The Integration of Vitamin A Supplementation into Community-Directed Treatment with Ivermectin: A Practical Guide for Africa

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PREFACE

Why integrate vitamin A supplementation into community-directed treatment with ivermectin?

In the last 20 years numerous studies have demonstrated the correlation between vitamin A deficiency and childhood mortality. Vitamin A supplementation (VAS) has proven to be successful at reducing vitamin A deficiency (VAD) and has therefore become one of the key interventions for child survival. The magnitude of VAD in sub-Saharan Africa had been greatly under-estimated, and it is now calculated that over 42% of children in the region are at risk of VAD and that adequately controlling VAD will avert over 645,000 child deaths per year. It is clear, that in sub-Saharan Africa, reaching the Millennium Development Goal of reducing under-five mortality (U5MR) by two-thirds by the year 2015 will require successfully controlling vitamin A deficiency.

Until the advent of National Immunization Days (NIDs), vitamin A supplementation programs in sub-Saharan Africa were at best large-scale pilots. NIDs offered an unprecedented opportunity to accelerate the coverage of vitamin A supplementation among children under five, raise the profile of the benefits of vitamin A and nutrition in general, and train thousands of front-line health workers. NIDs have been taking place in all countries of sub-Saharan Africa, and by the year 2000 almost all countries included vitamin A supplementation in NIDs. This has helped reach coverage of over 80% of children 6-59 months in almost all countries for at least one annual dose. However, as eradication of poliomyelitis nears, in most countries NIDs are phasing out and by 2006 will at best be sub-national targeted campaigns. Even so the second annual vitamin A dose, necessary to maximize reduction in child mortality, was often not delivered because there was no mechanism. In some cases, the second annual dose was to be delivered during routine health contacts, such as vaccination, but coverage among children aged 12-59 months has been very low. Consequently, alternative, sustainable delivery mechanisms with the potential for high vitamin A capsule (VAC) coverage have been and are being sought.

Onchocerciasis is endemic throughout much of sub-Saharan Africa. Although onchocerciasis is usually not national in scope, the disease is found in some of the most remote places where government health services usually do not reach. The primary strategy used to deliver the drug of choice, ivermectin (Mectizan®), once per year in order to control the symptoms of the disease is called Community-Directed Treatment with Ivermectin (CDTI). CDTI is an innovative strategy that brings the responsibility for control of a disease, onchocerciasis, to the community. The community is empowered to implement and sustain ivermectin distribution in concert with the established health care system. Community volunteers, or community-directed distributors (CDDs), are trained to sensitize other community members about the disease and its treatment and to organize a campaign to distribute ivermectin to all eligible members of the community each year for at least 15 to 20 years.

Currently, CDTI is being implemented in 26 African countries, in areas covering about 50 million people. Potentially, CDTI programs will be implemented in endemic communities of sub-Saharan Africa with a total population of over 87 million people. All of these countries also have vitamin A deficiency problems of public health importance. Based on a conservative estimate, ensuring adequate vitamin A supplementation through CDTI will reach over 11 million children and save the lives of 72,000 children per year.

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: preventing blindness from onchocerciasis and vitamin A deficiency, reducing pain and suffering from onchocerciasis and saving lives through vitamin A supplementation.

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LIST OF ABBREVIATIONS

APOC	African Program for Onchocerciasis Control
CDD	Community-Directed Distributor
CDTI	Community-Directed Treatment with Ivermectin
CIDA	Canadian Agency for International Development
CORE	Child Survival Collaborations and Resource Group
EPI	Expanded Program on Immunization
FAO	Food and Agriculture Organization of the United Nations
GAIN	Global Alliance for Improved Nutrition
HA	Health Area
HD	Health District
HKI	Helen Keller International
IEC	Information, Education and Communication
IMR	Infant Mortality Rate
IU	International Units
IVACG	International Vitamin A Consultative Group
LCIF	Lions Club International Foundation
LGA	Local Government Area
LID	Local Immunization Days
MDP	Mectizan® Donation Program
MEC	Mectizan® Expert Committee
MI	Micronutrient Initiative
MIS	Management Information System
MITOSATH	Mission to Save the Helpless
MOH	Ministry of Health
MOST	USAID's flagship micronutrient project
NGDO	Non-Governmental Development Organization
NGO	Non-Governmental Organization
NID	National Immunization Day
NOTF	National Onchocerciasis Task Force
OCP	Onchocerciasis Control Program
PHC	Primary Health Care
pp	Post partum
SAE	Serious Adverse Event
SSA	Sub-Saharan Africa
SSI	Sight Savers International
UN	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
U5MR	Under 5 Mortality Rate
VA	Vitamin A
VAC	Vitamin A Capsule
VAD	Vitamin A Deficiency
VADD	Vitamin A Deficiency Disorders
VAS	Vitamin A Supplementation
WFP	World Food Program
WHO	World Health Organization

1. INTRODUCTION

1.1 What is the purpose of this 'How To Guide?'

The purpose of the 'How To Guide' is to consolidate lessons learned on the process of integrating vitamin A supplementation (VAS) into community-directed treatment with ivermectin (CDTI), and to promote replication of the experience.

The Guide is designed to:

- **Introduce** key concepts, principles, issues, and terminology related to integration of VAS into CDTI.

- **Outline** practical guidelines and steps that may be useful in the design, adaptation, implementation, monitoring and evaluation of integrated VAS and CDTI activities in your country or project areas.

- **Provide** information on sources and resources of support programs, tools on onchocerciasis and vitamin A deficiency (VAD) control, and integration of VAS into CDTI.

1.2 Who should use this guide?

The guide is intended for those countries already implementing or intending to implement CDTI for control of onchocerciasis in areas where VAD is also a public health problem.

Government and Non-Governmental Development Organization (NGDO) decision makers who must identify appropriate intervention strategies and determine priority areas for allocating limited financial and human resources to control both onchocerciasis and VAD.

Government and NGDO program managers who are involved in the prevention and control of onchocerciasis and VAD, and who are considering integrating or fine-tuning the integration of these activities.

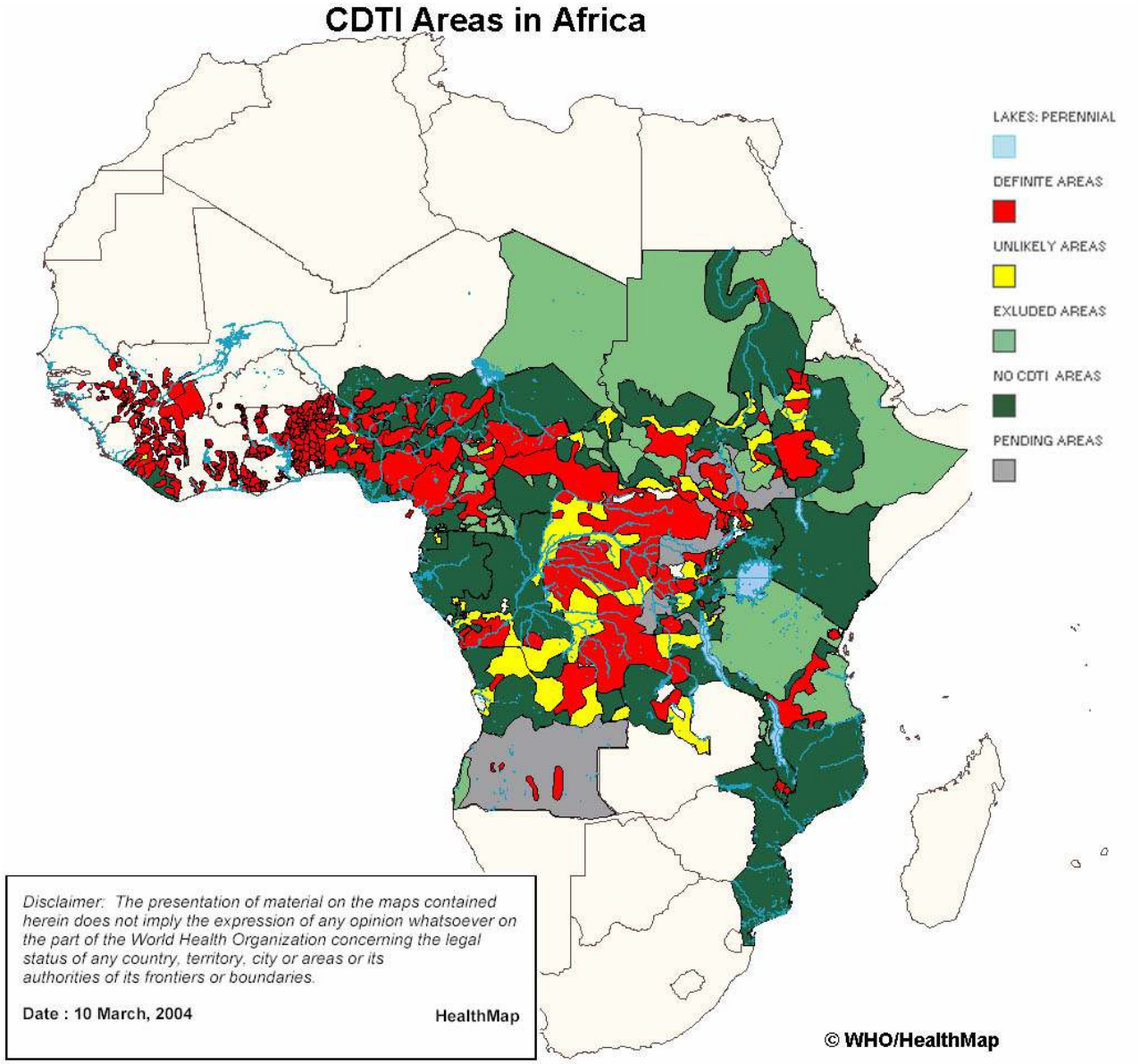
As a reader and user of this Guide, you will have a tool that guides you through the process of integration [based on pilot experiences from Cameroon, and Nigeria undertaken by Helen Keller International (HKI) and Ministry of Health (MOH) and communities] and gives you the key information you need to integrate VA into CDTI. In addition the guide can be used as a reference summary for onchocerciasis and vitamin A deficiency disorders (VADD). It should also interest those responsible for monitoring some elements of vitamin A or onchocerciasis programs. Lastly, the guide provides rationale for the need and benefits for integration of VAS into CDTI in order to assist advocacy efforts.

2. OVERVIEW OF THE PROBLEM

2.1 Onchocerciasis or River blindness

Onchocerciasis is the second leading infectious cause of blindness in the world (after trachoma) and the leading cause in some Sahelian countries. There are 35 countries in total, 28 in tropical Africa, Yemen, and 6 in Latin America that are endemic for onchocerciasis. According to 1994 estimates 122.9 million people throughout the world are exposed to the disease, again the overwhelming majority of who are in Africa (99%). 17.7 million people are infected (with over 95% living in Africa), out of which 6 million suffer from severe itching, 500,000 have severely impaired vision, and 270,000 are blind.[1]

Figure 1



What is onchocerciasis?

Onchocerciasis (also known as river blindness) is a parasitic disease that can lead to blindness in the final stages. But onchocerciasis is more than a blinding disease, it is a chronic systemic disease, capable of causing extensive and disfiguring skin changes, musculoskeletal complaints, weight loss, changes in the immune system, and perhaps epilepsy and growth arrest as well.[1]

How many types of onchocerciasis are there?

There are two main strains of onchocerciasis:
Savannah type: The parasite loads tend to be very high, with a high rate of blindness
Forest type: The infection can be severe, with high prevalence of skin manifestations, but blindness is less common.[1, 2]

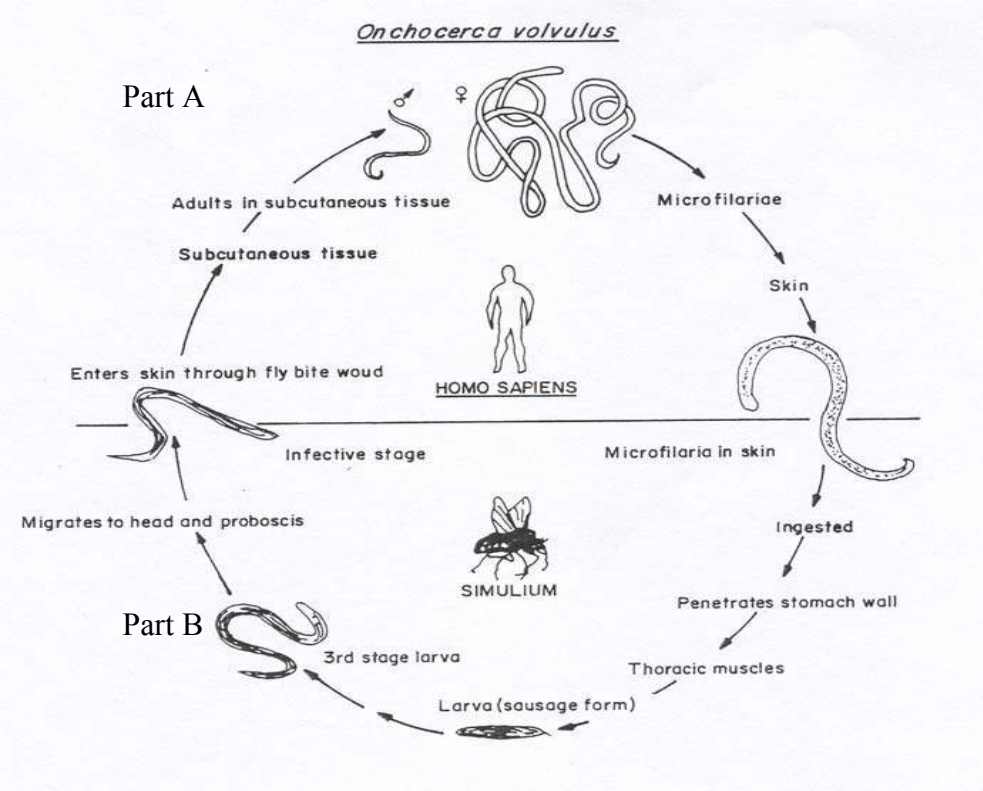
What is the parasite that causes onchocerciasis and its life cycle?[1]

Onchocerciasis is caused by a parasite, the filaria *Onchocerca volvulus*. The transmission of this parasite to humans takes place through the bite of the blackfly (*Simulium* species). The breeding sites for the black fly are fast flowing rivers (hence the name river blindness), which make the disease prevalent in fertile, arable lands. Many fertile river valleys were left uninhabited and not cultivated due to the severity of the disease. This impact is particularly negative in the Sahel sub-region of West Africa because these fertile areas could serve as a major food source for much of that area's malnourished population.

Adult *Onchocerca volvulus* worms live in nodules (encapsulated by fibrous tissue), which are most often located over bony parts in the body (ex. back of the head, shoulder blades, hips, etc.) These nodules are usually palpable, and one nodule may contain several male and female worms. As illustrated in part A of the diagram on the next page, the adult worms can be up to 1 meter long, and have a life span of 10-15 years during which they produce millions of young microfilaria (tiny larvae). After fertilization, a female worm may produce 1,300 – 1,900 microfilaria per day for 9-11 years. These microfilaria have a life span of 6 months to 2 years, and migrate throughout the body. They can be found in the bloodstream, and some internal organs (high concentrations under the skin and in the eye). A person with a lot of nodules might have up to 200 million microfilaria.

If an infected person is bitten by a black fly, some of the microfilaria are ingested during the blood meal. The microfilaria that are not ingested by the black fly die within two years. In a heavily infected person there can be 100,000 or more microfilaria dying every day. The microfilaria ingested during the blood meal undergoes 10-14 days of development in the fly to become infective (part B of the diagram on the next page). A small proportion of the ingested microfilaria are not digested and are able to penetrate the stomach wall and move to the thoracic muscles of the fly where they transform in 6 - 12 days into the third stage of the larva (or L3). This L3 is the infective form of the microfilaria, which will move to the head of the fly. Here the L3 larva is ready to infect another human being during the next blood meal of the black fly.

