

[Newborn Care Manual: Contents](#)

COMMUNICATION WITH PARENTS

30-1 WHY IS IT IMPORTANT THAT YOU ARE ABLE TO COMMUNICATE WELL WITH THE PARENTS OF A NEWBORN INFANT?

Most parents are excited and thrilled to meet their healthy newborn infant. For many months they have been imagining what their infant will look like and how the infant will behave. The first few days after delivery are a very special time for parents, therefore, and it is a pleasure for the nurses and doctors to share this experience with them.

However, if the infant is not normal and healthy, then the parents are anxious, afraid and confused. They need a lot of help from the nurses and doctors caring for their infant. To give this care to the parents you must be able to communicate well with them. Poor communication makes this unhappy experience all the more difficult and unpleasant.

30-2 WHAT CAN YOU DO TO IMPROVE YOUR COMMUNICATION SKILLS?

1. Make time to speak to parents.
2. Be honest when you tell parents about their infant.
3. Listen to what they say and ask.
4. Use simple language.
5. Allow parents to ask questions.
6. Look at the parents when you speak to them.
7. Address the parents by name.
8. Watch, listen and learn when more experienced colleagues speak to parents.
9. Try to understand what the parents are feeling.
10. Be kind and helpful.
11. Find a place where the parents can speak to you in private.

Counselling skills are discussed fully in Unit 35 of the Perinatal HIV/AIDS manual of the Perinatal Education Programme.

BONDING

30-3 WHAT IS BONDING?

Bonding is the special emotional relationship that parents develop with their infant. Bonding starts during early pregnancy, especially after the mother first feels her fetus move. Bonding can be compared to "falling in love". Every effort must be made to ensure that bonding takes place, especially in teenage mothers and mothers who do not want the pregnancy. Bonding is often poor with preterm infants when the parents are separated from their newborn infant. Anxiety about a sick infant can also interfere with the normal bonding process.

30-4 HOW CAN YOU ENCOURAGE THE BONDING PROCESS?

1. During pregnancy you should encourage the parents to speak about their unborn fetus. They should think of possible names. Most prospective parents will imagine what their infant will look like. When available, an antenatal ultrasound photograph of the fetus strengthens bonding.
2. Allow the mother to hold her infant and put the infant to the breast as soon as possible after birth. The father should also see and hold the infant. If possible, the father should be present during the labour and delivery.
3. Let the mother room-in with her infant and encourage her to demand feed.
4. Practicing kangaroo mother care (KMC) is a very powerful way of promoting and strengthening bonding with both parents.
5. The infant should be given a name soon after delivery.
6. Take a Polaroid photograph of the infant for the parents if the mother and the infant cannot be together.

7. If the infant is small or ill and has to be cared for in the nursery, the parents must be allowed to visit their infant whenever they want. After washing their hands, they can touch their infant. They can also help with simple nursing procedures such as changing nappies and giving nasogastric feeding. Intermittent KMC can be used with small infants in an intensive care unit once they are stable.
8. Parents should be encouraged to bring greeting cards and toys for their infant. Mothers can also bring clothes for the infant. This helps them realise that it is their infant and that the infant "does not belong to the hospital".

Bonding is fully discussed in the Mother and Baby Friendly Care manual of the Perinatal Education Programme.

30-5 SHOULD GRANDPARENTS AND SIBLINGS BE ALLOWED TO VISIT A NEWBORN INFANT?

Grandparents should be encouraged to visit the newborn infant, especially if the grandmother is going to help care for the infant. Brothers and sisters should also be allowed to visit the infant. They can even touch the infant if they first wash their hands. However, children must not be allowed to become a nuisance in the nursery.

30-6 HOW CAN PARENTS BE ENCOURAGED TO BOND WITH AN INFANT WHO HAS CONGENITAL ABNORMALITIES?

1. The sooner the parents are told of the abnormalities the better. If possible, tell the parents together.
2. Encourage them to handle the infant. Point out the normal as well as the abnormal features.
3. Handle the infant yourself as if you care and are not afraid to touch the infant.
4. If possible, try to be optimistic. Explain the implications of the abnormalities and stress what can be done to correct them. Tell the parents what the management will be.
5. Where applicable, show photographs of a corrected abnormality, e.g. a repaired cleft lip and palate.

