

[Newborn Care Manual: Contents](#)

## **FLUID REQUIREMENTS**

Before you plan the fluid and energy requirements of an infant, you must understand the role of fluid in the body and the importance of maintaining a normal amount and composition of the body fluid.

### **21-1 WHAT IS BODY FLUID?**

About 70% of the weight of a term infant is fluid. This is called body fluid and it consists of:

1. Water.
2. Electrolytes (salts such as sodium, potassium, chloride and bicarbonate).
3. Proteins.
4. Nutrients such as glucose, amino acids, fatty acids and vitamins.
5. Gases such as oxygen and carbon dioxide.
6. Waste products such as urea and acids.
7. Trace elements.
8. "Messengers" such as hormones.

These substances are called the CONSTITUENTS of body fluid.

### **21-2 WHERE DO YOU FIND BODY FLUID?**

Body fluid is found in different areas (body spaces) and is divided into:

1. INTRACELLULAR fluid which is present inside the cells of the body.
2. INTERCELLULAR fluid which is present between the cells.
3. INTRAVASCULAR fluid which is present in the blood vessels.

The concentration of the various constituents of body fluid varies between these different areas.

### **21-3 CAN BODY FLUID MOVE FROM ONE AREA TO ANOTHER?**

Yes, there is a continual movement of fluid from one area (body space) to another. Water tends to move to the area which has the highest concentration of electrolytes and protein.

### **21-4 WHAT IS THE FUNCTION OF BODY FLUID?**

1. INTRACELLULAR fluid is essential to maintain the health of the cell and to move constituents of body fluid from one part of the cell to another.
2. INTERCELLULAR fluid is needed to move the constituents of body fluid from one cell to another, and between the blood vessels and the cells.
3. INTRAVASCULAR fluid (serum or plasma) is needed to move blood cells and the constituents of body fluid from one area of the body to another.

Too much or too little body fluid, or an imbalance in the amount or constituents of body fluid between the different areas, can prevent the body from functioning normally and may even result in death.

### **21-5 DOES BODY FLUID NEED TO BE REPLACED?**

Yes. Water and all the constituents of body fluid are continually being lost in the urine, stool and sweat, and, therefore, need to be replaced. This can be done:

1. By mouth (orally).
2. By nasogastric tube.
3. By intravenous infusion (IV drip).

**21-6 WHAT DETERMINES AN INFANT'S FLUID NEEDS?**

The daily fluid requirement of the infant depends on:

1. The BODY WEIGHT. Fluid requirements are expressed in ml per kg of body weight. Heavy infants, therefore, need more fluid than do light infants.
2. The AGE AFTER DELIVERY. Fluid requirements increase gradually from birth to day 5 and then remain stable.

**BOTH THE INFANT'S BODY WEIGHT AND AGE AFTER DELIVERY ARE USED TO CALCULATE THE TOTAL AMOUNT OF FLUID THAT IS NEEDED EACH DAY**

**21-7 DO INFANTS NEED MORE FLUID THAN ADULTS?**

Yes, infants need more fluid per kg than adults because:

1. They lose more fluid through their thin skin as "insensible water loss".
2. They lose more fluid from their lungs due to more rapid respiration.
3. Their kidneys do not concentrate urine well and, therefore, need more fluid to excrete waste products.

All these ways of losing fluid are more exaggerated in preterm infants.

**21-8 HOW MUCH FLUID DO MOST INFANTS NEED?**

Most infants need:

- 60 ml/kg on day 1.
- 75 ml/kg on day 2.
- 100 ml/kg on day 3.
- 125 ml/kg on day 4.
- 150 ml/kg on day 5 and thereafter.

Note that the fluid requirements are given in ml per kg body weight, and that they increase gradually from day 1 to day 5. After day 5 there is no further increase in the daily fluid needs per kg body weight. As the infant's weight increases after day 5, the total amount of fluid a day will increase although the amount of fluid per kg remains constant at 150 ml/kg.

**THE FLUID REQUIREMENTS PER DAY INCREASE FROM 60 ML/KG ON DAY 1 TO 150 ML/KG ON DAY 5**

The fluid needs given above for each day after birth are a guide. Some infants may need more while others need less.

