

# How to give vitamin A supplements

A Guide for Health Workers



WHO/EPI/TRAM/93.6

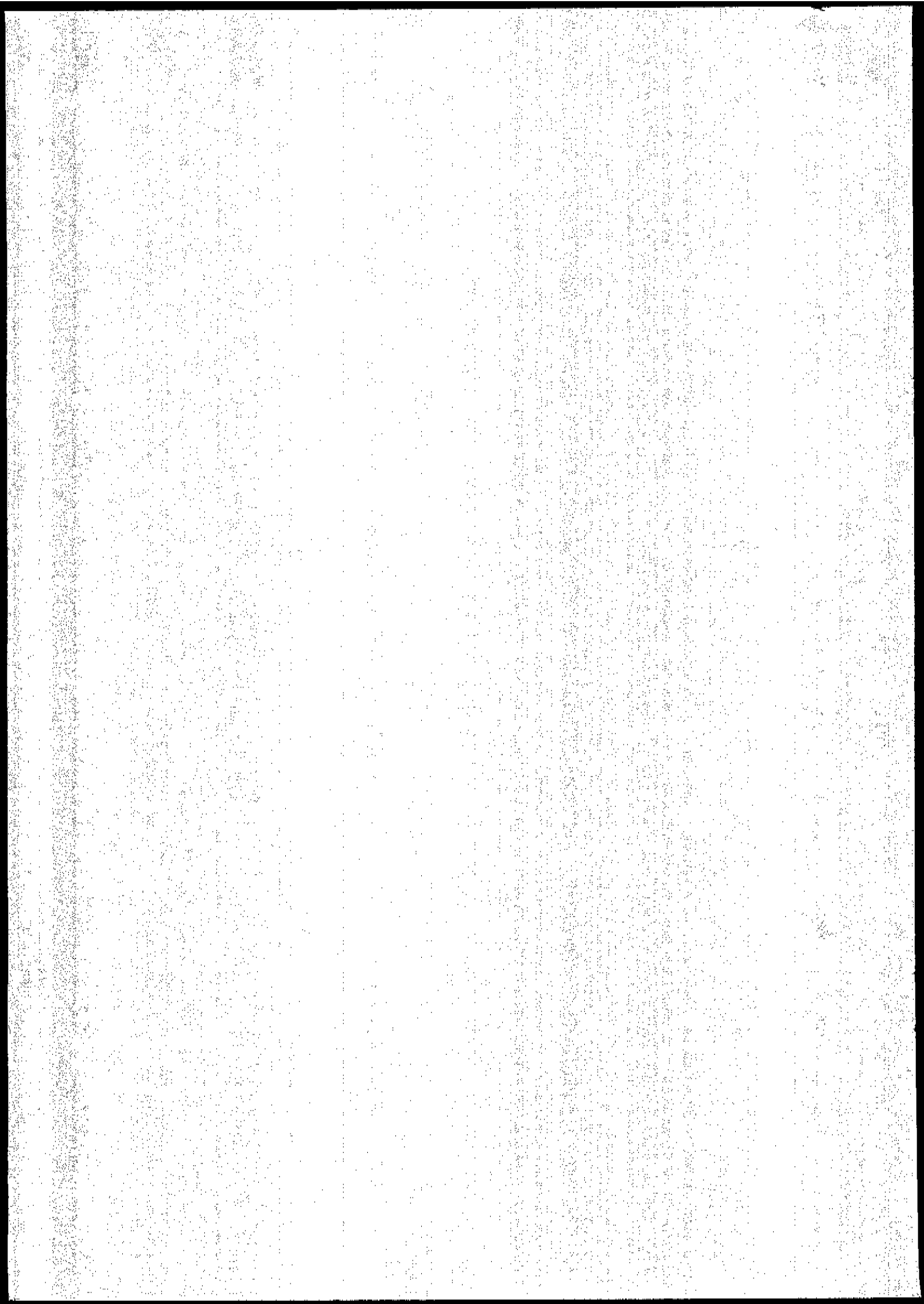
Original: English

Distr: General



EXPANDED PROGRAMME  
ON IMMUNIZATION  
AND  
THE NUTRITION UNIT  
OF THE  
WORLD HEALTH ORGANIZATION





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# 1 Introduction

## *What is vitamin A?*

Vitamin A is a substance that is present in foods such as whole milk, breast milk, butter, liver. A substance that can be changed to become vitamin A is present in red palm oil, yellow and orange fruits and vegetables and dark green leafy vegetables.

