

AMRIT

FOOD FROM THE GODS



THE NEPAL NATIONAL
VITAMIN A PROGRAM



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A PROGRAM OF
HIS MAJESTY'S GOVERNMENT OF NEPAL
THE MINISTRY OF HEALTH
DEPARTMENT OF HEALTH SERVICES
CHILD HEALTH DIVISION
NUTRITION SECTION



National Vitamin A Program

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AMRIT is a Nepali word meaning "nectar" or "food of the gods"

compiled by
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and
National Vitamin A Program
Technical Assistance Group

in collaboration with
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ACKNOWLEDGEMENTS

In presenting the highlights of the National Vitamin A Program from 1993-1997, we celebrate His Majesty's Government's commitment to combat vitamin A deficiency and the commendable service of 17,000 Female Community Health Volunteers (FCHVs), local communities, and thousands of people, both from the government and non-government sectors. It is hoped that this document will prove useful as a description and history of the Nepal program and as a reference for other national vitamin A programs.

Because of the success of this first phase of the Vitamin A Program covering 32 districts, over 1.4 million children receive vitamin A supplements every six months, numerous mothers have learned about the importance of vitamin A rich food, thousand of deaths have been averted, and for Nepal, the myth of grassroots mobilization has become a tangible reality.

This united effort of determination, courage, and sheer hard work, spearheaded by the Ministry of Health's Child Health Division/Nutrition Section has made this a program of high international standard; one which Nepal can be proud of. Technical assistance and financial support have been made available through the United States Agency for International Development. Capsules and IEC support have been provided by UNICEF.

We would like to give special thanks to Ms. Molly Gingerich, Mr. Charles Llewellyn, Mr. Puru Pokhrel, Ms. Mary Linehan of USAID; Mr. P.O. Blomquist, Dr. Sarita Neupane, Dr. Marjetta Tolvenan of UNICEF; Dr. B.D. Chataut, Dr. Chatra Amatya of the MOH; Dr. K.R. Pandey, Dr. K.B. Singh-Karki, Dr. S.P. Bhattarai, Dr. M.B. Bista, Ms. Bijaya KC, Ms. Sharada Pandey of the Department of Health Services/MOH; Mr. Ram K. Shrestha, Mr. Madhav Acharya, Mr. Chandra Sharma and all the dedicated field and office staff of the Technical Assistance Group (TAG); Dr. R.P. Pokhrel of NNJS; Mr. Om Rajbhandari, Mr. Ashok Malla and staff of the Management Support Services Pvt Ltd; Dr. Sabitri Pahari of UNHCR; Dr. C.R. Pant, Mr. Anand Maskey and all the HKI office staff in Nepal; and the OMNI and HKI/NY support staff who backed us up from afar. And to many others, seen and unseen, we thank you for your contribution in making this giant achievement possible.

Dale Davis
Judith Hollander
Helen Keller International
July 1997





ABBREVIATIONS

AHW	Auxiliary Health Worker
ANM	Assistant Nurse Midwife
ARI	Acute Respiratory-Tract Infections
CHD/NS	Child Health Division/Nutrition Section
DHS	Department of Health Services
FCHV	Female Community Health Volunteer
HMG	His Majesty's Government
HP	Health Post
HPI	Health Post In-charge
INGO	International Non-Governmental Organisation
IU	International Unit
JSI/MMT	John Snow Inc./Mrigendra Medical Trust
MCHW	Maternal Child Health Worker
MOH	Ministry of Health
NNIPS	Nepal Nutrition Intervention Project, Sarlahi
NNJS	Nepal Netra Jyoti Sangh
NVAP	National Vitamin A Program
PHC	Primary Health Care System
SHP	Sub Health Post
SHPI	Sub Health Post In-charge
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
VACSP	Vitamin A Child Survival Project
VDC	Village Development Committee
VHW	Village Health Worker



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Chapter One

The Challenge





ETHNIC MORSELS

... The Madhise group cures maternal nightblindness by washing the mother's eyes out with water used for cleaning fish ...

... The Tharu people of the eastern Terai withhold green vegetables from pregnant women if they notice any swelling on the women's hands or feet. They also do not give children under the age of one any green vegetables or yellow fruits ...

... The Tharu and Danuwar communities of the eastern Terai, as well as many other groups in Nepal, do not realize how rich colostrum (a mother's first milk) is in vitamin A. Consequently, they throw away a new mother's milk for the first three days and give goat's milk to the newborn instead ...



Tucked away in the Himalayas, between India and China, the small mountainous kingdom of Nepal is one of the world's poorest countries. Many of its 21 million people survive on less than a dollar a day, farm small plots of land, eat a simple diet of rice and lentils, and live a life of stark contrasts. For instance, even though most Nepalese reside in rural areas, only 17% of the country's total land area is arable. While expenditure on health exceeds that of any other country in the South Asia region, much of the population is deprived of basic sanitation and has no access to potable water. Though per capita food production increased 14% between 1980 and 1993, malnutrition is still prevalent, and acute respiratory infections and diarrhea account for over 50% of all under five deaths. And, despite a decline in the infant mortality rate from 190 in 1960 to 96 in 1996, stunting is still found in half (48%) of Nepalese children aged 0-35 months (NFHS, 1996).

Add these problems to a rugged geography and the Nepali challenge becomes even clearer. Nepal is home to the world's highest mountain peak – Mt. Everest – as well as tropical jungles, low valleys, and dusty, high altitude deserts. Ecologically, the country can be divided into three areas: the Mountains, the Hills, and the Terai. Although mountains cover 35% of Nepal's total land area, only 8% of the population inhabits them. Nearly half of all Nepalese (42%) prefer to make their homes in the Hills, located in the central belt of the country, living in scattered villages along terraced slopes. The Terai, in the southern region of country, known for its low, fertile plains and tropical climate, is home to the rest of Nepal's population. Because it produces the majority of the country's food, it is often referred to as the nation's breadbasket.

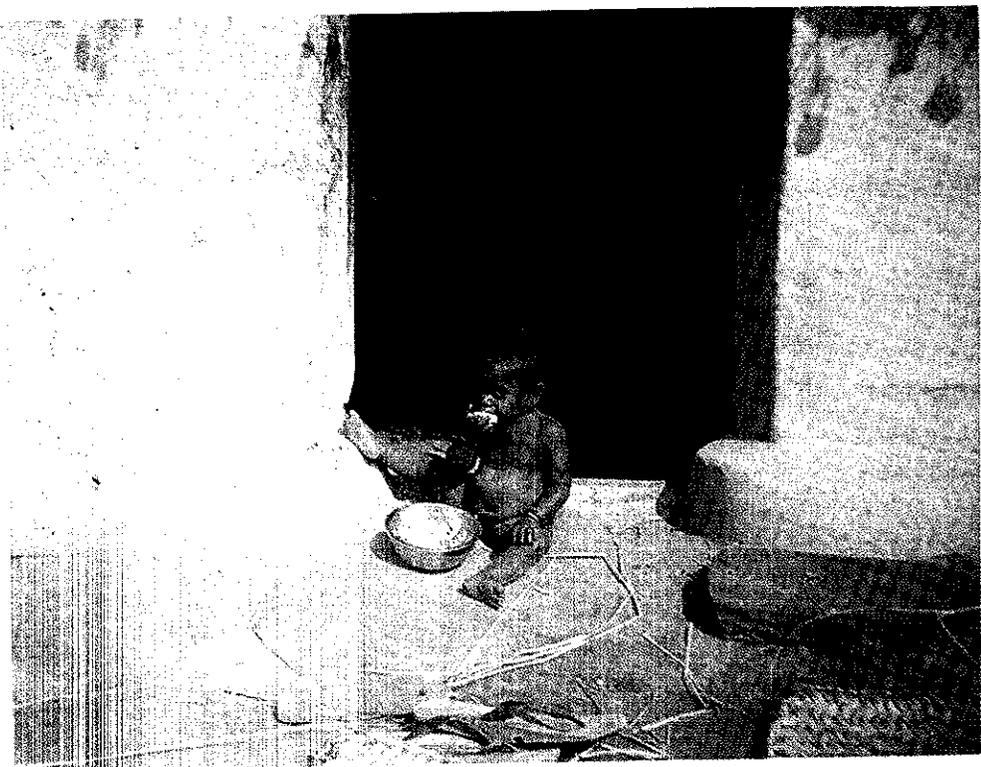
Only Nepal's cultural diversity rivals its geographic variety. Anthropologists have identified several dozen ethnic groups in the country, but most Nepalese trace their origins to either Indo-Aryan or Tibeto-Burman roots. Tibeto-Burmans are found more in the northern mountainous regions of the country; while Indo-Aryans inhabit the south and middle hills of the country. Many groups speak their own language, practice their own religions (Hindus accounting for over 86% of the population, followed by Buddhists and Muslims), and have traditions and customs unique to their place of residence.