**21-9 WHY DO THE DAILY FLUID NEEDS INCREASE DURING THE FIRST 5 DAYS?**

For the first few days after delivery the mother's breasts do not produce a lot of milk. To prevent dehydration, the kidneys of the newborn infant, therefore, produce little urine during this period. The infant also has an additional store of extracellular fluid at birth. As a result the infant does not need a lot of fluid in the first few days of life. However, the infant's fluid needs gradually increase from day 1 to 5. By day 5 the kidneys are functioning well and a lot more urine is passed. Giving 150 ml/kg during the first 4 days to term infants may result in overhydration and oedema.

**21-10 WHICH INFANTS NEED EXTRA FLUID?**

Some infants need more than the amount of fluid given above:

1. Infants weighing less than 1500 g need 75 ml/kg on both the first and second days.
2. Infants under a radiant warmer need an extra 25 ml/kg a day to replace the additional fluid lost through the skin. Infants receiving phototherapy do not usually need extra fluid if their temperature remains normal and a perspex sheet is placed under the phototherapy lights to absorb most of the heat.
3. Infants with diarrhoea or vomiting.
4. Some preterm infants need between 150 and 180 ml/kg after day 5 before they obtain enough energy for growth. However, most preterm infants will grow on 150 ml/kg feeds.

Weighing the infant daily is the best method of assessing whether enough fluid is being given. If an infant loses more than 10% of the birth weight, then the daily fluid intake must be increased.

*\*\*\* Very small infants, weighing less than 1000 g, need even more extra fluid during the first 4 days. Usually 100 ml/kg is given on days 1 to 3.*

**21-11 WHAT ARE THE ENERGY NEEDS OF AN INFANT?**

Feeds of 150 ml/kg/day of breast milk or standard formula provide the infant with approximately 440 kJ/kg/day (105 kcal/kg/day) which is usually enough energy to allow for adequate growth.

*\*\*\* Some preterm infants, however, need up to 500 kJ/kg/day before they gain weight. This requires milk feeds of up to 180 ml/kg/day if breast milk or a standard formula is used or up to 170 ml/day if a special preterm formula is used.. Instead of increasing the volume of the feeds, however, extra energy can be added to the milk by giving 1 ml Liprociil (medium-chained triglyceride oil giving 38 kJ) before each feed.*

**INTRAVENOUS FLUIDS****21-12 WHAT TYPES OF INTRAVENOUS FLUID ARE USED?**

There are 4 main types of intravenous fluid based on their constituents, particularly the type and amount of electrolytes, and the clinical circumstances under which they are used:

1. Resuscitation fluid.
2. Maintenance fluid.
3. Replacement fluid.
4. Total parenteral nutrition.

**21-13 WHAT IS RESUSCITATION FLUID AND WHEN IS IT USED?**

Resuscitation fluid is used to resuscitate an infant that is shocked due to hypoxia, septicaemia or blood loss. As the fluid is given rapidly, it must be ISOTONIC with blood (i.e. it must contain the same concentration of electrolytes as blood). If HYPOTONIC fluid (i.e. it has a lower concentration of electrolytes than blood) is given rapidly, the water in the fluid leaves the blood stream and enters cells causing oedema and brain swelling.

RESUSCITATION fluids are:

1. Normal saline (0.9%)
2. Blood.
3. Stabilised human serum (SHS).
4. Fresh frozen plasma.
5. Plasmalyte B.
6. Ringer's lactate.
7. Haemaccel.

The choice of fluid depends on which fluid is available and the cause of shock. Normal saline is usually used. Collapse due to hypoxia, septicaemia or vasovagal stimulation can also be treated with stabilised human serum or Plasmalyte B. Acute blood loss is best treated with blood or stabilised human serum.

Resuscitation fluid is given 10-20 ml/kg over 10-20 minutes until normal perfusion and blood pressure are achieved. In severe shock it must be given as fast as possible.

### 21-14 WHAT IS MAINTENANCE FLUID AND WHEN IS IT USED?

Maintenance fluid is used to supply the daily requirements of water and electrolytes. It also supplies some, but not all, of the infant's energy needs. Maintenance fluid is given to infants that cannot be fed by mouth or nasogastric tube.

The commonly used MAINTENANCE fluid for newborn infants in South Africa is Neonatalyte. It contains 10% dextrose (glucose) as well as electrolytes.

Maintenance fluid will provide the infant with the correct amount of electrolytes if the correct volume per kg is given a day. It is dangerous to use replacement fluid or resuscitation fluid for maintenance as it will provide too much sodium.

