

NATIONAL VITAMIN A SUPPLEMENTATION POLICY GUIDELINES FOR SOUTH AFRICA

2012



health

Department:
Health
REPUBLIC OF SOUTH AFRICA

PREFACE

Vitamin A deficiency affects 190 million; pre-school children in the World Health Organization (WHO) regions of Africa and South East Asia¹. In South Africa in particular, 63.6 % of children age 1-9 years were found to be vitamin A deficient in 2005 National Food consumption survey. Vitamin A deficiency is a major contributor to under-five mortality and can cause visual impairment and increase the risk to illness and death due to measles and diarrhoea. Infants and children have increased vitamin A requirements to support rapid growth and to help them fight infections. Improving the vitamin A status of deficient children through supplementation enhances their resistance to disease and can reduce all cause mortality by 23%.

South Africa like many other countries has adopted multiple strategic approaches to prevent vitamin A deficiency namely food fortification, vitamin A supplementation and dietary diversification. Vitamin A supplementation programme in particular was launched in 2001 and was mainly implemented in health facilities through the Expanded Programme for Immunisation (EPI). This approach has shown to be ineffective in reaching children 12-59 months as they are not routinely brought to health facilities for immunisation schedule after the age of 18 months; this is indicated by low coverage of 40%. Other approaches such as child health week days and outreach services have proven to be effective in reaching children 12-59 months and should be adopted by provinces.

Over the years WHO; has reviewed research evidence on contribution of vitamin A supplementation in various age groups and concluded that supplementation for children 0-5 months and postpartum women did not contribute significantly to child and maternal mortality. Instead it is recommended that countries should support and encourage consumption of a diversified diet.

The policy guidelines are necessary for provision of guidance on how to best address vitamin A deficiency in the country.

¹WHO. Guideline: vitamin A supplementation in infants and children 6–59 months of age. 2011. ISBN 978 92 4 150176 7

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ACRONYMS

CHW	Child Health Week
DHIS	District Health Information System
ECD	Early Childhood Development
EDL	Essential Drug List
EPI	Expanded Program for Immunisation
IMCI	Integrated Management of Childhood Illnesses
MCC	Medicines Control Council
MDG	Millennium Development Goals
NFCS	National Food Consumption Survey
PHC	Primary Health Care
RtHB	Road to Health Booklet
SAVACG	South African Vitamin A Consultative Group
VAD	Vitamin A Deficiency
VAS	Vitamin A Supplementation
WHO	World Health Organisation

1. INTRODUCTION

1.1 Background

The Millennium Development Goals (MDGs) were adopted in 2000 and Goal 4 focuses on improving child survival, with the specific target of reducing the under-five mortality rate by two thirds by 2015. In South Africa the **under-five infant and maternal mortality** rates are high and increasing. The under-five mortality rate has risen from 59 (1998) to 104 (2007) per 1,000 live births, whereas the 2015 MDG target is 20. The infant mortality rate has remained virtually static at 54 (2001) to 53 (2007) per 1,000 live births, which is equally far from the 2015 MDG target of 18².

In South Africa malnutrition is manifested in both under-nutrition and over-nutrition. This paradox of over- and under-nutrition, as well as the range of micronutrient deficiencies of public health significance, requires complementing strategies and an integrated approach to ensure optimal nutrition for all South Africans. Malnutrition leads to increased morbidity and mortality, a poor quality of life and higher healthcare spending. In addition, malnutrition in infants and young children leads to decreased educational achievement and decreased productivity in adulthood. This further entrenches poor quality of life and limits overall economic outputs³. While substantial progress has been made with regard to folate and iodine status, the 2005 National Food Consumption Survey (NFCS) indicates other micronutrient deficiencies among women and children still persist and nutritional status may be deteriorating. Vitamin A Deficiency (VAD) was found in 63.6% of children and is fairly consistent among the age groups 1-3 years, 4-6 years and 7-9 years⁴.

The Lancet series lists Vitamin A Supplementation (VAS) among the key interventions achievable at a large scale that have proven to reduce the number of preventable child deaths each year. Thus, vitamin A programming is one of the prerequisite for achieving MDG 4, particularly in countries with high under-five mortality and/or vitamin A deficiency rates.

²Department of Health. HRH Strategy for the Health Sector: 2012/13–2016/17. 20 January 2012

³Department of Health. Child Health Week report. 2009.