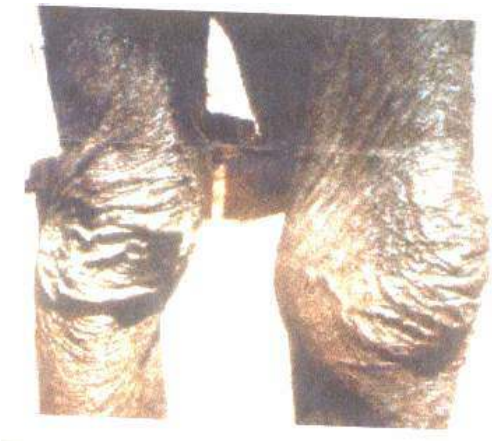
Figure 2 (*Reference Number 1)*



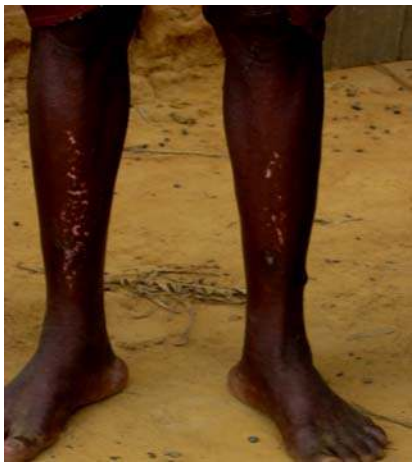
What are the symptoms of onchocerciasis?

The majority of onchocerciasis symptoms are not caused directly by the worm itself but by an inflammatory reaction to the death of microfilaria in the organs (skin and eyes). The most common symptoms are skin rashes and severe itching. Over the years, the inflammation of the skin leads to its degeneration, with changes in pigmentation and elasticity. The depigmentation, usually in the front lower leg area, develops into white spots, which is called "leopard skin." Due to the reaction, elastic fibers in the skin are also destroyed resulting in a wrinkled, cigarette paper appearance (lizard skin) which can, if atrophy of the skin continues, lead to a situation in which the groin prolapses, called "hanging groin."

Figure 3



Lizard skin *(by Musa Obadiah, Nigeria)*



Leopard skin *(by Tony Ukety, DRC)*

Through repeated infections over the years, the tiny worms migrate along the skin and eventually reach the eyes. The immune reaction of the body to the microfilaria in the eye often causes scarring that can lead to impaired vision and blindness. In the most affected communities, over 50% of the population can be expected to go blind before they die[1] (mostly in West Africa where the Savannah type of onchocerciasis is prevalent).

Table 1: Main symptoms of onchocerciasis (Reference Number: 1, 2, 3)

Skin signs / symptoms	Eye signs / symptoms
• Intense itching • Skin rash • Nodules containing adult worms • Leopard skin (skin depigmentation) • Very dry or wrinkled skin (lizard skin), and/or stretched skin in the groin area	• Red eyes (conjunctiva hemorrhage) • Irritated eyes and / or tearing • Light sensitivity • Night blindness • Reduced field of vision, visual activity • Sclerosing keratitis (corneal opacity) • Blindness

What are the pathways to blindness from onchocerciasis?

Corneal scarring, chorioretinitis and chorioretinal scarring, and optic atrophy from microfilarial invasion of the eye are the major pathways to blindness in onchocerciasis. Uveitis (inflammation of a part of or all of the uveal tract) may occur when microfilaria penetrate the sclera and enter the eyeball. Onchocerciasis can result in low vision or permanent blindness by causing secondary cataract and secondary glaucoma.[4]

How is onchocerciasis diagnosed?

At the individual level: Palpitation of the nodules, observation of skin conditions and leopard skin signs. Laboratory diagnosis through skin snipping to identify microfilaria

At the community level: Endemicity in a community or a group of communities is defined on the basis of the prevalence of nodule carriers using one of two rapid assessment techniques: REMO (Rapid Epidemiological Mapping of Onchocerciasis) and / or REA (Rapid Epidemiological Assessment).

REMO uses geographical and environmental conditions to select a sample of villages in an area that is likely to be endemic for onchocerciasis. The boundaries of endemicity are extrapolated from the sample.

REA, on the other hand, is used to sample in every village of a predefined REMO area to further refine the endemicity level of each community.

Both REMO and REA use the same sampling techniques at the village level. In a community selected for examination, 50 men aged 20 or older who have been living in the community for at least 10 years are examined for nodules. The community or area is classified according to percent of nodule carriers, which corresponds to the prevalence of onchocerciasis as seen in table 2 on the next page.[5]

Table 2. Classification criteria for endemicity levels in communities

ENDEMICITY LEVEL and recommended type treatment	% nodule carriers in REA sample (min. 50 adult men)	Estimated prevalence of *O. volvulus* in the whole community
HYPER-ENDEMIC community Treatment (URGENT)	Greater than 39%	Greater than 59%
MESO-ENDEMIC community Treatment (DESIRABLE)	20-39%	40-59%
HYPO-ENDEMIC Treatment (NON-URGENT)	Less than 20%	Less than 40%

What are the socio-economic consequences of onchocerciasis?

Onchocerciasis is not just a blinding disease, it is much more, it is a tragedy for families and communities. In Africa a blind person, on average, dies 10 years earlier than a sighted person.[6] For women, there is the added risk of being abandoned by their husbands when they go blind, or for young women already infected with onchocerciasis and suffering from the disfiguring skin lesions, there is the risk of poorer marital prospects (and smaller dowry size).

Although children rarely go blind before the age of 15, the condition can ruin their future opportunities, because they must give up school to guide blinded adults and help with chores or farming. Those children that do go to school have very poor performance due to the itching and lack of sleep. There is increased infant morbidity and mortality and poor education for all the children in the family.[1]

Communities as a whole suffer from onchocerciasis. Up to 50% of the adult population in high risk communities may be blind by the age of 40. In these communities, dietary intake may also suffer as fewer people can see well enough to farm and - sometimes - whole villages are forced to relocate, abandoning good farming land because of the nuisance from the incessant black fly bites and the fear of blindness from repeated infection.[1] For economic calculations, the World Bank assumes that one year of blindness is the equivalent of one year of premature death. Others have argued that the economic costs are even higher, since the family needs to mobilize considerable resources to care for the blind person.[7] Onchocercal skin disease (OSD) also has serious consequences for families and communities. Studies at large tea plantations in Ethiopia have shown that there is a reduction in productivity of 15% with a reduced income among those workers with severe OSD.[8]

Which age group is more vulnerable to onchocerciasis?

Everyone in a community exposed to onchocerciasis is at risk of the disease. Adults and older children residing near fast flowing rivers (the black fly breeding sites) are the most vulnerable group due to prolonged exposure to the bites of the black fly while working. Symptoms generally occur after years of repeated infection.

What are the different measures to prevent, control and treat onchocerciasis?

Over the years, a number of treatments and control strategies have been used to reduce the severity of onchocerciasis among individuals and communities. A brief summary of the prevention, control and treatment measures that have been used in the past or are currently being used is presented on the next page[2]:

1. **Treatment with Diethyl Carbamazine [DEC, (it is no longer used)]**
   Advantages - Kills the microfilaria
   Disadvantages - Long periods of treatment, multiple side effects, expensive

2. **Treatment with Ivermectin**
   Advantages - Kills microfilaria. Taking ivermectin once/year prevents onchocerciasis symptoms, improves the patients' health (provides relief from itching and other skin-related symptoms associated with the disease, may improve vision) and expels intestinal worms. It is donated free of cost by Merck and Co., Inc.
   Disadvantages – Does not kill macrofilaria (adult worms). Ivermectin has no effect on existing skin nodules, lizard and leopard skin and blindness. Ivermectin should be taken for >15 years awaiting the natural death of the macrofilaria.

3. **Nodulectomy (surgical removal of nodule)**
   Advantages - Reduces the production of microfilaria and the risk of blindness.
   Disadvantages - Expensive as it requires trained personnel. It is invasive, and nodules are not always visible.

4. **Other possibilities**

– **Kill the vector** (black fly). This can be achieved by spraying the breeding grounds [as with the Onchocerciasis Control Program of West Africa]
   Advantages - Successful in certain areas
   Disadvantages - Expensive, and cannot reach all the targeted areas, does not help relieve the symptoms of persons already infected.

- Kill the adult worms. Macrocides are being tested to find a drug that is effective in killing the adult worm, yet non-toxic to humans and not prohibitively expensive for use in a mass campaign. If a macrocide is found, the duration of treatment necessary to eliminate onchocerciasis as a public health problem will likely be shorter than with current methods.

What is the current recommended treatment for onchocerciasis?

Ivermectin (Mectizan®) is an effective and well-tolerated anti-microfilarial drug that has emerged as the drug of choice for large-scale treatment of onchocerciasis. Ivermectin should be taken once a year, for at least 15 years awaiting the natural death of the macrofilaria. It is estimated that if 65-85% of the total population in a community or endemic area takes ivermectin once a year, the *simulium* can continue to bite its human hosts but it will not find any microfilaria in the human body to transmit. This may lead to the elimination of onchocerciasis (or at least the symptoms of the disease) as a public health problem. Impact studies are currently underway and the results will not be available for several years.

What is the current strategy for delivery of Ivermectin?[9]

The strategy that is currently recommended (by APOC and the NGDO Group for Onchocerciasis Control) to reach the goal to eliminate the symptoms of onchocerciasis as a disease of public health importance and possibly to arrest transmission, is Community-Directed Treatment with Ivermectin or CDTI for the onchocerciasis hyper and meso-endemic areas. In CDTI the main partner in the implementation is the community. The community essentially becomes an extension of the health care system, thus taking control of its own health. Clinic-based distribution is recommended for onchocerciasis hypo-endemic areas.

Who is eligible to take ivermectin?

Every individual in an affected community should take ivermectin once a year (in some countries it is twice a year), except the following groups.

Ivermectin **SHOULD NOT** be given to:

- Very sick individuals (Individuals too weak to walk)
- Pregnant women
- Women who gave birth less than 8 days ago
- Children under 5 years of age or under 90 cm or weighing less than 15 kg.

What is the dosage of the drug?

The dosage of ivermectin is determined by the height or weight of a person. However in field work, height is usually used as it is easier and less costly to determine. Ivermectin is currently available as 3 mg tablets.

Table 3: Dosage of Ivermectin (based on height)

Person's height (cm)	Number of 3 mg tablets per person
Less than 90	None
90 – 119	1
120 – 140	2
141 – 158	3
159 +	4

What are the possible side effects from ivermectin?

Like all medication, ivermectin can have side effects. In a mass campaign, the number of mild and moderate side effects reported (from Cameroon) was as high as 1 per 100 people treated, although it is usually less. All side effects generally appear in the week following treatment. The mild side effects last only a few days, and can include the following symptoms: itching, swelling of the arms and legs, muscle pain, fever, skin rash, fatigue, headache, diarrhea, nausea, vomiting, sensation of grains of sand in the eyes and temporary fuzzy vision. Moderate side effects can include intense headache, generalized body pain, diarrhea /dehydration and intense fatigue that requires bed rest. These side effects can be referred to the health center or the more minor ones can be treated at home depending on the symptoms.[10]

More serious side effects (or serious adverse events - SAEs) are very rare. They generally occur in people taking their first treatment. Serious side effects due to ivermectin can include: respiratory problems, dizziness, high or persistent fever, very painful or persistent headaches, hypertension, severe fatigue that makes it difficult to walk, disorientation and coma. There is particular concern for serious adverse events when distributing ivermectin in areas co-endemic for loiasis (caused by the *Loa loa* filaria) and onchocerciasis. In co-endemic areas, it is estimated that about 1 in every 10,000 people treated with ivermectin will have an SAE. The most important risk factor for the most serious problems – neurological impairment potentially leading to coma, is very high *Loa loa* microfilaria loads (>30,000 *L. loa* microfilaria/milliliter of blood).[11] Extra precautionary measures such as increased community sensitization, better supervision and surveillance at the community level and enhanced training at all levels must be implemented in order to properly detect, refer and manage cases. With quick detection and proper case management in adequately staffed and equipped referral hospitals, all patients should recover from serious adverse events.[10, 12]

2.2 Vitamin A Deficiency

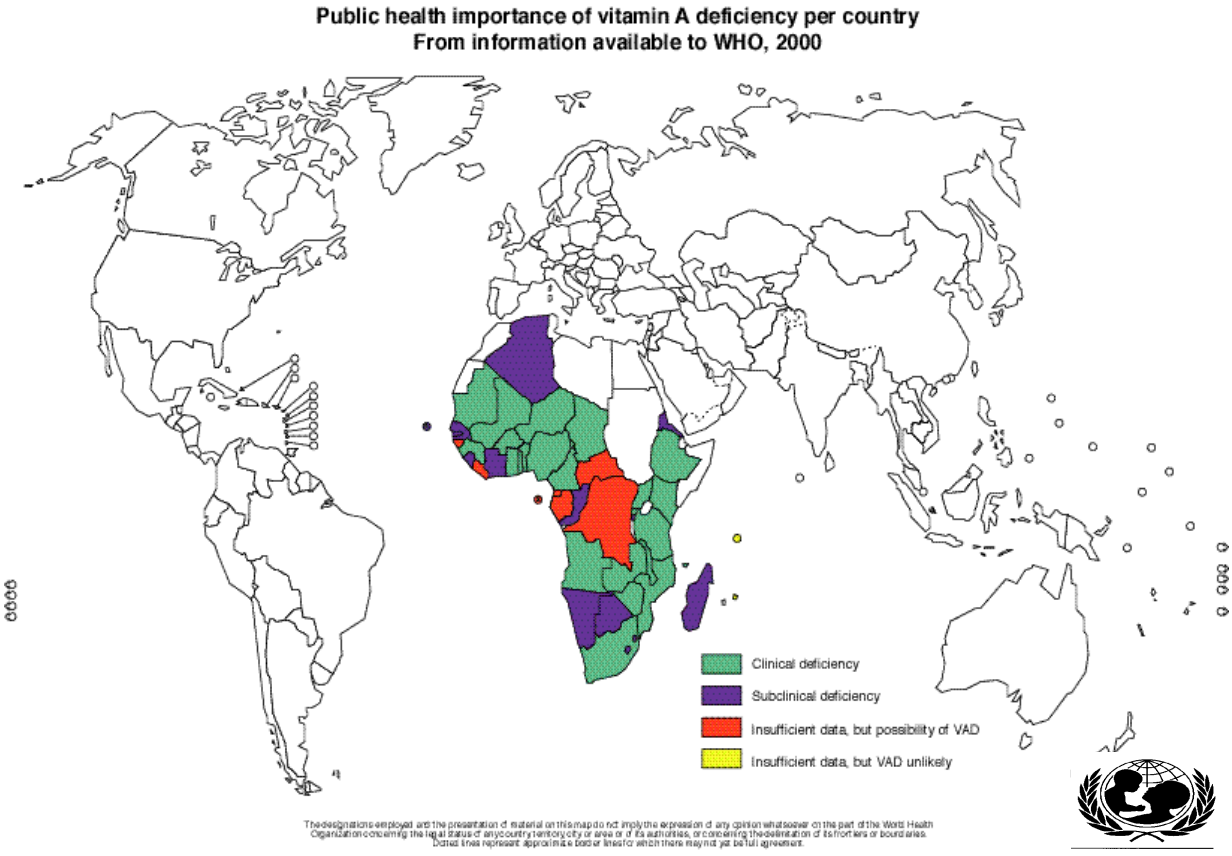
Vitamin A deficiency is a leading cause of under 5 mortality, childhood blindness, and infectious disease morbidity in developing countries worldwide.[13, 14] An estimated 250,000 to 500,000 children become blind every year because they are deficient in vitamin A. Tragically, this blindness is avoidable.