The management of parents with an abnormal infant is discussed more fully in unit 29 of this PEP manual.

MANAGING THE FAMILY OF A SICK OR DYING INFANT

30-7 HOW SHOULD BAD NEWS BE TOLD TO PARENTS?

1. If a fetus or newborn infant has died or is very sick, it is important that the parents be told as soon as possible. Sedation is usually not needed.
2. A member of staff who knows the parents, or the most experienced member of staff, should give the bad news. Never delegate this responsibility to a junior staff member.
3. If possible, tell the parents together. Allow them to cry if they so wish.
4. Make sure that the parents have some privacy. Even a screen around the bed is helpful.
5. Give the parents the best explanation possible for the cause of the death. Use simple language and always be honest. These details may have to be repeated over a few days.
7. Give the parents a memento such as a name band, piece of hair or a Polaroid photograph.
8. Prepare the parents for having to break the news to any other children and other family and friends.

30-8 SHOULD PARENTS VISIT AND TOUCH A SICK OR DYING INFANT?

Yes, parents of a sick infant should be encouraged to visit as often as possible. They must be allowed to touch their infant and, if possible, to help with the nursing care. Parents do not need to wear masks and gowns but must wash their hands well before touching their infant. Many parents want to be present when their infant dies. If possible they should be allowed to hold their dying infant. Intravenous lines can be disconnected and the infant can be wrapped in a blanket. Kangaroo mother care can be used with terminal infants.

30-9 SHOULD THE OTHER CHILDREN IN THE FAMILY BE TOLD THAT THE INFANT HAS DIED?

Yes, it is very important that the parents tell the siblings the truth. They should be given a simple explanation and be told that the infant's death has made the whole family sad. Siblings often feel jealous about the new infant and, therefore, feel guilty when the infant dies. Children need to be reassured that they will not also die.

BEREAVEMENT

30-10 WHAT IS BEREAVEMENT?

Bereavement (or mourning) is the normal emotional process that a person experiences when a close family member or friend dies. Bereavement is the same after a miscarriage, stillbirth or neonatal death as when an older child or adult dies. Bereavement lasts from a few weeks in some people to many months in others. As death and bereavement are often taboo subjects, their correct management is commonly not discussed or taught. Many doctors and nurses feel distressed, threatened and inadequate when discussing death and, therefore, avoid the subject.

There are 5 major stages in bereavement:

1. **DENIAL.** At first the parents cannot believe that their fetus or newborn infant has died. They often ask if there has not been a mistake; "it cannot be true". The parents may appear shocked and dazed, and do not seem to understand what the doctors and nurses tell them. This phase usually lasts a few hours.
2. **ANGER.** After the initial denial, parents often express their distress as anger. They may believe that the nurses or doctors are the cause of their infant dying. One parent may blame the other parent. They may even blame themselves for something that they did or did not do during the pregnancy. Parents often feel very guilty and believe that they are responsible for the infant's death.
3. **BARGAINING.** Parents often bargain with themselves, e.g. "if the infant is not really dead I promise that I will never..."
4. **DEPRESSION.** The following are common features of depression after a stillbirth or neonatal death:
 - (i) The parents feel very sad and distressed.
 - (ii) They cry a lot.
 - (iii) They often feel restless and cannot sleep at night.
 - (iv) They lose their appetite.
 - (v) They have difficulty concentrating at work.
 - (vi) Life seems empty and hopeless.
 - (vii) They keep thinking about the infant all the time.
 - (viii) They often dream about the infant.
 - (ix) They may even think that they hear the infant crying, and fear that they are going mad.
5. **ACCEPTANCE** After a varying amount of time, most parents eventually accept that their infant has died and that nothing can be done to bring the infant back. They realise that life must continue and that they have responsibilities to other members of the family. With time they think about the infant less often as other needs and problems of day to day living take up their time.

