Despite the lack of evidence that vitamin A supplementation can reduce vertical transmission of HIV, there is still an enormous burden of morbidity and mortality related to vitamin A deficiency in sub-Saharan Africa and other areas of the developing world. Control of vitamin A deficiency remains an important health intervention.
Although epidemiological studies suggest that there is an association between vitamin A status and mother-to-child transmission of human immunodeficiency virus (HIV) infection, recent clinical trials have not shown a significant impact of vitamin A supplementation on mother-to-child transmission of HIV. Other epidemiological studies have suggested an association between vitamin A status and morbidity and mortality of HIV infection. At the present time there is not conclusive evidence to recommend the use of vitamin A supplementation as disease-targeted therapy for HIV infection. Studies are currently in progress to determine whether vitamin A supplementation can postpone infant and young child mortality during HIV infection.

Several studies in adults suggest that vitamin A deficiency may be associated with increased clinical progression of HIV infection (1,2) and increased mortality (3). Low plasma vitamin A concentrations during pregnancy have been associated with increased mother-to-child transmission of HIV (4,5), but this association has not been consistently observed across studies (6,7). Among HIV-infected pregnant women, low plasma vitamin A concentrations have also been associated with low birth weight (7,8) and increased infant mortality (8). Studies in Kenya show that low plasma vitamin A concentrations in HIV-infected women are associated with higher HIV load in the vagina (9, 10) and higher detectable HIV in breast milk (11).

Clinical trials were conducted in Tanzania, Malawi, and South Africa to determine whether vitamin A or micronutrient supplementation during pregnancy could reduce mother-to-child transmission of HIV. Antenatal vitamin A and beta-carotene supplementation had no apparent impact upon mother-to-child transmission of HIV in Durban, South Africa (12). Vitamin A supplementation and/or multiple micronutrient supplementation had no impact on mother-to-child transmission of HIV in Tanzania (W. Fawzi, personal communication). In Tanzania, supplementation with multiple micronutrients—but not vitamin A alone—was found to reduce fetal deaths and prematurity (13). In Malawi, vitamin A supplementation to HIV-infected pregnant women reduced the incidence of low birth weight by about one-third but had no significant impact on mother-to-child transmission of HIV (N. Kumwenda, personal communication). These studies suggest that vitamin A supplementation has no effect upon mother-to-child transmission of HIV. In Zimbabwe a clinical trial is currently in progress with both HIV positive and HIV negative mothers and their infants to determine whether vitamin A supplementation soon after delivery will (1) reduce HIV transmission during breast feeding, (2) reduce sexually acquired HIV infection among post partum women, and (3) reduce morbidity and/or mortality among all women and infants.

The role of vitamin A supplementation for HIV-infected children has been explored in studies in South Africa and...
Tanzania. In a trial in South Africa, a stratified analysis involving a subsample of 28 HIV-infected infants suggested that periodic, high dose vitamin A supplementation reduced diarrheal morbidity (14). In Tanzania, a clinical trial was designed to determine whether vitamin A supplementation could reduce morbidity and mortality of acute lower respiratory infections (ALRI) in children. This study showed no overall impact of vitamin A supplementation upon ALRI morbidity and mortality. A stratified analysis among a subsample of 58 HIV seropositive children showed that vitamin A supplementation significantly reduced mortality; however, it is unclear whether these two treatment groups were similar at baseline (15). In Uganda and Zimbabwe, clinical trials are currently in progress that have been specifically designed to address the question whether vitamin A supplementation will reduce morbidity and mortality in HIV-infected infants and children.

**Conclusion**

Despite the lack of evidence that vitamin A supplementation can reduce vertical transmission of HIV, there is still an enormous burden of morbidity and mortality related to vitamin A deficiency in sub-Saharan Africa and other areas of the developing world. Control of vitamin A deficiency remains an important health intervention.

**References**


10. Mostad SB, Overbaugh J, De Vange DM, et al. Hormonal contraception, vitamin A deficiency, and other risk factors...


*Photo page 3 courtesy of Martin Frigg, Task Force SIGHT AND LIFE. All other photos courtesy of Laurie Lindsay Aomari.*

### About IVACG

Established in 1975, the International Vitamin A Consultative Group guides international activities for reducing vitamin A deficiency in the world. IVACG concentrates its efforts on stimulating and disseminating new knowledge, translating that new knowledge to enable its practical application, and providing authoritative policy statements and recommendations that others can use to develop appropriate prevention and control programs.

### IVACG Steering Committee

- David Alnwick, M.Sc.
- Paul Arthur, M.D., M.P.H., M.Sc.
- Omar Dary, Ph.D.
- Frances R. Davidson, Ph.D., IVACG Secretary
- Luis Mejia, Ph.D.
- Vinodini Reddy, M.D., D.C.H., F.I.A.P.
- Suttilak Smitasiri, Ph.D.
- Alfred Sommer, M.D., M.H.Sc., IVACG Steering Committee Chair
- Clive West, Ph.D.
- Keith P. West, Jr., Dr.P.H.

### IVACG Secretariat Staff

- Laurie Lindsay Aomari, R.D.
- Suzanne S. Harris, Ph.D.

The publication of this statement is made possible by support from Micronutrient Global Leadership, a project of the Office of Health and Nutrition, Bureau for Global Programs, Field Support and Research, U.S. Agency for International Development, under Cooperative Agreement Number HRN-A-00-98-00027-00.

August 2000

Printed in the United States of America

Additional copies of this and other IVACG publications are available free of charge to developing countries and for US$3.50 to developed countries. Copies can be ordered from the IVACG Secretariat:

**IVACG Secretariat**  
ILSI Research Foundation  
1126 Sixteenth Street, NW  
Washington, DC 20036-4810  
USA  
Tel: 202-659-9024  
Fax: 202-659-3617  
E-mail: hni@ilsr.org  
www.ilsr.org/ivacg.html