WEEKLY EPIDEMIOLOGICAL REPORT
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Vitamin A supplementation Programme

It is estimated that the immune systems of some 23 million people worldwide have been damaged by HIV. It is less well known that malnutrition impairs the immune systems of at least 100 million young children and several million pregnant women, none of them infected by HIV. But unlike the situation with AIDS, the 'cure' for immune deficiency due to malnutrition has been known for centuries: It is achieved by ensuring an adequate dietary intake containing all essential

Today, more is being learnt about the specific role of individual nutrients in the functioning of the immune system, knowledge that will help in the design of interventions that can improve the situation in the near future. This knowledge also reinforces the importance of striving to ensure that everyone in the world has access to a diet that is adequate in both quality as well as quantity.

Scientists have known for some time that malnutrition and infection are connected. A 1968 monograph by WHO, entitled 'Interactions of Nutrition and Infection', was one of the first comprehensive statements of some of these links.

The threat that vitamin A deficiency poses to the lives of young children has already been described. Within a few years, the scientific community went from calling the fact that vitamin A supplements could reduce child mortality "too good to be true" to calling it "too good not to be true. "But the many ways vitamin A deficiency increases child deaths were not well understood until recently.

Although many countries have not been able to assess the true level of vitamin A deficiency due to technical and financial constraints, the World Health Organization estimates that Vitamin A deficiency is a public health problem in more than 75 countries and affects as many as 228 million children subclinically at a severe or moderate level. Some 3.1 million preschool age children have eye damage due to vitamin A deficiency and an estimated 250,000 to 500,000 preschool children go blind every year. The greatest burden of deficiency is among children living in South Asia and Sub-Saharan Africa

Vitamin A deficiency is the most preventable cause of blindness worldwide. The impact of vitamin A deficiency, however, is more extensive than the ocular effects. Xerophthalmia and low vitamin A levels are associated with increased mortality and severity of morbidity from respiratory and gastrointestinal disease. Still many are unaware that even before blindness occurs, vitamin A deficient children face a 23% greater risk of dying from ailments such as measles, diarrhoea or malaria.

Recent findings have indicated that vitamin A is a key modulator of the immune system and may play a role in preventing the development of cancer. Sufficient vitamin A stores could significantly reduce the risk of transmission of HIV from infected mothers to their babies. The virtual elimination of vitamin A deficiency and its consequences is one of the goals of the World Summit for Children for the year 2000.

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vegetables, although the amount of vitamin A readily available to the body from these sources varies widely. In developing areas of the world, where vitamin A is largely consumed in the form of fruits and vegetables, daily per capita intake is often insufficient to meet dietary requirements. Inadequate intakes are further compromised by increased requirements for the vitamin as children grow or during periods of illness, as well as increased losses during common childhood infections. As a result, vitamin A deficiency is quite prevalent in the developing world and particularly in countries with the highest burden of under-five deaths.

Vitamin A deficiency is an immunodeficiency disorder characterized by widespread alterations in immunity, including pathological alterations in mucosal surfaces, impaired antibody responses to challenge with protein antigens, changes in lymphocyte subpopulations, and altered T- and B-cell function. Vitamin A and its metabolites are immune enhancers that have been shown to potentiate antibody responses to T cell-dependent antigens, increase lymphocyte proliferation responses to antigens and mitogens, inhibit apoptosis, and restore the integrity and function of mucosal surfaces. Vitamin A and related retinoids may have potential applications in therapy for some infectious diseases.

Programmes to control vitamin A deficiency enhance a child's chances of survival, reduce the severity of childhood illnesses, ease the strain on health systems and hospitals, and contribute to the well-being of children, their families and communities. Three major deficiency control strategies currently exist, all meant to complement the ongoing public health measures for the prevention and control of infectious diseases.

