

# Providing vitamin A supplements through immunization and other health contacts for children 6-59 months and women up to 6 weeks postpartum

A Guide for Health Workers



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SECOND EDITION 2001

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PAHO/HPN/HVP/01.2  
Original: English  
Distribution: General



DIVISION OF HEALTH PROMOTION AND PROTECTION  
FOOD AND NUTRITION PROGRAM AND  
DIVISION OF VACCINES AND IMMUNIZATION OF THE  
PAN AMERICAN HEALTH ORGANIZATION

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**This manual has been designed in the form of job aids, which provide information and guidelines on specific topics essential for implementing a vitamin A supplementation program. Each section or job aid may be removed for individual use and reproduced in part or in whole accordingly.**

### **ACKNOWLEDGEMENTS**

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This document was prepared by Sunny S. Kim from the Food and Nutrition Program, in collaboration with Peter Carrasco from the Division of Vaccines and Immunization.

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## 1. Introduction to vitamin A

### ***What is vitamin A?***

Vitamin A is a substance that is present in foods such as whole milk, breast milk, butter and liver. Carotenoids, which are precursors that change into vitamin A in the body, are present in 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 his/her health and vision. Women who breastfeed especially need vitamin A to help them 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:

- **Reduced severity of infections**

Vitamin A helps to decrease the severity of many infections, such as diarrhea 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.

***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.

***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 supplementation is given by mouth.

Vitamin A solution in capsules:





## 2. How to store vitamin A supplements

Vitamin A supplements are more stable than vaccines. However, air and sunlight will damage the vitamin. 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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Vitamin A supplements, if unopened, will keep their potency under good conditions of storage for at least two years. However, 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 containing capsules, so that you will know when to stop using it.

Always check the expiration date printed on the label of the bottles of vitamin A capsules.

Storage of the 100,000 IU and 200,000 IU capsules (generally of different colors) should be separate and clearly identified, as not to mix up the two doses.



### 3. How to give vitamin A supplements using capsules

In using the capsules:

- Check the label to determine the dose of vitamin A supplement contained in each capsule.
- Check the expiration date on the label.
- The health worker should always administer the dose of vitamin A to the child. Make sure that the child swallows the content of the capsule and does not spit out any drops.
- Discard used capsules in the appropriate container.

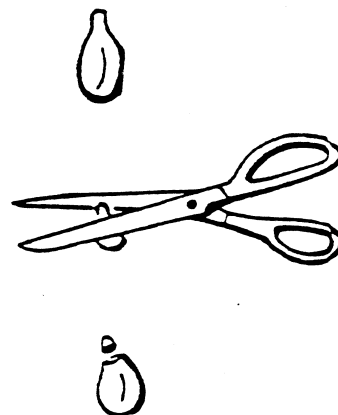
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#### ***Cutting the capsules***

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

To avoid finger pricks, do not use pins to open the capsules. Also, do not open capsules with your teeth.

How to open capsules:



#### ***Dispensing the capsules***

Squeeze the sides of the capsule firmly, and carefully drop all the contents of the capsule into the mouth of the recipient.

Administering drops from a capsule:



## 4. Vitamin A supplements to children: Dosing schedule

### **Step 1: Screening**

From the age of six months, children should be screened to determine eligibility for a dose of vitamin A at all immunization and other health contacts. Eligibility can be determined by checking the immunization or child health card for the last date of vitamin A supplementation.

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

You should take advantage of all opportunities, during contacts with health services, to screen and provide vitamin A supplements to children.

### **Step 2: Dosing**

Below, you will find the schedule for giving vitamin A supplements to children to prevent vitamin A deficiency.

<b>Vitamin A Dosing Schedule to Prevent Vitamin A Deficiency: CHILDREN 6 TO 59 MONTHS OF AGE</b>		
<b>Age</b>	<b>Dose</b>	<b>Frequency</b>
Children: 6-11 months	100,000 IU (30mg)	Once every 4-6 months
Children: 12-59 months	200,000 IU (60mg)	Once every 4-6 months

**Instruct the parent to return with the child for the next appropriate dose of vitamin A supplement.**

**(The health worker may want to provide the next date of vitamin A supplementation on a piece of paper to give to the parent.)**

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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 should never be given by injection.

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***Labeling of vitamin A supplements*** Preparations of vitamin A supplements are labeled in international units, often shortened to IU. Preparations also may be labeled 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/parent that this is normal, that the symptoms will pass and that no specific treatment is necessary.