⁴Department of Health. Roadmap for nutrition in South Africa, 2012-2016.

Achieving substantial reductions in child mortality means that all children 6–59 months old living in affected areas need to receive high-dose supplements every 4–6 months⁵.

Vitamin A deficiency is a major contributor to under-five mortality and can cause visual impairment (night blindness) and can increase the risk of illness and mortality from childhood infections such as measles and those causing diarrhoea. Improving the vitamin A status of deficient children through supplementation enhances their resistance to disease and can reduce mortality from all causes by approximately 23 per cent.

Guaranteeing high supplementation coverage is critical, not only to eliminate vitamin A deficiency as a public-health problem, but also as a central element of child survival.

1.2. Situational Analysis of Vitamin A supplementation in South Africa

The Department of Health launched a national vitamin A supplementation (VAS) program in 2001 following the 1994 SAVACG survey which showed that vitamin A deficiency was a public health problem in South Africa. The program started with the creation and adoption of a National Vitamin A Supplementation policy targeting children under five and mothers post-partum. VAS was integrated into the Expanded Program for Immunisation (EPI) and Integrated Management of Childhood Illnesses (IMCI) programme in health facilities. This approach has shown to be effective to children 6-12 months as they frequent health facilities for the immunisation schedule. For children 12-59 months VAS coverage has remained low due to the fact that after the age of 18 months these children are not taken to facilities for immunisation, until they are five years. Figure 1 shows the current VAS coverage for children 12-59 months.

⁵The United Nations Children's Fund .Vitamin A Supplementation: A decade of progress. 2007.ISBN: 978-92-806-4150-9

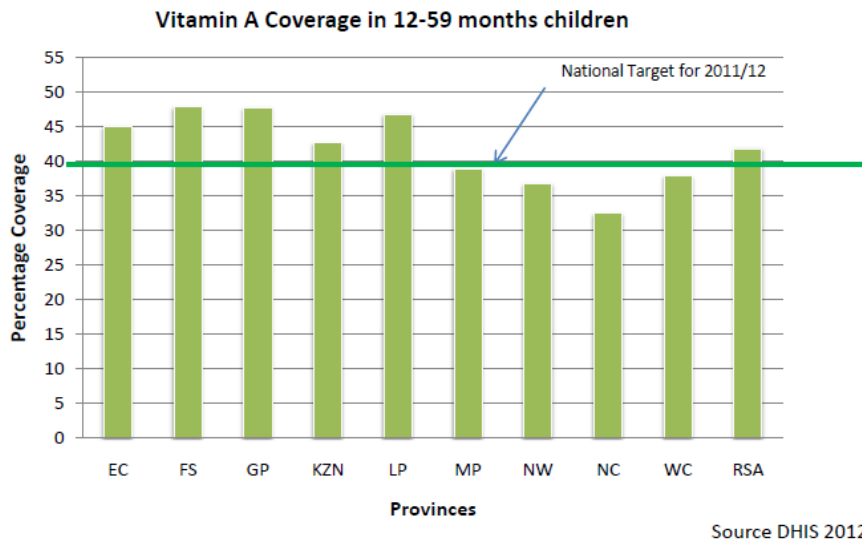


Figure 1: Graph indicating the 2011VAS Coverage for children 12-59 months

To this date, National Department of Health has taken steps to improve implementation of best practices for high-impact and cost-effective delivery of child healthcare interventions. In 2008, South Africa launched the first vitamin A campaign with the aim of reaching children that are not reached by routine VAS. Subsequently, the national integrated Child Health Week (CHW) intervention was then launched in 2009, in eight of its nine provinces. The main purpose of CHW in 2009 was to reach 80% of children aged 12-59 months with essential health services using an outreach strategy. The services provided were vitamin A supplementation (VAS), catch-up immunisation, de-worming and nutritional screening. Through this approach around 80% of children aged 12-59 months were covered as compared to the low coverage from routine supplementation at health facilities.

1.3. RATIONALE FOR VAS POLICY GUIDELINES

Vitamin A deficiency is a public health problem in South Africa and it is imperative to have policy guidelines that would give guidance on how to address the problem. Over the last couple of years VAS has been reviewed by WHO and all the recommendations that have been adopted in the country are now reflected in the revised protocol.

