

## *Obstetric and Newborn Statistics*

In this unit, you'll learn many key definitions regarding obstetrical and neonatal patients. You will also learn formulas to calculate obstetrical-related rates. Let's start the unit off by defining terms relating to pregnancy.

Delivery is as the act of giving birth to a live infant or dead fetus. Delivery also includes the expulsion of the placenta. A female can deliver a single infant or multiple infants. It's important to note that, although multiple infants are individual admissions, they are still the result of one delivery. Think about it like this: one delivery of triplets results in three admissions. It is not uncommon for pregnant women to be admitted and discharged to the hospital without giving birth. The status of these women would be noted as "undelivered" or "not delivered."

Next, let's talk about partum. We already know that partum means childbirth. We also know the prefix "ante" means before. It makes sense that antepartum is the period before giving birth. Now, if we replace "ante" with "post," we have the term postpartum. We know that "post" means after, so the postpartum period is the period after giving birth.

The next term is puerperium. The puerperium period is up to 42 days, or 6 weeks, after delivery. During the puerperal period, the uterus returns to its normal size. A female who expires during this time is classified as a maternal or obstetrical death.

Now, let's discuss pregnancy termination. Termination is the expulsion or extraction of a dead fetus or other products of conception, as well as, the birth of a liveborn or stillborn infant. An induced termination is the purposeful interruption of pregnancy and does not result in a live birth.

A maternal death or an obstetrical death is the death of any women, either while pregnant or within 42 days of termination of pregnancy. There are two terms associated with maternal death: direct and indirect. A direct maternal death is a death that is related directly to pregnancy or delivery. Examples of direct maternal death include: death during or following an abortion, antepartum death, postpartum death, or death during delivery. An indirect maternal death is not directly related to pregnancy or delivery. Hospital statistics may not include indirect maternal deaths.

Now, let's focus on newborn and fetal terms. The first term to discuss is newborn. To be classified as a newborn, the baby must show signs of life at birth and be born in the hospital. A newborn is referred to as a neonate up to 28 days of age. It's important to note that a neonate who expires before reaching the 28th day is referred to as a neonatal death.

A newborn is also classified as an infant. An infant is defined as a liveborn up to one year of age. It is important to note that the death of an infant during his or her first year of life is referred to as an infant death.

The perinatal period is the period surrounding birth for all liveborn, stillborn, and neonates. Perinatal deaths include both stillborn infants and neonatal deaths. The suffix post means after, so, postnatal means after the neonatal period. The postnatal period is from 28 days of age to 1 year of age.

A death prior to the complete expulsion or extraction from its mother is considered a fetal death. In other words, a fetal death is when no signs of life are shown at birth. Fetal death is the preferred term for abortion, aborted fetus, or stillborn; however those terms are still commonly used. Remember that a hospital fetal death is not considered a hospital inpatient and is also not included in newborn statistics. Documentation of fetal death will be in the mother's record only. There is no patient record for fetal deaths.

There are three categories for fetal deaths based on the stage of pregnancy. These categories are defined by the length of gestation, which is figured from the last menstrual period or from the gram weight of the fetus. Fetal deaths will be referred to as early, which is less than 20 weeks gestation; intermediate, which is from 20 to less than 28 weeks gestation; or late, which is a gestation of 28 weeks or more.

Let's look at the mortality rates for the unit. The first mortality rate we will discuss is the maternal death rate. The maternal death rate should be low and is usually only calculated on an annual basis. The formula for maternal death rate is; the total direct maternal deaths for a period, divided by, the total number of maternal discharges (including deaths) for the period, times 100. Remember that all rates should have a percentage sign!

$$\frac{\text{Total direct maternal deaths for a period}}{\text{Total maternal discharges (including deaths) for the period}} \times 100$$

We learned that a neonatal death is the death of a newborn up to 28 days of age. The formula for neonatal/newborn death rate is; total newborn and neonatal deaths for a period, over, the total newborn and neonatal discharges for the period, times 100.

