OBJECTIVES

When you have completed this unit you should be able to:

1. Describe Kangaroo Mother Care.
2. Give the history of Kangaroo Mother Care.
3. List the components of Kangaroo Mother Care.
4. Give the advantages of Kangaroo Mother Care.
5. Explain why Kangaroo Mother Care is particularly important for low birth weight infants.
6. Explain the safety of Kangaroo Mother Care.

COPYRIGHT

All rights reserved. No part of this Perinatal Education Programme may be altered in any way, nor may copies of the complete Programme be made, without the written permission of the editorial board of the Perinatal Education Trust. To facilitate the improvement of perinatal care in Southern Africa, however, parts of the Programme may be reproduced for teaching purposes provided due acknowledgement is given and the material is not sold for financial profit. While the advice and information in the Programme are believed to be accurate, the editorial board cannot accept responsibility or liability for any errors or omissions that may have been made.
43-1 WHAT IS KANGAROO MOTHER CARE?

Kangaroo Mother Care, or skin-to-skin contact, is a method of caring for newborn infants. Kangaroo Mother Care (KMC) is particularly useful for nursing low birth weight infants (infants with a birth weight below 2500g).

*** KMC reminds one of the way kangaroos (and other marsupials) care for and keep their infants warm in a special pouch. The mother carries her infant against her body both day and night. While in the pouch, the infant is warm, protected and able to suckle whenever it wants.

The word “Mother” was added to emphasize the importance of the mother and her breast milk.

43-2 WHERE DID KANGAROO MOTHER CARE START?

The idea of nursing an infant skin-to-skin against the mother’s bare breasts is not new and has probably been used for thousands of years. However, the idea was made popular in modern times by health care workers in Bogotá, the capital of Columbia in Central America. From here it has been introduced into many developed and developing countries.

*** Doctors Rey and Martinez first started KMC in 1979 in response to a crisis in Bogotá with the large number of low birth weight infants, the shortage of staff and facilities, the overcrowded nurseries and high mortality from hospital infection.

43-3 WHY IS KANGAROO MOTHER CARE NATURAL?

Many animals give birth to young who are not immediately able to run and follow their mother. They have to be carried by the mother or hidden away while she looks for food and water. Humans and other primates (e.g. monkeys and baboons) carry their newborn infants, either in their arms or against their bodies. The infant is emotionally and physically programmed to remain constantly with the mother. As these infants are relatively immature when they are born, they need constant care for some time after delivery. In this position the infant grows and develops rapidly. KMC is the “natural” way of nursing an infant.

*** In hunter-gatherer societies and most non-western cultures, mothers demonstrated the “carry” pattern of infant care. The infant is always with the mother and breast feeds frequently. In contrast, many animals such as small antelope and hares, demonstrate the “cache” or “nestling” pattern of care, where the infants are hidden while the mother searches for food. In the artificial environment of western society, this latter pattern of infant care has become common. Many believe it is not the best pattern of caring for a human infant.

43-4 WHAT ARE THE COMPONENTS OF KANGAROO MOTHER CARE

KMC consists of four components:

1. Kangaroo position.
2. Kangaroo nutrition.

A detailed description of how the four components of Kangaroo Mother Care are applied in practice is given in Unit 44.

43-5 WHAT IS THE KANGAROO POSITION?

Usually the infant is kept in the upright position between the mother’s bare breasts. The infant is kept naked except for a nappy and woolen cap. The kangaroo position is also called skin-to-skin contact, as much of the infant’s skin is in direct contact with the mother’s skin.
**The kangaroo position is regarded as the optimal habitat or place for newborn infants. In this place infants exhibit specific non-stress behaviour patterns such as "crawling" towards the nipple and "self attachment".**

### THE KANGAROO POSITION IS ALSO KNOWN AS SKIN-TO-SKIN CONTACT

#### 43-6 WHAT IS KANGAROO NUTRITION?

The infant is either breast fed or fed expressed breast milk by cup or nasogastric tube. Whenever possible, the infant should be exclusively breast fed. If for some good reason the mother is unable to breast feed, the kangaroo position can still be used to nurse the infant. If formula is used, it should preferably be given by cup.