1.4. OBJECTIVES

Objectives of the VAS policy guidelines are:

- ✓ To provide guidance on the revised VAS protocols that have to be implemented in the country
- ✓ To outline the various implementation mechanisms for VAS that can be adopted
- ✓ To describe other strategies to address VAD

1.5. TARGET AUDIENCE

The target audience for the policy guidelines will be stakeholders at provinces and districts that implement child survival interventions. It is important that everyone is sensitised about the policy guidelines in order to scale up VAS.

2. ADDRESSING VITAMIN A DEFICIENCY IN SOUTH AFRICA

MAIN STRATEGIES FOR ELIMINATION OF VAD

Several strategies are used to treat and prevent VAD:

- Dietary diversification - promoting behaviour change for better nutrition
- Food fortification
- Vitamin A capsule supplementation
- Disease targeted VAS

2.1 STRATEGY 1: DIETARY DIVERSIFICATION - PROMOTING BEHAVIOUR CHANGE FOR BETTER NUTRITION

Inadequate dietary intake is an immediate cause of malnutrition and thus food and agricultural activities along with behaviour change approaches contribute to improvements in nutrition and micronutrient status. Dietary diversification using local foods rich in micronutrients are one of the strategies for combating micronutrient deficiencies including Vitamin A and it is an affordable and sustainable strategy for South Africa⁶.

Dietary diversification approaches should include⁷:

- ✓ Communication strategies to raise awareness about the effects of VAD and to increase consumption of vitamin A rich foods
- ✓ Breastfeeding promotion, protection and support to reduce disease and prevent VAD.
- ✓ The early initiation of breastfeeding, the promotion of exclusive breastfeeding until the infant is six months old and continued breastfeeding beyond 2 years are critical for prevention of VAD
- ✓ Increasing the availability and access to micronutrient rich foods from both plant and animal sources by promoting and strengthening interventions through household and community based food production system
- ✓ Strengthening the counselling skills of health staff and community health workers on micronutrient deficiencies and the importance of a healthy diet

2.2.1 Home, health facility and/ Community Gardens:

Home gardens, particularly those producing dark green leafy vegetables, orange flesh fruits and vegetables, have been promoted as part of vitamin A deficiency control strategies in many countries. In many parts of the world, including Africa a very high percentage of vitamin A in the diet comes from horticultural crops. Vitamin A is also found in animal sources such as liver and dairy products. Gardens are useful as part of a longer-term strategy for some populations and they may also provide additional revenue. School gardens are another approach that can also help teach learners about nutrition.

⁶Department of Health. Vitamin A supplementation Reference material.2001.

⁷Kingdom of Cambodia. National vitamin A policy guidelines. Revised 2007

A broad multi-sectoral approach is needed to promote better care and feeding practices in households and communities. In addition to the department of Health other Departments such as Agriculture, Forestry and Fisheries, Rural Development, Basic Education and Social development can work together to strengthen implementation of the dietary diversification strategies.

2.2.2 Nutrition Education/Behaviour change:

In addition to increasing the availability or production of vitamin A-rich foods, target groups may also need to increase either the quantity (how much) or frequency (how often) of consumption of these foods. Successful nutrition education and behaviour change strategies are based on local dietary beliefs and practices. Practices concerning complementary feeding and the feeding of a sick child are also important to focus on.

2.2 STRATEGY 2: FOOD FORTIFICATION

One step taken by the Government to address micronutrient malnutrition was the introduction of mandatory legislation for the fortification of staples foods that are widely consumed. This law, which came into effect in October 2003, requires that all maize meal and wheat bread flour be fortified. The micronutrients that are included in the fortification mix are: Vitamin A, Thiamine, Riboflavin, Niacin, Pyridoxine, Folic Acid, Iron and Zinc.

The biggest challenges around this intervention has been low compliance with fortification regulations by manufacturers, lack of standards for fortification mixes and fortification levels/compounds not in line with the new WHO recommendations especially with regard to zinc and iron. Currently there are efforts to develop standards for fortification mixes and fortified maize meal and bread flour and the Environmental Health Practitioners are assisting with compliance monitoring which still need to be strengthened.

2.3 STRATEGY 3: VITAMIN A CAPSULE SUPPLEMENTATION

Universal vitamin A supplementation (periodic distribution of vitamin A capsules) to children 6-59 months is the main strategy in South Africa. To achieve high coverage for vitamin A it is important to scale up the delivery of integrated package of health services, which will include twice yearly vitamin A supplementation for children aged between 6 months to five years, in

order to achieve at least 80% coverage on recurrent basis. The question of targeted vitamin A supplementation needs further research). In 2011, the Essential Drug List (EDL) committee adopted the WHO recommendations and removed vitamin A supplementation for postpartum women from the EDL.