VAD is a public health problem in 95 countries throughout Asia, Africa and Latin America (WHO 2001). 140 million preschool children and more than 7 million pregnant women suffer from VADD. 1.2-1.3 million children and a significant number of women die needlessly each year because of it.[15] In a meta-analysis, by Beaton et al (1993) it was estimated that improving vitamin A status reduces U5MR by an average of 23%, and reduces diarrhea and measles morbidity.[16] Sustained elimination of VAD as a public health problem must be a principal element of child survival interventions where the problem exists.[13, 14, 16, 17, 18, 19] Research also suggests that VAD may be an important factor in increasing the risk of maternal morbidity and mortality.[15]

In sub-Saharan Africa (SSA), region wide extrapolations from national survey data estimate that 42% of children 6-59 months (43.2 million children) are at risk of VAD. Effective and sustained VAD control could reduce under-five mortality in the region by 25% and avert over 645,000 child deaths annually.[17]

Figure 4 shows the prevalence of VAD in Africa as known before 2000. However, since then additional national VAD surveys have been conducted indicating the problem is more widespread than previously thought. We now know that VAD is highly prevalent in places like the Democratic Republic of the Congo (61%) and the Central African Republic (68%).

Figure 4



What is vitamin A?

Vitamin A (or retinol) is a fat-soluble vitamin that the body cannot produce, and that is stored in the body, principally in the liver. It is released as needed into the bloodstream, becoming available for use by cells throughout the body, including those of the eye.[13, 18, 19] Vitamin A is essential for the functioning of the immune system, and the healthy growth and development of children. It strengthens the body's resistance to common diseases of childhood (including measles and diarrhea) and protects against blindness.[13, 18]

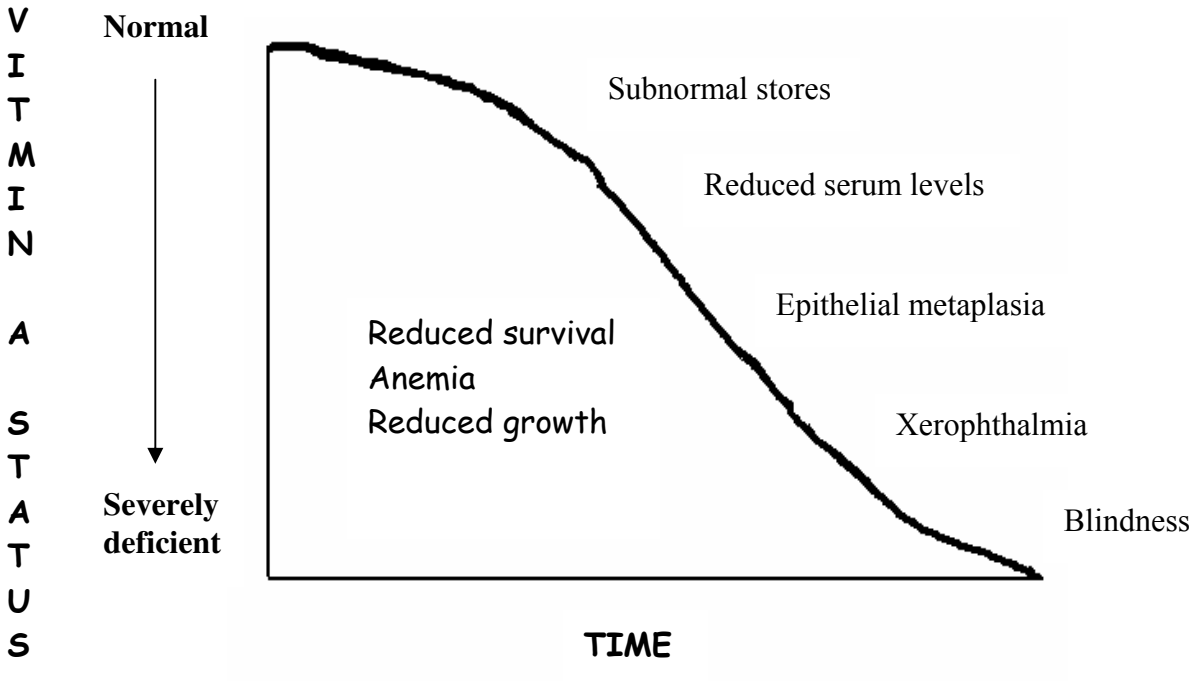
What are the causes of vitamin A deficiency?

VAD occurs when insufficient vitamin A is consumed in the diet, too little is absorbed from the foods eaten, or too much is lost due to illness. VAD can also result from rapid utilization of vitamin A during illness (particularly measles, diarrhea, and fevers), pregnancy and lactation, and during phases of rapid growth in young children.[13, 14, 16, 18, 19]

What are the different stages of vitamin A deficiency?

The body cannot make vitamin A, though it can store extra vitamin A when it is consumed so that there is a reserve for times of need. When the body reserves fall below the required amounts, VAD occurs.

Figure 5



Reference Number: 19 (WHO 944410)

Who is most vulnerable to vitamin A deficiency?

Children under 5 years of age and pregnant or lactating women are most vulnerable to VAD because of their increased needs. Children under two years of age are at highest risk of death due to VAD – 70% of lives saved are among the 6-24 months old group. Non-breastfed infants and children between the ages of 25-59 months are also at high risk. Young children

with measles, chronic diarrhoea and protein-energy malnutrition may become vitamin A deficient quickly and are at increased risk of morbidity and mortality associated with VAD [13, 14, 18, 20]

What are the consequences of vitamin A deficiency?

Vitamin A deficiency is a systemic disease that affects cells and systems throughout the body. VAD can lead to eye disease (xerophthalmia), increased morbidity and death.

Severe VAD can cause blindness. Night blindness is one of the earliest eye signs of VAD and is caused when retinol levels are low, interfering with rhodopsin production. Dryness of the conjunctiva can progress rapidly and suggests more advanced VAD. Corneal changes (ulceration) are what causes the more severe and permanent vision problems and can result in destruction of the cornea if not treated. Corneal scarring from healed corneal ulcers can partially or fully impair vision.[19]

Vitamin A deficient children may show none of the ocular signs or symptoms, but can still have a dramatically increased risk of death and illness (particularly from measles, diarrhea, and infections), as a consequence of VAD.[13, 17, 18, 19, 20]

Why is it important to take action against vitamin A deficiency?

Improving the vitamin A status of deficient children under five years of age increases their resistance to disease, protects against blindness, and improves their chances for survival, growth and development. The reasons for action are:

Improving vitamin A status of deficient children increases their chances of survival:[16]

- Risk of death from measles can be reduced by 50 %
- Risk of death from diarrhea can be reduced by 33 %
- Risk of all cause mortality can be reduced by 23 % [16]

Improving vitamin A status in children also:

- Prevents night blindness, xerophthalmia, corneal destruction and blindness
- May reduce birth defects
- Reduces severity of malaria episodes
- Reduces anemia
- May prevent epithelial and perhaps other types of cancer

Improving vitamin A status of pregnant women:

- Reduces the risk of maternal mortality by improving resistance to infections and anemia [15, 20]

Improving vitamin A status of postpartum women:[21]

- Restores the mothers' vitamin A stores
- Increases the vitamin A content of breastmilk
- Improves infant vitamin A status, and may help prevent VADD in high risk infants, which may improve resistance to infection
- May decrease infant morbidity
- May decrease infant mortality
- May improve maternal health

Improving vitamin A status is cost-effective:

- Less strain on clinic and outpatient services
- Fewer hospital admissions
- Contributes to the well-being of children and families
- Reduces health costs of families by lessening drugs needed, hospital and clinic visits

How will I know whether or not there is a VAD problem in the country?

Many national and sub-national surveys have been done to assess prevalence of vitamin A in countries throughout sub-Saharan Africa. These can be used to identify the problem in similar areas with similar disease and food patterns.

Table 4: Prevalence of vitamin A deficiency from recent national survey data[17]

Country	Year of survey	Observed Prevalence among children <5 years
Angola	1998	64.3%
Benin	1999	70.2%
Cameroon	2000	40.0%
CAR	1999	68.2%
Gambia	1999	64.0%
DR-Congo	1998	61.1%
Kenya	1999	60.2%
Liberia	1999	52.9%
Madagascar	2000	41.8%
Malawi	2001	59.2%
Nigeria	2001	26.8%
Tanzania	1997	24.0%
Uganda	2001	27.9%
Zambia	1997	65.7%

Note: All the above surveys used serum retinol < 20 mg/dl blood as the indicator for VAD

The International Vitamin A Consultative Group (IVACG) has recently suggested using the under-five mortality rate (U5MR) as a proxy indicator to assess VAD, considering the proven association with under-five mortality.

Some indicators that strongly suggest a VAD problem in a project area or country are:

- High under-five mortality rate (U5MR>50/1000 live births indicates a likely problem, U5MR of 20-50/1000 live births means possible VAD problem, but needs confirmation)[15]
- High measles case fatality rate ≥ 1%
- Night blindness in women of reproductive age > 5%
- Serum retinol prevalence of < 20 mg/dl in >15 % of population[15]
- Xerophthalmia prevalence of > 1% [15, 19]

What are the foods that are rich in vitamin A?

There are two main food sources rich in vitamin A:

1. **Animal** (breastmilk, egg yolks, liver, whole milk)
2. **Plant** (orange- or yellow-fleshed fruits and vegetables [mangoes, papayas, orange-fleshed sweet potatoes, pumpkin, orange-fleshed squash, etc], dark green leafy vegetables)

What are the different measures to prevent, control and treat vitamin A deficiency?

- Promotion and protection of exclusive breastfeeding of infants, including giving colostrum, to ensure adequate nutritional intake, and providing post-partum mothers with a high dose of vitamin A to increase the vitamin A content of their breastmilk.

- Nutrition education programs to diversify diets and promote dietary change in order to ensure an adequate intake of vitamin A and other micronutrients.

- Horticultural programs to increase availability of vitamin A containing foods when they cannot be obtained from animal products.

- Fortification or enrichment of common foods for mothers and children and other members of the family, as well as complementary foods for infants and young children.

- Supplementation with high doses of vitamin A of children under 5 years of age on a periodic basis, every 4-6 months and women as soon as possible after delivery, but no later than 6 weeks of giving birth. Periodic supplementation improves vitamin A status by increasing liver stores and tissue concentrations of retinol. [22]

What is the fastest way to improve vitamin A status in deficient populations? [15, 18, 22, 23]

Because vitamin A can be stored in the liver, adequate vitamin A status can be maintained or improved by giving at risk children oral vitamin A supplements once every 4-6 months. Periodic high doses of vitamin A protect against VAD and its consequences by building up a reserve of vitamin A for periods of reduced dietary intake or increased need. Although the recommended supplementation interval is every 4-6 months, a child can safely receive a high dose VAC with an interval of one month when both treatment and prevention programs are functioning. The increased need for vitamin A during pregnancy must be met by the diet or a supplement not exceeding 10,000 IU daily or 25,000 IU weekly throughout gestation.[18, 22] Considering that availability of the 10,000 IU (daily) or 25,000 IU (weekly) vitamin A capsule is limited and the constraints in ensuring their delivery, promotion of dietary improvement for pregnant women, including vitamin A fortification of food, is the usual intervention used.

One of the most effective approaches to supplement children with vitamin A has been through the integration of VAS into National Immunization Days for polio eradication. Because the approach has been highly successful toward the goal of eradicating polio, NIDs are being phased out soon. As such, alternative delivery methods for vitamin A capsule delivery are being developed and include child health weeks, regional micronutrient days, vitamin A weeks, nutrition weeks, and community-based strategies,

For treatment of xerophthalmia (all eye disorders associated with VAD) the vitamin A dosage should be given according to the WHO protocol as seen in table 5. Children with measles should also receive the treatment schedule as outlined in table 5. Children under 5 years who suffer from severe or prolonged diarrhea and severe protein-energy malnutrition should be treated with one high dose vitamin A capsule according to the age-related dosage.

Table 5: Treatment schedule for xerophthalmia for all age groups (WHO)

Timing	VA dosage
Immediately on diagnosis	
< 6 months of age	50, 000 IU
6-12 months of age	100, 000 IU
> 12 months of age	200, 000 IU
Next day	Same age specific dose
At least 2 weeks later	Same age specific dose

Women of reproductive age with night blindness or Bitot's spots should receive small, daily / weekly doses of vitamin A (i.e. daily doses ≤ 10, 000 IU, or weekly doses of ≤ 25, 000 IU) that when not available should be replaced with promotion of the production and increased consumption of vitamin A-rich foods. However, all women of reproductive age (whether or not pregnant) who exhibit severe signs of active xerophthalmia should be treated as per the schedule presented in table 5.

What is the recommended preventive dosage of vitamin A supplement?

Table 6 below presents the current WHO guidelines for prevention of VAD in vitamin A-deficient populations. IVACG has recently recommended some additions to these guidelines including supplementation of infants with three vitamin A doses of 50,000 IU with an interval of at least one month between doses, for instance at each DPT contact (at 6, 10 and 14 weeks), however, this recommendation has not yet been approved by WHO.

Table 6: Schedule for routine high-dose vitamin A supplementation in vitamin A-deficient populations (WHO)

Population	Amount of vitamin A to be administered	Time of administration
Infants 6–11 months	100,000 IU as a single dose every 4–6 months	At any opportunity (e.g. at 9 months measles immunization)
Children 12 months and older	200,000 IU as a single dose every 4-6 months	At any opportunity
Postpartum women	400,000 IU as two doses of 200,000 IU at least 1 day apart	As soon after delivery as possible and not more than 6 weeks later

As noted earlier, it is also recommended that pregnant women take 10,000 IU daily or 25,000 IU weekly of vitamin A supplement throughout gestation, however, vitamin A supplements in these dosages are not readily available in less developed countries.

What are the side effects and contraindications with high dose vitamin A supplements?

Acute adverse effects are rare with VAS. Nausea, vomiting, headache and bulging fontanel have been reported in a very small percentage of children taking part in large dose VAS programs. However, the symptoms lasted no longer than 12-24 hours.

Pregnant mothers should not be given high doses of vitamin during pregnancy. Vitamin A and related compounds in large doses are known to be teratogenic, especially in early pregnancy.

3. INTEGRATION OF VITAMIN A SUPPLEMENTATION INTO COMMUNITY-DIRECTED TREATMENT WITH IVERMECTIN

3.1 What is community-directed treatment with ivermectin?

CDTI is the main strategy currently being used to eliminate onchocerciasis as a disease of public health importance**.** In CDTI, the main partner in the implementation is the community. Instead of having health personnel make all decisions and implement all aspects of the project, community members themselves direct the process. They will decide if they want the ivermectin distributed in their community, when the distribution will take place, how the distribution will be done (from house to house or at a certain time in a specified location) and they will choose the person(s) who will perform the distribution in the community [called Community-Directed distributor (CDD)]. The health workers will provide the necessary training, supervision, and guidance to the community.[2, 3, 9]

Summary: 12 steps for implementation of CDTI activities in the community

Step	Activity
1. High level advocacy	After training of health clinic or front line health staff to sensitize communities about onchocerciasis and to explain CDTI, the program officer or nurse visits the community chief to introduce the program.
2. Program entry point and community sensitization	The community chief then schedules an appointment for a meeting between the facilitation team and community members to inform them about the program.
3. Selection of community volunteers	The community meets to select its community distributor (s) and informs the health center staff of their choice.
4. Decision making at the community level	The community decides on the month and dates of distribution (for both drugs) and how they will motivate their CDD(s).
5. Capacity building of the community	CDDs are trained by the front line health staff.
6. Census taking	CDDs conduct census of all households in the village.
7. Drug computation, collection and inventory	CDDs collect drugs and other supplies from the health post based on the census.
8. Community sensitization	CDDs sensitize community members about onchocerciasis and VAD, and the upcoming distribution.
9. Distribution	CDDs distribute ivermectin and VA. They also monitor side effects and refer cases to the nearest health post as necessary.