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## *Who needs vitamin A?*

Everybody needs vitamin A to protect their health and vision. Women who breast feed especially need vitamin A to help them to stay healthy, and to pass on vitamin A to their children through breast milk. Young children need vitamin A after they are weaned to help them to grow, develop normally and stay healthy.

Vitamin A helps to protect our health and vision in several ways:

- **Resistance to Infections**

Vitamin A helps to decrease the severity of many infections, such as diarrhoea and measles.

- **Increased Chances of Survival**

When young children receive the vitamin A that they need, they are more likely to survive an infection.

- **Growth**

Vitamin A is necessary for growth. Young children have a special need for vitamin A because they are growing rapidly. Pregnant women need vitamin A to help the growth of their unborn child.

- **Sight and the Eyes**

Vitamin A is vital for the proper functioning of the eye. The transparent part of the eye, the cornea through which one sees, is protected by vitamin A. If there is shortage of vitamin A it may be difficult to see in dim light. A severe shortage of vitamin A may result in blindness.

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*Vitamin A deficiency*

The body cannot make vitamin A. Therefore all the vitamin A that we need must come from what we eat. However, the body can store any extra vitamin A we eat so that there is a reserve for times of need. When the reserve supplies in the body are low, and we do not eat enough foods containing vitamin A to meet our body's needs, we say that there is vitamin A deficiency.

When there is vitamin A deficiency, many infections are more severe.

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*Vitamin A supplements*

Young children and women who are not eating enough of the foods that provide vitamin A to give them the amount they need, can be given a concentrated form of the vitamin like a medicine. This is called vitamin A supplementation.

Vitamin A supplements are given by mouth. They are available in two preparations:

Vitamin A solution in a bottle with a pump dispenser



Vitamin A solution in capsules



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**Question 1**

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What foods contain vitamin A?

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**Question 2**

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What is vitamin A deficiency?

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## 2 How to look after vitamin A supplements

Vitamin A supplements are more stable than vaccines. However, air and sunlight will damage the vitamin. Both the vitamin A solution in the bottle and the vitamin A in the capsules should:

- be kept out of direct sunlight
- be kept cool
- not be frozen.

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**Vitamin A supplements do not need a cold chain and need not be stored in a refrigerator**

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Both preparations of the vitamin A supplement, if unopened, keep their strength under good conditions of storage for at least two years. However, there is a difference between the two preparations once you have opened them:

- Once a bottle of vitamin A solution is opened, it should be used within six months. The vitamin A solution that is still remaining in the bottle after six months should be discarded.
- Once a bottle containing vitamin A capsules is opened, the capsules should be used within one year.

Write the date on the label when you open a new bottle of vitamin A solution, or a bottle containing capsules, so that you will know when to stop using it.

Always check the expiry date printed on the label, for both bottles of vitamin A solution and capsules.

### 3 When to give vitamin A supplements to children: Prevention

Below you will find the schedule for giving vitamin A supplements to children to prevent vitamin A deficiency, as recommended by WHO in 1993.

This schedule is suitable for most countries that have decided to give vitamin A supplements for prevention. But some national authorities may find that it is necessary to make changes.

Schedule for Giving Vitamin A Supplements to Prevent Vitamin A Deficiency Children Aged 6 - 71 Months		
Age	Dose	Frequency
Children: 6-11 months	100,000 IU (30mg) vitamin A	Once every 4-6 months
Children: 12-71 months	200,000 IU (60mg) vitamin A	Once every 4-6 months

From the age of six months, at all immunization contacts and whenever the mother brings her child to the health service, the child should be screened to determine if he or she is eligible for a dose of vitamin A.

Vitamin A supplements can be given at the same time as vaccines.

*The age of administration of vitamin A supplements*

You can prevent the occurrence of vitamin A deficiency by giving vitamin A supplements to children aged 6 months through 71 months. Younger infants who are breastfed are less likely to be vitamin A deficient. Therefore you should encourage mothers to breastfeed exclusively for 4 to 6 months so that their infants will not need a vitamin A supplement.

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*How often do you need to give vitamin A supplements?*

Vitamin A supplements give protection against vitamin A deficiency for a period of 4 to 6 months. Therefore, it is recommended to give a vitamin A supplement every 4 to 6 months to young children who do not receive the amount they need from their food.

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*Route of administration of vitamin A supplements*

Vitamin A supplements for prevention of vitamin A deficiency are given by mouth. Vitamin A supplements presented in capsules, or in a bottle with a pump dispenser, should never be given by injection.

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*Labelling of vitamin A supplements*

Preparations of vitamin A supplements are labelled in international units, often shortened to IU. Preparations also may be labelled in milligrams (mg) or micrograms ( $\mu\text{g}$ ). Always check the manufacturer's instructions.