According to WHO guidelines, vitamin A supplementation in postpartum women is not recommended as a public health intervention for the prevention of maternal and infant morbidity and mortality (strong recommendation). The quality of the available evidence for maternal mortality, maternal morbidity and adverse effects was graded as low or very low. The quality of evidence for all-cause infant mortality was high and for cause-specific infant mortality and morbidity was very low. Postpartum women should continue to receive adequate nutrition, which is best achieved through consumption of a healthy diet⁸.

The main operational strategy for vitamin A supplement distribution is through health facilities. Experience from the pilot outreach activities in Limpopo and Eastern Cape provinces has indicated that outreach is a good strategy of reaching children that wouldn't necessarily come to health facilities. Therefore, to improve coverage for vitamin A supplementation, an integrated strategy should be adopted and resources need to be mobilized from national through to the various levels of government. Other strategic programmes such as the school health services and primary health care outreach teams could contribute to scaling up VAS.

Below are operational approaches that should be adopted for vitamin A supplementation:

- ✓ Screening and administration at any contact with routine health services
- ✓ Supplemental distribution during campaigns when VAS is feasible, such as catch-up immunisation activities and other campaign-like activities
- ✓ Integrating de-worming when children 12-59 months are supplemented with vitamin A. It is cost-effective and more beneficial to give vitamin A capsules and deworming tablets simultaneously. Research has shown that there is a clinical link between worm infection and reduced vitamin A levels. Roundworms live in the gut and need vitamin A to grow⁹.

(Protocols for preventive vitamin A supplementation are detailed in annexure A)

⁸ WHO. Guideline: Vitamin A supplementation in postpartum women. World Health Organization, 2011.

⁹UNICEF. How to add deworming to vitamin A distribution. 2004.

2.4 STRATEGY 4: DISEASE TARGETED SUPPLEMENTAION

Disease-targeted supplementation protects individuals at highest risk of VAD-related disease and complications.

Priority target groups are:

- Children 0 months -5 years with:
 - Clinical measles or at risk of contracting measles
 - Severe acute malnutrition
 - Persistent diarrhoea (diarrhoea >14 days)¹⁰
- Children with clinical manifestation of VAD such as xerophthalmia.

✓ **Treatment of measles:**

Vitamin A deficiency is a well-established risk factor for measles-related mortality. Treating children with high-dose vitamin A during the course of a measles episode can reduce measles-related deaths and complications by about 66 per cent and is therefore the standard of care for managing the disease.

✓ **Treatment of children with severe acute malnutrition**

Any child with severe acute malnutrition (includes but is not restricted to the clinical entities of bilateral pitting oedema (Kwashiorkor), (severe wasting) Marasmus and (combination of wasting and bilateral pitting oedema) Marasmic-Kwashiorkor). should immediately be given an age-appropriate dose of vitamin A following the WHO protocol on management of severe acute malnutrition.

(Protocol for curative vitamin A supplementation is detailed in annexure B)

¹⁰Department Of Health. Integrated Management of Childhood Illness Chartbook.2010

3. VITAMIN A SUPPLEMENTATION IMPLEMENTATION MECHANISMS

One of the greatest challenges for vitamin A supplementation has been finding sustainable mechanisms to deliver it. In the late 1990s, vitamin A supplementation was first linked with polio National Immunization Days (NIDs). Despite concerns about the phasing out of these campaigns, NIDs remained the most prominent strategy in 2004, accounting for 26 per cent of all delivery attempts. However, as polio eradication is gradually achieved and integration of vitamin A supplementation with NIDs becomes less of an option in some areas, countries are seizing on a more diverse set of delivery opportunities⁴.

While immunisation programmes have been a strong mechanism in reaching children under age one, the Expanded Programme on Immunization (EPI) alone is insufficient to reach all children aged 6–59 months twice annually. This is clearly reflected in mean coverage rates among countries relying solely on routine delivery micronutrient supplementation such as in South Africa reflected by coverage of below 40% in children 12-59 months since inception of VAS. Other strategies such as integrated child health weeks and outreach activities have proven to improve coverage and until routine health services can reach all targeted children on a regular basis, these approaches (i.e. outreach and campaign style events) will be critical to protecting children from life threatening diseases.