A neonatal giving set should be used to provide intravenous fluids to infants. A drip rate of 1 drop per minute will provide approximately 25 ml per day. Therefore, a drip rate of 4 will provide about 100 ml a day.

\*\*\* *The daily electrolyte needs of the infant are:*

1. Sodium 1 - 3 mmol/kg
2. Potassium 1 - 2 mmol/kg
3. Chloride 1 - 4 mmol/kg

*Breast milk provides the term infant with 1 mmol sodium/kg/day. Some preterm infants need more sodium per kg body weight than do term infants, varying from 3 - 6 mmol/kg. The more immature the infant the greater the sodium loss in the kidneys and, therefore, the higher the daily sodium requirement.*

### 21-15 WHAT IS REPLACEMENT FLUID AND WHEN IS IT USED?

Replacement fluid is used to correct the fluid and electrolyte balance after excess fluid and electrolyte has been lost in the stool, urine, sweat or by vomiting. Therefore, replacement fluid is used to correct dehydration.

REPLACEMENT fluids are:

1. Half-strength Darrow's.
2. Half-normal saline.

Replacement fluids contain 3 times more sodium than maintenance fluids. In addition, half strength Darrow's contains a lot of potassium and is, therefore, used to replace fluid losses in gastroenteritis. Half-normal saline does not contain potassium and is, therefore, used to replace fluid lost by vomiting and excessive sweating where sodium and water but not potassium are lost.

### 21-16 WHAT IS TOTAL PARENTERAL NUTRITION AND WHEN IS IT USED?

Total parenteral nutrition (or TPN) is used to meet all the fluid, electrolyte and nutritional requirements of an infant who cannot be fed by mouth or nasogastric tube for more than a few days. Total parenteral nutrition is only used in hospitals with special expertise in parenteral feeding.

The method of starting and maintaining an intravenous infusion is described in skills workshop 21 of this PEP manual.

## MILK FEEDS FOR SICK OR HIGH RISK INFANTS

### 21-17 WHAT MILK FEEDS SHOULD BE GIVEN TO A PRETERM INFANT?

Whenever possible, every effort should be made to feed a preterm infant with BREAST MILK. Preterm infants are at great risk of gastroenteritis and have difficulty digesting cow's milk due to their immaturity. Both these problems can be largely prevented by using fresh breast milk.

<b>WHENEVER POSSIBLE, BREAST MILK SHOULD BE USED FOR PRETERM INFANTS</b>
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### 21-18 WHAT MILK FORMULA SHOULD BE USED FOR PRETERM INFANTS IF BREAST MILK IS NOT AVAILABLE?

If breast milk is not available, then formula (powdered milk) should be used. Infants weighing 1500 g or more can be given a standard newborn formula such as Nan 1. However, infants weighing less than 1500 g should be given a special preterm formula such as PreNan. While the nutrients and chemical make up of these special formulas are designed to meet the needs of preterm infants, they lack most of the anti-infection factors found in breast milk.

If the correct volume of breast milk or formula is given, the infant will receive the correct amount of nutrients and energy. Diluted feeds are NOT used.

### 21-19 WHAT ROUTE SHOULD BE USED TO FEED A PRETERM INFANT?

Most preterm infants born after 35 weeks are able to suck well and, therefore, take all their feeds by mouth. If possible, they should be breast fed. If kangaroo mother care is used, even younger preterm infants will often breast feed. A cup rather than a bottle should be used to give feeds of expressed breast milk.

Preterm infants that are not able to suck should be fed via a nasogastric or orogastric tube. They usually start to suck well when 36 weeks is reached, i.e. a 32 week preterm infant should suck by 4 weeks after delivery.

If the infant is fed via a nasogastric or orogastric tube, the mother must manually express her milk every 4 hours during the day. A breast pump, if available, can also be used. The milk can be safely stored for 48 hours in a household fridge. It should stand at room temperature for 15 minutes to warm before feeding.

The method of passing a nasogastric or orogastric tube is described in skills workshop 21 of this PEP manual.

### 21-20 HOW OFTEN SHOULD A PRETERM INFANT BE FED?

1. If below 1500 g: feed every 2 hours (i.e. 12 feeds a day).
2. If 1500-1800 g: feed every 3 hours (i.e. 8 feeds a day).
3. If 1800-2000 g: feed every 4 hours.(i.e. 6 feeds a day).
4. If over 2000 g: feed every 4 hours or on demand.