Step	Activity
10. Record keeping	CDDs record the treatments given in their community register.
11. Monitoring and supervision	Front line health staff and the community supervise distribution.
12. Evaluation/results dissemination/ program adjustment	CDDs share results with front line health staff and the community

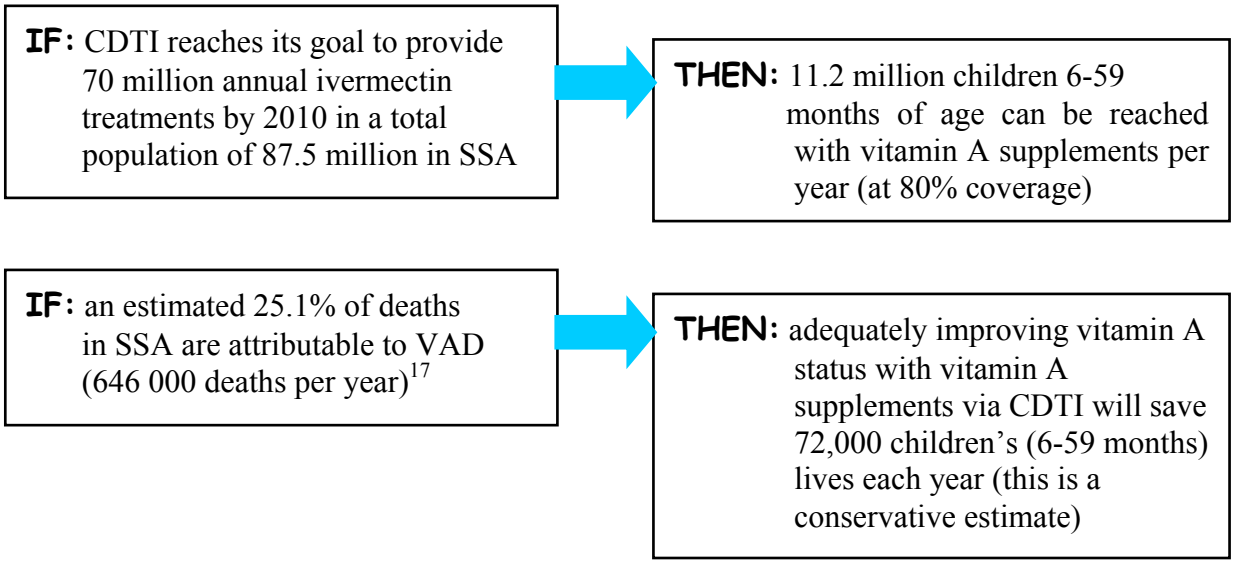
3.2 Reasons for integration

Integrating vitamin A supplementation into CDTI is an opportunity

- Integration helps resolve two real public health problems (VAD and onchocerciasis) at the community level, thus **reducing**
  - the incidence and prevalence of blindness
  - severe itching and skin manifestations
  - child mortality
  - severity of malaria episodes among children
  - anemia
  - intestinal parasite load, particularly ascaris
  - maternal mortality (by improving resistance to infections and reducing anemia)

- It provides more services to the most hard to reach, and covers many communities. In 2003, there were 66 CDTI projects being implemented in Africa with over 34 million people treated. In 2004, this number has increased to 99 CDTI projects funded by APOC and other partners to treat an estimated 50 million people in 80,000 communities.

Figure 6



Integrating vitamin A supplementation into CDTI is a necessity

- There is no sustainable delivery mechanism for VAS (NIDs are phasing out and by 2006 will at best be sub-national targeted campaigns), hence alternatives are being sought.

As illustrated in table 7 below taken from Cameroon, a combination of strategies must be implemented in order to ensure adequate VAS coverage twice yearly to all children 6-59 months living in vitamin A deficient areas. In addition, coverage of post partum women has been low and requires innovative approaches to ensure all women receive vitamin A within 6 weeks after giving birth.

Table 7: Vitamin A supplementation strategy to cover all health districts in Cameroon

Strategy	Extent	Year	Covered Areas	VAS Coverage %
With polio and measles campaigns	Sub-national	Dec 2002 Jan 2003	150 Health Districts (HDs)	>85% (6-59 m)
EPI	National	Jan-Jun 2003	National statistics	62% (6-11 m) 10%(12 – 59 m) 18% (pp)
CDTI	Pilot Project (Centre Province)	July 2003 July 2004	1 HD 15 HD's	100% (6-11 m) 85% (12-59 m) 29% (pp)

- There are dwindling onchocerciasis resources. As more CDTI projects become operational, less financial resources (from APOC and other external sources) will be available for each project area. Governments and communities will need to increase their contributions to onchocerciasis control yet they are faced with numerous other health priorities and very limited resources.

Integrating vitamin A supplementation into CDTI is synergistic

- Target groups are complimentary and adding VAS to CDTI provides **"something for everyone**", Children and post partum women who are not supposed to receive ivermectin, receive vitamin A supplements and other community members receive ivermectin.

- Both drugs (ivermectin and vitamin A) are given free of charge to the target population.

- The supply systems are similar. The CDTI system is already well acquainted with the challenges of managing ivermectin supplies. The same is easily expanded to include vitamin A supplements. The activities necessary to implement the interventions are almost identical including census taking, community sensitization, training at all levels, supervision, monitoring and evaluation.

- CDTI is not as time sensitive as mass campaigns such as NIDs. CDDs therefore have more time to discuss vitamin A and good dietary practices to improve vitamin A intake. As CDTI+VAS works through the Primary Health Care (PHC) system, it increases PHC worker's knowledge about vitamin A and other nutrition issues. Therefore integration of vitamin A into CDTI can provide an excellent mechanism to leverage overall improvements in knowledge and practice regarding vitamin A.

- Community members are more willing to participate as:

- the drugs can be safely delivered by well trained CDDs themselves.
- they have more of their needs met by the combination of CDTI and vitamin A.

Integrating vitamin A supplementation into CDTI is effective

- Delivery of ivermectin and VACs at the same time reduces personnel and transportation cost / time (when compared to two separate delivery mechanisms), as it uses
  - the same health care systems and same health workers.
  - similar logistics support for drug delivery, storage, security, and accountability.
  - a similar approach for program activities (monitoring / supervision / evaluation), advocacy, community sensitization and participation, training, etc.

- Improving vitamin A status is economical. Medical costs decrease at the household, health clinic and hospital levels

- Productivity increases with improved health of community members

- Reduces absenteeism in schools, and cost for support of blind children

- As CDTI+VAS works through the PHC system to reach and empower communities, integration creates an even stronger link between the PHC system and communities, and hence is more sustainable.

- Ivermectin coverage can improve with the addition of VAS. VA has been shown to '*open the door'* for ivermectin among those households who refused treatment in the past. Ivermectin coverage went up in Cameroon from 70% in 2003 (with no VAS) to 74% in 2004 (with VAS included).

4. PROGRESS ACHIEVED SO FAR--

Pilot project experiences from Cameroon and Nigeria

Nigeria

In 2000, as HKI staff throughout Africa continued to look for alternative delivery mechanisms for VAS, HKI/Nigeria saw CDTI as an opportunity to enhance coverage of VAS in their project area, which also had a high VAD prevalence among children (25%). With funding from the Micronutrient Initiative (MI), a pilot project was tested by HKI and the MOH during the 2001 and 2002 CDTI campaigns in Adamawa and Borno States. The result were very encouraging and led HKI to discuss scaling up the strategy with other partners to other areas of Nigeria.

In 2002, the pilot was expanded to include a small area in Taraba State where MITOSATH (Mission to Save the Helpless) is the NGDO partner. In 2003 the integration was scaled-up further to cover all CDTI areas in seven states through collaboration with – the MOH, MI, HKI, Sight Savers International (SSI), MITOSATH and UNICEF (United Nations Children's Fund). CDTI was able to provide supplements to 903,694 children 6-59 months of age and to 155,654 women within six weeks post partum. Ivermectin coverage did not decline in the CDTI areas.

Table 8: Coverage of ivermectin and VAS during CDTI in Nigeria

Year	State	Partners	VAS Coverage (%)		Coverage of ivermectin (% total pop)
			6-59 m	Women pp	
2001-2002	Adamawa, Borno	MOH, HKI, MI MOH, HKI, MI	> 90 %	> 80 %	81 %
		NGDO with MOH and MI:			
2003	Adamawa	HKI	90.7%	64.8%	79.0 %
	Borno	HKI	88.4%	56.3%	83.5 %
	Akwa Ibom	HKI	90.5%	96.1%	no treatment
	Cross River	UNICEF	53.8%	39.0%	81.0%
	Kwara	SSI	93.0%	84.0%	89.4%
	Kogi	SSI	90.0%	86.0%	89.6%
	Taraba	MITOSATH	87.5%	81.3%	88.6%
	TOTAL		**79.3%**	**58.9%**	

It should be noted that in Akwa Ibom State, an HKI project area, VAS was implemented first, before ivermectin distribution began (in 2004). The CDTI approach was followed, all preparations were made, communities were engaged and CDDs selected to deliver the vitamin A supplements. The high VAS coverage demonstrates that, given funds for training and initial program set up are available, the CDTI approach (or ComDT – Community-Directed Treatment) can be implemented in non-CDTI areas to deliver other important health interventions at the community level.

Cameroon

Cameroon is highly endemic for VAD with a national prevalence of 38.8% among children 12 to 71 months of age.[24] Because of the severity of the VAD problem, HKI/Cameroon, the MOH, UNICEF and other partners started discussing alternative delivery strategies for vitamin A supplements in 2001, including using CDTI as one of the possible delivery mechanisms. CDTI covers about two-thirds of the 160 health districts and could provide at least one annual dose of vitamin A to about 60% of Cameroonian children and women post partum when scaled up.

A pilot project was designed and tested by HKI and the Delegation for Center Province in one health district of Center Province during 2003. In 2004, the strategy was fine-tuned, based on the pilot, and integration was scaled up to 15 health districts. The expanded program was evaluated by field staff in June after two months of distribution. Key indicators were collected such as coverage of ivemectin and vitamin A by target group, CDD retention, number of refusals and absentees and number of SAEs reported (none were reported for

vitamin A) and managed properly. In the 15 health districts, VAS coverage was 77% among children 6-59 months of age and 90% among women post partum (during the two month campaign period), whereas ivermectin coverage increased to 74% in 2004 from 70.3% in 2003. In addition, reaching women post partum via other mechanisms in Cameroon (with EPI contacts) has not achieved more than 20% coverage nationally.

Table 9: Coverage of ivermectin and VAS during CDTI in Cameroon

Year	Place Health District (HD)	Partners	VAS Coverage (%)			Coverage of ivermectin (% total pop)
			6-11 m	12-59 m	Women pp	
2003	Ngog-Mapubi HD	MOH, HKI, CIDA	138 %	85 %	29 %	79.5%
2004	All 15 endemic HDs in Center Province	MOH, HKI, CIDA	>77%	>77%	90%	74%
2005-2006	Plans to train partners in all 10 Provinces/ 100 HDs	MOH, HKI, SSI, Carter Center, BASED, IEF, LCIF,				

As part of the final evaluation of the CDTI+VAS approach, questionnaires on the distribution of VAS within CDTI were administered to a sample of 262 CDDs and 40 community leaders, health area and health district heads from all 15 health districts. Results indicate that 97% of CDDs are willing to distribute vitamin A supplements and ivermectin again next year. The main reason given for continuing to distribute VAS 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 that *vitamin A opened the door for ivermectin*. The desire for additional 'motivation' was brought up by some (19%) CDDs and only 12.5% of supervisors noted it as a problem. Nevertheless, over 90% of CDDs indicated that they are ready to distribute vitamin A supplements to children in their village again in 6 months even if there is no financial motivation provided. The CDDs said that they used various practical strategies to deliver the two drugs, but most provided both VACs and ivermectin at the same time during house-to-house delivery, often as mop-up from the central site distribution. Some practical problems were discovered, primarily incorrect recording in the register, and adjustments have been made and integrated into this guide as well as into the training modules.

As a result of the scaling up process, training modules were refined and IEC materials produced that address both onchocerciasis control and VAD control. The following documents, as well as this How To Guide" are available on the HKI onchocerciasis web site (*www.onchohki.org)* in French and / or English:

- Training of Community Distributors: Guide for the Distribution of Mectizan® and Vitamin A (French, to be translated to English)
- Training of Trainers: Guide for the Distribution of Mectizan® and Vitamin A (French, to be translated to English)
- Booklet for Community Distributors: For Integrated Distribution of Mectizan® and Vitamin A Capsules (French and English)
- Booklet for HA Nurses on Implementation of Integrated Distribution of Mectizan® and Vitamin A Capsules in Communities (French and English)
- Calendar of integrated distribution; handout to households (French)

5. HOW TO INTEGRATE VITAMIN A SUPPLEMENTATION INTO COMMUNITY-DIRECTED TREATMENT WITH IVERMECTIN

The general objective of this integration is to maintain high coverage (≥80%) of VAS among the target groups while ensuring ivermectin coverage remains above 65% of the total population when distributing VAC together with ivermectin tablets.

5.1 Ten steps to ensure effective integration of VAS into CDTI

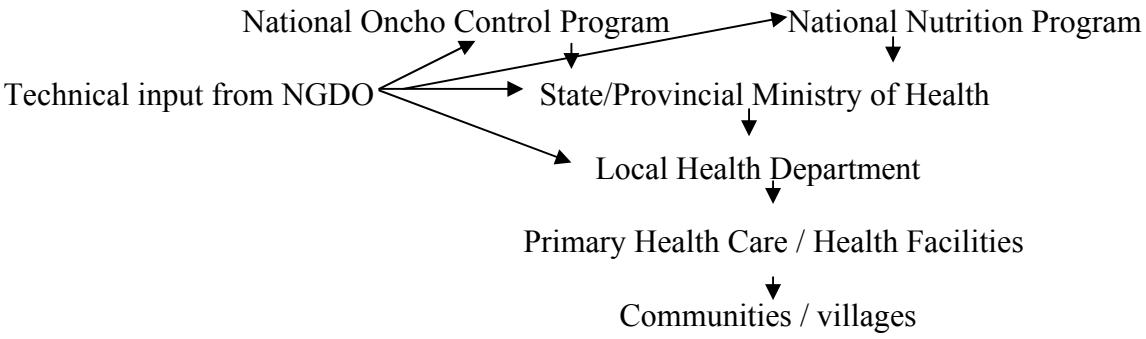
1. **Advocacy and expanding partnership**
2. **Preparation / Planning / Logistics**
3. **Training**
4. **Census taking**
5. **Information, Education & Communication (IEC) and Sensitization**
6. **Distribution**
7. **Record keeping**
8. **Monitoring of side effects**
9. **Monitoring and Supervision**
10. **Evaluation and Reporting**

1. Advocacy and expanding partnership

a. Summary / Overview

The integration of VAS into CDTI involves coordination with additional and different partners. Partnership should be built between the affected community, the health facility nearest to them, distributors (selected by the community), health staff (from nutrition, family health, and onchocerciasis programs), and other partners [(ex. Non-Governmental Development Organizations (NGDO's)].

Figure 7 **Example of a Partnership**



b. Practical Application

Table 10: Responsibilities of partners involved in the distribution of ivermectin and VA

Partners	Responsibilities
Mectizan® Donation Program (MDP), Merck and Co, Inc.	• Production, and availability of ivermectin tablets • Review and approval of ivermectin applications • Timely delivery of ivermectin to the central point • Technical support
CIDA / MI / UNICEF	• Procurement and timely delivery of VACs to countries • Technical support
CIDA / MI / USAID and other vitamin A donors	• Approval of proposals • Release of funds • Technical support
APOC / WHO / Lion's Club International Foundation (LCIF) and other onchocerciasis donors	• Approving proposals • Release of funds • Procurement and supply of capital equipment • Technical support (APOC)
Technical Assistance Providers [HKI, SSI, CBM, the Carter Center, IMA, OPC, IEF, UNICEF, MITOSATH, and other NGDOs or local NGOs]	• Assist other partners in planning and executing ivermectin / VA distribution activities • Provision of counterpart funds • Provision of logistic support • Advocacy – all levels • Design key messages and provide appropriate information on VA and onchocerciasis • Emphasize on the need for receiving two doses a year, and the need for long term commitment to the distribution of drugs • Training of trainers • Supervision, monitoring and evaluation of distribution • Data analysis • Reporting results
Government (National and sub-National)	• Requisition and procurement of capital equipment • Estimating needs and ordering ivermectin tablets and VACs • Provision of counterpart funding • Payment of health personnel • Advocacy – high and low level • Planning and coordination • Training and supervision of HA staff • Monitoring and evaluation • Report writing • Dissemination of results • Promote integration of VA into CDTI
Health Area or Clinic staff	• Should have adequate knowledge on the importance of vitamin A and ivermectin • Procurement of drugs • Training of CDDs • Explain the nature of the task of CDDs so that communities can make informed decisions • Provide relevant health education to each target village • Monitoring and supervision of CDDs • Monitoring and management of side effects • Compilation of data and reporting
Community	• Plan & indicate time of distribution • Select CDDs • Decide on incentives for CDDs • CDDs distribute ivermectin and VA • Organize an internal monitoring and supervision of CDDs during ivermectin and VA distribution - CDDs monitor and refer side effects

c. Special consideration

Several visits should be paid to the community before the launch of the program.