#### 43-7 WHAT IS THE ADVANTAGE OF KANGAROO NUTRITION?

With KMC, successful breast feeding is common and more infants are discharged home on breast feeds. The duration of breast feeding is also much longer. With KMC, many infants as immature as 30 weeks can begin breast feeding. KMC increases the volume of milk that a mother produces.

***Before KMC was introduced, it was believed that infants had to reach about 35 weeks gestation before they could suck and swallow adequately. However, with KMC it was noticed that many much more immature infants could be partially or completely breast fed.***

### SUCCESSFUL BREASTFEEDING IS PROMOTED BY KANGAROO MOTHER CARE

#### 43-8 WHAT IS KANGAROO SUPPORT?

This is the physical and emotional support which is given when KMC is practiced.

1. Support must be given by the nursing and medical staff to the mother to assist and encourage her to provide KMC.
2. The whole family should be informed about KMC. They may need to be supported by the staff. In turn, the family should support the mother. The role of the father or partner is important in supporting the mother.
3. The mother’s own mother has a very important role to play in helping her to give KMC
4. The community should also be told about the advantages of KMC. A supportive attitude by the community helps the mother to succeed with KMC.
5. When introducing KMC into a hospital or clinic, the staff often also need support.

#### 43-9 WHAT IS KANGAROO DISCHARGE?

The mother continues to practice KMC after the infant is discharged home. This practice has many advantages both to the mother and her infant. Most low birth weight infants can be discharged earlier if KMC is used. By reducing the time that these small infants stay in hospital, hospitals can give better care to other larger infants. With early discharge, adequate follow-up is essential.

### LOW BIRTH WEIGHT INFANTS CAN BE DISCHARGED HOME EARLIER WITH KANGAROO MOTHER CARE

#### 43-10 WHY IS KANGAROO MOTHER CARE SO IMPORTANT FOR LOW BIRTH WEIGHT INFANTS?

KMC is particularly important when caring for low birth weight infants because they have a high mortality rate in nurseries, which cannot offer sophisticated care. These small infants usually die of hypothermia (cold) or infection. Studies have shown that the number of low birth weight infants dying in hospitals without incubators can be dramatically reduced if KMC is introduced.

### KANGAROO MOTHER CARE HAS REDUCED THE MORTALITY RATE OF SMALL INFANTS

---

**PERINATAL EDUCATION PROGRAMME**
Infants who are delivered before term often die as a result of being born too soon. With KMC, a mother is able to give her infant the protection, warmth and nutrition that she would have given if the pregnancy had continued and the infant was still a fetus. With KMC, the mother can complete the "gestation" outside the uterus.

43-11 CAN KANGAROO MOTHER CARE BE USED FOR ALL INFANTS?

KMC can be used in the majority of infants, whether they are born in hospital, a clinic or at home. While KMC is most important in low birth weight infants, infants of normal weight and gestational age can also benefit from KMC, especially in cold conditions.

43-12 WHEN SHOULD KANGAROO MOTHER CARE BE STARTED?

If KMC is going to be used, it should be started immediately after birth once the infant is dried and examined. Many low birth weight infants can be given KMC from birth. Normal infants can also be given KMC for the first few hours after delivery to promote bonding, encourage breast feeding and prevent hypothermia. Infants who are ill at birth should receive KMC once they have recovered and their clinical condition is stable.

43-13 WHAT ARE THE ADVANTAGES OF KANGAROO MOTHER CARE?

There are many advantages of KMC to:

1. MOTHERS:
   (i) The mother's confidence and bonding is encouraged.
   (ii) Mothers are empowered.
   (iii) Breast feeding is promoted.

2. INFANTS:
   (i) Most low birth weight infants can be kept warm and stable with KMC.
   (ii) Infants grow faster.
   (iii) Serious infection is less common in the infant.
   (iv) Less apnoea (stopping breathing).