\*\*\* *Infants weighing less than 1000 g are usually fed hourly (i.e. 24 feeds a day). Very small infants may need continuous feeds.*

**21-21 HOW SHOULD FEEDS IN PRETERM INFANTS BE PLANNED?**

The method of feeding depends on the weight of the infant:

**1. INFANTS WEIGHING LESS THAN 1500 G AT BIRTH**

Start with an intravenous infusion of maintenance fluid only on day 1. From day 2 tube feeds are gradually introduced and intravenous fluid is gradually stopped over a number of days. The smaller and sicker the infant, the more gradually milk feeds are introduced. If milk feeds are tolerated well, without vomiting, abdominal distension or apnoea, then the volume per feed can be increased.

An example of the introduction of milk feeds to a small, preterm infant is given below:

Day	Intravenous fluid (ml/kg/day)	Milk feed (ml/kg/day)	Total
1	75	Nil	75
2	50	25	75
3	50	50	100
4	50	75	125
5	50	100	150
6	25	125	150
7	Nil	150	150

In many infants the rate of increase in the volume of tube feeds can be faster allowing the intravenous infusion to be stopped on day 3 or 4. These are guidelines only and each infant must be individually assessed.

**2. INFANTS WEIGHING 1500G OR MORE AT BIRTH**

They can be started on milk feeds from birth and usually do not need an intravenous infusion. Tube feeds of breast milk or formula are started at 60 ml/kg on day 1 and can be gradually increased to 150 ml/kg/day by day 5.

**21-22 HOW SHOULD YOU FEED SICK INFANTS?**

The choice of feeding method will depend on:

1. The birth weight and gestational age.
2. Whether the infant has respiratory distress.
3. Whether the infant will tolerate oral or tube feeds.
4. Whether bowel sounds are present.
5. How ill the infant is.

Sick infants are usually fed as you would feed an infant weighing less than 1500 g, i.e. start with an intravenous infusion of maintenance fluid only and then gradually introduce milk feeds and reduce intravenous fluids as the infant's clinical condition improves. If milk feeds are given to sick infants, the infant's stomach should be aspirated before each feed.

**21-23 WHICH INFANTS SHOULD BE GIVEN INTRAVENOUS MAINTENANCE FLUID?**

1. Infants weighing less than 1500 g. Note that not all preterm infants and low birth weight infants need intravenous maintenance fluid.
2. Infants who are too sick to tolerate milk feeds, e.g. infants with severe respiratory distress, abdominal distension with decreased bowel sounds, and severely ill infants. Small volume feeds can usually be started when the clinical condition of the infant improves. If milk feeds cannot be given for more than 72 hours, then total parenteral nutrition must be considered. These sick infants should be managed in an intensive care unit.

**21-24 WHAT ARE THE DANGERS OF MILK FEEDS IN SICK INFANTS?**

1. Vomiting, which may cause apnoea or aspiration pneumonia.
2. Abdominal distension, which may cause apnoea or make respiratory distress worse.

To avoid these complications sick infants are often kept nil per mouth for a few days. If sick infants are fed by tube, the stomach should be aspirated before each feed. Feeds should be stopped if the aspirate exceeds 2 ml/kg body weight. Feeds must also be stopped if the infant vomits or develops abdominal distension.

**WHEN TUBE FEEDS ARE GIVEN TO SICK INFANTS, THE INFANT'S STOMACH SHOULD BE ASPIRATED BEFORE EACH FEED**

**21-25 HOW SHOULD YOU FEED A WASTED OR UNDERWEIGHT FOR GESTATIONAL AGE INFANT?**

As both these groups of infants are at high risk of hypoglycaemia, milk feeds or an intravenous infusion of maintenance fluid must be started within an hour of delivery. If possible milk feeds should be given, as they contain more energy than maintenance fluid. The volume of milk per feed can usually be increased much faster than in preterm or sick infants.