Objective of the first meeting with the village leaders:

The community leaders should receive background information on the following:

- Detailed information on ivermectin and VA (causes, consequences, prevention, treatment)
- Extent of the VAD and onchocerciasis problem in the community (based on survey data or extrapolations from survey data)
- Importance of both products (ivermectin and vitamin A), and why it is important for the community members to receive them
- Emphasize that both products are given free of charge to the community (although they actually have a cost), and that they should never be sold or paid for (depending on the Government policy of that country)
- Target groups for ivermectin tablets and VACs
- What is expected from the community and what will the community gain.
- What are the criteria for selection and necessary qualifications of the community distributor(s)

Subsequent meetings with leaders and community members*:*

In addition to the above, the following should be discussed:

- The role and responsibilities of the community should be highlighted. *For example*, the community should select its CDDs and provide assistance and motivation to them. They should select the best time and method of distribution, and be able to collect the drugs from the nearest health centre.
- The community should understand that CDDs will be trained before they begin working.
- Emphasize the need to do a census in the community once a year prior to distribution.
- Discuss community supervision or self-monitoring.

d. Added cost to include vitamin A supplementation

There are no added costs to include vitamin A supplementation in advocacy efforts.

2. Preparation, Planning and Logistics

a. Summary / Overview

Planning / Timing of activities

The planning of vitamin A and ivermectin distribution can be done together, at least for one of the annual doses of vitamin A that will be distributed during CDTI. Initially, planning and timing of activities should be undertaken at all levels, in communities, at the health facility that supports a group of the communities, among health district or local government area staff to coordinate activities and at the state or provincial level in order to ensure that key activities, such as training and production of IEC materials are carried out in the most efficient manner given the limited resources. Ideally, planning should be bottom up with information flowing from the community to the health post to the health district to the state or province and to the national level. Some aspects of the planning will have to be done at the state/province or national level, such as ordering the drugs and printing education and training materials.

Logistics

Procurement involves the timely purchase of appropriate quantities of supplies, according to the size of the population, age, and the conditions to be treated. It is best to combine the distribution of VACs with the distribution of ivermectin, to save the CDDs time and effort. However, the community may decide how they want to organize the distribution. Persons in charge of procuring ivermectin tablets and transporting them to the local sites are in the best position to make sure that VACs are also delivered.

b. Practical Application

Table 11: Preparation / Planning Activities

Activity	Onchocerciasis	Vitamin A
Ensure availability of drugs	• *Ivermectin estimation:* Based on last years census, and annual treatment objective 65 to 85% of the total population + annual growth rate + 10% for wastage. • Request to MDP must be made at least 3 months prior to distribution • Drug inventory and tracking forms and system should be in place	• *Vitamin A capsule estimation:* If better local population data is not available use the following estimate: 2% of total population for 6 – 11 months (100,000IU = blue capsule or ½ red capsule) 14% of total population for 12 – 59 months (200,000IU = red capsule) 3.5% crude birth rate for women pp. Add 10% wastage. • Request through MOH / UNICEF should be made 1 year in advance **Note:** If CDDs will be distributing the 2nd dose to children in 4-6 months, a second request should be made or the initial request should be multiplied by two. **Note:** If either blue or red capsules are not available, adjustments will need to be made to the calculation.
Other materials	Measuring stick, a cup / glass, water, and any IEC materials (if available)	Scissors to cut the capsules for children, cloudy or opaque plastic sacs or containers, tissues to cleans scissors, and any IEC materials (if available)
Timing of Activities	• Distribution one time / year • But all key activities can be done together with VA [Training, census, sensitization, distribution, record keeping, supervision, evaluation]	Distribution required: • Every 4-6 months from children 6-59 months of age. • All year long for post partum women.

c. Special consideration

Ivermectin tablets require no special handling and storage, but should be kept in a dry place at room temperature. Ivermectin tablets have an expiration date and tracking number printed on

the bottle and should not be used after the expiration date. When giving the estimated amount of ivermectin needed to each CDD, care should be taken to repackage the ivermectin with both the expiration date and tracking number transferred to the new container. Tablets in an opened bottle are effective for one year (from the day the bottle has been opened). The tablets should be handled with clean and dry hands.

Vitamin A capusles require more careful handling and storage as compared to ivermectin tablets. VACs should not be frozen or refrigerated. In very hot climates, the capsules can stick together, so they should be stored in a cool place if possible. Keep capsules out of direct sunlight during storage and transportation. Most capsules have opaque coverings and are therefore protected from the harm caused by direct light, however when giving the estimated amount of VAC needed to each community distributor, care should be taken to repackage the VAC in an opaque or dark container. Unopened bottles of capsules keep their potency for three years, opened bottles for approximately one year, after which the vitamin A content of the capsules decreases dramatically.

d. Added cost to include vitamin A supplementation

Vitamin A capsules are usually available in country through UNICEF in the 200,000 IU dose (red) and often in the 100,000 IU dose (blue). Scissors or nail cutters, plastic sacs for disposal of waste in distribution of VACs are needed. If the CDD register is not being used to record VAS, a notebook or recording sheet (as used during NIDs) may need to be photocopied. These costs would, however, be necessary in any VAC distribution program, independent of CDTI.

3. Training

a. Summary / Overview

The concept of CDTI is to involve the community in all the processes and activities carried out for the effective distribution of ivermectin. Training involves CDDs, HA staff, and community and district supervisors. Effective training is critical to the successful implementation of CDTI+VA. In general, adding VAS to CDTI will increase training time and cost by about a day, but the benefits of supplementing children and women post partum will far outweigh the costs.

b. Practical Application

The training materials required are:

Community (CDD) registers and summary recording forms, ivermectin tablets and vitamin A capsules, scissors or nail cutters, opaque plastic bags or other container, stick for height measurement, IEC materials, flip chart paper, markers, notebooks and pens. Training manuals or modules for trainers are important to standardize the training content. As noted earlier, some integrated training modules and material have been developed and could be adapted for use in other countries and projects. Providing summary booklets (memory aids) to CDDs and health workers is also helpful as a reference tool.

Table 12: Training activities at different levels

Activity	Onchocerciasis	Vitamin A	For both
CDDs should be trained by front line health staff	• Importance of ivermectin • Target groups for ivermectin distribution • Recommended dosage for each target group • Importance of yearly distribution of ivermectin • Importance of long term commitment (15 years) • SAEs in *Loa loa* endemic areas	• Importance of VA • Target groups for VAS • Recommended dosage for each target group • How to cut open the capsule and squeeze the drops • Available dosage of capsules (i.e. 100 000 IU, and 200 000 IU) • Administering the recommended dosage to the target group [For example: In case of shortage of 200 000 IU, two 100 000 IU capsules can be given] • Importance of twice a year distribution	• To identify materials for distribution of ivermectin tablets and VACs (VACs, ivermectin tablets, scissors or nail cutters, plastic bag, stick for height measurement). • The safety, and effectiveness of ivermectin and VA • To adopt distribution strategy adapted to his / her locality • To fill in all recording forms / cards / tally sheets • Storage and handling of ivermectin and VACs • Management of adverse reactions (minor and severe) • To effectively deliver social mobilization messages • To sensitize the community on the main reasons for distributing ivermectin and VA • Calculation on the required number of ivermectin tablets and VACs per community
Health Area staff should be trained by supervisors	All of the above	All of the above	All of the above, plus how to train adults and proper supervision and monitoring techniques
Health district (LGA) supervisors should be trained by the state team	All of the above	All of the above	All of the above plus, • To obtain and maintain supplies • To calculate and monitors ivermectin and VAS coverage • The purpose of supervision • How to supervise effectively

The training package / module available for the training should include:

- Onchocerciasis, causative factor, importance of ivermectin, treatment with ivermectin, target groups, dosage of ivermectin.

- Definition of vitamin A, its importance in the body, causative factors, consequences of VAD, sources of VA rich foods, different strategies to control VAD, local VAD situation, most vulnerable groups, target groups, dosage of VA for each target group.

- Information, Education and Communication (IEC): key messages, communication techniques, utilization of IEC and support materials

- Distribution: Different strategies of distribution, necessary materials, correct dosages, target groups, storage, CDDs' responsibilities and steps, practical methods

- Record keeping in the register, notebook and summary forms and how to fill in the summary report sheet

- Monitoring and supervision

- Importance of having adequate quantities of VAC and ivermectin, tracking and maintaining inventory correctly

- Reporting back to the health service and communities on results

Table 13: Training materials and time required at various levels

Activity	Onchocerciasis	Vitamin A
District level	• Integrated module for training of trainers (TOT) • 3 days initial 1 day refresher training	• ½ - 1 day additional training
Health Area level	• Integrated Module for TOT on key activities • 2-3 days initial 1 day refresher training	• 1 additional day • nutrition education, practicalities, supervision
Community level / CDDs	• Integrated Module • 2-3 days initial, 1-2 days refresher training	• 1 additional day (practical) • sensitization using key messages • distribution record keeping (additional modules on VAD and VAS are necessary)

c. Special consideration

- Handling of the VAC and ivermectin together should be discussed and practiced during training.
- What the CDDs should advise community members about receiving the second annual dose of vitamin A in 4-6 months and for women post partum outside the CDTI campaign period should be decided prior to training and emphasized during training.
- Recording of VAS in the register is slightly more complicated so this should be given adequate time, discussed and practiced during the training.

d. Added cost to include vitamin A supplementation

- Increase in printing cost as training module will be slightly larger due to the additional information on VAS required
- At least one additional day of per-diem and at each level in first and second years some added transport costs for CDD training
- No extra cost in subsequent years, except to train new staff

4. Census taking

a. Summary / Overview

An accurate, up-to-date census is important for both vitamin A and ivermectin distribution. The census can be used to calculate supply of both drugs needed in the community. It is critical to have an accurate count of the total population for follow-up of absentees and for monitoring progress.

b. Practical Application

Table 14: Census taking and recording in the register

Activity	Onchocerciasis	Vitamin A
CDDs should take *or* update village / neighborhood census annually not too long before the distribution	Count and number each household in the village. For each household list all members and record name, age, sex of each using oncho register	Ensure all children < 5 years are counted and listed in the register; note all pregnant women and women pp; use same oncho register

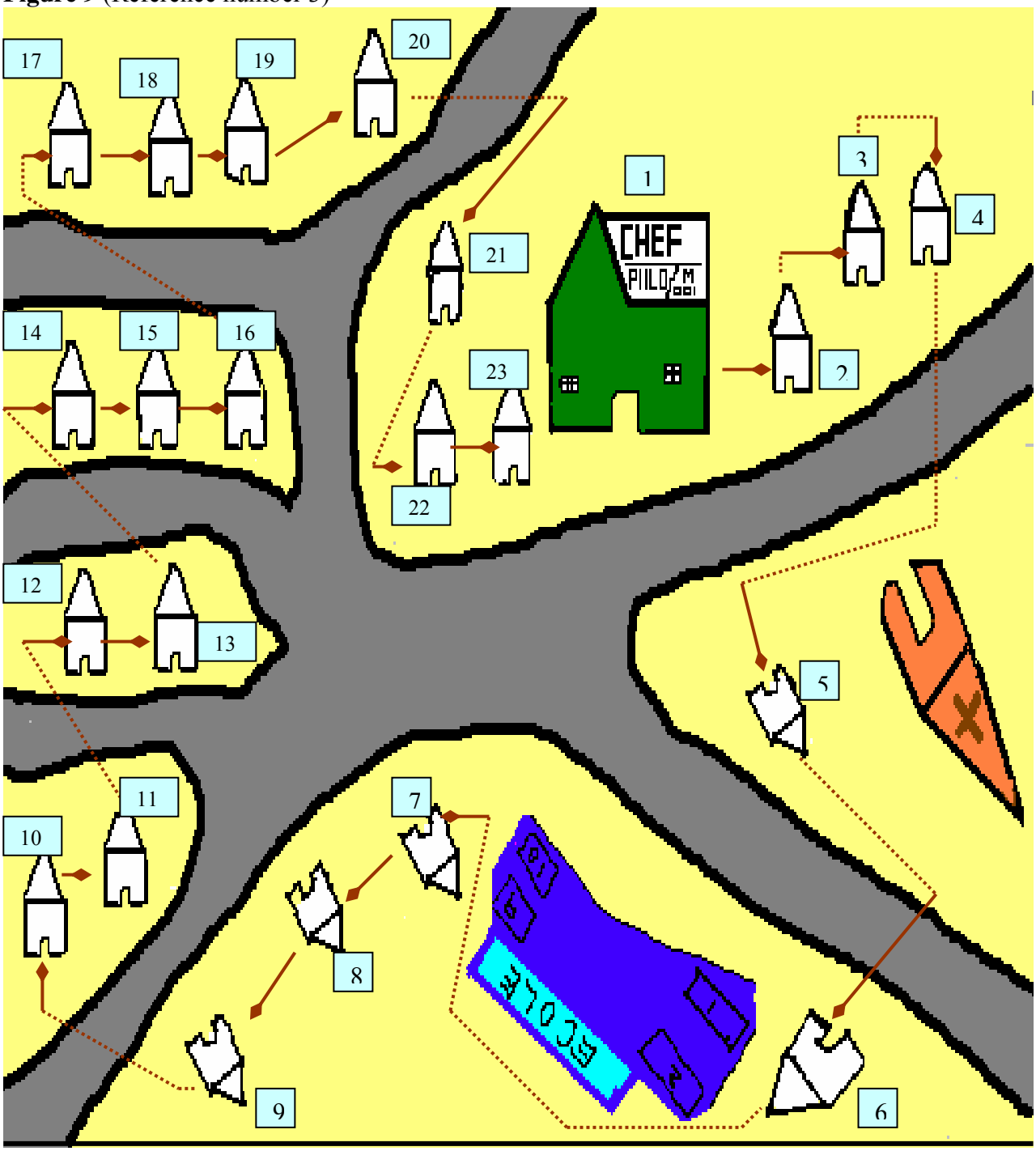
The CDD(s) should map the community and number each household according to the example in figure 9 on the next page or in another logical manner. The total number of households in the community should be noted in a register or in a notebook that has space to record personal data and treatment information for each member of the household (see the example in figure 8 below). For each household in the community, the CDD should record the following information in the register:

- Household number
- The name, age, sex, (and pregnancy status if applicable) of every individual.

Figure 8

N°	Name	Sex	Year *2004*						
	Household No, 23_		Age	Height	Mectizen		VAS		Remark
					Dose	Date	Dose	Date	
1	*Behala George*	*M*	*33 yr*						
2	*Abela Brenda*	*F*	*7 m*						
3	*Bella Sidomie*	*F*	*19 yr*						
4	*Fouda Serge*	*M*	*2 yr*						
5	*Toto Jean*	*M*	*8 yr*						

Figure 9 (Reference number 3)



Note: Ecole = school, chef= chief, PNLO = NOCP

c. Special consideration

With the addition of the target group for VAS, there is really no change in the manner that CDDs take the census. In theory, the annual census for CDTI includes listing all members of the household whether or not they were in the target group for distribution.

d. Added cost to include vitamin A supplementation

There is no added cost or extra time required to undertake the census with the addition of VAS.

5. IEC and sensitization

a. Summary / Overview

IEC is one of the most important elements in treating a public health problem, as it requires a lot of skill and patience in order to convince people to take ivermectin tablets or VACs, particularly for a prolonged period or when the symptoms of the disease are no longer prevalent. Training and educational / promotional materials should be part of an overall IEC strategy that sends a consistent message to motivate compliance to the program and positive behavior change. An IEC strategy should:

- Inform or give accurate information on health
- Teach the population attitudes that are in support of the health activity being carried out
- Lead people to act for everybody in the community, thus leading to the betterment and uplifting of the society.