## 5. Vitamin A supplements to mothers: Dosing schedule

### Step 1: Screening

- Pregnant women and women of child-bearing age**

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.
- Women up to six weeks postpartum**

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

Vitamin A supplements given to the lactating mother will increase vitamin A levels not only of her own body reserves but also in breast milk and resultantly her breastfed newborn.

### Step 2: Dosing

Mothers should receive vitamin A supplementation in two doses. The **first dose** of vitamin A should be provided immediately following their delivery of the child at a health facility or during the BCG or postnatal contact with a health worker and a **second dose at least 24 hours** after the first dose and within six weeks after delivery.

Supplements may also be given daily or weekly in low doses during the first six months after delivery.

Vitamin A Dosing Schedule to Prevent Vitamin A Deficiency: WOMEN UP TO SIX WEEKS POSTPARTUM		
Frequency	Timing	Dose
First dose	Immediately after delivery	200,000 IU (60mg)
Second dose	24 hours after the first dose, within 6 weeks after delivery	200,000 IU (60mg)
<b>OR</b> Daily	Up to six weeks after delivery	10,000 IU (3mg)
<b>OR</b> Weekly	Up to six weeks after delivery	25,000 IU (7.5mg)







## 6. Assuring adequate vitamin A to infants: Breastfeeding

When a lactating mother has sufficient vitamin A stores, she passes vitamin A through breast milk to her child and ensures its adequate vitamin A status.

A mother should breastfeed the child for the first six months without other foods or liquids. After six months, the mother should introduce complementary foods and keep breastfeeding up to two years.

**Promote exclusive breastfeeding up to six months for all mothers and explain the benefits of breastfeeding for both the mother and child.**

**Advise mothers on how to breastfeed adequately.**

Some breastfeeding recommendations are as follows:

### ***Breastfeeding recommendations***

- ✓ Mothers should start breastfeeding shortly after delivery (within the first hour).
- ✓ Mothers should be instructed on the proper attachment of the child to the breast.
- ✓ The child should be breastfed as often and as long as the child wants, day and night, up to every 2½ to 3 hours or between 8 to 12 times a day.
- ✓ Mothers should not give her child food or drink, including water, other than breast milk during the first six months. Also, feeding bottles and pacifiers should not be used.
- ✓ Mothers should consume a balanced diet and drink sufficient liquids in order to ensure a good milk supply.
- ✓ Frequent breastfeeding should be promoted since it stimulates adequate breast milk production to meet the daily requirements of the child.



## 7. Vitamin A supplements in treatment of measles

All children with the measles infection should be provided high dose vitamin A supplementation. Administration of vitamin A to children at the time of measles diagnosis decreases both the severity of disease and the case-fatality rate. Children who live in areas where measles is a common infection should also receive vitamin A supplementation as a preventative measure.

### *Dosing*

The first dose of vitamin A should be administered on the day of measles diagnosis, with the exact dosage depending on age. The second dose should be administered the following day.

When the mother is not able to return for the second dose, she should be given the vitamin A supplement to administer at home.

The age-specific dosing schedule for giving vitamin A supplements to children with measles is indicated below.

<b>Vitamin A Treatment Schedule During Measles: CHILDREN 0 TO 59 MONTHS OF AGE</b>		
<b>Age</b>	<b>First Dose</b> Immediately on diagnosis	<b>Second Dose</b> Next day
Children: 0-5 months	50,000 IU (15mg)	50,000 IU (15mg)
Children: 6-11 months	100,000 IU (30mg)	100,000 IU (30mg)
Children: 12-59 months	200,000 IU (60mg)	200,000 IU (60mg)



## 8. Vitamin A supplements in treatment of severe protein-energy malnutrition

Children with severe protein-energy malnutrition (PEM) are at increased risk of having or developing vitamin A deficiency. Any child with severe malnutrition, showing visible wasting or edema of both feet, should be given a high dose of vitamin A supplement immediately on diagnosis and referred to the hospital for treatment.

High dose vitamin A supplements should only be administered to children who have not already received vitamin A supplementation within the last four weeks.

