Reaching the end of the road in Africa: Using community-directed treatment with ivermectin to deliver vitamin A supplements

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Vitamin A deficiency (VAD) is the leading cause of childhood blindness in the world. According to the World Health Organization, an estimated 250,000 to 500,000 children worldwide become blind due to VAD each year and it is estimated that about half of all children who lose their sight due to VAD will die within 12 months. Even more importantly, VAD is one of the leading causes of under-five morbidity and mortality among young children, particularly in countries where the under-five mortality rate is greater than 50[1] as is the case in all onchocerciasis-endemic countries in Africa. Fortunately, blindness, morbidity and mortality due to VAD can be avoided by improving vitamin A status through the distribution of high dose vitamin A capsules. Studies have shown that improving vitamin A status of children through vitamin A supplementation or improved dietary intake reduces under-five mortality by an average of 23%, reduces diarrhea and measles morbidity and prevents blindness.[2]

A sustainable delivery mechanism to reach children under five years of age throughout sub-Saharan Africa with two annual doses of vitamin A is being sought. Currently only one dose is provided via national immunization days (NIDs) in most countries and these NID campaigns will soon end as the eradication of poliomyelitis nears. In some countries, routine health services are being used to deliver the second vitamin A dose, however, coverage remains very low. In addition, all women within six weeks post-partum should receive two high dose vitamin A capsules. Considering that many women in Africa do not have access to a health clinic and deliver at home, a community-based mechanism to supplement women post-partum is essential.

The Community Directed Treatment with Ivermectin (CDTI) strategy used for mass treatment of onchocerciasis is currently implemented in 26 onchocerciasis-endemic countries throughout sub-Saharan Africa. CDTI extends the existing health care system into communities by training community-directed distributors (CDDs) to provide ivermectin to everyone over 5 years of age with the exception of pregnant women. It is an innovative, sustainable approach that empowers communities to resolve their own health problems.[3]

In the past three years, Helen Keller International (HKI), the Ministries of Health and affected communities have successfully tested and scaled-up the distribution of high dose vitamin A capsules to children and to women post-partum via CDTI (by CDDs of ivermectin) in both Nigeria and Cameroon.[4] Results have been very positive with about 80% of children from 6-59 months of age being supplemented and 60% of women post-partum being dosed with vitamin A during the two-month campaign period. Coverage for ivermectin did not decrease,

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[1] The Annecy Accords, The Journal of Nutrition, Sept 2002
[2] Meta-analysis, Beaton et al, 1993. Effectiveness of VAS in the control of young children morbidity and mortality in developing countries. WHO, Geneva, Switzerland. ACC / SSN nutrition policy discussion paper.
[3] Empowering partnerships and communities, APOC and the fight to rid Africa of River Blindness. APOC/WHO.
[4] The integration of VAS in CDTI has been supported financially by the Canadian International Development Agency in Cameroon and the Micronutrient Initiative in Nigeria. The Lions Club International Foundation, the Nippon Foundation, Merck and Co, Inc and the African Program for Onchocerciasis Control provide funding for the CDTI projects into which vitamin A was integrated.

and in fact increased from 70% to 74% in Center Province of Cameroon after integrating vitamin A supplementation (VAS) into CDTI, indicating that CDDs are able to manage distribution of both ivermectin and vitamin A, providing something for everyone in the community. In a post campaign study to evaluate the integration in Cameroon, results indicated that 97% of CDDs are willing to distribute vitamin A capsules and ivermectin tablets again next year. The main reason given for continuing to distribute vitamin A along with ivermectin was *to aid my village* (86% of CDDs). The vast majority of CDDs and health staff alike noted that the villagers were very happy to receive vitamin A and they stated that *vitamin A opened the door for ivermectin*.[5]