Despite the abolition of the Hindu caste system in 1963, caste continues to play a dominant role in political, social, and economic life in the country. Occupations, social customs and eating habits continue to be determined by caste group, and certain low-caste people may still be prohibited from entering the homes of high-caste families. Though adherence to this system varies from rural to urban areas, it is not rare to find whole communities and villages in some rural areas stratified along caste lines.

Traditional customs, along with endemic poverty, population growth, unequal resource and power distributions, and pervasive gender discrimination, make the challenge of providing

health for all even more difficult in the Nepali context. This, coupled with a lack of roads and limited mass communication networks, has resulted in extremely high mortality and morbidity levels in the country.

For instance, Nepal's maternal mortality rate (539 per 100,000 live births) is one of the highest in the world. The under five mortality stands at 118 per 1,000 live births. The 1996 Nepal Family Health Survey (NFHS/DHS) of children under three years old reported 47% as underweight and 48% as stunted. As a measure of under-nutrition, these high rates of stunting and under-weight point to significant child health problems in Nepal. A contributing factor to this problem is infant/child feeding practices, including breastfeeding. Only three out of five children continue to be exclusively breastfed by the time they reach five months of age. This practice can lead to diarrhea, contribute to under-nutrition, and result in vitamin A deficiency (NFHS, 1996).



VITAMIN A DEFICIENCY IN NEPAL

Each year more than 20,000 children 6-60 months old in Nepal are at risk of dying due to the consequences of vitamin A deficiency. Early studies on vitamin A deficiency were designed to evaluate the impact of vitamin A interventions on child health and survival. A meta-analysis of eight intervention trials in developing countries concluded that providing sufficient vitamin A to a deficient population reduces child deaths by 23% (Beaton et. al., 1993).

Studies conducted in Nepal over recent years also found that child mortality can be decreased by as much as 30% when children receive adequate vitamin A. For example, the Nepal Nutrition Intervention Project, Sarlahi District (NNIPS-I), a Johns Hopkins University/Nepal Netra Jyoti Sangh project, supported by USAID, conducted from 1989-91, followed children aged 0-72 months. These children were given a high dose vitamin A capsule supplement every four months. Results showed a mortality reduction of 25-30% in the group of children aged 6-72 months. Findings from another study, this one conducted in Jumla District in 1988 and supported through USAID by John Snow Inc., substantiated these figures. In this latter study, researchers gave children under the age of 59 months a single high dose vitamin A capsule every four months. A third study, the Vitamin A Child Survival Project (VACSP), assessed different strategies to decrease vitamin A deficiency such as: comparisons between semi-annual high dose vitamin A supplementation with nutrition education and literacy, along with variables such as deworming, immunization, and other primary health care interventions. Study findings showed that semi-annual capsule supplementation is the most effective method of reducing vitamin A deficiency. These findings supplemented results from similar studies carried out in India (Rahmathullah, 1990), Indonesia (Sommer, 1986; Muhilal, 1988), and Ghana (Ghana VAST, 1993).

Vitamin A deficiency is defined as a problem of public health significance when the prevalence of xerophthalmia exceeds the WHO cut-off of 0.5% (WHO, 1982). Four surveys carried out in various parts of the country between 1988 and 1994, found the average survey prevalence of Bitot's spots in children ranged from 2.1% to 8%. Bitot's spots are a late sign of vitamin A deficiency, and the extremely high prevalence in Nepal make this country one of the most severely affected areas in the world.

PREVALENCE OF BITOT'S SPOTS IN NEPAL: FOUR SURVEYS

Year	Survey Group	Area	Prevalence %
1988	JSI/MMT	Jumla District	8.2
1989	VACSP	7 Terai Districts	2.1
1989-90	NNIPS	Sarlahi District	2.9
1992	VACSP	3 Terai Districts	4.1



DESIGNING THE NATIONAL PROGRAM

Results from the NNIPS-1, VACSP and Jumla District studies were delivered and discussed in a two day National Vitamin A workshop held by the Ministry of Health (MOH) in Kathmandu on February 11-12, 1992. Participants included representatives from the Ministries of Health, Agriculture, Education and Local Development, the National Planning Commission, the Nepal Research Council, UNICEF, WHO, USAID, and a number of other concerned national and international NGOs. Based on study results and the unacceptably high prevalence of vitamin A deficiency in the country, the Government of Nepal (HMG) pledged its commitment to initiate a National Vitamin A Deficiency Prevention and Control Program (NVAP), with the goal of eliminating vitamin A deficiency in Nepal.

In November 1992, a Task Force, coordinated by the Public Health Division/Nutrition Section and working since the February 1992 meeting, developed "Guidelines for the Implementation of the National Vitamin A Deficiency Control Program." These guidelines included a short-term strategy of capsule supplementation and a long term strategy of nutrition education, adult literacy, and home gardening. (These guidelines continue to serve as the terms of reference for the National Vitamin A Program today.) The Task Force also prioritized 32 districts to be covered in the initial phase of a National Vitamin A Program (NVAP). These districts were selected based on vitamin A deficiency survey results and national population distribution.

In December 1992, USAID and UNICEF decided to financially support the NVAP. USAID contracted its Vitamin A Field Support Project (VITAL) and agreed with the MOH to create a Vitamin A Technical Assistance Group (TAG) of experienced personnel from the VACSP/NNJS project. Consequently, the TAG was established in partnership with Nepal Netra Jyoti Sangh. The TAG's task was to assist MOH/DHS/CHD/Nutrition Section with the introduction of the NVAP in the 32 selected districts.

With the completion of VITAL's initial contract in April 1994, USAID contracted the Opportunities for Micronutrient Interventions Project (OMNI) from May 1994 onwards. In March 1995, OMNI sub-contracted Helen Keller International (HKI) to provide technical assistance in Nepal. The technical support included: specific program planning, training in capsule delivery and vitamin A nutrition, logistic support for implementation, the development of training materials, and annual monitoring. UNICEF provided vitamin A capsules (for both the semi-annual supplementation campaigns and case treatment), equipment, nutrition education materials, and costs for the two-week advertising promotion prior to each campaign.