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*Contraindications to giving vitamin A supplements*

There are no contraindications to giving vitamin A supplements to children.

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*Side effects*

Usually there are no side effects. However, sometimes a child may eat less for a day, or there could be some vomiting or headache. Advise the mother that this is normal, that the symptoms will pass and that no specific treatment is necessary.

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**Question 3**

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To prevent vitamin A deficiency, what dose of vitamin A supplements should you give to a child aged 6 - 11 months?

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**Case Study 1**

A woman brings her daughter, Fatima, to your health centre. Fatima has been having diarrhoea and fever for three days. She is nine months old. You ask the mother to show Fatima's immunization card. Fatima has received BCG, three doses each of DPT and OPV.

- 1) Is Fatima eligible for immunization?  
If yes, what immunization should she get?
- 2) Is Fatima eligible for a vitamin A supplement?  
If yes, how much should you give her?
- 3) In addition to breast milk, what foods would you advise Fatima's mother to give her?

## 4 When to give vitamin A supplements: Treatment

Too little vitamin A for a period of time causes serious eye problems, which can lead to blindness.

When examining a child, you should always look for the following eye signs and symptoms:

- Difficulty in seeing in the evenings at dusk - night blindness
- Foamy patches on the white of the eye - Bitot's spots
- Dullness and damage to the transparent centre part of the eye (cornea) - with loss of transparency, ulceration and eventually destruction (corneal xerosis/keratomalacia).

*Treatment for eye signs and symptoms of vitamin A deficiency*

If any of these eye signs are present, give vitamin A supplements according to the treatment schedule below:

Schedule for Giving Vitamin A Supplements to Treat Eye Signs and Symptoms of Vitamin A Deficiency			
6-11 Months		Over 1 Year	
Immediately	100,000 IU vitamin A	Immediately	200,000 IU vitamin A
The following day	100,000 IU vitamin A	The following day	200,000 IU vitamin A
4 weeks later	100,000 IU vitamin A	4 weeks later	200,000 IU vitamin A

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**Treatment of corneal damage, which includes giving a vitamin A supplement, is an emergency.**

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Eye signs due to vitamin A deficiency are rare under the age of six months. But infants under the age of six months with eye signs of vitamin A deficiency should be given 50,000 IU vitamin A, at the same frequency as the above schedule.

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*Advice for the mother*

- Explain to the mother that the improvements after taking a vitamin A supplement may take several days to become evident.
  - Explain to the mother that the three dose schedule of vitamin A supplements needs to be given to obtain the best results for the child's sight.
  - Always check that the mother has listened to the advice, by asking her to repeat it.
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**Question 4**

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When examining a child for vitamin A deficiency, what eye signs and symptoms should you look for?

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## Case Study 2

Today is market day. Every market day there are immunization sessions. Mrs Diakite comes to your health clinic with her 4 weeks old newborn baby. Her other son, Mohammed, who is 3 years old, is also with his mother.

- 1) You should give both BCG and oral polio vaccine (OPV zero) to the newborn. Do you think that the newborn should also receive a vitamin A supplement?
- 2) Is Mohammed eligible for a vitamin A supplement? If yes, how much are you going to give him?

### *Vitamin A for measles*

In areas where measles case fatality is high, children with measles should be given a vitamin A supplement immediately on diagnosis, and on the following day. In other areas, all children with severe measles, often associated with complications such as diarrhoea or pneumonia, should be given vitamin A supplements according to the schedule given below.

<b>Schedule for Giving Vitamin A Supplements for Measles</b>			
<b>Under 6 Months</b>		<b>6-11 Months</b>	<b>Over 1 Year</b>
Immediately	50,000 IU vitamin A	100,000 IU vitamin A	200,000 IU vitamin A
The following day	50,000 IU vitamin A	100,000 IU vitamin A	200,000IU vitamin A

For children with measles who have eye signs or symptoms, use the 3 dose schedule of vitamin A supplements described in the table on page 12 for treatment of eye signs and symptoms of vitamin A deficiency.

There should be at least a four-week interval between each course of vitamin A supplements used for treatment.

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### **Case Study 3**

A mother brings her child to the health centre. The child is 10 months old and has measles. The mother is worried because the child has high fever and refuses to eat. In addition, the mother tells you that she has noticed a grey spot on the normally transparent part (cornea) of the right eye.

- 1) Do you need to give a vitamin A supplement to the child?
- 2) If yes, how much vitamin A supplement do you need to give, and when should you give it?
- 3) What other advice should you give the mother? How can you check that the mother has understood your advice?

