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SUDAN

REPORT ON VITAMIN A
SUPPLEMENTATION PROGRAMS

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ASSESSMENT OF VISUAL STATUS AMONG ETHIOPIAN REFUGEES IN SUDAN
IN JANUARY 1985

Times of famine are times of blindness. Helen Keller International, a PVO voluntary agency, long-committed to blindness prevention, realized the danger of children in famine-ravaged East Africa becoming blind. A decade long involvement preventing nutritional blindness vitamin A deficiency (xerophthalmia), HKI was particularly concerned about early anecdotes indicating high rates of the disease in malnourished children.

In anticipation of an immediate need for large quantities of megadose vitamin A, HKI obtained a donation of 5 million doses from F. Hoffmann - La Roche. At the request of several agencies including USAID and CDC, HKI dispatched to Sudan an assessment team consisting of William Flumenbaum, HKI Director of Nutritional Blindness Prevention Programs and Louis Pizzarello, M.D., M.P.H., HKI Medical Advisor. The purpose of the visit was to assess the extent of the problem and identify the organizations in a position to distribute the vitamin A immediately. Through the cooperation of UNHCR and the Sudanese Government Commissioner of Refugees a rapid assessment of ocular status of Ethiopian refugees residing in Sudan was performed.

ITINERARY AND ACTIVITIES

During an eight day stay in Sudan (22 January to 30 January 1985) initial contact was made with representatives of UNHCR and Commissioner of Refugees (COR) in Khartoum. Preparations were made for a trip to three refugee camps in Eastern Sudan.

Initial discussions with CDC physicians indicated fairly high mortality rates in the camps and confirmed measles to be a serious problem. The physicians felt that ocular signs of vitamin A deficiency had been seen in the past two months and noted that in several of the camps vitamin A distribution had begun. In Gedaref (Eastern Sudan) where the UNHCR sub-office for Eastern Sudan is located, Dr. Vincent David, M.D. the Public Health Advisor for UNHCR was helpful in supplying background information regarding the camp settings. At his and Dr. Nabil (COR Medical Regional Advisor) request three camps were visited representing three different situations.

Tawawa near Gedaref is a camp of 15,000 people comprised largely of Eritreans who have been residents in Sudan for approximately seven years. There are few new arrivals and in general this is a stable and established camp. It has good food sources and many of the people have jobs in the Gedaref area.

The next camp we visited was Wad Kowli which is on the Ethiopian border. It is comprised largely of refugees from Tigray Province in Ethiopia. Its population is growing rapidly and when visited housed approximately 100,000 people. It is not uncommon to have two to four thousand new arrivals each day at this camp. These refugees have survived a long and difficult journey and on arrival at the camp are quite malnourished. Malaria, dysentery and upper respiratory infection are rampant among the children in this camp. The basic ration, provided to this camp by UNHCR consists of approximately 1,900 calories per day. Supplemental feeding of malnourished children under the age of ten is provided daily. Health care is provided by Save the Children - England (SCF - England), -Medecins Sans Frontiers and International Rescue Committee (IRC).

The third camp visited, Wad Sherife, is located outside of Kassala. The camp houses approximately 54,000 Eriterian refugees and has been in existence for more than a year. Wad Sherife also has a significant number of new arrivals per day. Health care is provided by three physicians of the Swiss Red Cross. Recently there have been difficulties provisioning this camp and the daily caloric intake has dropped to approximately 1,000 calories per day. Both Wad Kowli and Wad Sherife are confronted with serious water and fuel shortages.

In each camp, samples of children under the age of 12 were examined and interviews and discussions with the medical staff were conducted. For each child the adnexal structures were examined as well as the cornea and anterior chamber. In the two to twelve age group upper lids were everted and signs of trachoma noted. The number of children seen in each camp and the site of the assessment are noted in Table I. The pertinent findings of the assessment for each camp are found in Table II. The assessment is based on the number of children with Bitot's spot, conjunctival xerosis and corneal scars. Several attempts were made to ascertain the extent of night blindness in this population but it was very difficult to get an accurate history from any of the parents. Several of the camps physicians stated that they had seen older children and adults complaining of night blindness who seemed to respond to vitamin A treatment. Table III shows trachoma rates found at each site.

An important element to remember is that in Wad Kowli and Was Sherife because of the concern over xerophthalmia, vitamin A had been administered to children on arrival to the camp as well as to those already in the camp. In the case of Wad Kowli, this dosing was done in conjunction with a measles immunization and an nutritional assessment performed on arrival. In Wad Sherife we were told that all children in the camp had received a capsule

of vitamin A in the past two months. It is significant that the rates of disease were noted after vitamin A had been distributed.