3. HEALTH CARE PROVIDERS:
   (i) Fewer staff and less equipment are needed in hospital nurseries.
   (ii) Infants can be discharged home earlier.
   (iii) It is cheaper.

KMC moves the mother back into the position where she can play a meaningful role in the care of her infant. KMC also enables her to choose breast feeding above formula feeding.

43-14 WHAT ARE THE DISADVANTAGES OF SEPARATING MOTHER AND INFANT AFTER BIRTH?

KMC keeps the mother and infant together. If the infant is separated from its mother, it becomes stressed. This may be harmful. Only in modern times have women in western traditions been separated from their newborn infants who have been nursed alone in incubators or cots in hospital. This is the price that is often paid when small infants have to be moved to an intensive care unit. At home, many infants are again separated from their mothers when they are placed in cots, often in another room.

Both human infants and animals that are separated from their mothers after birth display the features of protest and despair. When prolonged, this stress response has been shown to be harmful. Many people believe this to be a cause of behavioural disorders. In contrast, infants receiving KMC exhibit a "vagal response" which promotes growth and development and speeds up the adjustment from an intra-uterine to an extra-uterine existence.
43-15 IS KANGAROO MOTHER CARE SAFE?

Yes. Most small infants can be safely and efficiently nursed with KMC. Many scientific studies on human and animal infants have shown that KMC can be as safe as conventional incubator care. The infant is kept warm, heart and respiratory rates are normal, there is less apnoea and bradycardia (slow heart rate) and fewer episodes of cyanosis (turning blue).

*** Many scientific studies have demonstrated that almost all measurements of well being are better in infants receiving KMC when compared to infants in either overhead radiant heaters or closed incubators. The infant’s skin and core temperatures remain within the physiological range.

43-16 HOW DOES KANGAROO MOTHER CARE KEEP THE INFANT WARM?

The temperature of the skin over the mother’s breasts warms the infant’s naked skin. This is a very effective way of both keeping an infant warm and of warming a cold infant. If the infant is cold the mother’s skin becomes warmer. When the infant becomes too hot, the mother’s skin cools down. In this way, the temperature of the infant receiving KMC is kept in a very narrow range (often with better control than an infant in a servocontrolled incubator). A woollen cap helps keep the infant warm during KMC.

*** The temperature of an infant receiving KMC is slightly higher than that of an infant in an incubator. With KMC, the mother’s temperature may rise as much as 2°C to keep the infant warm.

43-17 HOW DOES KANGAROO MOTHER CARE REDUCE THE RISK OF APNOEA AND BRADYCARDIA?

It is probably the constant temperature together with the mother’s movement, breathing and heart sounds that reduces apnoea and bradycardia. This is very different to the infant in a conventional closed incubator, which makes a constant sound and does not move. Infants in incubators cry more and then sleep deeply from exhaustion. Infants nursed by KMC also require less oxygen and have a better oxygen saturation in their blood. They also sleep for longer.

*** Studies have confirmed that the number of apnoea and bradycardia spells is less with KMC while the oxygen saturation and oxygen consumption are improved. Infants also have more quiet sleep with KMC. They sleep for longer but not so deeply.

43-18 HOW IS BREASTFEEDING PROMOTED BY KANGAROO MOTHER CARE?

Many studies have confirmed that more women successfully breast feed for longer with KMC. Breast milk production is also better and more infants are discharged home fully breast fed if KMC is practiced. This is a very important benefit in many poor communities where breast feeding reduces the risk of infant death. It is important that the opportunity to feed is available continuously day and night.

43-19 DO MOTHERS HAVE TO BREAST FEED IF THEY GIVE KMC?

No. Some very small infants are fed expressed breast milk by nasogastric tube or cup while receiving KMC. HIV positive mothers may choose to provide formula feeds even though they practice KMC.

43-20 WHY DOES KANGAROO MOTHER CARE IMPROVE A MOTHER’S CONFIDENCE?