## 5 When to give vitamin A supplements to mothers: Prevention

The food that pregnant women eat needs to contain sufficient vitamin A for both mother and child.

Pregnant women, or women of childbearing age who may be in the early stages of pregnancy without knowing it, should not be given large dose vitamin A supplements (over 10,000 IU). Large dose vitamin A supplements given early in pregnancy may damage the unborn child.

It is only safe to give large dose vitamin A supplements (over 10,000 IU) to women of childbearing age within four weeks after delivery. At this time, there is almost no chance that the mother is pregnant.

Vitamin A supplements given to the lactating mother shortly after delivery, in areas where vitamin A deficiency occurs, will increase vitamin A levels not only of her own body reserves but also in breast milk. The breastfed newborn will benefit by building up its vitamin A reserves.

<b>Schedule for Giving Large Dose Vitamin A Supplements to Women after Delivery</b>		
<b>Timing</b>	<b>Dose</b>	<b>Frequency</b>
<u>Only</u> within four weeks after delivery	200,000 IU vitamin A	One dose

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**Question 5**

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Why is it important only to give a large dose  
vitamin A supplement to vitamin A deficient women  
within four weeks after delivery?

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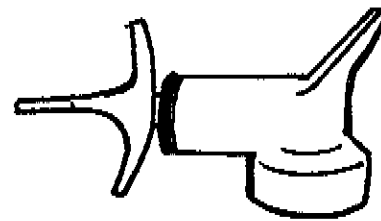
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## 6 How to prepare and give vitamin A supplements using a dispenser

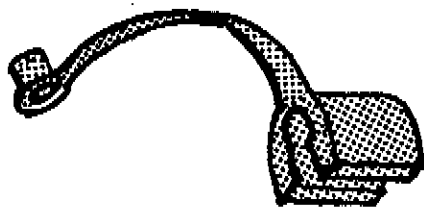
Look at the illustrations below. These show the different parts of the dispenser - the bottle with vitamin A solution, the pump and the nozzle cover with trigger lock.