An IEC strategy with materials and messages should be developed based on evidence about local attitudes, habits, knowledge and practices and field tested before use. The strategy should be able to lead to a change in the behavior of the community members if used effectively by trained volunteers (CDDs) and health personnel.

For example:

People not taking ivermectin or VAS	**TO**	People taking ivermectin / VAS
People not supporting CDD activities	**TO**	People supporting CDD activities
People refusing to take ivermectin / VAS	**TO**	People willing to take ivermectin / VAS

b. Practical Application

Table 15: Community Sensitization

Activity	Onchocerciasis	Vitamin A
Selection of CDDs	CDD should: • Be willing to work as a CDD • Be willing to receive training • Have adequate time to do the work • Be able to read and write • Be respected in the community	No additional skills required.
Development of IEC materials	Integrated IEC materials	Add key vitamin A messages. Develop IEC materials on vitamin A.
Sensitization of communities	Inform period of distribution	Inform community of vitamin A distribution at the same time. Will need additional training on vitamin A.
Education	• Describe onchocerciasis • Promote ivermectin • Explain CDTI • Explain side effects • Explain target groups	• Explain the need for VAC • Consequences of VAD • Explain target groups • Promote exclusive breast feeing • Promote consumption of VA rich foods

c. Special consideration

Consideration should be given to integrating messages about VAS and ivermectin into the same materials or developing separate materials for vitamin A messages and ivermectin / onchocerciasis messages. It may depend on what is currently in stock and if additional resources are available to develop new materials.

d. Added cost to include vitamin A supplementation

- IEC materials on VAD and VAS may already be available from the MOH, UNICEF, HKI or other partners; otherwise, new materials may have to be developed.
- Development of new integrated materials will cost more to develop and test during the first year.

6. Distribution

a. Summary / Overview

Depending on the prevalence rate of onchocerciasis in the community, the community is classified into a hypo-endemic, meso-endemic or hyper-endemic area (as described earlier). CDTI is currently being implemented in only hyper-, and meso-endemic onchocerciasis areas.

The distribution approach will depend upon:

- Occurrence of loiasis in the community
- Structure of the community

Some options include:

1. House to house distribution
2. Central distribution or Fixed site distribution
3. Central distribution for ivermectin, and house-to-house distribution for VAS

b. Practical Application

1. House–to-House distribution

Advantages - Ensures adequate coverage for mass distribution of ivermectin and VAC
- Proper record of absentees are maintained for later follow-up treatment
- CDD is a community member, therefore he/she can distribute ivermectin or VAC at a convenient time (either in the morning / evening)

Disadvantages - In cases where a large area has to be covered for distribution, CDD might not feel very motivated to repeat visits for absentees.
- It is more time consuming as the CDD has to go from house to house

2. Central distribution (with one of more CDDs)

Options: One CDD gives VAS and one CDD gives ivermectin at the same time at the same central site. If the community has only one CDD, that CDD should organize the people into two lines and first give VAS to all the children and women post partum (wash hands) and then give ivermectin to the rest of the people (or in another logical manner).

Advantages - Convenient to the distributor

- Less time consuming
- Can give mass education to those waiting in line

Disadvantages- Coverage might be low as all those who are eligible might not visit the distribution site at the designated time.
- Requires good prior sensitization of community
- Will have to follow up with house to house distribution or another central site distribution to reach absentees
- Maintaining records may be cumbersome and require an assistant.

3. Central distribution for ivermectin, and house-to-house distribution for VA

See above strategies (1, and 2)

Whichever method is followed, the distribution personnel should make sure that there are enough ivermectin tablets, VACs, scissors (1 scissors for each person who will administer VAC), IEC materials, community registers and any other recording forms.

Table 16: Distribution Activities

Activity	Ivermectin	Vitamin A Capsule
Period	One dose during campaign period (generally 1-2 months)	Same, but VAC must be given to children again 4-6 months later (CDDs can give 2nd dose or can advise parents to take children the nearest health centre for 2nd dose)
Mode	Central site / or door-to-door, must take medicines in front of CDDs	Same. CDD must administer VAC to children (squeeze oil into mouth)
Target Groups	All community members except • Pregnant women • Lactating women until 8 days post partum • Children less than 5 years or less than 90 cm • Very ill persons	Vitamin A should be given to • 6-59 months old children • Women post partum as soon after delivery as possible but no more than 6 weeks after child birth High dose of VA should not be given to • Pregnant women • Women of child bearing age. Note: illness should not prevent a children or women post partum from receiving VAS
Dosage	By age, height (See table 3 on page 14 for specifics)	Age, pregnancy and lactating status (See table 6 on page 20 for specifics)

c. Special consideration

- Handling of the ivermectin and VACs together should be practiced as the oily capsule can make it difficult to give the ivermectin
- Train any assistants in the community to help as needed (i.e to record treatment data)
- Sensitize the community on this joint distribution of ivermectin and VA beforehand
- Discuss the motivation by the community for CDDs considering that they will now be providing additional services and may request additional motivation
- Collect ivermectin tablets and VACs at the health post based on correct census figures that should be reviewed by the health center staff
- State/health district and local government area/health area staff should decided how they will provide VA supplements to children and women post partum in areas of their

responsibility that are not covered by CDTI. Likewise, thought must be given to how the second annual VA dose will be provided so that CDDs can sensitize the population about what to do after the distribution period.

d. Added cost to include vitamin A supplementation

Other than VACs and supplies, which were mentioned under the logistics section, adding VAS to CDTI will require extra time of the CDD. Some CDDs may request additional 'motivation' for their extra time. That should be left up to the community to decide what they want to do as in most countries VACs are given free of charge.

7. Record keeping

a. Summary /Overview

In most CDTI areas, community registers may exist. These registers can be modified and adapted to integrate recording for VA supplements given (see figure 10 on next page for an example). Since all members of each household are listed during the CDTI census, the target population for VAS will already be noted. Recording VAS in the register will make it easier for follow-up of absentees and ensure that all children 6-59 months are dosed. Conversely, the CDD and community may choose to use a simpler recording sheet for the VAS as they may be used to doing during NIDs or the advanced strategy for the Expanded Program of Immunizations (EPI).

b. Practical Application

Table 17: Record keeping

Activity	Onchocerciais	Vitamin A
CDDs should record the type of drug given (ivermectin or VAC), dosage, date drug was administered and any side effects for each person in the target group.	Take and record height. Record number of ivermectin tablets given based on the height. Record date given. Note if person is sick or temporarily not eligible for later administration. Record any side effects reported or observed during the following week.	Based on the age of the child give proper dosage (200,000IU = a red capsule for 12-59 months or 100,000IU = a blue capsule or ½ a red capsule for 6-11 months) and record as R or B or 100 or 200. Record date. If only have red capsules, record 6-11 months as 1/2R or 100. If only have blue record 12-59 as 2B or 200. Based on lactating status of women, give first red capsule and record as R or 200. Record first date. After 24 hours, give second red capsule and write a second R or 200. Write second date.
A tracking system for both drugs should be in place with quantity provided of each drug, to whom given, from whom received, dated and signed by both parties	Same Particularly important in loiasis endemic areas	Same

Figure 10

N°	Name	Sex	Year 2004						
	Household No. 23		Age	Height	Mect		VAS		Remark
					Dose	Date	Dose	Date	
1	Behala George	M	33 yr	190 cm	4	8/6			
2	Abela Brenda	F	7 m				B	8/6	
3	Bella Sidomie	F	19 yr	158 cm	3	8/14	R R	8/6 8/8	Pregnant Gave birth 8/5
4	Fouda Serge	M	2 yr						
5	Toto Jean	M	8 yr						Has malaria 8/6

Note: Can substitute 100 for B and 200 for R. Can also add a column for the second VA dose as in the examples from Nigeria and Cameroon found in Annex 1.

c. Special consideration

Recording treatment data and noting any problems in the register is an area that is not well mastered by all CDDs. With the addition of VAS data to record, the CDD should not only have a thorough initial training on recording in the register, but supervision by health staff should systematically include reviewing the community register with the CDD, correcting errors and reinforcing the correct recording method.

With proper record keeping in the community register the supervisor should be able to determine

- Number of people treated with ivermectin and VA by age and sex category
- Number of ivermectin tablets and VACs distributed
- Average number of ivermectin tablets per person treated
- Coverage rate / total population (therapeutic coverage) for ivermectin
- Coverage rate / each target population for VAC distribution
- Number of side effects recorded (minor and serious)

d. Added cost to include vitamin A supplementation

None, except if the community chooses to note vitamin A supplementation on a separate tally sheet.

8. Monitoring and management of side effects

a. Summary / Overview

It is possible to experience side effects after treatment with ivermectin. The side effects due to ivermectin can range form mild to serious. Most are mild, but even the very rare serious side effects will not end in catastrophy if they are properly monitored and treated. These effects generally appear between 1 to 5 days after taking ivermectin and do not last more than a day or two. Side effects due to VA are very rare. They can include nausea and headache and usually last only for a few hours, but no longer than 2 days after administration of a VAC.

The community distributor can be easily trained to sensitize the community about possible side effects and to monitor side effects for both drugs.

b. Practical Application

Table 18: Monitoring, recording and management of side effects

Activity	Onchocerciais	Vitamin A
Monitoring of minor and serious side effects	CDD should monitor the community for any cases for 8 days following treatment. Community members should be adequately informed about side effects to self monitor as family members are usually the first to notice a problem.	Very rare. There is no need to actively monitor the community for side effects.
Recording of minor and serious side effects	Since side effects are temporally related to ivermectin, it is very important that the date the drug was taken is recorded as well as the date the side effect first appeared.	Note all and any side effects in the register,
Management of minor and serious side effects	Follow the new MEC/TCC guidelines in loiasis endemic areas. Use CDD booklet. Reassure family	Reassure family that all side effects will disappear within 12-24 hours and are not serious.

c. Special consideration

In loiasis endemic areas special steps must be taken to ensure early detection, referral and proper management of all cases as noted on page 14.

The community should understand that a side effect can occur, as with all medication, and that they are responsible for treatment of the minor side effects. The more serious cases may be supported by the program depending on what has been decided in the country.

d. Added cost to include vitamin A supplementation

There are no additional costs related to side effects for VAS.

9. Monitoring and Supervision

a. Summary / Overview

Monitoring is a process that tracks the progress and implementation of a program. It measures whether an intervention is proceeding according to a plan, and can indicate where action is needed to improve performance. Supervision is a two-way conversation between supervisor and supervisee that can be used to collect monitoring data and to provide direct and timely feedback for program improvement before the end of the campaign.

For effective monitoring and supervision of CDTI+VAS, the health management information system should integrate both ivermectin and VAS data, and a checklist containing both ivermectin and vitamin A related issues should be developed for supervisors at all levels.

b. Practical Application

Monitoring

Effective monitoring is important to the success of ivermectin and vitamin A distribution for some of the following reasons:

i. To sustain or increase coverage of target groups
ii. To ensure safety
iii. To ensure program effectiveness
iv. To reduce recurring costs

i. To sustain or increase coverage of target groups

- Distribution systems are often limited by inadequate supplies, or by unreliable delivery systems. Comparing trends in the use of services with the targets stipulated in local and national plans of action can help program managers identify health centers or districts with low utilization rates.
- Low utilization rates may indicate distribution problems at the health center level, low quality of services resulting from inadequate staff training or supervision, or more general problems of community awareness or confidence in the services that provide ivermectin and VAS.
- Monitoring helps to differentiate logistic and supply issues from compliance and utilization issues. *For example*, if program monitoring shows that either provision or utilization is inadequate, there is little reason to invest in more complex and costly measures of program coverage and impact.

ii. To ensure safety

Effective monitoring and supervision of CDDs who administer supplements by community supervisors and health care workers can reduce the risk of people receiving incorrect or inadequately spaced doses of ivermectin and vitamin A.

iii. To ensure program effectiveness

Major reasons for low or declining coverage rates are

- erratic availability of supplements at the local level
- lack of health worker interest, and fatigue
- missed opportunities for supplementation.

These constraints are often caused by

- poor logistics in the delivery of supplies
- lack of awareness of the importance of ivermectin and vitamin A to health and development
- poor training at one or all levels

iv. To reduce recurring costs

Monitoring can help reduce wastage of drugs and focus on delivery of drugs to intended target groups.

Monitoring indicators

With the MOH and communities, some or all of the following indicators can be used to monitor progress at various levels and overall.

Planning
- Number of planning meetings held at community, local health area and provincial level
- Number of MOH personnel and community representatives that attend planning meetings
- Number of provincial and health area plans developed and executed according to plan
- Annual Treatment Objective established
- Number of communities selecting CDDs
- Number (and sex) of CDDs and community supervisors selected per community
- Number of equipped referral hospitals designated in loiasis endemic areas

Surveys
- Knowledge Attitude Practice survey conducted, data analyzed and applied to project interventions
- REA (number hypo, meso, hyper endemic villages)
- Baseline coverage rate for VAS in year 1 before treatment begins

Training
- Number and category of people trained at the provincial level, health district level, referral hospital level (for SAE management), and health area level
- Number, category and sex of people trained at the community level
- Number of training guides developed or revised
- Number of training guides produced
- Number of training sessions held at all levels
- Number of doctors, nurses and lab technicians trained for SAE management in loiasis endemic areas.

Census
- Number of villages included in the project per health area and health district
- Number (%) of villages accurately completing census per health area
- Total population counted by age and sex distribution by village, health area and district

Distribution
- Number of people treated with ivermectin and vitamin A by age and sex category by village, HA, HD/LGA and State/Province
- Number of ivermectin tablets and VAC distributed
- Mean number of ivermectin tablets /person treated
- Coverage rate / total population (therapeutic coverage) for ivermectin
- Coverage rate / target population for VAC distribution
- Number of side effects recorded (minor and serious)
- % of SAEs managed properly
- Number of supervision visits undertaken at each level
- Number of communities conducting auto-monitoring during CDTI

IEC

- Number of villages sensitized
- Number of village, church, government leaders actively supporting CDTI via funds or in-kind contributions
- Number of refusals by village
- Types and number of IEC materials produced and distributed
- Number of radio broadcasts carried out before, during, and after distribution

Supervision

Generally, the front line health workers are supervised directly by the district or local government area staff as part of the established health information system. The front line health staff are generally responsible for providing regular supervision and feedback to CDDs in their catchment area. In some CDTI projects, community supervisors have been selected by the community and trained to supervisor and monitor CDD activities and report back to the health staff and community members. Supervisors should provide regular feedback to health facility staff or CDDs on progress and missed opportunities. A supervision checklist is helpful. It should include both vitamin A and ivermectin related issues.

During supervisory visits to the village supervisors should:

- Monitor the CDDs' treatment record book on both ivermectin and vitamin A distribution. Accurate recording in the register has been found to be a problem.
- Directly assess the distribution exercise through observation of the CDDs' work, noting important information such as method of distribution used, key messages and information provided to the community members, and dosages given to target groups for VAS and ivermectin. The response and concerns of the community should also be noted and discussed.
- Give feedback to the CDD and accept suggestions from the CDD that can assist the program or be applied to other communities.

Table 19: Monitoring and Supervision

Activity	Onchocerciasis	Vitamin A
Monitoring and Supervision	Checklist or integrated guide	Add objectives / elements / indicators to observe and record VAS

c. Special consideration

Based on the compiled summary data, district / state supervisors should discuss coverage and missed opportunities. When coverage is low and the missed opportunities for each target group are greater than 10% the reasons for this discrepancy should be identified and corrective actions should be recommended immediately. At the end of each year, coverage achieved should be calculated for each target group (women and children, ideally children 6-11 months and children 12-59 months). A yearly report should be produced with an explanation for the coverage results. Ways to improve coverage should be discussed.

d. Added cost to include vitamin A supplementation

There is no added cost, although it may take slightly longer to collect the information during supervision visits or from the register or other data collection form and to analyze the additional vitamin A indicators.