Some parents do not pass through all the above stages of bereavement, while others often move backwards and forwards from one stage to another. However, most bereaved parents gradually progress from denial, anger and bargaining, through depression, to eventual acceptance. The time it takes for different people to work through the bereavement process varies. Often one parent takes longer than the other. Each person's personality, outlook on life and religious convictions influence the process of bereavement.

30-11 WHAT ARE THE GOALS OF BEREAVEMENT COUNSELLING?

Every effort should be made to help the parents and family to progress through the normal mourning process. With the correct management, parents can experience bereavement without suffering permanent emotional damage. For the successful achievement of this goal, however, the parents must be encouraged to accept that they have had an infant who has died. In the past the opposite was practiced by doctors, nurses, family and friends who tried to prevent bereavement by advising the parents to forget about the painful experience and to even pretend that it never took place. It was also thought that the suffering would be less if the parents did not bond with their infant. The mother, therefore, was not shown her dead infant, the subject was not discussed or even mentioned, and the parents were told to "put the loss behind them" and to "get on with their lives". Every attempt was made to protect the parents from sadness and stress. Unfortunately, these well intentioned actions often interfered with the normal bereavement process because the infant's death was emotional denied.

Today, parents who have had a stillbirth or neonatal death should still be supported with kindness and understanding but, at the same time, must be helped to accept the reality of the dead infant.

30-12 WHAT CAN BE DONE TO HELP PARENTS DURING BEREAVEMENT?

1. Tell them that you are sorry that their infant has died. A hand on the shoulder, a hug or even a handshake makes physical contact with the parent and helps to indicate to them that you care. If possible, speak to the parents together.
2. Make yourself available to listen to them, to explain the process of bereavement and to be sympathetic. Do not avoid grieving parents.
4. Remember that people from different cultural and religious groups sometimes have different beliefs about death. These attitudes must always be respected.
5. Allow the patient to decide whether she wants a private room or to be with other mothers. If she is still in hospital, try to discharge the patient as soon as possible.
6. Allow parents to cry.
7. If necessary, the breasts can be strapped with a crepe bandage to help suppress milk production.
8. Sedatives are usually not helpful, but a hypnotic to help parents sleep for the first few nights is sometimes needed.
9. Allow the parents to keep a memento of their dead infant, such as a name band, piece of hair or a Polaroid photograph.
10. Contact a local person or group that is experienced in helping bereaved parents, e.g. a minister of religion or social worker.
11. Ensure that the paper work (notification of birth and death certificates) and funeral arrangements are completed rapidly and efficiently.
12. Encourage parents to contact you if they would like to discuss the infant's death or their own feelings after the patient is discharged.
13. Advise them not to plan another pregnancy for at least 6 months, or until the mourning process is completed, so that they can fully recover from the death. Never suggest that they should have another infant as soon as possible to replace the dead infant.
14. Start a local support group that can discuss the management of bereavement and offer help to bereaved parents.
15. If possible, the parents should be seen again in 6 weeks time to assess whether the mourning process is progressing normally. Signs such as persistent insomnia, loss of appetite and depression suggest that further counselling is needed.

30-13 WHAT SHOULD YOU NOT SAY TO BEREAVED PARENTS?

1. "It does not matter"
2. "I understand how you feel". Unless you have had a perinatal death yourself, you cannot know what they are feeling.
3. "It is better that the infant died than survived with brain damage". While this might be true, the parents are still sad that their infant has died.
4. "You can always fall pregnant again". They can never replace the infant that has died.
5. "Try to forget about the infant".
6. "You are lucky to have other healthy children".
7. "You must pull yourself together and stop crying".
8. "You are lucky that your infant died now rather than later". Parents mourn the death of an infant even if they did not have the opportunity of getting to know the infant.
9. "It is your fault that your infant died". Even if this might be true, it is very cruel to blame the parents. Rather suggest that the pregnancy might be successful the next time if they take your advice.

30-14 SHOULD PARENTS SEE AND HOLD THEIR DEAD INFANT?

