7. **Tetanus neonatorum:** Death due to tetanus neonatorum
 8. **Congenital malformations:** Death due to lethal congenital malformation.
 9. **Others:** Mention the cause not classified by above
 10. **Not established :** Cause of death not established
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IV CAUSES OF STILLBIRTHS

(This entry should be verified by the PI)

Important Note:

You will be first asked the cause(s) of stillbirth and you would choose from the following 11 causes of death. You may assign more than one cause of stillbirth at this stage.

You will then be asked to identify the single most important cause of stillbirth. Here you will choose only one cause. This is the primary or underlying cause of death which is defined as disease or injury, which initiated the train of morbid events leading directly to death. You will exercise your judgement to assign this cause keeping in mind this definition

1. **Asphyxia:** Death of a fetus in the setting of preeclampsia, hypertension, eclampsia, fetal growth retardation, oligohydramnios, prolonged / obstructed / precipitate labor, meconium passage, cord around the neck, fetal heart slowing or instrumentation.
2. **Trauma :** Death of a fetus in the setting of cephalopelvic disproportion or obstructed labor or instrumentation with obvious evidence of traumatic lesions,
3. **Infection:** Death of a fetus in the setting of intrauterine infections (TORCH group) or chorioamnionitis (maternal fever, abdominal tenderness, foul smelling liquor)
4. **Congenital malformations:** Death of a fetus due to lethal congenital malformation.
5. **Rh Isoimmunization :** Death of a fetus attributable to erythroblastosis fetalis
6. **Others:** Mention the cause not classified by above
7. **Not established :** Cause of death not established