USAID and the Secretary of Health signed an agreement in January 1993. In February, the MOH/Department of Health Services called the first National Vitamin A Meeting. Outcomes included:

1. Fixed campaign dates – *Baisakh 6th and 7th; Kartik 2nd and 3rd*
2. A capsule delivery system – to be implemented as a part of the on-going primary health care (PHC) system by Female Community Health Volunteers (FCHVs) during a semi-annual, two-day campaign. This schedule would also allow for a follow-up day without losing the impact of the campaign
3. A recordkeeping system – to ensure that children were not “double dosed.” This recordkeeping system, while recording the number of all target children aged 6-60 months in each ward, would also serve as a monitoring tool for the MOH/DHS/Logistics Management System
4. The mobilization of FCHVs – to ensure that every FCHV would go to each home in her village to register all children aged 6-60 months, as well as to inform their caretakers of the program before each capsule supplementation round

The MOH/DHS/CHD/Nutrition Section and the TAG planned the phase-wise implementation beginning in eight Terai districts, several of which had participated in the VACSP study. These districts had active and accessible NGOs with trained FCHVs in place. District training commenced in April 1993 and the first capsule supplementation campaign was held in October 1993. Over the next two years, the NVAP covered all twenty Terai districts, where almost half the country's under five population resides.

By April 1997, the MOH/DHS/CHD/Nutrition Section and TAG had covered 32 districts and 23 additional municipalities within these districts (far western and mountainous districts included) proving that a well-coordinated, comprehensive training, capsule supplementation and nutrition education program could not only work, but succeed with tremendous results.

Chapter Two

**Vitamin A Deficiency and
Treatment Protocols**





ETHNIC MORSELS

... The Magar community of the eastern Terai, treat children's nightblindness by dipping a cloth in the water left from cooking rice. They then throw this water in the child's face as he/she enters the house in the hope that the nightblindness will be cured...

... The Tharu of the eastern Terai have a unique cure for nightblindness: Grind the phosphorescent part of a firefly, mix with cane sugar, eat, and you're cured...

... In Achham and Kanchanpur Districts, reports came in of FCHVs seeking out vitamin A capsules for a measles outbreak in their villages. The DHOs in these districts responded with speed to prevent further deaths by sending capsules and vaccines to the areas ...



Vitamin A is an important micronutrient, essential for normal health and survival. Because it is a fat-soluble vitamin, it is stored in the liver and released as required by the body. The human body can store high doses of vitamin A for as long as six months, protecting an individual from deficiency and its consequences.

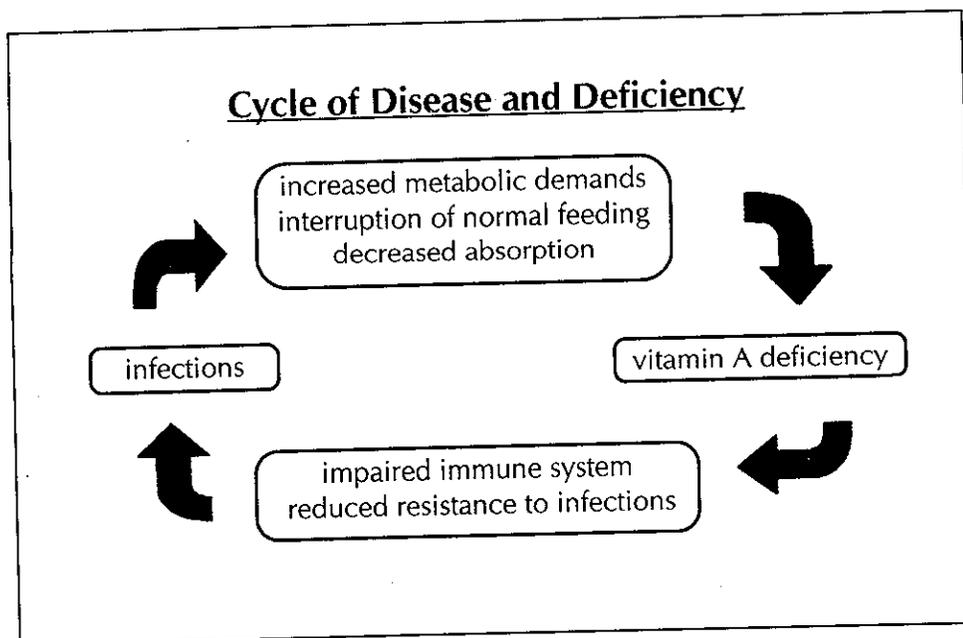
Preschool children and pregnant and lactating women require more vitamin A than other people. Pregnant women need increased vitamin A because of the requirements of the developing fetus; whereas nursing mothers need it to provide necessary nourishment to their infants through breastmilk. Pre-school children, on the other hand, require vitamin A, especially during weaning and in early childhood, for normal growth and development and to protect them from the severity and frequency of infections. Because children have small livers proportional to their bodies, they store much less of the vitamin than an adult. These stores are likely to become depleted from frequent infections, poor nutritional status, chronic worm infestations, and just one episode of measles.

Lack of vitamin A leads to thousands of childhood deaths. Globally, more than 200 million children are estimated to be at risk of this deficiency. In 1991, WHO reported that nearly 14 million preschool children developed eye damage as a result of vitamin A deficiency (WHO, 1992); 10 million of whom live in Asia. This latter number continues to grow daily, and manifests itself most apparently in eye signs, such as nightblindness (which can be present for a number of years) and Bitot's spots (white, foamy patches on the cornea).

Nightblindness is one of the earliest symptoms of severe vitamin A deficiency and is generally more prevalent than Bitot's spots in vitamin A deficient populations. Both these signs, if left untreated, can progress to permanent blindness. Ocular signs of vitamin A deficiency do not always develop in sequence, but once present can deteriorate rapidly. Once a child develops a corneal ulcer or keratomalacia (irreversible corneal damage), an advanced stage of xerophthalmia, the risk of death (especially due to blindness related accidents) is precariously high. Immediate treatment with high dose vitamin A is a must.

But eye signs are just the tip of the iceberg. Subclinical levels of vitamin A deficiency do not appear as overt eye signs, but have a devastating effect on a child's health status. Numerous studies conducted in developing countries indicate that children with lower serum concentrations of vitamin A have an increased risk of mortality because of their lower resistance to infections.

Continued infections seem to use up vitamin A stored in the liver, decrease its absorption in the intestine, and cause loss of appetite. Because the level of vitamin A in the blood decreases, this situation compromises the immune system even more. Once a cycle of continued infection and progressive vitamin A deficiency is established, it is very difficult to reverse and often ends in death.



Vitamin A deficiency in children impairs the immune system, increases the severity of complications due to diarrhea, increases the risk of death from measles, and adds to the chance of complications to vision. Even mild vitamin A deficiency increases mortality (Sommer et. al., 1983). The consequent problems of vitamin A deficiency affect not only the individual, but have long term social and economic implications for families and communities.

A child with vitamin A deficiency is weaker, is likely to suffer more frequent and more severe infections, and has a higher risk of dying. Malnutrition decreases the odds for survival and results in early childhood death or retarded physical and mental development. The availability of vitamin A-rich food is another challenge, especially in remote, food-deficient regions. Vitamin A supplements, necessary micronutrients and proteins from the diet, and maternal nutritional knowledge can and do make a life-saving difference in a child's life.



Foods which are rich in vitamin A include: liver, small whole fish, eggs, milk, dark green, leafy vegetables, and orange fruits and vegetables (such as pumpkins, carrots, mangoes, and ripe papayas). In Nepal, much of the population has inadequate access to these foods or is not aware of their importance for child health and survival.

PREVENTION AND TREATMENT PROTOCOLS

In 1992, the MOH approved the first two supplementation recommendations (targeting young children aged 6-60 months). It approved treatment guidelines for all health facilities for cases of severely malnourished children, children with measles or prolonged diarrhea, and all children with nightblindness or ocular signs of xerophthalmia. In addition, the MOH also passed the Post Partum Supplementation Protocol as national policy in May 1996. HMG, NGO health institutions, and some private agencies have received training on the protocol and case treatment card. In contrast to the capsule supplementation program in 32 priority districts, the case treatment protocol program covers all 75 districts of Nepal.