Implementation mechanisms that should be adopted in South Africa are:

✓ **Routine VAS**

Routine VAS is often implemented within the health facility.

✓ **Outreach**

- The outreach should be planned to allow for biennial doses of vitamin A
- In June 2011, MCC granted approval for **Community Health Workers, Dietitians and Nutritionists** to administer Vitamin A during outreach services under direct or indirect supervision of the professional nurse. Nutrition personnel together with Community Health Workers should form part of the PHC outreach teams and be able to access children through the outreach activities. It should be noted that all Community Health Workers should be capacitated on the handling and administration of Vitamin A.

- Outreach services can be provided at various sites within the community such as ECD centres, schools, households, halls depending on the community set up.
- The following general cycle of activities should be anticipated¹¹. The cycle may differ from district to district, as long the districts ensure that a child receives two doses in a year.

GENERAL CYCLE OF KEY ACTIVITIES

February:

- ✓ Developing plans and preparation for vitamin A supplementation outreach
- ✓ Districts should start mobilising the PHC outreach teams including community health workers
- ✓ Health facilities to ensure adequate supply of capsules
- ✓ Social mobilisation to inform communities about the intended outreach services

March:

- ✓ **Vitamin A supplementation at outreach sites**
- ✓ Nutrition education, recording in RTHB, recording of statistics and submit to the feeder clinic.
- ✓ **Statistics to be entered into the DHIS**

August:

- ✓ Preparation for second supplementation, social mobilisation, ensure adequate supply of capsules

September:

- ✓ **Second round of VAS**, recording on RTHB, completion of statistics and submit to feeder clinics
- ✓ **Statistics to be entered into the DHIS**

December:

- ✓ Summarization of annual vitamin A supplementation activities; completion of annual summary report summarizing progress over the course of the year

¹¹Department Of Health. Vitamin A campaign field guide.2008

4. VITAMIN A SAFETY AND HANDLING

All Vitamin A supplements should be procured through recognised MCC standards. The recommended presentation of Vitamin A capsule is the following:

Dosage
50 000 IU
100 000 IU
200 000 IU

4.1 Safety of vitamin A supplement

Vitamin A supplementation is safe and does not have side-effects if it is correctly given. High-dose supplementation of vitamin A is safe when administered in recommended doses. Minor side-effects may occasionally occur but are transitory and do not require specific treatment.

Only a few children may experience mild side-effects such as:

- Loose stools
- Headaches
- Irritability
- Fever; and
- Nausea and vomiting

These side-effects disappear on their own in almost all children within 1 to 2 days.

Toxicity of vitamin A from excessive ingestion is an extremely minor concern compared to the devastating effects of vitamin A deficiency. Combination of high dose supplementation and daily intake of vitamin A fortified foods is not associated with any risk of toxicity. Should a care giver suspect that her child is reacting to Vitamin A supplementation; the child should be taken to the nearest health facility immediately for proper management and care.

4.2 Handling of vitamin A

Always verify the expiry date printed on the label of the bottle of capsules. Unopened bottles of vitamin A capsules will keep their strength under good storage conditions for at least 2

years. Always write the date on the label when a new bottle of vitamin A is opened, so that one knows when to stop using it.

Vitamin A supplements are more stable than vaccines. However, air and sunlight will damage the vitamin. Vitamin A should be kept out of direct sunlight and kept cool at room temperature. Vitamin A capsules do not need to be kept in the cold chain used for vaccines. If the capsules are accidentally refrigerated and become hard, leave the bottle at room temperature for one to several hours so that the outer capsule softens. In very hot climates, the capsules can stick together, so they should be stored in a cool place.

5. PROGRAM MANAGEMENT

5.1 National Level

The national office is responsible for formulating policies and operational strategies, developing technical guidelines/protocols, coordinating and monitoring vitamin A supplementation activities. An action plan for vitamin A supplementation should be prepared each year together with provinces. The National Nutrition Program is responsible for coordination of scaling up the priority child survival interventions, vitamin A supplementation in this instance by proposing use of evidence based implementation strategies.

5.2 Provincial Level

The Nutrition Provincial team is responsible for planning, coordination and monitoring the scale up of child survival interventions at district levels. The nutrition manager shall liaise with other stakeholders from Maternal and Child Health (incl. school health) and primary health care to develop annual plans of scaling up vitamin A supplementation.