By having her infant with her all the time, a mother giving KMC becomes both confident and competent in the way she handles her infant. Mothers prefer KMC as they feel more satisfied, relaxed and fulfilled by the experience.
43-21 WHY DO INFANTS RECEIVING KANGAROO MOTHER CARE HAVE FEWER INFECTIONS?

Low birth weight infants, cared for in incubators or cots in a newborn nursery, are at high risk of becoming colonized and infected by organisms which have become resistant to many antibiotics. In contrast, infants being given KMC tend to become colonized with the mother’s own organisms. As the cells and antibodies in a woman’s breast milk are directed against her own organisms, a mother’s breast milk is specifically protective against her organisms, which colonize her infant. A number of studies have shown that infants receiving KMC have fewer serious infections, such as necrotising enterocolitis, than other infants who do not receive KMC. This is one of the main benefits of using KMC to care for small infants.

43-22 HOW CAN KANGAROO MOTHER CARE SAVE MONEY?

1. Breast feeding saves the cost of buying formula.
2. Fewer nurses are needed as the mother provides most of the care to her infant.
3. Less hospital equipment, such as incubators, are required.
4. With less infection, fewer infants have to be admitted to intensive or special care.
5. Infants can be discharged home sooner.

43-23 WHEN CAN INFANTS RECEIVING KANGAROO MOTHER CARE BE DISCHARGED HOME?

Infants receiving KMC can be discharged home when they are healthy and gaining weight, breast feeding well, and the mother is able to manage her infant. Most of these infants can be safely discharged home when they reach 1700 g. Many hospitals are able to discharge KMC infants even earlier. However, good follow-up is essential.

43-24 WHEN IS KANGAROO MOTHER CARE FOR LOW BIRTH WEIGHT INFANTS USEFUL IN HOSPITALS?

There are three circumstances when KMC is particularly useful in the care of low birth weight infants in hospital:

1. In hospitals where no facilities are available to look after low birth weight infants. Here KMC is the only alternative if there is a lack of incubators and nurses.
2. In hospitals where staffing and facilities are available but they are not sufficient to care for all the low birth weight infants. KMC is then used instead of conventional incubator care.
3. In hospitals with adequate staffing and facilities. Here KMC is used to promote bonding between mother and infant, reduce the risk of infection, promote breast feeding and shorten hospital stay.

43-25 CAN THE FATHER ALSO GIVE KANGAROO MOTHER CARE?

Yes. It is very important that the father also becomes involved in the care of the infant. This helps build a bond between the father and infant, and also helps the father support the mother in caring for her infant. In communities with a high rate of child abuse, KMC promises to improve the relationship between men and their children. Other family members, such as the grandmother, may also play an important role in giving KMC.
43-26 HOW IS KANGAROO SUPPORT PROVIDED?

After the birth of an infant, the mother needs support in many different ways. KMC empowers the mother to meet all her infant’s needs. However, she in turn needs help:

1. EMOTIONAL SUPPORT: The mother needs encouragement if she is to give KMC. Many young mothers with their first infant need an enormous amount of reassurance from family, friends and health professionals. KMC empowers mothers to meet all their infants’ needs.
2. PHYSICAL SUPPORT: During the first few weeks of KMC, nursing the infant takes up most of the mother’s time. Adequate rest and sleep are essential. Therefore, she needs support with household chores and managing the family.

43-27 WHY HAS KANGAROO MOTHER CARE NOT BEEN USED FOR MANY YEARS?

Because health professionals believed that the infant would develop problems, such as hypothermia, and apnoea, if it was taken out of the incubator. Infection was also seen as a great risk if the mother handled her infant. Mothers were not viewed as capable of looking after a low birth weight infant. However, there are many reports of individual infants surviving with KMC after they had been refused standard incubator care because they were thought to be too small to survive.

43-28 CAN KANGAROO MOTHER CARE BE USED FOR TRANSPORTING INFANTS?

Yes. KMC is very useful in transporting small infant between clinics and hospital, especially if a transport incubator is not available. If the mother is not available, the ambulance staff can give KMC themselves.