Yes. the parents should be allowed to spend some time with their dead infant, alone if they wish. It is important that they see and hold the body. If an infant is dying on a ventilator, the endotracheal tube can be removed and the infant given to the mother to hold. Although distressing to both parents and staff at the time, most parents are very grateful for the opportunity to say farewell to their infant. Even infants with severe congenital abnormalities can be dressed and shown to parents. Always stress the normal parts of the body, e.g. hands, feet and genitalia in an anencephalic infant. The imagined malformation is often worse than the real thing. However, if parents do not want to see and hold their dead infant, they must never be forced to do so.

Counselling and bereavement, especially when the child has a fatal birth defects, are discussed in Unit 52 of the Birth Defects manual of the Perinatal Education Programme.

COMMUNICATING WITH COLLEAGUES AT OTHER HOSPITALS AND CLINICS**30-15 HOW SHOULD PERINATAL SERVICES BE ORGANIZED?**

Health care is usually planned on a regional basis, especially in urban and periurban areas (towns and their surroundings). The health region is then divided into districts. Each region and district must be well defined and take into consideration the best transport routes, distances from health facilities and municipal boundaries. Therefore, all aspects of preventive, promotive and curative care for pregnant women and their newborn infants in a given region should be planned and managed by a single authority. All levels of care in that region should be the responsibility of the regional authority which then co-ordinates care provided within districts. This requires excellent communication between all areas and levels of care.

**** This contrasts with the pure district model which is very useful in an underdeveloped country where only primary care is available. Here all health care is planned, funded and managed within health districts. A combination of district and regional health care models may also be used where health care is controlled within districts but a number of districts are then grouped and co-ordinated into a health care region. This model is useful when only level I and II care is available. When level III care is available, a regional model is essential to co-ordinate health care activities between and within districts.*

A REGIONAL MODEL OF HEALTH CARE IS AN EFFECTIVE METHOD OF PROVIDING PERINATAL SERVICES WITHIN URBAN AREAS

Regionalized perinatal care is fully discussed in Unit 15 of the Maternal Care manual of the Perinatal Education Programme.

30-16 HOW CAN COMMUNICATION IN A HEALTH CARE REGION BE IMPROVED?

1. Each clinic must be linked to a referral hospital. This may be either a district or regional hospital. The clinic staff should contact this hospital for help or advice and problem patients must be referred to this hospital. The staff at the referral hospital should provide training for the clinic staff and draw up guidelines for management and referral. Regular meetings of clinic and hospital staff must be arranged. Hospital staff should help with mortality and referral audits in the clinic.
2. It is important for the nursing, medical and administrative staff in the region to appreciate that they are all members of the same health team working to provide the best possible care for mothers and infants. Therefore, the responsibility for all mothers and infants is shared. Ideally, nursing staff should be rotated between the hospital and clinics. It is of particular importance that the clinic and its referral hospital work together as a unit and not regard themselves as separate services.
3. Good notes must always accompany infants who are transferred between different parts of a health care region.

THE STAFF AT THE CLINIC AND REFERRAL HOSPITAL MUST ALWAYS WORK AS A TEAM**30-17 HOW SHOULD CLINIC STAFF COMMUNICATE WITH THE REFERRAL HOSPITAL?**

1. A telephone or 2-way radio is essential so that the clinic staff and the hospital staff can speak directly to each other.
2. Clear guidelines are needed to indicate which infants should be referred to hospital. If the clinic staff are uncertain whether an infant needs referral, they must discuss the problem with the staff of the referral hospital.
3. The staff at each clinic must know which hospital to contact if they need help. The hospital's telephone number must be displayed next to the clinic's telephone.
4. The clinic staff must collect all the relevant information, e.g. birth weight, temperature, blood glucose concentration, signs of respiratory distress, etc. before they contact the hospital. It is essential that the clinic staff identify the infant's problems.
5. When speaking to the hospital staff, stress the important information and summarise the problem. State clearly where advice is needed.
6. Always give your name and rank and ask who you are speaking to. If necessary, insist that you speak to a senior staff member if you are not satisfied with the advice you receive.
7. Good, systematic notes are essential and these must be sent with the infant. Good notes are one of the most effective methods of communication.

30-18 HOW CAN A REFERRAL HOSPITAL IMPROVE COMMUNICATION WITH THE CLINIC?