10. Evaluation and Reporting

a. Summary / Overview

An important, sometimes overlooked aspect of all public health programs is effective evaluation for continual program improvement coupled with providing timely feedback to all partners and to the beneficiaries of the program. Clear goals, objectives and indicators must be established at the outset in order to assess success. Evaluations are also important for the documentation and dissemination of successful public health approaches for their replication and adaptation in other contexts. CDTI has some established objectives and indicators that are being used based on international goals. Vitamin A supplementation likewise has some established objectives and indicators based on long held international goals for the virtual elimination of VAD. Nevertheless, formulating objectives correctly is important to program monitoring and evaluation. Objectives should be SMART.

S	**Specific**
M	**Measurable**
A	**Appropriate**
R	**Realistic**
T	**Time-bound**

As much as possible, the evaluation process should involve participation from all levels. CDTI has recently implemented training and a process of community self monitoring, which will feed into the final evaluation results.

b. Practical Application

Program objectives:

1. To supplement at least 80% of all children 6-59 months of age with the correct vitamin A dose during the CDTI campaign

2. To supplement at least 90% of women post partum with the correct vitamin A dose during the CDTI campaign

3. To treat at least 65% (or up to 85%) of the total population with ivermectin during the CDTI campaign

During each campaign cycle, it is wise to conduct a mid-term review meeting for course correction and a final evaluation after distribution ends in order to assess achievement of the program objectives and to compare results from year to year. The following indicators can be used:

- Retention rate of CDDs per village, health area and health district (number of CDDs trained vs number remaining at end of the campaign)
- Geographic coverage (number of villages being treated/total number of meso and hyper-endemic villages in project area)
- Coverage rate / total population (therapeutic coverage) for ivermectin
- Coverage rate / target population for VAS
- % of villages treating at least 65% of total population with ivermectin
- % of communities, HAs and HDs treating at least 65% of total population with ivermectin
- % of communities, HAs and HDs treating at least 80% of children 6-59 months with VAC

- % of communities dosing 90% of women post partum during the campaign period
- Progress toward meeting the ultimate treatment goal (defined as the maximum number of eligible people treated in a project area once full geographic coverage is reached, which is about 80 to 84% of the total population for ivermectin)
- Cost per person treated
- Mean number of people treated with ivermectin (and VA) / CDD
- Increase in therapeutic coverage from year to year
- Increase in geographic coverage of communities implementing CDTI
- Increase in number of SAEs managed properly
- Increase in awareness regarding CDTI in communities
- Increase in compliance
- Percentage of target population exposed to IEC messages overall and by source of message

Table 20: Evaluation and Reporting

Activity	Onchocerciasis	Vitamin A
Evaluation	Use key established indicators Summarize village data on Community Summary Form Summarize health area and health district data on Integrated Treatment Data Form	Add evaluation objectives and indicators Add columns for VAS treatment data on both summary forms
Reporting	From CDD to community to health center to HD to Province	Same
Providing Feedback	From CDD to community; also from Province to HD to HA and back to CDD and community	Same

A simple summary form should be developed for the CDD to easily tabulate and compile the annual treatment data recorded in his or her community register. See the separate examples of Community Summary Forms for ivermectin and vitamin A from Nigeria and Cameroon found in Annex 2. This information should be verified by the health center nurse responsible for supervising the CDD.

An Integrated Treatment Data Form should be developed for use at the health district or LGA level that summarizes data by health area. The same form can be used at the provincial or state level to summarize data by health district or LGA. See the example from Nigeria found in Annex 3.

c. Special consideration

Evidence of program sustainability can be seen through:

- *Improved Program Reach* with integration of vitamin A into the CDTI structure: both ivermectin tablets and VAC uptake can be increased.
- *Efficient utilization of resources* (including time and personnel cost)-cost for VAC distribution dropped from $0.18 / treatment during pilot study to $0.10 during the program scale up in Nigeria.
- *Increased demand in the community* as a response to other serious health needs like: primary eye care (including screening for cataract), VAD, anemia, etc.

- *Increased government support* for integrated activities such as training, supervision, and monitoring, in part due to diversification of funding source.
- *Improved community acceptance and support* of CDDs' activities with corresponding contribution of money or in-kind assistance to CDDs.

d. Added cost to include vitamin A supplementation

There is no added cost, although a little extra time may be required during training, supervision and to analyze and interpret the VA related data.

5.2 Ten issues to consider while integrating VAS into CDTI in your project area or country

1. All the provinces/states of one country or villages within a health area might not be implementing CDTI but VAS needs to be given to all children in vitamin A deficient areas, which in practical terms in sub-Saharan Africa means all children in the country. Therefore thought and planning must be given to dosing children and women post partum in non-CDTI areas.

2. Ivermectin has to be distributed only once a year while vitamin A supplementation has to be carried out twice a year among children 6-59 months of age. Should the CDD give the second dose also? Institutionalizing a (or several) distribution mechanisms for twice annual supplementation of VAS for children needs to be aggressively pursued.

3. Strategies to reach post partum women all year long must be explored. Can the CDD dose post partum women all year all or refer them to the health clinic?

4. Maintenance of high coverage of VAS particularly after NIDs and LIDs end.

5. Careful thought should be given to factors that play an important role in the long term sustainability of CDTI and VAS.

6. For accurate vitamin A coverage data and follow-up, record keeping and the health information system must take into account and compile data from multiple delivery strategies for VAS.

7. Side effects from ivermectin might lead to decrease in VAC distribution. The community should be able to understand SAEs, and the side effects from ivermectin should not form a negative perception on VAC.

8. CDDs might be unwilling to participate in vitamin A distribution, as they may be paid to distribute ivermectin but not vitamin A capsules.

9. The timing of ivermectin distribution for each project may vary, yet the government may want to promote VAS during the same two months each year throughout the entire country or a region.

10. The demand for VAS in the community is high. How can you ensure that only the target group is receiving VAC? The country risks running out of VAC supply if this is not controlled.

6. SUPPORT AND RESOURCE ORGANIZATIONS / MATERIALS

6.1 Support programs for onchocerciasis

Mectizan® Donation Program (MDP) and Merck and Co., Inc

Mectizan® is available free of charge through a donation program of Merck & Co., Inc. The intent of the program is to provide access to Mectizan® for people who are infected with, or at risk of infection from onchocerciasis, as well as people at-risk for lymphatic filariasis who live in onchocerciasis-endemic communities. The distribution of Mectizan® takes place through in-country partnerships comprised of MOH, WHO, NGDOs, and local communities proficient in delivering healthcare services and ensuring the medically responsible use of the drug. The MDP helps facilitate the global partnerships for onchocerciasis control, which include WHO, the World Bank, and a coalition of local and international NGDOs that work in the field to provide technical assistance to communities to distribute the drug.

Since the announcement of the donation program in 1987, organizations in all onchocerciasis-endemic countries have established mass treatment programs. To date, Merck has provided enough Mectizan® tablets for well over 250 million onchocerciasis treatments, and it is estimated that about 40 million people currently receive Mectizan® annually for the treatment of this disease. Merck has promised to supply Mectizan® free of charge, for as long as needed to affected countries and communities.

website:www.taskforce.org/mechome.html

World Health Organization (WHO) / World Bank / Donors

a. Onchocerciasis Control Program and the Special Intervention Zones

Following the dramatic consequences of onchocerciasis in West Africa, in 1974 WHO launched the OCP in collaboration with the World Bank, the UNDP and the FAO. The program stretched over 1.2 million km² to protect 30 million people in 11 countries from the debilitating effects of river blindness. For years, OCP operations were exclusively based on the spraying of insecticides by helicopters and aircraft over the breading sites of the black flies in order to kill their larvae. With the donation of Mectizan® by Merck & Co., Inc in 1987, control operations changed from exclusive vector control to larviciding combined with ivermectin treatment or, in some areas, to ivermectin treatment alone. OCP was officially closed in December 2002 after virtually stopping the transmission of the disease in almost all the participating countries. The wide-ranging benefits of this achievement include 600 000 cases of blindness prevented, 18 million children born in now-controlled areas spared from the risk of river blindness and 25 million hectares of land safe for cultivation and resettlement. It was, however, recognized that certain areas of certain countries need special attention, beyond what could be reasonably expected from the governments alone. The SIZ countries concerned are Benin, Ghana, Guinea, Sierra Leone and Togo and they will continue to receive some assistance for vector control or CDTI implementation for the near future.

Website: www.worldbank.org/gper/ocppage.htm

b. African Program for Onchocerciais Control (APOC)

Based on experience gained in OCP, in 1995 the sponsoring agencies and the NGDO group advocated for a second program to combat the rest of Africa's river blindness. APOC (established in 1996) includes 19 participating countries with active involvement of the Ministries of Health and affected communities, several international and local NGDO, the private sector (Merck & Co., Inc), donor countries and UN agencies. The World Bank is the fiscal agent of the program and WHO is the executing agency of the program.

CDTI is the standard strategy used by APOC-supported projects. APOC intends to support each project for 5-8 years in order to build sustainable distribution of ivermectin. The projects have an NGDO providing technical support, with a shifting of responsibility over the 5-8 year period from the NGDO towards the MOH and the affected communities. The projects receive funding (theoretically up to 75%) through the trust fund of the World Bank. The rest of the funding comes from the NGDOs, Ministries of Health, and the communities.

After just 8 years of operation, APOC has established 99 projects in 16 countries. Over 34,440 communities are actively involved in planning and managing the distribution of Mectizan®. In 2002, over 27 million people were treated, and in 2003 about 40 million people were treated in 16 countries. By 2010 the program intends to treat 70 - 90 million people annually in 19 countries, protecting an at risk population of 109 million and preventing 43 000 cases of blindness every year.

Website: www.worldbank.org/afr/gper/apoc.ht

NGDO Group for Onchocerciasis Control

From 1989 to 1994, NGDOs pioneered mass distribution of ivermectin known as the Ivermectin Distribution Program, which led to the creation of the CDTI strategy. In order to ensure better coverage of endemic areas, share lessons learned and better coordinate programs, the NGDO Coordination Group for Onchocerciasis Control was created in 1991 at the WHO headquarters. The NGDO Group currently has nine international NGDOs and one national NGDO as members, listed below. The Group meets twice a year to coordinate activities and address issues of mutual concern. Representatives from APOC, the World Bank and Merck and Co, Inc (an associate member) also participate during these meetings.

Christoffel-Blindenmission
Helen Keller International
Interchurch Medical Assistance, Inc.
Lions Club International Foundation (Sight First Program)
Mectizan® Donation Program
Mission to Save the Helpless (MITOSATH)
Organisation pour la Prévention de la Cécité
Sight Savers International
The Carter Center
US fund for UNICEF

In addition to the NGDO members noted above, other NGDOs are involved in CDTI including the International Eye Foundation, BASED (with support from Health for Humanity), Catholic Relief Services, Africare and local NGOs in various countries.

e-mail of NGDO Coordinator: uketyt@who.int

Lions Club International Foundation – Sight First Program

LCIF is an important stakeholder for onchocerciasis control. As a member of the NGDO Group for Onchocerciasis Control, LCIF contributes to the coordination of onchocerciasis control efforts through Africa and Latin America. The LCIF – Sight First Program is one of the main donors for onchocerciasis control activities in Africa and Latin America and also contributes substantially to funding of other blindness prevention and control activities.

Website: www.lionsclubs.org

6.2 Support programs for vitamin A deficiency control

Vitamin A Global Initiative

In 1998 WHO and its major partners – UNICEF, the Canadian International Development Agency (CIDA), the US Agency for International Development (USAID) and the Micronutrient Initiative (MI) – launched the Vitamin A Global Initiative.

International Vitamin A Consultative Group (IVACG)

The International Vitamin A Consultative Group (IVACG) was established in 1975 by the U.S. Agency for International Development (USAID) to provide support and guidance to international activities to control and eliminate VAD worldwide. A primary objective of IVACG is to provide a forum for the exchange of new ideas, research findings, and programmatic interventions which may contribute to the eradication of VAD. To this end, IVACG sponsors international meetings of experts in the field; collaborates with international organizations, such as WHO and UNICEF, in developing and establishing guidelines for public policy and for VADD diagnosis, treatment, and prevention. IVACG also provides technical guidance to implementers and policy makers through state-of-the-art publications addressing the causes, treatment, and prevention of VADD.

Website: www ivacg.ilsi.org

World Health Organization (WHO)

Executing member of the Vitamin A Global Initiative, which gives supplements during NIDs, fortifies food staples and implements nationwide VAS for children and post partum women, and supports community gardens, national blindness prevention programs in 110 countries, training of mid-level personnel. Vision 2020: Right to Sight Program aims to end preventable blindness by 2020.

website: www.who.int

US Agency for International Development (USAID)

USAID is a key funding agency for vitamin A programs both historically and currently. It funds a variety of interventions including supplementation, food fortification (both directly and as a partner in the Global Alliance for Improved Nutrition: GAIN – www.gainhealth.org, and promotion of production and consumption of vitamin A-rich foods. Major USAID-funded projects involved in vitamin A supplementation are MOST (www.mostproject.org), BASICS (www.basics.org), and FANTA (www.fantaproject.org).

Website: www.usaid.gov

United Nations Children's Fund (UNICEF)

UNICEF is a supporter of VA programs worldwide. UNICEF is in partnership with WHO in the Vitamin A Global Initiative. UNICEF has facilitated distribution of 1.5 billion VACs to children in over 70 countries via NIDs, micronutrient days, and regular health services.

Website: www.unicef.org

Canadian International Development Agency (CIDA)

CIDA is a leading provider of VA supplements for children with VADD. CIDA works with partners in the private and public sectors in Canada and in developing countries, and with international organizations and agencies. CIDA supports foreign aid projects in more than 100 of the poorest countries of the world.

CIDA, UNICEF, WHO, MI and HKI have worked together to link VAS with NIDs for polio eradication. In 1998, 28 African countries provided VAS in conjunction with NIDs. In 2003 through MI, CIDA provided UNICEF and other agencies with nearly 300 million VACs for distribution in more than 50 developing countries. CIDA provides support for training, logistics, and VACs. Almost half of at-risk children are currently receiving VAS and these supplements help protect millions of children from illness.

Canada has worked to ensure that all edible oil distributed through the World Food Program is fortified with VA, and is now collaborating with UNICEF and the USAID on a micronutrient global awareness campaign. CIDA is also contributing to a WHO program to add VAS to its global immunization programs. As part of its new VA plus strategy, CIDA has increased its collaboration with UNICEF to distribute VA supplements through maternal, preschool, immunization, and other programs to increase worldwide coverage.

Website: www.acdi-cida.gc.ca/commen-e.htm

Micronutrient Initiative (MI)

A group of key multilateral and bilateral development assistance agencies including CIDA, UNICEF, World Bank and the UNDP joined forces to help countries eliminate or reduce the most critical deficiencies, those of iodine, vitamin A and iron, and created MI as a secretariat based in the International Development Research Centre in Ottawa. Since then MI has become an independent NGDO that supports and promotes food fortification of staple foods and supplementation programs in Asia, Africa and Latin America. MI provides technical and operational support in those countries where micronutrient malnutrition is most prevalent.

Website: www.micronutrient.org

6.3 Support programs for both onchocerciasis and vitamin A deficiency control

Helen Keller International (HKI)

The mission of HKI is to save the sight and lives of the most vulnerable and disadvantaged. HKI is committed to controlling the primary cause of blindness- cataract, trachoma, onchocerciasis and childhood blindness. HKI combats the causes and consequences of

blindness and malnutrition by establishing programs based on evidence and research in vision, health and nutrition. Within countries where HKI works, HKI collaborates with government ministries, universities, national NGDOs, bilateral agencies such as USAID and CIDA, and UN agencies such as WHO, UNICEF, and FAO.