*\*\*\* Breast milk and formula contain 290 kJ/100 ml (70 kcal/100 ml) while maintenance fluid (10% dextrose) only contains 168 kJ/100 ml (40 kcal/100 ml).*

**21-26 WHAT SUPPLEMENTS ARE NEEDED BY PRETERM INFANTS?**

1. Multivitamin drops 0,3 ml daily should be started on day 5 if the infant is tolerating milk feeds. This should be increased to 0,6 ml daily at term and then continued at 0,6 ml daily until the infant is 6 months old.
2. Iron drops (ferrous lactate) 0,3 ml daily. They should be started when the infant is two weeks old. When the infant reaches term the dose is increased to 0,6 ml daily and continued at 0,6 ml daily until the infant is 6 months old.

Both the multivitamin and iron drops can be added to the formula or breast milk if nasogastric or cup feeds are used. They can be given directly into the infant's mouth if the infant is breast feeding. Vitamins and iron are given to build up the infant's nutrient reserves and, thereby, prevent vitamin deficiency and iron deficiency anaemia when the infant is a few months old. There is usually no need to introduce solids until the preterm infant is 4-6 months old.

**ALL PRETERM INFANTS SHOULD RECEIVE MULTIVITAMIN AND IRON SUPPLEMENTS**

**VOMITING****21-27 WHEN IS VOMITING ABNORMAL?**

Many normal infants occasionally vomit because the volume of the feed is too big, due to swallowing too much air with the feed or due to excessive handling after the feed. These infants appear well, gain weight well, and do not need any treatment.

Vomiting is abnormal if any of the following features are present:

1. The infant vomits frequently, or vomits most of the feed, and as a result fails to gain weight or loses weight.
2. If the vomitus contains bile (green).

Bile stained vomiting is an emergency. Feeds must be stopped and the stomach aspirated. An intravenous infusion must be started and the infant must be urgently referred to a level 2 or 3 hospital for investigation of a bowel obstruction.

**BILE STAINED VOMITING IS ALWAYS ABNORMAL****21-28 WHAT ARE THE IMPORTANT CAUSES OF ABNORMAL VOMITING?**

1. Infection, especially septicaemia, meningitis and necrotising enterocolitis.
2. Gastro-oesophageal reflux. This is common in preterm infants, where the muscle sphincter in the lower oesophagus is immature.
3. Congenital abnormalities such as oesophageal atresia, duodenal atresia or obstruction of the small or large intestine.
4. Gastritis due to meconium or blood.

**21-29 HOW SHOULD YOU PREVENT VOMITING?**

1. If possible remove or treat the cause.
2. Give smaller, more frequent feeds.
3. Nurse the infant on its abdomen and raise the head of the mattress. This reduces the frequency of vomiting and helps to prevent milk aspiration.
4. Replace the nasogastric or orogastric tube to ensure that it is in the correct position.
5. In infants who vomit repeatedly, aspirate the stomach before each feed. If more than 2 ml/kg is aspirated the volume of the feed should be reduced.
6. If the above fails to stop the vomiting, then the infant must be transferred to a level 2 or 3 hospital for further management. Cup feeds can be thickened with 5 ml Nestagel/100 ml milk when other more serious causes of vomiting have been excluded.

*\*\*\* Gaviscon can also be used to thicken feeds. Unlike Nestagel, Gaviscon only thickens the feed when the feed reaches the stomach. Therefore, Gaviscon can also be used with nasogastric feeds.*

**21-30 SHOULD ALL INFANTS BE NURSED ON THEIR ABDOMENS?**

No. Only infants below 1800 g, infants with apnoea or respiratory distress and infants who vomit frequently are nursed on their abdomens. This position reduces the risk of vomiting and apnoea while improving respiration. Other infants should be nursed on their sides as this decreases the risk of cot death.

**CASE PROBLEMS****CASE 1**

A 1900 g, healthy preterm infant is born by normal vertex delivery after a 34 week gestation.

**1. What method should be used to feed this infant?**

Tube feeds should be started within an hour of delivery. There is no indication to give intravenous fluids. In a week or two, when the infant starts to suck, breast or cup feeds can be introduced.

**2. What type of feed would you choose?**

Breast milk should be used if possible. If this is not available, then a standard infant formula (e.g. Nan 1) should be given.

**3. What volume of feed will be needed on day 1?**

$60 \text{ ml/kg} = 60 \times 1,9 = 114 \text{ ml}$  over 24 hours. Thereafter the volume will be increased daily until 150 ml/kg is reached on day 5.

**4. How often should feeds be given to this infant?**

4 hourly (i.e. 6 feeds a day). Therefore, the volume of each feed will be  $114/6 = 19\text{ml}$ .