1. A telephone line for incoming calls only (a "hot line") should be available in the nursery so that the clinic staff can contact the nursery staff without delay.
2. The most senior and experienced nurse or doctor should receive the call. Each day and night someone should be allocated to answer the clinic calls.
3. Listen carefully, be patient, and try to obtain a clear idea of the problem.
4. Ask for important information that has not been provided.
5. It is better to admit the infant if there is any doubt about the infant's condition.
6. Arrange the transfer. This is often best done by the referral hospital rather than by the clinic.
7. Suggest any emergency treatment needed before or during transfer.
8. Always inform the clinic after the infant has arrived at the hospital. A reply slip can be used to give the patient's condition on arrival, the diagnosis made by the hospital staff and the infant's response to treatment. Feedback to the referring clinic or hospital is essential.
9. When infants have recovered they can be transferred back to the clinic. The clinical notes and a referral letter must accompany the infant. The transfer must be arranged with the clinic.
10. All infants transferred from a clinic must be reviewed every month. In this way problems with referrals can be identified and corrected.

TRANSFERRING NEWBORN INFANTS

30-19 WHY SHOULD NEWBORN INFANTS BE TRANSFERRED?

If pregnant women are correctly categorized into low risk and high risk groups during pregnancy and labour, infants should be delivered at clinics or hospitals with the necessary staff and equipment to care for them. However, when maternal categorization is incorrect, when unexpected problems present during or after delivery or when a mother with a complicated pregnancy or labour arrives in advanced labour at a clinic, then the infant may need to be transferred to a hospital with a level 2 or 3 nursery. All women should be offered care at the most appropriate health facility. It is not in the best interests of the mother or the service if her need and the level of care is mismatched, e.g. a normal mother delivering in a level II or III facility or a mother at high risk of problems delivering at a level I facility.

If possible, it is almost always better for the infant to be transferred before delivery than after birth. The mother is the best incubator during transfer.

IT IS BETTER TO TRANSFER THE MOTHER BEFORE DELIVERY THAN TO TRANSFER THE INFANT AFTER BIRTH

30-20 WHAT IS THE AIM OF CARING FOR THE DURING TRANSFER?

The aim is to keep the infant in the best possible clinical condition while it is moved from the clinic to the hospital. This is achieved by providing the following:

1. A warm environment.
2. An adequate supply of oxygen.
3. A source of energy.
4. Careful observations.

This greatly increases the infant's chance of survival without damage.

30-21 WHICH INFANTS SHOULD BE TRANSFERRED FROM A CLINIC TO A HOSPITAL?

All infants that need management which cannot be provided at the clinic must be referred to the nearest hospital with a nursery. The following infants should be transferred:

1. Preterm infants, especially infants less than 36 weeks gestation.
2. Infants with a birth weight under 2000 g. Most infants between 2000 g and 2500 g do not need to be referred to a hospital and can be sent home
3. Infants that will not suck well.
4. Infants with respiratory distress.
5. Infants with neonatal asphyxia that require ventilation during resuscitation.
6. Any sick infant may need to be transferred to hospital.
7. Infants with major congenital abnormalities, especially if urgent surgery is needed.

Each region should establish its own clearly understood referral criteria so that the staff know which infants need to be transferred. All facilities in the region must agree with these referral criteria.

A LIST OF REFERRAL CRITERIA FOR INFANTS MUST BE AVAILABLE AT ALL LEVEL I FACILITIES

*** *Some infants between 1800 and 2000 g can be managed at a clinic, especially if KMC is used.*

30-22 WHY SHOULD THE INFANT BE RESUSCITATED BEFORE BEING TRANSFERRED?

It is very important that the infant is fully resuscitated before being transferred. The infant must be warm, well oxygenated and given a supply of energy before being moved. Transferring a collapsed infant will often kill the infant. The clinic staff and the transfer personnel should together assess the infant and ensure that the infant is in the best possible condition to be moved.