Supplementation: Current international recommendations call for high-dose vitamin A supplementation every four to six months, targeted to all children between the ages of 6 to 59 months living in affected areas. Providing young children with two high-dose vitamin A capsules a year is a safe, cost-effective, efficient strategy for eliminating vitamin A deficiency and improving child survival. Giving vitamin A to new mothers who are breastfeeding helps protect their children during the first months of life and helps to replenish the mother's stores of vitamin A, which are depleted during pregnancy and lactation. In practice, high-dose supplements provided by health, nutrition, or immunization workers are likely to remain the most important means of getting supplements to mothers immediately after delivery and to young children in most countries for the next few years. Immunization services often provide the only reliable routine contacts with health services for mothers and their infants. Increasingly, countries are choosing to give additional doses of vaccine in their routine immunization schedule after one year of age. These extra contacts with immunization services may provide opportunities to give age-specific doses of vitamin A supplements as well. Data concerning seroconversion of measles and polio vaccines when given simultaneously with vitamin A indicate no significant reduction in seroconversion rates.

Food fortification: Food fortification is being introduced in more and more countries, and holds great hope for long-term control of vitamin A deficiency. Multiple products currently serve as vehicles: sugar, oil, milk, margarine, infant foods and various types of flour are among the most common. In most cases, fortification can take several years to initiate and longer still to reach all at-risk children and their families. Even countries with successful fortification programmes may need to continue supplementation activities.

Dietary diversification: Non-animal sources of vitamin A account for greater than 80% of intake for most individuals in the developing world - in order to meet the nutrition needs of children, intake of these sources would need to increase up to ten-fold. Feasible control of deficiency through dietary diversification would require increased consumption of bioavailable, vitamin A-rich foods of animal origin, coupled with continued promotion of nutritious fruits and vegetables. Multiple interventions to this effect have been carried out; however, scale-up of these efforts is limited by a lack of well-designed assessments to attest to their efficacy and effectiveness in reducing the burden of deficiency.

In view of the challenges to rapid and large-scale implementation of food-based interventions, supplementation is currently the primary strategy to control vitamin A deficiency and among the key interventions for improving the survival of young children. Countries carrying out two annual rounds of vitamin A supplementation reaching at least 70% coverage among children 6-59 months - considered "effective coverage" - is on track to meet international development goals. Coverage at this threshold also ensures the full child survival benefit of vitamin A supplementation, which will be critical to attaining the fourth Millennium Development Goal.

Vitamin A deficiency was identified as a public health problem in Sri Lanka (Medical Research Institute, 1998). In order to overcome this the Government of Sri Lanka had initiated the current national programme of vitamin A supplementation in 2001. According to this programme every mother should be given oral vit A megadose supplementation (200 000 IU) after delivery and before being discharged from the hospital. Vit A megadose (100 000 IU) given for infants at 9 months with measles immunization, preschool children at 18 months with oral polio vaccine and diphtheria, pertussis and tetanus immunization, and school children in Grades 1, 4 and 7 during the school medical inspection (approximately 5-, 9- and 12-year of age, respectively).

Source : Vit A deficiency –UNICEF

[http://childinfo.org/areas/ vitmina]

Table 1: Vaccine-preventable Diseases & AFP

25th - 31st August 2007 (35th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	00	00	00	00	00	01	59	83	-28.9%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	00	00	00	00	00	00	00	50	28	+78.6%
Tetanus	01 CO=1	00	00	00	00	00	01 MO=1	00	02	00	26	33	-21.2%
Whooping Cough	00	00	00	00	00	00	00	00	00	01	31	63	-50.8%
Tuberculosis	68	02	02	03	00	00	00	01	80	117	6704	6685	+0.3%

Table 2: Diseases under Special Surveillance

25th - 31st August 2007 (35th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
DF/DHF*	36	08	10	01	05	03	06	09	78	199	3596	7076	-49.2%
Encephalitis	00	00	00	00	01 KR=1	00	00	00	01	02	146	90	+62.2%
Human Rabies	00	00	00	00	00	00	00	00	00	01	45	44	+2.2%

Table 3: Newly Introduced Notifiable Diseases

25th - 31st August 2007 (35th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Total number of cases to date in 2007
	W	C	S	NE	NW	NC	U	Sab		
Chickenpox	10	07	10	05	04	02	00	08	46	2315
Meningitis	08 GM=4,CB =2, K L=2	00	01 GL=3	01 AM=1	03 KR=1, PU=1	00	02 BU=1 MO=1	08 KG=6 RP=2	23	375
Mumps	04	05	04	05	11	04	01	02	36	1238

*DF / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.
NA= Not Available.