**5. What supplements does this infant need?**

A multivitamin liquid 0,3 ml daily should be started on day 5, while iron drops 0,3 ml should be started after two weeks. Both should be increased to 0,6 ml daily when 37 weeks is reached (i.e. 3 weeks after delivery in this infant) and continued for 6 months.

**CASE 2**

A preterm, underweight for gestational age infant is delivered by caesarean section at 32 weeks and weighs 1100 g at birth. The Apgar scores are normal and on examination the infant appears clinically well.

**1. What fluids will this infant need on day 1?**

An intravenous infusion of a maintenance fluid such as Neonatalyte. Milk feeds should not be started yet.

**2. What volume of fluid is needed on day 1?**

$75 \text{ ml/kg} = 75 \times 1,1 = 82,5 \text{ ml}$ . This amount of fluid must be infused over 24 hours.

**3. When can milk feeds be started?**

Small tube feeds of expressed breast milk (or preterm formula if breast milk is not available) can be started on day 2.

**4. What volumes of milk and intravenous fluid will be needed on day 2?**

The total fluid intake on day 2 should be 75 ml/kg, as on day 1. This should consist of:

- (i) Breast milk  $25 \text{ ml/kg} = 25 \times 1,1 = 27,5 \text{ ml}$ . Therefore, 2,3 ml (27,5 ml /12) should be given every 2 hours.
- (ii) Intravenous maintenance fluid  $50 \text{ ml/kg} = 50 \times 1,1 = 55 \text{ ml}$ .

After day 2 the volume of milk is gradually increased as the volume of intravenous fluid is gradually decreased to give a steady increase in total volume until day 5 when 150 ml/kg milk feeds should be given.

**5. When should breast feeds be started?**

Usually a preterm infant starts to suck after 35 weeks. Therefore breast (or cup) feeds can be started when this infant is about 36 weeks, i.e. 4 weeks after delivery. Some infants will start to suck earlier, especially if they receive kangaroo mother care.

**CASE 3**

A 2100 g infant with hyaline membrane disease is given head box oxygen and nursed under an overhead radiant warmer. As the infant has severe respiratory distress and an ileus, it is decided that the infant is too sick to be given milk feeds.

**1. What volume of intravenous fluid should be given on day 1?**

$60 \text{ ml/kg} = 60 \times 2,1 = 126 \text{ ml}$ . However an additional 25 ml/kg must be given as the infant will have increased fluid losses due to the overhead heater. Therefore an extra 25 ml/kg ( $= 25 \times 2,1 = 52,5 \text{ ml}$ ) must be added to the daily volume. The total day one volume will be  $126 + 52,5 = 178,5 \text{ ml}$ .

**2. What type of intravenous fluid should be given?**

A maintenance fluid such as Neonatalyte. This contains 10% dextrose (glucose) to provide energy.

**3. When can milk feeds be started?**

When the respiratory distress starts to improve and bowel sounds are present. This will usually be about day 3. If the infant remains very distressed, has a distended abdomen or poor bowel sounds, then the introduction of milk feeds will have to be delayed further.

**CASE 4**

A 1600 g, preterm infant of 33 weeks is 1 week old and is cared for in a level 1 hospital. The infant appears well but vomits after most feeds and has not started to gain weight yet.

**1. Why is the vomiting important?**

Because the infant is not gaining weight. Also, the vomited milk may be inhaled causing apnoea or pneumonia.

**2. What is the most likely cause of the vomiting in this infant?**

Gastro-oesophageal reflux.

**3. What other common or important causes of vomiting should you always think of when any infant has repeated vomits?**

- (i) The volume of feed is too big.
- (ii) The infant is being handled too much after a feed.
- (iii) An incorrectly placed nasogastric or orogastric tube (too high).
- (iv) Infection.
- (v) Congenital abnormalities of the bowel.
- (vi) Gastritis due to meconium or blood.

**4. How should you manage an infant with gastro-oesophageal reflux?**

- (i) Give frequent, small feeds. As the infant needs 240 ml per day (150 ml x 1,6 kg), feeds of 20 ml can be given every 2 hours (20 x 12 = 240 ml).
- (ii) Nurse the infant on its abdomen and slightly raise the head of the mattress. If the infant continues to vomit and fails to gain weight, refer to a level 2 hospital. Nestagel can be added to cup feeds if other causes of vomiting have been excluded.