INFANTS MUST BE IN THE BEST POSSIBLE CONDITION BEFORE TRANSFER**30-23 HOW SHOULD THE TRANSFER BE ARRANGED?**

If possible, the hospital that will receive the infant should make the transfer arrangements. The hospital staff can then advise on management during transfer and be ready to receive the infant in the nursery. The unexpected arrival of an infant at the hospital must be avoided. The clinical notes and a referral letter must be sent with the infant. A sample of gastric aspirate, collected soon after delivery for microscopy and the shake test, is very helpful, especially in preterm infants, infants with respiratory distress and infants with suspected congenital pneumonia. Consent for surgery should also be sent if a surgical problem is diagnosed. The emergency management and plan for transfer must be discussed between the referring facility and the receiving facility before the infant is moved. Often the problem can be managed at the clinic following advice from the hospital.

30-24 WHAT ARE THE GREATEST DANGERS DURING TRANSFER?**1. HYPOTHERMIA**

Infants must be kept warm during transfer and their skin or axillary temperature should be regularly measured. A transport incubator is the best way to keep the body temperature normal. If an incubator is not available, kangaroo mother care can be used to prevent hypothermia. Ambulance or nursing staff or the father can give KMC if the mother does not get transferred with her infant. Hypothermia can also be avoided in a warm infant by dressing the infant and then wrapping the infant in a silver swaddler (space blanket) or heavy gauge tin foil. No transferred infant should ever be cold on arrival.

2. HYPOXIA

It is essential that infants receive oxygen during transfer, but only if this is needed. All the equipment required for the safe administration of oxygen should be available. Infants who do not need extra oxygen must not be given oxygen routinely while being transferred. Some infants with respiratory distress or apnoea need ventilation during transfer. A saturation monitor is very useful to monitor oxygenation during transfer.

3. HYPOGLYCAEMIA

Some supply of energy must be provided during transfer. Either milk feeds or intravenous fluids should be given. The blood glucose concentration should be regularly measured with reagent strips.

30-25 WHO SHOULD TRANSFER A SICK INFANT?

Vehicles to transfer patients must be provided by the local authority in each region. Ideally an ambulance should be used. If possible, ambulance personnel should be trained to care for infants during transfer. When this service is not available, the referral hospital should provide nursing or medical staff to care for the infant while it is being moved from the clinic to the hospital. A transport incubator, oxygen supply and emergency box of essential resuscitation equipment should always be available at the referral hospital for use in transferring newborn infants. Only as a last resort should the clinic provide a vehicle and staff to transfer a sick infant to hospital.

30-26 SHOULD THE MOTHER ALSO BE TRANSFERRED TO HOSPITAL?

Yes, whenever possible, the mother should be transferred to hospital with her infant. Do not separate the mother and her infant if at all possible.

ASSESSING THE PERINATAL HEALTH AND PERINATAL CARE STATUS IN YOUR REGION

A very important method of communicating the perinatal health needs within and between health regions is to determine the low birth weight rate, stillbirth rate, early neonatal mortality (death) rate and the 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 area or region.

The results of pregnancy outcome are usually given for a community, health region, province or whole country. Therefore, the results given below for developing countries also apply to most developing communities within developed countries.

Infants weighing less than 500 g (about 22 weeks) at birth are often regarded as miscarriages and, therefore, are not included in these rates. Perinatal information (data) is usually divided into 500 g categories.

**** Infants of 500 g or more that show signs of life at birth and subsequently die the in the first week should be included in a count of early neonatal deaths.*

30-27 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. In a developed country the low birth weight rate is usually less than 100 per 1000 births (i.e. less than 10%). However, in a developing country the low birth weight rate is usually much more than 100 per 1000 births. The low birth weight rate is often expressed as a percentage rather than per 1000 deliveries. In South Africa the low birth weight rate is about 15%.

IN MOST DEVELOPING COUNTRIES THE LOW BIRTH WEIGHT RATE IS HIGHER THAN 10 PER 100 DELIVERIES

30-28 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.

**** The legal definition of stillbirth in South Africa is an infant born dead after "6 months of intra-uterine life" (i.e. 28 weeks since the start of the last period or 1000 g). Therefore, 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 is used.*

30-29 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 often regarded as abortions. 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 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.

