

Nutrition - Vitamin A deficiency in children

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Definition

This indicator refers to the percentage of children aged 1 – 9 years with a low serum retinol level (<20ug/dL), meaning that these children have marginal or inadequate vitamin A status. Children are considered to suffer from severe vitamin A deficiency if their serum retinol levels are significantly low (<10ug/dL).

The proportion of children aged 1 - 9 years who are vitamin A deficient by province, 1994 - 2005

PROVINCE	Vitamin A deficiency		Inadequate Vitamin A status	
	1994	2005	1994	2005
Eastern Cape	3.6	12.1	31.1	69.1
Free State	2.5	14.3	26.8	61.6
Gauteng	0.8	14.3	23.5	68.8
KwaZulu-Natal	2.6	56.4	38.0	93.0
Limpopo	5.5	13.7	43.5	74.5
Mpumalanga	5.1	2.0	33.0	57.1
North West	3.4	5.4	32.0	52.7
Northern Cape	1.5	6.7	18.5	33.4
Western Cape	1.9	2.1	21.0	45.0
South Africa	3.3	15.5	33.3	65.1

Source Labadarios D (ed) (2007) The National Food Consumption Survey – Fortification Baseline (NFCS-FB): The knowledge, attitude, behaviour and procurement regarding fortified foods, a measure of hunger and the anthropometric and selected micronutrient status of children aged 1 – 9 years and women of child bearing age: South Africa, 2005. Pretoria: Department of Health, Nutrition Directorate.

Notes Children are classified as marginally vitamin A deficient if their serum vitamin A concentration is less than 20 ug/dL. Children are considered severely vitamin A deficient if their serum retinol levels are less than 10 ug/dL. This indicator refers to children aged 1 – 9 years only.

What do the numbers tell us?

This indicator refers to the percentage of children aged 1 – 9 years with a low serum retinol level (<20ug/dL), meaning that these children have marginal or inadequate levels of vitamin A. Children suffer from severe vitamin A deficiency if their serum retinol levels are significantly low (<10ug/dL).

Vitamin A is needed for a range of bodily functions and for protection from severe infections and resultant death. Deficiency usually occurs where diets contain insufficient amounts of vitamin A. Children with vitamin A deficiency have increased risk of infection and are more prone to diseases. Improvement of vitamin A status is considered one of the most cost-effective health and nutrition interventions for child survival.¹

The 2005 National Food Consumption Survey found that nearly two-thirds (64%) of children aged 1 – 9 years had a marginal or inadequate vitamin A status, and about one in seven children (14%) were severely vitamin A deficient. Children living in “tribal” areas were most affected – 17% were severely vitamin A deficient. KwaZulu-Natal had the highest proportion (89%) of children with an inadequate vitamin A status, with nearly half of the 1 – 9-year population severely deficient. Similarly, large proportions of children in the Limpopo (76%), Gauteng (65%) and Eastern Cape (64%) provinces had inadequate vitamin A status.

A marked increase in the prevalence of inadequate vitamin A status in children aged 1 – 5 years is evident: The national rate has nearly doubled between 1994 (33%) and 2005 (65%). Children aged 3 – 5 years are most affected. The NFCS reports that, according to internationally accepted criteria, these high rates indicate that vitamin A deficiency is a serious public health problem in South Africa.

Technical notes

Vitamin A status was classified according to the World Health Organisation’s criteria. Status was determined on the basis of the serum vitamin A concentration present in the blood drawn from children in the sample.

Children with a serum vitamin A concentration of less than 20 ug/dL were classified as having marginal or inadequate vitamin A status. Children were classified as severely vitamin A deficient if the serum vitamin A concentration was less than 10 ug/dL.

Strengths and limitations of the data

The 2005 National Food Consumption Survey² consisted of a cross-sectional survey of a nationally representative sample of children aged 1 – 9 years in South Africa, using the Census 2001 data. The survey population consisted of all the children aged 1 – 9 years (12 – 108 months) and women of reproductive age living in the same households in South Africa. This initial sample was adapted by means of 25% over-sampling to accommodate for children and women who would not be home at the time of the survey. A total of 226 enumerator areas (EAs) were included in the survey, 107 of which were urban-formal, 23 urban-informal, 15 rural-formal and 81 tribal areas. All qualifying EAs were selected with a known probability. A qualifying household for inclusion in the survey was defined as any household with at least one child aged between 1 – 9 years and at least one woman of reproductive age living in it.

Validated questionnaires were administered by trained fieldworkers and a blood and urine sample was taken from the respondents of each household to assess micronutrient status. Samples of tap water and maize were collected from each household and tested for iodine and vitamin A respectively, the latter at the household level. All questionnaires were translated in the country’s official languages for use as appropriate. Quality assurance measures were employed throughout the survey.

References and related links

¹ Glasziou PP & Mackerras DEM (1993) Vitamin A supplementation in infectious diseases: A meta-analysis. British Medical Journal, 306:366 - 370, February 1993.

² Labadarios D (ed) (2007) The National Food Consumption Survey – Fortification Baseline (NFCS-FB): The knowledge, attitude, behaviour and procurement regarding fortified foods, a measure of hunger and the anthropometric and selected micronutrient status of children aged 1 – 9 years and women of child bearing age: South Africa, 2005. Pretoria: Department of Health, Nutrition Directorate.

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