KANGAROO MOTHER CARE IS A SAFE AND EFFECTIVE METHOD OF TRANSPORTING INFANTS

43-29 IS IT SAFE TO USE KANGAROO MOTHER CARE TO WARM COLD INFANTS?

KMC is a very effective and safe method of warming infants with hypothermia (skin temperature below 35°C). If an overhead heater or closed incubator is not available, KMC is the best method of warming cold infants. KMC has been shown to warm cold infants better than an incubator.

43-30 SHOULD KANGAROO MOTHER CARE BE USED IN EXTREMELY SMALL INFANTS?

Infants that are extremely preterm and are not viable can also be given KMC. This “compassionate care” of infants too small to survive is far better than simply leaving the infant to die in the labour ward or nursery. It helps the mother psychologically to come to terms with her bereavement.

43-31 WHAT ARE THE TWO TYPES OF KANGAROO MOTHER CARE?

KMC can be given to small infants in two different ways:

1. INTERMITTENT KMC: This type of KMC is used where incubators are available. It is usually given to very small infants who still need to spend most of the time in an incubator. It encourages the mother to play an active part in the care of her infant while still in the nursery. Intermittent KMC can range from many hours per day to only once every few days. The length of time an infant spends in KMC can also vary from a few minutes to a few hours at a time. The duration of intermittent KMC depends on the condition of the infant and the availability of the mother.
2. CONTINUOUS KMC: This form of KMC should always be used where there is no incubator. It is given continually, both day and night. It can be practiced in hospital and is also used when doing KMC at home with an infant below 1800 g.
43-32 WHEN IS INTERMITTENT KANGAROO CARE USED?

During the time that a mother visits her infant, she can give KMC while sitting beside the incubator. Even if the mother only gives KMC for 10 minutes during a visit, it is beneficial to her infant. Not only does this increase the infant’s weight gain but it also promotes breast feeding. Intermittent KMC also allows the mother to play an active part in the care of her infant while still in the nursery.

**INTERMITTENT KANGAROO MOTHER CARE DURING VISITING TIMES IN THE NURSERY HAS MANY ADVANTAGES FOR BOTH MOTHER AND INFANT**

43-33 WHEN IS CONTINUOUS KANGAROO MOTHER CARE USED?

Usually with low birth weight infants who are almost ready to be discharged home. However, some mothers provide KMC to their infants for many weeks before discharge. KMC is given continuously, both day and night, often in a KMC ward.

43-34 WHAT IS A KANGAROO MOTHER CARE WARD?

This is a special ward where mothers and their infants are kept together so that KMC can be given all the time. Although supervised by the nursing staff, the mothers take responsibility for all their infant’s care.

43-35 CAN INFANTS RECEIVING INTENSIVE CARE BE GIVEN KANGAROO MOTHER CARE?

As soon as infants are stable and no longer very ill, they can be given intermittent KMC, provided that they are monitored. Even infants receiving ventilation can be given KMC.

**CASE PROBLEMS**

**CASE 1**

During the antenatal period, a woman arranges to deliver in a primary care clinic where Kangaroo Mother Care (KMC) is encouraged. Her husband agrees with her choice and says that he also wants to help by giving KMC at times.

1. **What is KMC?**

   KMC, or Kangaroo Mother Care, is a method of caring for an infant where the mother nurses her infant against her bare breasts. The infant, who usually only wears a woolen cap and a nappy, and is kept upright. This is known as the KMC position.

2. **What is KMC nutrition?**

   Most infants who are nursed in the KMC position are breast fed. However, expressed breast milk can also be given by cup or nasogastric tube during KMC. Breast feeding is an important part of KMC. However, a mother can still use the KMC position if she wants to formula feed rather than breast feed. This is important in some mothers who are HIV positive. If formula is given, a cup rather than a bottle should be used.