IN MOST DEVELOPING COUNTRIES THE EARLY NEONATAL MORTALITY RATE IS HIGHER THAN 10 PER 1000

**** 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.*

30-30 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. In a developing country there are usually two still births to every early neonatal death.

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).

Perinatal mortality rates are discussed further in the Saving Mothers and Babies manual of the Perinatal Education Programme.

30-31 WHAT IS THE VALUE OF KNOWING THESE RATES?

It is very important to know the low birth weight, stillbirth, 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 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. 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

30-32 WHAT ARE THE MAIN NEONATAL CAUSES OF EARLY NEONATAL DEATH?

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

1. Preterm delivery.
2. Intrapartum hypoxia.
3. Infection.

Intra-uterine growth restriction, maternal hypertension, poor intrapartum care, placental abruption and syphilis are important maternal causes resulting the above neonatal causes of early neonatal death. Many of these causes can be prevented or be identified and correctly managed.

Many of these causes are avoidable 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 defined.

30-33 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. Clinic deaths must include transfers to hospital after the onset of labour as the cause of death may be the management at the clinic. Perinatal mortality meetings are held weekly or monthly. The aim of a perinatal mortality meeting is to identify avoidable (modifiable) factors in the service and to improve the management of mothers and infants. Management problems with infants who survived can also be discussed and every infant referred from a clinic after delivery should also be reviewed. 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.

Avoidable factors should be looked for whenever there is a stillbirth or neonatal death. The causative factors may be divided into problems with:

1. The mother, e.g. poor attendance for antenatal care or reporting late in labour.
2. The staff, e.g. the fetal heart was not monitored during labour or the infant not adequately resuscitated.
3. The service, e.g. there was no transport or inadequate facilities.

Some causative factors are avoidable (e.g. hypothermia) while others are not avoidable (e.g. abruptio placentae). 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

CASE PROBLEMS

CASE 1

An infant of 1500 g has mild neonatal asphyxia after a vaginal delivery. After resuscitation the infant is taken to the nursery and not shown to the mother. Only the mother, who is unmarried, is later allowed into the nursery but she is not allowed to touch her infant. The rest of the family can only view the infant through the nursery windows. As the infant will need to spend a few weeks in an incubator, the mother is discharged home on the second day after delivery. She is told to bind her breasts to suppress her milk.

1. What should have been done to improve bonding in the delivery room?

The mother should have been shown her infant before it was moved to the nursery. Even if the infant is too small or too sick to be held and put to the breast, the parents should briefly see their infant.

2. What do you think about the visiting policy in the nursery?

The father of the infant and the grandparents should also be allowed to visit the infant in the nursery. This is particularly important if the mother is unmarried, as she needs her parents' support. The grandparents must also bond with the infant as they often have to care for the infant when the mother returns to work.

3. Why should the mother be allowed to touch the infant?

This is a very important part of bonding. If a mother washes her hands first, there is very little risk of spreading infection to her infant. She can also help with simple nursing tasks such as changing the nappy and giving nasogastric feeds.

4. How could kangaroo mother care have helped?

The mother should have been encouraged to give KMC as soon as the infant was stable. Probably within the first few hours with this infant. KMC in the labour ward may have been possible.

5. Do you think that it was a good idea to discharge the mother and to suppress her lactation?

The mother should be kept in hospital with her infant for as long as possible. Mothers and infants should not be separated. In many hospitals, mothers stay until their infant is discharged. She should have been encouraged to express her breast milk for nasogastric feeds until the infant was old enough to start breast feeding. Suppressing her milk will prevent her breast feeding.

6. What may be the result of this bad bonding experience?

The mother, father and their families may not bond as well with this infant as they would have if the hospital policies had been different. The unmarried mother may abandon the infant with her mother.

CASE 2

An infant with severe intrapartum hypoxia dies when attempts at resuscitation fail. The body is immediately wrapped up and not shown to the parents. Only hours later is the mother told that her infant has died. The father is very angry when she tells him the news as he feels that the nursing staff are to blame for the infant's death. No arrangements are made for the burial.

1. Is it better for the mother if she does not see her dead infant?

No. Most parents want to see their infant. The parents should have been allowed to spend some time with the dead infant before it was taken away.