Prevention Guidelines

Children 6-under 12 months	One oral dose of 100,000 IU vitamin A Twice a year during national campaign days
Children 12-60 months	One oral dose of 200,000 IU vitamin A Twice a year during national campaign days
Post-partum women	One oral dose of 200,000 IU vitamin A Immediately after birth or as soon as possible up to six weeks post partum

- High dose vitamin A capsules are **NOT** to be given to: pregnant women or children under 6 months of age.
- Nutrition education should be targeted to mothers of children aged 6-60 months, as well as pregnant and lactating women.

Treatment Guidelines

Children 6-under 12 months	100,000 IU vitamin A
Children 12-60 months	200,000 IU vitamin A

FOR: Xerophthalmia	<u>Three doses</u> One upon diagnosis One the following day One a month later
FOR: Measles	<u>Two doses</u> One upon diagnosis One the following day
FOR: Prolonged diarrhea	<u>One dose</u> Upon diagnosis
FOR: Severe malnutrition	<u>One dose</u> Upon diagnosis

- When administered during sickness, vitamin A minimizes the severity of illness and the chance of blindness.
- During illness, vitamin A stores are rapidly consumed and need to be replenished.



Focus on Measles

Measles remains a major public health problem worldwide, accounting for 10% of all childhood deaths (UNICEF, 1991) and many children in Nepal are still not immunized. Outbreaks of measles occur frequently and often in remote areas. Immunization is an effective preventative measure and it is important to reach as many children as possible. This should be done routinely but also in response to a measles outbreak.

Vitamin A treatment can reduce measles mortality by up to 50% and has long been recognized as a critical factor in severe measles. It is important to improve vitamin A status before the onset of measles (as in epidemics) and during an outbreak, to markedly reduce the severity and duration of complications and associated mortality. Based on conclusive research that vitamin A treatment during a measles episode can significantly reduce mortality outcomes, WHO has issued directives on routinely giving oral vitamin A supplements to children with measles. This recommended dosage is absorbed sufficiently by the body to have an impact, even though diarrhea may be present. All children in a community with a measles outbreak should be given prophylactic vitamin A if they have not received a high dose capsule within the previous month.

Lowered resistance to diarrhea, pneumonia, and other diseases following measles can continue for up to one year. Feeding a child who has measles and teaching the caretaker about the need for frequent high-calorie and nutrient-rich foods will enable a sick child to recover. But some children may never recover, unless special measures are taken to increase weight gain following the initial measles episode.

Focus on Maternal Vitamin A Deficiency

There is increasing evidence from reports of nightblindness in Nepal of high rates of vitamin A deficiency among pregnant women, especially in the third trimester of pregnancy. If the vitamin A status of a mother-to-be is low, the amount of vitamin A available to her growing fetus will not be adequate and may affect normal fetal development. The demand of the growing fetus will reduce the mother's stores and put further strain on her nutritional status. This, in turn, will compromise the vitamin A content of her breast milk - the most important source of vitamin A for a child under six months. To counter the possible ill-effects of vitamin A deficiency on new mothers and young infants, in May 1996, the MOH passed the Post-Partum Protocol. This protocol states that all women, immediately following birth or as soon as possible up to six weeks post-partum, should take one vitamin A capsule (200,000 IU). Pregnant women and post-partum mothers are also encouraged to increase their dietary intake of nutritious food, especially vitamin A rich foods.



Chapter Three

The National Vitamin A Program





ETHNIC MORSELS

A vitamin A song written by an FCHV from Doti District:

*"We had many diseases in our village a few years ago,
Many children were very thin and had constant diarrhoea.
Many women and babies died in childbirth.
Now we have learned about vitamin A.
We can find these wonderful foods in our villages:
Ripe papaya, pumpkin leaves, nettles, eggs.
These are important for our mothers and children.
Let us eat these foods everyday."*

*"Green leafy vegetables, yellow fruits, liver, eggs, and curd are local sources for vitamin A.
We find these foods in our kitchen gardens, on the river banks, and in the forests."
- quote from a community farmer from Dadeldhura District -*

*... Families of many castes feed a soup from "jwano" (caraway seeds) to new mothers
to increase their milk flow ...*



OBJECTIVES AND STRATEGIES

of the National Vitamin A Program

Primary Objective: To reduce child mortality and prevent xerophthalmia among children aged 6-60 months through high dose vitamin A capsule supplementation, so that vitamin A deficiency is reduced to a level that no longer constitutes a public health problem

Secondary Objective: To increase dietary vitamin A intake of children aged 6-60 months through nutrition education; increased home production, consumption, and preservation of vitamin A-rich foods; increased maternal literacy; and proper breastfeeding and child feeding practices

Implementation Strategies

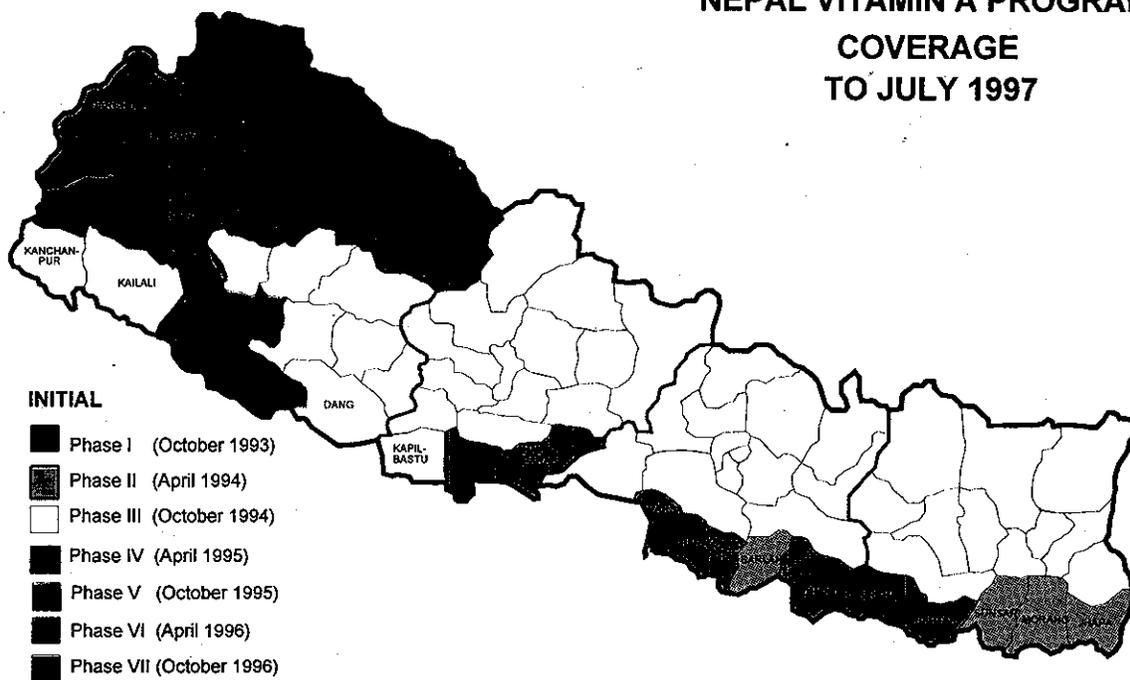
1. Supplementation of high-dose vitamin A capsules to children on a semi-annual basis as a preventative measure in priority districts
2. Nutrition education, increased maternal literacy, promotion of improved breastfeeding and child feeding practices, and increased production and consumption of vitamin A rich foods
3. Training of health care providers in vitamin A case treatment for xerophthalmia, measles, severe malnutrition, and prolonged diarrhea
4. The provision of an adequate supply of vitamin A capsules to all hospitals, health centers, health posts, sub health posts, and clinics throughout the country

A PHASED APPROACH

The National Vitamin A Deficiency Prevention and Control Program evolved in response to the global goal of eliminating vitamin A deficiency by the year 2000. The MOH launched the program in April 1993 after one and a half years of review and preparation.