### ***Dosing***

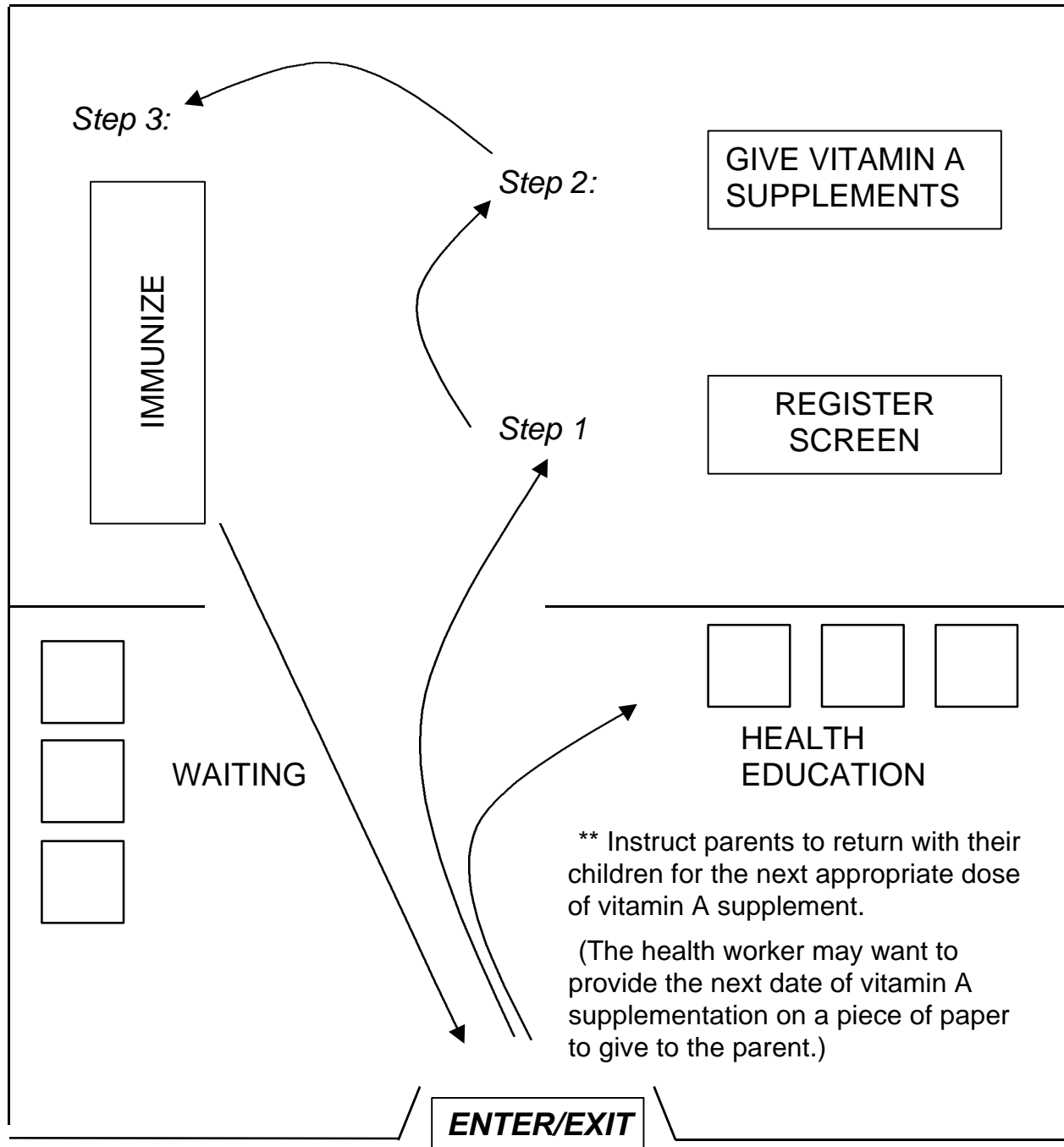
A single high dose of vitamin A supplement, according to age, should be given to children with severe malnutrition immediately on diagnosis.

The age-specific dosing schedule for giving vitamin A supplements to children with severe PEM is indicated below.

<b>Vitamin A Treatment Schedule During Severe Protein-Energy Malnutrition: CHILDREN 0 TO 59 MONTHS OF AGE</b>		
<b>Age</b>	<b>Dose</b>	<b>Frequency</b>
Children: 0-5 months	50,000 IU (15mg)	One dose
Children: 6-11 months	100,000 IU (30mg)	One dose
Children: 12-59 months	200,000 IU (60mg)	One dose



## 9. How to arrange your work station to provide vaccinations and vitamin A supplementation for smooth flow of clients



This is one way of organizing the flow of children and mothers coming for health care.





## 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 for vitamin A supplementation.

Here are two ways to record vitamin A supplements that you give:

### ***Immunization or health card recording***

1. On the immunization or health card for each child:

Write a capital “A” to indicate vitamin A supplementation and the date - day, month, year - that a vitamin A supplement has been given, so that you will know when the next dose may be given.