2. When should the parents have been told of the infant's death.

As soon as possible. If the father was at the delivery, both parents could have been told together when it was realised that the infant was dying.

3. Why was the father angry with the nursing staff?

Anger is a common reaction to news of an infant's death and is part of the normal mourning process. Staff must realise that the anger is usually not directed personally at them.

4. Should the hospital staff help with the funeral arrangements?

Yes. They should issue a notification of death certificate as quickly as possible and advise the family about arranging the burial.

CASE 3

A 1700 g infant is born at a peripheral clinic. The clinic staff call for an ambulance to take the infant to the nearest hospital. The hospital is not contacted. The infant, who appears well, is wrapped in a blanket and not given a feed. The mother is kept at the clinic. The note to the hospital reads "Please take over the management of this small infant".

1. How should the transfer of this infant have been arranged?

The clinic staff should have contacted the referral hospital and discussed the problem with them. The hospital staff should have advised the clinic staff as to further management. Only then should the infant have been transferred. With advice, the problem can often be managed at the clinic and the infant need not be transferred to hospital.

2. What was wrong with the management of the infant at the clinic?

The infant should have been fed before referral. A transport incubator, KMC or silver swaddler should have been used to prevent hypothermia on the way to hospital.

3. Why was the referral note inadequate?

The referral letter should give all the necessary details of the pregnancy, the delivery and the infant's clinical condition.

4. Should the mother have also been sent to hospital?

Yes. If at all possible, the mother and infant should be kept together. She could have given her infant KMC on the way to hospital.

CASE 4

It is decided to determine the perinatal health and perinatal care status of a region. Therefore, all the birth weights, together with the number of live births and perinatal deaths, in the hospitals, clinics and home deliveries in that region are recorded for a year. Only infants with a birth weight of 500 g or more are included in the survey. Of the 2000 births, 50 were stillborn and 1950 were born alive. There were 25 infants born alive who died in the first week of life. One hundred and twenty infants weighed less than 2500 g at birth.

1. Why were infants between 500 g and 1000 g not also excluded?

Because many of these infants are salvageable. Therefore, all infants with a birth weight of 500 g or more must be included in a perinatal survey.

2. What was the stillbirth rate for this region?

There were 50 stillbirths and 2000 total births. Therefore, the stillbirth rate was $50/2000 \times 1000 = 25$ per 1000.

3. Is this stillbirth rate typical of a developed or developing country?

A developing country, which usually has a stillbirth rate above 20/1000. In contrast, a developed country usually has a stillbirth rate of about 5/1000. therefore the stillbirth rate of 25/1000 suggest a developing country.

4. What was the early neonatal mortality rate?

Of the 1950 infants who were born alive, 25 died during the first week of life. Therefore, the early neonatal mortality rate was $25/1950 \times 1000 = 12,8$ per 1000.

5. What is the expected early neonatal mortality rate for a developing country?

Above 10/1000. Therefore, the rate of 12,8/1000 is what you would expect in a developing country. Note that the stillbirth rate of 25/1000 is about twice the early neonatal mortality rate of 12,8/1000. This is again what you would expect in a developing country.

6. What was the perinatal mortality rate for this region?

There were 50 stillbirths and 25 early neonatal deaths with 2000 total deliveries. Therefore, the perinatal mortality rate was $50 + 25/2000 \times 1000 = 37,5$ per 1000. Note that the perinatal mortality rate is similar but not exactly the same as the stillbirth rate plus the early neonatal death rate.

7. What is the low birth weight rate for this region?

Of the 2000 infants born during the year, 120 weighed less than 2500 g at delivery. Therefore, the low birth weight rate was $120/2000 \times 1000 = 6\%$ or 60 per 1000.

8. Is the low birth weight rate typical of a developing country?

No. Most developing countries have a low birth weight rate of more than 10% (100/1000).

9. How do you interpret the finding of a high perinatal mortality rate with a low birth weight rate of only 60/1000?

It suggests that the living conditions of the mothers in the study region are satisfactory but the perinatal services are poor. Every effort must be made, therefore, to improve these services. Finding the common causes of perinatal death and the avoidable factors would be very useful.