To begin with, the MOH/DHS selected 32 "priority" districts for program implementation. Selection was based on the prevalence of xerophthalmia, the population of the target age group, the presence of trained FCHVs and NGOs in the district, the availability of health services, and the complementary activities of other ministries in the district. All Terai districts were included, except Chitwan. This district was left out at the time because its vitamin A deficiency prevalence was below the WHO cut-off of 0.5% Bitot's Spots, possibly due to a more comprehensive health program implemented by the district.

NEPAL VITAMIN A PROGRAM COVERAGE TO JULY 1997



Implementation began in the central Terai region where the VACSP had conducted their operations research and documented high rates of xerophthalmia. The NVAP then extended phase-wise from east to west over the next four years. By October 1996, it had reached 1.4 million children, more than half the children aged 6-60 months in Nepal.



HOW THE PROGRAM WORKS

Using a multisectoral approach, both in training and capsule supplementation, the National Vitamin A Program is being implemented in collaboration with the Ministries of Health, Agriculture, Education, and Local Development, various NGOs, and other agencies.

The Ministry of Health/Department of Health Services/Child Health Division/Nutrition Section coordinates activities with assistance from the TAG and HKI. Management Support Systems (MASS), a private Nepali firm, provided logistical support for training, while USAID and UNICEF provided funding. Main activities supported under the program include: the case treatment of children with xerophthalmia, measles, persistent diarrhea, or malnutrition at health facilities; semi-annual mass capsule supplementation to children aged 6 - 60 months; and the promotion of vitamin A-rich foods through vegetable gardening and nutrition education. Post-partum supplementation for women is currently being actively encouraged.

In each of the 32 selected districts, the MOH/DHS/National Health Training Center (NHTC), with technical support from TAG, trains multisectoral staff from the PHC system in capsule supplementation and case treatment protocols. The TAG also coordinates with the National Health Information, Education and Communication Center (NHIECC) for the development of communication materials and with the Logistics Management Division (LMD) for the transport of supplies.

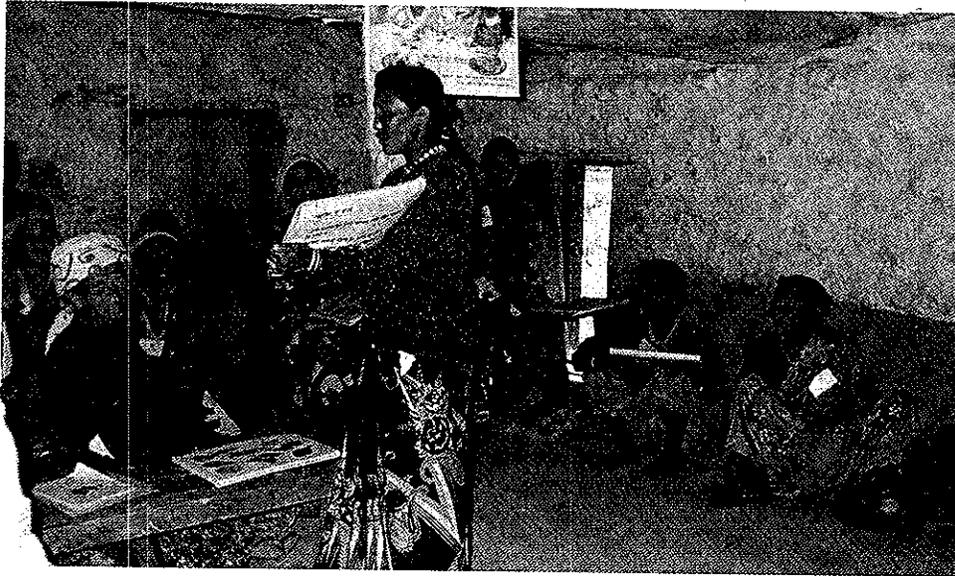
To date, TAG has also provided 23 municipalities within these 32 districts with training for capsule supplementation and nutrition education. Since municipalities do not have FCHVs, mayors of each municipality have taken charge of this effort, and in many cases offered monetary incentives to women selected as capsule distributors. Municipalities have provided the money for per-diems during training and often supported capsule supplementation campaigns with banners and tea money for the organizers. Municipalities request their capsules from District Health Office (DHO) stores and report back to the DHO.

The NVAP's key element is the FCHV. The Department of Health has designated at least one FCHV in every village as a voluntary member of the PHC system responsible for the delivery of health education and some services at the ward (village) level. This FCHV receives semi-annual training in vitamin A capsule supplementation, basic health and hygiene, and complementary nutrition education. Because of her vital role in this program, the FCHV has become a critical link between her community and the NVAP.



Twice a year, on designated campaign days, over 17,000 FCHVs across the country mobilize their individual communities to participate in supplementing local children under the age of five. The spring supplementation occurs in April at a time when food stores are diminished and measles incidence is high. The fall supplementation follows six months later, in October, prior to the rice harvest. The dates are fixed, which facilitates yearly planning. This short, two-day supplementation campaign is easier to maintain than an ongoing effort. As long as there is continuation of timely supply of quality capsules, education materials, FCHV review meetings prior to each campaign, and promotional advertising, the FCHV seems likely to provide both her time and effort.

The FCHV does not mobilize the people on her own, but depends on assistance from her family and members of the community. This strategy enables the FCHV, a local resident herself, to build trust within her community and encourage families to pro-actively come for capsules. An inherent sense of responsibility for her own community increases the probability of dependable access to services.



Before the NVAP, FCHVs were often neglected, poorly supported, minimally trained and under-appreciated. In several remote districts, some had not even been selected or trained. The NVAP encouraged the selection of FCHVs in districts where there were none, thereby increasing the number of trained female health volunteers. Because FCHVs do not receive any remuneration for their commendable work, the NVAP encourages their linkage with Village District Committees (VDC) to ensure their continued commitment to the program.

TRAINING

The TAG, along with MOH/DHS trainers, organizes an introductory, multisectoral training prior to the district's first capsule supplementation campaign. Other than MOH/DHS/District Health Office PHC staff, participants include representatives from other government sectors, particularly education, agriculture and local development, and NGO personnel. The introductory training covers three levels: district, health post, and the community. After six months, the TAG again assists the MOH/DHS in conducting a refresher training at all three levels. The whole cycle of training takes six to seven months: one month of preparation, three months of training, one month of an intensive pre-supplementation information campaign, two days of the capsule supplementation campaign, and one to two months of monitoring. Training for all subsequent rounds is the responsibility of each district, with TAG assisting only in the District Coordination Meeting for the third round. After that, total responsibility for program continuation lies with the MOH/DHS.



The purpose of these trainings is to raise awareness of the importance of vitamin A for child survival, provide intensive vitamin A nutrition education, present an overview of the national program, coordinate activities, involve each level in the training of the next level, develop participatory management in areas of expertise, and maintain consistent content.

National Training of Trainers (TOT)

At every level of training, a variety of multisectoral people are involved; first as trainees, then as trainers. This gives each sector the information base to take the lead in incorporating vitamin A into their field and assume the role of vitamin A trainer. Initially, when training began in June 1993, trainers assumed that trained multisectoral officers could be used as trainers themselves during district level training. However, as many of the participants were too busy to follow-up with district trainings, the TOT is now more a means of advocacy and information exchange.

District Training and Coordination

To assure participation and cooperation for district trainings, the MOH/DHS sends a letter to central heads of agencies and ministries, who in turn contact district staff. A Vitamin A District Coordinating Committee is formed on the first day of district training to motivate and coordinate the assistance of sector representatives. Political leaders in the community, regional training center staff, district officers, and health post in-charges are trained to coordinate their programs and act as resource trainers. They learn about ways to network and strengthen their program. During this coordination meeting, the health post in-charges are given a three-day vitamin A training in preparation for their role as health post staff trainers.