$$\frac{\text{Total NB and neonatal deaths for a period}}{\text{Total NB and neonatal discharges (including deaths) for the period}} \times 100$$

Recall, that a newborn is considered an infant up to one year of age. An infant death is counted in the infant death rate which is the ratio; total number of infant deaths for a period, to, total number of infant discharges for the period. Then, multiply by 100.

$$\frac{\text{Total number of infant deaths for a period}}{\text{Total number of infant discharges (including deaths) for the period}} \times 100$$

The fetal death rate includes both intermediate and late fetal deaths. It does not include early fetal deaths in which a fetus is less than 20 weeks gestation or 500 grams. The formula for fetal death rate is; total intermediate and late fetal deaths for a period, divided by, total live births plus intermediate and late fetal deaths for the period, times 100.

$$\frac{\text{Total intermediate and late fetal deaths for a period}}{\text{Total live births+intermediate and late fetal deaths for the period}} \times 100$$

The last topic of discussion is associated with cesarean sections. VBAC stands for vaginal birth after cesarean section. This means exactly what it sounds like; the mother delivers vaginally but had a previous delivery via C-section. You need to know this abbreviation and the meaning. The formula for cesarean section is; total C-sections performed for a period, over, the total number of deliveries for the period, times 100.

$$\frac{\text{Total C-sections performed for a period}}{\text{Total number of deliveries for the period}} \times 100$$

The formula for vaginal delivery with previous delivery via C-section rate, or VBAC rate is; total number of vaginal deliveries in those with a previous C-section, divided by, the total number who previously delivered via C-section, times 100.

$$\frac{\text{Total number of vaginal deliveries in those with previous C-section}}{\text{Total number who previously delivered via C-section)} \times 100$$

**Statistics for the month of July:**

<b>BEDS: 300</b>		<b>BASSINETS: 35</b>		
<b>ADMISSIONS:</b>		<b>IPSD:</b>		
Total A&C:	891	Total A&C:	5839	
Total NB:	152	Total NB:	684	
<b>DISCHARGES AND DEATHS:</b>				
Total A&C:	903			
Total NB:	149			
<b>DEATH AND AUTOPSIES:</b>				
	<b>Deaths</b>	<b>Hospitals Autopsies</b>	<b>Coroner Autopsies</b>	
<b>Inpatient A&amp;C under 48 hours</b>	5	4	0	
<b>Inpatient A&amp;C over 48 hours</b>	14	10	2	
<b>Newborn under 48 hours</b>	4	3	0	
<b>Newborn over 48 hours</b>	1	1	0	
<b>Fetal Deaths</b>				

<b>Under 20 weeks</b>	5	0	0
<b>20 weeks and over</b>	4	2	0
<b>Outpatient Autopsies</b>	3		
<b>Postoperative Deaths</b>	1		
<b>Maternal Deaths</b>	1		
<b>Anesthesia Deaths</b>	1		
<b>Total patients operated on:</b>	388		
<b>Anesthetics administered:</b>	487		
<b>OB discharges and deaths:</b>	180		

Now, let's walk through several of the rate calculations using the information. Remember to round your answers to two decimal places.

First, let's find the Maternal Death Rate:

$$\frac{\text{Total direct maternal deaths for a period}}{\text{Total maternal discharges (including deaths) for the period}} \times 100$$

$$\frac{1}{180} \times 100 = 0.56 \%$$

Next, calculate the Fetal Death Rate:

$$\frac{\text{Total live births+intermediate and late fetal deaths for the period}}{\text{Total intermediate and late fetal deaths for a period}} \times 100$$

$$\frac{4}{152 + 4} = \frac{4}{156} \rightarrow \frac{4}{156} \times 100 = 2.56 \%$$

Lastly, we'll compute the Neonatal/Newborn Death Rate:

$$\frac{\text{Total NB and neonatal deaths for a period}}{\text{Total NB and neonatal discharges (including deaths) for the period}} \times 100$$

$$\frac{5}{149} \times 100 = 3.36 \%$$