If no discrete area for recording vitamin A supplementation exists, locate an appropriate space (in one of the corners, near the vaccination recording) on the immunization or child health card to record the date.

For proper recording of the date of vitamin A supplementation, refer to the following example:

**A 30-06-98**  
↑     ↑     ↑  
day month year

### ***Tally sheet or registration form recording***

2. On the tally sheet or registration form that remains in the health center:

(A tally sheet is a quick and simple report for your supervisor and for tracking supplementation coverage. An example is given on the next page.)

Make sure that tally sheets are available on a daily basis at each health service area, i.e. integrated management of childhood illness (IMCI), immunization (EPI), maternal and child health and prenatal control.

To fill in the tally sheet:

1. Write the place and date at the top of the sheet, and circle the appropriate type of contact being used.
2. Each time you give a dose of vitamin A, make a tick mark in the appropriate area correlating to the correct dose and age group of the child or mother.
3. At the end of the day, add up for each of the age groups, all the tick marks that have been drawn.
4. Submit your completed tally sheet to your supervisor.
5. *Note to supervisors:*
  - Review tally sheet with the health worker before leaving the health establishment.
  - Leave a summary sheet (using the same form in the following page) of the total persons that received vitamin A supplements with the health establishment for their records and future use.
6. *Note district/departmental supervisors:*
  - Make sure that all supervisors provide a summary sheet of all the tally sheets using the form in the following page. All tally sheets should be attached to the summary sheet.
  - Submit a report of the summary sheets to the person responsible for the immunization program.
  - Review stock levels available for ordering and distributing of vitamin A supplements to health establishments under your control.
7. Review stocks of vitamin A supplements available for future use and record stock level available.

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**Mark both the immunization or health card and tally sheet immediately after giving a dose of vitamin A supplement, otherwise you may forget to do it.**

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**TALLY SHEET (and SUMMARY SHEET)  
For recording vitamin A supplementation**

<b>VITAMIN A SUPPLEMENTATION</b>			
Name of health establishment: _____		Date: _____	
Name of district/municipality: _____			
Population of 6-11 months: _____			
Population of 12-59 months: _____			
Type of health care contact: (check one)		national immunization campaign routine immunization contact IMCI contact other: _____	
<b>Infants 6-11 months</b>			
<b>100,000 IU (30 mg)</b>	(first dose for the year)	(second dose for the year)	
<b>Children 12-59 months</b>			
<b>200,000 IU (60 mg)</b>	(first dose for the year)	(second dose for the year)	(third dose for the year)
<b>Women up to six weeks after delivery</b>			
<b>200,000 IU (60mg)</b>	First Dose		Second Dose
* signature of supervisor: _____			

*Examples for recording:*

Tally (health worker)

III III

Summary (supervisor)

3456





## 11. Avoiding missed opportunities for supplementation

All health workers should take the opportunity to screen for possible vitamin A intervention through any of the following health services:

- Expanded Program for Immunization (EPI)
- Integrated Management of Childhood Illness (IMCI)
- Maternal and Child Health (MCH)
- Prenatal Control

All health workers should always ask the parents if the child is in need of the next dose of vitamin A supplement, or check the immunization or health card of the child and the health card of the mother for the last date of vitamin A supplementation.

Every immunization contact, postpartum contact of the mother, and well-baby or sick-child consultation should be used to check and treat children with vitamin A deficiency.

Mothers should be screened and administered vitamin A supplementation at delivery, during postpartum contacts, and during immunization contacts for her child within the first six weeks postpartum.

## Vitamin A Dosing Schedules for Children and Postpartum Women to Prevent Vitamin A Deficiency:

Vitamin A Dosing Schedule to Prevent Vitamin A Deficiency: CHILDREN 6 TO 59 MONTHS OF AGE		
Age	Dose	Frequency
Children: 6-11 months	100,000 IU (30mg)	Once every 4-6 months
Children: 12-59 months	200,000 IU (60mg)	Once every 4-6 months

Vitamin A Dosing Schedule to Prevent Vitamin A Deficiency: WOMEN UP TO SIX WEEKS POSTPARTUM		
Frequency	Timing	Dose
First dose	Immediately after delivery	200,000 IU (60mg)
Second dose	24 hours after the first dose, within 6 weeks after delivery	200,000 IU (60mg)
<b>OR</b> Daily	Up to six weeks after delivery	10,000 IU (3mg)
<b>OR</b> Weekly	Up to six weeks after delivery	25,000 IU (7.5mg)

\* This dosing schedule should be posted in all of the following health services: immunization (EPI), integrated management of childhood illness (IMCI), maternal and child health (MCH), prenatal control and other health contacts that reach the target children and postpartum women.