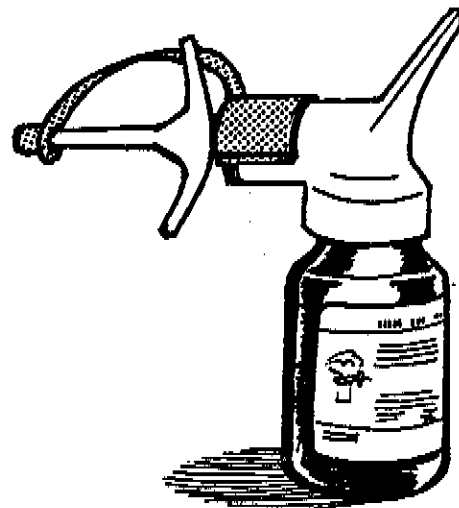
bottle with vitamin A solution



pump



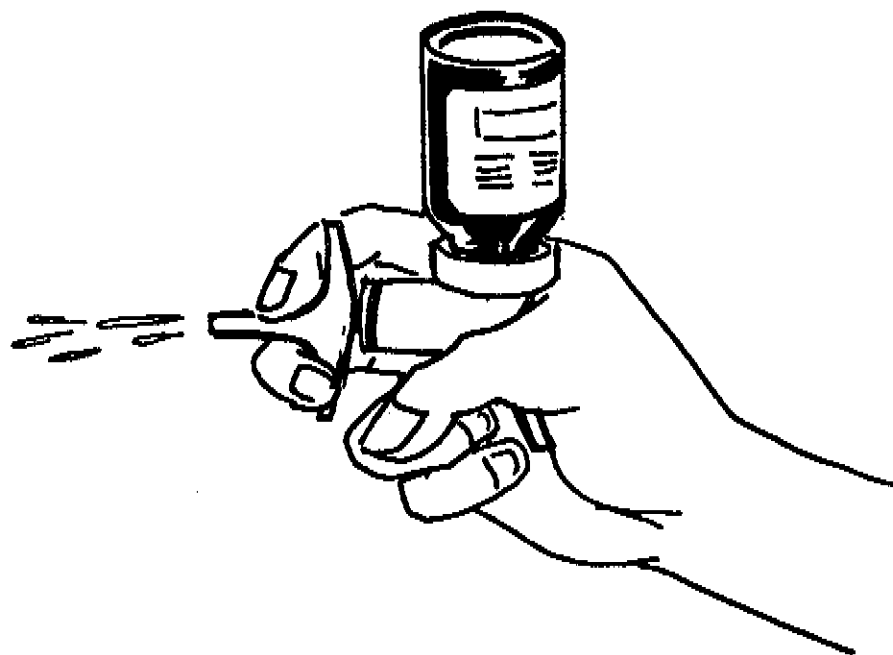
nozzle cover with trigger lock



assembled dispenser

### *Preparing the dispenser*

1. Unscrew the top of the bottle. Keep the top of the bottle in a safe place so that it can be used again later.
2. Screw the pump on to the bottle.
3. Slip off the plastic trigger lock from behind the trigger. The purpose of the trigger lock is to block the pump so that no vitamin A solution can come out when the pump is not being used.
4. Take off the plastic cover from the nozzle.
5. Turn the dispenser upside down. Operate the pump 10 times, by squeezing the trigger, until vitamin A solution appears from the nozzle. This action is called priming the pump.



Now you are ready to use the dispenser to deliver vitamin A solution.

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**Question 6**

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Can you describe the steps to prepare the pump dispenser to deliver vitamin A solution?

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*Giving vitamin A supplements using the dispenser*

- Check the label on the bottle to determine the dose of vitamin A that will be released with each push of the pump.
- Decide how many times you have to push the pump to deliver the required dose.
- If it is a small child, ask the mother to hold the child firmly.



- Open the mouth of a young child by gently squeezing the cheeks.
- Squeeze the trigger of the pump so that vitamin A solution is delivered into the back of the child's mouth.
- Try to avoid touching the lips or the mouth with the end of the pump nozzle. If the nozzle touches the lips or the mouth, wipe the nozzle with a clean cloth.



## 7 How to look after the dispenser

### *During sessions*

- When you are not using the dispenser, keep it standing upright on its base.
- 

### *When being carried around*

- Make sure the nozzle cover and trigger lock are in place, for example, on the way to outreach sessions or household visits.
- 

### *Cleaning*

- Keep the dispenser clean.
  - Boil the pump in water whenever it is dirty, to avoid any risk of contamination. The pump should be boiled separately from other equipment such as needles and syringes.
  - Prime the pump again before using it.
- 

### *Fault finding*

- If the dispenser does not work at all, change the pump.
  - If the dispenser leaks, check that:
    - the pump is securely screwed on to the bottle;
    - the nozzle cover and trigger lock is in place during transport.
  - If you have done these checks and leaking continues, then change the pump.
-

## 8 How to give vitamin A supplements using capsules

If you have both the pump dispenser and capsules available, then always use the pump dispenser for children up to 24 months.

Wherever possible, use the capsules only for children over 24 months of age, and for mothers after delivery.

- Check the expiry date on the label.
- Check the label to determine the dose of vitamin A supplement contained in each capsule.
- Always give the capsule yourself to the child. Make sure that the child swallows the capsule, and does not spit out any drops. Do not leave the capsule with the mother.

---

You will need to open the capsule for the following reasons:

- The child is too young to swallow the capsule whole, or to chew it properly. Usually this means that the child is less than two years old. If the child is more than two years old, he or she can usually swallow the capsule, or chew it, without opening.
- There is no pump dispenser available to give the dose needed of vitamin A, and the dose to be used is less than the full amount contained in the capsule. **NOTE:** this method is much less accurate than using the pump dispenser.

Open the capsule by cutting across the nipple with a clean pair of scissors or a clean nail clipper.

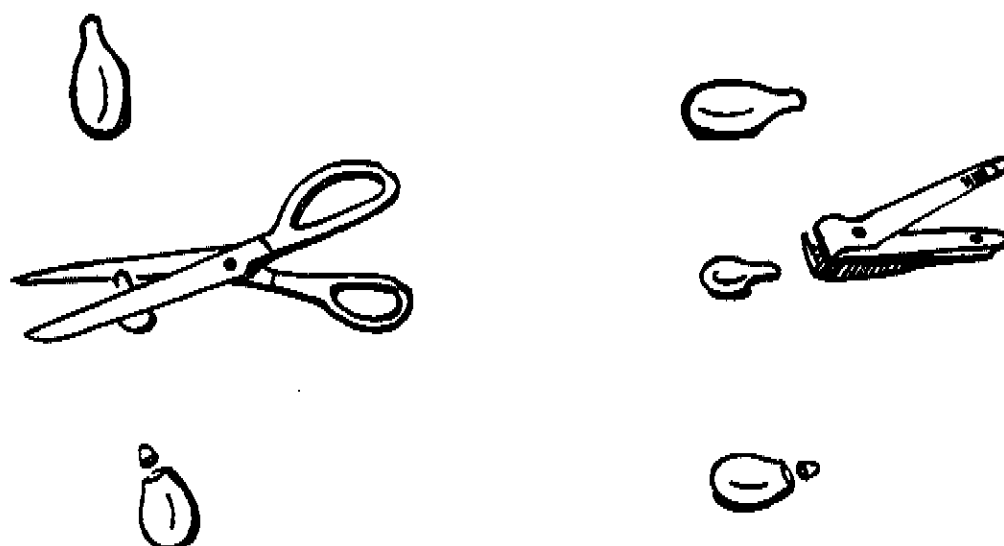
You need to know how many drops to give from capsules which contain more than the dose of vitamin A supplement needed for the child.