Health Post Training

To train health post staff, sub health post in-charges, multisectoral people working at the ward level, district health staff, and regional trainers, TAG conducts a three-day training to increase vitamin A knowledge and prepare participants as community trainers. On the last day of training, one teacher from each school in the community is invited to attend a training orientation. This measure serves as an advocacy tool to carry the message back to the schoolchildren, who in turn carry it back to their homes and into the community.

Community (FCHV) Level Training

This training focuses on imparting vitamin A knowledge to the FCHV. She learns about the national program effort, its background and rationale, and the strategies adopted by the MOH/DHS to combat vitamin A deficiency. The FCHV is trained to use a flip chart to cover all aspects of the vitamin A nutrition training. This provides her with a tool for sharing information during the campaign days and for continuing education in her mothers' group or other village gatherings.



Another important aspect of the training is the management of the ward campaign. This includes information on capsule supply, registration of the target children, information sharing among the support team in her ward, motivation techniques, supplementation procedures and recordkeeping. Since FCHVs cannot carry out NVAP program activities without assistance, this level of training also involves members of the ward, community health workers (VHW, MCHW), and multisectoral and NGO field workers. The participatory nature of the training builds trust between the trainees and exposes them to the broader network of the Vitamin A Program. All the FCHVs are given the same identifiers: a green shoulder bag with a vitamin A logo, name tag with logo, vitamin A pictorial flipchart, and posters.

One-Day Orientation

A One-Day Orientation is held in each NVAP district, prior to the third round of capsule supplementation. TAG facilitates this orientation, known as a District Coordination Meeting, to reinforce the importance of participatory management. This follow-up ensures that district activities are proceeding according to plan.

PROMOTION



In anticipation of upcoming campaign days, local leaders in municipalities organize vitamin A promotion rallies (parades). Immediately preceding each capsule supplementation round, an intensive, two week information campaign is undertaken at all levels, coordinated by MOH/DHS, TAG and UNICEF regional offices. Various media approaches, all with the same informational content, are used to remind community members of the upcoming capsule supplementation. Activities include: radio and TV programs, newspaper articles and advertisements, microphone announcements in local bazaars and from bicycle rickshaws, cassettes of vitamin A songs, distribution of posters and pamphlets, cinema slides, school programs, rallies, village messengers, and interpersonal communication, even in tea shops. All messages are presented in a variety of ethnic languages. Interpersonal communication is the most often reported channel for information transfer at the community level, but radio and TV are important sources of information as their effects extend beyond those who actually hear the message.

NUTRITION EDUCATION



Nutrition education is a large component of the National Program aimed at addressing household dietary patterns, food beliefs, home gardening, and agricultural initiatives. This long-term strategy focuses on educating and encouraging mothers to feed vitamin A rich foods to their children and themselves. Production and preservation of foods is also encouraged. Program implementors believe that this strategy will not only improve the overall nutritional status of children in the long run, but allow for the eventual phase out of capsule supplementation.

During FCHV training, education is presented as a two way exchange of knowledge. While FCHVs provide caretakers with information on optimal nutrition, benefits of specific foods, sources of vitamin A, and food preparation kits, they in turn share with each other sources of locally available vitamin A rich food and role play how to transfer this knowledge to others. Although the FCHV is then responsible for holding monthly Mothers' Group meetings to disseminate knowledge, this is often not done because she lacks training as an educator with skills in group dynamics, participatory training techniques, and group management. However, the nutrition education the FCHV receives improves her health knowledge as the MOH community representative and strengthens her commitment to the National Vitamin A Program.

SUPPLEMENTATION



The actual supplementation of the children is the responsibility of the FCHV who is facilitated in her efforts by the NVAP's campaign approach. This approach allows for a concentrated effort that supports high coverage, brings the target group to one central area, avails the assistance of other sectoral workers and volunteers, and allows time for the FCHV to follow-up defaulters either by house visits or recall to the supplementation site the following day. In some instances, the FCHV divides her ward into different sites, particularly if she has a large number of children (300-600) in her ward, or if her ward area is large and housing clusters are far apart.

Vitamin A capsules, donated by UNICEF, arrive in Kathmandu, the capital city. They are then transported to each district center and from there, capsules travel on the backs of porters to each Health Post. Then at the semi-annual FCHV review meeting the FCHV receives capsules, new registers (if needed), and a reminder of the upcoming supplementation campaign.

FCHVs begin supplementation early in the morning, usually between 8:00 and 10:00 am, and sometimes even earlier in the Terai because temperatures soar in the middle of the day.

One can usually find the FCHV on location by following groups of mothers dressed in brightly colored saris, young children on their hips and babies strapped to their backs. One may be led to a large shady tree, a local school house, the FCHV's front verandah, or even outside the village temple. Attractive vitamin A posters are usually pasted on a wall or a nearby tree and flipcharts are being used to share vitamin A information with the continuous flow of people. As each child is presented for supplementation, the FCHV checks off his/her name in her register, snips off the tip of the Vitamin A capsule, and squeezes its contents into the child's mouth. At busy sites the FCHVs commonly record each name as they go, and fill-out their register at the end of the day.

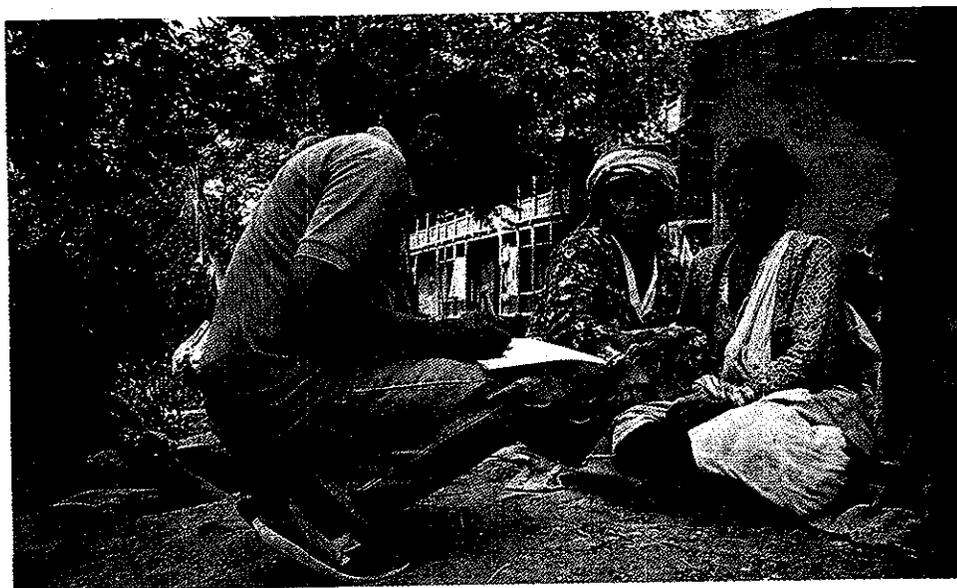
Mothers often linger near by, breastfeeding their babies, and catching up on village gossip. This provides an ideal opportunity for the FCHV and her helpers to discuss the importance and sources of vitamin A with mothers, to encourage them to give colostrum to their newborns, and to let them know the dates of the next supplementation.

Although most of the FCHVs are illiterate, with the help of family members or friends, they have managed to keep a written register of the under five year old children in their villages. On this "FCHV Register" the name, location, and supplementation date of each child 6-60 months is noted by the FCHV or her helper. This is usually completed prior to campaign day, which also provides an opportunity for the FCHV to give nutrition education and promotional messages to each family.