DISCUSSION

The results in Table II reveal shockingly high rates of xerophthalmia among the children in these refugee camps. This is an emergency situation with potentially grave consequences that demands an immediate response. The children in these camps have had starvation rations for many months. Prior to their arrival in Sudan they have had extremely meager diets. The current UNHCR diet is not always providing adequate calories and is devoid of vitamin A. Only those children in supplemental feeding centers, receiving powdered milk are getting any vitamin A in their diet. The result of this near total absence of vitamin A are the very high rates of xerophthalmia seen in these camps. It is certain that many children in East Africa have become blind and thousands more are in danger of becoming blind.

In Wad Kowli, it is important to note that the rates of xerophthalmia are highest among the new arrivals. This is as expected since they are in the worst nutritional state. The

rates get slightly lower for those sampled at random in the camp. These children have received vitamin A and are getting a decent food ration. The lowest rate was seen in the nutritional feeding center where all of the children have received vitamin A and are also getting vitamin fortified milk products. Still even the lowest rate of xerophthalmia is totally unacceptable.

In Wad Sherife, slightly fewer children with signs of xerophthalmia were seen than in Wad Kowli. This may be due to the massive dosing that had been performed two months previously. However, the rates are still quite high.

In Tawawa, an established camp where the people have a good diet and access to vitamin A rich food sources, there were no cases of xerophthalmia seen in the small sample examined.

Prevention of xerophthalmia will require massive dosing of the entire children's population every three to four months. In order to expedite this dosing, a different form of vitamin A was field tested during the visit. Oil containing 200,000 IU of vitamin A per milliliter was administered without problem. It received acceptance by all health officials to which it was demonstrated. A ten c.c. syringe is filled from the bottle (one liter) and then one c.c. is dispensed to each child. Not only is the method less expensive, but it eliminates the time consuming capsule opening that takes place now. A one liter

aluminum bottle provides one thousand doses. Children under one year receive one half of a c.c. The bottle will bear proper labelling as well as specific treatment and prevention schedules. (See Appendix A). This method offers much hope for the future.

Based on the findings and subsequent to discussions with representatives from UNHCR it was decided to immediately ship 500,000 doses of vitamin A to the Sudan. Arrangements for shipment have been made with UNHCR in Geneva and F. Hoffman - La Roche in Basel.

Recent scientific data from Indonesia indicates that vitamin A alone may have a beneficial effect on child survival. These findings only add further impetus to immediate massive distribution of vitamin A.

Xerophthalmia, once diagnosed can be treated with three doses of vitamin A over a ten day period. In order to make the proper diagnosis, the practitioner must be aware of the signs of the disease for those children with concurrent febrile illness, like measles. Once suspicion is raised, then appropriate treatment can take place. Training of all personnel providing health care should proceed as soon as possible. They need to be made familiar with the signs of the disease and the appropriate treatment. High risk children need to be targeted for

particular attention. Training aids, photos, posters and written material in appropriate languages need to be prepared and distributed. HKI has experience in such work and is prepared to undertake these activities.

Those children examined for trachoma showed fairly high levels of the disease. Among school children in Tawawa the rates of trachomatous infection with all stages was 30.30%. In Wad Kowli 90 to 95% of the children examined age two to twelve had signs of trachoma with approximately 40% of those being severe infection. In Wad Sherife, the rate for the trachoma involvement rate was 13.6%. At this time, given the emergency situation, it would be difficult to mount an effective trachoma control effort. It should be kept in mind that trachoma is endemic in this area and that the crowding and poor sanitary conditions encourage continued trachomatous involvement. As the situation stabilizes, it is hoped that a more aggressive attack can be made on the trachoma problem. However, given the constraints of manpower and availability of resources, including water. Right now, the main attack should be made against xerophthalmia because it is a rapidly progressing blinding condition.

Adults were not examined during this assessment because of time constraints. Where possible, discussions with the medical

staff in each camp also focused on other eye problems observed. The most common in all age groups is conjunctivitis. Poor sanitary conditions and lack of water have contributed greatly to the spread of conjunctivitis. Most of the children have crusted eyes and are surrounded with flies which hasten the transmission of trachoma and other organisms. In Wad Sherife a review of the eye problems seen for the past six months among adults indicated that approximately one-third of those patients had cataracts, one-third entropion secondary to trachoma and one-third with diverse ocular complaints. In Wad Kowli approximately 35 adults were examined, 7 of whom had signs of advanced trachoma scarring without entropion.

OBSERVATIONS AND RECOMMENDATIONS

1. Among Ethiopian refugees in Sudan, xerophthalmia is at crisis level among children. Up to 10% of children have signs of xerophthalmia. Vitamin A deficiency is a major threat to the health of these children.