Here is an example of how you can find out how many drops to give:

If the capsules contain 200,000 IU vitamin A, and the supplement dose needed is only 100,000 IU:

- Open the capsule and count the total number of drops that can be gently squeezed from it.
- Take a new capsule and open it.
- Give the young child half the number of drops to make up the correct dose of 100,000 IU.

You can assume that all capsules in a batch contain the same number of drops.



How to open capsules



Administering drops from a capsule

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### Question 7

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In your health centre, you only have capsules containing 200,000 IU of vitamin A. How do you deliver the correct 100,000 IU dose of vitamin A supplement to an 8 months old child?

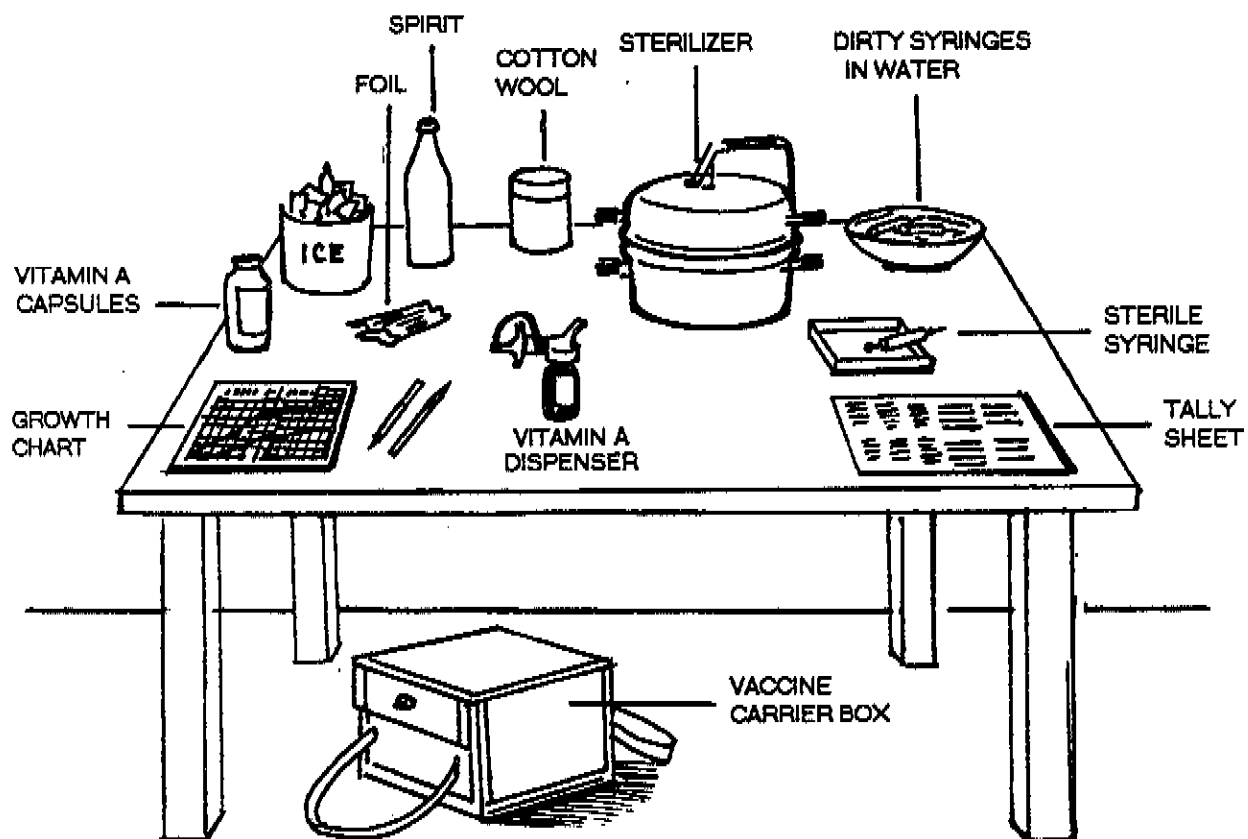
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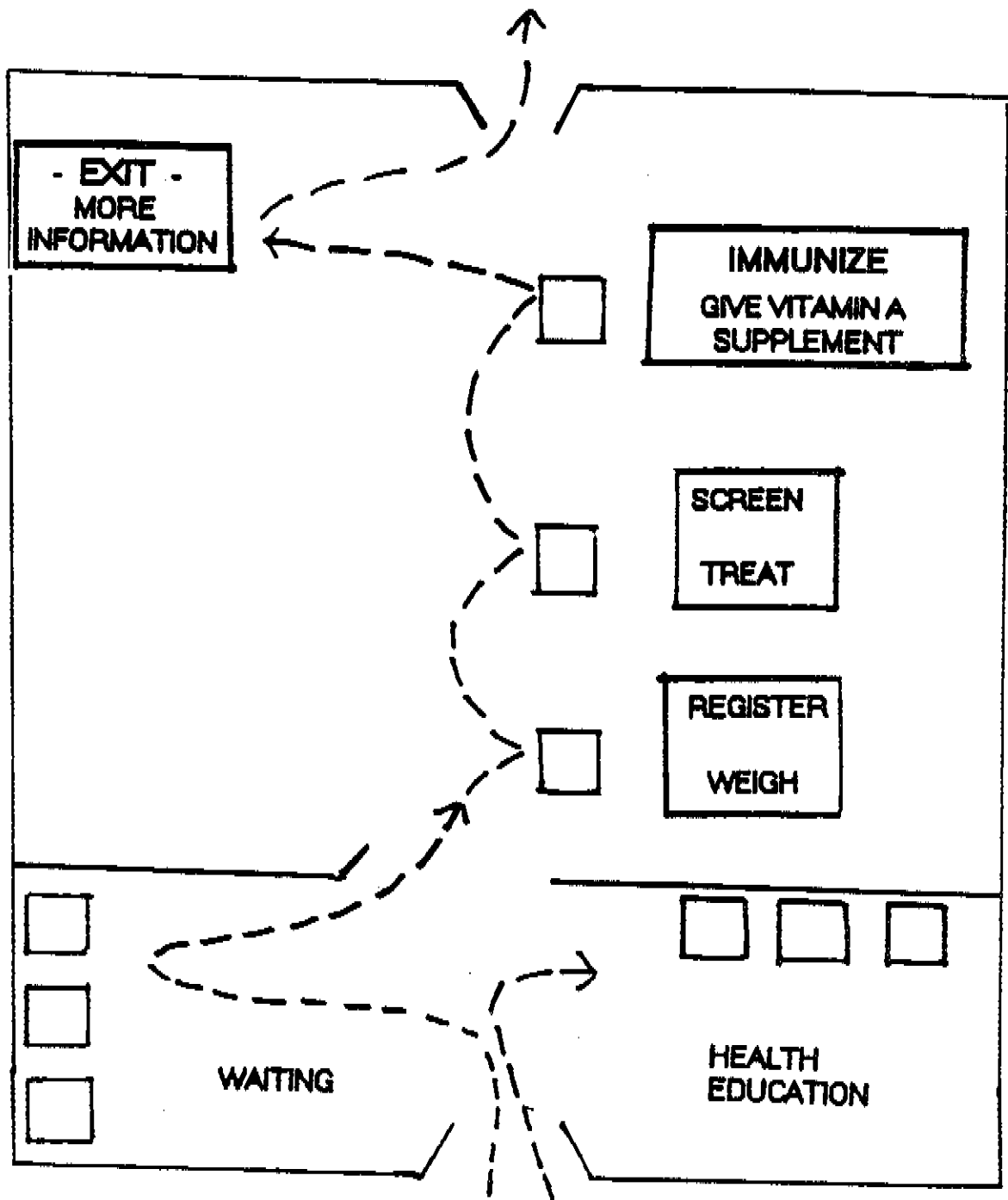
## 9 How to arrange your work station to give vitamin A supplements

Immunization sessions are good opportunities to examine children, to see if they are eligible for vitamin A supplements.

Here is how you can arrange your immunization table to include equipment for giving vitamin A supplements.



Here is one way of organizing the flow of children and mothers coming for health care. Note that immunization and vitamin A supplements are being given at the same time.