3. **What is KMC support?**

   This is the help, encouragement and support given to a mother by the father, family and community. This physical and emotional support helps a mother to successfully give KMC.
4. **How can the father also give KMC?**

   The father and other members of the family or a friend can also give KMC. This is helpful when the mother goes to the bathroom or wants a little time alone. KMC promotes bonding between a father and his infant and should improve the emotional relationship between a father and his child.

5. **When should KMC be started?**

   It is best to start KMC immediately after the infant is born. Once the infant is dried, examined, and the cord is cut, it can be given to the mother to start KMC. Most healthy infants can be given KMC even if they are small at birth.

6. **Which infants benefit most from KMC?**

   Low birth weight infants, who would otherwise have to be separated from their mother to be cared for in an incubator or crib in a nursery. This is particularly important in poor countries where incubators may not be available.

**CASE 2**

A young, primiparous woman delivers a healthy, active 36 week infant weighing 1800 g. The infant has good Apgar scores with no clinical problems. When the mother asks to keep the infant with her and nurse the infant in the KMC position, the staff tell her that the infant is too small and must spend the first 12 hours in an incubator. The mother is transferred to the postnatal ward and does not see her infant until the following day.

1. **Do you agree with the decision of the staff to place the infant in an incubator?**

   No. There appears to be no reason why the mother and infant should be separated and why she cannot give KMC to her infant.

2. **What are the advantages of this infant not staying with its mother?**

   Remaining with the mother from birth promotes bonding, increases the chances of successful breast feeding and reduces the risk of infection in the infant. It is also cheaper as extra staff and equipment are not needed.

3. **Is it not safer to observe the infant in an incubator in the nursery for a few hours?**

   No. With KMC the infant can be kept warm and breast feeding can be started. As this infant is healthy and active, there is no danger in giving KMC. The infant should be moved into an incubator if there are abnormal signs such as cyanosis, respiratory distress or apnoea. Only healthy, active infants should be given KMC.

4. **Why is KMC a more natural method of caring for a newborn infant?**

   Most primates carry their infants against their bodies after birth. Similarly, many human mothers feel a great desire to keep their infants with them. Using their own bodies to keep their infant warm, gives mothers a sense of satisfaction and pleasure. Many mothers feel this is the normal and natural way to care for their infant.

5. **Why do infants receiving KMC have fewer serious infections?**

   Because they are colonized with their mother’s bacteria rather than the dangerous bacteria often found in nurseries. Breast feeding also reduces the risk of infections.
CASE 3

A mother visits her small, preterm infant who is nursed in an incubator. The infant weighs only 1200 g but is otherwise well and active. She sits beside the incubator and spends hours looking at and talking to her infant.

1. Would it be safe for her to take the infant out of the incubator and give it KMC?

   Most well preterm infants who still need incubator care can be taken out of the incubator and given KMC during the time that the mother visits. This is known as intermittent KMC.

2. What are the benefits of intermittent KMC?

   It promotes bonding and breast feeding and usually results in faster weight gain by the infant. Intermittent KMC allows the mother to play an active part in caring for her infant.

3. Is it safe to give KMC in cold weather?

   KMC is a very effective method of keeping an infant warm. If the infant’s skin temperature drops, the mother’s skin temperature increases to keep the infant warm.

4. What is continuous KMC?

   Once an infant no longer needs to spend part of the time in an incubator, it can be given continuous KMC day and night. Continuous KMC is usually given in a KMC ward in the hospital until the mother and infant are discharged.

5. When can infants receiving KMC in hospital be discharged?

   Once they are healthy, gaining weight, breast feeding well and the mother is confident to manage her infant. Most infants receiving KMC in hospital can be discharged when they reach about 1700 g.

6. Can KMC be safely used to transport small infants?

   Many small infants who are clinically well can be safely transported with KMC. This is especially useful when a transport incubator is not available. If the mother is not able to travel with the infant, a nurse or member of the ambulance staff can give KMC.
TEST 43

Please choose the one, most correct answer to each question or statement.

1. What is kangaroo mother care?
   b. A method of caring for infant which uses skin-to-skin contact.
   c. A method of allowing infants to sleep at night by covering the incubator.