For onchocerciasis: HKI collaborates with the APOC, LCIF and the Nippon Foundation to train Health Ministries and local NGDOs to empower communities to distribute ivermectin to at risk populations. In OCP and APOC areas, HKI supports and provides assistance to governments, communities, and other partners on advocacy at all levels, emphasis on IEC strategies / materials, training methodologies, monitoring, evaluation, integration into health care system, and integration of VA into CDTI. HKI currently is providing assistance to MOH, and communities in distributing ivermectin in 6 countries (Burkina Faso, Cameroon, Côte d'Ivoire, Mali, Nigeria, and Tanzania). In the OCP areas, HKI has developed a disease and vector surveillance and education model designed to help the national governments ensure that onchocerciasis does not return. At present HKI is working with four former OCP countries (Burkina Faso, Côte d'Ivoire, Mali, and Niger) to adapt and implement the model. HKI is also providing assistance on developing a national IEC strategy for the onchocerciasis control programs in Guinea and Sierra Leone.

For vitamin A deficiency: HKI's vitamin A programs are supported by USAID, MI, the Danish Cooperation, UNICEF, Task Force Sight and Life, Leiner Health Products, the Asian Development Bank, NOVIB, CIDA, World Bank, Essilor and the Ahmanson Foundation. HKI's work in nutrition started in 1970s to combat VAD. HKI's VAD related programs have reached over 58 million people. HKI currently provides technical assistance on vitamin A in a total of 19 countries in Africa and Asia. HKI also focuses on nutrition education, food fortification and home gardening, including developing the largest home gardening intervention in the world in Bangladesh.

Website: www.hki.org
HKI's onchocerciasis website: www.onchohki.org

6.4 Onchocerciasis and vitamin A integrated materials available from Helen Keller International

It is suggested that this "How to' Guide be used by program managers and decision makers to provide an overview of the overall process of integrating VAS into CDTI. The training modules and IEC materials listed below are meant to compliment the Guide, as they provide more detailed, practical applications and methods. This How To Guide" is available on the HKI onchocerciasis web site (*www.onchohki.org)* in French and English. The following documents, available in French and /or English can also be downloaded from the web site:

- Training of Community Distributors: Guide for the Distribution of Mectizan® and Vitamin A (Cameroon)
- Training of Trainers: Guide for the Distribution of Mectizan® and Vitamin A (Cameroon)
- Booklet for Community Distributors: For Integrated Distribution of Mectizan® and Vitamin A Capsules (Cameroon)
- Booklet for HA Nurses on Implementation of Integrated Distribution of Mectizan® and Vitamin A Capsules in Communities (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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ANNEXES

Annex 1: Pages 63 and 64
Community Register for Integrated CDTI+VAS:
Example from Nigeria
Example from Cameroon

Annex 2: Pages 57 to 62
Community Summary Sheets for Integrated CDTI+VAS:
Example from Nigeria
Example from Cameroon

Annex 3: Page 65 and 66
Treatment Data Summary Sheets for Integrated CDTI+VAS: Example from Nigeria

HKI and MOH Summary Form for Vitamin A Supplementation

Community Summary Form

State:_____ LGA:_____ Community:_____

Month of Supplementation:_____ Supplementation Round:_____

A

12 – 59 months 1 capsule 200000IU 		Total Tally Marks
Post Partum mothers 1 Capsule 200000IU 		Total Tally Marks
6-11 months 100000IU		Total Tally Marks

Total No. of People Supplemented

Total Capsules Used

People Absent or Refused Supplements

B

Absent	Refused

Total Absent

Grand Total

Total Refused

C People not to be Supplemented

			Totals
1	Children less than 6 months old		Children less than 6 months
2	Children over 59 months		Children Over 59 months
3	Pregnant Women		Pregnant Women
			Total Not Supplemented

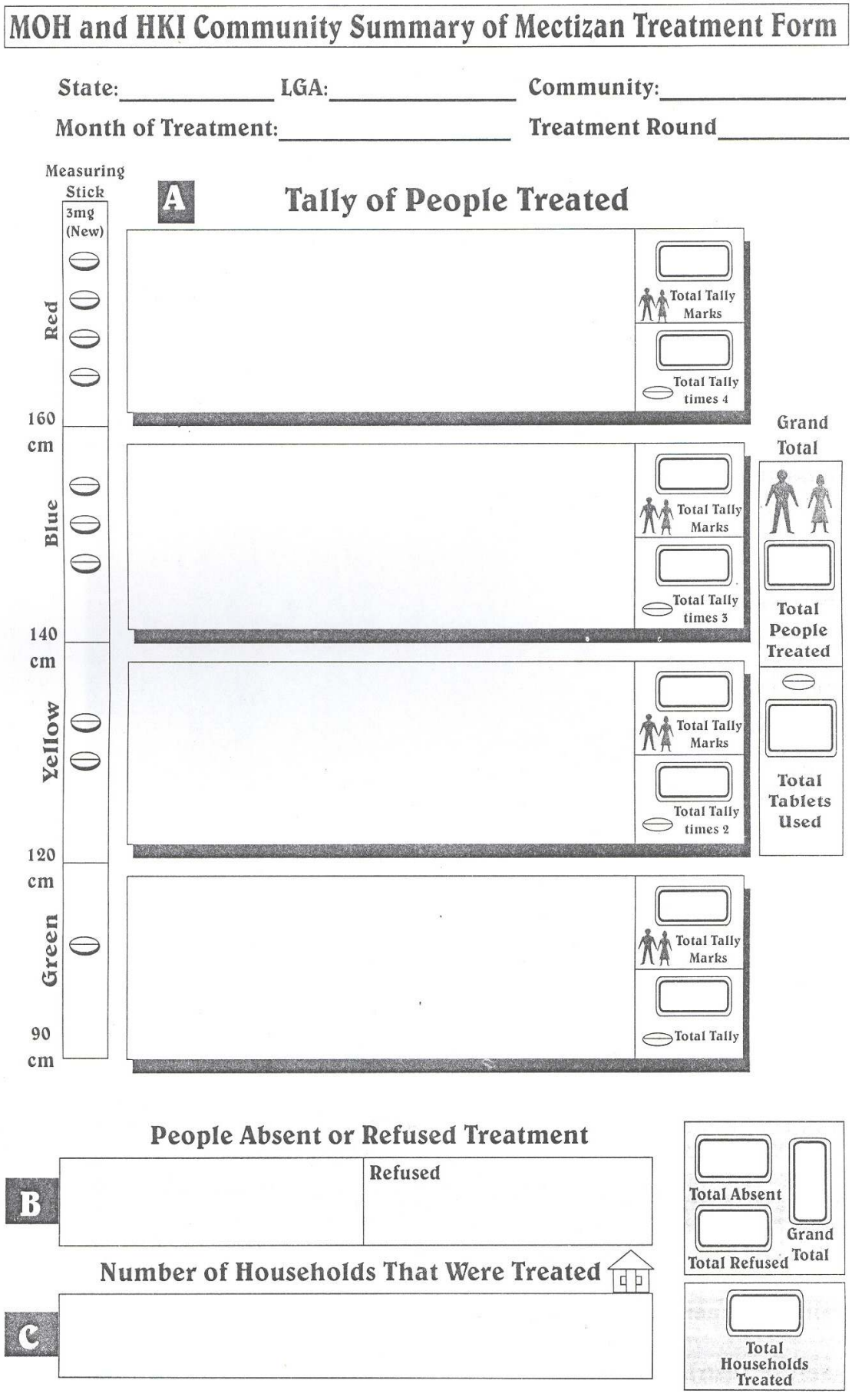
SUMMARY

Total Number of people Absent or Refused Supplement (Total B)	Absent
	Refused

Number of Capsules received and distributed	Received
	Distributed

Name of Supervisor:_____ Signed:_____Date:_____/__/___

Name of Distributor:_____ Signed:_____Date:_____/__/___


MOH and HKI Community Summary of Mectizan Treatment Form
State:
LGA:
Community:
Month of Treatment:
Treatment Round
Measuring Stick
3mg (New)
Red
160 cm
Blue
140 cm
Yellow
120 cm
Green
90 cm
A
Tally of People Treated
Total Tally Marks
Total Tally times 4
Total Tally Marks
Total Tally times 3
Total Tally Marks
Total Tally times 2
Total Tally Marks
Total Tally
Grand Total
Total People Treated
Total Tablets Used
People Absent or Refused Treatment
B
Refused
Total Absent
Total Refused
Grand Total
Number of Households That Were Treated
C
Total Households Treated

D People Not to be Treated

		Totals
1	Children under 5 years old or below 90 cm 	Children Under 5
2	Women that are pregnant 	Pregnant Women
3	Very sick people 	Very sick people
4	Women who delivered a week ago 	One week deliveries
		Total Not Treated

E Possible Reactions to the Drug

Less Serious (Mild Reactions) 	Mild Reactions
Very Serious Reactions 	Severe Reactions

Summary

Total Population (A+B+D)	
Total Number of People Who Should NOT Take Mectizan (Total D)	
Total Number of People Who Should NOT Take Mectizan (Total A+B)	
Total Number of People Treated with Mectizan (Total A)	
Total Number of People Absent or Refused Treatment (Total B)	Absent
	Refused

Total Number of People Who Reacted (Total of E)	Mild
	Severe
Number of Tablets Received and Distributed	Received
	Distributed
Number of Tablets Needed for Next Year	
Number of Household that Came Out to be Treated (Total C) 	
Total Number of Clinics in this Community	

Name of Supervisor_____Signed_____ Date_/_/_

Name of Distributor_____Signed_____Date _/_/_

MODIFIED HOUSEHOLD CARDS

Helen Keller WORLDWIDE

HKI - ASSISTED, VITAMIN A SUPPLEMENTATION PROGRAMME INTEGRATED INTO THE COMMUNITY DIRECTED TREATMENT WITH IVERMECTION (CDTI)

STATE: _____ LGA: _____

VILLAGE: _____ HOUSE NO: _____

Date Of Registration:					Year 2004			Year 2005			Year 2006		
S/N	PHS OR HH NO	Name	Sex	Age	Mectizan	Vit. A 1st Dose	Vit A 2nd Dose	Mectizan	Vit. A 1st Dose	Vit A 2nd Dose	Mectizan	Vit. A 1st Dose	Vit A 2nd Dose
1													
2													
3													
4													
5													
6													
7													
8													
9													

Less than 6 months = Under aged (UA)
More than 59 months = Over aged (OA)

Dosage (6-11 months = 100,000I.U.)
(12-59 months = 200,000I.U.)
(PP mothers = 200,000I.U.)

Date Of Registration:					Year 2004			Year 2005			Year 2006		
S/N	PHS OR HH NO	Name	Sex	Age	Mectizan	Vit. A 1st Dose	Vit A 2nd Dose	Mectizan	Vit. A 1st Dose	Vit A 2nd Dose	Mectizan	Vit. A 1st Dose	Vit A 2nd Dose
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													

Less than 6 months = Under aged (UA)
More than 59 months = Over aged (OA)

Dosage (6-11 months = 100,000I.U.)
(12-59 months = 200,000I.U.)
(PP mothers = 200,000I.U.)

Ministère de la Santé Publique **République du Cameroun**
Programme National de Lutte contre l'Onchocercose **Paix – Travail – Patrie**
Délégation Provinciale de la Santé Publique du Centre **_____**

Annual Report of the Community Distributor

Year : _____

Identification

DS:_____ AS:_____ Village:_____

Treatment cycle : 1 2 3 4 5 6 7 8 9 10 11 12 13 14

(Circle how many years treatments has been given)

Census

	Men		**Women**	
	0 – 4 yrs	5 yrs +	0 – 4 ans	5 yrs +
Total				
Grand Total				

Treatment

Mectizan®	**Men**	**Women**	**Total**

Number of refusals: _____ Number of absents: _____
Number of pregnant women: _____
Number of mild or moderate side effects: _____
Number of serious side effects: _____
Coverage rate [(Grand total treated/Grand total census) x 100]: _____

Vitamin A	**6-11 months**	**12-59 months**	**Women pp – 6 < weeks**

Number of refusals: _____ Number of absents: _____

Stock management

	Tracking	**Quantity**
Mectizan®	Number of tablets received from the nurse	
	Number of tablets distributed	
	Number of tablets remaining at end of campaign	
	Number of tablets lost	
Vitamin A	Number of red capsules received	
	Number of red capsules distributed	
	Number of red capsules remaining	
	Number of blue capsules received	
	Number of blue capsules distributed	
	Number of blue capsules remaining	

Community Distributor(s) sign : **HA Nurse supervisor sign:**

Annex 1: NATIONAL ONCHOCERCIASIS CONTROL PROGRAMME

Mectizan® Treatment and Vitamin Supplementation Register

State:_____ LGA:_____

Village:_____ House No:_____

S/N	PHC or HH No.	Names	Sex	Age	2001			2002			2003			Remarks
					Mectizan	Vit. A 1st Dose	Vit. A 2nd Dose	Mectizan	Vit. A 1st Dose	Vit. A 2nd Dose	Mectizan	Vit. A 1st Dose	Vit. A 2nd Dose	

Key: Sex – **'F'** Female; **'M'** – Male;
Mectizan Dosage: 'BF' – Breastfeeding; **'U'** – Underaged; **'S'** – Sick; **'R'** – Refused; **'A'** – Absent
Vitamin A: (UA) Underaged – Less than 6 months, **(OA)** Over Aged – More than 59 Months.
Vitamin A Dosage: 6 – 11 months = **100000IU;** 12 – 59 months = **200000IU;** PP Mothers = **200000IU**

Annex 1 : CDD Register from Cameroon
N° of Household: PNLO/M_____

N	Name and Prenames	Sex	Year :_____							Year :_____							Année :_____						
			Age	Height	Mectizan®		Vitamin A Dose/Date		Remark	Age	Height	Mectizan®		Vitamin A Dose/Date		Remark	Age	Height	Mectizan®		Vitamin A Dose/Date		Remark
					Dose	Date	1st	2nd				Dose	Date	1st	2nd				Dose	Date	1st	2nd	
1																							
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
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Annex 3: Treatment Data Summary Sheets for Integrated CDTI+VAS: Example of Nigeria

National Onchocerciasis Control Programme

State Mectizan® Treatment Form

Zone:_____ Date:_____

State:_____ **LGA:**_____**District:**_____ **Quarter:**_____

S/N	Community Under Treatment	Trmt Round	Total No of House hold visited	Total Population of Treated Comm.	Total No. of people Ineligible for Mectizan	Total No. of people Eligible for Mectizan	Total No. of People Treated with Mectizan	Total No. of People who refused or were absent (R/A)	Total No. of People with Sevre Rctio	Total No. of Mectizan Tablets Recved	Total No, of People Treated with the Following # of Tablets.				Total No. Tablets Used	Total No. of Tablets Missing	Total No. of Tablets Remning	Total No. of Estimated Tbt Need for Next Round	Total No. of Clinic.
											1	2	3	4					
TOTALs																			
# of Districts Treated	**# of Communities Treated**																		
Clinic Based Distribution																			

Multiply Total No. of People Treated with 1,2,3,4 Tablets) by:	**1**	**2**	**3**	**4**
Total Number of Tablets by Dosage:				
Grand Total of Mectizan® Tablets Used:				

Co-ordinator's Name and Signature:_____/_____/_____/_____

Annex 3: National Onchocerciasis Control Programme

LGA Mectizan® Treatment Form

LGA:_____ A:_____

State:_____ Treatment Round for LGA**:**_____

S/N	Community Under Treatment	Trmt Round	Total No of House hold visited	Total Population of Treated Comm.	Total No. of people Ineligible for Mectizan	Total No. of people Eligible for Mectizan	Total No. of People Treated with Mectizan	Total No. of People who refused or were absent (R/A)	Total No. of People with Sevre Rctio	Total No. of Mectizan Tablets Recved	Total No, of People Treated with the Following # of Tablets.				Total No. Tablets Used	Total No. of Tablets Missing	Total No. of Tablets Remning	Total No. of Estimated Tbt Need for Next Round	Total No. of Clinic.
											1	2	3	4					
TOTALs																			
# of Districts Treated	**# of Communities Treated**																		
Clinic Based Distribution																			

Multiply Total No. of People Treated with 1,2,3,4 Tablets) by:	**1**	**2**	**3**	**4**
Total Number of Tablets by Dosage:				
Grand Total of Mectizan® Tablets Used:				

Co-ordinator's Name and Signature:_____/_____/_____/_____