Sources:

Weekly Return of Communicable Diseases:
Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

Special Surveillance:
Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases:
Tuberculosis.

Details by districts are given in Table 5.

Provinces: W=Western, C=Central, S=Southern, NE=North & East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.

DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 4: Laboratory Surveillance of Dengue Fever

25th - 31st August 2007 (35th Week)

Samples	Number tested	Number positive *	Serotypes				
			D_1	D_2	D_3	D_4	Negative
Number for current week	08	02	00	02	00	00	00
Total number to date in 2007	397	41	01	21	11	00	07

Source: Genetech Molecular Diagnostics & School of Gene Technology, Colombo. * Not all positives are subjected to serotyping.

Table 5: Selected notifiable diseases reported by Medical Officers of Health
25th - 31st August 2007 (35th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptos-pirosis		Typhus Fever		Viral Hepatitis		Returns Re-ceived Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	20	973	04	270	00	08	00	53	01	55	00	90	00	03	03	103	**54**
Gampaha	11	408	01	269	00	22	00	53	00	45	02	158	00	14	03	132	**71**
Kalutara	05	239	04	359	00	04	00	35	00	31	00	79	00	01	01	48	**100**
Kandy	03	295	05	217	00	03	00	46	00	07	02	61	02	56	25	1759	**50**
Matale	02	78	03	152	00	06	02	17	01	12	00	39	00	05	00	105	**67**
Nuwara Eliya	03	34	00	202	00	02	01	99	00	367	00	08	00	29	07	437	**43**
Galle	02	66	06	122	00	09	00	18	00	36	01	36	02	24	00	14	**69**
Hambantota	05`	48	07	127	00	05	00	20	00	17	00	34	02	41	00	14	**73**
Matara	03	113	03	234	00	08	01	28	10	23	02	133	07	160	00	26	**50**
Jaffna	00	39	00	125	00	02	00	351	00	07	00	00	00	81	00	18	**00**
Kilinochchi	00	01	00	00	00	00	00	05	00	00	00	00	00	02	00	04	**25**
Mannar	00	07	00	15	00	00	00	65	00	00	00	01	00	00	01	10	**00**
Vavuniya	01	13	01	40	00	04	00	13	02	50	00	02	00	00	00	08	**00**
Mullaitivu	00	03	01	24	00	08	00	20	00	01	00	00	00	00	01	08	**20**
Batticaloa	00	70	01	436	00	08	00	17	00	10	00	00	00	22	14	832	**64**
Ampara	00	03	00	74	00	00	00	03	00	00	00	02	00	01	01	22	**57**
Trincomalee	00	53	00	189	00	03	00	23	00	23	00	09	00	13	00	97	**67**
Kurunegala	04	406	02	328	01	06	00	53	00	22	00	21	00	32	01	54	**61**
Puttalam	01	94	00	91	00	11	00	66	00	04	00	18	00	04	00	67	**78**
Anuradhapura	02	132	01	84	00	08	00	19	00	15	00	18	00	18	00	35	**63**
Polonnaruwa	01	50	01	67	00	02	00	09	00	04	00	19	00	00	03	26	**71**
Badulla	03	38	07	441	00	02	01	73	02	10	01	41	01	122	12	253	**73**
Monaragala	03	28	10	262	00	02	00	45	01	18	00	38	03	62	02	33	**50**
Ratnapura	06	234	07	423	00	14	00	52	00	17	02	46	00	21	00	74	**44**
Kegalle	03	171	01	218	00	08	00	37	00	04	02	82	00	27	04	151	**82**
Kalmunai	0	03	02	132	00	01	00	08	02	06	00	00	00	02	01	99	**31**
SRI LANKA	**78**	**3596**	**67**	**4901**	**01**	**146**	**05**	**1228**	**19**	**784**	**12**	**935**	**17**	**740**	**79**	**4429**	**62**

Source: Weekly Returns of Communicable Diseases (WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 8 Septem. 2007. Total number of reporting units =290. Number of reporting units data provided for the current week: 204
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk.

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