2. The established diet for refugees has no vitamin A it and as a result supplemental vitamin A must be provided on an emergency basis with frequent (every three month) distribution.

3. The treatment of cases with xerophthalmia needs to be improved by additional training of physicians and nurses in recognition of the disease and the appropriate treatment schedule - Appendix I. The entire course of 3 doses of vitamin A must be administered to those children who have signs of xerophthalmia or are severely malnourished, have measles, diarrhea or upper respiratory infection.

4. Supply of vitamin A and distribution and training of health professionals in these camps must proceed forthwith. Recognition of xerophthalmia is an important adjunct to any program.

5. Active signs of xerophthalmia were seen in children up to the age of ten with a significant amount of Bitot's spot and corneal xerosis seen in the age groups six to ten. Therefore, the high risk group with xerophthalmia should be enlarged to include all those children up to and including age ten.

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TABLE I

SUMMARY OF CHILDREN EXAMINED BY CAMP AND SITE

<u>Site</u>	<u>Children Examined</u>			<u>Age</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>0-1</u>	<u>1-10</u>	<u>11-15</u>
TAWAWA (pop. 15,000)						
In camp	23	23	46	11	35	0
In school	71	52	123	0	123	0
WAD KOWLI (pop. 80,000)						
Feeding center	NA	NA	404	All under the age of 10		
Seen in camp	233	199	432	25	386	21
Receiving center	46	47	93	3	81	9
WAD SHERIFE (pop. 54,000)						
Feeding center	NA	NA	94	All under the age of 10		
Seen in camp	92	76	168	15	149	4

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TABLE II

CASES OF XEROPHTHALMIA BY CAMP

TAWAWA
No cases seen

WAD KOWLI

	<u>Children Examined</u>	<u>Bitot's Spots</u>	<u>Conjunc- tival Xerosis</u>	<u>Corneal Xerosis</u>	<u>Corneal Scar Unilateral</u>	<u>Corneal Scar Bilateral</u>	<u>Total Xeroph- thalmia Cases</u>	<u>Blind</u>
Feeding center	404	4 (1.0%)	0	4 (1.0%)	5 (1.2%)	4 (1.0%)	17 (4.2%)	2 (.5%)
In camp	432	15 (3.5%)	1 (.2%)	11 (2.5%)	6 (1.4%)	2 (.5%)	35 (8.1%)	2 (.5%)
Receiving area	<u>93</u>	<u>4 (4.3%)</u>	<u>0</u>	<u>0</u>	<u>2 (2.1%)</u>	<u>4 (4.3%)</u>	<u>10 (10.8%)</u>	<u>4 (4.3%)</u>
TOTAL	929	23 (2.5%)	1 (.1%)	15 (1.6%)	13 (1.4%)	10 (1.1%)	62 (6.7%)	8 (.9%)

WAD SHERIFE

	<u>Children Examined</u>	<u>Bitot's Spots</u>	<u>Conjunc- tival Xerosis</u>	<u>Corneal Xerosis</u>	<u>Corneal Scar Unilateral</u>	<u>Corneal Scar Bilateral</u>	<u>Total Xeroph- thalmia Cases</u>	<u>Blind</u>
Feeding center	94	2 (2.1%)	0	2 (2.1%)	0	1 (1.0%)	5 (5.3%)	0
In camp	<u>168</u>	<u>3 (1.8%)</u>	<u>0</u>	<u>3 (1.8%)</u>	<u>5 (3.0%)</u>	<u>0</u>	<u>11 (6.5%)</u>	<u>0</u>
TOTAL	262	5 (1.9%)	0	5 (1.9%)	5 (1.9%)	1 (.4%)	16 (6.1%)	0

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TABLE III

TRACHOMA RATES FOR EACH CAMP

AGE 2 TO 12

<u>Site</u>	<u>No. of Children Examined</u>	<u>No. of Children with Trachoma</u>	<u>Rate</u>
TAWAWA	123	38	30.8%
WAD KOWLI	150	138	92%
WAD SHERIFE	168	23	13.6%

APPENDIX A

Vitamin A

200,000 International Units (IU) per capsule.

TREATMENT:

All children with measles, severe malnutrition, signs of xerophthalmia including Bitot's spots, conjunctival xerosis, corneal xerosis, keratomalacia, corneal scar:

Immediately - one capsule (200,000 IU)
Following Day - one capsule (200,000 IU)
One Week Later - one capsule (200,000 IU)

For young children: cut capsule, squeeze Vitamin A into mouth.

Prevention:

All children up to age 10 years:

Give one capsule immediately.
Give one capsule every three months.

Safe when used as directed.

Donated by F. Hoffmann - La Roche/Helen Keller International.

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