The province will:

- ✓ Make sure districts have adequate supplies of vitamin A supplements;
- ✓ Support districts in developing district plans for vitamin A supplementation to ensure biennial Vitamin A doses.
- ✓ Monitor, supervise and evaluate supplementation activities at district level
- ✓ Compile, analyze and provide feedback to districts relating to vitamin A supplementation data.

- ✓ The provincial focal person is responsible to ensure that data is submitted in a complete and timely manner to the DHIS

5.3 District Level

The district nutrition focal point person will be part of the PHC outreach team and is responsible for the following:

- ✓ Developing district plans detailing the resources needed, outreach sites and dates of outreach activities
- ✓ Co-ordinating social mobilisation with health promotion unit
- ✓ Monitoring and ensuring proper recording of data into the DHIS

6. MONITORING AND EVALUATION

Monitoring of VAS should be done at all levels of care in order to evaluate the effectiveness and impact of the Vitamin A Program implementation. Each and every child that receives VAS need to be recorded into the facility register and information should be collated for the DHIS.

It is the responsibility of every nutrition focal person to make sure that data is correctly entered into DHIS, especially data from outreach sites which should not be captured in a different data file (no separate data file should be created for outreach services). The national office will support and monitor VAS coverage on monthly basis and give feedback to provinces. Other responsibilities will entail data verification and identifying of areas of low coverage.

Two indicators are used in monitoring vitamin A supplementation to children aged 6-59 months. The first indicator, *Vitamin A 6-11 months coverage (annualised)*, provide an indication of children aged 6-11 months who have received single doses of 100 000IU Vitamin A supplement. The second indicator, *Vitamin A 12-59 months coverage (annualised)*, provide an indication of children aged 12-59 months who have received two doses of 200 000IU Vitamin A supplement within a period of 12 months at 6 months interval. The denominator is multiplied by 2 because each child should receive supplementation twice a year. Facilities must ensure proper record keeping for the purpose of data verification processes.

Annexure A: Protocol for preventive Vitamin A supplementation

- ✓ Give Vitamin A routinely to all children from the age of 6 months to *prevent* severe illness (prophylaxis).
- ✓ Vitamin A capsules for preventative supplementation are available in 100 000 IU and 200 000 IU dosages.
- ✓ Vitamin A is not contraindicated if the child is on multivitamin treatment.
- ✓ Before giving vitamin A, always check if the child already has received a dose in the previous four –six months. If yes, do not give a second dose.
- ✓ The health worker should always explain to the caretaker the reasons for giving the child Vitamin A.
- ✓ Record the date Vitamin A is given on the RtHB.
- ✓ Remind the mother/caretaker to keep the RtHB in a safe place and always to bring it to the health facility.

Age	Vitamin A dosage
6 up to 11 months	A single dose of 100 000 IU at age 6 months
12 up to 59months	A single dose of 200 000 IU at 12 months, then a dose of 200 000 IU every 6 months up to 59 months

Additional note: If the 200 000 IU is required and the capsules are out of stock, the administering staff may give 2 x 100 000 IU capsules.

Annexure B: Protocol on curative Vitamin A supplementation schedule

Children 0–5 years with:

- ✓ severe under nutrition
- ✓ persistent diarrhoea
- ✓ any of the clinical signs of vitamin A deficiency
- ✓ measles

Age	Dose
Infants below 6 months	50 000 IU
Infants 6 up to 11 months old	100 000 IU
Children 12 months up to 5 years	200 000 IU

Note:

- ✓ All children with clinical signs of severe vitamin A deficiency should receive two doses of vitamin A. Give vitamin A immediately and repeat same dose the following day.
- ✓ Children with severe measles and clinical signs of severe vitamin A deficiency should receive 3 doses of vitamin A. Give vitamin A immediately and repeat same dose the following day and give a third dose on day 14.
- ✓ Children who received a prophylactic dose within the previous month should not receive the treatment dose of vitamin A.
- ✓ If a child is scheduled to receive a routine prophylactic dose of vitamin A and has received a treatment dose within the past month, postpone the routine dose for approximately one month.
- ✓ Wait at least one month between doses.
- ✓ Children receiving routine multivitamin syrup can still receive routine vitamin A supplements.