MONITORING

Monitoring of the NVAP occurs at two levels. First, through the MOH/DHS Health Management Information System (HMIS), which records the number of children dosed in each district; and second, through annual Mini-Surveys, which monitor a selection of priority districts. These surveys, conducted by statistical assistants from the District Health Offices and the TAG, serve as an on-going method of establishing capsule coverage in the target group. The mini-surveys also provide feedback on mothers' sources of information about the campaign and their knowledge about vitamin A food sources. They include information from the FCHV about capsule supply, voluntary helpers, supervision during the campaign, cross check of the FCHV register, and the follow-up of missed children.



Chapter Four

Achievements



National Vitamin A Program

Achievements:

Phase	Districts Covered	Baseline Estimate Target Children (6-60 months)	Capsule Coverage (Based on Mini Surveys)	Children Dosed/Phase Estimated	FCHVs Trained/Phase (Introductory Training)	Multisectoral People Trained/Phase (Introductory Training)
Phase I (October 1993/Kartik 2050)	8	522,000 ¹	90% ²	470,000	6,632	12,512
Phase II (April 1994/Baisakh 2051)	12	733,781 ³	89% ⁴	653,000	2,300	4,392
Phase III (October 1994/Kartik 2051)	16	934,417 ³	86% ⁵	804,000	1,915	4,851
Phase IV (April 1995/Baisakh 2052)	20	1,228,305 ⁶	86% ⁵	1,056,000	2,109	6,341
Phase V (October 1995/Kartik 2052)	23	1,329,013 ⁶	87% ⁷	1,156,246	954	3,009
Phase VI (April 1996/Baisakh 2053)	27	1,414,124 ⁶	87% ⁷	1,230,288	1,817	5,436
[Karnali Zone Only] (September 1996/Bhadra 2053)	5	40,538 ⁶	88.5% ⁸	35,877	1,454	2,007
Phase VII (October 1996/Kartik 2053)	27	1,414,124 ⁶	90% ⁹	1,230,288	-	-

Source Notes:

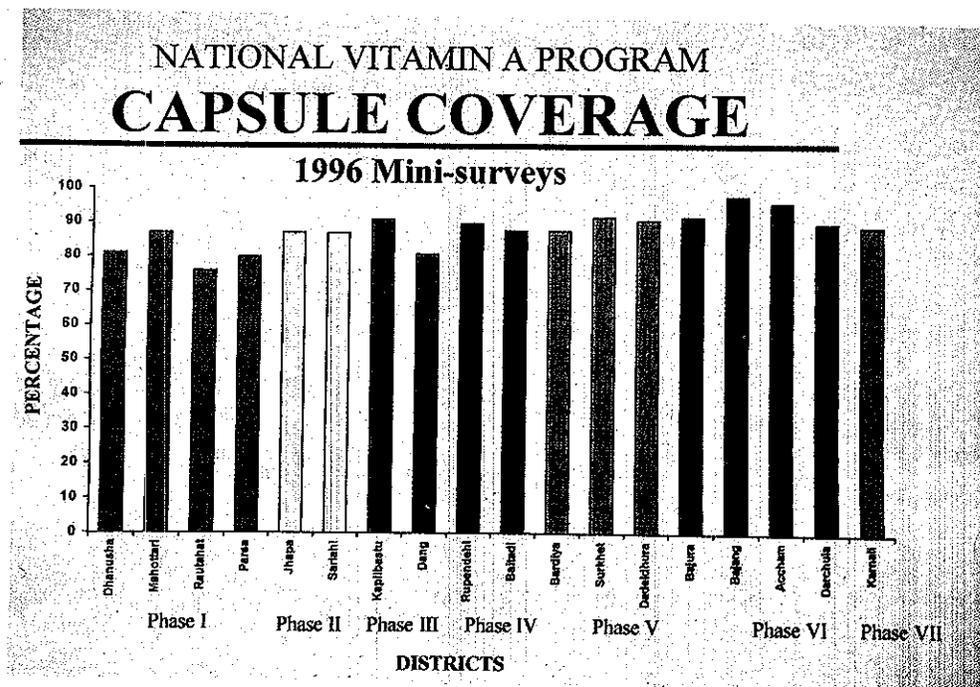
- 1 Estimate based on FCHV Registers
- 2 Based on October 1993 Mini-Survey
- 3 From UNFPA Population Data, 1994
- 4 Based on April 1994 Mini-Survey
- 5 Based on April 1995 Mini-Survey
- 6 From UNFPA Population Data, 1996
- 7 Based on April 1996 50% District Survey
- 8 Based on September 1996 Mini-Survey
- 9 Based on June 1997 25% District Survey, except Karnali Zone

OVERALL ACHIEVEMENTS: (as of October 1996)

32	Districts
1.4 million	Targeted Children
1.3 million	Children Dosed
17,000	FCHVs Trained
39,000	Multisectoral Staff Trained

Capsule Coverage

The National Vitamin A Program measures program success by the rate of capsule coverage. In surveys conducted over the past four years of program implementation, this rate has never fallen below 75% in any one district.¹



In a mini-survey conducted in April 1996, 50% of the districts from each Phase were randomly chosen. This graph shows continued high coverage of both early and recently introduced districts. Phase I districts have completed six rounds of capsule supplementation, while Phase VI districts have completed only one round of supplementation. The average coverage rate of over 80% is well above the initial projection of 60% coverage (the indicator selected in the beginning of the project for "successful" program implementation).

¹ The mini-surveys for internal monitoring of program output focus on a 5% random sample of wards in each district (allocated proportionally based on district population).



Development of IEC Materials

Over the course of program implementation, a variety of information, education, and communication materials have been produced by the MOH/DHS and the TAG. Materials were developed in collaboration with the MOH/DHS/IEC Section, UNICEF, USAID and NGOs. Dissemination focused mainly on the health sector, but also expanded into agriculture, literacy and non-formal education sectors. Various ministries, especially MOE and MOA have incorporated vitamin A into their curricula.

The variety of materials produced were highlighted by:

- **Guidelines for Implementation** of the National Vitamin A Program outlined the rationale, objectives, strategies and the protocols for implementation and monitoring of program activities.
- A two-page **Overview** of the National Vitamin A Program was prepared as an introductory handout for the program and was updated annually.
- A **Case Treatment Protocol Card** for xerophthalmia, measles, prolonged diarrhea, and malnutrition was developed and disseminated to all health institutions.
- A **Postpartum Supplementation Protocol Card** which included nutrition messages for lactating mothers was disseminated to all health institutions.
- An **Educational Flip Chart for FCHVs** was designed as a community level teaching tool to reinforce the importance of vitamin A supplementation, case treatment with vitamin A, and increased production and consumption of vitamin A rich foods.
- **Posters** were developed displaying common vitamin A rich fruits and vegetables, consumption of these foods by pregnant women, and feeding of these foods to young children.
- **Annual Calendars** were designed depicting important aspects of the program protocol, to be displayed in health institutions throughout the year.
- A **Newsletter** called "Amrit" was produced for a community level audience and distributed prior to each campaign round. It contained clinical notes, stories, songs, and letters written from the field.
- **Radio Announcements** promoting the vitamin A capsule supplementation were aired prior to each campaign round. Community radio programs on different aspects of vitamin A were produced by Nepal Netra Jyoti Sangh.
- **Cinema Slides** of capsule supplementation information were displayed in local movie halls prior to the main feature.
- **Annual Planning Calendars** and guidelines for district management were produced and disseminated to all District Health Offices.