2. Kangaroo mother care is:
   a. A natural way of caring for infants.
   b. An expensive way of providing infant care.
   c. Only useful in poor countries.
   d. Only used in intensive care units of large hospitals.

3. What is the kangaroo position?
   a. The infant is carried on the mother’s back.
   b. The infant is carried in a special pouch which is stitched into the mother’s dress.
   c. The infant is placed between the mother’s breasts.
   d. The infant lies on the mother’s abdomen.

4. What is kangaroo nutrition?
   a. No milk feeds for the first 24 hours.
   b. Formula feeds with added sugar to increase the energy content.
   c. Feeds made up of diluted cows milk.
   d. Breast feeding.

5. What is kangaroo support?
   a. Breast feeding the infant while it is held in the “football position”.
   b. Bottle feeding the infant while sitting in a comfortable chair.
   c. Helping the mother to provide kangaroo mother care.
   d. Paying the mother to give her infant kangaroo mother care.

6. What is kangaroo discharge?
   a. The mother continues to practice kangaroo mother care at home.
   b. Discharging an infant home once the kangaroo care position is achieved.
   c. Discharging an infant home once kangaroo nutrition is achieved.
   d. Discharging a well infant home within 12 hours of delivery.

7. Kangaroo mother care is particularly important in:
   a. Post term infants weighing over 4 kg.
   b. Low birth weight infants.
   c. Infants with a cleft palate.
   d. Jaundiced infants.

8. Kangaroo mother care should be started:
   a. As soon as possible after birth.
   b. When the infant is 24 hours old.
   c. When the infant starts to gain weight.
   d. When the infant is ready for discharge home.
9. What is one of the advantages of kangaroo mother care?
   a. It prevents jaundice.
   b. Mothers do not have to breast feed at night.
   c. The infant can go home sooner.
   d. It is more expensive.

10. What is an effect of separating mothers and infants?
    a. Infants gain weight faster.
    b. Infants are more stressed.
    c. Infants sleep better.
    d. Infants learn to become independent sooner.

11. Kangaroo mother care is safe:
    a. Only in term infants.
    b. Only in infants weighing 2500g or more.
    c. Only in hospital.
    d. In most small infants.

12. With kangaroo mother care, the infant is kept warm by:
    a. An incubator.
    b. An overhead radiant heater.
    c. The mother’s skin.
    d. A warm room and woolen cap.

13. How does kangaroo mother care reduce the risk of apnoea and bradycardia?
    a. By constantly changing the infant’s temperature.
    b. By keeping the infant’s temperature constant and exposing the infant to the mother’s movement, breathing and heart sounds.
    c. By keeping the infant awake.
    d. By bouncing the infant up and down.

14. With kangaroo mother care, the risk of serious infection in the infant is:
    a. Doubled.
    b. Increased slightly.
    c. Decreased.
    d. Prevented all together.

15. How does kangaroo mother care change the risk of infection in infants?
    a. The infant is not colonised with bacteria until it is discharged home.
    b. The infant is colonised with its mother’s bacteria.
    c. The infant is colonised with hospital bacteria.
    d. The infant is colonised with bacteria from the nurses.

16. Kangaroo mother care is useful:
    a. Only in hospitals with limited staff and resources.
    b. Only in hospitals without incubators.
    c. In all hospitals.
    d. In hospitals where infants are allowed to stay with their mothers.
17. **Kangaroo mother care can be given:**
   a. Only by mothers.
   b. By both mothers and fathers.
   c. Only by nurses.
   d. Only by doctors.

18. **Intermittent kangaroo mother care is:**
   a. KMC given only by day.
   b. KMC given only at night.
   c. KMC given only during feeds.
   d. KMC given when the mother visits her infant.

19. **Continuous kangaroo mother care is:**
   a. KMC given both day and night.
   b. KMC given in an incubator.
   c. KMC given only when the infant is discharged home.
   d. KMC given to infants weighing more than 1000 g.

