

How can the perinatal health-care status be assessed?

A very important method of measuring the perinatal health-care status within a health region, and comparing the status between health regions, is to determine the low birth weight rate, stillbirth rate, early neonatal mortality (death) rate and calculate the perinatal mortality rate of each region. This information is very useful if you want to improve the standard of perinatal care in your region.

The results of pregnancy outcome are usually given for a district, health region, province or whole country. The results for developing countries are similar to most developing communities within developed countries.

Perinatal information (data) is usually divided into 500 g categories.

The low birth weight, stillbirth and early neonatal mortality rates help to assess the perinatal health-care status of a region.

What is the low birth weight rate?

The low birth weight rate is the number of infants weighing less than 2500 g at birth per 1000 deliveries. It is usually expressed as a percentage. In a developed country the low birth weight rate is usually less than 10% while in a developing country the low birth weight rate is usually much more than 10%. In South Africa the low birth weight rate is about 10.3%.

In South Africa the low birth weight rate is about 15%.

What is the stillbirth rate?

The stillbirth rate is the number of stillborn infants per 1000 total deliveries (i.e. liveborn and stillborn). The international definition of stillbirth, used for collecting information on perinatal mortality, is an infant that is born dead and weighs 500 g or more (i.e. about 22 weeks gestation or more). In a developed country the stillbirth rate is about 5 per 1000. In a developing country, however, the stillbirth rate is usually more than 20 per 1000. In South Africa the stillbirth rate is about 20/1000, typical of a developing country. The national target is for all provinces to achieve a stillbirth rate <15/1000 by 2030.

NOTE

The legal definition of stillbirth in South Africa is an infant born dead after '6 months of intra-uterine life' (i.e. 26 weeks since conception or 28 weeks since the start of the last period). When the gestational age is not known, 1000 g is often used as the cut off. Only legally defined stillborn infants require a stillbirth certificate and must be buried or cremated. However, for the collection of information on perinatal mortality, the international definition of stillbirth (500 g) is used.

What is the early neonatal mortality rate?

An early neonatal death occurs if a liveborn infant dies during the first 7 days after delivery. Therefore, the early neonatal mortality rate is the number of infants that die in the first week of life per 1000 liveborn deliveries. A liveborn infant is defined as an infant that shows any sign of life at birth (i.e. breathes or moves). However, liveborn infants below 500 g at birth are sometimes regarded as abortions, especially if they die soon after birth. The early neonatal mortality rate in a developed country is usually about 5 per 1000. In a developing country the early neonatal mortality rate is usually more than 10 per 1000. In South Africa the early neonatal mortality rate is about 10/1000 (half the stillbirth rate).

In a developing country the stillbirth rate is about double the early neonatal mortality rate. In contrast, the stillbirth and early neonatal mortality rates are about the same in most developed countries.

Most developing countries have a high stillbirth and early neonatal mortality rate.

NOTE

The neonatal mortality rate is the number of infants that die in the first 4 weeks (28 days) of life per 1000 liveborn deliveries. The neonatal mortality rate is divided into early and late neonatal mortality rates. Most neonatal deaths occur during the first week of life. The late neonatal death rate is the number of infants that die between 8 and 28 days after delivery per 1000 liveborn deliveries. The national target is for all provinces to achieve a neonatal mortality rate ($\geq 1000\text{gm}$) $< 8/1000$ by 2030. Currently the estimated rate is $9/1000$.

What is the perinatal mortality rate?

The perinatal mortality rate is the number of stillbirths plus the number of early neonatal deaths per 1000 total deliveries (i.e. both stillborn and liveborn). The perinatal mortality rate is about the same as the stillbirth rate plus the early neonatal mortality rate. Most developed countries have a perinatal mortality rate of about $10/1000$ while most developing countries have a perinatal mortality rate of more than $30/1000$. South Africa has a perinatal mortality rate of about $22/1000$. The aim is to reduce this to $< 20/1000$ by 2030.

Note that the early neonatal mortality rate is expressed per 1000 live births while the low birth weight rate, stillbirth rate and perinatal mortality rates are expressed per 1000 total births (i.e. live births plus stillbirths).

What is the value of knowing these rates?

It is very important to know the low birth weight, stillbirth, early neonatal and perinatal mortality rates in your region as these rates reflect the living conditions, standard of health, and quality of perinatal health-care services in that region. It is far more important to know the mortality rate for the whole region than simply the rates for one clinic or hospital in the region.

An increased low birth weight rate and high stillbirth rate suggests a low standard of living with many socio-economic problems such as undernutrition, poor maternal education, hard physical activity, poor housing and low income in the community. A high early neonatal mortality rate, especially if the rate of low birth weight infants is not high, usually indicates poor perinatal health services. Therefore, both a poor standard of living and poor health services will increase the perinatal mortality rate.

An increased low birth rate usually reflects poor socio-economic conditions while a high early neonatal mortality rate usually indicates poor perinatal health services.

The low birth weight rate of 10.3% and stillbirth rate of $20/1000$ in South Africa suggests a low standard of living while the early neonatal death rate of $10/1000$ suggests that the standard of perinatal care can be improved.

NOTE

Worldwide four million infants younger than one month die each year. One million die on day one while a further one million die between days 2 and 7. Of these neonatal deaths 99% are in developing countries. 40% of the 10 million under 5 deaths annually are neonatal deaths. Therefore it is essential to lower the neonatal death rate if the under 5 death rate is to be reduced.

15-33 What are the main neonatal causes of early neonatal death?

In a developing country, the main causes of early neonatal death are:

1. Preterm delivery
2. Intrapartum hypoxia
3. Infection
4. Congenital disorders

These deaths are usually the result of pregnancy and labour complications such as intra-uterine growth restriction, maternal hypertension, placental abruption and syphilis. The causes of stillbirth are very similar. Many of these causes can be prevented or be identified and correctly managed with good perinatal care. It is essential that you determine the common causes of perinatal death in your area. The preventable causes of perinatal death can then be addressed.

What are avoidable factors?

An avoidable factor is something which could have caused the perinatal death and yet was potentially avoidable. If that event or condition was not present, the death may not have occurred. Avoidable factors include missed opportunities and substandard care.

Avoidable factors include no antenatal care, no fetal monitoring in labour and inadequate resuscitation after birth. Not screening the mother for syphilis and not giving vitamin K to the newborn infants are missed opportunities while substandard care is poor care before, during or after delivery which may have resulted in the perinatal death.

Avoidable factors may be associated with the mother (e.g. did not report poor fetal movements), the service (e.g. not enough well trained staff) or the health-care workers (e.g. did not follow standard protocols).

It is important to identify the avoidable factors before planning ways to improve maternal and newborn care.

Avoidable factors, missed opportunities and substandard care must be looked for in each perinatal death.

What is a perinatal mortality meeting?

This is a regular meeting of staff to discuss all stillbirths and early neonatal deaths at that clinic or hospital. Perinatal mortality meetings are usually held weekly or monthly. The aim of a perinatal mortality meeting is to identify causes of death and avoidable (modifiable) factors. Ways of preventing these problems in future must be discussed. Care must be taken to review the management of perinatal deaths so that lessons can be learned rather than to use the meeting to blame individuals for poor care. The disciplining of staff should be done privately and never at a perinatal mortality meeting.

Some causative factors are avoidable (e.g. hypothermia) while others are not avoidable (e.g. abruptio placentae). Avoidable factors should be looked for whenever there is a stillbirth or neonatal death. Only by identifying avoidable factors can plans be made to improve perinatal care.

The perinatal care can only be improved if the causes of poor care are identified.