# 10 How to record vitamin A supplements that you give

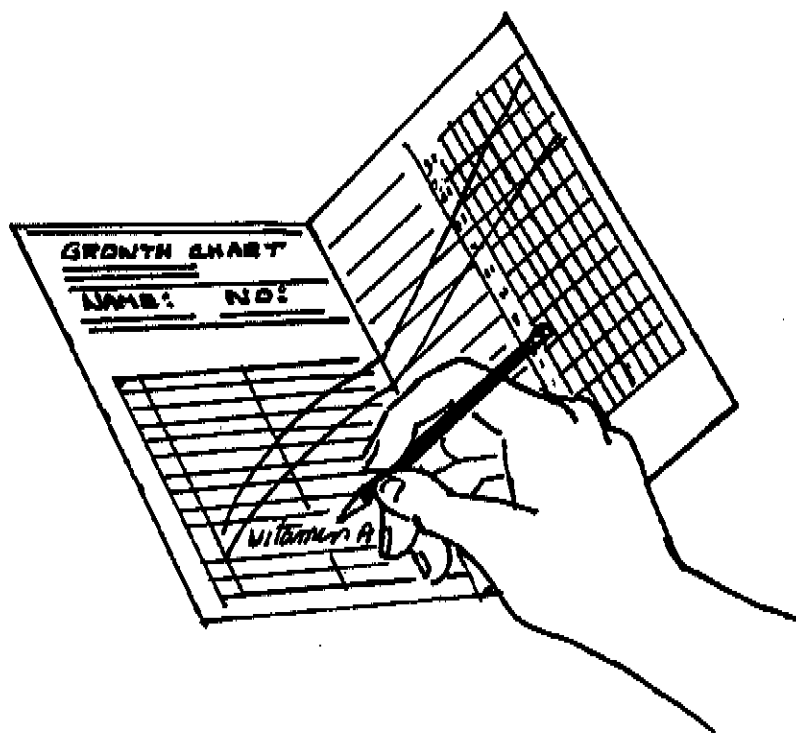
Recording is an important part of any health service activity. In the same way as you are recording the immunizations that you give, you should also record the vitamin A supplement that you give.

Here are two ways to record giving a vitamin A supplement:

1. On the growth chart or other immunization record for each child, such as the immunization 'life' card.

*Growth chart  
recording*

Write the date - day, month, year - that a vitamin A supplement has been given - so that you know when to give the next dose.



## *Tally sheet recording*

2. On a tally sheet that remains in the health centre.

A tally sheet is a quick and simple kind of report for your supervisor. It helps you to evaluate your own work. An example is given on the next page.

To fill in the tally sheet:

1. Write the place and date at the top of the sheet
2. Each time you give a dose of vitamin A, tick one of the "0"s along the line.
3. At the end of the day, add up for each age group all the "0"s that have been checked, noting whether it was prevention or treatment.

At the end of the month, summarize your tally sheets to know how many doses of vitamin A supplements you have given during the month to children (by age group) for prevention or treatment, and to mothers.

If possible, you should use both growth chart and tally sheet recording systems. Mark the growth chart and the tally sheet immediately after you give a dose of vitamin A supplements, otherwise you may forget to do it.

Health Centre: \_\_\_\_\_

Date: \_\_\_\_\_

**DAILY TALLY SHEET  
FOR RECORDING  
VITAMIN A SUPPLEMENTATION**

INFANTS  
6 - 11 months  
100 000 IU

CHILDREN  
12 - 71 months  
200 000 IU

PREVENTION

00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000

TREATMENT

00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000
00000	00000	00000	00000	00000	00000	00000

MOTHERS WITHIN FOUR WEEKS  
AFTER DELIVERY

200 000 IU

00000	00000	00000
00000	00000	00000
00000	00000	00000
00000	00000	00000

# 11 How to reduce missed opportunities

Immunization sessions are not the only time when you can give vitamin A supplements to children and women. You should take advantage of all contacts with health services to give vitamin A supplements, if they are needed either for prevention or for treatment.

Every time you see a child in your health centre, for whatever reason, you should screen the child to determine if the child is eligible for a dose of vitamin A supplement. Remember especially that children with measles need to be given vitamin A supplements.

You will also reduce missed opportunities if you take vitamin A supplements with you when you go for outreach visits and for deliveries at home.

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## Case Study 4

Shameen brings her 7 month old daughter, Mona, to the Health Centre because she has fever, spots on her body and a runny nose. From the Growth Chart, you see that Shameen brought Mona to the Health Centre two weeks ago because of diarrhoea.

- 1) What should you do with Mona?
- 2) What advice should you give to Shameen?