Chapter Five

Ingredients For Success



NATIONAL VITAMIN A PROGRAM
MULTISECTORAL TRAINING

Table of Participants trained from each sector during the Field Level Introductory Phase

Phase	Date	Health	FCHV	Agriculture	Education	Local Dev.	NGO/INGO	Total
I	Oct 93	7,776	6,632	2,109	1,640	693	294	12,512
II	Apr 94	2,374	2,300	646	858	401	113	4,392
III	Oct 94	2,358	1,915	516	489	1,353	135	4,851
IV	Apr 95	2,639	2,109	690	786	2,033	193	6,341
V	Oct 95	1,269	954	374	375	833	158	3,009
VI	Apr 96	2,227	1,817	567	910	1,670	62	5,436
VII	Sep 96	1,638	1,304	61	15	191	102	2,007
Total		20,281	17,031	4,963	5,073	7,174	1,057	38,548





INGREDIENTS FOR SUCCESS

Several factors have played a role in making the NVAP a success. These include political commitment, program design, FCHVs, training and NGO involvement, logistics management, community mobilization, and of course, funding.

Political Commitment:

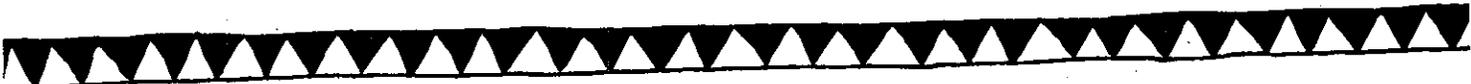
The Ministry of Health, collaborating with the Department of Health Services, other ministries, donors (USAID and UNICEF), various NGOs and private organizations, has taken the lead in the NVAP program implementation. Since 1993 to date, over 38,000 persons from various sectors have been trained. These persons can now assist when needed, spread information, and incorporate vitamin A information into their sectoral activities.

This widespread effort of coordination utilizes vitamin A as the impetus for promotion of agriculture-based programs (including home gardening) and for the development of linkages between nutrition, agriculture, women's literacy, and income generating activities.

Program Design:

The decision to use a campaign approach for prophylactic supplementation of vitamin A to pre-school children was based on recommendations from the MOH workshop (supported by USAID and UNICEF) held in Kathmandu in February 1992. Program designers based the campaign approach on the successful experiences of campaign-style immunization programs in other countries. This type of approach proved workable in Nepal for three main reasons: (1) supplementation was only required every six months; (2) FCHVs, utilized as the PHC volunteer representative in every ward, only had to work a few days every six months; and (3) the tasks required were straight-forward and manageable.

The result of this program design is that a majority of children **do** reach the FCHV during the two-day window allotted for the campaign. A few "missed" children may still receive a capsule from the FCHV a day or two later. In fact, the campaign approach has served as a means of reaching many people in a short period of time, mobilizing the community, and establishing a high rate of customer service compliance.



FCHVs:

Through their inspiring motivation and commitment, FCHVs across the country have made the NVAP a program of high international standard. Their new responsibilities for health service delivery has not only raised their status, but empowered them to shape their environment. Apart from two days of health training every six months, these women receive no compensation. Their main incentives are to increase their knowledge base through health training, to share their knowledge with their communities, to distribute services, and to receive community recognition as health providers. In some instances, their commitment may also be a first step towards selection for MCHW training.

Although most of the FCHVs are illiterate, with the help and support of family members and friends, they have managed to keep a written register of the under five year old children in their villages. This "FCHV Register" has multiple benefits: it allows the community to identify its FCHV; assists the FCHV in identifying all children aged 6-60 months in her ward; enables her to follow-up on defaulters; contributes to a more orderly distribution; and motivates the FCHVs to become literate. Although it has not proved to be efficient as a national monitoring tool, the FCHV Register has become an ongoing record of village coverage, thereby giving status and accountability to the FCHV's role.

Training and NGO involvement:

These two components have reinforced the NVAP's credibility and increased its support among technical and social service groups in the community. Utilization of a tiered training pattern (one training group training the next) has created more ownership of the final product and led to an understanding of supervisory needs. A vital ingredient to program success was the reliability of training: training sessions were not canceled, were full day agendas, began and ended on time and delivered what was promised. The semi-annual FCHV refresher training has also added to program success, as has the participation of several NGOs.

Because of the NVAP, many NGOs have integrated Vitamin A activities and messages into their respective program interventions, such as: literacy, home gardening, and income generation. Nepal Netra Jyoti Sangh, Nepal Association for the Welfare of the Blind, Save The Children/USA, Save The Children/UK, CARE, Karnali Local Development Project/SNV, John Snow Inc., Nepal Red Cross Society, ADRA, USAID, UNICEF, and UNFPA are just some of the NGOs and organizations actively incorporating vitamin A activities into their program efforts.



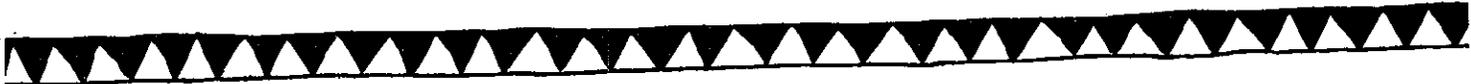
Logistics Management:

Flexibility was the key to the logistics management. Timely procurement, transportation and delivery of capsules, accurate estimation of local requirements and consistency of capsules were important considerations for success. Limited access by air and road, heavy winter snowfall in the mountains, and flooding and landslides in the hills and plains made transport of people and supplies a challenge. Schedules were often adjusted to accommodate public holidays, religious festivals and other district level agendas. Despite the many constraints, the program managed to maintain its focus and complete the commitments as planned.

Community Mobilization:

When democracy came to Nepal in 1990, it brought with it a need for action, a recognition that the peoples' voice could be heard, and a feeling that when united, the people had the power to make a change. The National Vitamin A Program, recognized this potential and focused its efforts on fostering community ownership of its public health intervention. Communities responded by increasing utilization of the PHC system and creating national awareness of the importance of child survival and improved maternal health. Although health service delivery at the community level still needs strengthening, the National Vitamin A Program has brought reliable capsule supplementation to villages through the MOH's Primary Health Care System.

Today, the National Vitamin A Program is an essential part of the Primary Health Care System of 32 districts. As long as frequent support from the MOH/DHS continues and capsule supply remains constant, the Program shows potential for continued high coverage. Its participatory approach and utilization of a motivated FCHV has inspired other programs in the country from national immunization days for polio eradication to income generation.



CONCLUSIONS

The timely and successful implementation of the first four years (1993-1997) of the NVAP has not been without its challenges. During the course of the program there have been four changes in government and five division chiefs at the MOH/Department of Health Services, all requiring immediate briefings to adopt the program and its management responsibilities. Climactic challenges have also been difficult to overcome, particularly in the Far Western Region, where training and logistic support teams have been faced with floods and landslides.

But in spite of this, the program has trained approximately 38,000 personnel, including 17,000 FCHVs. It has reached approximately 90% of the 1.4 million target children (more than half of the nations 6-60 month old population) and has maintained high coverage throughout the implementation period. Research outcomes determine that the MOH/DHS has been able to reduce the under five mortality of these children by 30%. Based on population data, this translates into over 10,000 child deaths averted each year in the first 32 districts.

The National Vitamin A Program has demonstrated its worth as a logistically manageable program for the MOH/DHS PHC system to continue to support. Because it is an integral part of the PHC system, program maintenance costs are minimal. Clinical and sub-clinical vitamin A deficiency exists in clusters all over the country, providing the MOH/DHS with strong justification to expand the program to all 75 districts and the remaining 1.25 million target children. This will be accomplished by the MOH/DHS with technical assistance provided by NTAG and JSI, with support from USAID and UNICEF.

Monitoring activities, field experiences, focus group discussions, and PHC staff feedback have enabled constant refinement of program activities acutely attuned to the needs of the people and the capacity of the program to serve them.

This monumental collaborative effort has laid the foundation for a more institutionalized and usable FCHV network. It has also proven itself as an effective system of healthcare service delivery. The National Vitamin A Program is an excellent base to strengthen and improve community health. Program success proves that saving the lives of Nepalese women and children is possible and does work.



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