## Vitamin A Treatment Schedules During Measles and Severe PEM:

Vitamin A Treatment Schedule During Measles: CHILDREN 0 TO 59 MONTHS OF AGE		
Age	First Dose Immediately on diagnosis	Second Dose Next day
Children: 0-5 months	50,000 IU (15mg)	50,000 IU (15mg)
Children: 6-11 months	100,000 IU (30mg)	100,000 IU (30mg)
Children: 12-59 months	200,000 IU (60mg)	200,000 IU (60mg)

Vitamin A Treatment Schedule During Severe Protein-Energy Malnutrition: CHILDREN 0 TO 59 MONTHS OF AGE		
Age	Dose	Frequency
Children: 0-5 months	50,000 IU (15mg)	One dose
Children: 6-11 months	100,000 IU (30mg)	One dose
Children: 12-59 months	200,000 IU (60mg)	One dose

**\* This treatment schedule should be posted in all of the following health services: immunization (EPI), integrated management of childhood illness (IMCI), maternal and child health (MCH), prenatal control and other health contacts that reach the target children and postpartum women.**





## 12. How to assure vitamin A through food sources: Dietary diversification

A variety of foods should be eaten every day. Vitamin A can be derived from meat, fish, milk and dairy products and plant foods. Carotenoids, precursors that change into vitamin A in the body, are present in dark green vegetables and orange-colored fruits and vegetables.

Vitamin A from animal sources and breast milk is better utilized by the body than carotenoids from plant sources.

**Introduce fruit and vegetable home gardens to have better access to a variety of vitamin A-rich foods.**

**Consume preserved, dried and fortified foods when fresh fruits and vegetables are temporarily unavailable in order to assure a diverse diet year-round.**

### ***How to prepare foods to increase vitamin A intake***

- Cut, shred or grind vegetables into small pieces
- Add a small amount of oil or fat to the meal ( $\frac{1}{2}$  to 1 teaspoon), preferably canola oil, corn oil or sunflower oil, during mixing and preparation
- Boil or steam vegetables for a short period of time, preferably with a lid on the pot
- Avoid long cooking of vegetables under high temperatures
- Consume foods immediately after preparation, not allowing them to sit for extended periods of time
- Store fresh fruits and vegetables in a cool and dry place without exposure to sunlight
- Sun-dry fruits and vegetables as a method of storing and preserving them

The recommended safe intake levels to meet the vitamin A requirements for infants and children as well as for pregnant and lactating women are indicated below. Pregnant and lactating women need to consume foods containing sufficient vitamin A for both mother and child.

#### DAILY RECOMMENDED SAFE INTAKE

<b>INFANTS AND CHILDREN</b>	<b>µg RE/day</b>
0-6 months	375
7-12 months	400
1-3 years	400
4-6 years	450
7-9 years	500
10-18 years (male or female)	600
<b>ADULTS</b>	<b>µg RE/day</b>
Pregnant women	800
Lactating women	850

1 µg RE (Retinol Equivalents) = 3.33 IU vitamin A  
Source: FAO/WHO, Geneva, 2000

In order to consume sufficient vitamin A daily, consider the following common food sources of vitamin A:

#### COMMON FOODS AND THEIR ESTIMATED VITAMIN A CONCENTRATIONS

<b>FOOD</b>	<b>UNITS</b>	<b>µg RE</b>
Mature breast milk ( $\geq 21$ days postpartum) <sup>a</sup>		500 µg RE/L
Beef liver, raw	100g	10,503
Carrot, raw	100g	2,813
Sweet potato, mashed	100g	1,513
Spinach, raw	100g	672
Sweet red pepper, raw	100g	570
Mango, raw	100g	389
Cantaloupe, raw	100g	332
Apricot, raw	100g	261
Romaine lettuce, raw	100g	260
Egg, raw	1 unit	70-96
Red tomato, raw	100g	62
Avocado, raw	100g	61
Whole milk	100g	31
Papaya, raw	100g	28
Oranges, raw	100g	21
Cucumber, raw	100g	21

<sup>a</sup> Underwood, 1994

Source: USDA Nutrient Database for Standard Reference, 1993