20. **What is the main reason for developing a kangaroo care ward?**
   a. So that KMC can be given during visiting hours.
   b. So that mothers and their infants are kept together to provide KMC.
   c. So that nurses can give KMC.
   d. So that medical students can be taught to give KMC.
ANSWER SHEET FOR PRETEST 43

Date: ..../..../....
Name: ........................................
Student Number: .............

Please circle the one most correct answer to each question or statement:

1. a  b.  c.  d.
2. a  b.  c.  d.
3. a  b.  c.  d.
4. a  b.  c.  d.
5. a  b.  c.  d.
6. a  b.  c.  d.
7. a  b.  c.  d.
8. a  b.  c.  d.
9. a  b.  c.  d.
10. a  b.  c.  d.
11. a  b.  c.  d.
12. a  b.  c.  d.
13. a  b.  c.  d.
14. a  b.  c.  d.
15. a  b.  c.  d.
16. a  b.  c.  d.
17. a  b.  c.  d.
18. a  b.  c.  d.
19. a  b.  c.  d.
20. a  b.  c.  d.
ANSWER SHEET FOR POST TEST 43

Date: .../..../....

Name: ........................................

Student Number: ..............

Please circle the one most correct answer to each question or statement:

1. a    b.  c.    d.
2. a    b.  c.    d.
3. a    b.  c.    d.
4. a    b.  c.    d.
5. a    b.  c.    d.
6. a    b.  c.    d.
7. a    b.  c.    d.
8. a    b.  c.    d.
9. a    b.  c.    d.
10. a   b.  c.    d.
11. a   b.  c.    d.
12. a   b.  c.    d.
13. a   b.  c.    d.
14. a   b.  c.    d.
15. a   b.  c.    d.
16. a   b.  c.    d.
17. a   b.  c.    d.
18. a   b.  c.    d.
19. a   b.  c.    d.
20. a   b.  c.    d.
CORRECT ANSWERS TO TEST 43

The sections indicate from which part of the unit the questions were taken. For each question that was answered incorrectly, please re-learn the corresponding section.

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>CORRECT ANSWER</th>
<th>SECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>b</td>
<td>43 - 1</td>
</tr>
<tr>
<td>2</td>
<td>a</td>
<td>43 - 3</td>
</tr>
<tr>
<td>3</td>
<td>c</td>
<td>43 - 5</td>
</tr>
<tr>
<td>4</td>
<td>d</td>
<td>43 - 6</td>
</tr>
<tr>
<td>5</td>
<td>c</td>
<td>43 - 8</td>
</tr>
<tr>
<td>6</td>
<td>a</td>
<td>43 - 9</td>
</tr>
<tr>
<td>7</td>
<td>b</td>
<td>43 - 10</td>
</tr>
<tr>
<td>8</td>
<td>a</td>
<td>43 - 12</td>
</tr>
<tr>
<td>9</td>
<td>c</td>
<td>43 - 13</td>
</tr>
<tr>
<td>10</td>
<td>b</td>
<td>43 - 14</td>
</tr>
<tr>
<td>11</td>
<td>d</td>
<td>43 - 15</td>
</tr>
<tr>
<td>12</td>
<td>c</td>
<td>43 - 16</td>
</tr>
<tr>
<td>13</td>
<td>b</td>
<td>43 - 17</td>
</tr>
<tr>
<td>14</td>
<td>c</td>
<td>43 - 21</td>
</tr>
<tr>
<td>15</td>
<td>b</td>
<td>43 - 21</td>
</tr>
<tr>
<td>16</td>
<td>c</td>
<td>43 - 24</td>
</tr>
<tr>
<td>17</td>
<td>b</td>
<td>43 - 25</td>
</tr>
<tr>
<td>18</td>
<td>d</td>
<td>43 - 31</td>
</tr>
<tr>
<td>19</td>
<td>a</td>
<td>43 - 31</td>
</tr>
<tr>
<td>20</td>
<td>b</td>
<td>43 - 34</td>
</tr>
</tbody>
</table>