In Nigeria the CDTI+VAS project now reaches over 6 million people in the HKI project area alone and was scaled up in 2003 into the Sight Savers International, UNICEF and MITOSATH project areas as well. In Cameroon CDTI+VAS covers a population of over 680,000 people in the HKI project area, with plans to scale up the strategy into 99 out of the 150 health districts as soon as possible. It is hoped that this cost-effective strategy will be expanded to cover all CDTI Project areas throughout sub-Saharan Africa, potentially reaching 87 million people. Based on a conservative estimate, ensuring adequate vitamin A supplementation through all CDTI projects implemented throughout sub-Saharan Africa will reach over 11 million children and save the lives of 72,000 children per year.[6]

To help move the scaling up process along more quickly, HKI has held two national level workshops on how to integrate vitamin A supplementation into CDTI (August 2004 in Nigeria and September 2004 in Cameroon)[7]. These workshops were attended by representatives of the onchocerciasis-endemic states, the NGDO partners and other nutrition and onchocerciasis partners in the countries concerned. HKI has also documented lessons learned from our pilot experiences and developed a manual called *The Integration of Vitamin A Supplementation into Community-Directed Treatment with Ivermectin: A Practical Guide for Africa*. The manual gives an overview of the vitamin A and onchocerciasis problems and provides concrete information on the practical steps and considerations to consider when integrating VAS into CDTI. It is available in both English and French on the HKI onchocerciasis related web site at http://www.onchohki.org. Additional materials have been developed that can be shared with others interested in integrating VAS into CDTI as follows:

- Training of Community Distributors: Guide for the Distribution of Mectizan® and Vitamin A (French and English from Cameroon)
- Training of Trainers: Guide for the Distribution of Mectizan® and Vitamin A (currently in French only)
- Booklet for Community Distributors: For Integrated Distribution of Mectizan® and Vitamin A Capsules (French and English from Cameroon)
- Booklet for HA Nurses on Implementation of Integrated Distribution of Mectizan® and Vitamin A Capsules in Communities (French and English from Cameroon)
- Calendar of integrated distribution; handout to households (Cameroon)
- Integrated CDTI+VAS community registers and monitoring tools (Nigeria and Cameroon)
- Integrated VAS + Ivermectin Posters (Nigeria)

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[5] Nancy J. Haselow, Musa Obadiah, Julie Akame. The Integration of Vitamin A Supplementation into Community-Directed Treatment with Ivermectin: A Practical Guide for Africa. Helen Keller International. Yaounde, Cameroon. Available at http://www.onchohki.org
[6] Aguayo, Baker. HKI – African Nutrition Working Papers. September 2002.
[7] The Workshops were supported by a dissemination grant from the CORE Group of NGDOs (through funds from USAID) and a grant to find and test alternative vitamin A delivery mechanisms in Cameroon given by the Canadian International Development Agency.

Considering that there is no one sustainable vitamin A delivery mechanism to cover the at-risk population now or in the foreseeable future, and there are dwindling onchocerciasis resources, integrating VAS into onchocerciasis control programs seemed logical. By integrating the two interventions, two very real and serious public health problems can be addressed and sustained in communities for the next 15 to 20 years – until other solutions are found. An integrated CDTI and vitamin A supplementation program can leverage funds from multiple sources to better build and ensure this sustainability. In addition, vitamin A supplementation and ivermectin delivery are synergistic, relying on similar systems. They both require sustained supply systems and some support from outside the community, particularly from the Ministry of Health. Both vitamin A capsules and ivermectin tablets are relatively simple to deliver effectively and safely to the target groups by trained community volunteers. Target groups are complementary and by integrating the two, the program provides "something for everyone" in the community, potentially improving coverage of both ivermectin and vitamin A supplementation, and improving the overall health and productivity of the community. By integrating vitamin A supplementation into community-directed treatment with ivermectin, HKI and its partners have enabled communities *at the end of the road* to take charge of their own health – preventing blindness from onchocerciasis and vitamin A deficiency, reducing pain and suffering from onchocerciasis and saving the lives of their own children through vitamin A supplementation.

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